



ALLIED MACHINE & ENGINEERING

Holemaking Solutions for Today's Manufacturing



Master Product CATALOG



Drilling



Boring



Reaming



Burnishing



Threading



Specials

www.alliedmachine.com

SECTION

A20

GEN3SYS® XT & XT Pro

GEN3SYS® XT and XT Pro

High Penetration Replaceable Insert Drilling System | GEN3SYS XT | GEN3SYS XT Pro

► **Diameter Range:** 0.4331" - 1.3780" (11.00 mm - 35.00 mm)



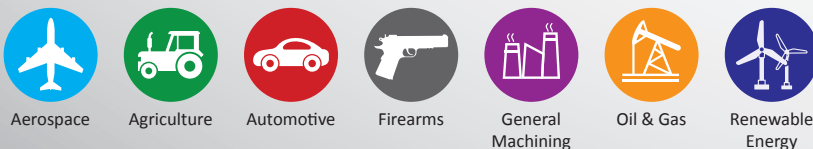
The Next Generation of Drilling

The GEN3SYS XT and XT Pro replaceable insert high penetration drilling system has been designed to provide high-speed production machining beyond the capabilities of the T-A® drilling system. The product offering consists of various grades, geometries, and coatings available to suit the most demanding applications.

Conceived from the outset as the ultimate high performance drilling solution, the GEN3SYS XT drill range is incredibly versatile. Incorporating both straight and helical fluted tool holder options across the range, as well as through coolant for maximum material removal, GEN3SYS XT not only gives outstanding performance from day one, but it can also be reground for extended life and economy.

| | | |
|------------------------|--|---|
| Excellent chip control | Improves hole quality and surface finish | Provides maximum durability and stability |
|------------------------|--|---|

Applicable Industries



Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

GEN3SYS® XT and XT Pro Drilling System Contents

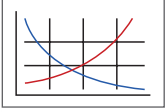
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe boring



Coolant-Through Option

Indicates that the product is coolant through

| Series | Diameter Range | |
|--------|-----------------|---------------|
| | Imperial (inch) | Metric (mm) |
| 11 | 0.4331 - 0.4723 | 11.00 - 11.99 |
| 12 | 0.4724 - 0.5117 | 12.00 - 12.99 |
| 13 | 0.5118 - 0.5511 | 13.00 - 13.99 |
| 14 | 0.5512 - 0.5905 | 14.00 - 14.99 |
| 15 | 0.5906 - 0.6298 | 15.00 - 15.99 |
| 16 | 0.6299 - 0.6692 | 16.00 - 16.99 |
| 17 | 0.6693 - 0.7086 | 17.00 - 17.99 |
| 18 | 0.7087 - 0.7873 | 18.00 - 19.99 |
| 20 | 0.7874 - 0.8660 | 20.00 - 21.99 |
| 22 | 0.8661 - 0.9448 | 22.00 - 23.99 |
| 24 | 0.9449 - 1.0235 | 24.00 - 25.99 |
| 26 | 1.0236 - 1.1416 | 26.00 - 28.99 |
| 29 | 1.1417 - 1.2597 | 29.00 - 31.99 |
| 32 | 1.2598 - 1.3780 | 32.00 - 35.00 |

Introduction Information

| | |
|--|---------|
| Why You Should Use the Pro | 2 - 3 |
| Test Results and Case Study | 4 - 5 |
| GEN3SYS XT Pro Drilling System Information | 6 |
| GEN3SYS XT Drilling System Information | 7 |
| Insert Comparison and Assembly Details | 8 |
| Holder Comparison and Overview | 9 |
| Product Nomenclature | 10 - 11 |

Drill Series

| | |
|-----------|---------|
| 11 Series | 12 - 15 |
| 12 Series | 16 - 19 |
| 13 Series | 20 - 23 |
| 14 Series | 24 - 27 |
| 15 Series | 28 - 31 |
| 16 Series | 32 - 35 |
| 17 Series | 36 - 39 |
| 18 Series | 40 - 43 |
| 20 Series | 44 - 47 |
| 22 Series | 48 - 51 |
| 24 Series | 52 - 55 |
| 26 Series | 56 - 59 |
| 29 Series | 60 - 63 |
| 32 Series | 64 - 67 |

Recommended Cutting Data

| | | |
|-----------------|----------------|---------|
| Imperial (inch) | GEN3SYS XT Pro | 68 - 71 |
| | GEN3SYS XT | 72 - 75 |
| Metric (mm) | GEN3SYS XT Pro | 76 - 79 |
| | GEN3SYS XT | 80 - 83 |

| | |
|-------------------------------|---------|
| Tap Drill Conversions | 84 - 85 |
| Deep Hole Drilling Guidelines | 86 |
| Troubleshooting Guide | 87 |

WHY SHOULD YOU

GO WITH THE PRO?

GEN3SYS® XT Pro



- ✓ Increase your penetration rates
- ✓ ISO-specific geometries
- ✓ Improved chip evacuation
- ✓ Increased coolant flow to the cutting zone
- ✓ AM420 coating increases heat resistance
- ✓ AM440 coating increases abrasion resistance

**THAT'S WHY YOU SHOULD
GO WITH THE PRO.**

Project Profile: Forged 8640
Tooling Solution: GEN3SYS XT Pro: P (Steel) Geometry

The Problem:
Previously, the customer was using a competitor drill running at the following parameters:

- 415 SFM (127 M/min)
- 0.009 IPR (0.23 mm/rev)
- The tool drilled a 17.25mm diameter hole to a 20mm depth
- Tool life = **1,000 holes**

The Solution:
Allied Machine recommended the GEN3SYS XT Pro with P (Steel) geometry.

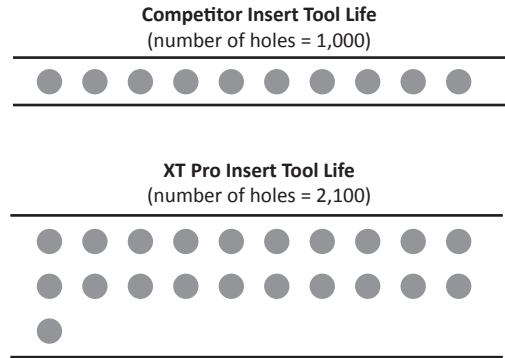
- **Insert** = XTP17-17.25

The tool ran at the following parameters:

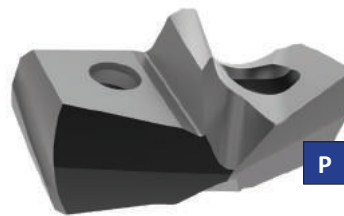
- 415 SFM (127 M/min)
- 0.009 IPR (0.23 mm/rev)
- The tool drilled a 17.25mm diameter hole to a 20mm depth
- Tool life = **2,100 holes**

The Advantage:
The GEN3SYS XT Pro increased the tool life from 1,000 holes to 2,100 holes.
Bottom Line: *Doubled the tool life*

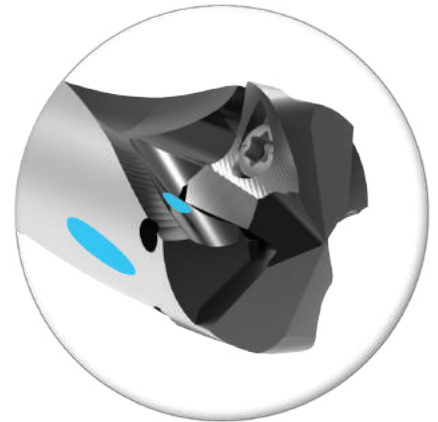
The PROOF is in the NUMBERS



INCREASE in tool life
2x



HOLDER DESIGN



Drill deeper holes

The XT Pro holders are available up to 12xD.

- ▶ **This lets you take advantage of the XT Pro insert benefits in deep hole applications.**

Increase your tool life

The coolant configuration increases coolant flow and directs additional coolant to the cutting zone.

- ▶ **This increases tool life with all XT Pro inserts.**

Competitive Test Results

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

TEST RESULTS

Project Profile: Competitive Testing in 4150 Steel
Tooling Solution: GEN3SYS XT Pro: (P) steel geometry with XT Pro Holder

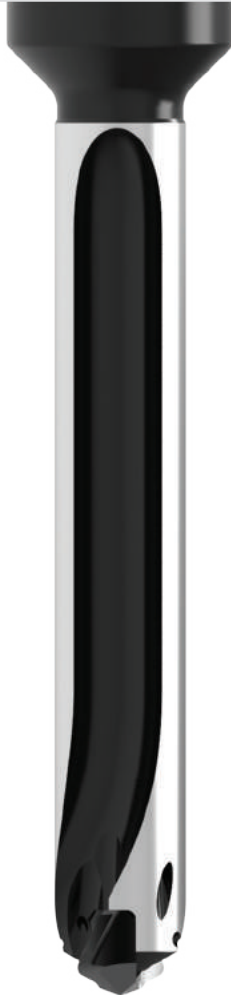
The Parameters:

- Hole Diameter = 0.748" (19 mm)
- Depth of Cut = 1-1/2" (38.1 mm)
- Coolant = 300 PSI
- Speed = 1583 RPM
- Feed = 22.16 inch/min (563 mm/min)

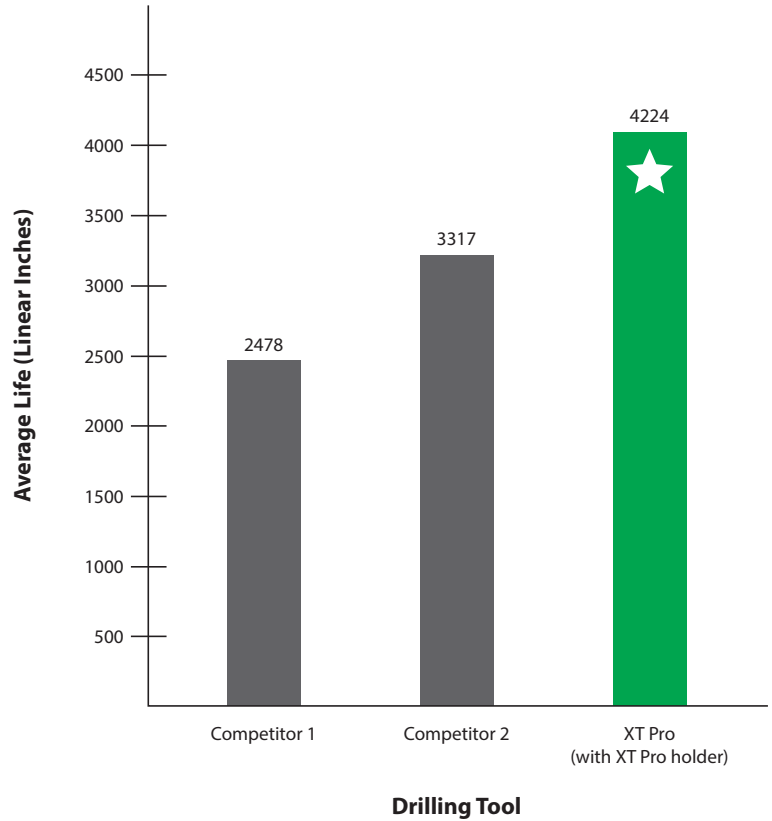
The Results:

When run at the listed parameters, here is how the three different tooling solutions performed:

Competitor 1 = 2478 total linear inches
Competitor 2 = 3317 total linear inches
GEN3SYS XT Pro = 4224 total linear inches



Average Tool Life
 Test Results Drilling in 4150 Steel



Case Study Example

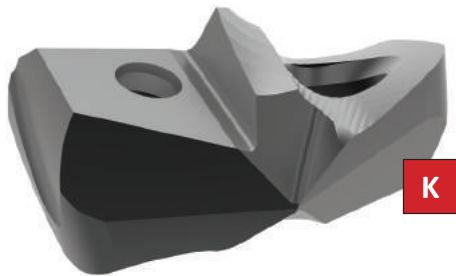
CASE STUDY

Project Profile: Ductile/Nodular Iron
Tooling Solution: GEN3SYS XT Pro: K (cast iron) geometry

The Problem:
 Previously, the customer was using a competitor drill:
 • Solid carbide drill
 • Tool life = **65 holes**

The Solution:
 Allied Machine recommended the GEN3SYS XT Pro with K (cast iron) geometry. The tool ran at the following parameters:
 • Hole Diameter = 9/16"
 • Coolant = None
 • Speed = 390 SFM (117 M/min)
 • Feed = 0.008 IPR (0.20 mm/rev)
 • Tool life = **390 holes**

The Advantage:
 The GEN3SYS XT Pro increased the tool life from 65 holes to 390 holes.
Bottom Line: *6x the tool life*



There's More to the Advantage than Tool Life

The XT Pro replaceable tip system provides other benefits in addition to the increase in tool life over the solid carbide drill:

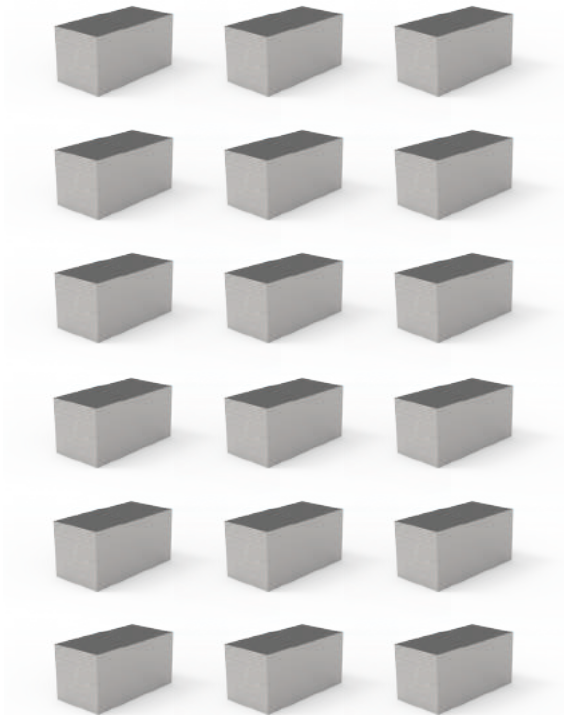
- Because only the insert needs changed when it reaches the end of its life, the XT Pro eliminates the need to re-establish tool lengths, which reduces setup times.
- Further benefit in setup is also seen as the tool only needs changed one time for every six of the customer's current method.
- Without the need for regrinds, the customer's stock of tooling is reduced by eliminating the need for float inventory to cover regrind lead time.

The PROOF is in the NUMBERS

Competitor Tool Life
 (number of holes = 65)



XT Pro Tool Life
 (number of holes = 390)

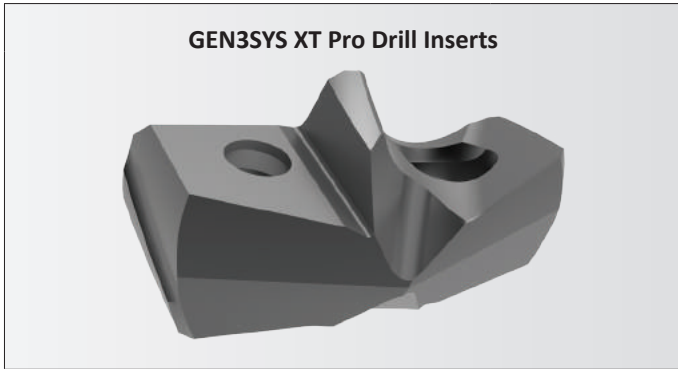


INCREASE in
6x tool life

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

GEN3SYS XT Pro Drilling System Information

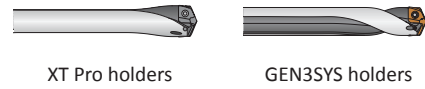
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



Advanced Design Capabilities

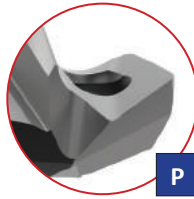
The advanced XT Pro insert combines a coating and geometry specifically designed to achieve optimal results in ISO material drilling applications. With quick connectivity to existing GEN3SYS drill insert holders, the XT Pro insert can be interchanged with previous XT inserts with ease, resulting in minimal setup times so you can immediately increase your productivity.

XT Pro Inserts Connect with:



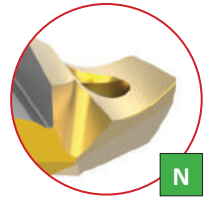
P - Steels

- Designed to provide increased penetration rates and tool life in steel applications
- Superior geometry and edge provides excellent chip control
- Allied's multilayer AM420 coating increases heat resistance and improves tool life



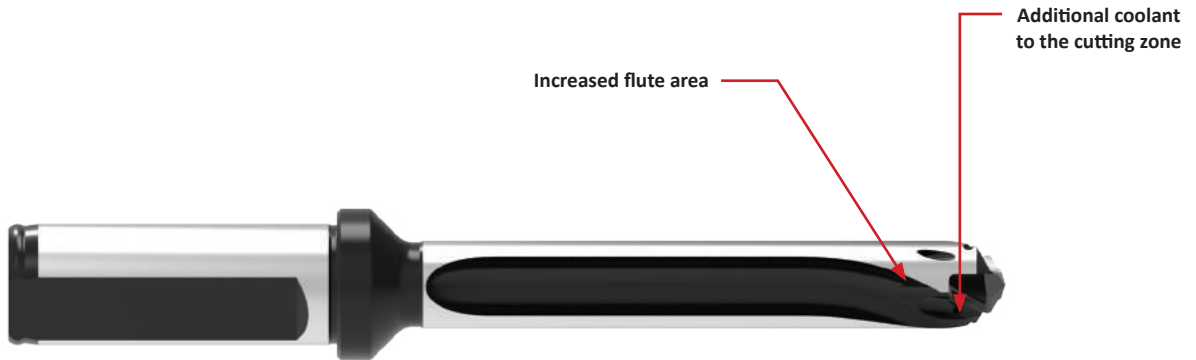
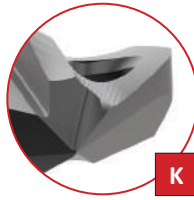
N - Nonferrous Materials

- Designed for applications in aluminum, brass, and copper
- The geometry yields excellent chip control in these softer materials
- TiN coating gives the versatility to run in a variety of materials while reducing buildup



K - Cast Irons

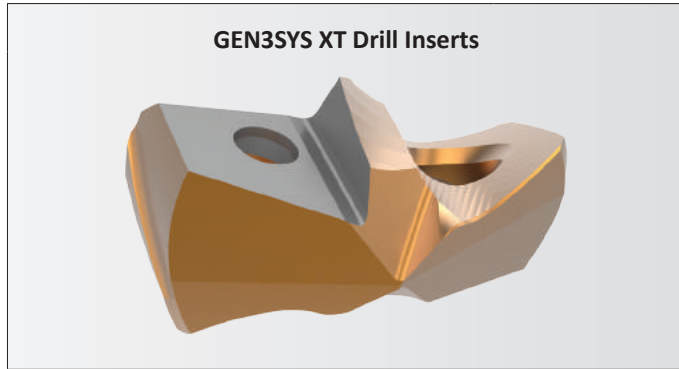
- Uniquely designed for cast/nodular iron applications
- Geometry includes a corner radius for improved hole finish and heat dispersion
- Allied's multilayer AM440 coating provides increased abrasion resistance and tool life



XT Pro Drill Holders

| | | | |
|-----------------|--|--------------------------------|--|
| | | | 3xD, 5xD, 7xD, 10xD, 12xD |
| Straight flutes | Enhanced coolant inlets improve the coolant flow | Provides increased insert life | Available in 3xD, 5xD, 7xD, 10xD, and 12xD |

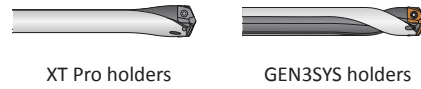
GEN3SYS XT Drilling System Information



High Penetration Drilling Solutions

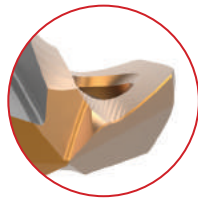
The unique geometry of the XT inserts provides excellent chip control. They are designed to increase hole quality, surface finish, and true position when compared to other competitive products. The helical margin design provides maximum durability and stability.

XT Inserts Connect with:



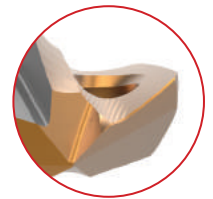
Standard Geometry

- Designed with corner and cutting edge enhancements to deliver more reliability, durability, and productivity
- Increases penetration rates and tool life
- Available in C1 or C2 carbide



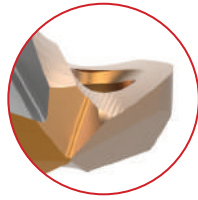
LR - Low Rake Geometry

- The toughest XT geometry available
- Designed for harder steels and less than ideal machining applications
- Available in C1 or C2 carbide



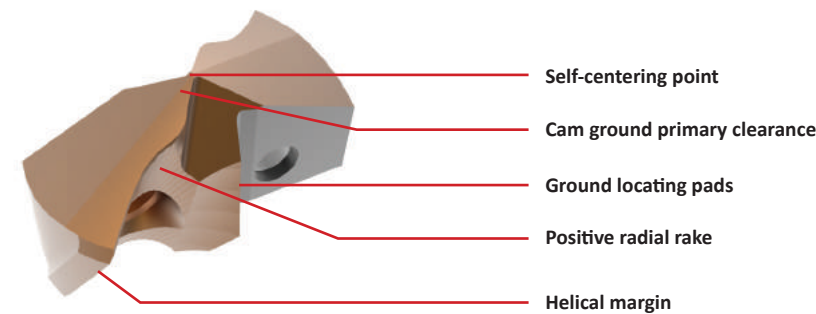
CI - Cast Iron Geometry

- Increases durability and tool life in ductile, nodular, and grey cast irons
- Available in C2 carbide



AS - Stainless Steel Geometry

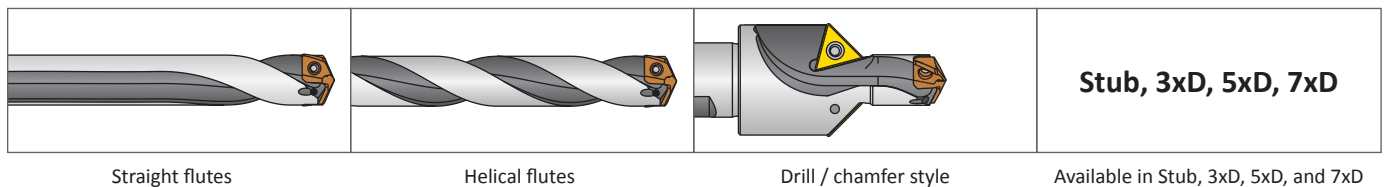
- Designed with a specific geometry to provide unmatched chip control and tool life in austenitic and PH stainless steels, as well as high temperature alloys such as Inconel, Hastelloy, and titanium alloys
- Available in C2 carbide



| Coating | Features / Benefits |
|---------|--|
| AM300® | <ul style="list-style-type: none"> • Increased heat resistance over AM200® coating • Up to 20% increased tool life over AM200 coating • Provides superior tool life at high penetration rates |



GEN3SYS Holders





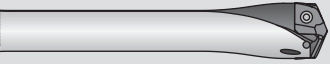

Straight flutes

Helical flutes

Drill / chamfer style

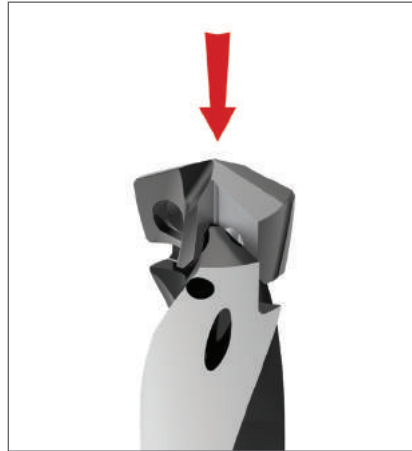
Available in Stub, 3xD, 5xD, and 7xD

Insert Comparison and Assembly Information

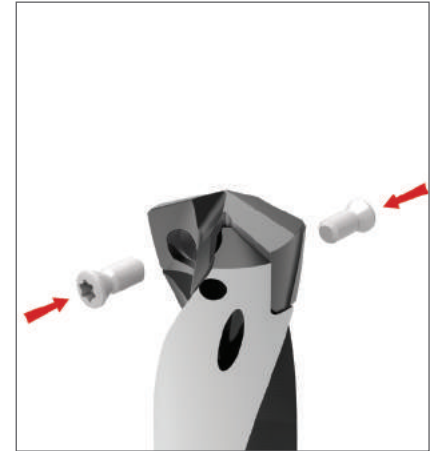
| | | XT Pro Inserts | XT Inserts |
|---|---|---|-------------------------------------|
| B | Recommended for increased productivity |  | <input checked="" type="checkbox"/> |
| | ISO-specific geometry/coating combination |  | <input checked="" type="checkbox"/> |
| C | Connects with XT Pro holders |  | <input checked="" type="checkbox"/> |
| | Connects with GEN3SYS holders |  | <input checked="" type="checkbox"/> |



Step 1:
Align the flats on the GEN3SYS XT insert with the flats on the ears of the holder.




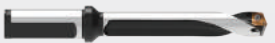

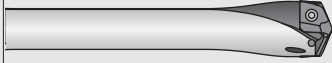

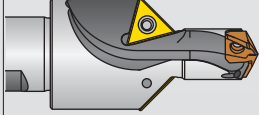

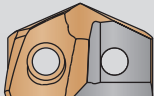
Step 2:
Slide the insert into the precision ground locating pocket on the holder. The insert should not be turned, rotated, or twisted for locking purposes. The holder pocket and locating pads on the insert assure optimum fit and repeatability.



Step 3:
Apply a generous amount of E-Z Break® (provided in the packaging) onto the supplied TORX® Plus screws.

Tighten the TORX Plus screws to the recommended torque value specified in the catalog by series. A preset torx driver is available to assure that the proper torque is applied.

Holder Comparison and Overview

| | |  XT Pro Holders |  GEN3SYS Holders |
|--|---|--|--|
| Recommended for increased productivity |  | <input checked="" type="checkbox"/> | |
| Straight flute |  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Helical flute |  | | <input checked="" type="checkbox"/> |
| Drill/chamfer option |  | | <input checked="" type="checkbox"/> |
| Available in 12xD length | 12XD | <input checked="" type="checkbox"/> | |
| Connects with XT Pro inserts |  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Connects with XT inserts |  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

XT Pro Holders



Straight Flute

GEN3SYS Holders



Straight Flute



Helical Flute

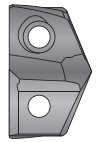


Drill/Chamfer

Product Nomenclature

GEN3SYS XT Pro Drill Inserts

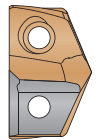
| | | | | |
|-----------|----------|-----------|---|--------------|
| XT | P | 11 | – | 11.00 |
| 1 | 2 | 3 | | 4 |



| 1. XT Pro Drill Insert | 2. ISO Material / Geometry | 3. Series | 4. Diameter (mm) | | | | | | | | | | | | | | |
|------------------------|---|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--|
| XT = XT Pro insert | P = Steel K = Cast iron N = Non-ferrous | <table border="0"> <tr> <td>11 = 11 series</td> <td>18 = 18 series</td> </tr> <tr> <td>12 = 12 series</td> <td>20 = 20 series</td> </tr> <tr> <td>13 = 13 series</td> <td>22 = 22 series</td> </tr> <tr> <td>14 = 14 series</td> <td>24 = 24 series</td> </tr> <tr> <td>15 = 15 series</td> <td>26 = 26 series</td> </tr> <tr> <td>16 = 16 series</td> <td>29 = 29 series</td> </tr> <tr> <td>17 = 17 series</td> <td>32 = 32 series</td> </tr> </table> | 11 = 11 series | 18 = 18 series | 12 = 12 series | 20 = 20 series | 13 = 13 series | 22 = 22 series | 14 = 14 series | 24 = 24 series | 15 = 15 series | 26 = 26 series | 16 = 16 series | 29 = 29 series | 17 = 17 series | 32 = 32 series | For complete list of diameter ranges by series, see contents page. |
| 11 = 11 series | 18 = 18 series | | | | | | | | | | | | | | | | |
| 12 = 12 series | 20 = 20 series | | | | | | | | | | | | | | | | |
| 13 = 13 series | 22 = 22 series | | | | | | | | | | | | | | | | |
| 14 = 14 series | 24 = 24 series | | | | | | | | | | | | | | | | |
| 15 = 15 series | 26 = 26 series | | | | | | | | | | | | | | | | |
| 16 = 16 series | 29 = 29 series | | | | | | | | | | | | | | | | |
| 17 = 17 series | 32 = 32 series | | | | | | | | | | | | | | | | |

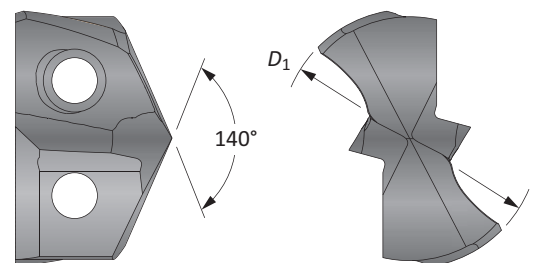
GEN3SYS XT Drill Inserts

| | | | | | | |
|----------|-----------|-----------|----------|---|-------------|-----------|
| 7 | C2 | 12 | P | – | .484 | CI |
| 1 | 2 | 3 | 4 | | 5 | 6 |



| 1. XT Drill Insert | 2. Insert Material | 3. Series | 4. Coating | | | | | | | | | | | | | | |
|-----------------------|--|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
| 7 = XT insert | C1 = C1 (K35) carbide C2 = C2 (K20) carbide | <table border="0"> <tr> <td>11 = 11 series</td> <td>18 = 18 series</td> </tr> <tr> <td>12 = 12 series</td> <td>20 = 20 series</td> </tr> <tr> <td>13 = 13 series</td> <td>22 = 22 series</td> </tr> <tr> <td>14 = 14 series</td> <td>24 = 24 series</td> </tr> <tr> <td>15 = 15 series</td> <td>26 = 26 series</td> </tr> <tr> <td>16 = 16 series</td> <td>29 = 29 series</td> </tr> <tr> <td>17 = 17 series</td> <td>32 = 32 series</td> </tr> </table> | 11 = 11 series | 18 = 18 series | 12 = 12 series | 20 = 20 series | 13 = 13 series | 22 = 22 series | 14 = 14 series | 24 = 24 series | 15 = 15 series | 26 = 26 series | 16 = 16 series | 29 = 29 series | 17 = 17 series | 32 = 32 series | P = AM300® |
| 11 = 11 series | 18 = 18 series | | | | | | | | | | | | | | | | |
| 12 = 12 series | 20 = 20 series | | | | | | | | | | | | | | | | |
| 13 = 13 series | 22 = 22 series | | | | | | | | | | | | | | | | |
| 14 = 14 series | 24 = 24 series | | | | | | | | | | | | | | | | |
| 15 = 15 series | 26 = 26 series | | | | | | | | | | | | | | | | |
| 16 = 16 series | 29 = 29 series | | | | | | | | | | | | | | | | |
| 17 = 17 series | 32 = 32 series | | | | | | | | | | | | | | | | |

| 5. Diameter | 6. Geometry |
|---|---|
| 0017 = Inch .515 = Decimal 13 = Metric | CI = Cast iron LR = Low rake AS = Stainless steel |



Regrinding and Recoating

The GEN3SYS XT and XT Pro drilling system is so cost efficient that it eliminates the need for regrinding and recoating. However, if you choose to have your drill inserts reground, it is critical that it be done by Allied Machine. Any slight deviation in performance due to an improperly reground drill insert will more than offset any benefit from regrinding. Using our service ensures that the best tool performance is maintained in your production process. When returning tools for regrinding, please package tools carefully to avoid damage during shipment. Returning drill inserts for regrinding in their original packaging will help avoid damage during shipment. Drill inserts reground by Allied Machine are repackaged and clearly identified as "Allied Regrind" to avoid any confusion with new tools.

Reference Key

| Symbol | Attribute |
|--------|-----------------|
| D_1 | Insert diameter |

Product Nomenclature

GEN3SYS and XT Pro Drill Holders

| | | | | | | |
|------------|-----------|-----------|----------|---|-----------|-----------|
| HXT | 03 | 12 | S | - | 20 | FM |
| 1 | 2 | 3 | 4 | | 5 | 6 |



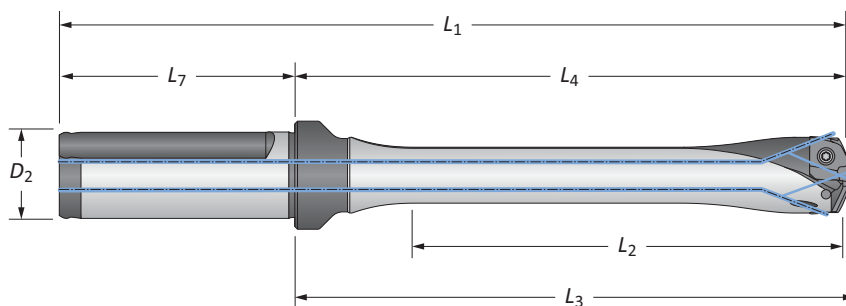
| 1. Holder | 2. Length | 3. Series | 4. Flute | | | | | | | | | | | | |
|---|---|---|--|-------------------|-------------------|-------------------|-----------------|-------------------|---------------------|-------------------|---------------------|-------------------|---|--|--|
| <p>6 = GEN3SYS holder</p> <p>HXT = XT Pro holder</p> | <p>01 = Stub Length (GEN3SYS only)</p> <p>03 = 3x Diameter</p> <p>05 = 5x Diameter</p> <p>07 = 7x Diameter</p> <p>10 = 10x Diameter (XT Pro only)</p> <p>12 = 12x Diameter (11-26 series - XT Pro only)</p> | <p>11 = 11 series 18 = 18 series</p> <p>12 = 12 series 20 = 20 series</p> <p>13 = 13 series 22 = 22 series</p> <p>14 = 14 series 24 = 24 series</p> <p>15 = 15 series 26 = 26 series</p> <p>16 = 16 series 29 = 29 series</p> <p>17 = 17 series 32 = 32 series</p> | <p>S = Straight</p> <p>H = Helical</p> <p>C45 = Drill/Chamfer (both helical and drill/chamfer options available for GEN3SYS only)</p> | | | | | | | | | | | | |
| 5. Shank Diameter | 6. Shank Style | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Imperial (inch)</th> <th>Metric (mm)</th> </tr> </thead> <tbody> <tr> <td>063 = 5/8"</td> <td>16 = 16 mm</td> </tr> <tr> <td>075 = 3/4"</td> <td>20 = 20 mm</td> </tr> <tr> <td>100 = 1"</td> <td>25 = 25 mm</td> </tr> <tr> <td>125 = 1-1/4"</td> <td>32 = 32 mm</td> </tr> <tr> <td>150 = 1-1/2"</td> <td>40 = 40 mm</td> </tr> </tbody> </table> | Imperial (inch) | Metric (mm) | 063 = 5/8" | 16 = 16 mm | 075 = 3/4" | 20 = 20 mm | 100 = 1" | 25 = 25 mm | 125 = 1-1/4" | 32 = 32 mm | 150 = 1-1/2" | 40 = 40 mm | <p>F = Flanged with flat</p> <p>FM = Flanged metric with flat</p> <p>C = Cylindrical (no flat)</p> <p>CM = Cylindrical metric (no flat)</p> | | |
| Imperial (inch) | Metric (mm) | | | | | | | | | | | | | | |
| 063 = 5/8" | 16 = 16 mm | | | | | | | | | | | | | | |
| 075 = 3/4" | 20 = 20 mm | | | | | | | | | | | | | | |
| 100 = 1" | 25 = 25 mm | | | | | | | | | | | | | | |
| 125 = 1-1/4" | 32 = 32 mm | | | | | | | | | | | | | | |
| 150 = 1-1/2" | 40 = 40 mm | | | | | | | | | | | | | | |

Holder Ordering Information

The series designator (11 series, 12 series, etc.) in the top corner of each page is for your reference when ordering. Please refer to these series designators when placing an order. For example, a 12 series drill insert only fits into a 12 series holder.

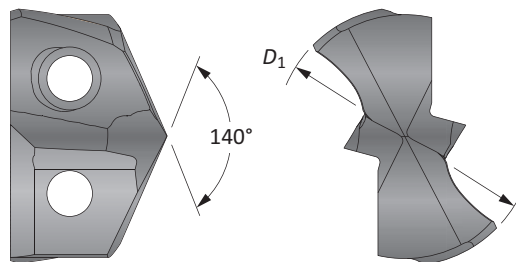
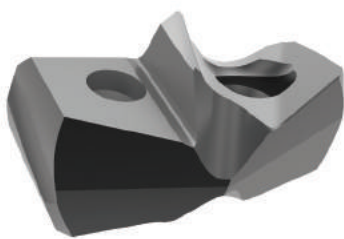
Reference Key




| Symbol | Attribute |
|--------|-------------------------------|
| D_2 | Shank diameter |
| D_5 | Step diameter (drill/chamfer) |
| L_1 | Overall length |
| L_2 | Drill depth |
| L_3 | Holder reference length |
| L_4 | Holder body length |
| L_5 | Step length (drill/chamfer) |
| L_7 | Shank length |
| P_1 | Rear pipe tap (GEN3SYS) |



GEN3SYS XT Pro Drill Inserts

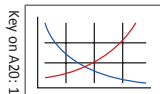
11 Series | Diameter Range: 0.4331" - 0.4723" (11.00 mm - 11.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.4331 | 11.00 | XTP11-11.00 | XTK11-11.00 | XTN11-11.00 |
| 7/16 | 0.4374 | 11.11 | XTP11-11.11 | XTK11-11.11 | XTN11-11.11 |
| - | 0.4409 | 11.20 | XTP11-11.20 | XTK11-11.20 | XTN11-11.20 |
| - | 0.4449 | 11.30 | XTP11-11.30 | XTK11-11.30 | XTN11-11.30 |
| - | 0.4488 | 11.40 | XTP11-11.40 | XTK11-11.40 | XTN11-11.40 |
| - | 0.4528 | 11.50 | XTP11-11.50 | XTK11-11.50 | XTN11-11.50 |
| 29/64 | 0.4531 | 11.51 | XTP11-11.51 | XTK11-11.51 | XTN11-11.51 |
| - | 0.4567 | 11.60 | XTP11-11.60 | XTK11-11.60 | XTN11-11.60 |
| - | 0.4606 | 11.70 | XTP11-11.70 | XTK11-11.70 | XTN11-11.70 |
| - | 0.4646 | 11.80 | XTP11-11.80 | XTK11-11.80 | XTN11-11.80 |
| 15/32 | 0.4689 | 11.91 | XTP11-11.91 | XTK11-11.91 | XTN11-11.91 |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9

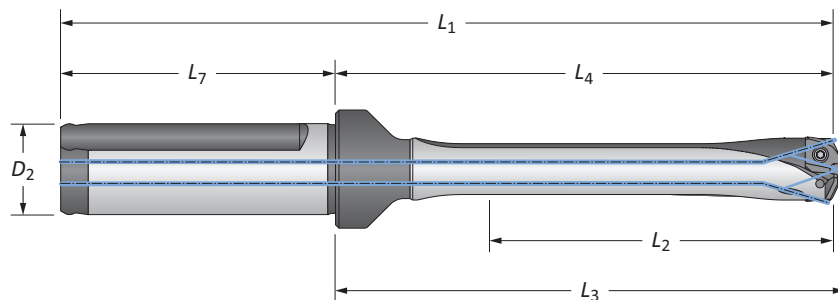


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

11 Series | Diameter Range: 0.4331" - 0.4723" (11.00 mm - 11.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|-------------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 1-27/64 | 2-29/64 | 2-17/32 | 4-21/64 | 1-7/8 | 5/8 | YES | HXT0311S-063F |
| | 3xD | 1-27/64 | 2-29/64 | 2-17/32 | 4-21/64 | 1-7/8 | 5/8 | NO | HXT0311S-063C |
| | 5xD | 2-23/64 | 3-13/32 | 3-31/64 | 5-9/32 | 1-7/8 | 5/8 | YES | HXT0511S-063F |
| | 5xD | 2-23/64 | 3-13/32 | 3-31/64 | 5-9/32 | 1-7/8 | 5/8 | NO | HXT0511S-063C |
| | 7xD | 3-19/64 | 4-11/32 | 4-27/64 | 6-7/32 | 1-7/8 | 5/8 | YES | HXT0711S-063F |
| | 7xD | 3-19/64 | 4-11/32 | 4-27/64 | 6-7/32 | 1-7/8 | 5/8 | NO | HXT0711S-063C |
| | 10xD | 4-23/32 | 5-49/64 | 5-27/32 | 7-41/64 | 1-7/8 | 5/8 | YES | HXT1011S-063F |
| | 10xD | 4-23/32 | 5-49/64 | 5-27/32 | 7-41/64 | 1-7/8 | 5/8 | NO | HXT1011S-063C |
| m Straight | 3xD | 36.0 | 62.6 | 64.4 | 110.6 | 48.0 | 16.0 | YES | HXT0311S-16FM |
| | 3xD | 36.0 | 62.6 | 64.4 | 110.6 | 48.0 | 16.0 | NO | HXT0311S-16CM |
| | 5xD | 60.0 | 86.6 | 88.4 | 134.6 | 48.0 | 16.0 | YES | HXT0511S-16FM |
| | 5xD | 60.0 | 86.6 | 88.4 | 134.6 | 48.0 | 16.0 | NO | HXT0511S-16CM |
| | 7xD | 83.7 | 110.6 | 112.4 | 158.6 | 48.0 | 16.0 | YES | HXT0711S-16FM |
| | 7xD | 83.7 | 110.6 | 112.4 | 158.6 | 48.0 | 16.0 | NO | HXT0711S-16CM |
| | 10xD | 119.9 | 146.6 | 148.4 | 194.6 | 48.0 | 16.0 | YES | HXT1011S-16FM |
| | 10xD | 119.9 | 146.6 | 148.4 | 194.6 | 48.0 | 16.0 | NO | HXT1011S-16CM |
| n Straight | 12xD | 119.9 | 146.6 | 148.4 | 194.6 | 48.0 | 16.0 | YES | HXT1211S-16FM |
| | 12xD | 119.9 | 146.6 | 148.4 | 194.6 | 48.0 | 16.0 | NO | HXT1211S-16CM |

Connection Accessories

| | | | | |
|--------------------|--------------|----------------|---------------|--------------------------------------|
| | | | | Admissible Tightening Torque* |
| 71843-IP6-1 | 8IP-6 | 8IP-6TL | 8IP-6B | 4.4 in-lbs (50 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

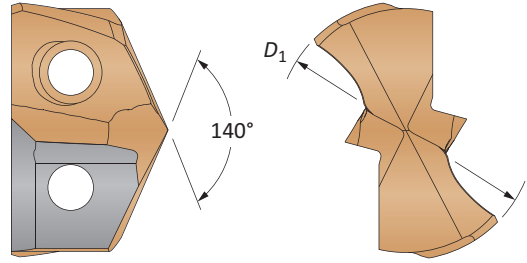
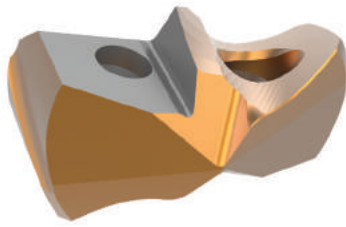
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10



GEN3SYS XT Drill Inserts

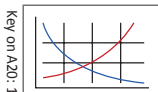
11 Series | Diameter Range: 0.4331" - 0.4723" (11.00 mm - 11.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|------------|----------|-------------------|-------------------|--------------------|--------------------|
| | Fractional Equivalent | D_1 inch | D_1 mm | | | | |
| C1 (K35) | - | 0.4331 | 11.00 | 7C111P-11 | 7C111P-11LR | - | - |
| | 7/16 | 0.4375 | 11.11 | 7C111P-0014 | 7C111P-0014LR | - | - |
| | - | 0.4528 | 11.50 | 7C111P-11.5 | 7C111P-11.5LR | - | - |
| | 29/64 | 0.4531 | 11.51 | 7C111P-.453 | 7C111P-.453LR | - | - |
| | 15/32 | 0.4688 | 11.91 | 7C111P-0015 | 7C111P-0015LR | - | - |
| C2 (K20) | - | 0.4331 | 11.00 | 7C211P-11 | 7C211P-11LR | 7C211P-11CI | 7C211P-11AS |
| | 7/16 | 0.4375 | 11.11 | 7C211P-0014 | 7C211P-0014LR | 7C211P-0014CI | 7C211P-0014AS |
| | - | 0.4528 | 11.50 | 7C211P-11.5 | 7C211P-11.5LR | 7C211P-11.5CI | 7C211P-11.5AS |
| | 29/64 | 0.4531 | 11.51 | 7C211P-.453 | 7C211P-.453LR | 7C211P-.453CI | 7C211P-.453AS |
| | 15/32 | 0.4688 | 11.91 | 7C211P-0015 | 7C211P-0015LR | 7C211P-0015CI | 7C211P-0015AS |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9

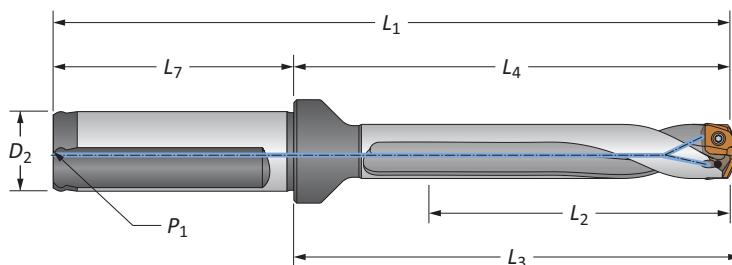


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

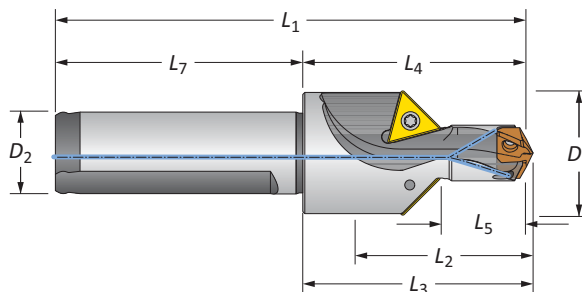
11 Series | Diameter Range: 0.4331" - 0.4723" (11.00 mm - 11.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 1-27/64 | 2-29/64 | 2-17/32 | 4-21/64 | 1-7/8 | 5/8 | 1/16 | YES | 60311S-063F | |
| | 5xD | 2-23/64 | 3-13/32 | 3-31/64 | 5-9/32 | 1-7/8 | 5/8 | 1/16 | YES | 60511S-063F | |
| | 7xD | 3-19/64 | 4-11/32 | 4-27/64 | 6-7/32 | 1-7/8 | 5/8 | 1/16 | YES | 60711S-063F | |
| | Stub | 5/8 | 1-43/64 | 1-3/4 | 3-35/64 | 1-7/8 | 5/8 | 1/16 | YES | 60111H-063F | |
| | 3xD | 1-27/64 | 2-29/64 | 2-17/32 | 4-21/64 | 1-7/8 | 5/8 | 1/16 | YES | 60311H-063F | |
| | 3xD | 1-27/64 | 2-29/64 | 2-17/32 | 4-21/64 | 1-7/8 | 5/8 | 1/16 | NO | 60311H-063C | |
| | 5xD | 2-23/64 | 3-13/32 | 3-31/64 | 5-9/32 | 1-7/8 | 5/8 | 1/16 | YES | 60511H-063F | |
| | 5xD | 2-23/64 | 3-13/32 | 3-31/64 | 5-9/32 | 1-7/8 | 5/8 | 1/16 | NO | 60511H-063C | |
| | 7xD | 3-19/64 | 4-11/32 | 4-27/64 | 6-7/32 | 1-7/8 | 5/8 | 1/16 | YES | 60711H-063F | |
| | 7xD | 3-19/64 | 4-11/32 | 4-27/64 | 6-7/32 | 1-7/8 | 5/8 | 1/16 | NO | 60711H-063C | |
| | Straight | 3xD | 36.0 | 62.6 | 64.4 | 110.6 | 48.0 | 16.0 | 1/16* | YES | 60311S-16FM |
| | | 5xD | 60.0 | 86.6 | 88.4 | 134.6 | 48.0 | 16.0 | 1/16* | YES | 60511S-16FM |
| | | 7xD | 83.7 | 110.6 | 112.4 | 158.6 | 48.0 | 16.0 | 1/16* | YES | 60711S-16FM |
| | Helical | Stub | 16.0 | 42.6 | 44.7 | 90.6 | 48.0 | 16.0 | 1/16* | YES | 60111H-16FM |
| | | 3xD | 36.0 | 62.6 | 64.4 | 110.6 | 48.0 | 16.0 | 1/16* | YES | 60311H-16FM |
| | | 3xD | 36.0 | 62.6 | 64.4 | 110.6 | 48.0 | 16.0 | 1/16* | NO | 60311H-16CM |
| | | 5xD | 60.0 | 86.6 | 88.4 | 134.6 | 48.0 | 16.0 | 1/16* | YES | 60511H-16FM |
| | | 5xD | 60.0 | 86.6 | 88.4 | 134.6 | 48.0 | 16.0 | 1/16* | NO | 60511H-16CM |
| | | 7xD | 83.7 | 110.6 | 112.4 | 158.6 | 48.0 | 16.0 | 1/16* | YES | 60711H-16FM |
| | | 7xD | 83.7 | 110.6 | 112.4 | 158.6 | 48.0 | 16.0 | 1/16* | NO | 60711H-16CM |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| Step | Body | | | | Shank | | Part No. | Chamfer Insert | | |
|------|----------------|----------------|----------------|----------------|----------------|----------------|----------|----------------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | | | L ₇ | D ₂ |
| | 61/64 | 21/32 | 15/16 | 1-43/64 | 1-3/4 | 3-35/64 | 1-7/8 | 5/8 | 60111C45-063F | TCMT-110204 |
| | 24.1 | 16.5 | 23.8 | 42.2 | 44.3 | 90.2 | 48.0 | 16.0 | 60111C45-16FM | TCMT-110204 |

Connection Accessories

| | | | | |
|----------------------|----------------------|----------------------------------|-------------------------|--------------------------------------|
| | | | | Admissible Tightening Torque* |
| Insert Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | |
| 71843-IP6-1 | 8IP-6 | 8IP-6TL | 8IP-6B | 4.4 in-lbs (50 N-cm) |

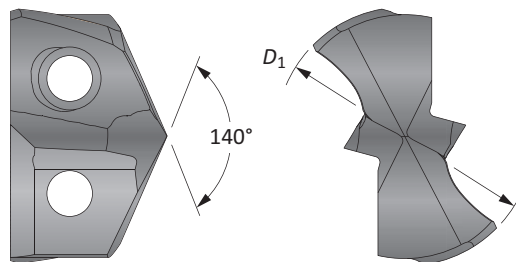
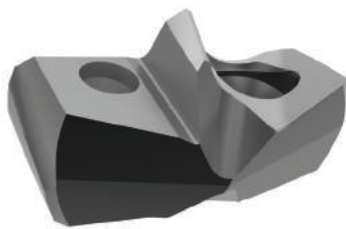
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

= Imperial (in)
 = Metric (mm)

GEN3SYS XT Pro Drill Inserts

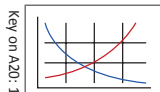
12 Series | Diameter Range: 0.4724" - 0.5117" (12.00 mm - 12.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.4724 | 12.00 | XTP12-12.00 | XTK12-12.00 | XTN12-12.00 |
| - | 0.4764 | 12.10 | XTP12-12.10 | XTK12-12.10 | XTN12-12.10 |
| - | 0.4803 | 12.20 | XTP12-12.20 | XTK12-12.20 | XTN12-12.20 |
| 31/64 | 0.4843 | 12.30 | XTP12-12.30 | XTK12-12.30 | XTN12-12.30 |
| - | 0.4882 | 12.40 | XTP12-12.40 | XTK12-12.40 | XTN12-12.40 |
| - | 0.4921 | 12.50 | XTP12-12.50 | XTK12-12.50 | XTN12-12.50 |
| - | 0.4961 | 12.60 | XTP12-12.60 | XTK12-12.60 | XTN12-12.60 |
| 1/2 | 0.5000 | 12.70 | XTP12-12.70 | XTK12-12.70 | XTN12-12.70 |
| - | 0.5039 | 12.80 | XTP12-12.80 | XTK12-12.80 | XTN12-12.80 |
| - | 0.5079 | 12.90 | XTP12-12.90 | XTK12-12.90 | XTN12-12.90 |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9



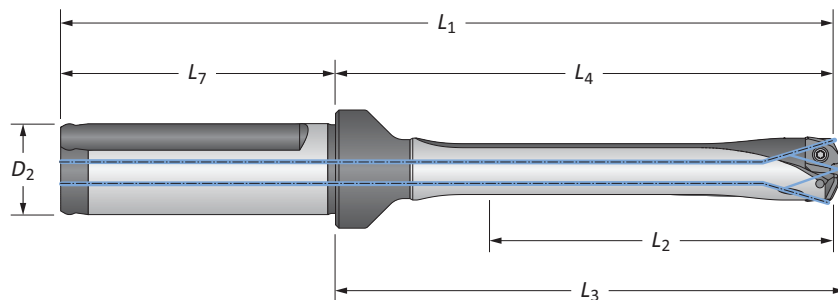
Key on A20: 1

Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

12 Series | Diameter Range: 0.4724" - 0.5117" (12.00 mm - 12.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|---------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 1-17/32 | 2-5/8 | 2-45/64 | 4-21/32 | 2-1/32 | 3/4 | YES | HXT0312S-075F |
| | 3xD | 1-17/32 | 2-5/8 | 2-45/64 | 4-21/32 | 2-1/32 | 3/4 | NO | HXT0312S-075C |
| | 5xD | 2-9/16 | 3-41/64 | 3-47/64 | 5-43/64 | 2-1/32 | 3/4 | YES | HXT0512S-075F |
| | 5xD | 2-9/16 | 3-41/64 | 3-47/64 | 5-43/64 | 2-1/32 | 3/4 | NO | HXT0512S-075C |
| | 7xD | 3-37/64 | 4-21/32 | 4-3/4 | 6-11/16 | 2-1/32 | 3/4 | YES | HXT0712S-075F |
| | 7xD | 3-37/64 | 4-21/32 | 4-3/4 | 6-11/16 | 2-1/32 | 3/4 | NO | HXT0712S-075C |
| | 10xD | 5-7/64 | 6-13/64 | 6-9/32 | 8-15/64 | 2-1/32 | 3/4 | YES | HXT1012S-075F |
| | 10xD | 5-7/64 | 6-13/64 | 6-9/32 | 8-15/64 | 2-1/32 | 3/4 | NO | HXT1012S-075C |
| | 12xD | 6-9/64 | 7-7/32 | 7-5/16 | 9-1/4 | 2-1/32 | 3/4 | YES | HXT1212S-075F |
| 12xD | 6-9/64 | 7-7/32 | 7-5/16 | 9-1/4 | 2-1/32 | 3/4 | NO | HXT1212S-075C | |
| m Straight | 3xD | 39.0 | 66.6 | 68.7 | 116.6 | 50.0 | 20.0 | YES | HXT0312S-20FM |
| | 3xD | 39.0 | 66.6 | 68.7 | 116.6 | 50.0 | 20.0 | NO | HXT0312S-20CM |
| | 5xD | 65.0 | 92.5 | 94.7 | 142.5 | 50.0 | 20.0 | YES | HXT0512S-20FM |
| | 5xD | 65.0 | 92.5 | 94.7 | 142.5 | 50.0 | 20.0 | NO | HXT0512S-20CM |
| | 7xD | 90.9 | 118.3 | 120.7 | 168.3 | 50.0 | 20.0 | YES | HXT0712S-20FM |
| | 7xD | 90.9 | 118.3 | 120.7 | 168.3 | 50.0 | 20.0 | NO | HXT0712S-20CM |
| | 10xD | 129.9 | 157.5 | 159.7 | 207.5 | 50.0 | 20.0 | YES | HXT1012S-20FM |
| | 10xD | 129.9 | 157.5 | 159.7 | 207.5 | 50.0 | 20.0 | NO | HXT1012S-20CM |
| | 12xD | 156.0 | 183.5 | 185.7 | 233.5 | 50.0 | 20.0 | YES | HXT1212S-20FM |
| 12xD | 156.0 | 183.5 | 185.7 | 233.5 | 50.0 | 20.0 | NO | HXT1212S-20CM | |

Connection Accessories

| | | | | | |
|-------------------|--------------------|--------------|----------------|---------------|--------------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

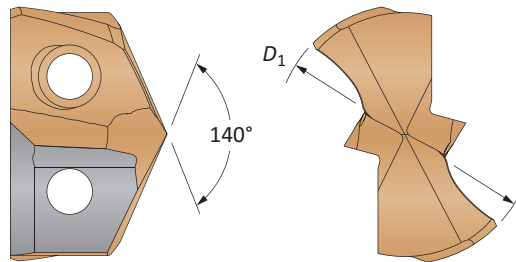
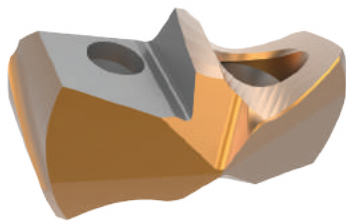
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

GEN3SYS XT Drill Inserts

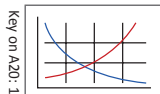
12 Series | Diameter Range: 0.4724" - 0.5117" (12.00 mm - 12.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|------------|----------|--------------------|----------------------|----------------------|----------------------|
| | Fractional Equivalent | D_1 inch | D_1 mm | | | | |
| C1 (K35) | - | 0.4724 | 12.00 | 7C112P-12 | 7C112P-12LR | - | - |
| | 31/64 | 0.4844 | 12.30 | 7C112P-.484 | 7C112P-.484LR | - | - |
| | - | 0.4921 | 12.50 | 7C112P-12.5 | 7C112P-12.5LR | - | - |
| | 1/2 | 0.5000 | 12.70 | 7C112P-0016 | 7C112P-0016LR | - | - |
| C2 (K20) | - | 0.4724 | 12.00 | 7C212P-12 | 7C212P-12LR | 7C212P-12CI | 7C212P-12AS |
| | 31/64 | 0.4844 | 12.30 | 7C212P-.484 | 7C212P-.484LR | 7C212P-.484CI | 7C212P-.484AS |
| | - | 0.4921 | 12.50 | 7C212P-12.5 | 7C212P-12.5LR | 7C212P-12.5CI | 7C212P-12.5AS |
| | 1/2 | 0.5000 | 12.70 | 7C212P-0016 | 7C212P-0016LR | 7C212P-0016CI | 7C212P-0016AS |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9



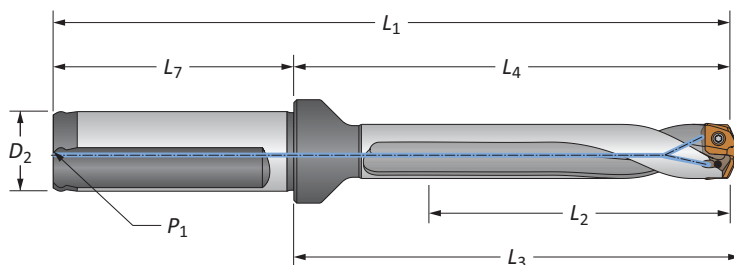
Key on A20: 1

Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

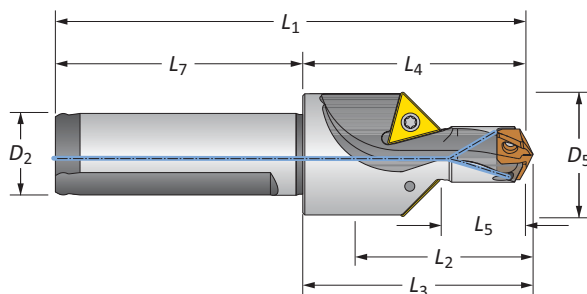
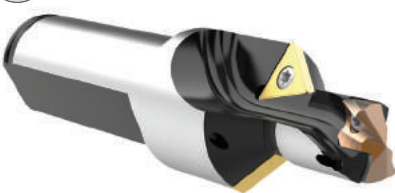
12 Series | Diameter Range: 0.4724" - 0.5117" (12.00 mm - 12.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 1-17/32 | 2-5/8 | 2-45/64 | 4-21/32 | 2-1/32 | 3/4 | 1/8 | YES | 60312S-075F | |
| | 5xD | 2-9/16 | 3-41/64 | 3-47/64 | 5-43/64 | 2-1/32 | 3/4 | 1/8 | YES | 60512S-075F | |
| | 7xD | 3-37/64 | 4-21/32 | 4-3/4 | 6-11/16 | 2-1/32 | 3/4 | 1/8 | YES | 60712S-075F | |
| | Stub | 5/8 | 1-45/64 | 1-25/32 | 3-47/64 | 2-1/32 | 3/4 | 1/8 | YES | 60112H-075F | |
| | 3xD | 1-17/32 | 2-5/8 | 2-45/64 | 4-21/32 | 2-1/32 | 3/4 | 1/8 | YES | 60312H-075F | |
| | 3xD | 1-17/32 | 2-5/8 | 2-45/64 | 4-21/32 | 2-1/32 | 3/4 | 1/8 | NO | 60312H-075C | |
| | 5xD | 2-9/16 | 3-41/64 | 3-47/64 | 5-43/64 | 2-1/32 | 3/4 | 1/8 | YES | 60512H-075F | |
| | 5xD | 2-9/16 | 3-41/64 | 3-47/64 | 5-43/64 | 2-1/32 | 3/4 | 1/8 | NO | 60512H-075C | |
| | 7xD | 3-37/64 | 4-21/32 | 4-3/4 | 6-11/16 | 2-1/32 | 3/4 | 1/8 | YES | 60712H-075F | |
| | 7xD | 3-37/64 | 4-21/32 | 4-3/4 | 6-11/16 | 2-1/32 | 3/4 | 1/8 | NO | 60712H-075C | |
| | | 3xD | 39.0 | 66.6 | 68.7 | 116.6 | 50.0 | 20.0 | 1/8* | YES | 60312S-20FM |
| 5xD | | 65.0 | 92.5 | 94.7 | 142.5 | 50.0 | 20.0 | 1/8* | YES | 60512S-20FM | |
| 7xD | | 90.9 | 118.3 | 120.7 | 168.3 | 50.0 | 20.0 | 1/8* | YES | 60712S-20FM | |
| Stub | | 16.0 | 43.2 | 45.4 | 93.2 | 50.0 | 20.0 | 1/8* | YES | 60112H-20FM | |
| 3xD | | 39.0 | 66.6 | 68.7 | 116.6 | 50.0 | 20.0 | 1/8* | YES | 60312H-20FM | |
| 3xD | | 39.0 | 66.6 | 68.7 | 116.6 | 50.0 | 20.0 | 1/8* | NO | 60312H-20CM | |
| 5xD | | 65.0 | 92.5 | 94.7 | 142.5 | 50.0 | 20.0 | 1/8* | YES | 60512H-20FM | |
| 5xD | | 65.0 | 92.5 | 94.7 | 142.5 | 50.0 | 20.0 | 1/8* | NO | 60512H-20CM | |
| 7xD | | 90.9 | 118.3 | 120.7 | 168.3 | 50.0 | 20.0 | 1/8* | YES | 60712H-20FM | |
| 7xD | | 90.9 | 118.3 | 120.7 | 168.3 | 50.0 | 20.0 | 1/8* | NO | 60712H-20CM | |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| | Step | | Body | | | | Shank | | Part No. | Chamfer Insert |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | |
| i | 31/32 | 45/64 | 63/64 | 1-45/64 | 1-25/32 | 3-47/64 | 2-1/32 | 3/4 | 60112C45-075F | TCMT-110204 |
| m | 24.8 | 18.0 | 35.2 | 43.2 | 45.4 | 93.2 | 50.0 | 20.0 | 60112C45-20FM | TCMT-110204 |

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|-------------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

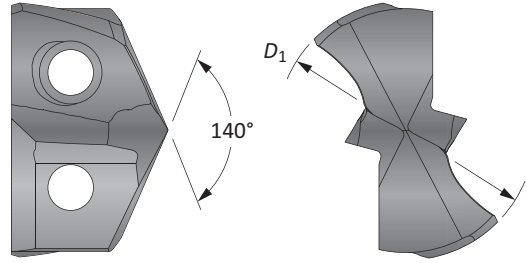
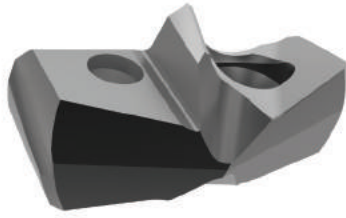
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

i = Imperial (in)
m = Metric (mm)

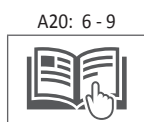
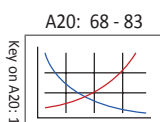
GEN3SYS XT Pro Drill Inserts

13 Series | Diameter Range: 0.5118" - 0.5511" (13.00 mm - 13.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.5118 | 13.00 | XTP13-13.00 | XTK13-13.00 | XTN13-13.00 |
| 33/64 | 0.5157 | 13.10 | XTP13-13.10 | XTK13-13.10 | XTN13-13.10 |
| - | 0.5197 | 13.20 | XTP13-13.20 | XTK13-13.20 | XTN13-13.20 |
| - | 0.5236 | 13.30 | XTP13-13.30 | XTK13-13.30 | XTN13-13.30 |
| - | 0.5276 | 13.40 | XTP13-13.40 | XTK13-13.40 | XTN13-13.40 |
| 17/32 | 0.5311 | 13.49 | XTP13-13.49 | XTK13-13.49 | XTN13-13.49 |
| - | 0.5315 | 13.50 | XTP13-13.50 | XTK13-13.50 | XTN13-13.50 |
| - | 0.5354 | 13.60 | XTP13-13.60 | XTK13-13.60 | XTN13-13.60 |
| - | 0.5394 | 13.70 | XTP13-13.70 | XTK13-13.70 | XTN13-13.70 |
| - | 0.5433 | 13.80 | XTP13-13.80 | XTK13-13.80 | XTN13-13.80 |
| 35/64 | 0.5469 | 13.89 | XTP13-13.89 | XTK13-13.89 | XTN13-13.89 |

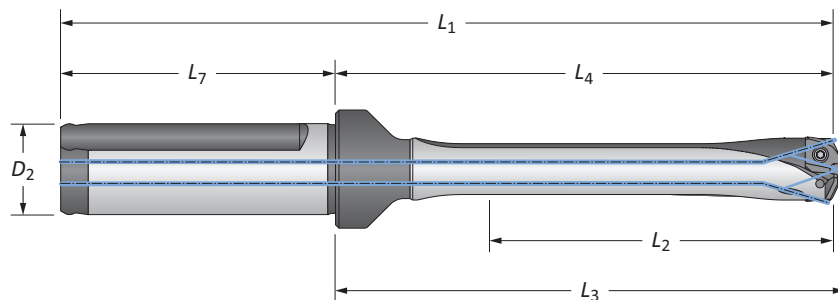
Inserts sold in multiples of 1



| | |
|--|--|
| Sizes not shown are available upon request. When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

13 Series | Diameter Range: 0.5118" - 0.5511" (13.00 mm - 13.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|-------------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|------|-----------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 1-21/32 | 2-23/32 | 2-13/16 | 4-3/4 | 2-1/32 | 3/4 | YES | HXT0313S-075F |
| | 3xD | 1-21/32 | 2-23/32 | 2-13/16 | 4-3/4 | 2-1/32 | 3/4 | NO | HXT0313S-075C |
| | 5xD | 2-3/4 | 3-13/16 | 3-29/32 | 5-27/32 | 2-1/32 | 3/4 | YES | HXT0513S-075F |
| | 5xD | 2-3/4 | 3-13/16 | 3-29/32 | 5-27/32 | 2-1/32 | 3/4 | NO | HXT0513S-075C |
| | 7xD | 3-55/64 | 4-59/64 | 5-1/64 | 6-61/64 | 2-1/32 | 3/4 | YES | HXT0713S-075F |
| | 7xD | 3-55/64 | 4-59/64 | 5-1/64 | 6-61/64 | 2-1/32 | 3/4 | NO | HXT0713S-075C |
| | 10xD | 5-33/64 | 6-37/64 | 6-43/64 | 8-39/64 | 2-1/32 | 3/4 | YES | ⚠ HXT1013S-075F |
| | 10xD | 5-33/64 | 6-37/64 | 6-43/64 | 8-39/64 | 2-1/32 | 3/4 | NO | ⚠ HXT1013S-075C |
| m Straight | 3xD | 42.0 | 69.0 | 71.4 | 119.0 | 50.0 | 20.0 | YES | HXT0313S-20FM |
| | 3xD | 42.0 | 69.0 | 71.4 | 119.0 | 50.0 | 20.0 | NO | HXT0313S-20CM |
| | 5xD | 69.9 | 96.8 | 99.2 | 146.8 | 50.0 | 20.0 | YES | HXT0513S-20FM |
| | 5xD | 69.9 | 96.8 | 99.2 | 146.8 | 50.0 | 20.0 | NO | HXT0513S-20CM |
| | 7xD | 98.0 | 125.0 | 127.4 | 175.0 | 50.0 | 20.0 | YES | HXT0713S-20FM |
| | 7xD | 98.0 | 125.0 | 127.4 | 175.0 | 50.0 | 20.0 | NO | HXT0713S-20CM |
| | 10xD | 140.0 | 167.0 | 169.4 | 217.0 | 50.0 | 20.0 | YES | ⚠ HXT1013S-20FM |
| | 10xD | 140.0 | 167.0 | 169.4 | 217.0 | 50.0 | 20.0 | NO | ⚠ HXT1013S-20CM |
| m Straight | 12xD | 168.0 | 195.2 | 197.4 | 245.2 | 50.0 | 20.0 | YES | ⚠ HXT1213S-20FM |
| | 12xD | 168.0 | 195.2 | 197.4 | 245.2 | 50.0 | 20.0 | NO | ⚠ HXT1213S-20CM |

Connection Accessories

| | | | | | |
|------------|-------------|-------|---------|--------|-------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

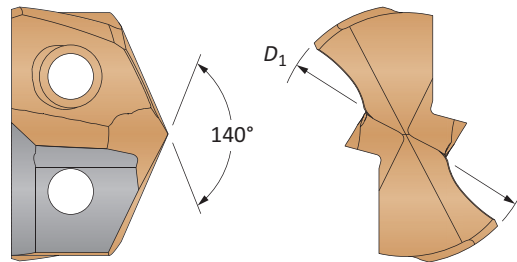
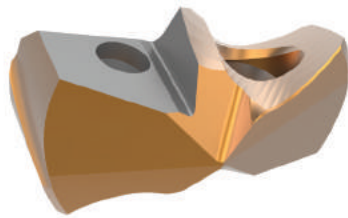
X

SPECIALS



GEN3SYS XT Drill Inserts

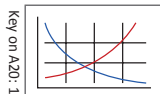
13 Series | Diameter Range: 0.5118" - 0.5511" (13.00 mm - 13.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|---------------------|-------------------|--------------------|----------------------|----------------------|----------------------|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | | | | |
| C1 (K35) | - | 0.5118 | 13.00 | 7C113P-13 | 7C113P-13LR | - | - |
| | 33/64 | 0.5156 | 13.08 | 7C113P-.515 | 7C113P-.515LR | - | - |
| | 17/32 | 0.5313 | 13.49 | 7C113P-0017 | 7C113P-0017LR | - | - |
| | - | 0.5315 | 13.50 | 7C113P-13.5 | 7C113P-13.5LR | - | - |
| | 35/64 | 0.5469 | 13.89 | 7C113P-.546 | 7C113P-.546LR | - | - |
| C2 (K20) | - | 0.5118 | 13.00 | 7C213P-13 | 7C213P-13LR | 7C213P-13CI | 7C213P-13AS |
| | 33/64 | 0.5156 | 13.08 | 7C213P-.515 | 7C213P-.515LR | 7C213P-.515CI | 7C213P-.515AS |
| | 17/32 | 0.5312 | 13.49 | 7C213P-0017 | 7C213P-0017LR | 7C213P-0017CI | 7C213P-0017AS |
| | - | 0.5315 | 13.50 | 7C213P-13.5 | 7C213P-13.5LR | 7C213P-13.5CI | 7C213P-13.5AS |
| | 35/64 | 0.5469 | 13.89 | 7C213P-.546 | 7C213P-.546LR | 7C213P-.546CI | 7C213P-.546AS |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9



Key on A20: 1

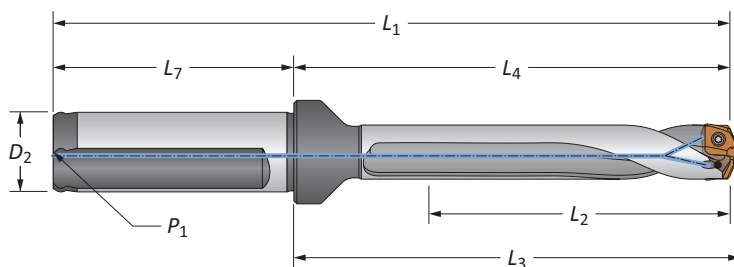
Sizes not shown are available upon request.

When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

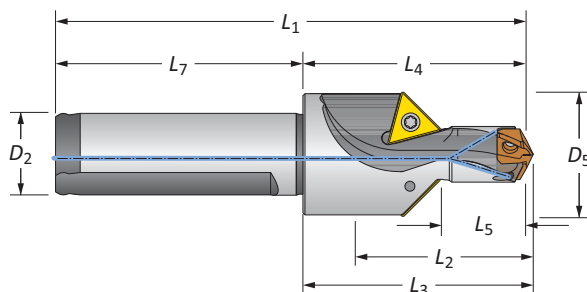
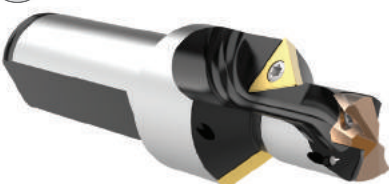
13 Series | Diameter Range: 0.5118" - 0.5511" (13.00 mm - 13.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 1-21/32 | 2-23/32 | 2-13/16 | 4-3/4 | 2-1/32 | 3/4 | 1/8 | YES | 60313S-075F | |
| | 5xD | 2-3/4 | 3-13/16 | 3-29/32 | 5-27/32 | 2-1/32 | 3/4 | 1/8 | YES | 60513S-075F | |
| | 7xD | 3-55/64 | 4-59/64 | 5-1/64 | 6-61/64 | 2-1/32 | 3/4 | 1/8 | YES | 60713S-075F | |
| | Stub | 5/8 | 1-11/16 | 1-25/32 | 3-23/32 | 2-1/32 | 3/4 | 1/8 | YES | 60113H-075F | |
| | 3xD | 1-21/32 | 2-23/32 | 2-13/16 | 4-3/4 | 2-1/32 | 3/4 | 1/8 | YES | 60313H-075F | |
| | 3xD | 1-21/32 | 2-23/32 | 2-13/16 | 4-3/4 | 2-1/32 | 3/4 | 1/8 | NO | 60313H-075C | |
| | 5xD | 2-3/4 | 3-13/16 | 3-29/32 | 5-27/32 | 2-1/32 | 3/4 | 1/8 | YES | 60513H-075F | |
| | 5xD | 2-3/4 | 3-13/16 | 3-29/32 | 5-27/32 | 2-1/32 | 3/4 | 1/8 | NO | 60513H-075C | |
| | 7xD | 3-55/64 | 4-59/64 | 5-1/64 | 6-61/64 | 2-1/32 | 3/4 | 1/8 | YES | 60713H-075F | |
| | 7xD | 3-55/64 | 4-59/64 | 5-1/64 | 6-61/64 | 2-1/32 | 3/4 | 1/8 | NO | 60713H-075C | |
| | Straight | 3xD | 42.0 | 69.0 | 71.4 | 119.0 | 50.0 | 20.0 | 1/8* | YES | 60313S-20FM |
| | | 5xD | 69.9 | 96.8 | 99.2 | 146.8 | 50.0 | 20.0 | 1/8* | YES | 60513S-20FM |
| | | 7xD | 98.0 | 125.0 | 127.4 | 175.0 | 50.0 | 20.0 | 1/8* | YES | 60713S-20FM |
| | Helical | Stub | 16.0 | 43.0 | 45.2 | 93.0 | 50.0 | 20.0 | 1/8* | YES | 60113H-20FM |
| | | 3xD | 42.0 | 69.0 | 71.4 | 119.0 | 50.0 | 20.0 | 1/8* | YES | 60313H-20FM |
| | | 3xD | 42.0 | 69.0 | 71.4 | 119.0 | 50.0 | 20.0 | 1/8* | NO | 60313H-20CM |
| | | 5xD | 69.9 | 96.8 | 99.2 | 146.8 | 50.0 | 20.0 | 1/8* | YES | 60513H-20FM |
| | | 5xD | 69.9 | 96.8 | 99.2 | 146.8 | 50.0 | 20.0 | 1/8* | NO | 60513H-20CM |
| | | 7xD | 98.0 | 125.0 | 127.4 | 175.0 | 50.0 | 20.0 | 1/8* | YES | 60713H-20FM |
| | | 7xD | 98.0 | 125.0 | 127.4 | 175.0 | 50.0 | 20.0 | 1/8* | NO | 60713H-20CM |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| | Step | | Body | | | | Shank | | Part No. | Chamfer Insert |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | |
| | 1-1/64 | 49/64 | 1 | 1-11/16 | 1-25/32 | 3-23/32 | 2-1/32 | 3/4 | 60113C45-075F | TCMT-110204 |
| | 25.8 | 19.5 | 25.4 | 43.0 | 45.2 | 93.0 | 50.0 | 20.0 | 60113C45-20FM | TCMT-110204 |

Connection Accessories

| | | | | | Admissible Tightening Torque* |
|-------------------|--------------------|--------------|----------------|---------------|-------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

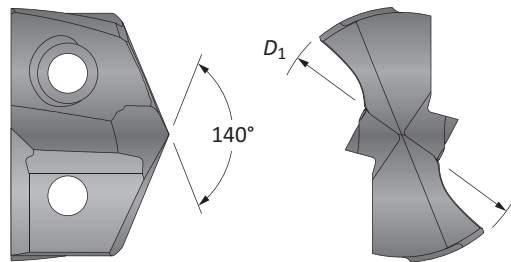
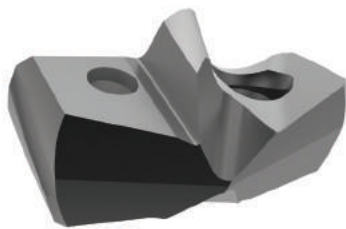
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

= Imperial (in)
 = Metric (mm)

GEN3SYS XT Pro Drill Inserts

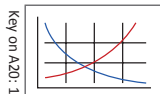
14 Series | Diameter Range: 0.5512" - 0.5905" (14.00 mm - 14.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.5512 | 14.00 | XTP14-14.00 | XTK14-14.00 | XTN14-14.00 |
| - | 0.5551 | 14.10 | XTP14-14.10 | XTK14-14.10 | XTN14-14.10 |
| - | 0.5591 | 14.20 | XTP14-14.20 | XTK14-14.20 | XTN14-14.20 |
| 9/16 | 0.5626 | 14.29 | XTP14-14.29 | XTK14-14.29 | XTN14-14.29 |
| - | 0.5669 | 14.40 | XTP14-14.40 | XTK14-14.40 | XTN14-14.40 |
| - | 0.5709 | 14.50 | XTP14-14.50 | XTK14-14.50 | XTN14-14.50 |
| - | 0.5748 | 14.60 | XTP14-14.60 | XTK14-14.60 | XTN14-14.60 |
| 37/64 | 0.5780 | 14.68 | XTP14-14.68 | XTK14-14.68 | XTN14-14.68 |
| - | 0.5827 | 14.80 | XTP14-14.80 | XTK14-14.80 | XTN14-14.80 |
| - | 0.5866 | 14.90 | XTP14-14.90 | XTK14-14.90 | XTN14-14.90 |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9

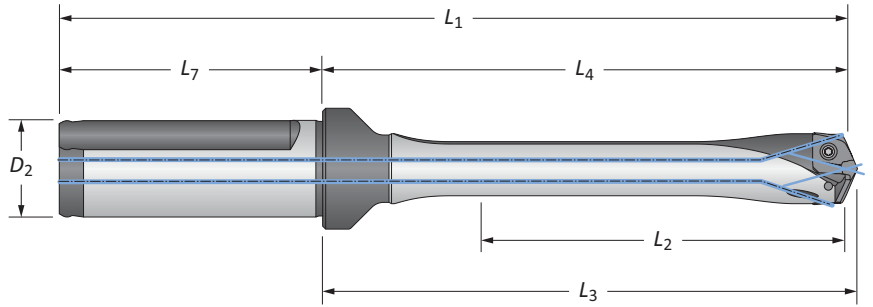


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

14 Series | Diameter Range: 0.5512" - 0.5905" (14.00 mm - 14.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|-------------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 1-49/64 | 2-27/32 | 2-61/64 | 4-7/8 | 2-1/32 | 3/4 | YES | HXT0314S-075F |
| | 3xD | 1-49/64 | 2-27/32 | 2-61/64 | 4-7/8 | 2-1/32 | 3/4 | NO | HXT0314S-075C |
| | 5xD | 2-61/64 | 4-1/32 | 4-1/8 | 6-1/16 | 2-1/32 | 3/4 | YES | HXT0514S-075F |
| | 5xD | 2-61/64 | 4-1/32 | 4-1/8 | 6-1/16 | 2-1/32 | 3/4 | NO | HXT0514S-075C |
| | 7xD | 4-1/8 | 5-13/64 | 5-5/16 | 7-15/64 | 2-1/32 | 3/4 | YES | HXT0714S-075F |
| | 7xD | 4-1/8 | 5-13/64 | 5-5/16 | 7-15/64 | 2-1/32 | 3/4 | NO | HXT0714S-075C |
| | 10xD | 5-29/32 | 6-63/64 | 7-5/64 | 9-1/64 | 2-1/32 | 3/4 | YES | HXT1014S-075F |
| | 10xD | 5-29/32 | 6-63/64 | 7-5/64 | 9-1/64 | 2-1/32 | 3/4 | NO | HXT1014S-075C |
| m Straight | 3xD | 44.8 | 72.2 | 74.9 | 122.2 | 50.0 | 20.0 | YES | HXT0314S-20FM |
| | 3xD | 44.8 | 72.2 | 74.9 | 122.2 | 50.0 | 20.0 | NO | HXT0314S-20CM |
| | 5xD | 75.0 | 102.4 | 104.9 | 152.4 | 50.0 | 20.0 | YES | HXT0514S-20FM |
| | 5xD | 75.0 | 102.4 | 104.9 | 152.4 | 50.0 | 20.0 | NO | HXT0514S-20CM |
| | 7xD | 104.8 | 132.2 | 134.8 | 182.2 | 50.0 | 20.0 | YES | HXT0714S-20FM |
| | 7xD | 104.8 | 132.2 | 134.8 | 182.2 | 50.0 | 20.0 | NO | HXT0714S-20CM |
| | 10xD | 149.9 | 177.4 | 179.8 | 227.4 | 50.0 | 20.0 | YES | HXT1014S-20FM |
| | 10xD | 149.9 | 177.4 | 179.8 | 227.4 | 50.0 | 20.0 | NO | HXT1014S-20CM |
| i Straight | 12xD | 180.0 | 207.2 | 209.8 | 257.2 | 50.0 | 20.0 | YES | HXT1214S-075F |
| | 12xD | 180.0 | 207.2 | 209.8 | 257.2 | 50.0 | 20.0 | NO | HXT1214S-075C |
| m Straight | 12xD | 180.0 | 207.2 | 209.8 | 257.2 | 50.0 | 20.0 | YES | HXT1214S-20FM |
| | 12xD | 180.0 | 207.2 | 209.8 | 257.2 | 50.0 | 20.0 | NO | HXT1214S-20CM |

Connection Accessories

| | | | | | |
|-------------------|--------------------|--------------|----------------|---------------|--------------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

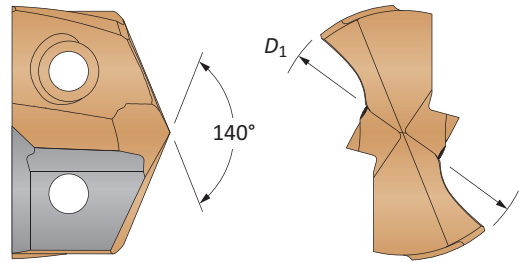
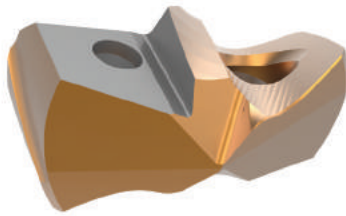
Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



GEN3SYS XT Drill Inserts

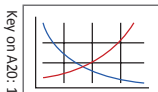
14 Series | Diameter Range: 0.5512" - 0.5905" (14.00 mm - 14.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|------------|----------|--------------------|----------------------|----------------------|----------------------|
| | Fractional Equivalent | D_1 inch | D_1 mm | | | | |
| C1 (K35) | - | 0.5512 | 14.00 | 7C114P-14 | 7C114P-14LR | - | - |
| | 9/16 | 0.5625 | 14.29 | 7C114P-0018 | 7C114P-0018LR | - | - |
| | - | 0.5709 | 14.50 | 7C114P-14.5 | 7C114P-14.5LR | - | - |
| | 37/64 | 0.5781 | 14.68 | 7C114P-.578 | 7C114P-.578LR | - | - |
| | - | 0.5827 | 14.80 | 7C114P-14.8 | 7C114P-14.8LR | - | - |
| C2 (K20) | - | 0.5512 | 14.00 | 7C214P-14 | 7C214P-14LR | 7C214P-14CI | 7C214P-14AS |
| | 9/16 | 0.5625 | 14.29 | 7C214P-0018 | 7C214P-0018LR | 7C214P-0018CI | 7C214P-0018AS |
| | - | 0.5709 | 14.50 | 7C214P-14.5 | 7C214P-14.5LR | 7C214P-14.5CI | 7C214P-14.5AS |
| | 37/64 | 0.5781 | 14.68 | 7C214P-.578 | 7C214P-.578LR | 7C214P-.578CI | 7C214P-.578AS |
| | - | 0.5827 | 14.80 | 7C214P-14.8 | 7C214P-14.8LR | 7C214P-14.8CI | 7C214P-14.8AS |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9

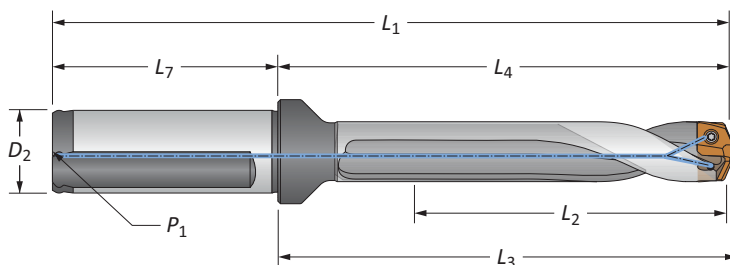


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

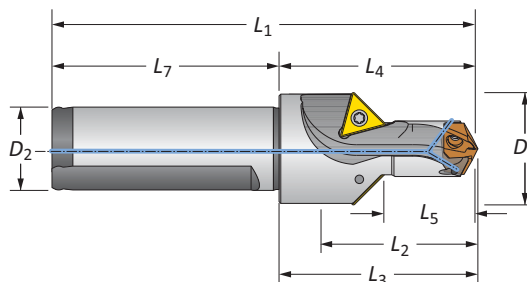
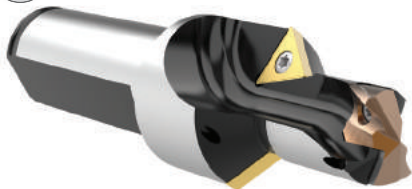
14 Series | Diameter Range: 0.5512" - 0.5905" (14.00 mm - 14.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 1-49/64 | 2-27/32 | 2-61/64 | 4-7/8 | 2-1/32 | 3/4 | 1/8 | YES | 60314S-075F | |
| | 5xD | 2-61/64 | 4-1/32 | 4-1/8 | 6-1/16 | 2-1/32 | 3/4 | 1/8 | YES | 60514S-075F | |
| | 7xD | 4-1/8 | 5-13/64 | 5-5/16 | 7-15/64 | 2-1/32 | 3/4 | 1/8 | YES | 60714S-075F | |
| | Stub | 11/16 | 1-3/4 | 1-55/64 | 3-25/32 | 2-1/32 | 3/4 | 1/8 | YES | 60114H-075F | |
| | 3xD | 1-49/64 | 2-27/32 | 2-61/64 | 4-7/8 | 2-1/32 | 3/4 | 1/8 | YES | 60314H-075F | |
| | 3xD | 1-49/64 | 2-27/32 | 2-61/64 | 4-7/8 | 2-1/32 | 3/4 | 1/8 | NO | 60314H-075C | |
| | 5xD | 2-61/64 | 4-1/32 | 4-1/8 | 6-1/16 | 2-1/32 | 3/4 | 1/8 | YES | 60514H-075F | |
| | 5xD | 2-61/64 | 4-1/32 | 4-1/8 | 6-1/16 | 2-1/32 | 3/4 | 1/8 | NO | 60514H-075C | |
| | 7xD | 4-1/8 | 5-13/64 | 5-5/16 | 7-15/64 | 2-1/32 | 3/4 | 1/8 | YES | 60714H-075F | |
| | 7xD | 4-1/8 | 5-13/64 | 5-5/16 | 7-15/64 | 2-1/32 | 3/4 | 1/8 | NO | 60714H-075C | |
| | | 3xD | 44.8 | 72.2 | 74.9 | 122.2 | 50.0 | 20.0 | 1/8* | YES | 60314S-20FM |
| 5xD | | 75.0 | 102.4 | 104.9 | 152.4 | 50.0 | 20.0 | 1/8* | YES | 60514S-20FM | |
| 7xD | | 104.8 | 132.2 | 134.8 | 182.2 | 50.0 | 20.0 | 1/8* | YES | 60714S-20FM | |
| Stub | | 17.5 | 44.5 | 47.2 | 94.5 | 50.0 | 20.0 | 1/8* | YES | 60114H-20FM | |
| 3xD | | 44.8 | 72.2 | 74.9 | 122.2 | 50.0 | 20.0 | 1/8* | YES | 60314H-20FM | |
| 3xD | | 44.8 | 72.2 | 74.9 | 122.2 | 50.0 | 20.0 | 1/8* | NO | 60314H-20CM | |
| 5xD | | 75.0 | 102.4 | 104.9 | 152.4 | 50.0 | 20.0 | 1/8* | YES | 60514H-20FM | |
| 5xD | | 75.0 | 102.4 | 104.9 | 152.4 | 50.0 | 20.0 | 1/8* | NO | 60514H-20CM | |
| 7xD | | 104.8 | 132.2 | 134.8 | 182.2 | 50.0 | 20.0 | 1/8* | YES | 60714H-20FM | |
| 7xD | | 104.8 | 132.2 | 134.8 | 182.2 | 50.0 | 20.0 | 1/8* | NO | 60714H-20CM | |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| | Step | | Body | | | | Shank | | Part No. | Chamfer Insert |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | |
| i | 1-3/64 | 53/64 | 1-3/64 | 1-3/4 | 1-55/64 | 3-25/32 | 2-1/32 | 3/4 | 60114C45-075F | TCMT-110204 |
| m | 26.7 | 21.0 | 26.8 | 44.6 | 47.2 | 94.6 | 50.0 | 20.0 | 60114C45-20FM | TCMT-110204 |

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|-------------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

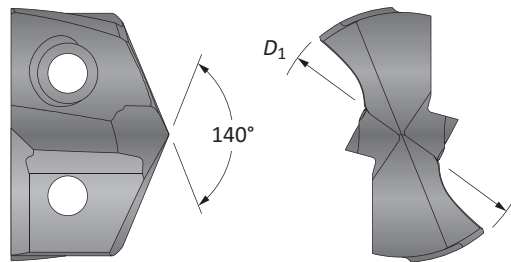
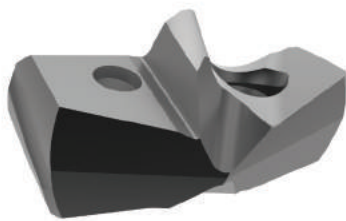
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

i = Imperial (in)
m = Metric (mm)

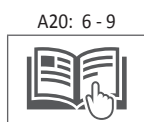
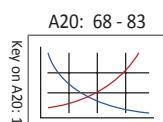
GEN3SYS XT Pro Drill Inserts

15 Series | Diameter Range: 0.5906" - 0.6298" (15.00 mm - 15.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.5906 | 15.00 | XTP15-15.00 | XTK15-15.00 | XTN15-15.00 |
| 19/32 | 0.5937 | 15.08 | XTP15-15.08 | XTK15-15.08 | XTN15-15.08 |
| - | 0.5984 | 15.20 | XTP15-15.20 | XTK15-15.20 | XTN15-15.20 |
| - | 0.6024 | 15.30 | XTP15-15.30 | XTK15-15.30 | XTN15-15.30 |
| - | 0.6063 | 15.40 | XTP15-15.40 | XTK15-15.40 | XTN15-15.40 |
| 39/64 | 0.6094 | 15.48 | XTP15-15.48 | XTK15-15.48 | XTN15-15.48 |
| - | 0.6102 | 15.50 | XTP15-15.50 | XTK15-15.50 | XTN15-15.50 |
| - | 0.6142 | 15.60 | XTP15-15.60 | XTK15-15.60 | XTN15-15.60 |
| - | 0.6181 | 15.70 | XTP15-15.70 | XTK15-15.70 | XTN15-15.70 |
| - | 0.6220 | 15.80 | XTP15-15.80 | XTK15-15.80 | XTN15-15.80 |
| 5/8 | 0.6252 | 15.88 | XTP15-15.88 | XTK15-15.88 | XTN15-15.88 |

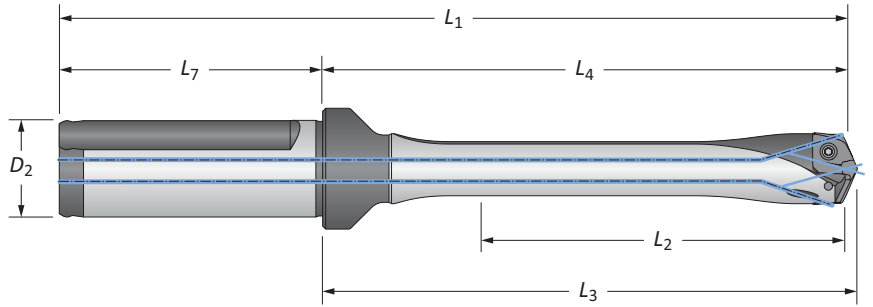
Inserts sold in multiples of 1



| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

15 Series | Diameter Range: 0.5906" - 0.6298" (15.00 mm - 15.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|---------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 1-57/64 | 2-61/64 | 3-3/64 | 4-63/64 | 2-1/32 | 3/4 | YES | HXT0315S-075F |
| | 3xD | 1-57/64 | 2-61/64 | 3-3/64 | 4-63/64 | 2-1/32 | 3/4 | NO | HXT0315S-075C |
| | 5xD | 3-9/64 | 4-13/64 | 4-5/16 | 6-15/64 | 2-1/32 | 3/4 | YES | HXT0515S-075F |
| | 5xD | 3-9/64 | 4-13/64 | 4-5/16 | 6-15/64 | 2-1/32 | 3/4 | NO | HXT0515S-075C |
| | 7xD | 4-13/32 | 5-15/32 | 5-37/64 | 7-1/2 | 2-1/32 | 3/4 | YES | HXT0715S-075F |
| | 7xD | 4-13/32 | 5-15/32 | 5-37/64 | 7-1/2 | 2-1/32 | 3/4 | NO | HXT0715S-075C |
| | 10xD | 6-19/64 | 7-23/64 | 7-29/64 | 9-25/64 | 2-1/32 | 3/4 | YES | HXT1015S-075F |
| | 10xD | 6-19/64 | 7-23/64 | 7-29/64 | 9-25/64 | 2-1/32 | 3/4 | NO | HXT1015S-075C |
| | 12xD | 7-9/16 | 8-39/64 | 8-23/32 | 10-41/64 | 2-1/32 | 3/4 | YES | HXT1215S-075F |
| 12xD | 7-9/16 | 8-39/64 | 8-21/32 | 10-41/64 | 2-1/32 | 3/4 | NO | HXT1215S-075C | |
| m Straight | 3xD | 48.0 | 75.0 | 77.5 | 125.0 | 50.0 | 20.0 | YES | HXT0315S-20FM |
| | 3xD | 48.0 | 75.0 | 77.5 | 125.0 | 50.0 | 20.0 | NO | HXT0315S-20CM |
| | 5xD | 79.8 | 106.8 | 109.5 | 156.8 | 50.0 | 20.0 | YES | HXT0515S-20FM |
| | 5xD | 79.8 | 106.8 | 109.5 | 156.8 | 50.0 | 20.0 | NO | HXT0515S-20CM |
| | 7xD | 111.9 | 138.9 | 141.5 | 188.9 | 50.0 | 20.0 | YES | HXT0715S-20FM |
| | 7xD | 111.9 | 138.9 | 141.5 | 188.9 | 50.0 | 20.0 | NO | HXT0715S-20CM |
| | 10xD | 159.9 | 186.9 | 189.5 | 236.9 | 50.0 | 20.0 | YES | HXT1015S-20FM |
| | 10xD | 159.9 | 186.9 | 189.5 | 236.9 | 50.0 | 20.0 | NO | HXT1015S-20CM |
| | 12xD | 192.0 | 219.0 | 221.6 | 269.0 | 50.0 | 20.0 | YES | HXT1215S-20FM |
| 12xD | 192.0 | 219.0 | 221.6 | 269.0 | 50.0 | 20.0 | NO | HXT1215S-20CM | |

Connection Accessories

| | | | | | |
|------------|-------------|-------|---------|--------|--------------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

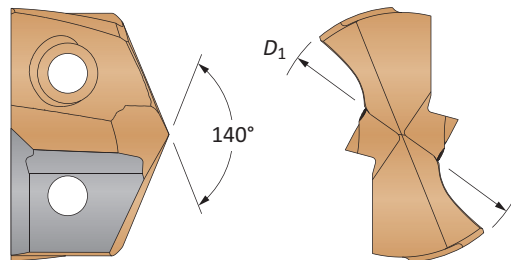
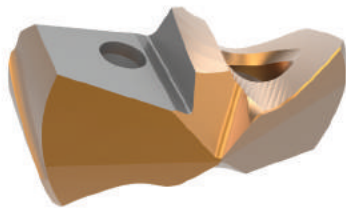
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

GEN3SYS XT Drill Inserts

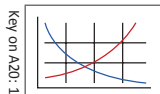
15 Series | Diameter Range: 0.5906" - 0.6298" (15.00 mm - 15.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|------------|----------|---------------------|-----------------------|-----------------------|-----------------------|
| | Fractional Equivalent | D_1 inch | D_1 mm | | | | |
| C1 (K35) | - | 0.5906 | 15.00 | 7C115P-15 | 7C115P-15LR | - | - |
| | 19/32 | 0.5938 | 15.08 | 7C115P-0019 | 7C115P-0019LR | - | - |
| | - | 0.6004 | 15.25 | 7C115P-15.25 | 7C115P-15.25LR | - | - |
| | 39/64 | 0.6094 | 15.48 | 7C115P-.609 | 7C115P-.609LR | - | - |
| | - | 0.6103 | 15.50 | 7C115P-15.5 | 7C115P-15.5LR | - | - |
| | - | 0.6181 | 15.70 | 7C115P-.618 | 7C115P-.618LR | - | - |
| | 5/8 | 0.6250 | 15.88 | 7C115P-0020 | 7C115P-0020LR | - | - |
| C2 (K20) | - | 0.5906 | 15.00 | 7C215P-15 | 7C215P-15LR | 7C215P-15CI | 7C215P-15AS |
| | 19/32 | 0.5938 | 15.08 | 7C215P-0019 | 7C215P-0019LR | 7C215P-0019CI | 7C215P-0019AS |
| | - | 0.6004 | 15.25 | 7C215P-15.25 | 7C215P-15.25LR | 7C215P-15.25CI | 7C215P-15.25AS |
| | 39/64 | 0.6094 | 15.48 | 7C215P-.609 | 7C215P-.609LR | 7C215P-.609CI | 7C215P-.609AS |
| | - | 0.6103 | 15.50 | 7C215P-15.5 | 7C215P-15.5LR | 7C215P-15.5CI | 7C215P-15.5AS |
| | - | 0.6181 | 15.70 | 7C215P-.618 | 7C215P-.618LR | 7C215P-.618CI | 7C215P-.618AS |
| | 5/8 | 0.6250 | 15.88 | 7C215P-0020 | 7C215P-0020LR | 7C215P-0020CI | 7C215P-0020AS |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9

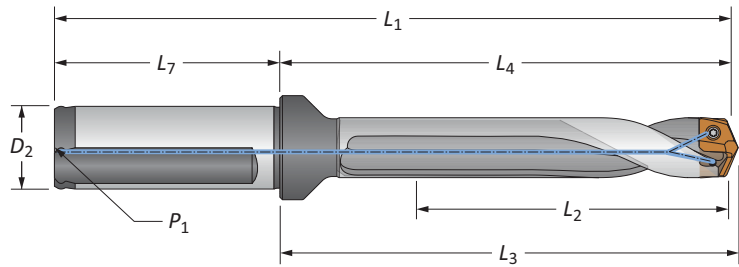


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

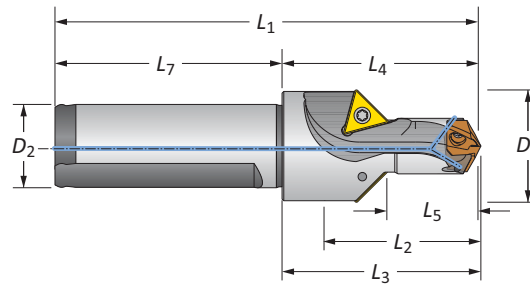
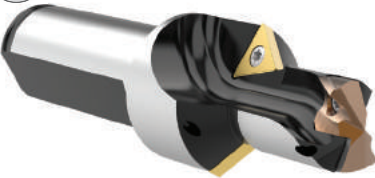
15 Series | Diameter Range: 0.5906" - 0.6298" (15.00 mm - 15.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 1-57/64 | 2-61/64 | 3-3/64 | 4-63/64 | 2-1/32 | 3/4 | 1/8 | YES | 60315S-075F | |
| | 5xD | 3-9/64 | 4-13/64 | 4-5/16 | 6-15/64 | 2-1/32 | 3/4 | 1/8 | YES | 60515S-075F | |
| | 7xD | 4-13/32 | 5-15/32 | 5-37/64 | 7-1/2 | 2-1/32 | 3/4 | 1/8 | YES | 60715S-075F | |
| | Stub | 11/16 | 1-3/4 | 1-27/32 | 3-25/32 | 2-1/32 | 3/4 | 1/8 | YES | 60115H-075F | |
| | 3xD | 1-57/64 | 2-61/64 | 3-3/64 | 4-63/64 | 2-1/32 | 3/4 | 1/8 | YES | 60315H-075F | |
| | 3xD | 1-57/64 | 2-61/64 | 3-3/64 | 4-63/64 | 2-1/32 | 3/4 | 1/8 | NO | 60315H-075C | |
| | 5xD | 3-9/64 | 4-13/64 | 4-5/16 | 6-15/64 | 2-1/32 | 3/4 | 1/8 | YES | 60515H-075F | |
| | 5xD | 3-9/64 | 4-13/64 | 4-5/16 | 6-15/64 | 2-1/32 | 3/4 | 1/8 | NO | 60515H-075C | |
| | 7xD | 4-13/32 | 5-15/32 | 5-37/64 | 7-1/2 | 2-1/32 | 3/4 | 1/8 | YES | 60715H-075F | |
| | 7xD | 4-13/32 | 5-15/32 | 5-37/64 | 7-1/2 | 2-1/32 | 3/4 | 1/8 | NO | 60715H-075C | |
| | Straight | 3xD | 48.0 | 75.0 | 77.5 | 125.0 | 50.0 | 20.0 | 1/8* | YES | 60315S-20FM |
| | | 5xD | 79.8 | 106.8 | 109.5 | 156.8 | 50.0 | 20.0 | 1/8* | YES | 60515S-20FM |
| | | 7xD | 111.9 | 138.9 | 141.5 | 188.9 | 50.0 | 20.0 | 1/8* | YES | 60715S-20FM |
| | Helical | Stub | 17.5 | 44.5 | 46.8 | 94.5 | 50.0 | 20.0 | 1/8* | YES | 60115H-20FM |
| | | 3xD | 48.0 | 75.0 | 77.5 | 125.0 | 50.0 | 20.0 | 1/8* | YES | 60315H-20FM |
| | | 3xD | 48.0 | 75.0 | 77.5 | 125.0 | 50.0 | 20.0 | 1/8* | NO | 60315H-20CM |
| | | 5xD | 79.8 | 106.8 | 109.5 | 156.8 | 50.0 | 20.0 | 1/8* | YES | 60515H-20FM |
| | | 5xD | 79.8 | 106.8 | 109.5 | 156.8 | 50.0 | 20.0 | 1/8* | NO | 60515H-20CM |
| | | 7xD | 111.9 | 138.9 | 141.5 | 188.9 | 50.0 | 20.0 | 1/8* | YES | 60715H-20FM |
| | | 7xD | 111.9 | 138.9 | 141.5 | 188.9 | 50.0 | 20.0 | 1/8* | NO | 60715H-20CM |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| Step | Body | | | | | Shank | | Part No. | Chamfer Insert | |
|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | | | D ₂ |
| | 1-1/16 | 57/64 | 1-1/16 | 1-47/64 | 1-27/32 | 3-49/64 | 2-1/32 | 3/4 | 60115C45-075F | TCMT-110204 |
| | 27.0 | 22.5 | 26.9 | 44.3 | 46.8 | 94.3 | 50.0 | 20.0 | 60115C45-20FM | TCMT-110204 |

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|-------------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| | | | | | |
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

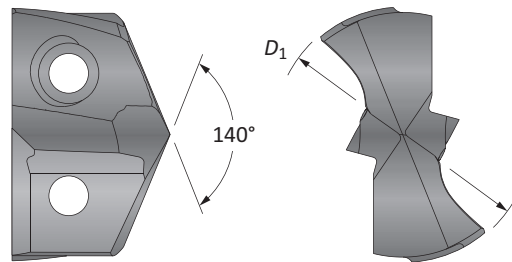
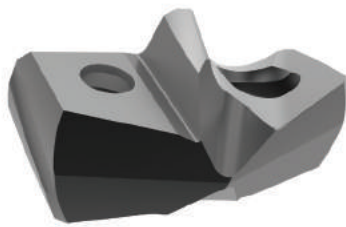
Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10




= Imperial (in)
 = Metric (mm)



GEN3SYS XT Pro Drill Inserts

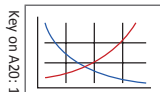
16 Series | Diameter Range: 0.6299" - 0.6692" (16.00 mm - 16.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.6299 | 16.00 | XTP16-16.00 | XTK16-16.00 | XTN16-16.00 |
| - | 0.6331 | 16.08 | XTP16-16.08 | XTK16-16.08 | XTN16-16.08 |
| - | 0.6378 | 16.20 | XTP16-16.20 | XTK16-16.20 | XTN16-16.20 |
| 41/64 | 0.6406 | 16.27 | XTP16-16.27 | XTK16-16.27 | XTN16-16.27 |
| - | 0.6457 | 16.40 | XTP16-16.40 | XTK16-16.40 | XTN16-16.40 |
| - | 0.6496 | 16.50 | XTP16-16.50 | XTK16-16.50 | XTN16-16.50 |
| - | 0.6535 | 16.60 | XTP16-16.60 | XTK16-16.60 | XTN16-16.60 |
| 21/32 | 0.6563 | 16.67 | XTP16-16.67 | XTK16-16.67 | XTN16-16.67 |
| - | 0.6614 | 16.80 | XTP16-16.80 | XTK16-16.80 | XTN16-16.80 |
| - | 0.6654 | 16.90 | XTP16-16.90 | XTK16-16.90 | XTN16-16.90 |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9



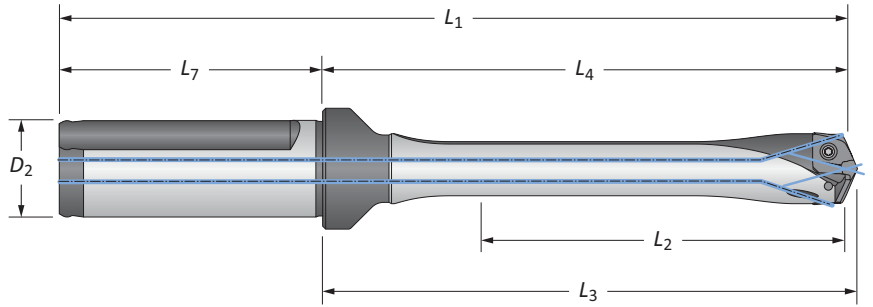
Sizes not shown are available upon request.

When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

16 Series | Diameter Range: 0.6299" - 0.6692" (16.00 mm - 16.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|---------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 2 | 3-13/64 | 3-5/16 | 5-15/64 | 2-1/32 | 3/4 | YES | HXT0316S-075F |
| | 3xD | 2 | 3-13/64 | 3-5/16 | 5-15/64 | 2-1/32 | 3/4 | NO | HXT0316S-075C |
| | 5xD | 3-11/32 | 4-17/32 | 4-21/32 | 6-9/16 | 2-1/32 | 3/4 | YES | HXT0516S-075F |
| | 5xD | 3-11/32 | 4-17/32 | 4-21/32 | 6-9/16 | 2-1/32 | 3/4 | NO | HXT0516S-075C |
| | 7xD | 4-11/16 | 5-7/8 | 5-63/64 | 7-29/32 | 2-1/32 | 3/4 | YES | HXT0716S-075F |
| | 7xD | 4-11/16 | 5-7/8 | 5-63/64 | 7-29/32 | 2-1/32 | 3/4 | NO | HXT0716S-075C |
| | 10xD | 6-11/16 | 7-7/8 | 8 | 9-29/32 | 2-1/32 | 3/4 | YES | HXT1016S-075F |
| | 10xD | 6-11/16 | 7-7/8 | 8 | 9-29/32 | 2-1/32 | 3/4 | NO | HXT1016S-075C |
| m Straight | 12xD | 8-1/32 | 9-7/32 | 9-21/64 | 11-1/4 | 2-1/32 | 3/4 | YES | HXT1216S-075F |
| | 12xD | 8-1/32 | 9-7/32 | 9-21/64 | 11-1/4 | 2-1/32 | 3/4 | NO | HXT1216S-075C |
| | 3xD | 50.8 | 81.3 | 84.2 | 131.3 | 50.0 | 20.0 | YES | HXT0316S-20FM |
| | 3xD | 50.8 | 81.3 | 84.2 | 131.3 | 50.0 | 20.0 | NO | HXT0316S-20CM |
| | 5xD | 85.0 | 115.1 | 118.2 | 165.1 | 50.0 | 20.0 | YES | HXT0516S-20FM |
| | 5xD | 85.0 | 115.1 | 118.2 | 165.1 | 50.0 | 20.0 | NO | HXT0516S-20CM |
| | 7xD | 119.0 | 149.2 | 152.0 | 199.2 | 50.0 | 20.0 | YES | HXT0716S-20FM |
| | 7xD | 119.0 | 149.2 | 152.0 | 199.2 | 50.0 | 20.0 | NO | HXT0716S-20CM |
| | 10xD | 169.9 | 200.0 | 203.2 | 250.0 | 50.0 | 20.0 | YES | HXT1016S-20FM |
| | 10xD | 169.9 | 200.0 | 203.2 | 250.0 | 50.0 | 20.0 | NO | HXT1016S-20CM |
| | 12xD | 204.0 | 234.3 | 237.2 | 284.3 | 50.0 | 20.0 | YES | HXT1216S-20FM |
| | 12xD | 204.0 | 234.3 | 237.2 | 284.3 | 50.0 | 20.0 | NO | HXT1216S-20CM |

Connection Accessories

| | | | | | |
|--------------------|---------------------|--------------|----------------|---------------|--------------------------------------|
| | | | | | Admissible Tightening Torque* |
| 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

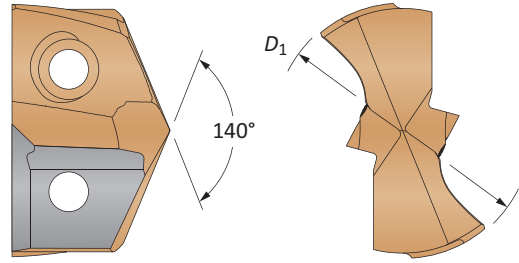
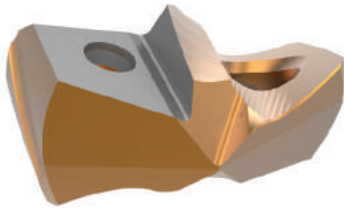
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

GEN3SYS XT Drill Inserts

16 Series | Diameter Range: 0.6299" - 0.6692" (16.00 mm - 16.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|---------------------|-------------------|---------------------|-----------------------|-----------------------|-----------------------|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | | | | |
| C1 (K35) | - | 0.6299 | 16.00 | 7C116P-16 | 7C116P-16LR | - | - |
| | - | 0.6331 | 16.08 | 7C116P-16.08 | 7C116P-16.08LR | - | - |
| | 41/64 | 0.6406 | 16.27 | 7C116P-.640 | 7C116P-.640LR | - | - |
| | - | 0.6496 | 16.50 | 7C116P-16.5 | 7C116P-16.5LR | - | - |
| | 21/32 | 0.6563 | 16.67 | 7C116P-0021 | 7C116P-0021LR | - | - |
| C2 (K20) | - | 0.6299 | 16.00 | 7C216P-16 | 7C216P-16LR | 7C216P-16CI | 7C216P-16AS |
| | - | 0.6331 | 16.08 | 7C216P-16.08 | 7C216P-16.08LR | 7C216P-16.08CI | 7C216P-16.08AS |
| | 41/64 | 0.6406 | 16.27 | 7C216P-.640 | 7C216P-.640LR | 7C216P-.640CI | 7C216P-.640AS |
| | - | 0.6496 | 16.50 | 7C216P-16.5 | 7C216P-16.5LR | 7C216P-16.5CI | 7C216P-16.5AS |
| | 21/32 | 0.6563 | 16.67 | 7C216P-0021 | 7C216P-0021LR | 7C216P-0021CI | 7C216P-0021AS |

Inserts sold in multiples of 1

A
DRILLING

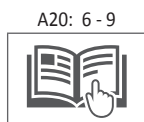
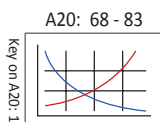
B
BORING

C
REAMING

D
BURNISHING

E
THREADING

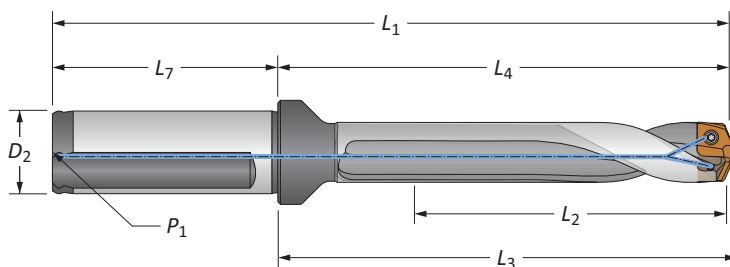
X
SPECIALS



| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

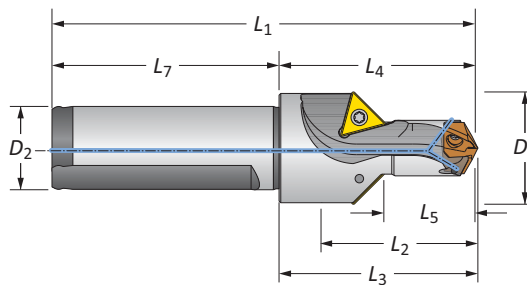
16 Series | Diameter Range: 0.6299" - 0.6692" (16.00 mm - 16.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 2 | 3-13/64 | 3-5/16 | 5-15/64 | 2-1/32 | 3/4 | 1/8 | YES | 60316S-075F | |
| | 5xD | 3-11/32 | 4-17/32 | 4-21/32 | 6-9/16 | 2-1/32 | 3/4 | 1/8 | YES | 60516S-075F | |
| | 7xD | 4-11/16 | 5-7/8 | 5-63/64 | 7-29/32 | 2-1/32 | 3/4 | 1/8 | YES | 60716S-075F | |
| | Stub | 13/16 | 2 | 2-7/64 | 4-1/32 | 2-1/32 | 3/4 | 1/8 | YES | 60116H-075F | |
| | 3xD | 2 | 3-13/64 | 3-5/16 | 5-15/64 | 2-1/32 | 3/4 | 1/8 | YES | 60316H-075F | |
| | 3xD | 2 | 3-13/64 | 3-5/16 | 5-15/64 | 2-1/32 | 3/4 | 1/8 | NO | 60316H-075C | |
| | 5xD | 3-11/32 | 4-17/32 | 4-21/32 | 6-9/16 | 2-1/32 | 3/4 | 1/8 | YES | 60516H-075F | |
| | 5xD | 3-11/32 | 4-17/32 | 4-21/32 | 6-9/16 | 2-1/32 | 3/4 | 1/8 | NO | 60516H-075C | |
| | 7xD | 4-11/16 | 5-7/8 | 5-63/64 | 7-29/32 | 2-1/32 | 3/4 | 1/8 | YES | 60716H-075F | |
| | 7xD | 4-11/16 | 5-7/8 | 5-63/64 | 7-29/32 | 2-1/32 | 3/4 | 1/8 | NO | 60716H-075C | |
| | | 3xD | 50.8 | 81.3 | 84.2 | 131.3 | 50.0 | 20.0 | 1/8* | YES | 60316S-20FM |
| 5xD | | 85.0 | 115.1 | 118.2 | 165.1 | 50.0 | 20.0 | 1/8* | YES | 60516S-20FM | |
| 7xD | | 119.0 | 149.2 | 152.0 | 199.2 | 50.0 | 20.0 | 1/8* | YES | 60716S-20FM | |
| Stub | | 21.0 | 50.8 | 53.7 | 100.8 | 50.0 | 20.0 | 1/8* | YES | 60116H-20FM | |
| 3xD | | 50.8 | 81.3 | 84.2 | 131.3 | 50.0 | 20.0 | 1/8* | YES | 60316H-20FM | |
| 3xD | | 50.8 | 81.3 | 84.2 | 131.3 | 50.0 | 20.0 | 1/8* | NO | 60316H-20CM | |
| 5xD | | 85.0 | 115.1 | 118.2 | 165.1 | 50.0 | 20.0 | 1/8* | YES | 60516H-20FM | |
| 5xD | | 85.0 | 115.1 | 118.2 | 165.1 | 50.0 | 20.0 | 1/8* | NO | 60516H-20CM | |
| 7xD | | 119.0 | 149.2 | 152.0 | 199.2 | 50.0 | 20.0 | 1/8* | YES | 60716H-20FM | |
| 7xD | | 119.0 | 149.2 | 152.0 | 199.2 | 50.0 | 20.0 | 1/8* | NO | 60716H-20CM | |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| | Step | | Body | | | | Shank | | Part No. | Chamfer Insert |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | |
| i | 1-1/16 | 61/64 | 1-19/64 | 2 | 2-7/64 | 4-1/32 | 2-1/32 | 3/4 | 60116C45-075F | TCMT-110204 |
| m | 27.0 | 24.0 | 33.1 | 50.8 | 53.7 | 100.8 | 50.0 | 20.0 | 60116C45-20FM | TCMT-110204 |

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

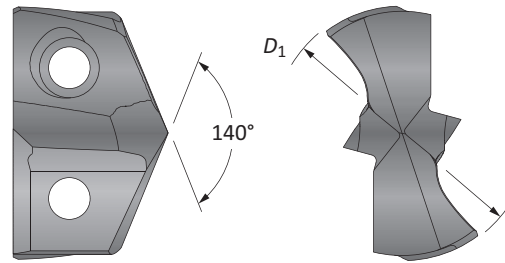
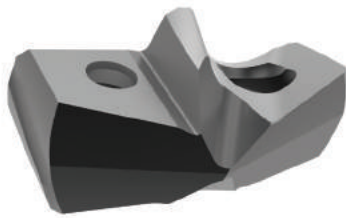
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

i = Imperial (in)
m = Metric (mm)

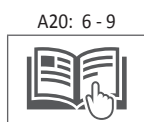
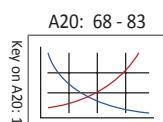
GEN3SYS XT Pro Drill Inserts

17 Series | Diameter Range: 0.6693" - 0.7086" (17.00 mm - 17.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.6693 | 17.00 | XTP17-17.00 | XTK17-17.00 | XTN17-17.00 |
| 43/64 | 0.6720 | 17.07 | XTP17-17.07 | XTK17-17.07 | XTN17-17.07 |
| - | 0.6732 | 17.10 | XTP17-17.10 | XTK17-17.10 | XTN17-17.10 |
| - | 0.6772 | 17.20 | XTP17-17.20 | XTK17-17.20 | XTN17-17.20 |
| - | 0.6811 | 17.30 | XTP17-17.30 | XTK17-17.30 | XTN17-17.30 |
| - | 0.6850 | 17.40 | XTP17-17.40 | XTK17-17.40 | XTN17-17.40 |
| 11/16 | 0.6874 | 17.46 | XTP17-17.46 | XTK17-17.46 | XTN17-17.46 |
| - | 0.6890 | 17.50 | XTP17-17.50 | XTK17-17.50 | XTN17-17.50 |
| - | 0.6929 | 17.60 | XTP17-17.60 | XTK17-17.60 | XTN17-17.60 |
| - | 0.6969 | 17.70 | XTP17-17.70 | XTK17-17.70 | XTN17-17.70 |
| - | 0.7008 | 17.80 | XTP17-17.80 | XTK17-17.80 | XTN17-17.80 |
| 45/64 | 0.7031 | 17.86 | XTP17-17.86 | XTK17-17.86 | XTN17-17.86 |
| - | 0.7047 | 17.90 | XTP17-17.90 | XTK17-17.90 | XTN17-17.90 |

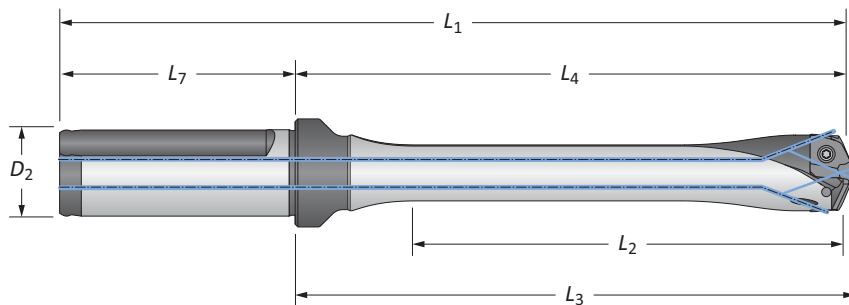
Inserts sold in multiples of 1



| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

17 Series | Diameter Range: 0.6693" - 0.7086" (17.00 mm - 17.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|-------------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 2-1/8 | 3-19/64 | 3-27/64 | 5-21/64 | 2-1/32 | 3/4 | YES | HXT0317S-075F |
| | 3xD | 2-1/8 | 3-19/64 | 3-27/64 | 5-21/64 | 2-1/32 | 3/4 | NO | HXT0317S-075C |
| | 5xD | 3-35/64 | 4-23/32 | 4-27/32 | 6-3/4 | 2-1/32 | 3/4 | YES | HXT0517S-075F |
| | 5xD | 3-35/64 | 4-23/32 | 4-27/32 | 6-3/4 | 2-1/32 | 3/4 | NO | HXT0517S-075C |
| | 7xD | 4-61/64 | 6-9/64 | 6-1/4 | 8-11/64 | 2-1/32 | 3/4 | YES | HXT0717S-075F |
| | 7xD | 4-61/64 | 6-9/64 | 6-1/4 | 8-11/64 | 2-1/32 | 3/4 | NO | HXT0717S-075C |
| | 10xD | 7-5/64 | 8-17/64 | 8-3/8 | 10-19/64 | 2-1/32 | 3/4 | YES | ⚠ HXT1017S-075F |
| | 10xD | 7-5/64 | 8-17/64 | 8-3/8 | 10-19/64 | 2-1/32 | 3/4 | NO | ⚠ HXT1017S-075C |
| m Straight | 3xD | 54.0 | 83.8 | 86.9 | 133.8 | 50.0 | 20.0 | YES | HXT0317S-20FM |
| | 3xD | 54.0 | 83.8 | 86.9 | 133.8 | 50.0 | 20.0 | NO | HXT0317S-20CM |
| | 5xD | 90.0 | 119.8 | 122.9 | 169.8 | 50.0 | 20.0 | YES | HXT0517S-20FM |
| | 5xD | 90.0 | 119.8 | 122.9 | 169.8 | 50.0 | 20.0 | NO | HXT0517S-20CM |
| | 7xD | 125.8 | 156.0 | 158.9 | 206.0 | 50.0 | 20.0 | YES | HXT0717S-20FM |
| | 7xD | 125.8 | 156.0 | 158.9 | 206.0 | 50.0 | 20.0 | NO | HXT0717S-20CM |
| | 10xD | 179.8 | 209.9 | 212.8 | 259.9 | 50.0 | 20.0 | YES | ⚠ HXT1017S-20FM |
| | 10xD | 179.8 | 209.9 | 212.8 | 259.9 | 50.0 | 20.0 | NO | ⚠ HXT1017S-20CM |
| 12xD | 216.0 | 246.0 | 248.9 | 296.0 | 50.0 | 20.0 | YES | ⚠ HXT1217S-20FM | |
| 12xD | 216.0 | 246.0 | 248.9 | 296.0 | 50.0 | 20.0 | NO | ⚠ HXT1217S-20CM | |

Connection Accessories

| | | | | | |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| | | | | | Admissible Tightening Torque* |
| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | |
| 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

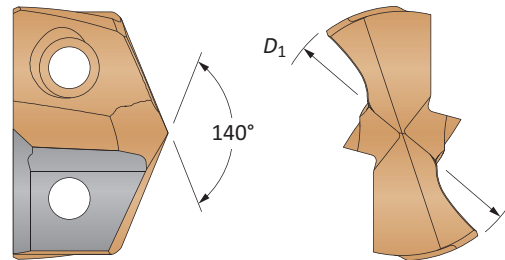
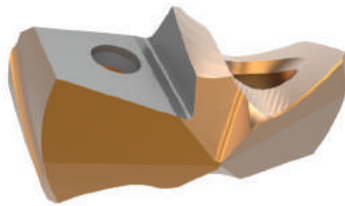
Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



GEN3SYS XT Drill Inserts

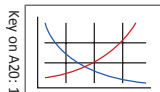
17 Series | Diameter Range: 0.6693" - 0.7086" (17.00 mm - 17.99 mm)



| Carbide Substrate | Insert | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. | |
|-------------------|-----------------------|------------|-------------------|--------------------|----------------------|----------------------|----------------------|
| | Fractional Equivalent | D_1 inch | | | | | D_1 mm |
| C1 (K35) | | 0.6693 | 17.00 | 7C117P-17 | 7C117P-17LR | - | - |
| | 43/64 | 0.6719 | 17.07 | 7C117P-.671 | 7C117P-.671LR | - | - |
| | | 0.6732 | 17.10 | 7C117P-17.1 | 7C117P-17.1LR | - | - |
| | | 0.6772 | 17.20 | 7C117P-17.2 | 7C117P-17.2LR | - | - |
| | 11/16 | 0.6875 | 17.46 | 7C117P-0022 | 7C117P-0022LR | - | - |
| | | 0.6890 | 17.50 | 7C117P-17.5 | 7C117P-17.5LR | - | - |
| | 45/64 | 0.7031 | 17.86 | 7C117P-.703 | 7C117P-.703LR | - | - |
| C2 (K20) | | 0.6693 | 17.00 | 7C217P-17 | 7C217P-17LR | 7C217P-17CI | 7C217P-17AS |
| | 43/64 | 0.6719 | 17.07 | 7C217P-.671 | 7C217P-.671LR | 7C217P-.671CI | 7C217P-.671AS |
| | | 0.6732 | 17.10 | 7C217P-17.1 | 7C217P-17.1LR | 7C217P-17.1CI | 7C217P-17.1AS |
| | | 0.6772 | 17.20 | 7C217P-17.2 | 7C217P-17.2LR | 7C217P-17.2CI | 7C217P-17.2AS |
| | 11/16 | 0.6875 | 17.46 | 7C217P-0022 | 7C217P-0022LR | 7C217P-0022CI | 7C217P-0022AS |
| | | 0.6890 | 17.50 | 7C217P-17.5 | 7C217P-17.5LR | 7C217P-17.5CI | 7C217P-17.5AS |
| | | 45/64 | 0.7031 | 17.86 | 7C217P-.703 | 7C217P-.703LR | 7C217P-.703CI |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9



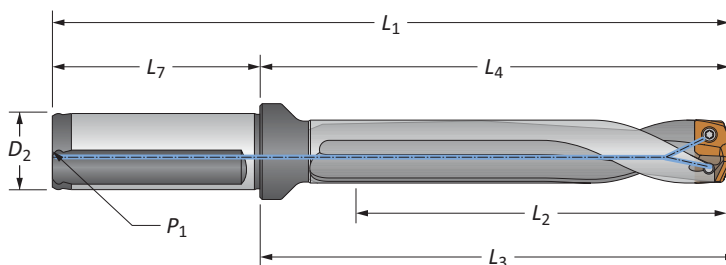
Key on A20: 1

Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

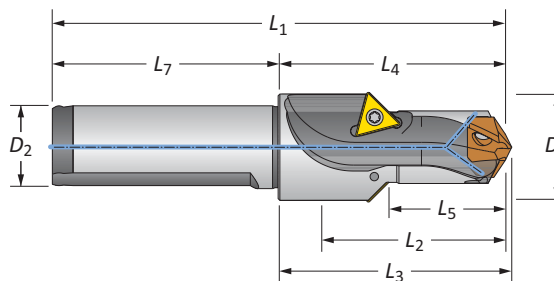
17 Series | Diameter Range: 0.6693" - 0.7086" (17.00 mm - 17.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 2-1/8 | 3-19/64 | 3-27/64 | 5-21/64 | 2-1/32 | 3/4 | 1/8 | YES | 60317S-075F | |
| | 5xD | 3-35/64 | 4-23/32 | 4-27/32 | 6-3/4 | 2-1/32 | 3/4 | 1/8 | YES | 60517S-075F | |
| | 7xD | 4-61/64 | 6-9/64 | 6-1/4 | 8-11/64 | 2-1/32 | 3/4 | 1/8 | YES | 60717S-075F | |
| | Stub | 13/16 | 1-63/64 | 2-7/64 | 4-1/64 | 2-1/32 | 3/4 | 1/8 | YES | 60117H-075F | |
| | 3xD | 2-1/8 | 3-19/64 | 3-27/64 | 5-21/64 | 2-1/32 | 3/4 | 1/8 | YES | 60317H-075F | |
| | 3xD | 2-1/8 | 3-19/64 | 3-27/64 | 5-21/64 | 2-1/32 | 3/4 | 1/8 | NO | 60317H-075C | |
| | 5xD | 3-35/64 | 4-23/32 | 4-27/32 | 6-3/4 | 2-1/32 | 3/4 | 1/8 | YES | 60517H-075F | |
| | 5xD | 3-35/64 | 4-23/32 | 4-27/32 | 6-3/4 | 2-1/32 | 3/4 | 1/8 | NO | 60517H-075C | |
| | 7xD | 4-61/64 | 6-9/64 | 6-1/4 | 8-11/64 | 2-1/32 | 3/4 | 1/8 | YES | 60717H-075F | |
| | 7xD | 4-61/64 | 6-9/64 | 6-1/4 | 8-11/64 | 2-1/32 | 3/4 | 1/8 | NO | 60717H-075C | |
| | | 3xD | 54.0 | 83.8 | 86.9 | 133.8 | 50.0 | 20.0 | 1/8* | YES | 60317S-20FM |
| 5xD | | 90.0 | 119.8 | 122.9 | 169.8 | 50.0 | 20.0 | 1/8* | YES | 60517S-20FM | |
| 7xD | | 125.8 | 156.0 | 158.9 | 206.0 | 50.0 | 20.0 | 1/8* | YES | 60717S-20FM | |
| Stub | | 20.6 | 50.5 | 53.5 | 100.5 | 50.0 | 20.0 | 1/8* | YES | 60117H-20FM | |
| 3xD | | 54.0 | 83.8 | 86.9 | 133.8 | 50.0 | 20.0 | 1/8* | YES | 60317H-20FM | |
| 3xD | | 54.0 | 83.8 | 86.9 | 133.8 | 50.0 | 20.0 | 1/8* | NO | 60317H-20CM | |
| 5xD | | 90.0 | 119.8 | 122.9 | 169.8 | 50.0 | 20.0 | 1/8* | YES | 60517H-20FM | |
| 5xD | | 90.0 | 119.8 | 122.9 | 169.8 | 50.0 | 20.0 | 1/8* | NO | 60517H-20CM | |
| 7xD | | 125.8 | 156.0 | 158.9 | 206.0 | 50.0 | 20.0 | 1/8* | YES | 60717H-20FM | |
| 7xD | | 125.8 | 156.0 | 158.9 | 206.0 | 50.0 | 20.0 | 1/8* | NO | 60717H-20CM | |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| Step | Body | | | | Shank | | | Part No. | Chamfer Insert | |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | | | D ₂ |
| i | 1 | 1 | 1-5/16 | 1-63/64 | 2-7/64 | 4-1/64 | 2-1/32 | 3/4 | 60117C45-075F | TCMT-110204 |
| m | 25.4 | 25.5 | 33.3 | 50.5 | 53.4 | 100.5 | 50.0 | 20.0 | 60117C45-20FM | TCMT-110204 |

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

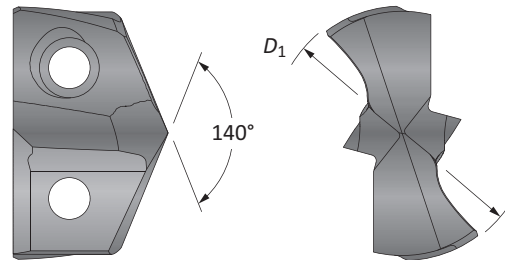
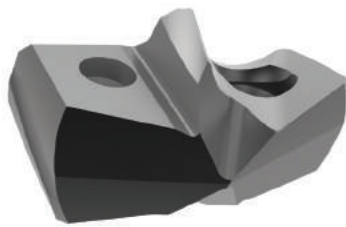
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

i = Imperial (in)
m = Metric (mm)

GEN3SYS XT Pro Drill Inserts

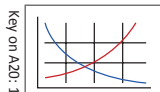
18 Series | Diameter Range: 0.7087" - 0.7873" (18.00 mm - 19.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.7087 | 18.00 | XTP18-18.00 | XTK18-18.00 | XTN18-18.00 |
| - | 0.7126 | 18.10 | XTP18-18.10 | XTK18-18.10 | XTN18-18.10 |
| - | 0.7165 | 18.20 | XTP18-18.20 | XTK18-18.20 | XTN18-18.20 |
| 23/32 | 0.7189 | 18.26 | XTP18-18.26 | XTK18-18.26 | XTN18-18.26 |
| - | 0.7205 | 18.30 | XTP18-18.30 | XTK18-18.30 | XTN18-18.30 |
| - | 0.7244 | 18.40 | XTP18-18.40 | XTK18-18.40 | XTN18-18.40 |
| - | 0.7283 | 18.50 | XTP18-18.50 | XTK18-18.50 | XTN18-18.50 |
| - | 0.7323 | 18.60 | XTP18-18.60 | XTK18-18.60 | XTN18-18.60 |
| 47/64 | 0.7343 | 18.65 | XTP18-18.65 | XTK18-18.65 | XTN18-18.65 |
| - | 0.7362 | 18.70 | XTP18-18.70 | XTK18-18.70 | XTN18-18.70 |
| - | 0.7402 | 18.80 | XTP18-18.80 | XTK18-18.80 | XTN18-18.80 |
| - | 0.7441 | 18.90 | XTP18-18.90 | XTK18-18.90 | XTN18-18.90 |
| - | 0.7480 | 19.00 | XTP18-19.00 | XTK18-19.00 | XTN18-19.00 |
| 3/4 | 0.7500 | 19.05 | XTP18-19.05 | XTK18-19.05 | XTN18-19.05 |
| - | 0.7520 | 19.10 | XTP18-19.10 | XTK18-19.10 | XTN18-19.10 |
| - | 0.7559 | 19.20 | XTP18-19.20 | XTK18-19.20 | XTN18-19.20 |
| - | 0.7579 | 19.25 | XTP18-19.25 | XTK18-19.25 | XTN18-19.25 |
| - | 0.7598 | 19.30 | XTP18-19.30 | XTK18-19.30 | XTN18-19.30 |
| - | 0.7638 | 19.40 | XTP18-19.40 | XTK18-19.40 | XTN18-19.40 |
| 49/64 | 0.7657 | 19.45 | XTP18-19.45 | XTK18-19.45 | XTN18-19.45 |
| - | 0.7677 | 19.50 | XTP18-19.50 | XTK18-19.50 | XTN18-19.50 |
| - | 0.7717 | 19.60 | XTP18-19.60 | XTK18-19.60 | XTN18-19.60 |
| - | 0.7756 | 19.70 | XTP18-19.70 | XTK18-19.70 | XTN18-19.70 |
| - | 0.7795 | 19.80 | XTP18-19.80 | XTK18-19.80 | XTN18-19.80 |
| 25/32 | 0.7811 | 19.84 | XTP18-19.84 | XTK18-19.84 | XTN18-19.84 |
| - | 0.7835 | 19.90 | XTP18-19.90 | XTK18-19.90 | XTN18-19.90 |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9



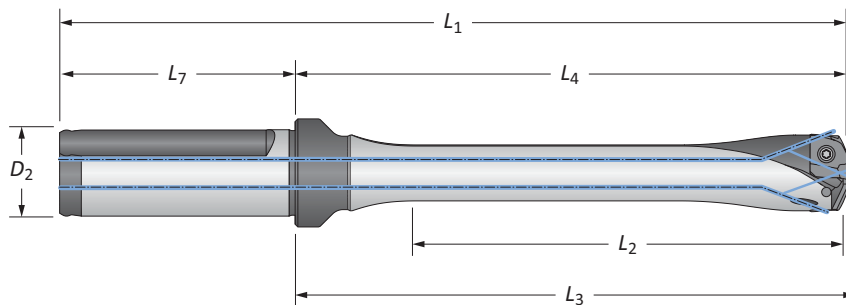
Key on A20: 1

Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

18 Series | Diameter Range: 0.7087" - 0.7873" (18.00 mm - 19.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|-------------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 2-23/64 | 3-45/64 | 3-13/16 | 5-63/64 | 2-9/32 | 1 | YES | HXT0318S-100F |
| | 3xD | 2-23/64 | 3-45/64 | 3-13/16 | 5-63/64 | 2-9/32 | 1 | NO | HXT0318S-100C |
| | 5xD | 3-15/16 | 5-17/64 | 5-25/64 | 7-35/64 | 2-9/32 | 1 | YES | HXT0518S-100F |
| | 5xD | 3-15/16 | 5-17/64 | 5-25/64 | 7-35/64 | 2-9/32 | 1 | NO | HXT0518S-100C |
| | 7xD | 5-33/64 | 6-27/32 | 6-61/64 | 9-1/8 | 2-9/32 | 1 | YES | HXT0718S-100F |
| | 7xD | 5-33/64 | 6-27/32 | 6-61/64 | 9-1/8 | 2-9/32 | 1 | NO | HXT0718S-100C |
| | 10xD | 7-7/8 | 9-7/32 | 9-5/16 | 11-31/64 | 2-9/32 | 1 | YES | HXT1018S-100F |
| | 10xD | 7-7/8 | 9-7/32 | 9-5/16 | 11-31/64 | 2-9/32 | 1 | NO | HXT1018S-100C |
| m Straight | 3xD | 60.0 | 94.0 | 96.8 | 150.0 | 56.0 | 25.0 | YES | HXT0318S-25FM |
| | 3xD | 60.0 | 94.0 | 96.8 | 150.0 | 56.0 | 25.0 | NO | HXT0318S-25CM |
| | 5xD | 100.0 | 133.7 | 136.8 | 189.7 | 56.0 | 25.0 | YES | HXT0518S-25FM |
| | 5xD | 100.0 | 133.7 | 136.8 | 189.7 | 56.0 | 25.0 | NO | HXT0518S-25CM |
| | 7xD | 140.0 | 173.4 | 176.8 | 229.4 | 56.0 | 25.0 | YES | HXT0718S-25FM |
| | 7xD | 140.0 | 173.4 | 176.8 | 229.4 | 56.0 | 25.0 | NO | HXT0718S-25CM |
| | 10xD | 199.9 | 234.1 | 236.7 | 290.1 | 56.0 | 25.0 | YES | HXT1018S-25FM |
| | 10xD | 199.9 | 234.1 | 236.7 | 290.1 | 56.0 | 25.0 | NO | HXT1018S-25CM |
| i Straight | 12xD | 240.0 | 273.9 | 276.7 | 329.9 | 56.0 | 25.0 | YES | HXT1218S-100F |
| | 12xD | 240.0 | 273.9 | 276.7 | 329.9 | 56.0 | 25.0 | NO | HXT1218S-100C |
| m Straight | 12xD | 240.0 | 273.9 | 276.7 | 329.9 | 56.0 | 25.0 | YES | HXT1218S-25FM |
| | 12xD | 240.0 | 273.9 | 276.7 | 329.9 | 56.0 | 25.0 | NO | HXT1218S-25CM |

Connection Accessories

| | | | | | |
|------------|-------------|-------|---------|--------|-------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

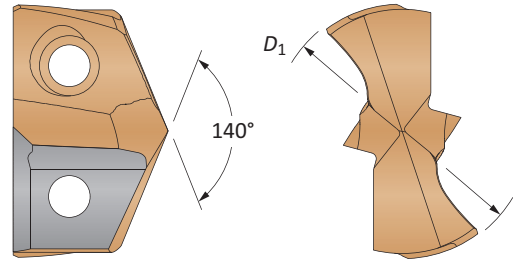
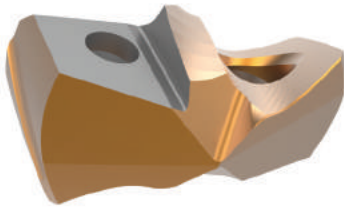
X

SPECIALS



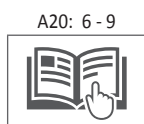
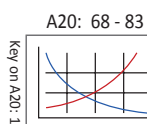
GEN3SYS XT Drill Inserts

18 Series | Diameter Range: 0.7087" - 0.7873" (18.00 mm - 19.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|---------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | | | | |
| C1 (K35) | - | 0.7087 | 18.00 | 7C118P-18 | 7C118P-18LR | - | - |
| | 23/32 | 0.7188 | 18.26 | 7C118P-0023 | 7C118P-0023LR | - | - |
| | - | 0.7283 | 18.50 | 7C118P-18.5 | 7C118P-18.5LR | - | - |
| | 47/64 | 0.7344 | 18.65 | 7C118P-.734 | 7C118P-.734LR | - | - |
| | - | 0.7480 | 19.00 | 7C118P-19 | 7C118P-19LR | - | - |
| | 3/4 | 0.7500 | 19.05 | 7C118P-0024 | 7C118P-0024LR | - | - |
| | - | 0.7580 | 19.25 | 7C118P-.758 | 7C118P-.758LR | - | - |
| | 49/64 | 0.7656 | 19.45 | 7C118P-.765 | 7C118P-.765LR | - | - |
| | - | 0.7677 | 19.50 | 7C118P-19.5 | 7C118P-19.5LR | - | - |
| | - | 0.7795 | 19.80 | 7C118P-19.8 | 7C118P-19.8LR | - | - |
| 25/32 | 0.7813 | 19.85 | 7C118P-0025 | 7C118P-0025LR | - | - | |
| C2 (K20) | - | 0.7087 | 18.00 | 7C218P-18 | 7C218P-18LR | 7C218P-18CI | 7C218P-18AS |
| | 23/32 | 0.7188 | 18.26 | 7C218P-0023 | 7C218P-0023LR | 7C218P-0023CI | 7C218P-0023AS |
| | - | 0.7283 | 18.50 | 7C218P-18.5 | 7C218P-18.5LR | 7C218P-18.5CI | 7C218P-18.5AS |
| | 47/64 | 0.7344 | 18.65 | 7C218P-.734 | 7C218P-.734LR | 7C218P-.734CI | 7C218P-.734AS |
| | - | 0.7480 | 19.00 | 7C218P-19 | 7C218P-19LR | 7C218P-19CI | 7C218P-19AS |
| | 3/4 | 0.7500 | 19.05 | 7C218P-0024 | 7C218P-0024LR | 7C218P-0024CI | 7C218P-0024AS |
| | - | 0.7580 | 19.25 | 7C218P-.758 | 7C218P-.758LR | 7C218P-.758CI | 7C218P-.758AS |
| | 49/64 | 0.7656 | 19.45 | 7C218P-.765 | 7C218P-.765LR | 7C218P-.765CI | 7C218P-.765AS |
| | - | 0.7677 | 19.50 | 7C218P-19.5 | 7C218P-19.5LR | 7C218P-19.5CI | 7C218P-19.5AS |
| | - | 0.7795 | 19.80 | 7C218P-19.8 | 7C218P-19.8LR | 7C218P-19.8CI | 7C218P-19.8AS |
| 25/32 | 0.7813 | 19.85 | 7C218P-0025 | 7C218P-0025LR | 7C218P-0025CI | 7C218P-0025AS | |

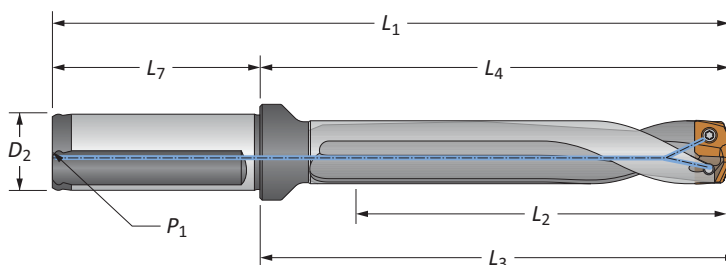
Inserts sold in multiples of 1

A
DRILLINGB
BORINGC
REAMINGD
BURNISHINGE
THREADINGX
SPECIALS

| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

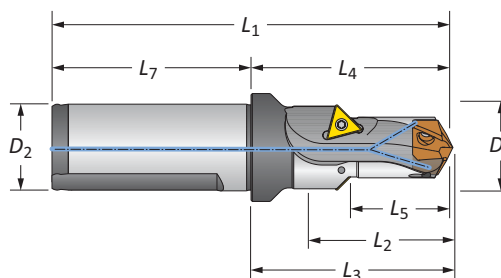
18 Series | Diameter Range: 0.7087" - 0.7873" (18.00 mm - 19.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 2-23/64 | 3-45/64 | 3-13/16 | 5-63/64 | 2-9/32 | 1 | 1/8 | YES | 60318S-100F | |
| | 5xD | 3-15/16 | 5-17/64 | 5-25/64 | 7-35/64 | 2-9/32 | 1 | 1/8 | YES | 60518S-100F | |
| | 7xD | 5-33/64 | 6-27/32 | 6-61/64 | 9-1/8 | 2-9/32 | 1 | 1/8 | YES | 60718S-100F | |
| | Stub | 7/8 | 2-13/64 | 2-5/16 | 4-31/64 | 2-9/32 | 1 | 1/8 | YES | 60118H-100F | |
| | 3xD | 2-23/64 | 3-45/64 | 3-13/16 | 5-63/64 | 2-9/32 | 1 | 1/8 | YES | 60318H-100F | |
| | 3xD | 2-23/64 | 3-45/64 | 3-13/16 | 5-63/64 | 2-9/32 | 1 | 1/8 | NO | 60318H-100C | |
| | 5xD | 3-15/16 | 5-17/64 | 5-25/64 | 7-35/64 | 2-9/32 | 1 | 1/8 | YES | 60518H-100F | |
| | 5xD | 3-15/16 | 5-17/64 | 5-25/64 | 7-35/64 | 2-9/32 | 1 | 1/8 | NO | 60518H-100C | |
| | 7xD | 5-33/64 | 6-27/32 | 6-61/64 | 9-1/8 | 2-9/32 | 1 | 1/8 | YES | 60718H-100F | |
| | 7xD | 5-33/64 | 6-27/32 | 6-61/64 | 9-1/8 | 2-9/32 | 1 | 1/8 | NO | 60718H-100C | |
| | Straight | 3xD | 60.0 | 94.0 | 96.8 | 150.0 | 56.0 | 25.0 | 1/8* | YES | 60318S-25FM |
| | | 5xD | 100.0 | 133.7 | 136.8 | 189.7 | 56.0 | 25.0 | 1/8* | YES | 60518S-25FM |
| | | 7xD | 140.0 | 173.4 | 176.8 | 229.4 | 56.0 | 25.0 | 1/8* | YES | 60718S-25FM |
| | Helical | Stub | 22.0 | 56.0 | 58.8 | 112.0 | 56.0 | 25.0 | 1/8* | YES | 60118H-25FM |
| | | 3xD | 60.0 | 94.0 | 96.8 | 150.0 | 56.0 | 25.0 | 1/8* | YES | 60318H-25FM |
| | | 3xD | 60.0 | 94.0 | 96.8 | 150.0 | 56.0 | 25.0 | 1/8* | NO | 60318H-25CM |
| | | 5xD | 100.0 | 133.7 | 136.8 | 189.7 | 56.0 | 25.0 | 1/8* | YES | 60518H-25FM |
| | | 5xD | 100.0 | 133.7 | 136.8 | 189.7 | 56.0 | 25.0 | 1/8* | NO | 60518H-25CM |
| | | 7xD | 140.0 | 173.4 | 176.8 | 229.4 | 56.0 | 25.0 | 1/8* | YES | 60718H-25FM |
| | | 7xD | 140.0 | 173.4 | 176.8 | 229.4 | 56.0 | 25.0 | 1/8* | NO | 60718H-25CM |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| Step | Body | | | | Shank | | Part No. | Chamfer Insert | | |
|------|----------------|----------------|----------------|----------------|----------------|----------------|----------|----------------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | | | L ₇ | D ₂ |
| | 63/64 | 1-1/16 | 1-25/64 | 2-13/64 | 2-5/16 | 4-31/64 | 2-9/32 | 1 | 60118C45-100F | TCMT-110204 |
| | 25.1 | 27 | 35.2 | 56.0 | 58.8 | 112.0 | 56.0 | 25.0 | 60118C45-25FM | TCMT-110204 |

Connection Accessories

| | | | | | |
|-------------------|--------------------|--------------|----------------|---------------|--------------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

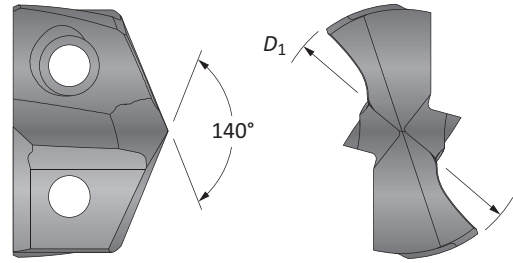
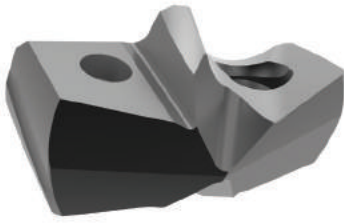
Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10




= Imperial (in)
 = Metric (mm)



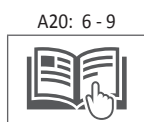
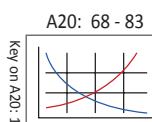
GEN3SYS XT Pro Drill Inserts

20 Series | Diameter Range: 0.7874" - 0.8660" (20.00 mm - 21.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.7874 | 20.00 | XTP20-20.00 | XTK20-20.00 | XTN20-20.00 |
| - | 0.7913 | 20.10 | XTP20-20.10 | XTK20-20.10 | XTN20-20.10 |
| - | 0.7953 | 20.20 | XTP20-20.20 | XTK20-20.20 | XTN20-20.20 |
| 51/64 | 0.7969 | 20.24 | XTP20-20.24 | XTK20-20.24 | XTN20-20.24 |
| - | 0.7992 | 20.30 | XTP20-20.30 | XTK20-20.30 | XTN20-20.30 |
| - | 0.8031 | 20.40 | XTP20-20.40 | XTK20-20.40 | XTN20-20.40 |
| - | 0.8071 | 20.50 | XTP20-20.50 | XTK20-20.50 | XTN20-20.50 |
| - | 0.8110 | 20.60 | XTP20-20.60 | XTK20-20.60 | XTN20-20.60 |
| 13/16 | 0.8126 | 20.64 | XTP20-20.64 | XTK20-20.64 | XTN20-20.64 |
| - | 0.8150 | 20.70 | XTP20-20.70 | XTK20-20.70 | XTN20-20.70 |
| - | 0.8189 | 20.80 | XTP20-20.80 | XTK20-20.80 | XTN20-20.80 |
| - | 0.8228 | 20.90 | XTP20-20.90 | XTK20-20.90 | XTN20-20.90 |
| - | 0.8268 | 21.00 | XTP20-21.00 | XTK20-21.00 | XTN20-21.00 |
| - | 0.8307 | 21.10 | XTP20-21.10 | XTK20-21.10 | XTN20-21.10 |
| - | 0.8346 | 21.20 | XTP20-21.20 | XTK20-21.20 | XTN20-21.20 |
| - | 0.8386 | 21.30 | XTP20-21.30 | XTK20-21.30 | XTN20-21.30 |
| - | 0.8425 | 21.40 | XTP20-21.40 | XTK20-21.40 | XTN20-21.40 |
| 27/32 | 0.8437 | 21.43 | XTP20-21.43 | XTK20-21.43 | XTN20-21.43 |
| - | 0.8465 | 21.50 | XTP20-21.50 | XTK20-21.50 | XTN20-21.50 |
| - | 0.8504 | 21.60 | XTP20-21.60 | XTK20-21.60 | XTN20-21.60 |
| - | 0.8543 | 21.70 | XTP20-21.70 | XTK20-21.70 | XTN20-21.70 |
| - | 0.8583 | 21.80 | XTP20-21.80 | XTK20-21.80 | XTN20-21.80 |
| 55/64 | 0.8594 | 21.83 | XTP20-21.83 | XTK20-21.83 | XTN20-21.83 |
| - | 0.8622 | 21.90 | XTP20-21.90 | XTK20-21.90 | XTN20-21.90 |

Inserts sold in multiples of 1

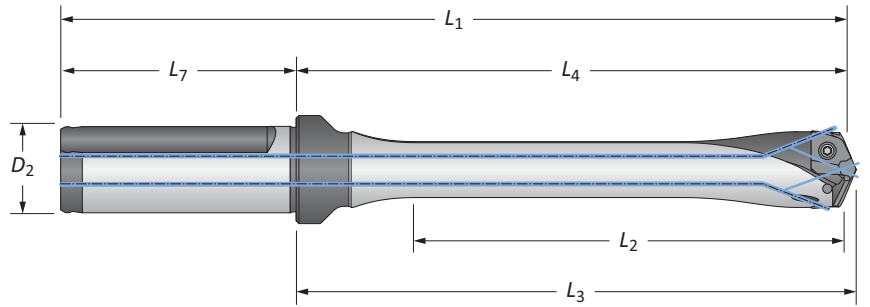


| | |
|--|--|
| Sizes not shown are available upon request. When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |



GEN3SYS XT Pro Drill Insert Holders

20 Series | Diameter Range: 0.7874" - 0.8660" (20.00 mm - 21.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|-------------------|----------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 2-19/32 | 3-15/16 | 4-3/64 | 6-7/32 | 2-9/32 | 1 | YES | HXT0320S-100F |
| | 3xD | 2-19/32 | 3-15/16 | 4-3/64 | 6-7/32 | 2-9/32 | 1 | NO | HXT0320S-100C |
| | 5xD | 4-21/64 | 5-43/64 | 5-25/32 | 7-61/64 | 2-9/32 | 1 | YES | HXT0520S-100F |
| | 5xD | 4-21/64 | 5-43/64 | 5-25/32 | 7-61/64 | 2-9/32 | 1 | NO | HXT0520S-100C |
| | 7xD | 6-1/16 | 7-13/32 | 7-33/64 | 9-11/16 | 2-9/32 | 1 | YES | HXT0720S-100F |
| | 7xD | 6-1/16 | 7-13/32 | 7-33/64 | 9-11/16 | 2-9/32 | 1 | NO | HXT0720S-100C |
| | 10xD | 8-21/32 | 10 | 10-7/64 | 12-9/32 | 2-9/32 | 1 | YES | HXT1020S-100F |
| | 10xD | 8-21/32 | 10 | 10-7/64 | 12-9/32 | 2-9/32 | 1 | NO | HXT1020S-100C |
| | 12xD | 10-25/64 | 11-47/64 | 11-27/32 | 14-1/64 | 2-9/32 | 1 | YES | HXT1220S-100F |
| 12xD | 10-25/64 | 11-47/64 | 11-27/32 | 14-1/64 | 2-9/32 | 1 | NO | HXT1220S-100C | |
| m Straight | 3xD | 66.0 | 100.0 | 102.9 | 156.0 | 56.0 | 25.0 | YES | HXT0320S-25FM |
| | 3xD | 66.0 | 100.0 | 102.9 | 156.0 | 56.0 | 25.0 | NO | HXT0320S-25CM |
| | 5xD | 110.0 | 144.0 | 146.9 | 200.0 | 56.0 | 25.0 | YES | HXT0520S-25FM |
| | 5xD | 110.0 | 144.0 | 146.9 | 200.0 | 56.0 | 25.0 | NO | HXT0520S-25CM |
| | 7xD | 153.9 | 187.0 | 190.9 | 243.0 | 56.0 | 25.0 | YES | HXT0720S-25FM |
| | 7xD | 153.9 | 187.0 | 190.9 | 243.0 | 56.0 | 25.0 | NO | HXT0720S-25CM |
| | 10xD | 219.9 | 254.0 | 256.8 | 310.0 | 56.0 | 25.0 | YES | HXT1020S-25FM |
| | 10xD | 219.9 | 254.0 | 256.8 | 310.0 | 56.0 | 25.0 | NO | HXT1020S-25CM |
| | 12xD | 264.0 | 298.0 | 300.8 | 354.0 | 56.0 | 25.0 | YES | HXT1220S-25FM |
| 12xD | 264.0 | 298.0 | 300.8 | 354.0 | 56.0 | 25.0 | NO | HXT1220S-25CM | |

Connection Accessories

| | | | | | |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| | | | | | Admissible Tightening Torque* |
| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | |
| 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

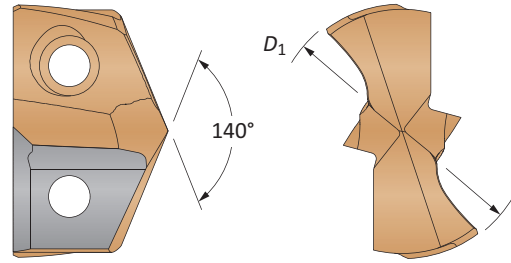
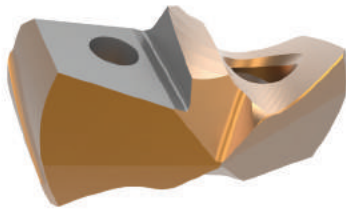
Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



GEN3SYS XT Drill Inserts

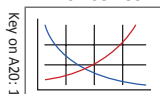
20 Series | Diameter Range: 0.7874" - 0.8660" (20.00 mm - 21.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|------------|----------|-------------------|-------------------|--------------------|--------------------|
| | Fractional Equivalent | D_1 inch | D_1 mm | | | | |
| C1 (K35) | - | 0.7874 | 20.00 | 7C120P-20 | 7C120P-20LR | - | - |
| | 51/64 | 0.7969 | 20.24 | 7C120P-.796 | 7C120P-.796LR | - | - |
| | - | 0.8071 | 20.50 | 7C120P-20.5 | 7C120P-20.5LR | - | - |
| | 13/16 | 0.8125 | 20.64 | 7C120P-0026 | 7C120P-0026LR | - | - |
| | - | 0.8268 | 21.00 | 7C120P-21 | 7C120P-21LR | - | - |
| | 27/32 | 0.8438 | 21.43 | 7C120P-0027 | 7C120P-0027LR | - | - |
| | - | 0.8465 | 21.50 | 7C120P-21.5 | 7C120P-21.5LR | - | - |
| | 55/64 | 0.8594 | 21.83 | 7C120P-.859 | 7C120P-.859LR | - | - |
| C2 (K20) | - | 0.7874 | 20.00 | 7C220P-20 | 7C220P-20LR | 7C220P-20CI | 7C220P-20AS |
| | 51/64 | 0.7969 | 20.24 | 7C220P-.796 | 7C220P-.796LR | 7C220P-.796CI | 7C220P-.796AS |
| | - | 0.8071 | 20.50 | 7C220P-20.5 | 7C220P-20.5LR | 7C220P-20.5CI | 7C220P-20.5AS |
| | 13/16 | 0.8125 | 20.64 | 7C220P-0026 | 7C220P-0026LR | 7C220P-0026CI | 7C220P-0026AS |
| | - | 0.8268 | 21.00 | 7C220P-21 | 7C220P-21LR | 7C220P-21CI | 7C220P-21AS |
| | 27/32 | 0.8438 | 21.43 | 7C220P-0027 | 7C220P-0027LR | 7C220P-0027CI | 7C220P-0027AS |
| | - | 0.8465 | 21.50 | 7C220P-21.5 | 7C220P-21.5LR | 7C220P-21.5CI | 7C220P-21.5AS |
| | 55/64 | 0.8594 | 21.83 | 7C220P-.859 | 7C220P-.859LR | 7C220P-.859CI | 7C220P-.859AS |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9



Key on A20: 1

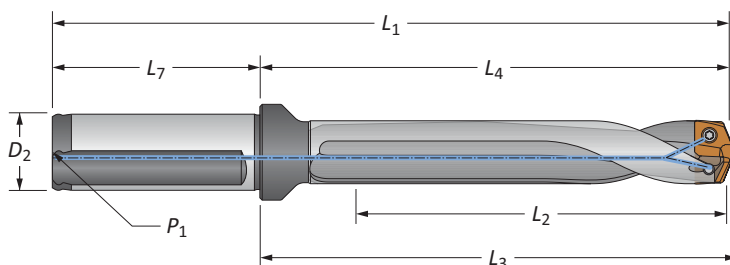
Sizes not shown are available upon request.

When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

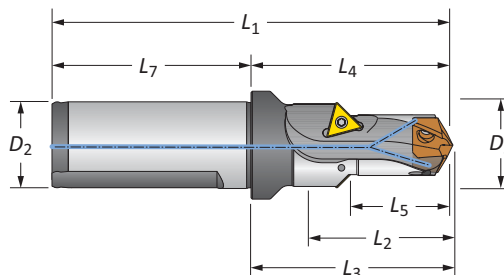
20 Series | Diameter Range: 0.7874" - 0.8660" (20.00 mm - 21.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Part No. |
|-------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | Flat | |
| | 3xD | 2-19/32 | 3-15/16 | 4-3/64 | 6-7/32 | 2-9/32 | 1 | 1/8 | YES | 60320S-100F |
| | 5xD | 4-21/64 | 5-43/64 | 5-25/32 | 7-61/64 | 2-9/32 | 1 | 1/8 | YES | 60520S-100F |
| | 7xD | 6-1/16 | 7-13/32 | 7-33/64 | 9-11/16 | 2-9/32 | 1 | 1/8 | YES | 60720S-100F |
| | Stub | 15/16 | 2-17/64 | 2-3/8 | 4-35/64 | 2-9/32 | 1 | 1/8 | YES | 60120H-100F |
| | 3xD | 2-19/32 | 3-15/16 | 4-3/64 | 6-7/32 | 2-9/32 | 1 | 1/8 | YES | 60320H-100F |
| | 3xD | 2-19/32 | 3-15/16 | 4-3/64 | 6-7/32 | 2-9/32 | 1 | 1/8 | NO | 60320H-100C |
| | 5xD | 4-21/64 | 5-43/64 | 5-25/32 | 7-61/64 | 2-9/32 | 1 | 1/8 | YES | 60520H-100F |
| | 5xD | 4-21/64 | 5-43/64 | 5-25/32 | 7-61/64 | 2-9/32 | 1 | 1/8 | NO | 60520H-100C |
| | 7xD | 6-1/16 | 7-13/32 | 7-33/64 | 9-11/16 | 2-9/32 | 1 | 1/8 | YES | 60720H-100F |
| | 7xD | 6-1/16 | 7-13/32 | 7-33/64 | 9-11/16 | 2-9/32 | 1 | 1/8 | NO | 60720H-100C |
| | | 3xD | 66.0 | 100.0 | 102.9 | 156.0 | 56.0 | 25.0 | 1/8* | YES |
| 5xD | | 110.0 | 144.0 | 146.9 | 200.0 | 56.0 | 25.0 | 1/8* | YES | 60520S-25FM |
| 7xD | | 153.9 | 187.0 | 190.9 | 243.0 | 56.0 | 25.0 | 1/8* | YES | 60720S-25FM |
| Stub | | 24.0 | 57.6 | 60.4 | 113.6 | 56.0 | 25.0 | 1/8* | YES | 60120H-25FM |
| 3xD | | 66.0 | 100.0 | 102.9 | 156.0 | 56.0 | 25.0 | 1/8* | YES | 60320H-25FM |
| 3xD | | 66.0 | 100.0 | 102.9 | 156.0 | 56.0 | 25.0 | 1/8* | NO | 60320H-25CM |
| 5xD | | 110.0 | 144.0 | 146.9 | 200.0 | 56.0 | 25.0 | 1/8* | YES | 60520H-25FM |
| 5xD | | 110.0 | 144.0 | 146.9 | 200.0 | 56.0 | 25.0 | 1/8* | NO | 60520H-25CM |
| 7xD | | 153.9 | 187.0 | 190.9 | 243.0 | 56.0 | 25.0 | 1/8* | YES | 60720H-25FM |
| 7xD | | 153.9 | 187.0 | 190.9 | 243.0 | 56.0 | 25.0 | 1/8* | NO | 60720H-25CM |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| Step | Body | | | | | Shank | | Part No. | | |
|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | | | D ₂ |
| | 1-5/64 | 1-3/16 | 1-29/64 | 2-17/64 | 2-3/8 | 4-35/64 | 2-9/32 | 1 | 60120C45-100F | TCMT-110204 |
| | 27.2 | 30.0 | 37.1 | 57.6 | 60.4 | 113.6 | 56.0 | 25.0 | 60120C45-25FM | TCMT-110204 |

Connection Accessories

| | | | | | Admissible Tightening Torque* |
|-------------------|--------------------|--------------|----------------|---------------|-------------------------------|
| 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

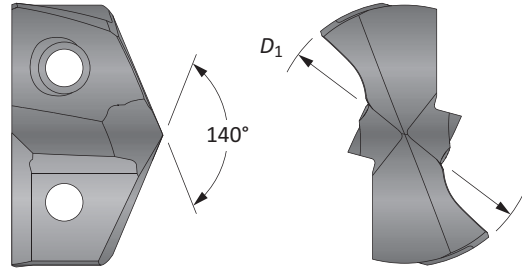
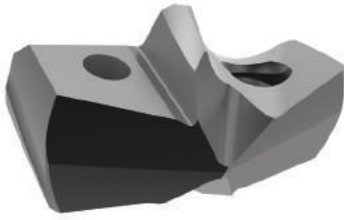
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

= Imperial (in)
 = Metric (mm)

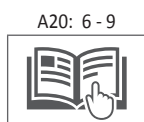
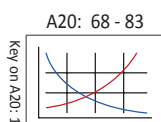
GEN3SYS XT Pro Drill Inserts

22 Series | Diameter Range: 0.8661" - 0.9448" (22.00 mm - 23.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.8661 | 22.00 | XTP22-22.00 | XTK22-22.00 | XTN22-22.00 |
| - | 0.8701 | 22.10 | XTP22-22.10 | XTK22-22.10 | XTN22-22.10 |
| - | 0.8740 | 22.20 | XTP22-22.20 | XTK22-22.20 | XTN22-22.20 |
| 7/8 | 0.8752 | 22.23 | XTP22-22.23 | XTK22-22.23 | XTN22-22.23 |
| - | 0.8780 | 22.30 | XTP22-22.30 | XTK22-22.30 | XTN22-22.30 |
| - | 0.8819 | 22.40 | XTP22-22.40 | XTK22-22.40 | XTN22-22.40 |
| - | 0.8858 | 22.50 | XTP22-22.50 | XTK22-22.50 | XTN22-22.50 |
| 57/64 | 0.8906 | 22.62 | XTP22-22.62 | XTK22-22.62 | XTN22-22.62 |
| - | 0.8937 | 22.70 | XTP22-22.70 | XTK22-22.70 | XTN22-22.70 |
| - | 0.8976 | 22.80 | XTP22-22.80 | XTK22-22.80 | XTN22-22.80 |
| - | 0.9016 | 22.90 | XTP22-22.90 | XTK22-22.90 | XTN22-22.90 |
| - | 0.9055 | 23.00 | XTP22-23.00 | XTK22-23.00 | XTN22-23.00 |
| 29/32 | 0.9063 | 23.02 | XTP22-23.02 | XTK22-23.02 | XTN22-23.02 |
| - | 0.9094 | 23.10 | XTP22-23.10 | XTK22-23.10 | XTN22-23.10 |
| - | 0.9134 | 23.20 | XTP22-23.20 | XTK22-23.20 | XTN22-23.20 |
| - | 0.9173 | 23.30 | XTP22-23.30 | XTK22-23.30 | XTN22-23.30 |
| 59/64 | 0.9220 | 23.42 | XTP22-23.42 | XTK22-23.42 | XTN22-23.42 |
| - | 0.9252 | 23.50 | XTP22-23.50 | XTK22-23.50 | XTN22-23.50 |
| - | 0.9291 | 23.60 | XTP22-23.60 | XTK22-23.60 | XTN22-23.60 |
| - | 0.9331 | 23.70 | XTP22-23.70 | XTK22-23.70 | XTN22-23.70 |
| 15/16 | 0.9374 | 23.81 | XTP22-23.81 | XTK22-23.81 | XTN22-23.81 |
| - | 0.9409 | 23.90 | XTP22-23.90 | XTK22-23.90 | XTN22-23.90 |

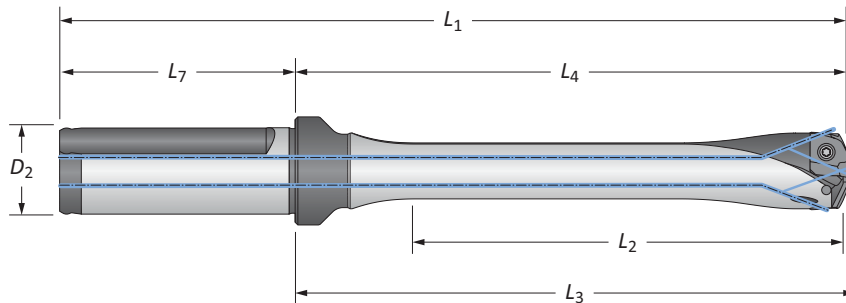
Inserts sold in multiples of 1



| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

22 Series | Diameter Range: 0.8661" - 0.9448" (22.00 mm - 23.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|---------------|----------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 2-53/64 | 4-9/64 | 4-17/64 | 6-27/64 | 2-9/32 | 1 | YES | HXT0322S-100F |
| | 3xD | 2-53/64 | 4-9/64 | 4-17/64 | 6-27/64 | 2-9/32 | 1 | NO | HXT0322S-100C |
| | 5xD | 4-23/32 | 6-1/32 | 6-5/32 | 8-5/16 | 2-9/32 | 1 | YES | HXT0522S-100F |
| | 5xD | 4-23/32 | 6-1/32 | 6-5/32 | 8-5/16 | 2-9/32 | 1 | NO | HXT0522S-100C |
| | 7xD | 6-39/64 | 7-59/64 | 8-3/64 | 10-13/64 | 2-9/32 | 1 | YES | HXT0722S-100F |
| | 7xD | 6-39/64 | 7-59/64 | 8-3/64 | 10-13/64 | 2-9/32 | 1 | NO | HXT0722S-100C |
| | 10xD | 9-7/16 | 10-3/4 | 10-7/8 | 13-1/32 | 2-9/32 | 1 | YES | HXT1022S-100F |
| | 10xD | 9-7/16 | 10-3/4 | 10-7/8 | 13-1/32 | 2-9/32 | 1 | NO | HXT1022S-100C |
| | 12xD | 11-11/32 | 12-41/64 | 12-3/4 | 14-59/64 | 2-9/32 | 1 | YES | HXT1222S-100F |
| 12xD | 11-11/32 | 12-41/64 | 12-3/4 | 14-59/64 | 2-9/32 | 1 | NO | HXT1222S-100C | |
| m Straight | 3xD | 72.0 | 105.1 | 108.3 | 161.1 | 56.0 | 25.0 | YES | HXT0322S-25FM |
| | 3xD | 72.0 | 105.1 | 108.3 | 161.1 | 56.0 | 25.0 | NO | HXT0322S-25CM |
| | 5xD | 120.0 | 153.2 | 156.2 | 209.2 | 56.0 | 25.0 | YES | HXT0522S-25FM |
| | 5xD | 120.0 | 153.2 | 156.2 | 209.2 | 56.0 | 25.0 | NO | HXT0522S-25CM |
| | 7xD | 167.9 | 201.2 | 204.2 | 257.2 | 56.0 | 25.0 | YES | HXT0722S-25FM |
| | 7xD | 167.9 | 201.2 | 204.2 | 257.2 | 56.0 | 25.0 | NO | HXT0722S-25CM |
| | 10xD | 239.9 | 273.0 | 276.2 | 329.0 | 56.0 | 25.0 | YES | HXT1022S-25FM |
| | 10xD | 239.9 | 273.0 | 276.2 | 329.0 | 56.0 | 25.0 | NO | HXT1022S-25CM |
| | 12xD | 288.0 | 321.2 | 324.2 | 377.2 | 56.0 | 25.0 | YES | HXT1222S-25FM |
| 12xD | 288.0 | 321.2 | 324.2 | 377.2 | 56.0 | 25.0 | NO | HXT1222S-25CM | |

Connection Accessories

| | | | | | |
|-----------|------------|-------|---------|--------|-------------------------------|
| | | | | | Admissible Tightening Torque* |
| 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

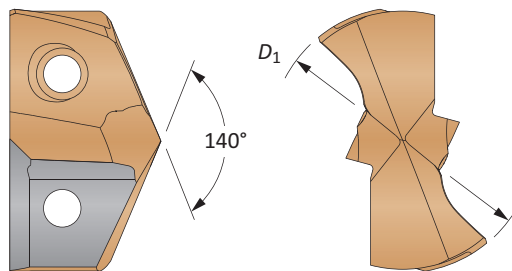
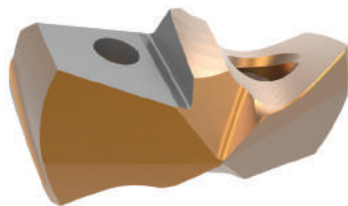
X

SPECIALS



GEN3SYS XT Drill Inserts

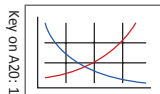
22 Series | Diameter Range: 0.8661" - 0.9448" (22.00 mm - 23.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|------------|--------------------|----------------------|----------------------|----------------------|----------------------|
| | Fractional Equivalent | D_1 inch | D_1 mm | | | | |
| C1 (K35) | | 0.8661 | 22.00 | 7C122P-22 | 7C122P-22LR | - | - |
| | 7/8 | 0.8750 | 22.23 | 7C122P-0028 | 7C122P-0028LR | - | - |
| | 57/64 | 0.8906 | 22.61 | 7C122P-.890 | 7C122P-.890LR | - | - |
| | | 0.9055 | 23.00 | 7C122P-23 | 7C122P-23LR | - | - |
| | 29/32 | 0.9063 | 23.02 | 7C122P-0029 | 7C122P-0029LR | - | - |
| | 59/64 | 0.9219 | 23.42 | 7C122P-.921 | 7C122P-.921LR | - | - |
| | 0.9375 | 23.81 | 7C122P-0030 | 7C122P-0030LR | - | - | |
| C2 (K20) | | 0.8661 | 22.00 | 7C222P-22 | 7C222P-22LR | 7C222P-22CI | 7C222P-22AS |
| | 7/8 | 0.8750 | 22.23 | 7C222P-0028 | 7C222P-0028LR | 7C222P-0028CI | 7C222P-0028AS |
| | 57/64 | 0.8906 | 22.61 | 7C222P-.890 | 7C222P-.890LR | 7C222P-.890CI | 7C222P-.890AS |
| | | 0.9055 | 23.00 | 7C222P-23 | 7C222P-23LR | 7C222P-23CI | 7C222P-23AS |
| | 29/32 | 0.9063 | 23.02 | 7C222P-0029 | 7C222P-0029LR | 7C222P-0029CI | 7C222P-0029AS |
| | 59/64 | 0.9219 | 23.42 | 7C222P-.921 | 7C222P-.921LR | 7C222P-.921CI | 7C222P-.921AS |
| | 0.9375 | 23.81 | 7C222P-0030 | 7C222P-0030LR | 7C222P-0030CI | 7C222P-0030AS | |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9

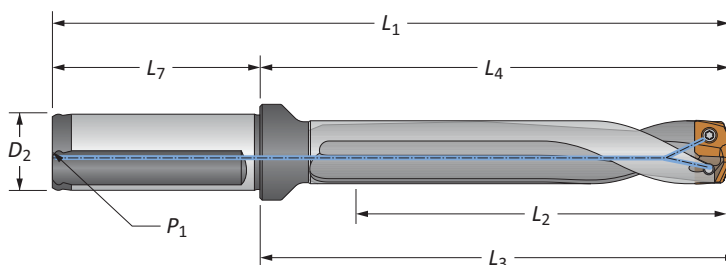


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

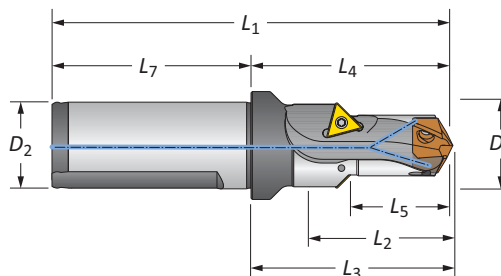
22 Series | Diameter Range: 0.8661" - 0.9448" (22.00 mm - 23.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Part No. | |
|-------|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | Flat | | |
| | 3xD | 2-53/64 | 4-9/64 | 4-17/64 | 6-27/64 | 2-9/32 | 1 | 1/8 | YES | 60322S-100F | |
| | 5xD | 4-23/32 | 6-1/32 | 6-5/32 | 8-5/16 | 2-9/32 | 1 | 1/8 | YES | 60522S-100F | |
| | 7xD | 6-39/64 | 7-59/64 | 8-3/64 | 10-13/64 | 2-9/32 | 1 | 1/8 | YES | 60722S-100F | |
| | Stub | 1-1/16 | 2-23/64 | 2-31/64 | 4-41/64 | 2-9/32 | 1 | 1/8 | YES | 60122H-100F | |
| | 3xD | 2-53/64 | 4-9/64 | 4-17/64 | 6-27/64 | 2-9/32 | 1 | 1/8 | YES | 60322H-100F | |
| | 3xD | 2-53/64 | 4-9/64 | 4-17/64 | 6-27/64 | 2-9/32 | 1 | 1/8 | NO | 60322H-100C | |
| | 5xD | 4-23/32 | 6-1/32 | 6-5/32 | 8-5/16 | 2-9/32 | 1 | 1/8 | YES | 60522H-100F | |
| | 5xD | 4-23/32 | 6-1/32 | 6-5/32 | 8-5/16 | 2-9/32 | 1 | 1/8 | NO | 60522H-100C | |
| | 7xD | 6-39/64 | 7-59/64 | 8-3/64 | 10-13/64 | 2-9/32 | 1 | 1/8 | YES | 60722H-100F | |
| | 7xD | 6-39/64 | 7-59/64 | 8-3/64 | 10-13/64 | 2-9/32 | 1 | 1/8 | NO | 60722H-100C | |
| | Straight | 3xD | 72.0 | 105.1 | 108.3 | 161.1 | 56.0 | 25.0 | 1/8* | YES | 60322S-25FM |
| | | 5xD | 120.0 | 153.2 | 156.2 | 209.2 | 56.0 | 25.0 | 1/8* | YES | 60522S-25FM |
| | | 7xD | 167.9 | 201.2 | 204.2 | 257.2 | 56.0 | 25.0 | 1/8* | YES | 60722S-25FM |
| | Helical | Stub | 27.0 | 60.1 | 63.0 | 116.1 | 56.0 | 25.0 | 1/8* | YES | 60122H-25FM |
| | | 3xD | 72.0 | 105.1 | 108.3 | 161.1 | 56.0 | 25.0 | 1/8* | YES | 60322H-25FM |
| | | 3xD | 72.0 | 105.1 | 108.3 | 161.1 | 56.0 | 25.0 | 1/8* | NO | 60322H-25CM |
| | | 5xD | 120.0 | 153.2 | 156.2 | 209.2 | 56.0 | 25.0 | 1/8* | YES | 60522H-25FM |
| | | 5xD | 120.0 | 153.2 | 156.2 | 209.2 | 56.0 | 25.0 | 1/8* | NO | 60522H-25CM |
| | | 7xD | 167.9 | 201.2 | 204.2 | 257.2 | 56.0 | 25.0 | 1/8* | YES | 60722H-25FM |
| | | 7xD | 167.9 | 201.2 | 204.2 | 257.2 | 56.0 | 25.0 | 1/8* | NO | 60722H-25CM |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| Step | Body | | | | Shank | | Part No. | Chamfer Insert | | |
|------|----------------|----------------|----------------|----------------|----------------|----------------|----------|----------------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | | | L ₇ | D ₂ |
| | 1-9/64 | 1-19/64 | 1-19/32 | 2-23/64 | 2-31/64 | 4-41/64 | 2-9/32 | 1 | 60122C45-100F | TCMT-110204 |
| | 29.0 | 33.0 | 40.5 | 60.0 | 63.0 | 116.0 | 56.0 | 25.0 | 60122C45-25FM | TCMT-110204 |

Connection Accessories

| | | | | | |
|------------------|-------------------|--------------|----------------|---------------|--------------------------------------|
| | | | | | Admissible Tightening Torque* |
| 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

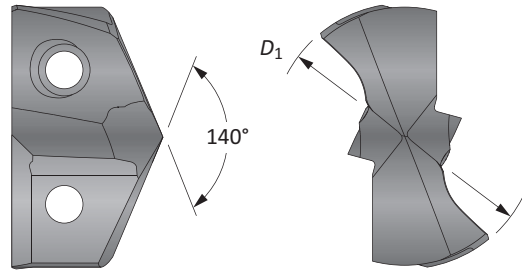
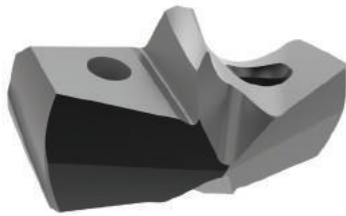
Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10




= Imperial (in)
 = Metric (mm)



GEN3SYS XT Pro Drill Inserts

24 Series | Diameter Range: 0.9449" - 1.0235" (24.00 mm - 25.99 mm)

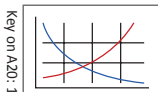


| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | Part No. P | Part No. K | Part No. N |
| - | 0.9449 | 24.00 | XTP24-24.00 | XTK24-24.00 | XTN24-24.00 |
| - | 0.9488 | 24.10 | XTP24-24.10 | XTK24-24.10 | XTN24-24.10 |
| - | 0.9528 | 24.20 | XTP24-24.20 | XTK24-24.20 | XTN24-24.20 |
| - | 0.9567 | 24.30 | XTP24-24.30 | XTK24-24.30 | XTN24-24.30 |
| - | 0.9606 | 24.40 | XTP24-24.40 | XTK24-24.40 | XTN24-24.40 |
| - | 0.9646 | 24.50 | XTP24-24.50 | XTK24-24.50 | XTN24-24.50 |
| 31/32 | 0.9689 | 24.61 | XTP24-24.61 | XTK24-24.61 | XTN24-24.61 |
| - | 0.9724 | 24.70 | XTP24-24.70 | XTK24-24.70 | XTN24-24.70 |
| - | 0.9764 | 24.80 | XTP24-24.80 | XTK24-24.80 | XTN24-24.80 |
| - | 0.9803 | 24.90 | XTP24-24.90 | XTK24-24.90 | XTN24-24.90 |
| 63/64 | 0.9843 | 25.00 | XTP24-25.00 | XTK24-25.00 | XTN24-25.00 |
| - | 0.9882 | 25.10 | XTP24-25.10 | XTK24-25.10 | XTN24-25.10 |
| - | 0.9921 | 25.20 | XTP24-25.20 | XTK24-25.20 | XTN24-25.20 |
| - | 0.9961 | 25.30 | XTP24-25.30 | XTK24-25.30 | XTN24-25.30 |
| 1 | 1.0000 | 25.40 | XTP24-25.40 | XTK24-25.40 | XTN24-25.40 |
| - | 1.0039 | 25.50 | XTP24-25.50 | XTK24-25.50 | XTN24-25.50 |
| - | 1.0079 | 25.60 | XTP24-25.60 | XTK24-25.60 | XTN24-25.60 |
| - | 1.0118 | 25.70 | XTP24-25.70 | XTK24-25.70 | XTN24-25.70 |
| 1-1/64 | 1.0150 | 25.78 | XTP24-25.78 | XTK24-25.78 | XTN24-25.78 |
| - | 1.0197 | 25.90 | XTP24-25.90 | XTK24-25.90 | XTN24-25.90 |

Inserts sold in multiples of 1

A
DRILLINGB
BORINGC
REAMINGD
BURNISHINGE
THREADINGX
SPECIALS

A20: 68 - 83



A20: 6 - 9



Key on A20: 1

Sizes not shown are available upon request.

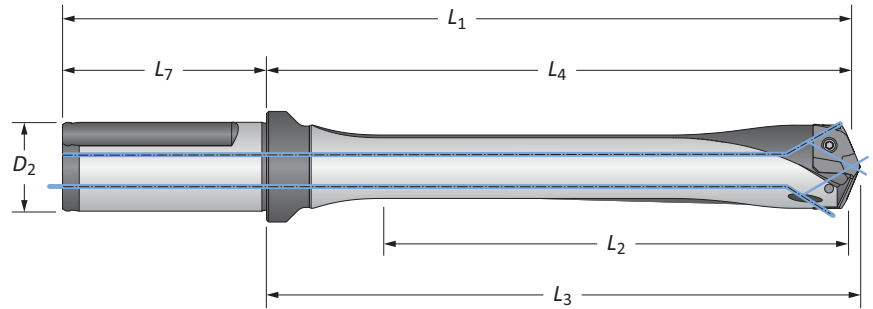
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |



GEN3SYS XT Pro Drill Insert Holders

24 Series | Diameter Range: 0.9449" - 1.0235" (24.00 mm - 25.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|---------------|---------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 3-1/16 | 4-31/64 | 4-19/32 | 6-49/64 | 2-9/32 | 1 | YES | HXT0324S-100F |
| | 3xD | 3-1/16 | 4-31/64 | 4-19/32 | 6-49/64 | 2-9/32 | 1 | NO | HXT0324S-100C |
| | 5xD | 5-7/64 | 6-17/32 | 6-41/64 | 8-13/16 | 2-9/32 | 1 | YES | HXT0524S-100F |
| | 5xD | 5-7/64 | 6-17/32 | 6-41/64 | 8-13/16 | 2-9/32 | 1 | NO | HXT0524S-100C |
| | 7xD | 7-5/32 | 8-37/64 | 8-11/16 | 10-55/64 | 2-9/32 | 1 | YES | HXT0724S-100F |
| | 7xD | 7-5/32 | 8-37/64 | 8-11/16 | 10-55/64 | 2-9/32 | 1 | NO | HXT0724S-100C |
| | 10xD | 10-15/64 | 11-41/64 | 11-49/64 | 13-59/64 | 2-9/32 | 1 | YES | HXT1024S-100F |
| | 10xD | 10-15/64 | 11-41/64 | 11-49/64 | 13-59/64 | 2-9/32 | 1 | NO | HXT1024S-100C |
| | 12xD | 12-9/32 | 13-11/16 | 13-51/64 | 15-31/32 | 2-9/32 | 1 | YES | HXT1224S-100F |
| 12xD | 12-9/32 | 13-11/16 | 13-15/64 | 15-31/32 | 2-9/32 | 1 | NO | HXT1224S-100C | |
| m Straight | 3xD | 78.0 | 113.9 | 116.8 | 169.9 | 56.0 | 25.0 | YES | HXT0324S-25FM |
| | 3xD | 78.0 | 113.9 | 116.8 | 169.9 | 56.0 | 25.0 | NO | HXT0324S-25CM |
| | 5xD | 130.0 | 165.9 | 168.7 | 221.9 | 56.0 | 25.0 | YES | HXT0524S-25FM |
| | 5xD | 130.0 | 165.9 | 168.7 | 221.9 | 56.0 | 25.0 | NO | HXT0524S-25CM |
| | 7xD | 181.9 | 217.9 | 220.7 | 273.9 | 56.0 | 25.0 | YES | HXT0724S-25FM |
| | 7xD | 181.9 | 217.9 | 220.7 | 273.9 | 56.0 | 25.0 | NO | HXT0724S-25CM |
| | 10xD | 259.9 | 295.7 | 298.7 | 351.7 | 56.0 | 25.0 | YES | HXT1024S-25FM |
| | 10xD | 259.9 | 295.7 | 298.7 | 351.7 | 56.0 | 25.0 | NO | HXT1024S-25CM |
| | 12xD | 312.0 | 347.7 | 350.7 | 403.7 | 56.0 | 25.0 | YES | HXT1224S-25FM |
| 12xD | 312.0 | 347.7 | 350.7 | 403.7 | 56.0 | 25.0 | NO | HXT1224S-25CM | |

Connection Accessories

| | | | | | |
|-----------|------------|-------|---------|--------|-------------------------------|
| | | | | | Admissible Tightening Torque* |
| 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

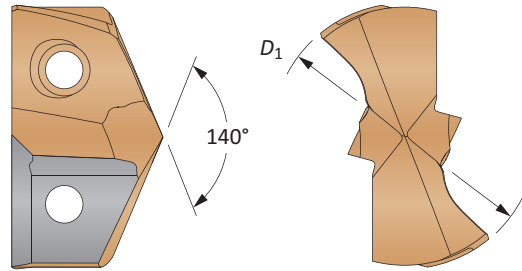
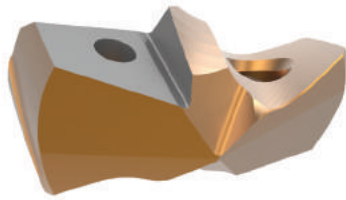
Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



GEN3SYS XT Drill Inserts

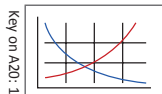
24 Series | Diameter Range: 0.9449" - 1.0235" (24.00 mm - 25.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|------------|----------|---------------------|-----------------------|-----------------------|-----------------------|
| | Fractional Equivalent | D_1 inch | D_1 mm | | | | |
| C1 (K35) | - | 0.9449 | 24.00 | 7C124P-24 | 7C124P-24LR | - | - |
| | 31/32 | 0.9688 | 24.61 | 7C124P-0031 | 7C124P-0031LR | - | - |
| | 63/64 | 0.9843 | 25.00 | 7C124P-25 | 7C124P-25LR | - | - |
| | 1 | 1.0000 | 25.40 | 7C124P-0100 | 7C124P-0100LR | - | - |
| | - | 1.0080 | 25.60 | 7C124P-1.008 | 7C124P-1.008LR | - | - |
| | 1-1/64 | 1.0156 | 25.78 | 7C124P-1.015 | 7C124P-1.015LR | - | - |
| C2 (K20) | - | 0.9449 | 24.00 | 7C224P-24 | 7C224P-24LR | 7C224P-24CI | 7C224P-24AS |
| | 31/32 | 0.9688 | 24.61 | 7C224P-0031 | 7C224P-0031LR | 7C224P-0031CI | 7C224P-0031AS |
| | 63/64 | 0.9843 | 25.00 | 7C224P-25 | 7C224P-25LR | 7C224P-25CI | 7C224P-25AS |
| | 1 | 1.0000 | 25.40 | 7C224P-0100 | 7C224P-0100LR | 7C224P-0100CI | 7C224P-0100AS |
| | - | 1.0080 | 25.60 | 7C224P-1.008 | 7C224P-1.008LR | 7C224P-1.008CI | 7C224P-1.008AS |
| | 1-1/64 | 1.0156 | 25.78 | 7C224P-1.015 | 7C224P-1.015LR | 7C224P-1.015CI | 7C224P-1.015AS |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9

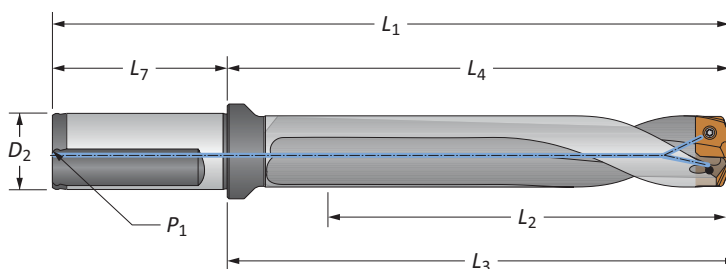


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

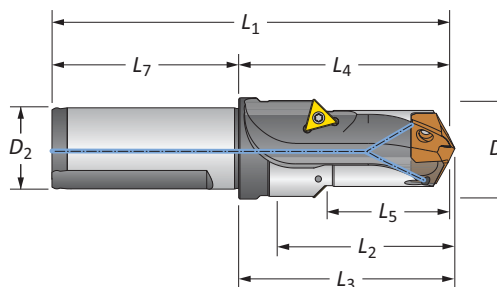
24 Series | Diameter Range: 0.9449" - 1.0235" (24.00 mm - 25.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Part No. |
|-------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | Flat | |
| | 3xD | 3-1/16 | 4-31/64 | 4-19/32 | 6-49/64 | 2-9/32 | 1 | 1/8 | YES | 60324S-100F |
| | 5xD | 5-7/64 | 6-17/32 | 6-41/64 | 8-13/16 | 2-9/32 | 1 | 1/8 | YES | 60524S-100F |
| | 7xD | 7-5/32 | 8-37/64 | 8-11/16 | 10-55/64 | 2-9/32 | 1 | 1/8 | YES | 60724S-100F |
| | Stub | 1-1/8 | 2-17/32 | 2-41/64 | 4-13/16 | 2-9/32 | 1 | 1/8 | YES | 60124H-100F |
| | 3xD | 3-1/16 | 4-31/64 | 4-19/32 | 6-49/64 | 2-9/32 | 1 | 1/8 | YES | 60324H-100F |
| | 3xD | 3-1/16 | 4-31/64 | 4-19/32 | 6-49/64 | 2-9/32 | 1 | 1/8 | NO | 60324H-100C |
| | 5xD | 5-7/64 | 6-17/32 | 6-41/64 | 8-13/16 | 2-9/32 | 1 | 1/8 | YES | 60524H-100F |
| | 5xD | 5-7/64 | 6-17/32 | 6-41/64 | 8-13/16 | 2-9/32 | 1 | 1/8 | NO | 60524H-100C |
| | 7xD | 7-5/32 | 8-37/64 | 8-11/16 | 10-55/64 | 2-9/32 | 1 | 1/8 | YES | 60724H-100F |
| | 7xD | 7-5/32 | 8-37/64 | 8-11/16 | 10-55/64 | 2-9/32 | 1 | 1/8 | NO | 60724H-100C |
| | 3xD | 78.0 | 113.9 | 116.8 | 169.9 | 56.0 | 25.0 | 1/8* | YES | 60324S-25FM |
| | 5xD | 130.0 | 165.9 | 168.7 | 221.9 | 56.0 | 25.0 | 1/8* | YES | 60524S-25FM |
| | 7xD | 181.9 | 217.9 | 220.7 | 273.9 | 56.0 | 25.0 | 1/8* | YES | 60724S-25FM |
| | Stub | 28.5 | 64.2 | 67.1 | 120.1 | 56.0 | 25.0 | 1/8* | YES | 60124H-25FM |
| | 3xD | 78.0 | 113.9 | 116.8 | 169.9 | 56.0 | 25.0 | 1/8* | YES | 60324H-25FM |
| | 3xD | 78.0 | 113.9 | 116.8 | 169.9 | 56.0 | 25.0 | 1/8* | NO | 60324H-25CM |
| | 5xD | 130.0 | 165.9 | 168.7 | 221.9 | 56.0 | 25.0 | 1/8* | YES | 60524H-25FM |
| | 5xD | 130.0 | 165.9 | 168.7 | 221.9 | 56.0 | 25.0 | 1/8* | NO | 60524H-25CM |
| | 7xD | 181.9 | 217.9 | 220.7 | 273.9 | 56.0 | 25.0 | 1/8* | YES | 60724H-25FM |
| | 7xD | 181.9 | 217.9 | 220.7 | 273.9 | 56.0 | 25.0 | 1/8* | NO | 60724H-25CM |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| Step | Body | | | | Shank | | Part No. | Chamfer Insert | | |
|------|----------------|----------------|----------------|----------------|----------------|----------------|----------|----------------|----------------|----------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | | | L ₇ | D ₂ |
| | 1-7/32 | 1-27/64 | 1-51/64 | 2-17/32 | 2-41/64 | 4-13/16 | 2-9/32 | 1 | 60124C45-100F | TCMT-110204 |
| | 31.0 | 36.0 | 45.5 | 64.2 | 67.1 | 120.2 | 56.0 | 25.0 | 60124C45-25FM | TCMT-110204 |

Connection Accessories

| | | | | | |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| | | | | | |
| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
| 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

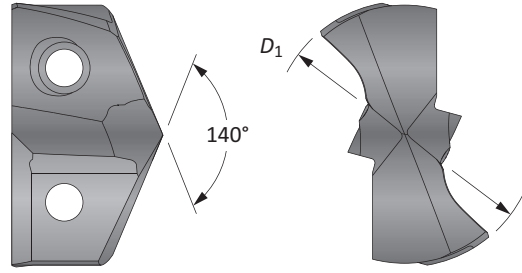
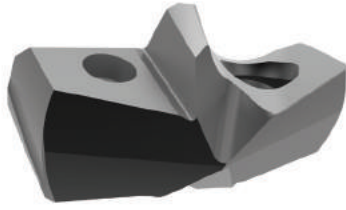
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

= Imperial (in)
 = Metric (mm)

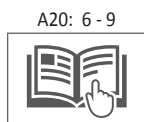
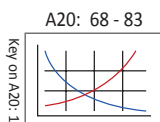
GEN3SYS XT Pro Drill Inserts

26 Series | Diameter Range: 1.0236" - 1.1416" (26.00 mm - 28.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|---------------------|-------------------|---|---|---|
| | D ₁ inch | D ₁ mm | P | K | N |
| - | 1.0236 | 26.00 | XTP26-26.00 | XTK26-26.00 | XTN26-26.00 |
| - | 1.0276 | 26.10 | XTP26-26.10 | XTK26-26.10 | XTN26-26.10 |
| 1-1/32 | 1.0315 | 26.20 | XTP26-26.20 | XTK26-26.20 | XTN26-26.20 |
| - | 1.0354 | 26.30 | XTP26-26.30 | XTK26-26.30 | XTN26-26.30 |
| - | 1.0394 | 26.40 | XTP26-26.40 | XTK26-26.40 | XTN26-26.40 |
| - | 1.0433 | 26.50 | XTP26-26.50 | XTK26-26.50 | XTN26-26.50 |
| 1-3/64 | 1.0469 | 26.59 | XTP26-26.59 | XTK26-26.59 | XTN26-26.59 |
| - | 1.0472 | 26.60 | XTP26-26.60 | XTK26-26.60 | XTN26-26.60 |
| - | 1.0512 | 26.70 | XTP26-26.70 | XTK26-26.70 | XTN26-26.70 |
| - | 1.0551 | 26.80 | XTP26-26.80 | XTK26-26.80 | XTN26-26.80 |
| - | 1.0591 | 26.90 | XTP26-26.90 | XTK26-26.90 | XTN26-26.90 |
| 1-1/16 | 1.0626 | 26.99 | XTP26-26.99 | XTK26-26.99 | XTN26-26.99 |
| - | 1.0630 | 27.00 | XTP26-27.00 | XTK26-27.00 | XTN26-27.00 |
| - | 1.0669 | 27.10 | XTP26-27.10 | XTK26-27.10 | XTN26-27.10 |
| - | 1.0709 | 27.20 | XTP26-27.20 | XTK26-27.20 | XTN26-27.20 |
| - | 1.0748 | 27.30 | XTP26-27.30 | XTK26-27.30 | XTN26-27.30 |
| - | 1.0787 | 27.40 | XTP26-27.40 | XTK26-27.40 | XTN26-27.40 |
| - | 1.0827 | 27.50 | XTP26-27.50 | XTK26-27.50 | XTN26-27.50 |
| - | 1.0866 | 27.60 | XTP26-27.60 | XTK26-27.60 | XTN26-27.60 |
| - | 1.0906 | 27.70 | XTP26-27.70 | XTK26-27.70 | XTN26-27.70 |
| 1-3/32 | 1.0937 | 27.78 | XTP26-27.78 | XTK26-27.78 | XTN26-27.78 |
| - | 1.0984 | 27.90 | XTP26-27.90 | XTK26-27.90 | XTN26-27.90 |
| - | 1.1024 | 28.00 | XTP26-28.00 | XTK26-28.00 | XTN26-28.00 |
| - | 1.1063 | 28.10 | XTP26-28.10 | XTK26-28.10 | XTN26-28.10 |
| 1-7/64 | 1.1091 | 28.17 | XTP26-28.17 | XTK26-28.17 | XTN26-28.17 |
| - | 1.1102 | 28.20 | XTP26-28.20 | XTK26-28.20 | XTN26-28.20 |
| - | 1.1142 | 28.30 | XTP26-28.30 | XTK26-28.30 | XTN26-28.30 |
| - | 1.1181 | 28.40 | XTP26-28.40 | XTK26-28.40 | XTN26-28.40 |
| - | 1.1220 | 28.50 | XTP26-28.50 | XTK26-28.50 | XTN26-28.50 |
| 1-1/8 | 1.1252 | 28.58 | XTP26-28.58 | XTK26-28.58 | XTN26-28.58 |
| - | 1.1299 | 28.70 | XTP26-28.70 | XTK26-28.70 | XTN26-28.70 |
| - | 1.1339 | 28.80 | XTP26-28.80 | XTK26-28.80 | XTN26-28.80 |
| - | 1.1378 | 28.90 | XTP26-28.90 | XTK26-28.90 | XTN26-28.90 |

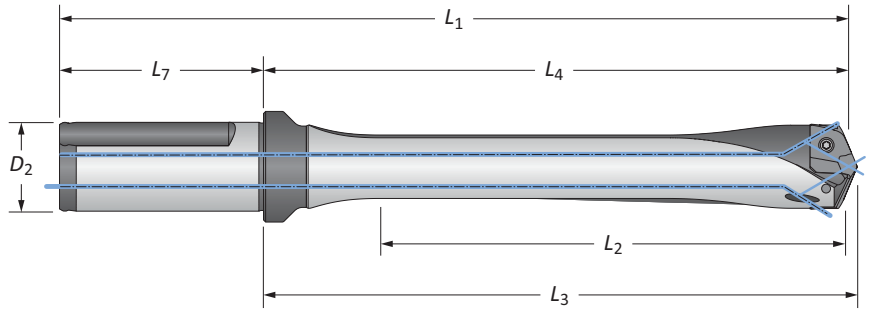
Inserts sold in multiples of 1



| | |
|--|--|
| Sizes not shown are available upon request. When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

26 Series | Diameter Range: 1.0236" - 1.1416" (26.00 mm - 28.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|-------------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 3-27/64 | 5-1/16 | 5-11/64 | 7-11/32 | 2-9/32 | 1-1/4 | YES | HXT0326S-125F |
| | 3xD | 3-27/64 | 5-1/16 | 5-11/64 | 7-11/32 | 2-9/32 | 1-1/4 | NO | HXT0326S-125C |
| | 5xD | 5-45/64 | 7-11/32 | 7-29/64 | 9-5/8 | 2-9/32 | 1-1/4 | YES | HXT0526S-125F |
| | 5xD | 5-45/64 | 7-11/32 | 7-29/64 | 9-5/8 | 2-9/32 | 1-1/4 | NO | HXT0526S-125C |
| | 7xD | 7-63/64 | 9-5/8 | 9-47/64 | 11-29/32 | 2-9/32 | 1-1/4 | YES | HXT0726S-125F |
| | 7xD | 7-63/64 | 9-5/8 | 9-47/64 | 11-29/32 | 2-9/32 | 1-1/4 | NO | HXT0726S-125C |
| | 10xD | 11-13/32 | 13-3/64 | 13-11/64 | 15-21/64 | 2-9/32 | 1-1/4 | YES | HXT1026S-125F |
| | 10xD | 11-13/32 | 13-3/64 | 13-11/64 | 15-21/64 | 2-9/32 | 1-1/4 | NO | HXT1026S-125C |
| m Straight | 3xD | 87.0 | 128.6 | 131.4 | 188.6 | 60.0 | 32.0 | YES | HXT0326S-32FM |
| | 3xD | 87.0 | 128.6 | 131.4 | 188.6 | 60.0 | 32.0 | NO | HXT0326S-32CM |
| | 5xD | 145.0 | 186.5 | 189.4 | 246.5 | 60.0 | 32.0 | YES | HXT0526S-32FM |
| | 5xD | 145.0 | 186.5 | 189.4 | 246.5 | 60.0 | 32.0 | NO | HXT0526S-32CM |
| | 7xD | 202.9 | 244.5 | 247.4 | 304.5 | 60.0 | 32.0 | YES | HXT0726S-32FM |
| | 7xD | 202.9 | 244.5 | 247.4 | 304.5 | 60.0 | 32.0 | NO | HXT0726S-32CM |
| | 10xD | 289.9 | 331.4 | 334.4 | 391.4 | 60.0 | 32.0 | YES | HXT1026S-32FM |
| | 10xD | 289.9 | 331.4 | 334.4 | 391.4 | 60.0 | 32.0 | NO | HXT1026S-32CM |
| i Straight | 12xD | 348.0 | 389.0 | 391.8 | 449.0 | 60.0 | 32.0 | YES | HXT1226S-125F |
| | 12xD | 348.0 | 389.0 | 391.8 | 449.0 | 60.0 | 32.0 | NO | HXT1226S-125C |
| m Straight | 12xD | 348.0 | 389.0 | 391.8 | 449.0 | 60.0 | 32.0 | YES | HXT1226S-32FM |
| | 12xD | 348.0 | 389.0 | 391.8 | 449.0 | 60.0 | 32.0 | NO | HXT1226S-32CM |

Connection Accessories

| | | | | | |
|-------------|--------------|--------|----------|---------|-------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

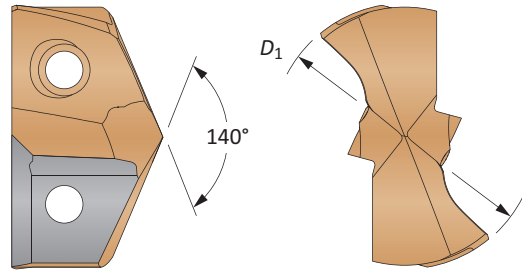
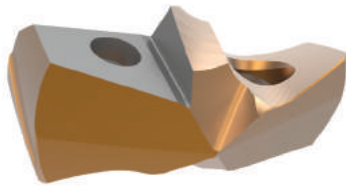
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

GEN3SYS XT Drill Inserts

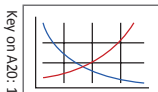
26 Series | Diameter Range: 1.0236" - 1.1416" (26.00 mm - 28.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|------------|-------------|-------------------|-------------------|--------------------|--------------------|
| | Fractional Equivalent | D_1 inch | D_1 mm | | | | |
| C1 (K35) | | 1.0236 | 26.00 | 7C126P-26 | 7C126P-26LR | - | - |
| | 1-1/32 | 1.0313 | 26.20 | 7C126P-0101 | 7C126P-0101LR | - | - |
| | 1-3/64 | 1.0469 | 26.59 | 7C126P-1.046 | 7C126P-1.046LR | - | - |
| | 1-1/16 | 1.0625 | 26.99 | 7C126P-0102 | 7C126P-0102LR | - | - |
| | | 1.0630 | 27.00 | 7C126P-27 | 7C126P-27LR | - | - |
| | 1-3/32 | 1.0938 | 27.78 | 7C126P-0103 | 7C126P-0103LR | - | - |
| | | 1.1024 | 28.00 | 7C126P-28 | 7C126P-28LR | - | - |
| | 1-7/64 | 1.1094 | 28.17 | 7C126P-1.109 | 7C126P-1.109LR | - | - |
| 1-1/8 | 1.1250 | 28.58 | 7C126P-0104 | 7C126P-0104LR | - | - | |
| C2 (K20) | | 1.0236 | 26.00 | 7C226P-26 | 7C226P-26LR | 7C226P-26CI | 7C226P-26AS |
| | 1-1/32 | 1.0313 | 26.20 | 7C226P-0101 | 7C226P-0101LR | 7C226P-0101CI | 7C226P-0101AS |
| | 1-3/64 | 1.0469 | 26.59 | 7C226P-1.046 | 7C226P-1.046LR | 7C226P-1.046CI | 7C226P-1.046AS |
| | 1-1/16 | 1.0625 | 26.99 | 7C226P-0102 | 7C226P-0102LR | 7C226P-0102CI | 7C226P-0102AS |
| | | 1.0630 | 27.00 | 7C226P-27 | 7C226P-27LR | 7C226P-27CI | 7C226P-27AS |
| | 1-3/32 | 1.0938 | 27.78 | 7C226P-0103 | 7C226P-0103LR | 7C226P-0103CI | 7C226P-0103AS |
| | | 1.1024 | 28.00 | 7C226P-28 | 7C226P-28LR | 7C226P-28CI | 7C226P-28AS |
| | 1-7/64 | 1.1094 | 28.17 | 7C226P-1.109 | 7C226P-1.109LR | 7C226P-1.109CI | 7C226P-1.109AS |
| 1-1/8 | 1.1250 | 28.58 | 7C226P-0104 | 7C226P-0104LR | 7C226P-0104CI | 7C226P-0104AS | |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9



Key on A20: 1

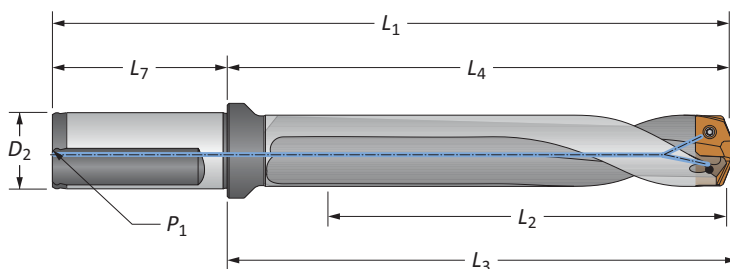
Sizes not shown are available upon request.

When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

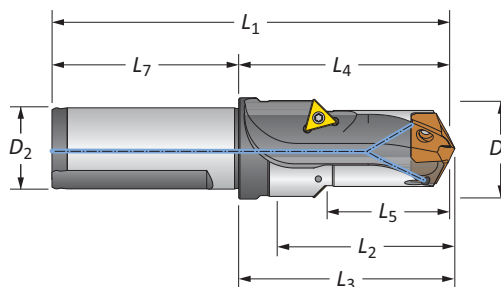
26 Series | Diameter Range: 1.0236" - 1.1416" (26.00 mm - 28.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|--------------------|----------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 3-27/64 | 5-1/16 | 5-11/64 | 7-11/32 | 2-9/32 | 1-1/4 | 1/8 | YES | 60326S-125F | |
| | 5xD | 5-45/64 | 7-11/32 | 7-29/64 | 9-5/8 | 2-9/32 | 1-1/4 | 1/8 | YES | 60526S-125F | |
| | 7xD | 7-63/64 | 9-5/8 | 9-47/64 | 11-29/32 | 2-9/32 | 1-1/4 | 1/8 | YES | 60726S-125F | |
| | Stub | 1-1/4 | 2-7/8 | 2-63/64 | 5-5/32 | 2-9/32 | 1-1/4 | 1/8 | YES | 60126H-125F | |
| | 3xD | 3-27/64 | 5-1/16 | 5-11/64 | 7-11/32 | 2-9/32 | 1-1/4 | 1/8 | YES | 60326H-125F | |
| | 3xD | 3-27/64 | 5-1/16 | 5-11/64 | 7-11/32 | 2-9/32 | 1-1/4 | 1/8 | NO | 60326H-125C | |
| | 5xD | 5-45/64 | 7-11/32 | 7-29/64 | 9-5/8 | 2-9/32 | 1-1/4 | 1/8 | YES | 60526H-125F | |
| | 5xD | 5-45/64 | 7-11/32 | 7-29/64 | 9-5/8 | 2-9/32 | 1-1/4 | 1/8 | NO | 60526H-125C | |
| | 7xD | 7-63/64 | 9-5/8 | 9-47/64 | 11-29/32 | 2-9/32 | 1-1/4 | 1/8 | YES | 60726H-125F | |
| | 7xD | 7-63/64 | 9-5/8 | 9-47/64 | 11-29/32 | 2-9/32 | 1-1/4 | 1/8 | NO | 60726H-125C | |
| | 3xD | 87.0 | 128.6 | 131.4 | 188.6 | 60.0 | 32.0 | 1/8* | YES | 60326S-32FM | |
| | 5xD | 145.0 | 186.5 | 189.4 | 246.5 | 60.0 | 32.0 | 1/8* | YES | 60526S-32FM | |
| | 7xD | 202.9 | 244.5 | 247.4 | 304.5 | 60.0 | 32.0 | 1/8* | YES | 60726S-32FM | |
| | Stub | 32.0 | 72.9 | 75.7 | 132.9 | 60.0 | 32.0 | 1/8* | YES | 60126H-32FM | |
| | 3xD | 87.0 | 128.6 | 131.4 | 188.6 | 60.0 | 32.0 | 1/8* | YES | 60326H-32FM | |
| | 3xD | 87.0 | 128.6 | 131.4 | 188.6 | 60.0 | 32.0 | 1/8* | NO | 60326H-32CM | |
| | 5xD | 145.0 | 186.5 | 189.4 | 246.5 | 60.0 | 32.0 | 1/8* | YES | 60526H-32FM | |
| | 5xD | 145.0 | 186.5 | 189.4 | 246.5 | 60.0 | 32.0 | 1/8* | NO | 60526H-32CM | |
| | 7xD | 202.9 | 244.5 | 247.4 | 304.5 | 60.0 | 32.0 | 1/8* | YES | 60726H-32FM | |
| | 7xD | 202.9 | 244.5 | 247.4 | 304.5 | 60.0 | 32.0 | 1/8* | NO | 60726H-32CM | |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| Step | Body | | | | Shank | | | Part No. | Chamfer Insert |
|---------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | | |
| 1-11/32 | 1-17/32 | 2-3/64 | 2-7/8 | 2-63/64 | 5-5/32 | 2-9/32 | 1-1/4 | 60126C45-125F | TCMT-110204 |
| 34.0 | 39.0 | 52.1 | 72.9 | 75.7 | 132.9 | 60.0 | 32.0 | 60126C45-32FM | TCMT-110204 |

Connection Accessories

| | | | | | |
|--------------------|---------------------|---------------|-----------------|----------------|--------------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

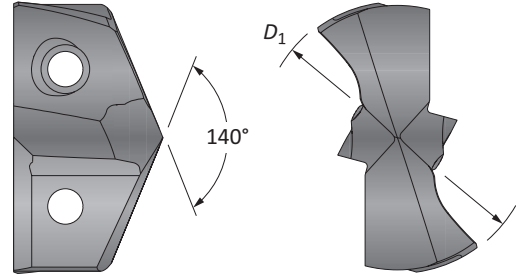
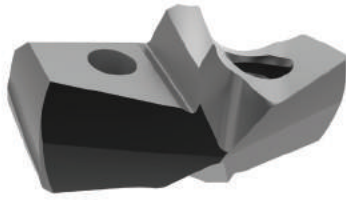
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

= Imperial (in)
 = Metric (mm)

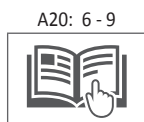
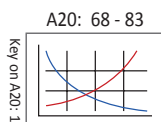
GEN3SYS XT Pro Drill Inserts

29 Series | Diameter Range: 1.1417" - 1.2597" (29.00 mm - 31.99 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|---------------------|-------------------|---|---|---|
| | D ₁ inch | D ₁ mm | P | K | N |
| - | 1.1417 | 29.00 | XTP29-29.00 | XTK29-29.00 | XTN29-29.00 |
| - | 1.1457 | 29.10 | XTP29-29.10 | XTK29-29.10 | XTN29-29.10 |
| - | 1.1496 | 29.20 | XTP29-29.20 | XTK29-29.20 | XTN29-29.20 |
| - | 1.1535 | 29.30 | XTP29-29.30 | XTK29-29.30 | XTN29-29.30 |
| 1-5/32 | 1.1563 | 29.37 | XTP29-29.37 | XTK29-29.37 | XTN29-29.37 |
| - | 1.1575 | 29.40 | XTP29-29.40 | XTK29-29.40 | XTN29-29.40 |
| - | 1.1614 | 29.50 | XTP29-29.50 | XTK29-29.50 | XTN29-29.50 |
| - | 1.1654 | 29.60 | XTP29-29.60 | XTK29-29.60 | XTN29-29.60 |
| - | 1.1693 | 29.70 | XTP29-29.70 | XTK29-29.70 | XTN29-29.70 |
| - | 1.1732 | 29.80 | XTP29-29.80 | XTK29-29.80 | XTN29-29.80 |
| - | 1.1772 | 29.90 | XTP29-29.90 | XTK29-29.90 | XTN29-29.90 |
| - | 1.1811 | 30.00 | XTP29-30.00 | XTK29-30.00 | XTN29-30.00 |
| - | 1.1850 | 30.10 | XTP29-30.10 | XTK29-30.10 | XTN29-30.10 |
| 1-3/16 | 1.1874 | 30.16 | XTP29-30.16 | XTK29-30.16 | XTN29-30.16 |
| - | 1.1890 | 30.20 | XTP29-30.20 | XTK29-30.20 | XTN29-30.20 |
| - | 1.1929 | 30.30 | XTP29-30.30 | XTK29-30.30 | XTN29-30.30 |
| - | 1.1969 | 30.40 | XTP29-30.40 | XTK29-30.40 | XTN29-30.40 |
| - | 1.2008 | 30.50 | XTP29-30.50 | XTK29-30.50 | XTN29-30.50 |
| - | 1.2047 | 30.60 | XTP29-30.60 | XTK29-30.60 | XTN29-30.60 |
| - | 1.2087 | 30.70 | XTP29-30.70 | XTK29-30.70 | XTN29-30.70 |
| - | 1.2126 | 30.80 | XTP29-30.80 | XTK29-30.80 | XTN29-30.80 |
| - | 1.2165 | 30.90 | XTP29-30.90 | XTK29-30.90 | XTN29-30.90 |
| 1-7/32 | 1.2189 | 30.96 | XTP29-30.96 | XTK29-30.96 | XTN29-30.96 |
| - | 1.2205 | 31.00 | XTP29-31.00 | XTK29-31.00 | XTN29-31.00 |
| - | 1.2244 | 31.10 | XTP29-31.10 | XTK29-31.10 | XTN29-31.10 |
| - | 1.2283 | 31.20 | XTP29-31.20 | XTK29-31.20 | XTN29-31.20 |
| - | 1.2323 | 31.30 | XTP29-31.30 | XTK29-31.30 | XTN29-31.30 |
| - | 1.2362 | 31.40 | XTP29-31.40 | XTK29-31.40 | XTN29-31.40 |
| - | 1.2402 | 31.50 | XTP29-31.50 | XTK29-31.50 | XTN29-31.50 |
| - | 1.2441 | 31.60 | XTP29-31.60 | XTK29-31.60 | XTN29-31.60 |
| - | 1.2480 | 31.70 | XTP29-31.70 | XTK29-31.70 | XTN29-31.70 |
| 1-1/4 | 1.2500 | 31.75 | XTP29-31.75 | XTK29-31.75 | XTN29-31.75 |
| - | 1.2520 | 31.80 | XTP29-31.80 | XTK29-31.80 | XTN29-31.80 |
| - | 1.2559 | 31.90 | XTP29-31.90 | XTK29-31.90 | XTN29-31.90 |

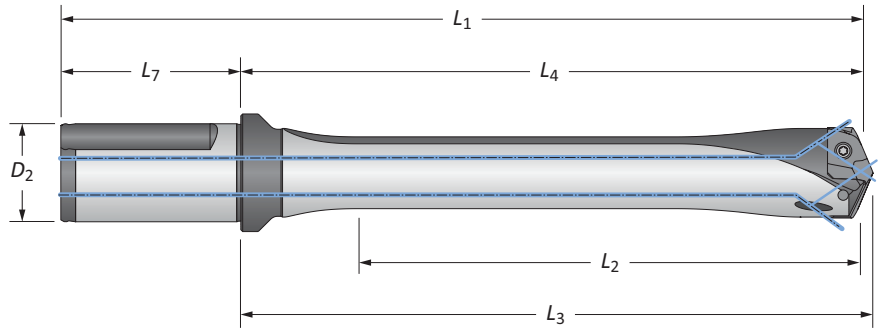
Inserts sold in multiples of 1



| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

29 Series | Diameter Range: 1.1417" - 1.2597" (29.00 mm - 31.99 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|----------------|----------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 3-25/32 | 5-3/8 | 5-1/2 | 7-21/32 | 2-9/32 | 1-1/4 | YES | HXT0329S-125F |
| | 3xD | 3-25/32 | 5-3/8 | 5-1/2 | 7-21/32 | 2-9/32 | 1-1/4 | NO | HXT0329S-125C |
| | 5xD | 6-19/64 | 7-29/32 | 8-1/64 | 10-3/16 | 2-9/32 | 1-1/4 | YES | HXT0529S-125F |
| | 5xD | 6-19/64 | 7-29/32 | 8-1/64 | 10-3/16 | 2-9/32 | 1-1/4 | NO | HXT0529S-125C |
| | 7xD | 8-13/16 | 10-27/64 | 10-17/64 | 12-45/64 | 2-9/32 | 1-1/4 | YES | HXT0729S-125F |
| | 7xD | 8-13/16 | 10-27/64 | 10-17/64 | 12-45/64 | 2-9/32 | 1-1/4 | NO | HXT0729S-125C |
| | 10xD | 12-19/32 | 14-3/16 | 14-5/16 | 16-15/32 | 2-9/32 | 1-1/4 | YES | HXT1029S-125F |
| 10xD | 12-19/32 | 14-3/16 | 14-5/16 | 16-15/32 | 2-9/32 | 1-1/4 | NO | HXT1029S-125C | |
| ii Straight | 3xD | 96.0 | 136.5 | 139.7 | 196.5 | 60.0 | 32.0 | YES | HXT0329S-32FM |
| | 3xD | 96.0 | 136.5 | 139.7 | 196.5 | 60.0 | 32.0 | NO | HXT0329S-32CM |
| | 5xD | 160.0 | 200.8 | 203.7 | 260.8 | 60.0 | 32.0 | YES | HXT0529S-32FM |
| | 5xD | 160.0 | 200.8 | 203.7 | 260.8 | 60.0 | 32.0 | NO | HXT0529S-32CM |
| | 7xD | 223.9 | 264.7 | 267.6 | 324.7 | 60.0 | 32.0 | YES | HXT0729S-32FM |
| | 7xD | 223.9 | 264.7 | 267.6 | 324.7 | 60.0 | 32.0 | NO | HXT0729S-32CM |
| | 10xD | 319.9 | 360.4 | 363.6 | 420.4 | 60.0 | 32.0 | YES | HXT1029S-32FM |
| | 10xD | 319.9 | 360.4 | 363.6 | 420.4 | 60.0 | 32.0 | NO | HXT1029S-32CM |

Connection Accessories

| | | | | | |
|--------------------|---------------------|---------------|-----------------|----------------|--------------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
ii = Metric (mm)

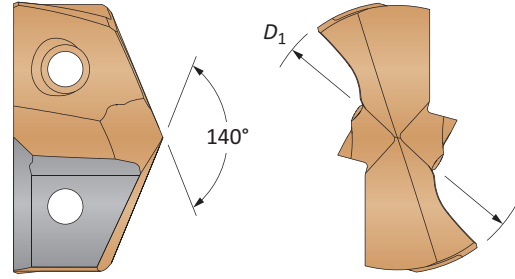
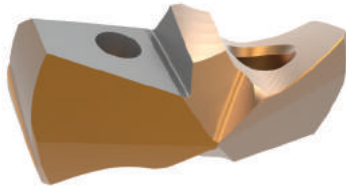
Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



GEN3SYS XT Drill Inserts

29 Series | Diameter Range: 1.1417" - 1.2597" (29.00 mm - 31.99 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|---------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | | | | |
| C1 (K35) | - | 1.1417 | 29.00 | 7C129P-29 | 7C129P-29LR | - | - |
| | 1-5/32 | 1.1563 | 29.37 | 7C129P-0105 | 7C129P-0105LR | - | - |
| | - | 1.1811 | 30.00 | 7C129P-30 | 7C129P-30LR | - | - |
| | 1-3/16 | 1.1875 | 30.16 | 7C129P-0106 | 7C129P-0106LR | - | - |
| | - | 1.2008 | 30.50 | 7C129P-30.5 | 7C129P-30.5LR | - | - |
| | 1-7/32 | 1.2188 | 30.96 | 7C129P-0107 | 7C129P-0107LR | - | - |
| | - | 1.2205 | 31.00 | 7C129P-31 | 7C129P-31LR | - | - |
| | 1-1/4 | 1.2500 | 31.75 | 7C129P-0108 | 7C129P-0108LR | - | - |
| C2 (K20) | - | 1.1417 | 29.00 | 7C229P-29 | 7C229P-29LR | 7C229P-29CI | 7C229P-29AS |
| | 1-5/32 | 1.1563 | 29.37 | 7C229P-0105 | 7C229P-0105LR | 7C229P-0105CI | 7C229P-0105AS |
| | - | 1.1811 | 30.00 | 7C229P-30 | 7C229P-30LR | 7C229P-30CI | 7C229P-30AS |
| | 1-3/16 | 1.1875 | 30.16 | 7C229P-0106 | 7C229P-0106LR | 7C229P-0106CI | 7C229P-0106AS |
| | - | 1.2008 | 30.50 | 7C229P-30.5 | 7C229P-30.5LR | 7C229P-30.5CI | 7C229P-30.5AS |
| | 1-7/32 | 1.2188 | 30.96 | 7C229P-0107 | 7C229P-0107LR | 7C229P-0107CI | 7C229P-0107AS |
| | - | 1.2205 | 31.00 | 7C229P-31 | 7C229P-31LR | 7C229P-31CI | 7C229P-31AS |
| | 1-1/4 | 1.2500 | 31.75 | 7C229P-0108 | 7C229P-0108LR | 7C229P-0108CI | 7C229P-0108AS |

Inserts sold in multiples of 1

A
DRILLING

B

BORING

C

REAMING

D

BURNISHING

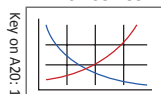
E

THREADING

X

SPECIALS

A20: 68 - 83



A20: 6 - 9

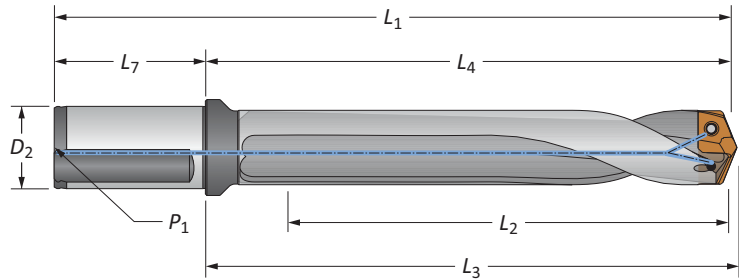


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

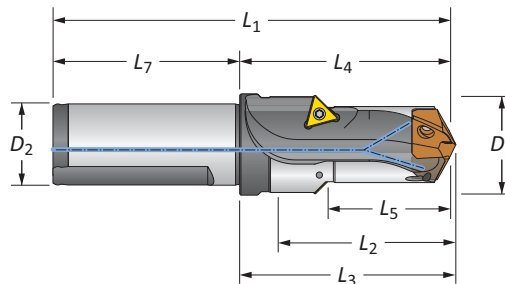
29 Series | Diameter Range: 1.1417" - 1.2597" (29.00 mm - 31.99 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 3-25/32 | 5-3/8 | 5-1/2 | 7-21/32 | 2-9/32 | 1-1/4 | 1/4 | YES | 60329S-125F | |
| | 5xD | 6-19/64 | 7-29/32 | 8-1/64 | 10-3/16 | 2-9/32 | 1-1/4 | 1/4 | YES | 60529S-125F | |
| | 7xD | 8-13/16 | 10-27/64 | 10-17/64 | 12-45/64 | 2-9/32 | 1-1/4 | 1/4 | YES | 60729S-125F | |
| | Stub | 1-3/8 | 2-31/32 | 3-5/64 | 5-1/4 | 2-9/32 | 1-1/4 | 1/4 | YES | 60129H-125F | |
| | 3xD | 3-25/32 | 5-3/8 | 5-1/2 | 7-21/32 | 2-9/32 | 1-1/4 | 1/4 | YES | 60329H-125F | |
| | 3xD | 3-25/32 | 5-3/8 | 5-1/2 | 7-21/32 | 2-9/32 | 1-1/4 | 1/4 | NO | 60329H-125C | |
| | 5xD | 6-19/64 | 7-29/32 | 8-1/64 | 10-3/16 | 2-9/32 | 1-1/4 | 1/4 | YES | 60529H-125F | |
| | 5xD | 6-19/64 | 7-29/32 | 8-1/64 | 10-3/16 | 2-9/32 | 1-1/4 | 1/4 | NO | 60529H-125C | |
| | 7xD | 8-13/16 | 10-27/64 | 10-17/64 | 12-45/64 | 2-9/32 | 1-1/4 | 1/4 | YES | 60729H-125F | |
| | 7xD | 8-13/16 | 10-27/64 | 10-17/64 | 12-45/64 | 2-9/32 | 1-1/4 | 1/4 | NO | 60729H-125C | |
| | Straight | 3xD | 96.0 | 136.5 | 139.7 | 196.5 | 60.0 | 32.0 | 1/4* | YES | 60329S-32FM |
| | | 5xD | 160.0 | 200.8 | 203.7 | 260.8 | 60.0 | 32.0 | 1/4* | YES | 60529S-32FM |
| | | 7xD | 223.9 | 264.7 | 267.6 | 324.7 | 60.0 | 32.0 | 1/4* | YES | 60729S-32FM |
| | Helical | Stub | 35.0 | 75.2 | 78.2 | 135.2 | 60.0 | 32.0 | 1/4* | YES | 60129H-32FM |
| | | 3xD | 96.0 | 136.5 | 139.7 | 196.5 | 60.0 | 32.0 | 1/4* | YES | 60329H-32FM |
| | | 3xD | 96.0 | 136.5 | 139.7 | 196.5 | 60.0 | 32.0 | 1/4* | NO | 60329H-32CM |
| | | 5xD | 160.0 | 200.8 | 203.7 | 260.8 | 60.0 | 32.0 | 1/4* | YES | 60529H-32FM |
| | | 5xD | 160.0 | 200.8 | 203.7 | 260.8 | 60.0 | 32.0 | 1/4* | NO | 60529H-32CM |
| | | 7xD | 223.9 | 264.7 | 267.6 | 324.7 | 60.0 | 32.0 | 1/4* | YES | 60729H-32FM |
| | | 7xD | 223.9 | 264.7 | 267.6 | 324.7 | 60.0 | 32.0 | 1/4* | NO | 60729H-32CM |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| Step | Body | | | | Shank | | | Part No. | Chamfer Insert | |
|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|----------------------|--------------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | | | D ₂ |
| | 1-29/64 | 1-23/32 | 2-13/64 | 2-31/32 | 3-5/64 | 5-1/4 | 2-9/32 | 1-1/4 | 60129C45-125F | TCMT-16T304 |
| | 37.1 | 43.5 | 55.9 | 75.2 | 78.2 | 135.2 | 60.0 | 32.0 | 60129C45-32FM | TCMT-16T304 |

Connection Accessories

| | | | | | |
|----------------------|-----------------------------|----------------------|----------------------------------|-------------------------|--------------------------------------|
| | | | | | |
| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

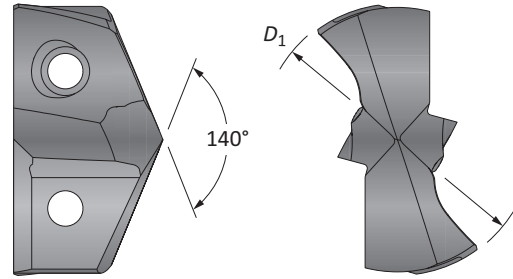
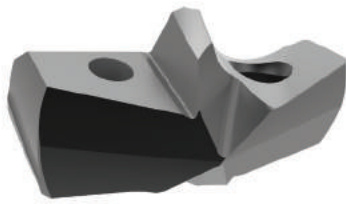
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

= Imperial (in)
 = Metric (mm)

GEN3SYS XT Pro Drill Inserts

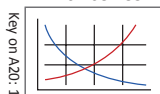
32 Series | Diameter Range: 1.2598" - 1.3780" (32.00 mm - 35.00 mm)



| Fractional Equivalent | Insert | |  |  |  |
|-----------------------|------------|----------|---|---|---|
| | D_1 inch | D_1 mm | P | K | N |
| - | 1.2598 | 32.00 | XTP32-32.00 | XTK32-32.00 | XTN32-32.00 |
| - | 1.2638 | 32.10 | XTP32-32.10 | XTK32-32.10 | XTN32-32.10 |
| 1-17/64 | 1.2657 | 32.15 | XTP32-32.15 | XTK32-32.15 | XTN32-32.15 |
| - | 1.2677 | 32.20 | XTP32-32.20 | XTK32-32.20 | XTN32-32.20 |
| - | 1.2717 | 32.30 | XTP32-32.30 | XTK32-32.30 | XTN32-32.30 |
| - | 1.2756 | 32.40 | XTP32-32.40 | XTK32-32.40 | XTN32-32.40 |
| - | 1.2795 | 32.50 | XTP32-32.50 | XTK32-32.50 | XTN32-32.50 |
| 1-9/32 | 1.2815 | 32.55 | XTP32-32.55 | XTK32-32.55 | XTN32-32.55 |
| - | 1.2835 | 32.60 | XTP32-32.60 | XTK32-32.60 | XTN32-32.60 |
| - | 1.2874 | 32.70 | XTP32-32.70 | XTK32-32.70 | XTN32-32.70 |
| - | 1.2913 | 32.80 | XTP32-32.80 | XTK32-32.80 | XTN32-32.80 |
| - | 1.2953 | 32.90 | XTP32-32.90 | XTK32-32.90 | XTN32-32.90 |
| - | 1.2992 | 33.00 | XTP32-33.00 | XTK32-33.00 | XTN32-33.00 |
| - | 1.3031 | 33.10 | XTP32-33.10 | XTK32-33.10 | XTN32-33.10 |
| - | 1.3071 | 33.20 | XTP32-33.20 | XTK32-33.20 | XTN32-33.20 |
| - | 1.3110 | 33.30 | XTP32-33.30 | XTK32-33.30 | XTN32-33.30 |
| 1-5/16 | 1.3126 | 33.34 | XTP32-33.34 | XTK32-33.34 | XTN32-33.34 |
| - | 1.3150 | 33.40 | XTP32-33.40 | XTK32-33.40 | XTN32-33.40 |
| - | 1.3189 | 33.50 | XTP32-33.50 | XTK32-33.50 | XTN32-33.50 |
| - | 1.3228 | 33.60 | XTP32-33.60 | XTK32-33.60 | XTN32-33.60 |
| - | 1.3268 | 33.70 | XTP32-33.70 | XTK32-33.70 | XTN32-33.70 |
| - | 1.3307 | 33.80 | XTP32-33.80 | XTK32-33.80 | XTN32-33.80 |
| - | 1.3346 | 33.90 | XTP32-33.90 | XTK32-33.90 | XTN32-33.90 |
| - | 1.3386 | 34.00 | XTP32-34.00 | XTK32-34.00 | XTN32-34.00 |
| - | 1.3425 | 34.10 | XTP32-34.10 | XTK32-34.10 | XTN32-34.10 |
| 1-11/32 | 1.3437 | 34.13 | XTP32-34.13 | XTK32-34.13 | XTN32-34.13 |
| - | 1.3465 | 34.20 | XTP32-34.20 | XTK32-34.20 | XTN32-34.20 |
| - | 1.3504 | 34.30 | XTP32-34.30 | XTK32-34.30 | XTN32-34.30 |
| - | 1.3543 | 34.40 | XTP32-34.40 | XTK32-34.40 | XTN32-34.40 |
| - | 1.3583 | 34.50 | XTP32-34.50 | XTK32-34.50 | XTN32-34.50 |
| - | 1.3622 | 34.60 | XTP32-34.60 | XTK32-34.60 | XTN32-34.60 |
| - | 1.3661 | 34.70 | XTP32-34.70 | XTK32-34.70 | XTN32-34.70 |
| - | 1.3701 | 34.80 | XTP32-34.80 | XTK32-34.80 | XTN32-34.80 |
| - | 1.3740 | 34.90 | XTP32-34.90 | XTK32-34.90 | XTN32-34.90 |
| 1-3/8 | 1.3752 | 34.93 | XTP32-34.93 | XTK32-34.93 | XTN32-34.93 |
| - | 1.3780 | 35.00 | XTP32-35.00 | XTK32-35.00 | XTN32-35.00 |

Inserts sold in multiples of 1

A20: 68 - 83



A20: 6 - 9



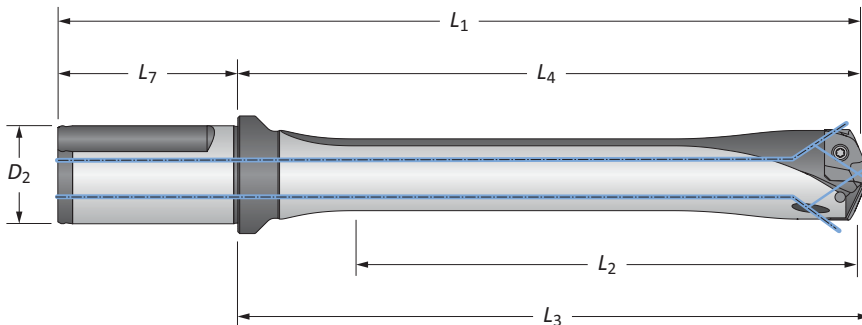
Sizes not shown are available upon request.

When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 13 series = use Part No. XTP13-13.16 |
| Metric: | 13.16 mm, Steel, 13 series = use Part No. XTP13-13.16 |

GEN3SYS XT Pro Drill Insert Holders

32 Series | Diameter Range: 1.2598" - 1.3780" (32.00 mm - 35.00 mm)



| Flute | Body | | | | | Shank | | | Part No. |
|----------------|----------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|
| | Length | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | |
| i Straight | 3xD | 4-9/64 | 6-7/32 | 6-23/64 | 8-29/32 | 2-11/16 | 1-1/2 | YES | HXT0332S-150F |
| | 3xD | 4-9/64 | 6-7/32 | 6-23/64 | 8-29/32 | 2-11/16 | 1-1/2 | NO | HXT0332S-150C |
| | 5xD | 6-57/64 | 8-31/32 | 9-7/64 | 11-21/32 | 2-11/16 | 1-1/2 | YES | HXT0532S-150F |
| | 5xD | 6-57/64 | 8-31/32 | 9-7/64 | 11-21/32 | 2-11/16 | 1-1/2 | NO | HXT0532S-150C |
| | 7xD | 9-41/64 | 11-23/32 | 11-55/64 | 14-13/32 | 2-11/16 | 1-1/2 | YES | HXT0732S-150F |
| | 7xD | 9-41/64 | 11-23/32 | 11-55/64 | 14-13/32 | 2-11/16 | 1-1/2 | NO | HXT0732S-150C |
| | 10xD | 13-25/32 | 15-55/64 | 16 | 18-35/64 | 2-11/16 | 1-1/2 | YES | HXT1032S-150F |
| 10xD | 13-25/32 | 15-55/64 | 16 | 18-35/64 | 2-11/16 | 1-1/2 | NO | HXT1032S-150C | |
| ii Straight | 3xD | 105.0 | 157.9 | 161.5 | 217.9 | 60.0 | 32.0 | YES | HXT0332S-32FM |
| | 3xD | 105.0 | 157.9 | 161.5 | 217.9 | 60.0 | 32.0 | NO | HXT0332S-32CM |
| | 5xD | 175.0 | 227.8 | 231.3 | 287.8 | 60.0 | 32.0 | YES | HXT0532S-32FM |
| | 5xD | 175.0 | 227.8 | 231.3 | 287.8 | 60.0 | 32.0 | NO | HXT0532S-32CM |
| | 7xD | 245.0 | 297.6 | 301.2 | 357.6 | 60.0 | 32.0 | YES | HXT0732S-32FM |
| | 7xD | 245.0 | 297.6 | 301.2 | 357.6 | 60.0 | 32.0 | NO | HXT0732S-32CM |
| | 10xD | 350.0 | 402.8 | 406.4 | 459.3 | 60.0 | 32.0 | YES | HXT1032S-32FM |
| | 10xD | 350.0 | 402.8 | 406.4 | 459.3 | 60.0 | 32.0 | NO | HXT1032S-32CM |

Connection Accessories

| | | | | | |
|-------------|--------------|--------|----------|---------|-------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

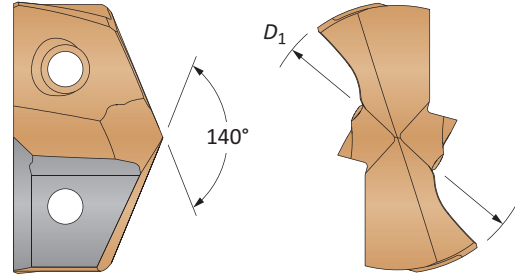
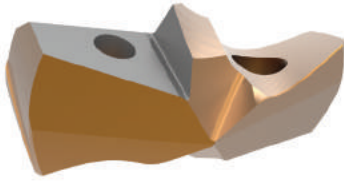
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
ii = Metric (mm)

Screws sold in multiples of 10

GEN3SYS XT Drill Inserts

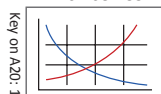
32 Series | Diameter Range: 1.2598" - 1.3780" (32.00 mm - 35.00 mm)



| Carbide Substrate | Insert | | | Standard Part No. | Low Rake Part No. | Cast Iron Part No. | Stainless Part No. |
|-------------------|-----------------------|------------|--------------------|----------------------|-----------------------|-----------------------|-----------------------|
| | Fractional Equivalent | D_1 inch | D_1 mm | | | | |
| C1 (K35) | - | 1.2598 | 32.00 | 7C132P-32 | 7C132P-32LR | - | - |
| | 1-17/64 | 1.2658 | 32.15 | 7C132P-32.15 | 7C132P-32.15LR | - | - |
| | - | 1.2795 | 32.50 | 7C132P-32.5 | 7C132P-32.5LR | - | - |
| | 1-9/32 | 1.2813 | 32.55 | 7C132P-0109 | 7C132P-0109LR | - | - |
| | - | 1.2992 | 33.00 | 7C132P-33 | 7C132P-33LR | - | - |
| | 1-5/16 | 1.3125 | 33.34 | 7C132P-0110 | 7C132P-0110LR | - | - |
| | - | 1.3189 | 33.50 | 7C132P-33.5 | 7C132P-33.5LR | - | - |
| | - | 1.3386 | 34.00 | 7C132P-34 | 7C132P-34LR | - | - |
| | 1-11/32 | 1.3438 | 34.13 | 7C132P-0111 | 7C132P-0111LR | - | - |
| | - | 1.3583 | 34.50 | 7C132P-34.5 | 7C132P-34.5LR | - | - |
| 1-3/8 | 1.3750 | 34.93 | 7C132P-0112 | 7C132P-0112LR | - | - | |
| - | 1.3780 | 35.00 | 7C132P-35 | 7C132P-35LR | - | - | |
| C2 (K20) | - | 1.2598 | 32.00 | 7C232P-32 | 7C232P-32LR | 7C232P-32CI | 7C232P-32AS |
| | 1-17/64 | 1.2658 | 32.15 | 7C232P-32.15 | 7C232P-32.15LR | 7C232P-32.15CI | 7C232P-32.15AS |
| | - | 1.2795 | 32.50 | 7C232P-32.5 | 7C232P-32.5LR | 7C232P-32.5CI | 7C232P-32.5AS |
| | 1-9/32 | 1.2813 | 32.55 | 7C232P-0109 | 7C232P-0109LR | 7C232P-0109CI | 7C232P-0109AS |
| | - | 1.2992 | 33.00 | 7C232P-33 | 7C232P-33LR | 7C232P-33CI | 7C232P-33AS |
| | 1-5/16 | 1.3125 | 33.34 | 7C232P-0110 | 7C232P-0110LR | 7C232P-0110CI | 7C232P-0110AS |
| | - | 1.3189 | 33.50 | 7C232P-33.5 | 7C232P-33.5LR | 7C232P-33.5CI | 7C232P-33.5AS |
| | - | 1.3386 | 34.00 | 7C232P-34 | 7C232P-34LR | 7C232P-34CI | 7C232P-34AS |
| | 1-11/32 | 1.3438 | 34.13 | 7C232P-0111 | 7C232P-0111LR | 7C232P-0111CI | 7C232P-0111AS |
| | - | 1.3583 | 34.50 | 7C232P-34.5 | 7C232P-34.5LR | 7C232P-34.5CI | 7C232P-34.5AS |
| 1-3/8 | 1.3750 | 34.93 | 7C232P-0112 | 7C232P-0112LR | 7C232P-0112CI | 7C232P-0112AS | |
| - | 1.3780 | 35.00 | 7C232P-35 | 7C232P-35LR | 7C232P-35CI | 7C232P-35AS | |

Inserts sold in multiples of 1

A20: 68 - 83



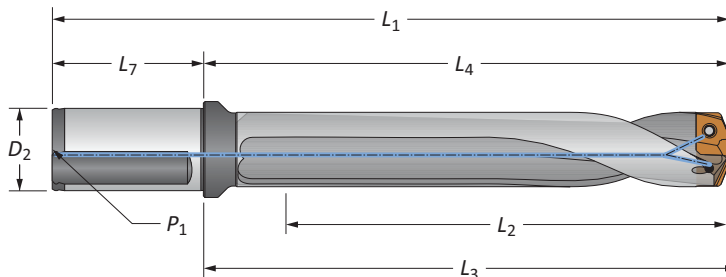
A20: 6 - 9



| | |
|--|--|
| <p>Sizes not shown are available upon request. When ordering, please follow the example below:</p> | |
| Imperial: | 0.5200", 13 series, C2 = use Part No. 7C213P-.5200 |
| Metric: | 13.20 mm, 13 series, C2 = use Part No. 7C213P-13.20 |

GEN3SYS Drill Insert Holders

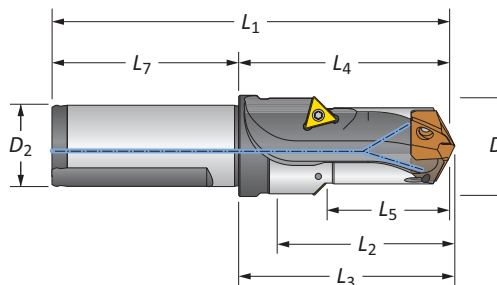
32 Series | Diameter Range: 1.2598" - 1.3780" (32.00 mm - 35.00 mm)



Straight and Helical

| Flute | Length | Body | | | | Shank | | | | Flat | Part No. |
|-------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|--------------------|----------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| | 3xD | 4-9/64 | 6-7/32 | 6-23/64 | 8-29/32 | 2-11/16 | 1-1/2 | 1/4 | YES | 60332S-150F | |
| | 5xD | 6-57/64 | 8-31/32 | 9-7/64 | 11-21/32 | 2-11/16 | 1-1/2 | 1/4 | YES | 60532S-150F | |
| | 7xD | 9-41/64 | 11-23/32 | 11-55/64 | 14-13/32 | 2-11/16 | 1-1/2 | 1/4 | YES | 60732S-150F | |
| | Stub | 1-1/2 | 3-37/64 | 3-45/64 | 6-1/4 | 2-11/16 | 1-1/2 | 1/4 | YES | 60132H-150F | |
| | 3xD | 4-9/64 | 6-7/32 | 6-23/64 | 8-29/32 | 2-11/16 | 1-1/2 | 1/4 | YES | 60332H-150F | |
| | 3xD | 4-9/64 | 6-7/32 | 6-23/64 | 8-29/32 | 2-11/16 | 1-1/2 | 1/4 | NO | 60332H-150C | |
| | 5xD | 6-57/64 | 8-31/32 | 9-7/64 | 11-21/32 | 2-11/16 | 1-1/2 | 1/4 | YES | 60532H-150F | |
| | 5xD | 6-57/64 | 8-31/32 | 9-7/64 | 11-21/32 | 2-11/16 | 1-1/2 | 1/4 | NO | 60532H-150C | |
| | 7xD | 9-41/64 | 11-23/32 | 11-55/64 | 14-13/32 | 2-11/16 | 1-1/2 | 1/4 | YES | 60732H-150F | |
| | 7xD | 9-41/64 | 11-23/32 | 11-55/64 | 14-13/32 | 2-11/16 | 1-1/2 | 1/4 | NO | 60732H-150C | |
| | 3xD | 105.0 | 150.7 | 154.3 | 220.7 | 70.0 | 40.0 | 1/4* | YES | 60332S-40FM | |
| | 5xD | 175.0 | 220.7 | 224.3 | 290.7 | 70.0 | 40.0 | 1/4* | YES | 60532S-40FM | |
| | 7xD | 245.0 | 290.7 | 294.3 | 360.7 | 70.0 | 40.0 | 1/4* | YES | 60732S-40FM | |
| | Stub | 38.0 | 90.7 | 94.2 | 160.7 | 70.0 | 40.0 | 1/4* | YES | 60132H-40FM | |
| | 3xD | 105.0 | 150.7 | 154.3 | 220.7 | 70.0 | 40.0 | 1/4* | YES | 60332H-40FM | |
| | 3xD | 105.0 | 150.7 | 154.3 | 220.7 | 70.0 | 40.0 | 1/4* | NO | 60332H-40CM | |
| | 5xD | 175.0 | 220.7 | 224.3 | 290.7 | 70.0 | 40.0 | 1/4* | YES | 60532H-40FM | |
| | 5xD | 175.0 | 220.7 | 224.3 | 290.7 | 70.0 | 40.0 | 1/4* | NO | 60532H-40CM | |
| | 7xD | 245.0 | 290.7 | 294.3 | 360.7 | 70.0 | 40.0 | 1/4* | YES | 60732H-40FM | |
| | 7xD | 245.0 | 290.7 | 294.3 | 360.7 | 70.0 | 40.0 | 1/4* | NO | 60732H-40CM | |

*Thread to BSP and ISO 7-1



Drill / Chamfer

| Step | Body | | | | Shank | | | Part No. | | Chamfer Insert |
|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|--------------------|----------------|
| | D ₅ | L ₅ | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | | | |
| i 1-37/64 | 1-57/64 | 2-29/64 | 3-37/64 | 3-23/32 | 6-1/4 | 2-11/16 | 1-1/2 | 60132C45-150F | TCMT-16T304 | |
| m 40.1 | 48.0 | 62.4 | 90.7 | 94.2 | 160.7 | 70.0 | 40.0 | 60132C45-40FM | TCMT-16T304 | |

Connection Accessories

| | | | | | |
|--------------------|---------------------|---------------|-----------------|----------------|--------------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

i = Imperial (in)
m = Metric (mm)

Recommended Drilling Data | Imperial (inch)

GEN3SYS XT Pro

| ISO | Material | Hardness (BHN) | Speed (SFM) | Feed Rate (IPR) by Diameter | | | |
|---|---|----------------|-------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | | | | 11 series 0.4331" - 0.4723" | 12 series 0.4724" - 0.5117" | 13 series 0.5118" - 0.5511" | 14 series 0.5512" - 0.5905" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | 550 | 0.011 | 0.012 | 0.013 | 0.014 |
| | | 150 - 200 | 475 | 0.010 | 0.011 | 0.012 | 0.013 |
| | | 200 - 250 | 425 | 0.008 | 0.009 | 0.010 | 0.011 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | 520 | 0.011 | 0.012 | 0.013 | 0.014 |
| | | 125 - 175 | 450 | 0.010 | 0.011 | 0.012 | 0.013 |
| | | 175 - 225 | 410 | 0.009 | 0.010 | 0.011 | 0.012 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | 350 | 0.007 | 0.008 | 0.009 | 0.010 |
| | | 125 - 175 | 450 | 0.010 | 0.011 | 0.012 | 0.013 |
| | | 175 - 225 | 410 | 0.009 | 0.010 | 0.011 | 0.012 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | 350 | 0.008 | 0.009 | 0.010 | 0.011 |
| | | 275 - 325 | 300 | 0.007 | 0.008 | 0.009 | 0.010 |
| | | 125 - 175 | 415 | 0.010 | 0.011 | 0.012 | 0.013 |
| | | 175 - 225 | 380 | 0.009 | 0.010 | 0.011 | 0.012 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 275 | 340 | 0.008 | 0.009 | 0.010 | 0.011 |
| | | 275 - 325 | 310 | 0.006 | 0.007 | 0.008 | 0.009 |
| | | 325 - 375 | 280 | 0.006 | 0.006 | 0.007 | 0.008 |
| | Structural Steel A36, A285, A516, etc. | 100 - 150 | 410 | 0.010 | 0.011 | 0.012 | 0.013 |
| | | 150 - 250 | 330 | 0.008 | 0.009 | 0.010 | 0.011 |
| 250 - 350 | | 305 | 0.007 | 0.008 | 0.009 | 0.010 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | 265 | 0.006 | 0.007 | 0.007 | 0.008 | |
| | 200 - 250 | 205 | 0.005 | 0.006 | 0.006 | 0.007 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | 130 | 0.006 | 0.007 | 0.007 | 0.008 |
| | | 220 - 310 | 100 | 0.005 | 0.006 | 0.006 | 0.007 |
| | Titanium Alloy | 140 - 220 | 140 | 0.005 | 0.006 | 0.007 | 0.008 |
| | | 220 - 310 | 110 | 0.004 | 0.005 | 0.006 | 0.007 |
| | Aerospace Alloy S82 | 185 - 275 | 165 | 0.004 | 0.004 | 0.005 | 0.005 |
| 275 - 350 | | 135 | 0.003 | 0.003 | 0.004 | 0.005 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | 240 | 0.006 | 0.007 | 0.007 | 0.008 |
| | | 275 - 350 | 180 | 0.005 | 0.006 | 0.006 | 0.007 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | 220 | 0.004 | 0.005 | 0.005 | 0.006 |
| | | 185 - 275 | 160 | 0.003 | 0.004 | 0.004 | 0.005 |
| | Super Duplex Stainless Steel | 135 - 185 | 125 | 0.003 | 0.003 | 0.003 | 0.004 |
| 185 - 275 | | 100 | 0.002 | 0.002 | 0.003 | 0.003 | |

7xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 200 SFM • 0.80 | = 160 SFM |
| 0.008 IPR • 0.80 | = 0.0064 IPR |

10xD and 12xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (10xD/12xD) |
|--------------------------|------------------------|
| 200 SFM • 0.70 | = 140 SFM |
| 0.008 IPR • 0.70 | = 0.0056 IPR |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, and 12xD holder lengths, see adjustment examples above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

| Feed Rate (IPR) by Diameter | | | | | | | | | |
|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 15 series 0.5906" - 0.6298" | 16 series 0.6299" - 0.6692" | 17 series 0.6693" - 0.7086" | 18 series 0.7087" - 0.7873" | 20 series 0.7874" - 0.8660" | 22 series 0.8661" - 0.9448" | 24 series 0.9449" - 1.0235" | 26 series 1.0236" - 1.1416" | 29 series 1.1417" - 1.2597" | 32 series 1.2598" - 1.3780" |
| 0.015 | 0.016 | 0.017 | 0.019 | 0.021 | 0.022 | 0.023 | 0.024 | 0.025 | 0.026 |
| 0.014 | 0.015 | 0.016 | 0.017 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 |
| 0.012 | 0.013 | 0.014 | 0.016 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.015 | 0.016 | 0.017 | 0.019 | 0.021 | 0.022 | 0.023 | 0.024 | 0.025 | 0.026 |
| 0.014 | 0.015 | 0.016 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 |
| 0.013 | 0.014 | 0.015 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.011 | 0.012 | 0.013 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 |
| 0.014 | 0.015 | 0.016 | 0.018 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 | 0.025 |
| 0.013 | 0.014 | 0.015 | 0.017 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 |
| 0.012 | 0.013 | 0.014 | 0.016 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.011 | 0.012 | 0.013 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 |
| 0.014 | 0.015 | 0.016 | 0.018 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 | 0.025 |
| 0.013 | 0.014 | 0.015 | 0.017 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 |
| 0.012 | 0.013 | 0.014 | 0.016 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.010 | 0.011 | 0.012 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 |
| 0.009 | 0.010 | 0.011 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 |
| 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 |
| 0.010 | 0.011 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 |
| 0.009 | 0.010 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 |
| 0.013 | 0.015 | 0.015 | 0.017 | 0.019 | 0.021 | 0.022 | 0.023 | 0.024 | 0.025 |
| 0.012 | 0.013 | 0.014 | 0.015 | 0.017 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.017 | 0.019 | 0.020 | 0.021 | 0.022 |
| 0.008 | 0.009 | 0.009 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 |
| 0.007 | 0.008 | 0.008 | 0.009 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 |
| 0.008 | 0.009 | 0.009 | 0.010 | 0.011 | 0.011 | 0.012 | 0.012 | 0.013 | 0.014 |
| 0.007 | 0.008 | 0.008 | 0.009 | 0.010 | 0.010 | 0.011 | 0.011 | 0.012 | 0.013 |
| 0.008 | 0.009 | 0.009 | 0.010 | 0.011 | 0.011 | 0.012 | 0.012 | 0.013 | 0.014 |
| 0.007 | 0.008 | 0.008 | 0.009 | 0.010 | 0.010 | 0.011 | 0.011 | 0.012 | 0.012 |
| 0.006 | 0.006 | 0.007 | 0.007 | 0.008 | 0.008 | 0.009 | 0.010 | 0.011 | 0.012 |
| 0.005 | 0.006 | 0.006 | 0.006 | 0.007 | 0.008 | 0.008 | 0.009 | 0.010 | 0.011 |
| 0.008 | 0.009 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 |
| 0.007 | 0.008 | 0.009 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 |
| 0.006 | 0.007 | 0.007 | 0.008 | 0.008 | 0.009 | 0.009 | 0.010 | 0.010 | 0.011 |
| 0.005 | 0.006 | 0.006 | 0.007 | 0.007 | 0.008 | 0.008 | 0.009 | 0.009 | 0.010 |
| 0.004 | 0.005 | 0.005 | 0.006 | 0.006 | 0.007 | 0.008 | 0.008 | 0.008 | 0.010 |
| 0.004 | 0.004 | 0.005 | 0.005 | 0.006 | 0.006 | 0.007 | 0.007 | 0.008 | 0.008 |

Coolant Recommendations

| Series | Stub, 3xD, 5xD | | 7xD | | 10xD, 12xD | |
|--------|-----------------|------------------|-----------------|------------------|-----------------|------------------|
| | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM |
| 11 | 450 | 5 | 600 | 8 | 800 | 10 |
| 12 | 450 | 5 | 600 | 8 | 800 | 10 |
| 13 | 400 | 6 | 500 | 9.5 | 750 | 12 |
| 14 | 400 | 7 | 500 | 9.5 | 750 | 12 |
| 15 | 380 | 7 | 475 | 11 | 700 | 14 |
| 16 | 380 | 8 | 475 | 12 | 700 | 15 |
| 17 | 350 | 8 | 450 | 12.5 | 650 | 16.5 |
| 18 | 350 | 9 | 450 | 12.5 | 650 | 16.5 |
| 20 | 300 | 10 | 400 | 13 | 600 | 18 |
| 22 | 300 | 11 | 400 | 14 | 600 | 18 |
| 24 | 300 | 11 | 400 | 14 | 600 | 18 |
| 26 | 300 | 12 | 400 | 16 | 600 | 20 |
| 29 | 300 | 12 | 400 | 16 | 600 | 20 |
| 32 | 300 | 12 | 400 | 16 | 600 | 20 |

Recommended Drilling Data | Imperial (inch)

GEN3SYS XT Pro

| ISO | Material | Hardness (BHN) | Speed (SFM) | Feed Rate (IPR) by Diameter | | | |
|-----------|---|----------------|-------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | | | | 11 series 0.4331" - 0.4723" | 12 series 0.4724" - 0.5117" | 13 series 0.5118" - 0.5511" | 14 series 0.5512" - 0.5905" |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | 160 | 0.005 | 0.005 | 0.006 | 0.006 |
| | | 500 | 130 | 0.004 | 0.004 | 0.005 | 0.006 |
| | | 600 | 90 | 0.004 | 0.004 | 0.004 | 0.005 |
| | Hardened Steel | 300 - 400 | 170 | 0.005 | 0.005 | 0.006 | 0.006 |
| 400 - 500 | | 130 | 0.004 | 0.004 | 0.005 | 0.006 | |
| K | SG / Nodular Cast Iron | 120 - 150 | 550 | 0.010 | 0.012 | 0.013 | 0.014 |
| | | 150 - 200 | 520 | 0.010 | 0.011 | 0.012 | 0.013 |
| | | 200 - 220 | 465 | 0.008 | 0.010 | 0.011 | 0.012 |
| | | 220 - 260 | 405 | 0.008 | 0.009 | 0.010 | 0.011 |
| | | 260 - 320 | 365 | 0.008 | 0.008 | 0.009 | 0.010 |
| | Grey / White Iron | 120 - 150 | 575 | 0.012 | 0.013 | 0.014 | 0.015 |
| | | 150 - 200 | 550 | 0.011 | 0.012 | 0.013 | 0.014 |
| | | 200 - 220 | 495 | 0.010 | 0.011 | 0.012 | 0.013 |
| | | 220 - 260 | 425 | 0.009 | 0.010 | 0.011 | 0.012 |
| | | 260 - 320 | 380 | 0.009 | 0.010 | 0.011 | 0.012 |
| N | Cast Aluminum | 30 | 1150 | 0.012 | 0.013 | 0.014 | 0.015 |
| | | 180 | 860 | 0.011 | 0.012 | 0.013 | 0.014 |
| | Wrought Aluminum | 30 | 1600 | 0.013 | 0.015 | 0.016 | 0.017 |
| | | 180 | 1150 | 0.012 | 0.014 | 0.015 | 0.016 |
| | Aluminum Bronze | 100 - 200 | 415 | 0.010 | 0.011 | 0.012 | 0.012 |
| | | 200 - 250 | 335 | 0.008 | 0.009 | 0.010 | 0.011 |
| | Brass | 100 | 755 | 0.010 | 0.012 | 0.013 | 0.014 |
| Copper | 60 | 490 | 0.003 | 0.003 | 0.003 | 0.004 | |

7xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 200 SFM • 0.80 | = 160 SFM |
| 0.008 IPR • 0.80 | = 0.0064 IPR |

10xD and 12xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (10xD/12xD) |
|--------------------------|------------------------|
| 200 SFM • 0.70 | = 140 SFM |
| 0.008 IPR • 0.70 | = 0.0056 IPR |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, and 12xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

| Feed Rate (IPR) by Diameter | | | | | | | | | |
|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 15 series 0.5906" - 0.6298" | 16 series 0.6299" - 0.6692" | 17 series 0.6693" - 0.7086" | 18 series 0.7087" - 0.7873" | 20 series 0.7874" - 0.8660" | 22 series 0.8661" - 0.9448" | 24 series 0.9449" - 1.0235" | 26 series 1.0236" - 1.1416" | 29 series 1.1417" - 1.2597" | 32 series 1.2598" - 1.3780" |
| 0.007 | 0.008 | 0.009 | 0.010 | 0.010 | 0.010 | 0.011 | 0.011 | 0.012 | 0.012 |
| 0.006 | 0.007 | 0.008 | 0.009 | 0.010 | 0.010 | 0.010 | 0.010 | 0.011 | 0.011 |
| 0.006 | 0.006 | 0.007 | 0.008 | 0.009 | 0.009 | 0.010 | 0.010 | 0.010 | 0.010 |
| 0.007 | 0.008 | 0.008 | 0.009 | 0.010 | 0.010 | 0.010 | 0.010 | 0.011 | 0.011 |
| 0.006 | 0.007 | 0.008 | 0.008 | 0.009 | 0.009 | 0.010 | 0.010 | 0.010 | 0.010 |
| 0.015 | 0.016 | 0.018 | 0.020 | 0.020 | 0.022 | 0.022 | 0.024 | 0.025 | 0.026 |
| 0.014 | 0.015 | 0.017 | 0.019 | 0.020 | 0.020 | 0.022 | 0.022 | 0.024 | 0.024 |
| 0.013 | 0.014 | 0.016 | 0.018 | 0.019 | 0.020 | 0.020 | 0.022 | 0.022 | 0.023 |
| 0.012 | 0.013 | 0.015 | 0.017 | 0.018 | 0.019 | 0.020 | 0.020 | 0.022 | 0.022 |
| 0.011 | 0.012 | 0.014 | 0.015 | 0.017 | 0.018 | 0.019 | 0.020 | 0.020 | 0.021 |
| 0.016 | 0.017 | 0.019 | 0.021 | 0.022 | 0.023 | 0.024 | 0.025 | 0.026 | 0.027 |
| 0.015 | 0.016 | 0.018 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 | 0.025 | 0.026 |
| 0.014 | 0.015 | 0.017 | 0.020 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 | 0.025 |
| 0.013 | 0.014 | 0.016 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 |
| 0.013 | 0.014 | 0.015 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 | 0.025 |
| 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.023 |
| 0.018 | 0.019 | 0.020 | 0.022 | 0.023 | 0.024 | 0.026 | 0.027 | 0.029 | 0.030 |
| 0.017 | 0.018 | 0.019 | 0.021 | 0.022 | 0.023 | 0.025 | 0.026 | 0.028 | 0.029 |
| 0.013 | 0.014 | 0.015 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.019 | 0.019 |
| 0.012 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.018 | 0.019 |
| 0.015 | 0.016 | 0.017 | 0.019 | 0.020 | 0.022 | 0.023 | 0.024 | 0.026 | 0.026 |
| 0.005 | 0.006 | 0.006 | 0.007 | 0.008 | 0.008 | 0.008 | 0.010 | 0.010 | 0.011 |

Coolant Recommendations

| Series | Stub, 3xD, 5xD | | 7xD | | 10xD, 12xD | |
|--------|-----------------|------------------|-----------------|------------------|-----------------|------------------|
| | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM |
| 11 | 450 | 5 | 600 | 8 | 800 | 10 |
| 12 | 450 | 5 | 600 | 8 | 800 | 10 |
| 13 | 400 | 6 | 500 | 9.5 | 750 | 12 |
| 14 | 400 | 7 | 500 | 9.5 | 750 | 12 |
| 15 | 380 | 7 | 475 | 11 | 700 | 14 |
| 16 | 380 | 8 | 475 | 12 | 700 | 15 |
| 17 | 350 | 8 | 450 | 12.5 | 650 | 16.5 |
| 18 | 350 | 9 | 450 | 12.5 | 650 | 16.5 |
| 20 | 300 | 10 | 400 | 13 | 600 | 18 |
| 22 | 300 | 11 | 400 | 14 | 600 | 18 |
| 24 | 300 | 11 | 400 | 14 | 600 | 18 |
| 26 | 300 | 12 | 400 | 16 | 600 | 20 |
| 29 | 300 | 12 | 400 | 16 | 600 | 20 |
| 32 | 300 | 12 | 400 | 16 | 600 | 20 |

Recommended Drilling Data | Imperial (inch)

GEN3SYS XT

| ISO | Material | Hardness (BHN) | Speed (SFM) | Feed Rate (IPR) by Diameter | | | |
|---|---|----------------|-------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | | | | 11 series 0.4331" - 0.4723" | 12 series 0.4724" - 0.5117" | 13 series 0.5118" - 0.5511" | 14 series 0.5512" - 0.5905" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | 480 | 0.009 | 0.011 | 0.012 | 0.013 |
| | | 150 - 200 | 415 | 0.009 | 0.010 | 0.011 | 0.012 |
| | | 200 - 250 | 390 | 0.007 | 0.008 | 0.009 | 0.010 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | 450 | 0.010 | 0.011 | 0.012 | 0.013 |
| | | 125 - 175 | 390 | 0.009 | 0.010 | 0.011 | 0.012 |
| | | 175 - 225 | 355 | 0.008 | 0.009 | 0.010 | 0.011 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | 310 | 0.006 | 0.007 | 0.008 | 0.009 |
| | | 125 - 175 | 390 | 0.009 | 0.010 | 0.011 | 0.012 |
| | | 175 - 225 | 355 | 0.008 | 0.009 | 0.010 | 0.011 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | 310 | 0.007 | 0.008 | 0.009 | 0.010 |
| | | 275 - 325 | 265 | 0.006 | 0.007 | 0.008 | 0.009 |
| | | 125 - 175 | 375 | 0.009 | 0.010 | 0.011 | 0.012 |
| | | 175 - 225 | 345 | 0.008 | 0.009 | 0.010 | 0.011 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 275 | 310 | 0.007 | 0.008 | 0.009 | 0.010 |
| | | 275 - 325 | 285 | 0.006 | 0.006 | 0.007 | 0.008 |
| | | 325 - 375 | 255 | 0.006 | 0.006 | 0.006 | 0.007 |
| | Structural Steel A36, A285, A516, etc. | 300 - 350 | 205 | 0.006 | 0.006 | 0.007 | 0.008 |
| | | 100 - 150 | 355 | 0.009 | 0.010 | 0.011 | 0.012 |
| 150 - 250 | | 285 | 0.007 | 0.008 | 0.009 | 0.010 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 250 - 350 | 265 | 0.006 | 0.007 | 0.008 | 0.009 | |
| | 150 - 200 | 255 | 0.006 | 0.006 | 0.006 | 0.007 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 200 - 250 | 195 | 0.005 | 0.006 | 0.006 | 0.006 |
| | | 140 - 220 | 120 | 0.006 | 0.006 | 0.006 | 0.007 |
| | Titanium Alloy | 220 - 310 | 95 | 0.005 | 0.006 | 0.006 | 0.006 |
| | | 140 - 220 | 140 | 0.005 | 0.006 | 0.006 | 0.007 |
| | Aerospace Alloy S82 | 220 - 310 | 110 | 0.004 | 0.005 | 0.006 | 0.006 |
| 185 - 275 | | 145 | 0.004 | 0.004 | 0.005 | 0.005 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 275 - 350 | 185 | 0.005 | 0.006 | 0.006 | 0.007 |
| | | 185 - 275 | 240 | 0.006 | 0.007 | 0.007 | 0.008 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | 220 | 0.004 | 0.005 | 0.005 | 0.006 |
| | | 185 - 275 | 160 | 0.003 | 0.004 | 0.004 | 0.005 |
| | Super Duplex Stainless Steel | 135 - 185 | 125 | 0.003 | 0.003 | 0.003 | 0.004 |
| | | 185 - 275 | 100 | 0.002 | 0.002 | 0.003 | 0.003 |

7xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 200 SFM • 0.80 | = 160 SFM |
| 0.008 IPR • 0.80 | = 0.0064 IPR |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, and 12xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

| Feed Rate (IPR) by Diameter | | | | | | | | | |
|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 15 series 0.5906" - 0.6298" | 16 series 0.6299" - 0.6692" | 17 series 0.6693" - 0.7086" | 18 series 0.7087" - 0.7873" | 20 series 0.7874" - 0.8660" | 22 series 0.8661" - 0.9448" | 24 series 0.9449" - 1.0235" | 26 series 1.0236" - 1.1416" | 29 series 1.1417" - 1.2597" | 32 series 1.2598" - 1.3780" |
| 0.014 | 0.015 | 0.016 | 0.017 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 |
| 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 |
| 0.011 | 0.012 | 0.013 | 0.015 | 0.017 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 |
| 0.014 | 0.015 | 0.016 | 0.017 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 |
| 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 |
| 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 |
| 0.010 | 0.011 | 0.012 | 0.014 | 0.015 | 0.016 | 0.017 | 0.017 | 0.018 | 0.019 |
| 0.013 | 0.014 | 0.015 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.012 | 0.013 | 0.014 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 |
| 0.011 | 0.012 | 0.013 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 |
| 0.010 | 0.011 | 0.012 | 0.014 | 0.015 | 0.016 | 0.017 | 0.017 | 0.018 | 0.019 |
| 0.013 | 0.014 | 0.015 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.012 | 0.013 | 0.014 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 |
| 0.011 | 0.012 | 0.013 | 0.015 | 0.015 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 |
| 0.009 | 0.010 | 0.011 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.018 |
| 0.008 | 0.009 | 0.010 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.017 |
| 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.017 | 0.018 |
| 0.009 | 0.010 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 |
| 0.008 | 0.009 | 0.009 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 |
| 0.012 | 0.014 | 0.014 | 0.016 | 0.017 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.011 | 0.012 | 0.013 | 0.014 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 |
| 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 |
| 0.007 | 0.008 | 0.008 | 0.009 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 |
| 0.006 | 0.007 | 0.007 | 0.008 | 0.009 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 |
| 0.007 | 0.008 | 0.008 | 0.009 | 0.010 | 0.010 | 0.011 | 0.011 | 0.012 | 0.013 |
| 0.006 | 0.007 | 0.007 | 0.008 | 0.009 | 0.009 | 0.010 | 0.010 | 0.011 | 0.012 |
| 0.007 | 0.008 | 0.008 | 0.009 | 0.010 | 0.010 | 0.011 | 0.011 | 0.012 | 0.013 |
| 0.006 | 0.007 | 0.007 | 0.008 | 0.009 | 0.009 | 0.010 | 0.010 | 0.011 | 0.011 |
| 0.006 | 0.006 | 0.006 | 0.006 | 0.007 | 0.007 | 0.008 | 0.009 | 0.010 | 0.011 |
| 0.005 | 0.006 | 0.006 | 0.006 | 0.006 | 0.007 | 0.007 | 0.008 | 0.009 | 0.010 |
| 0.008 | 0.009 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 |
| 0.007 | 0.008 | 0.009 | 0.010 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 |
| 0.006 | 0.007 | 0.007 | 0.008 | 0.008 | 0.009 | 0.009 | 0.010 | 0.010 | 0.011 |
| 0.005 | 0.006 | 0.006 | 0.007 | 0.007 | 0.008 | 0.008 | 0.009 | 0.009 | 0.010 |
| 0.004 | 0.005 | 0.005 | 0.006 | 0.006 | 0.007 | 0.008 | 0.008 | 0.008 | 0.010 |
| 0.004 | 0.004 | 0.005 | 0.005 | 0.006 | 0.006 | 0.007 | 0.007 | 0.008 | 0.008 |

Coolant Recommendations

| Series | 3xD, 5xD | | 7xD | | 10xD, 12xD | |
|--------|-----------------|------------------|-----------------|------------------|-----------------|------------------|
| | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM |
| 11 | 450 | 5 | 600 | 8 | 800 | 10 |
| 12 | 450 | 5 | 600 | 8 | 800 | 10 |
| 13 | 400 | 6 | 500 | 9.5 | 750 | 12 |
| 14 | 400 | 7 | 500 | 9.5 | 750 | 12 |
| 15 | 380 | 7 | 475 | 11 | 700 | 14 |
| 16 | 380 | 8 | 475 | 12 | 700 | 15 |
| 17 | 350 | 8 | 450 | 12.5 | 650 | 16.5 |
| 18 | 350 | 9 | 450 | 12.5 | 650 | 16.5 |
| 20 | 300 | 10 | 400 | 13 | 600 | 18 |
| 22 | 300 | 11 | 400 | 14 | 600 | 18 |
| 24 | 300 | 11 | 400 | 14 | 600 | 18 |
| 26 | 300 | 12 | 400 | 16 | 600 | 20 |
| 29 | 300 | 12 | 400 | 16 | 600 | 20 |
| 32 | 300 | 12 | 400 | 16 | 600 | 20 |

Recommended Drilling Data | Imperial (inch)

GEN3SYS XT

| ISO | Material | Hardness (BHN) | Speed (SFM) | Feed Rate (IPR) by Diameter | | | |
|-----------|---|----------------|-------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | | | | 11 series 0.4331" - 0.4723" | 12 series 0.4724" - 0.5117" | 13 series 0.5118" - 0.5511" | 14 series 0.5512" - 0.5905" |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | 145 | 0.005 | 0.005 | 0.006 | 0.006 |
| | | 500 | 110 | 0.004 | 0.004 | 0.005 | 0.006 |
| | | 600 | 80 | 0.004 | 0.004 | 0.004 | 0.005 |
| | Hardened Steel | 300 - 400 | 155 | 0.005 | 0.005 | 0.006 | 0.006 |
| 400 - 500 | | 120 | 0.004 | 0.004 | 0.005 | 0.006 | |
| K | SG / Nodular Cast Iron | 120 - 150 | 480 | 0.009 | 0.011 | 0.012 | 0.013 |
| | | 150 - 200 | 450 | 0.009 | 0.010 | 0.011 | 0.012 |
| | | 200 - 220 | 400 | 0.007 | 0.009 | 0.010 | 0.011 |
| | | 220 - 260 | 350 | 0.007 | 0.008 | 0.009 | 0.010 |
| | | 260 - 320 | 320 | 0.007 | 0.007 | 0.008 | 0.009 |
| | Grey / White Iron | 120 - 150 | 500 | 0.011 | 0.012 | 0.013 | 0.014 |
| | | 150 - 200 | 480 | 0.010 | 0.011 | 0.012 | 0.013 |
| | | 200 - 220 | 430 | 0.009 | 0.010 | 0.011 | 0.012 |
| | | 220 - 260 | 370 | 0.008 | 0.009 | 0.010 | 0.011 |
| | | 260 - 320 | 335 | 0.008 | 0.009 | 0.010 | 0.011 |
| N | Cast Aluminum | 30 | 1000 | 0.011 | 0.012 | 0.013 | 0.014 |
| | | 180 | 750 | 0.010 | 0.011 | 0.012 | 0.013 |
| | Wrought Aluminum | 30 | 1400 | 0.012 | 0.014 | 0.015 | 0.016 |
| | | 180 | 1000 | 0.011 | 0.013 | 0.014 | 0.015 |
| | Aluminum Bronze | 100 - 200 | 360 | 0.009 | 0.010 | 0.011 | 0.011 |
| | | 200 - 250 | 295 | 0.007 | 0.008 | 0.009 | 0.010 |
| | Brass | 100 | 660 | 0.009 | 0.011 | 0.012 | 0.013 |
| Copper | 60 | 425 | 0.003 | 0.003 | 0.003 | 0.004 | |

7xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 200 SFM • 0.80 | = 160 SFM |
| 0.008 IPR • 0.80 | = 0.0064 IPR |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, and 12xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

| Feed Rate (IPR) by Diameter | | | | | | | | | |
|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 15 series 0.5906" - 0.6298" | 16 series 0.6299" - 0.6692" | 17 series 0.6693" - 0.7086" | 18 series 0.7087" - 0.7873" | 20 series 0.7874" - 0.8660" | 22 series 0.8661" - 0.9448" | 24 series 0.9449" - 1.0235" | 26 series 1.0236" - 1.1416" | 29 series 1.1417" - 1.2597" | 32 series 1.2598" - 1.3780" |
| 0.006 | 0.007 | 0.008 | 0.009 | 0.009 | 0.009 | 0.010 | 0.010 | 0.011 | 0.011 |
| 0.006 | 0.006 | 0.007 | 0.008 | 0.009 | 0.009 | 0.009 | 0.009 | 0.010 | 0.010 |
| 0.006 | 0.006 | 0.006 | 0.007 | 0.008 | 0.008 | 0.009 | 0.009 | 0.009 | 0.009 |
| 0.006 | 0.007 | 0.007 | 0.008 | 0.009 | 0.009 | 0.009 | 0.009 | 0.010 | 0.010 |
| 0.006 | 0.006 | 0.007 | 0.007 | 0.008 | 0.008 | 0.009 | 0.009 | 0.009 | 0.009 |
| 0.014 | 0.015 | 0.017 | 0.018 | 0.018 | 0.020 | 0.020 | 0.022 | 0.023 | 0.024 |
| 0.013 | 0.014 | 0.016 | 0.017 | 0.018 | 0.018 | 0.020 | 0.020 | 0.022 | 0.022 |
| 0.012 | 0.013 | 0.015 | 0.016 | 0.017 | 0.018 | 0.018 | 0.020 | 0.020 | 0.021 |
| 0.011 | 0.012 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.018 | 0.020 | 0.020 |
| 0.010 | 0.011 | 0.013 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.018 | 0.019 |
| 0.015 | 0.016 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 | 0.025 |
| 0.014 | 0.015 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 | 0.024 |
| 0.013 | 0.014 | 0.016 | 0.018 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.012 | 0.013 | 0.015 | 0.017 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 |
| 0.012 | 0.013 | 0.014 | 0.016 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 |
| 0.015 | 0.016 | 0.017 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.022 | 0.023 |
| 0.014 | 0.015 | 0.016 | 0.016 | 0.017 | 0.018 | 0.019 | 0.020 | 0.021 | 0.021 |
| 0.017 | 0.017 | 0.018 | 0.020 | 0.021 | 0.022 | 0.024 | 0.025 | 0.027 | 0.028 |
| 0.016 | 0.016 | 0.017 | 0.019 | 0.020 | 0.021 | 0.023 | 0.024 | 0.026 | 0.027 |
| 0.012 | 0.013 | 0.014 | 0.014 | 0.015 | 0.016 | 0.017 | 0.017 | 0.017 | 0.017 |
| 0.011 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.016 | 0.016 | 0.016 |
| 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.020 | 0.021 | 0.022 | 0.024 | 0.024 |
| 0.005 | 0.006 | 0.006 | 0.006 | 0.007 | 0.007 | 0.007 | 0.009 | 0.009 | 0.010 |

Coolant Recommendations

| Series | 3xD, 5xD | | 7xD | | 10xD, 12xD | |
|--------|-----------------|------------------|-----------------|------------------|-----------------|------------------|
| | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM |
| 11 | 450 | 5 | 600 | 8 | 800 | 10 |
| 12 | 450 | 5 | 600 | 8 | 800 | 10 |
| 13 | 400 | 6 | 500 | 9.5 | 750 | 12 |
| 14 | 400 | 7 | 500 | 9.5 | 750 | 12 |
| 15 | 380 | 7 | 475 | 11 | 700 | 14 |
| 16 | 380 | 8 | 475 | 12 | 700 | 15 |
| 17 | 350 | 8 | 450 | 12.5 | 650 | 16.5 |
| 18 | 350 | 9 | 450 | 12.5 | 650 | 16.5 |
| 20 | 300 | 10 | 400 | 13 | 600 | 18 |
| 22 | 300 | 11 | 400 | 14 | 600 | 18 |
| 24 | 300 | 11 | 400 | 14 | 600 | 18 |
| 26 | 300 | 12 | 400 | 16 | 600 | 20 |
| 29 | 300 | 12 | 400 | 16 | 600 | 20 |
| 32 | 300 | 12 | 400 | 16 | 600 | 20 |

Recommended Drilling Data | Metric (mm)

GEN3SYS XT Pro

| ISO | Material | Hardness (BHN) | Speed (M/mm) | Feed Rate (mm/rev) by Diameter | | | |
|---|---|----------------|--------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | | | | 11 series 11.00 mm - 11.99 mm | 12 series 12.00 mm - 12.99 mm | 13 series 13.00 mm - 13.99 mm | 14 series 14.00 mm - 14.99 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | 168 | 0.28 | 0.30 | 0.33 | 0.36 |
| | | 150 - 200 | 145 | 0.25 | 0.28 | 0.30 | 0.33 |
| | | 200 - 250 | 130 | 0.20 | 0.23 | 0.25 | 0.28 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | 158 | 0.28 | 0.3 | 0.33 | 0.36 |
| | | 125 - 175 | 137 | 0.25 | 0.28 | 0.30 | 0.33 |
| | | 175 - 225 | 125 | 0.23 | 0.25 | 0.28 | 0.30 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | 107 | 0.18 | 0.20 | 0.23 | 0.25 |
| | | 125 - 175 | 137 | 0.25 | 0.28 | 0.30 | 0.33 |
| | | 175 - 225 | 125 | 0.23 | 0.25 | 0.28 | 0.30 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | 107 | 0.20 | 0.23 | 0.25 | 0.28 |
| | | 275 - 325 | 91 | 0.18 | 0.20 | 0.23 | 0.25 |
| | | 125 - 175 | 126 | 0.25 | 0.28 | 0.30 | 0.33 |
| | | 175 - 225 | 116 | 0.23 | 0.25 | 0.28 | 0.30 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 275 | 104 | 0.20 | 0.23 | 0.25 | 0.28 |
| | | 275 - 325 | 94 | 0.15 | 0.18 | 0.20 | 0.23 |
| | | 325 - 375 | 85 | 0.15 | 0.15 | 0.18 | 0.20 |
| | Structural Steel A36, A285, A516, etc. | 300 - 350 | 69 | 0.15 | 0.18 | 0.20 | 0.23 |
| | | 350 - 400 | 61 | 0.13 | 0.18 | 0.18 | 0.20 |
| 100 - 150 | | 125 | 0.25 | 0.28 | 0.30 | 0.33 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | 101 | 0.20 | 0.23 | 0.25 | 0.28 | |
| | 250 - 350 | 93 | 0.18 | 0.20 | 0.23 | 0.25 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 150 - 200 | 81 | 0.15 | 0.18 | 0.18 | 0.20 |
| | | 200 - 250 | 62 | 0.13 | 0.15 | 0.15 | 0.18 |
| | Titanium Alloy | 140 - 220 | 40 | 0.15 | 0.18 | 0.18 | 0.20 |
| | | 220 - 310 | 30 | 0.13 | 0.15 | 0.15 | 0.18 |
| | Aerospace Alloy S82 | 140 - 220 | 43 | 0.13 | 0.15 | 0.18 | 0.20 |
| 220 - 310 | | 34 | 0.10 | 0.13 | 0.15 | 0.18 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | 50 | 0.10 | 0.10 | 0.12 | 0.14 |
| | | 275 - 350 | 41 | 0.09 | 0.09 | 0.10 | 0.12 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 185 - 275 | 73 | 0.15 | 0.18 | 0.18 | 0.20 |
| | | 275 - 350 | 56 | 0.13 | 0.15 | 0.15 | 0.18 |
| | Super Duplex Stainless Steel | 135 - 185 | 64 | 0.10 | 0.13 | 0.13 | 0.15 |
| 185 - 275 | | 47 | 0.08 | 0.10 | 0.10 | 0.13 | |
| | | 135 - 185 | 38 | 0.08 | 0.08 | 0.08 | 0.10 |
| | | 185 - 275 | 30 | 0.05 | 0.05 | 0.08 | 0.08 |

7xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 61 M/min • 0.80 | = 48.8 M/min |
| 0.20 mm/rev • 0.80 | = 0.16 mm/rev |

10xD and 12xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (10xD/12xD) |
|--------------------------|------------------------|
| 61 M/min • 0.70 | = 42.7 M/min |
| 0.20 mm/rev • 0.70 | = 0.14 mm/rev |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, and 12xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

| Feed Rate (mm/rev) by Diameter | | | | | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 15 series 15.00 mm - 15.99 mm | 16 series 16.00 mm - 16.99 mm | 17 series 17.00 mm - 17.99 mm | 18 series 18.00 mm - 19.99 mm | 20 series 20.00 mm - 21.99 mm | 22 series 22.00 mm - 23.99 mm | 24 series 24.00 mm - 25.99 mm | 26 series 26.00 mm - 28.99 mm | 29 series 29.00 mm - 31.99 mm | 32 series 32.00 mm - 35.00 mm |
| 0.38 | 0.41 | 0.43 | 0.48 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 | 0.66 |
| 0.36 | 0.38 | 0.41 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 |
| 0.30 | 0.33 | 0.36 | 0.41 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| 0.38 | 0.41 | 0.43 | 0.48 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 | 0.66 |
| 0.36 | 0.38 | 0.41 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 |
| 0.33 | 0.36 | 0.38 | 0.42 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| 0.28 | 0.30 | 0.33 | 0.38 | 0.41 | 0.42 | 0.46 | 0.48 | 0.51 | 0.53 |
| 0.36 | 0.38 | 0.41 | 0.46 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 |
| 0.33 | 0.36 | 0.38 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 |
| 0.30 | 0.33 | 0.36 | 0.41 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| 0.28 | 0.30 | 0.33 | 0.38 | 0.41 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 |
| 0.36 | 0.38 | 0.41 | 0.46 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 |
| 0.33 | 0.36 | 0.38 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 |
| 0.30 | 0.33 | 0.36 | 0.41 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| 0.25 | 0.28 | 0.30 | 0.36 | 0.38 | 0.41 | 0.43 | 0.46 | 0.48 | 0.51 |
| 0.23 | 0.25 | 0.28 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 | 0.46 | 0.48 |
| 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 | 0.46 | 0.48 | 0.51 |
| 0.25 | 0.28 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 | 0.46 |
| 0.23 | 0.25 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 |
| 0.33 | 0.38 | 0.38 | 0.43 | 0.48 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 |
| 0.30 | 0.33 | 0.36 | 0.38 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 |
| 0.20 | 0.23 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 |
| 0.18 | 0.20 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 |
| 0.20 | 0.23 | 0.23 | 0.25 | 0.28 | 0.28 | 0.30 | 0.30 | 0.33 | 0.36 |
| 0.18 | 0.20 | 0.20 | 0.23 | 0.25 | 0.25 | 0.28 | 0.28 | 0.30 | 0.33 |
| 0.20 | 0.23 | 0.23 | 0.25 | 0.28 | 0.28 | 0.30 | 0.30 | 0.33 | 0.33 |
| 0.18 | 0.20 | 0.20 | 0.23 | 0.25 | 0.25 | 0.28 | 0.28 | 0.30 | 0.30 |
| 0.15 | 0.16 | 0.18 | 0.18 | 0.20 | 0.22 | 0.24 | 0.26 | 0.28 | 0.31 |
| 0.14 | 0.15 | 0.16 | 0.16 | 0.18 | 0.20 | 0.22 | 0.24 | 0.26 | 0.29 |
| 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 |
| 0.18 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 |
| 0.15 | 0.18 | 0.18 | 0.20 | 0.20 | 0.23 | 0.23 | 0.25 | 0.25 | 0.28 |
| 0.13 | 0.15 | 0.15 | 0.18 | 0.18 | 0.20 | 0.20 | 0.23 | 0.23 | 0.25 |
| 0.10 | 0.13 | 0.13 | 0.15 | 0.15 | 0.18 | 0.20 | 0.20 | 0.20 | 0.25 |
| 0.10 | 0.10 | 0.13 | 0.13 | 0.15 | 0.15 | 0.18 | 0.18 | 0.20 | 0.20 |

Coolant Recommendations

| Series | Stub, 3xD, 5xD | | 7xD | | 10xD, 12xD | |
|--------|----------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM |
| 11 | 31 | 19 | 41 | 30 | 55 | 38 |
| 12 | 31 | 19 | 41 | 30 | 55 | 38 |
| 13 | 28 | 23 | 34 | 36 | 52 | 45 |
| 14 | 28 | 26 | 34 | 36 | 52 | 45 |
| 15 | 26 | 26 | 33 | 42 | 48 | 53 |
| 16 | 26 | 30 | 33 | 45 | 48 | 57 |
| 17 | 24 | 30 | 31 | 47 | 45 | 62 |
| 18 | 24 | 34 | 31 | 47 | 45 | 62 |
| 20 | 21 | 38 | 28 | 49 | 41 | 68 |
| 22 | 21 | 42 | 28 | 53 | 41 | 68 |
| 24 | 21 | 42 | 28 | 53 | 41 | 68 |
| 26 | 21 | 45 | 28 | 61 | 41 | 76 |
| 29 | 21 | 45 | 28 | 61 | 41 | 76 |
| 32 | 21 | 45 | 28 | 61 | 41 | 76 |

Recommended Drilling Data | Metric (mm)

GEN3SYS XT Pro

| ISO | Material | Hardness (BHN) | Speed (M/min) | Feed Rate (mm/rev) by Diameter | | | |
|-----------|---|----------------|---------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | | | | 11 series 11.00 mm - 11.99 mm | 12 series 12.00 mm - 12.99 mm | 13 series 13.00 mm - 13.99 mm | 14 series 14.00 mm - 14.99 mm |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | 50 | 0.13 | 0.13 | 0.15 | 0.17 |
| | | 500 | 40 | 0.11 | 0.11 | 0.13 | 0.15 |
| | | 600 | 27 | 0.10 | 0.10 | 0.11 | 0.13 |
| | Hardened Steel | 300 - 400 | 51 | 0.13 | 0.13 | 0.15 | 0.17 |
| 400 - 500 | | 40 | 0.11 | 0.11 | 0.13 | 0.15 | |
| K | SG / Nodular Cast Iron | 120 - 150 | 168 | 0.27 | 0.30 | 0.33 | 0.36 |
| | | 150 - 200 | 159 | 0.25 | 0.28 | 0.30 | 0.33 |
| | | 200 - 220 | 141 | 0.22 | 0.25 | 0.28 | 0.30 |
| | | 220 - 260 | 124 | 0.20 | 0.23 | 0.25 | 0.28 |
| | | 260 - 320 | 112 | 0.20 | 0.21 | 0.23 | 0.25 |
| | Grey / White Iron | 120 - 150 | 175 | 0.30 | 0.33 | 0.36 | 0.38 |
| | | 150 - 200 | 168 | 0.28 | 0.30 | 0.33 | 0.36 |
| | | 200 - 220 | 151 | 0.25 | 0.28 | 0.30 | 0.33 |
| | 220 - 260 | 130 | 0.23 | 0.25 | 0.28 | 0.30 | |
| | 260 - 320 | 116 | 0.23 | 0.25 | 0.28 | 0.30 | |
| N | Cast Aluminum | 30 | 351 | 0.30 | 0.33 | 0.36 | 0.38 |
| | | 180 | 262 | 0.28 | 0.30 | 0.33 | 0.36 |
| | Wrought Aluminum | 30 | 488 | 0.33 | 0.38 | 0.41 | 0.43 |
| | | 180 | 351 | 0.30 | 0.36 | 0.38 | 0.41 |
| | Aluminum Bronze | 100 - 200 | 126 | 0.26 | 0.28 | 0.30 | 0.32 |
| | | 200 - 250 | 103 | 0.22 | 0.24 | 0.26 | 0.28 |
| | Brass | 100 | 230 | 0.29 | 0.30 | 0.33 | 0.36 |
| Copper | 60 | 149 | 0.07 | 0.08 | 0.09 | 0.11 | |

7xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 61 M/min • 0.80 | = 48.8 M/min |
| 0.20 mm/rev • 0.80 | = 0.16 mm/rev |

10xD and 12xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (10xD/12xD) |
|--------------------------|------------------------|
| 61 M/min • 0.70 | = 42.7 M/min |
| 0.20 mm/rev • 0.70 | = 0.14 mm/rev |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, and 12xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

| Feed Rate (mm/rev) by Diameter | | | | | | | | | |
|-----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 15 series 15.00mm - 15.99mm | 16 series 16.00 mm - 16.99 mm | 17 series 17.00 mm - 17.99 mm | 18 series 18.00 mm - 19.99 mm | 20 series 20.00 mm - 21.99 mm | 22 series 22.00 mm - 23.99 mm | 24 series 24.00 mm - 25.99 mm | 26 series 26.00 mm - 28.99 mm | 29 series 29.00 mm - 31.99 mm | 32 series 32.00 mm - 35.00 mm |
| 0.19 | 0.21 | 0.23 | 0.25 | 0.27 | 0.27 | 0.29 | 0.29 | 0.31 | 0.31 |
| 0.17 | 0.19 | 0.21 | 0.23 | 0.25 | 0.25 | 0.27 | 0.27 | 0.29 | 0.29 |
| 0.15 | 0.17 | 0.19 | 0.21 | 0.23 | 0.23 | 0.25 | 0.25 | 0.25 | 0.27 |
| 0.19 | 0.21 | 0.22 | 0.23 | 0.25 | 0.25 | 0.27 | 0.27 | 0.29 | 0.29 |
| 0.17 | 0.19 | 0.20 | 0.21 | 0.23 | 0.23 | 0.25 | 0.25 | 0.27 | 0.27 |
| 0.38 | 0.41 | 0.46 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 | 0.66 |
| 0.36 | 0.38 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.63 |
| 0.33 | 0.36 | 0.41 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.60 |
| 0.30 | 0.33 | 0.38 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| 0.28 | 0.30 | 0.36 | 0.38 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 | 0.55 |
| 0.41 | 0.43 | 0.48 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 | 0.66 | 0.69 |
| 0.38 | 0.41 | 0.46 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 | 0.66 |
| 0.36 | 0.38 | 0.43 | 0.51 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 |
| 0.33 | 0.36 | 0.41 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 |
| 0.33 | 0.36 | 0.38 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| 0.41 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 |
| 0.38 | 0.41 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.58 |
| 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.61 | 0.66 | 0.69 | 0.74 | 0.76 |
| 0.43 | 0.46 | 0.48 | 0.53 | 0.56 | 0.58 | 0.64 | 0.66 | 0.71 | 0.74 |
| 0.34 | 0.36 | 0.38 | 0.40 | 0.42 | 0.44 | 0.46 | 0.48 | 0.48 | 0.50 |
| 0.30 | 0.32 | 0.34 | 0.36 | 0.38 | 0.42 | 0.46 | 0.46 | 0.46 | 0.48 |
| 0.38 | 0.41 | 0.43 | 0.48 | 0.53 | 0.56 | 0.60 | 0.63 | 0.66 | 0.66 |
| 0.13 | 0.15 | 0.16 | 0.18 | 0.20 | 0.20 | 0.22 | 0.25 | 0.25 | 0.28 |

Coolant Recommendations

| Series | Stub, 3xD, 5xD | | 7xD | | 10xD, 12xD | |
|--------|----------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM |
| 11 | 31 | 19 | 41 | 30 | 55 | 38 |
| 12 | 31 | 19 | 41 | 30 | 55 | 38 |
| 13 | 28 | 23 | 34 | 36 | 52 | 45 |
| 14 | 28 | 26 | 34 | 36 | 52 | 45 |
| 15 | 26 | 26 | 33 | 42 | 48 | 53 |
| 16 | 26 | 30 | 33 | 45 | 48 | 57 |
| 17 | 24 | 30 | 31 | 47 | 45 | 62 |
| 18 | 24 | 34 | 31 | 47 | 45 | 62 |
| 20 | 21 | 38 | 28 | 49 | 41 | 68 |
| 22 | 21 | 42 | 28 | 53 | 41 | 68 |
| 24 | 21 | 42 | 28 | 53 | 41 | 68 |
| 26 | 21 | 45 | 28 | 61 | 41 | 76 |
| 29 | 21 | 45 | 28 | 61 | 41 | 76 |
| 32 | 21 | 45 | 28 | 61 | 41 | 76 |

Recommended Drilling Data | Metric (mm)

GEN3SYS XT

| ISO | Material | Hardness (BHN) | Speed (M/mm) | Feed Rate (mm/rev) by Diameter | | | |
|---|---|----------------|--------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | | | | 11 series 11.00 mm - 11.99 mm | 12 series 12.00 mm - 12.99 mm | 13 series 13.00 mm - 13.99 mm | 14 series 14.00 mm - 14.99 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | 146 | 0.23 | 0.28 | 0.30 | 0.33 |
| | | 150 - 200 | 126 | 0.23 | 0.26 | 0.28 | 0.30 |
| | | 200 - 250 | 119 | 0.19 | 0.21 | 0.23 | 0.26 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | 137 | 0.26 | 0.28 | 0.30 | 0.33 |
| | | 125 - 175 | 119 | 0.23 | 0.26 | 0.28 | 0.30 |
| | | 175 - 225 | 108 | 0.21 | 0.23 | 0.26 | 0.28 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | 95 | 0.16 | 0.19 | 0.21 | 0.23 |
| | | 125 - 175 | 119 | 0.23 | 0.26 | 0.28 | 0.30 |
| | | 175 - 225 | 108 | 0.21 | 0.23 | 0.26 | 0.28 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | 95 | 0.19 | 0.21 | 0.23 | 0.26 |
| | | 275 - 325 | 81 | 0.16 | 0.19 | 0.21 | 0.23 |
| | | 125 - 175 | 114 | 0.23 | 0.26 | 0.28 | 0.30 |
| | | 175 - 225 | 105 | 0.21 | 0.23 | 0.26 | 0.28 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 275 | 95 | 0.19 | 0.21 | 0.23 | 0.26 |
| | | 275 - 325 | 87 | 0.14 | 0.16 | 0.19 | 0.21 |
| | | 325 - 375 | 78 | 0.14 | 0.14 | 0.16 | 0.19 |
| Structural Steel A36, A285, A516, etc. | 300 - 350 | 63 | 0.14 | 0.16 | 0.19 | 0.21 | |
| | 100 - 150 | 108 | 0.23 | 0.26 | 0.28 | 0.30 | |
| | 150 - 250 | 87 | 0.19 | 0.21 | 0.23 | 0.26 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 250 - 350 | 81 | 0.16 | 0.19 | 0.21 | 0.23 | |
| | 150 - 200 | 78 | 0.14 | 0.16 | 0.16 | 0.19 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 200 - 250 | 59 | 0.12 | 0.14 | 0.14 | 0.16 |
| | | 140 - 220 | 37 | 0.14 | 0.16 | 0.16 | 0.19 |
| | Titanium Alloy | 220 - 310 | 29 | 0.12 | 0.14 | 0.14 | 0.16 |
| | | 140 - 220 | 42 | 0.12 | 0.14 | 0.16 | 0.19 |
| | Aerospace Alloy S82 | 220 - 310 | 33 | 0.09 | 0.12 | 0.14 | 0.16 |
| 185 - 275 | | 45 | 0.09 | 0.09 | 0.12 | 0.12 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 275 - 350 | 56 | 0.13 | 0.15 | 0.15 | 0.18 |
| | | 185 - 275 | 73 | 0.15 | 0.18 | 0.18 | 0.20 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | 64 | 0.10 | 0.13 | 0.13 | 0.15 |
| | | 185 - 275 | 47 | 0.08 | 0.10 | 0.10 | 0.13 |
| | Super Duplex Stainless Steel | 135 - 185 | 38 | 0.08 | 0.08 | 0.08 | 0.10 |
| | | 185 - 275 | 30 | 0.05 | 0.05 | 0.08 | 0.08 |

7xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 61 M/min • 0.80 | = 48.8 M/min |
| 0.20 mm/rev • 0.80 | = 0.16 mm/rev |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, and 12xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

| Feed Rate (mm/rev) by Diameter | | | | | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 15 series 15.00 mm - 15.99 mm | 16 series 16.00 mm - 16.99 mm | 17 series 17.00 mm - 17.99 mm | 18 series 18.00 mm - 19.99 mm | 20 series 20.00 mm - 21.99 mm | 22 series 22.00 mm - 23.99 mm | 24 series 24.00 mm - 25.99 mm | 26 series 26.00 mm - 28.99 mm | 29 series 29.00 mm - 31.99 mm | 32 series 32.00 mm - 35.00 mm |
| 0.35 | 0.37 | 0.40 | 0.44 | 0.49 | 0.51 | 0.54 | 0.56 | 0.58 | 0.61 |
| 0.33 | 0.35 | 0.37 | 0.40 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 |
| 0.28 | 0.30 | 0.33 | 0.37 | 0.42 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 |
| 0.35 | 0.37 | 0.40 | 0.44 | 0.49 | 0.51 | 0.54 | 0.56 | 0.58 | 0.61 |
| 0.33 | 0.35 | 0.37 | 0.41 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 |
| 0.30 | 0.33 | 0.35 | 0.38 | 0.41 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 |
| 0.26 | 0.28 | 0.30 | 0.35 | 0.37 | 0.40 | 0.42 | 0.44 | 0.47 | 0.49 |
| 0.33 | 0.35 | 0.37 | 0.42 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 | 0.58 |
| 0.30 | 0.33 | 0.35 | 0.40 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 |
| 0.28 | 0.30 | 0.33 | 0.37 | 0.41 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 |
| 0.26 | 0.28 | 0.30 | 0.35 | 0.37 | 0.40 | 0.42 | 0.44 | 0.47 | 0.49 |
| 0.33 | 0.35 | 0.37 | 0.42 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 | 0.58 |
| 0.30 | 0.33 | 0.35 | 0.40 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 |
| 0.28 | 0.30 | 0.33 | 0.37 | 0.38 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 |
| 0.23 | 0.26 | 0.28 | 0.33 | 0.35 | 0.37 | 0.40 | 0.42 | 0.46 | 0.47 |
| 0.21 | 0.23 | 0.26 | 0.30 | 0.33 | 0.35 | 0.37 | 0.40 | 0.42 | 0.44 |
| 0.26 | 0.28 | 0.30 | 0.33 | 0.35 | 0.37 | 0.40 | 0.42 | 0.44 | 0.47 |
| 0.23 | 0.26 | 0.26 | 0.28 | 0.30 | 0.33 | 0.35 | 0.37 | 0.40 | 0.42 |
| 0.21 | 0.23 | 0.23 | 0.26 | 0.28 | 0.30 | 0.33 | 0.35 | 0.37 | 0.40 |
| 0.30 | 0.35 | 0.35 | 0.40 | 0.44 | 0.49 | 0.51 | 0.54 | 0.56 | 0.58 |
| 0.28 | 0.30 | 0.33 | 0.35 | 0.40 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 |
| 0.26 | 0.28 | 0.30 | 0.33 | 0.35 | 0.40 | 0.44 | 0.47 | 0.49 | 0.51 |
| 0.19 | 0.21 | 0.21 | 0.23 | 0.26 | 0.28 | 0.30 | 0.33 | 0.35 | 0.37 |
| 0.16 | 0.19 | 0.19 | 0.21 | 0.23 | 0.26 | 0.28 | 0.30 | 0.33 | 0.35 |
| 0.19 | 0.21 | 0.21 | 0.23 | 0.26 | 0.26 | 0.28 | 0.28 | 0.30 | 0.33 |
| 0.16 | 0.19 | 0.19 | 0.21 | 0.23 | 0.23 | 0.26 | 0.26 | 0.28 | 0.30 |
| 0.19 | 0.21 | 0.21 | 0.23 | 0.26 | 0.26 | 0.28 | 0.28 | 0.30 | 0.33 |
| 0.16 | 0.19 | 0.19 | 0.21 | 0.23 | 0.23 | 0.26 | 0.26 | 0.28 | 0.28 |
| 0.14 | 0.14 | 0.16 | 0.16 | 0.19 | 0.19 | 0.21 | 0.23 | 0.26 | 0.28 |
| 0.12 | 0.14 | 0.14 | 0.14 | 0.16 | 0.19 | 0.19 | 0.21 | 0.23 | 0.26 |
| 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 |
| 0.18 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 |
| 0.15 | 0.18 | 0.18 | 0.20 | 0.20 | 0.23 | 0.23 | 0.25 | 0.25 | 0.28 |
| 0.13 | 0.15 | 0.15 | 0.18 | 0.18 | 0.20 | 0.20 | 0.23 | 0.23 | 0.25 |
| 0.10 | 0.13 | 0.13 | 0.15 | 0.15 | 0.18 | 0.20 | 0.20 | 0.20 | 0.25 |
| 0.10 | 0.10 | 0.13 | 0.13 | 0.15 | 0.15 | 0.18 | 0.18 | 0.20 | 0.20 |

Coolant Recommendations

| Series | 3xD, 5xD | | 7xD | | 10xD, 12xD | |
|--------|--------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM |
| 11 | 31 | 19 | 41 | 30 | 55 | 38 |
| 12 | 31 | 19 | 41 | 30 | 55 | 38 |
| 13 | 28 | 23 | 34 | 36 | 52 | 45 |
| 14 | 28 | 26 | 34 | 36 | 52 | 45 |
| 15 | 26 | 26 | 33 | 42 | 48 | 53 |
| 16 | 26 | 30 | 33 | 45 | 48 | 57 |
| 17 | 24 | 30 | 31 | 47 | 45 | 62 |
| 18 | 24 | 34 | 31 | 47 | 45 | 62 |
| 20 | 21 | 38 | 28 | 49 | 41 | 68 |
| 22 | 21 | 42 | 28 | 53 | 41 | 68 |
| 24 | 21 | 42 | 28 | 53 | 41 | 68 |
| 26 | 21 | 45 | 28 | 61 | 41 | 76 |
| 29 | 21 | 45 | 28 | 61 | 41 | 76 |
| 32 | 21 | 45 | 28 | 61 | 41 | 76 |



Recommended Drilling Data | Metric (mm)

GEN3SYS XT

| ISO | Material | Hardness (BHN) | Speed (M/min) | Feed Rate (mm/rev) by Diameter | | | |
|-----------|---|----------------|---------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | | | | 11 series 11.00 mm - 11.99 mm | 12 series 12.00 mm - 12.99 mm | 13 series 13.00 mm - 13.99 mm | 14 series 14.00 mm - 14.99 mm |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | 45 | 0.12 | 0.12 | 0.14 | 0.14 |
| | | 500 | 37 | 0.09 | 0.09 | 0.12 | 0.14 |
| | | 600 | 25 | 0.09 | 0.09 | 0.09 | 0.12 |
| | Hardened Steel | 300 - 400 | 47 | 0.12 | 0.12 | 0.14 | 0.14 |
| 400 - 500 | | 37 | 0.09 | 0.09 | 0.12 | 0.14 | |
| K | SG / Nodular Cast Iron | 120 - 150 | 146 | 0.23 | 0.28 | 0.30 | 0.33 |
| | | 150 - 200 | 138 | 0.23 | 0.26 | 0.28 | 0.30 |
| | | 200 - 220 | 123 | 0.19 | 0.23 | 0.26 | 0.28 |
| | | 220 - 260 | 108 | 0.19 | 0.21 | 0.23 | 0.26 |
| | | 260 - 320 | 97 | 0.19 | 0.19 | 0.21 | 0.23 |
| | Grey / White Iron | 120 - 150 | 152 | 0.28 | 0.30 | 0.33 | 0.35 |
| | | 150 - 200 | 146 | 0.26 | 0.28 | 0.30 | 0.33 |
| | | 200 - 220 | 131 | 0.23 | 0.26 | 0.28 | 0.30 |
| 220 - 260 | | 113 | 0.21 | 0.23 | 0.26 | 0.28 | |
| N | Cast Aluminum | 30 | 300 | 0.28 | 0.30 | 0.33 | 0.35 |
| | | 180 | 225 | 0.26 | 0.28 | 0.30 | 0.33 |
| | Wrought Aluminum | 30 | 425 | 0.30 | 0.35 | 0.37 | 0.40 |
| | | 180 | 300 | 0.28 | 0.33 | 0.35 | 0.37 |
| | Aluminum Bronze | 100 - 200 | 110 | 0.23 | 0.26 | 0.28 | 0.28 |
| | | 200 - 250 | 90 | 0.19 | 0.21 | 0.23 | 0.26 |
| | Brass | 100 | 200 | 0.23 | 0.28 | 0.30 | 0.33 |
| Copper | 60 | 130 | 0.07 | 0.07 | 0.07 | 0.09 | |

7xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 61 M/min • 0.80 | = 48.8 M/min |
| 0.20 mm/rev • 0.80 | = 0.16 mm/rev |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, and 12xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

| Feed Rate (mm/rev) by Diameter | | | | | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 15 series 15.00 mm - 15.99 mm | 16 series 16.00 mm - 16.99 mm | 17 series 17.00 mm - 17.99 mm | 18 series 18.00 mm - 19.99 mm | 20 series 20.00 mm - 21.99 mm | 22 series 22.00 mm - 23.99 mm | 24 series 24.00 mm - 25.99 mm | 26 series 26.00 mm - 28.99 mm | 29 series 29.00 mm - 31.99 mm | 32 series 32.00 mm - 35.00 mm |
| 0.16 | 0.19 | 0.21 | 0.23 | 0.23 | 0.23 | 0.26 | 0.26 | 0.28 | 0.28 |
| 0.14 | 0.16 | 0.19 | 0.21 | 0.23 | 0.23 | 0.23 | 0.23 | 0.26 | 0.26 |
| 0.14 | 0.14 | 0.16 | 0.19 | 0.21 | 0.21 | 0.23 | 0.23 | 0.23 | 0.23 |
| 0.16 | 0.19 | 0.19 | 0.21 | 0.23 | 0.23 | 0.23 | 0.23 | 0.26 | 0.26 |
| 0.14 | 0.16 | 0.19 | 0.19 | 0.21 | 0.21 | 0.23 | 0.23 | 0.23 | 0.23 |
| 0.35 | 0.37 | 0.42 | 0.47 | 0.47 | 0.51 | 0.51 | 0.56 | 0.58 | 0.61 |
| 0.33 | 0.35 | 0.40 | 0.44 | 0.47 | 0.47 | 0.51 | 0.51 | 0.56 | 0.56 |
| 0.30 | 0.33 | 0.37 | 0.41 | 0.44 | 0.47 | 0.47 | 0.51 | 0.51 | 0.54 |
| 0.28 | 0.30 | 0.35 | 0.38 | 0.41 | 0.44 | 0.47 | 0.47 | 0.51 | 0.51 |
| 0.26 | 0.28 | 0.33 | 0.35 | 0.38 | 0.41 | 0.44 | 0.47 | 0.47 | 0.49 |
| 0.37 | 0.40 | 0.46 | 0.49 | 0.51 | 0.54 | 0.56 | 0.58 | 0.61 | 0.63 |
| 0.35 | 0.37 | 0.42 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 | 0.58 | 0.61 |
| 0.33 | 0.35 | 0.40 | 0.47 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 | 0.58 |
| 0.30 | 0.33 | 0.37 | 0.42 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 |
| 0.30 | 0.33 | 0.35 | 0.40 | 0.41 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 |
| 0.37 | 0.40 | 0.42 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 | 0.56 | 0.58 |
| 0.35 | 0.37 | 0.40 | 0.41 | 0.44 | 0.47 | 0.49 | 0.51 | 0.54 | 0.54 |
| 0.42 | 0.44 | 0.47 | 0.51 | 0.54 | 0.56 | 0.61 | 0.63 | 0.68 | 0.70 |
| 0.40 | 0.41 | 0.44 | 0.49 | 0.51 | 0.54 | 0.58 | 0.61 | 0.65 | 0.68 |
| 0.30 | 0.33 | 0.35 | 0.35 | 0.37 | 0.40 | 0.42 | 0.44 | 0.44 | 0.44 |
| 0.28 | 0.28 | 0.30 | 0.33 | 0.35 | 0.37 | 0.40 | 0.41 | 0.41 | 0.41 |
| 0.35 | 0.37 | 0.40 | 0.44 | 0.47 | 0.51 | 0.54 | 0.56 | 0.61 | 0.61 |
| 0.12 | 0.14 | 0.14 | 0.16 | 0.19 | 0.19 | 0.19 | 0.23 | 0.23 | 0.26 |

Coolant Recommendations

| Series | 3xD, 5xD | | 7xD | | 10xD, 12xD | |
|--------|--------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM |
| 11 | 31 | 19 | 41 | 30 | 55 | 38 |
| 12 | 31 | 19 | 41 | 30 | 55 | 38 |
| 13 | 28 | 23 | 34 | 36 | 52 | 45 |
| 14 | 28 | 26 | 34 | 36 | 52 | 45 |
| 15 | 26 | 26 | 33 | 42 | 48 | 53 |
| 16 | 26 | 30 | 33 | 45 | 48 | 57 |
| 17 | 24 | 30 | 31 | 47 | 45 | 62 |
| 18 | 24 | 34 | 31 | 47 | 45 | 62 |
| 20 | 21 | 38 | 28 | 49 | 41 | 68 |
| 22 | 21 | 42 | 28 | 53 | 41 | 68 |
| 24 | 21 | 42 | 28 | 53 | 41 | 68 |
| 26 | 21 | 45 | 28 | 61 | 41 | 76 |
| 29 | 21 | 45 | 28 | 61 | 41 | 76 |
| 32 | 21 | 45 | 28 | 61 | 41 | 76 |

Tap Drill Information and Formulas | Imperial (inch)

American - Unified Inch Screw Thread

| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
|------------|----------------|--------------------|-----------------|------------------------|--------------------|----------------------|
| 1/2 - 20 | 29/64 | 0.4531 | 72% | 0.003 | 0.4561 | 68% |
| 9/16 - 12 | 12.0 mm | 0.4724 | 72% | 0.003 | 0.4754 | 69% |
| | 31/64 | 0.4844 | 83% | 0.003 | 0.4874 | 80% |
| 9/16 - 18 | 1/2 | 0.5000 | 87% | 0.003 | 0.5030 | 82% |
| | 13.0 mm | 0.5118 | 70% | 0.003 | 0.5148 | 66% |
| | 31/64 | 0.5156 | 65% | 0.003 | 0.5186 | 61% |
| 5/8 - 11 | 17/32 | 0.5313 | 79% | 0.003 | 0.5343 | 77% |
| 5/8 - 12 | 35/64 | 0.5469 | 72% | 0.003 | 0.5499 | 69% |
| 5/8 - 18 | 9/16 | 0.5625 | 87% | 0.003 | 0.5655 | 82% |
| | 14.5 mm | 0.5709 | 75% | 0.003 | 0.5739 | 71% |
| | 37/64 | 0.5781 | 65% | 0.003 | 0.5811 | 61% |
| 11/16 - 12 | 39/64 | 0.6094 | 72% | 0.003 | 0.6124 | 69% |
| 3/4 - 10 | 41/64 | 0.6406 | 84% | 0.003 | 0.6436 | 82% |
| | 16.5 mm | 0.6496 | 77% | 0.003 | 0.6526 | 75% |
| | 21/32 | 0.6563 | 72% | 0.003 | 0.6593 | 70% |
| 3/4 - 12 | 43/64 | 0.6719 | 72% | 0.003 | 0.6749 | 69% |
| 3/4 - 16 | 11/16 | 0.6875 | 77% | 0.003 | 0.6905 | 73% |
| | 17.5 mm | 0.6890 | 75% | 0.003 | 0.6920 | 71% |
| 7/8 - 9 | 49/64 | 0.7656 | 76% | 0.003 | 0.7686 | 74% |
| | 25/32 | 0.7813 | 65% | 0.003 | 0.7843 | 63% |
| 7/8 - 14 | 51/64 | 0.7969 | 84% | 0.003 | 0.7999 | 81% |
| | 13/16 | 0.8125 | 67% | 0.003 | 0.8155 | 64% |
| 15/16 - 12 | 55/64 | 0.8594 | 72% | 0.003 | 0.8624 | 69% |
| 15/16 - 20 | 57/64 | 0.8906 | 72% | 0.003 | 0.8936 | 68% |
| 1 - 8 | 22.0 mm | 0.8661 | 82% | 0.003 | 0.8691 | 81% |
| | 7/8 | 0.8750 | 77% | 0.003 | 0.8780 | 75% |
| | 57/64 | 0.8906 | 67% | 0.003 | 0.8936 | 65% |
| 1 - 12 | 29/32 | 0.9063 | 87% | 0.003 | 0.9093 | 84% |
| | 59/64 | 0.9219 | 72% | 0.003 | 0.9249 | 69% |
| 1 - 14 | 15/16 | 0.9375 | 67% | 0.003 | 0.9405 | 64% |
| 1-1/8 - 12 | 1-1/32 | 1.0313 | 87% | 0.003 | 1.0343 | 84% |
| | 1-3/64 | 1.0469 | 72% | 0.003 | 1.0499 | 69% |
| 1-1/4 - 7 | 1-7/64 | 1.1094 | 76% | 0.003 | 1.1124 | 74% |

Taper Pipe Thread (NPT)

| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
|----------|----------------|--------------------|-----------------|------------------------|--------------------|----------------------|
| 1/4 - 18 | 7/16 | 0.4375 | - | 0.003 | 0.4405 | - |
| 3/8 - 18 | 9/16 | 0.5625 | - | 0.003 | 0.5655 | - |
| 1/2 - 14 | 45/64 | 0.7031 | - | 0.003 | 0.7061 | - |
| 3/4 - 14 | 29/32 | 0.9063 | - | 0.003 | 0.9093 | - |

* Based on nominal tap drill diameter

** Based on 0.003" probable mean oversize

To calculate the percent of full thread for a given hole diameter:

$$\% \text{ Thread} = \# \text{ of threads per inch} \cdot \frac{(\text{Basic major diameter of thread} - \text{Drill hole size})}{.0130}$$

Notes

- The above tap drill information represents probable thread percentages for the standard tap drills stocked at Allied Machine. Special insert diameters may be required in order to meet a user-specific percentage of thread requirement.
- The 0.003 probable mean oversize hole condition is based on optimum cutting conditions. Probable percent of full thread may vary based on less ideal cutting conditions.
- The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the editor of the *Machinery's Handbook*.

Formulas

| | | |
|----|-------------------|---|
| 1. | RPM | = (3.82 • SFM) / DIA |
| | where: | |
| | RPM | = revolutions per minute (rev/min) |
| | SFM | = speed (ft/min) |
| | DIA | = diameter of drill (inch) |
| 2. | IPM | = RPM • IPR |
| | where: | |
| | IPM | = inches per minute (in/min) |
| | RPM | = revolutions per minute (rev/min) |
| | IPR | = feed rate (in/rev) |
| 3. | SFM | = RPM • 0.262 • DIA |
| | where: | |
| | SFM | = speed (ft/min) |
| | RPM | = revolutions per minute (rev/min) |
| | DIA | = diameter of drill (inch) |
| 4. | Thrust | = 153,700 • IPR • DIA • Km |
| | where: | |
| | Thrust | = axial thrust (lbs) |
| | IPR | = feed rate (in/rev) |
| | DIA | = diameter of drill (inch) |
| | Km | = specific cutting energy (lbs/in ²) |
| 5. | Tool Power | = .6991 • IPR • RPM • Km • DIA² |
| | where: | |
| | Tool Power | = tool power (HP) |
| | IPR | = feed rate (in/rev) |
| | RPM | = revolutions per minute (rev/min) |
| | Km | = specific cutting energy (lbs/in ²) |
| | DIA | = diameter of drill (inch) |

Material Constants

| Type of Material | Hardness | K _m (lbs/in ²) |
|------------------------------|---------------|---------------------------------------|
| Plain Carbon and Alloy Steel | 85 - 200 BHN | 0.79 |
| | 200 - 275 BHN | 0.94 |
| | 275 - 375 BHN | 1.00 |
| High-Temperature Alloys | - | 1.44 |
| Titanium Alloy | - | 0.72 |
| Stainless Steels | 135 - 275 BHN | 0.94 |
| | 30 - 45 RC | 1.08 |
| Cast Iron | 100 - 200 BHN | 0.50 |
| | 200 - 300 BHN | 1.08 |
| Copper Alloy | 20 - 80 RB | 0.43 |
| | 80 - 100 RB | 0.72 |
| Aluminum Alloy | - | 0.22 |
| Magnesium Alloy | - | 0.16 |

Tap Drill Information and Formulas | Metric (mm)

| Tap Size | Tap Drill Size | Decimal Equivalent (inch) | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
|-----------|----------------|---------------------------|-----------------|------------------------|--------------------|----------------------|
| 12 X 1.25 | 27/64 | 0.4219 | 79% | 0.075 mm | 10.79 mm | 74% |
| | 10.8 mm | 0.4252 | 74% | 0.075 mm | 10.88 mm | 69% |
| 14 X 2.0 | 15/32 | 0.4688 | 81% | 0.075 mm | 11.98 mm | 78% |
| | 12.0 mm | 0.4724 | 77% | 0.075 mm | 12.08 mm | 74% |
| 14 X 1.5 | 12.5 mm | 0.4921 | 77% | 0.075 mm | 12.58 mm | 73% |
| 16 X 2.0 | 14.0 mm | 0.5512 | 77% | 0.075 mm | 14.08 mm | 74% |
| 16 X 1.5 | 14.5 mm | 0.5709 | 77% | 0.075 mm | 14.58 mm | 73% |
| | 37/64 | 0.5781 | 68% | 0.075 mm | 14.76 mm | 64% |
| 18 X 2.5 | 15.5 mm | 0.6102 | 77% | 0.075 mm | 15.58 mm | 75% |
| 18 X 1.5 | 16.5 mm | 0.6496 | 77% | 0.075 mm | 16.58 mm | 73% |
| | 21/32 | 0.6563 | 68% | 0.075 mm | 16.75 mm | 64% |
| 20 X 2.5 | 11/16 | 0.6875 | 78% | 0.075 mm | 17.54 mm | 76% |
| | 17.5 mm | 0.6890 | 77% | 0.075 mm | 17.58 mm | 74% |
| 20 X 1.5 | 18.5 mm | 0.7283 | 77% | 0.075 mm | 18.58 mm | 73% |
| | 47/64 | 0.7344 | 69% | 0.075 mm | 18.66 mm | 65% |
| 22 X 2.5 | 49/64 | 0.7656 | 79% | 0.075 mm | 19.52 mm | 76% |
| | 19.5 mm | 0.7677 | 77% | 0.075 mm | 19.58 mm | 75% |
| 22 X 1.5 | 20.5 mm | 0.8071 | 77% | 0.075 mm | 20.58 mm | 73% |
| | 13/16 | 0.8125 | 70% | 0.075 mm | 20.71 mm | 66% |
| 24 X 3 | 13/16 | 0.8125 | 86% | 0.075 mm | 20.71 mm | 84% |
| | 21.0 mm | 0.8268 | 76% | 0.075 mm | 21.08 mm | 75% |
| 24 X 2 | 22.0 mm | 0.8661 | 77% | 0.075 mm | 22.08 mm | 74% |
| | 7/8 | 0.8750 | 68% | 0.075 mm | 22.30 mm | 65% |
| 27 X 3 | 24.0 mm | 0.9449 | 77% | 0.075 mm | 24.08 mm | 75% |

Formulas

| | |
|----|---|
| 1. | RPM = $(318.47 \cdot M/min) / DIA$ where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm) |
| 2. | mm/min = $RPM \cdot mm/rev$ where: mm/min = millimeter per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev) |
| 3. | M/min = $RPM \cdot 0.003 \cdot DIA$ where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm) |
| 4. | Thrust = $154 \cdot (mm/rev) \cdot DIA \cdot K_m$ where: Thrust = axial thrust (N) mm/rev = feed rate (mm/rev) DIA = diameter of drill (mm) K_m = specific cutting energy (kPa) |
| 5. | Tool Power = $((mm/rev) \cdot RPM \cdot K_m \cdot DIA^2) / 218604.8$ where: Tool Power = tool power (HP) mm/rev = feed rate (mm/rev) RPM = revolutions per minute (rev/min) K_m = specific cutting energy (kPa) DIA = diameter of drill (mm) |

BSP and ISO 7-1

| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
|----------|----------------|--------------------|-----------------|------------------------|--------------------|----------------------|
| 1/4-19 | 7/16" | 0.4375" | - | 0.075 mm | 11.19 mm | - |
| 3/8-19 | 37/64" | 0.5781" | - | 0.075 mm | 14.76 mm | - |
| 1/2-14 | 23/32" | 0.7188" | - | 0.075 mm | 18.33 mm | - |
| 3/4-14 | 15/16" | 0.9375" | - | 0.075 mm | 23.89 mm | - |

* Based on nominal tap drill diameter

** Based on 0.075 mm probable mean oversize

To calculate the percent of full thread for a given hole diameter:

$$\% \text{ Thread} = \frac{76.93}{\text{Pitch (mm)}} \cdot (\text{Basic major diameter} - \text{Drill hole size})$$

Notes

- The above tap drill information represents probable thread percentages for the standard tap drills stocked at Allied Machine. Special insert diameters may be required in order to meet a user specific percentage of thread requirement.
- The 0.075mm probable mean oversize hole condition is based on optimum cutting conditions. Probable percent of full thread may vary based on less ideal cutting conditions.
- The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the editor of the *Machinery's Handbook*.

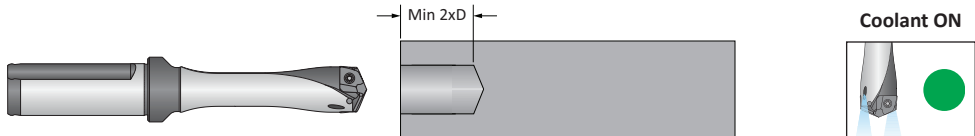
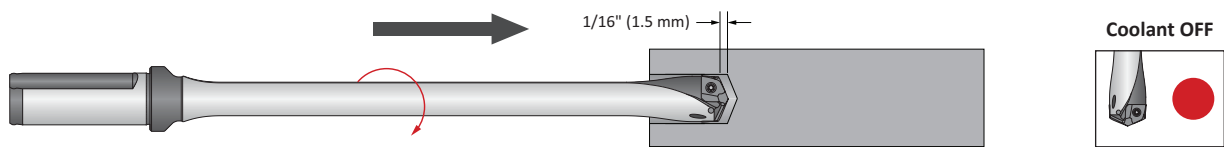
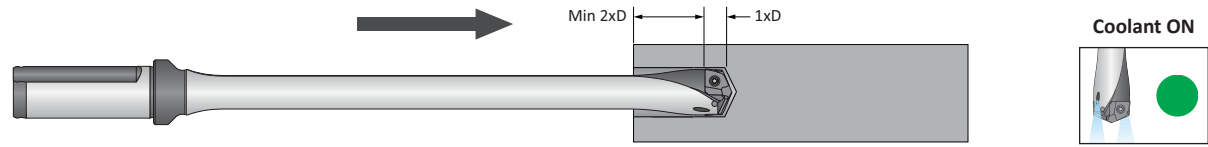
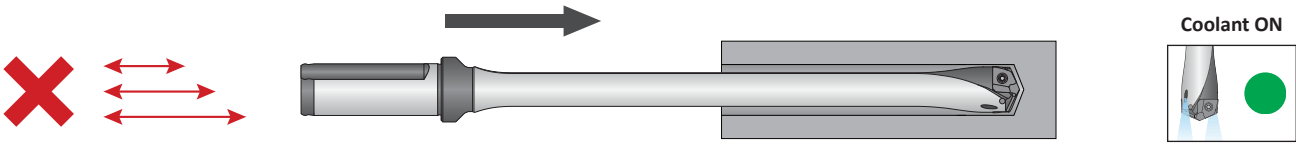
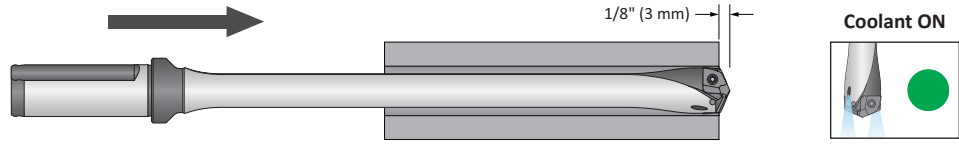
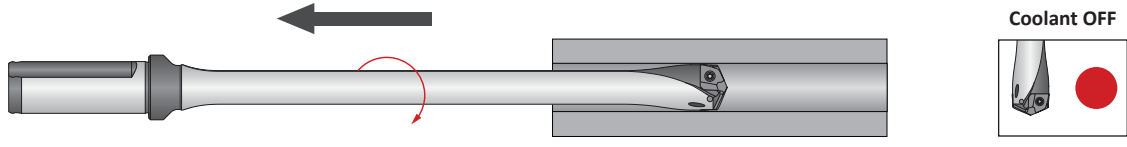
Material Constants

| Type of Material | Hardness | K_m (kPa) |
|------------------------------|---------------|-------------|
| Plain Carbon and Alloy Steel | 85 - 200 BHN | 5.45 |
| | 200 - 275 BHN | 6.48 |
| | 275 - 375 BHN | 6.89 |
| | 375 - 425 BHN | 7.93 |
| High-Temperature Alloys | - | 9.93 |
| Titanium Alloy | - | 4.96 |
| Stainless Steels | 135 - 275 BHN | 6.48 |
| | 30 - 45 RC | 7.45 |
| Cast Iron | 100 - 200 BHN | 3.45 |
| | 200 - 300 BHN | 7.45 |
| Copper Alloy | 20 - 80 RB | 2.96 |
| Aluminum Alloy | 80 - 100 RB | 4.96 |
| | - | 1.52 |
| Magnesium Alloy | - | 1.10 |

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Deep Hole Drilling Guidelines

GEN3SYS XT Pro | 10xD and 12xD Holders

| | | | |
|-----------------|--|---|--|
| A DRILLING | <p>1. Pilot Hole 100 % RPM 100% IPR (mm/rev)</p> | <p>Establish the pilot hole using the same diameter short drill to a depth of 2xD minimum. Utilize a pilot drill with the same or larger included point angle.</p> |  |
| B BORING | <p>2. Feed-in 50 RPM max 12 IPM (300 mm/min)</p> | <p>Feed the longer drill within 1/16" (1.5 mm) short of the established pilot hole bottom at a maximum of 50 RPM and 12 IPM (300 mm/min) feed rate.</p> |  |
| C REAMING | <p>3. Deep Hole Transition Drilling 50 % RPM 75% IPR (mm/rev)</p> | <p>Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed. Minimum of 1 second dwell is required to meet full speed before feeding.</p> |  |
| D BURNISHING | <p>4. Deep Hole Drilling - Blind 100% RPM 100% IPR (mm/rev)</p> | <p>Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts. No peck cycle recommended.</p> |  |
| E THREADING | <p>5. Deep Hole Drilling - at Breakout 50% RPM 75% IPR (mm/rev)</p> | <p>For through holes only: Reduce speed by 50% and feed by 25% prior to breakout. Do not breakout more than 1/8" (3 mm) past the full diameter of the drill.</p> |  |
| X SPECIALS | <p>6. Drill Retract 50 RPM max</p> | <p>Reduce speed to a maximum of 50 RPM before retracting from the hole.</p> |  |

1. WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

Troubleshooting Guide

| | Potential Problem | | | | | | | | | | | | | | | | | | | Possible Solutions | |
|--|-------------------------|-------------|-----------------|-----------------|------------|---------------------|---------|--------------|-------------------|-------------------------|-----------------------|-----------------|---------------|----------------------|-------------------|----------------|------------------|----------------|---------------------------|--|---|
| | Accelerated corner wear | Barber pole | Bell-mouth hole | Insert chipping | Blue chips | Built-up Edge (BUE) | Chatter | Chip packing | Chipping of point | Damaged or broken tools | Excessive margin wear | High flank wear | Hole lead off | Hole out of position | Hole out of round | Over-size hole | Poor hole finish | Poor tool life | Power spikes - Load meter | | |
| Setup Condition | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Possible Solutions | |
| Worn or misaligned spindle (lathe, screw machine, chucker) | 1 | 2 | 3 | | | | 7 | | 9 | 10 | 11 | | 13 | | | | 16 | 17 | | <ul style="list-style-type: none"> Align spindle and turret or tailstock. Repair spindle. | |
| Use of low rigidity machine tools | | 2 | 3 | 4 | | | 7 | | 9 | 10 | | | 13 | 14 | | | | | | <ul style="list-style-type: none"> Reduce penetration rate to fall within the physical limits of the machine or setup (NOTICE: Do not reduce feed below threshold of good chip formation). | |
| Poor work piece support | | 2 | | 4 | | | 7 | | | 10 | 11 | | | | 15 | | | 17 | | <ul style="list-style-type: none"> Provide additional support for the work piece. Reduce penetration rate to fall within the physical limits of the machine or setup (NOTICE: Do not reduce feed below threshold of good chip formation). | |
| Flood coolant, low coolant pressure, or low coolant volume | 1 | | | | 5 | 6 | | 8 | | 10 | | 12 | | | | | 16 | 17 | 18 | 19 | <ul style="list-style-type: none"> Run coolant through tool holder when drilling greater than 1xD. Increase coolant pressure and volume through the tool holder. Reduce penetration rate to fall within the coolant limitations (NOTICE: Do not reduce feed below threshold of good chip formation). Add a peck cycle to help clear chips. |
| Interrupted cuts. Entry or exit surfaces that are not perpendicular to the spindle (draft angles, parting lines, curved or stepped surfaces, cross holes, and cast or forged surfaces) | | | | 4 | | | 7 | | 9 | 10 | 11 | | 13 | 14 | 15 | 16 | 17 | 18 | | <ul style="list-style-type: none"> Premill (spot face) entry or exit surface to remove interruption. Decrease feed as much as 50% through entry or exit interruption. Use short holders in low impact entry cuts. | |
| Material harder than expected or running tools beyond recommended speed | 1 | | | | 5 | 6 | | | | 10 | | 12 | | | | | | | 18 | <ul style="list-style-type: none"> Reduce speed. Increase coolant pressure and volume. Improve coolant condition by use of quality products and regular maintenance. | |
| Poor material micro-structure or foreign particles (forgings and castings that have not been normalized or annealed, poorly prepared steel, flame cut parts, and sand casting) | | | | 4 | | 6 | | | | 10 | | 12 | 13 | | | | | | 18 | <ul style="list-style-type: none"> Compare performance of other tools for similar wear problems, which may indicate poor micro-structure. Anneal or normalize parts to improve micro-structure for machining. Reduce feeds (NOTICE: Do not reduce feed below threshold of good chip formation). | |
| Poor chip control | | | | | | | | 8 | | 10 | 11 | | 13 | | | | 16 | 17 | 18 | 19 | <ul style="list-style-type: none"> Increase feed to recommended levels. Contact Allied's Application Engineering group for technical recommendations. Increase coolant pressure and volume. Improve coolant condition by use of quality products and regular maintenance. |
| Spot drilled holes with included angle less than that matching GEN3SYS XT or cored holes | 1 | | | 4 | | | 7 | | | | | | 13 | | | | | | 18 | <ul style="list-style-type: none"> Spot hole with short tool of same or greater included angle as GEN3SYS XT drill insert. Reduce feed (NOTICE: Do not reduce feed below threshold of good chip formation). If possible, drill from solid. | |

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

SECTION

A25

T-A Pro®

T-A Pro[®]

High Penetration Replaceable Insert Drilling System

► Diameter Range: 0.4369" - 1.8820" (11.10 mm - 47.80 mm)



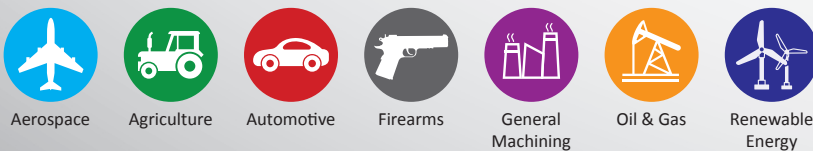
The best just got better.

After 35 years of spade drilling success with our iconic T-A[®] (Throw Away) insert, the best just got better. Our team of engineers developed technology that takes THE "go-to" solution for general purpose holemaking to a performance level previously unachievable by a spade insert.

The T-A Pro combines material-specific insert geometries, a redesigned drill body, and a proprietary coolant-through system to allow penetration rates, which run at speeds faster than other high performance drills.

| | | |
|------------------------|--|---|
| Excellent chip control | Improves hole quality and surface finish | Provides maximum durability and stability |
|------------------------|--|---|

Applicable Industries



Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

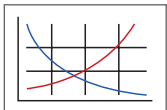
NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

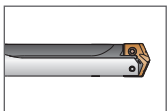
T-A Pro Drilling System Contents

Reference Icons

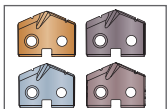
The following icons will appear throughout the catalog to help you navigate between products.



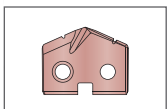
Recommended Cutting Data
Speed and feed recommendations for optimum and safe boring



T-A Pro Holders
Refers to the range of holders that connect with the corresponding inserts



T-A Pro Carbide Inserts
Refers to ISO-material special coated carbide inserts that connect with the corresponding holders



T-A Pro High-Speed Steel Inserts
Refers to HSS inserts that connect with the corresponding holders



Coolant-Through Option
Indicates that the product is coolant through

| Series | Diameter Range | |
|----------|-------------------|---------------------|
| | Imperial (inch) | Metric (mm) |
| Z | 0.4369" - 0.4998" | 11.10 mm - 12.69 mm |
| 0 | 0.4999" - 0.6946" | 12.70 mm - 17.64 mm |
| 1 | 0.6947" - 0.9596" | 17.65 mm - 24.37 mm |
| 2 | 0.9597" - 1.3797" | 24.38 mm - 35.04 mm |
| 3 | 1.3798" - 1.8820" | 35.05 mm - 47.80 mm |

Introduction Information

- Competitive Test Results 3
- Case Studies 4 - 5
- Insert Comparison and Assembly Information 6
- T-A Pro Drilling System Information 7
- Product Nomenclature 8 - 9

Z Series

- Carbide Inserts 10
- High-Speed Steel Inserts 11
- Drill Holders 12 - 13

0 Series

- Carbide Inserts 14 - 15
- High-Speed Steel Inserts 16 - 17
- Drill Holders 18 - 21

1 Series

- Carbide Inserts 22 - 25
- High-Speed Steel Inserts 26 - 29
- Drill Holders 30 - 33

2 Series

- Carbide Inserts 34 - 37
- High-Speed Steel Inserts 38 - 41
- Drill Holders 42 - 45

3 Series

- Carbide Inserts 46 - 49
- High-Speed Steel Inserts 50 - 53
- Drill Holders 54 - 57

Recommended Cutting Data

- Imperial (inch)
 - Carbide 58 - 59
 - High-Speed Steel 60 - 61
- Metric (mm)
 - Carbide 62 - 63
 - High-Speed Steel 64 - 65

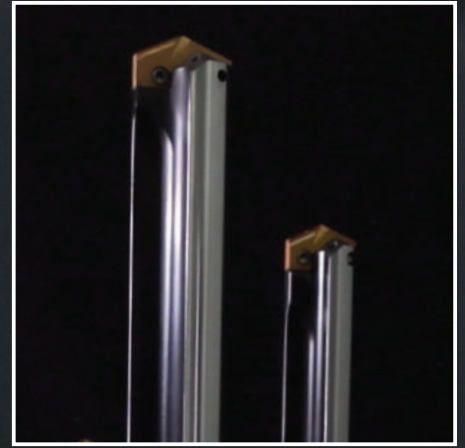
Tap Drill Information and Formulas

- Imperial (inch) 66
- Metric (mm) 67

Deep Hole Drilling Guidelines 68

Troubleshooting Guide 69

T-A Pro®



NEW HOLDER DESIGN

Optimized flute design for **increased chip evacuation**



NEW INSERT DESIGN

ISO-specific geometries with a new point design to **simplify** your insert choices



NEW COOLANT DESIGN

Proprietary coolant outlet configuration provides **superior** performance **even in low coolant applications (200 PSI)**

Competitive Test Results

T-A Pro® TEST RESULTS



Project Profile: Competitive Testing in 4340 Steel
Tooling Solution: T-A Pro: Steel (P) Geometry with T-A Pro Holder

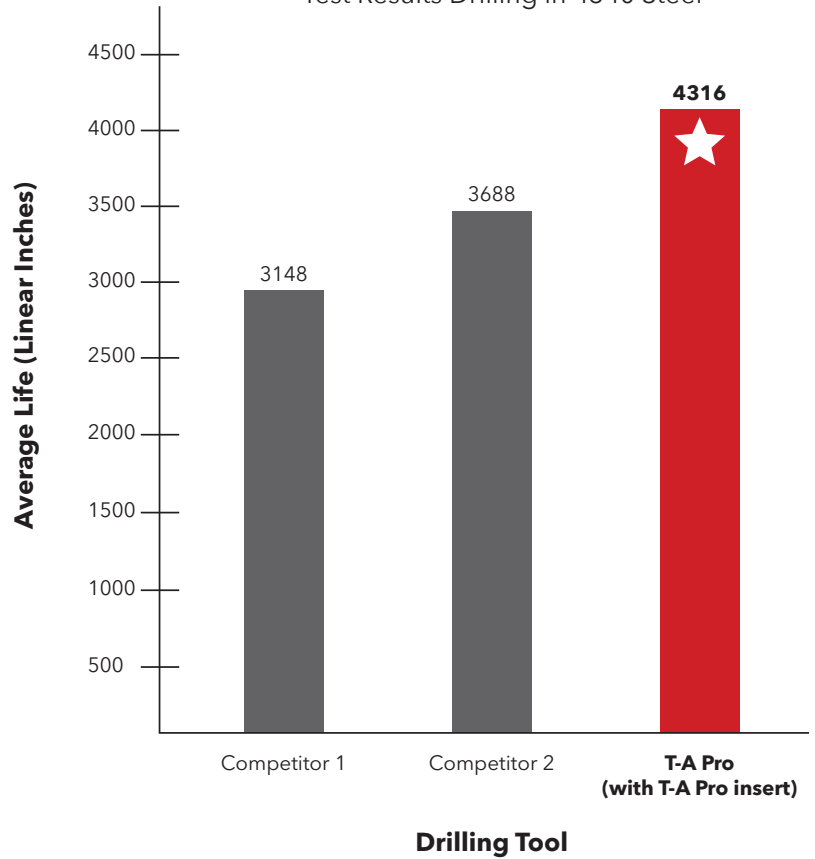
The Parameters:

- Hole Diameter = 0.5625" (14.30 mm)
- Depth of Cut = 2" (50.80 mm)
- Coolant = 300 PSI
- Speed = 2546 RPM
- Feed = 16.55 inch/min (420 mm/min)

The Results:
 When run at the listed parameters, here is how the 3 different tooling solutions performed:

Competitor 1 = 3148 total linear inches
Competitor 2 = 3688 total linear inches
T-A Pro = 4316 total linear inches

Average Tool Life
 Test Results Drilling in 4340 Steel



Case Study

The Gift that Keeps Giving.

Not everything in life has to be a give and take. Our customer who machines fluid end frac blocks was previously having to reduce cutting parameters to achieve good chip formation and produce a successful part.

Needing better chip formation with a reduced cycle time, the customer tested Allied's **T-A Pro drill**. Using the "M" ISO-specific stainless steel insert geometry—developed for improved chip formation while minimizing exit burr—they were able to increase their speed and feed while maintaining ideal chip formation.

On top of the reduced cycle time, the T-A Pro had a increase tool life lowering the cost per hole by 58.82%. The success of the T-A Pro in this application is just another example of why the T-A Pro is more than just a good drill.

If you are looking for a solution that just keeps giving, **give us a call, and we will help you find the right solution.**

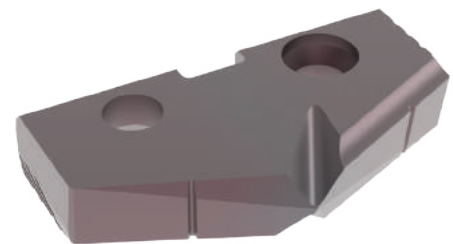


| Product: | T-A Pro drill | Measure | Competitor Drill | T-A Pro Drill |
|--------------------------|--------------------------|--|-------------------------|-------------------------|
| Objective: | Reduce cycle time | RPM | 480 | 545 |
| Industry: | Oil & gas/ Petrochemical | Speed Rate | 220 SFM (67.06 M/min) | 250 SFM (76.20 M/min) |
| Part: | Fluid end frac block | Feed Rate | 0.005 IPR (0.13 mm/rev) | 0.008 IPR (0.20 mm/rev) |
| Material: | 15-5 PH Stainless Steel | Penetration Rate | 2.4 IPM (60.96 mm/min) | 4.4 IPM (111.76 mm/min) |
| Hole Ø: | 1.75" (44.45 mm) | Total Part Cycle Time | 500 sec | 272 sec |
| Hole Depth: | 20.00" (508.00 mm) | Tool Life | 30 holes | 60 holes |
| Tolerance: | +/- 0.005" (0.127 mm) | T-A Pro offered 58.82% cost per hole savings over the competitor tooling. | | |
| Required Surface Finish: | 125 Ra µin (3.2 µm) | | | |

▶ T-A Pro holder
Item No. HTA3D15-150F

▶ T-A Pro insert
M geometry (stainless steel)
Item No. TAM3-44.45

*45.60%
cycle time decrease*



The ISO-specific AM460 coated T-A Pro insert provided:

- ✓ Increased tool life
- ✓ Decreased cycle time
- ✓ Decreased cost per hole
- ✓ Increased penetration rate

Case Study

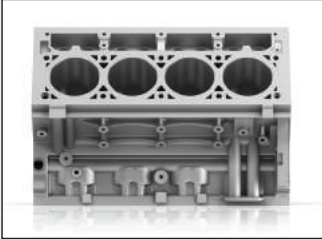
Need a solution with better tool life?

Our customer was machining engine block parts from ductile cast iron in a production cell. The replaceable tip drill they were using wasn't providing the results they needed, so they began searching for a tooling solution that would decrease machine downtime and increase productivity.

The customer tested the **T-A Pro® high penetration replaceable insert drill** using the "K" (cast iron) geometry insert with Allied's multilayer TiAlN coating that provides increased abrasion resistance and tool life. The T-A Pro performed better than the customer had hoped.

Using the T-A Pro not only provided substantial tool life improvements, but it also improved the penetration rate. The previous tooling had a tool life of 1700 holes, but the T-A Pro increased that life to 3400 holes. The T-A Pro also increased penetration rates by 30%. This allowed the customer to increase their productivity.

The bottom line: Our customer was able to save \$60k in tool savings per year with massive improvements in throughput. The advantage of the T-A Pro allowed our customer to achieve their tooling goals.



| | Measure | Competitor Replaceable Insert Drill | T-A Pro Drill |
|---|------------------|-------------------------------------|---------------------------|
| Product: T-A Pro | RPM | 1819 RPM | 2092 RPM |
| Objectives: (1) Decrease machine downtime (2) Increase productivity | Speed | 300 SFM (91 M/min) | 345 SFM (105 M/min) |
| Industry: Automotive | Feed Rate | 0.008 IPR (0.20 mm/rev) | 0.0092 IPR (0.23 mm/rev) |
| Part: Engine block | Penetration Rate | 14.55 IPM (369.57 mm/min) | 19.25 IPM (488.95 mm/min) |
| Material: Ductile Cast Iron | Cycle Time | 39 seconds | 29 seconds |
| Hole Ø: 0.6299" (16.00 mm) | Tool Life | 1700 holes | 3400 holes |
| Hole Depth: 9.50" (241.00 mm) | | | |

- ▶ T-A Pro Drill holder
15xD length
Item No. HTA0C15-075C
- ▶ T-A Pro Drill inserts
K geometry
(cast iron)
Item No. TAK0-16.00

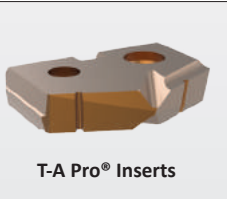
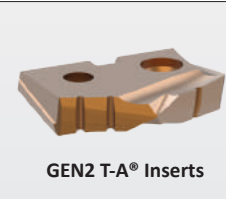
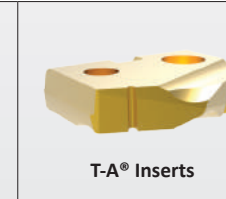



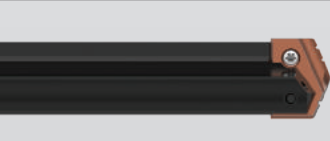
increased tool life by 100%

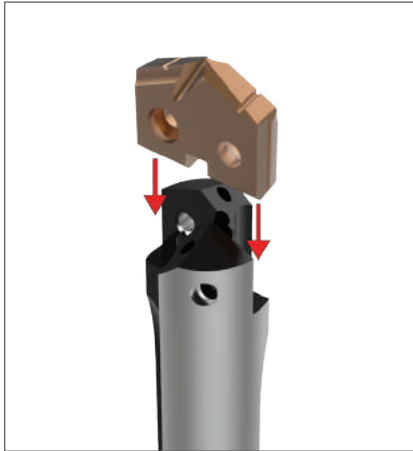
The cast iron TiAlN coated T-A Pro insert provided:

- ✓ Doubled tool life
- ✓ Decreased machine downtime
- ✓ Increased productivity
- ✓ 30% increased penetration rate
- ✓ Increased tool savings per year

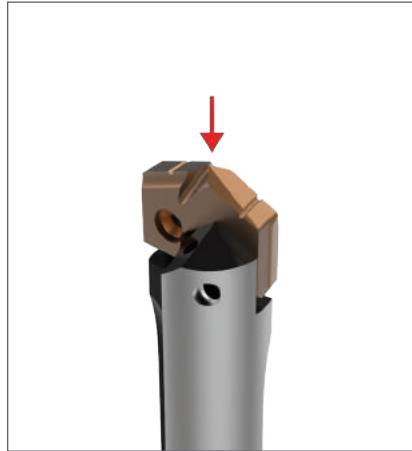


Insert Comparison and Assembly Information

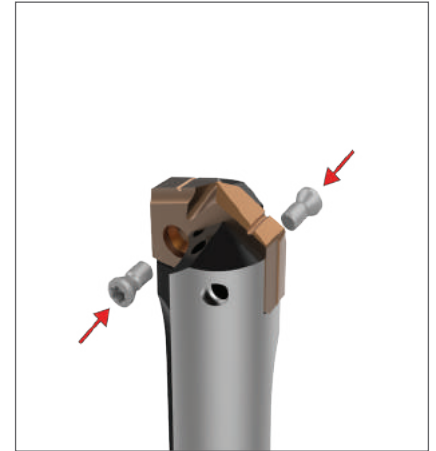
| | |  |  |  |
|----------|--|---|--|---|
| | | T-A Pro® Inserts | GEN2 T-A® Inserts | T-A® Inserts |
| B | Recommended for increased productivity  | <input checked="" type="checkbox"/> | | |
| | ISO-specific geometry/coating combination  | <input checked="" type="checkbox"/> | | |
| C | Connects with T-A Pro holders  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Connects with T-A holders  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |



Step 1:
Align the flats on the T-A Pro insert with the flats on the ears of the holder.



Step 2:
Slide the insert into the precision ground locating pocket on the holder. The insert should not be turned, rotated, or twisted for locking purposes. The holder pocket and locating pads on the insert assure optimum fit and repeatability.



Step 3:
Apply a generous amount of E-Z Break® (provided in the packaging) onto the supplied TORX® Plus screws.

Tighten the TORX Plus screws to the recommended torque value specified in the catalog by series. A preset torx driver is available to assure that the proper torque is applied.

T-A Pro Drilling System Information



Carbide Geometries

P - Steels

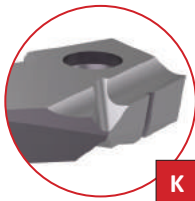
- Designed to provide increased penetration rates and tool life in steel applications
- Superior geometry and edge provides excellent chip control
- Allied's multilayer AM300® coating increases heat resistance and improves tool life



P

K - Cast Irons

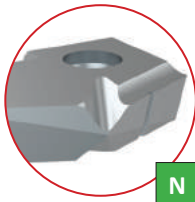
- Uniquely designed for cast/ductile iron applications
- Geometry developed for maximum tool life, reduced exit burr, and improved hole finish
- Allied's multilayer TiAlN coating provides increased abrasion resistance and tool life



K

N - Nonferrous Materials

- Designed for applications in aluminum, brass, and copper
- The geometry yields excellent chip control in these softer materials
- TiCN coating gives the versatility to run in a variety of materials while reducing buildup



N

M - Stainless Steel

- Designed for all stainless steels and heat-resistant super alloys
- Geometry optimized for improved chip formation while minimizing exit burr
- Allied's new AM460 coating provides industry leading tool life in stainless and HRSA materials



M

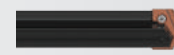
Advanced Design Capabilities

The advanced T-A Pro insert combines a coating and geometry specifically designed to achieve optimal results in ISO material drilling applications. With quick connectivity to existing T-A drill insert holders, the T-A Pro insert can be interchanged with previous T-A inserts with ease, resulting in minimal setup times so you can immediately increase your productivity.

T-A Pro Inserts Connect with:



T-A Pro holders

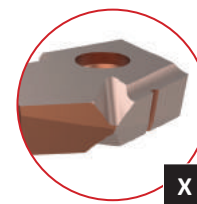


T-A holders

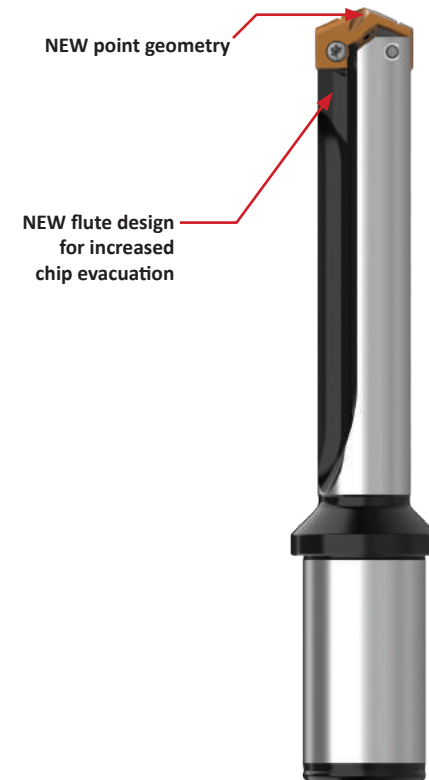
High Speed Steel Geometries

X - High-Speed Steel Materials

- Improved chip geometry for excellent chip control in all materials
- Long tool life and high-process security for the most challenging applications
- Allied's multilayer AM200® coating combines excellent heat resistance and high lubricity for wide application use



X



T-A Pro Drill Holders



Straight flutes



Proprietary coolant outlets improve coolant flow



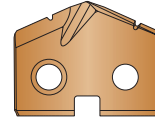
Provides increased insert life

STUB, 3xD, 5xD, 7xD,
10xD, 12xD, 15xD

Available in STUB, 3xD, 5xD, 7xD,
10xD, 12xD, and 15xD

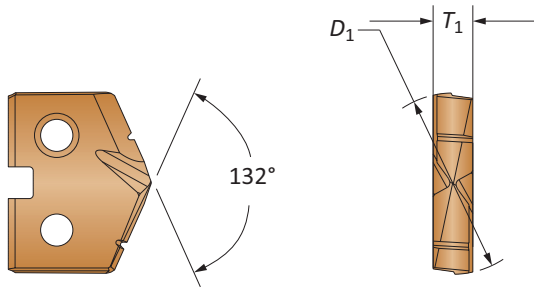
Product Nomenclature

T-A Pro Drill Inserts



| | | | | |
|-----------|----------|----------|---|--------------|
| TA | P | 0 | - | 15.00 |
| 1 | 2 | 3 | | 4 |

| 1. T-A Pro Drill Insert | 2. ISO Material / Geometry | 3. Series | 4. Diameter (mm) |
|-------------------------|--|--|--|
| TA = T-A Pro insert | P = Steel K = Cast iron N = Nonferrous M = Stainless Steel X = HSS | Z = Z series 0 = 0 series 1 = 1 series 2 = 2 series 3 = 3 series | For complete list of diameter ranges by series, see contents page. |



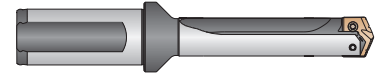
Reference Key

| Symbol | Attribute |
|--------|------------------|
| D_1 | Insert diameter |
| T_1 | Insert thickness |

Product Nomenclature

T-A Pro Drill Holders

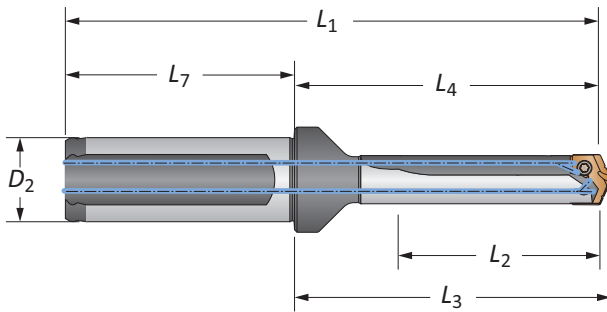
| | | | | | | |
|------------|----------|----------|-----------|---|------------|----------|
| HTA | 1 | A | 05 | - | 100 | C |
| 1 | 2 | 3 | 4 | | 5 | 6 |



| <p>1. Holder</p> <p>HTA = T-A Pro holder</p> | <p>2. Series</p> <p>Z = Z Series 0 = 0 Series 1 = 1 Series 2 = 2 Series 3 = 3 Series</p> | <p>3. Body Diameter</p> <p>A = A body diameter B = B body diameter C = C body diameter D = D body diameter</p> | <p>4. Length</p> <p>01 = Stub Length 03 = 3x Diameter 05 = 5x Diameter 07 = 7x Diameter 10 = 10x Diameter 12 = 12x Diameter 15 = 15x Diameter</p> | | | | | | | | |
|--|---|--|--|------------|----------|------------|--------------|------------|--------------|------------|--|
| <p>5. Shank Diameter</p> <table border="1"> <thead> <tr> <th>Imperial (inch)</th> <th>Metric (mm)</th> </tr> </thead> <tbody> <tr> <td>075 = 3/4"</td> <td>20 = 20 mm</td> </tr> <tr> <td>100 = 1"</td> <td>25 = 25 mm</td> </tr> <tr> <td>125 = 1-1/4"</td> <td>32 = 32 mm</td> </tr> <tr> <td>150 = 1-1/2"</td> <td>40 = 40 mm</td> </tr> </tbody> </table> | Imperial (inch) | Metric (mm) | 075 = 3/4" | 20 = 20 mm | 100 = 1" | 25 = 25 mm | 125 = 1-1/4" | 32 = 32 mm | 150 = 1-1/2" | 40 = 40 mm | <p>6. Shank Style</p> <p>F = Flanged with flat FM = Flanged metric with flat C = Cylindrical (no flat) CM = Cylindrical metric (no flat)</p> |
| Imperial (inch) | Metric (mm) | | | | | | | | | | |
| 075 = 3/4" | 20 = 20 mm | | | | | | | | | | |
| 100 = 1" | 25 = 25 mm | | | | | | | | | | |
| 125 = 1-1/4" | 32 = 32 mm | | | | | | | | | | |
| 150 = 1-1/2" | 40 = 40 mm | | | | | | | | | | |

Holder Ordering Information

The series designator (Z series, 0 series, etc.) in the top corner of each page is for your reference when ordering. Please refer to these series designators when placing an order. For example, a Z series drill insert only fits into a Z series holder.

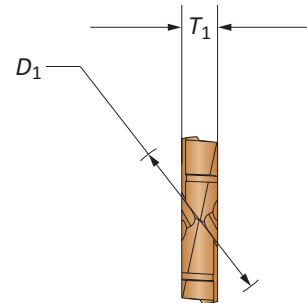
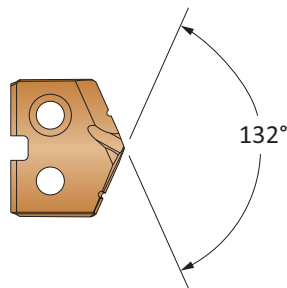
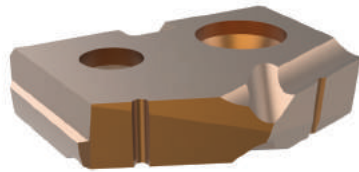






Reference Key

| Symbol | Attribute |
|--------|-------------------------|
| D_2 | Shank diameter |
| L_1 | Overall length |
| L_2 | Drill depth |
| L_3 | Holder reference length |
| L_4 | Holder body length |
| L_7 | Shank length |

T-A Pro Carbide Drill Inserts

Z Series | Diameter Range: 0.4369" - 0.4998" (11.10 mm - 12.69 mm)



| Series | Fractional Equivalent | Insert | | |  |  |  |  |
|--------|-----------------------|------------|----------|-------|---|--|---|---|
| | | D_1 inch | D_1 mm | T_1 | Part No. | Part No. | Part No. | Part No. |
| | | | | | P | K | N | M |
| Z-A | 7/16 | 0.4374 | 11.11 | 3/32 | TAPZ-11.11 | TAKZ-11.11 | TANZ-11.11 | TAMZ-11.11 |
| Z-A | | 0.4409 | 11.20 | 3/32 | TAPZ-11.20 | TAKZ-11.20 | TANZ-11.20 | TAMZ-11.20 |
| Z-A | | 0.4449 | 11.30 | 3/32 | TAPZ-11.30 | TAKZ-11.30 | TANZ-11.30 | TAMZ-11.30 |
| Z-A | | 0.4488 | 11.40 | 3/32 | TAPZ-11.40 | TAKZ-11.40 | TANZ-11.40 | TAMZ-11.40 |
| Z-A | | 0.4528 | 11.50 | 3/32 | TAPZ-11.50 | TAKZ-11.50 | TANZ-11.50 | TAMZ-11.50 |
| Z-A | 29/64 | 0.4531 | 11.51 | 3/32 | TAPZ-11.51 | TAKZ-11.51 | TANZ-11.51 | TAMZ-11.51 |
| Z-A | | 0.4567 | 11.60 | 3/32 | TAPZ-11.60 | TAKZ-11.60 | TANZ-11.60 | TAMZ-11.60 |
| Z-A | | 0.4606 | 11.70 | 3/32 | TAPZ-11.70 | TAKZ-11.70 | TANZ-11.70 | TAMZ-11.70 |
| Z-A | | 0.4646 | 11.80 | 3/32 | TAPZ-11.80 | TAKZ-11.80 | TANZ-11.80 | TAMZ-11.80 |
| Z-A | 15/32 | 0.4689 | 11.91 | 3/32 | TAPZ-11.91 | TAKZ-11.91 | TANZ-11.91 | TAMZ-11.91 |
| Z-A | | 0.4724 | 12.00 | 3/32 | TAPZ-12.00 | TAKZ-12.00 | TANZ-12.00 | TAMZ-12.00 |
| Z-A | | 0.4764 | 12.10 | 3/32 | TAPZ-12.10 | TAKZ-12.10 | TANZ-12.10 | TAMZ-12.10 |
| Z-B | | 0.4803 | 12.20 | 3/32 | TAPZ-12.20 | TAKZ-12.20 | TANZ-12.20 | TAMZ-12.20 |
| Z-B | 31/64 | 0.4843 | 12.30 | 3/32 | TAPZ-12.30 | TAKZ-12.30 | TANZ-12.30 | TAMZ-12.30 |
| Z-B | | 0.4882 | 12.40 | 3/32 | TAPZ-12.40 | TAKZ-12.40 | TANZ-12.40 | TAMZ-12.40 |
| Z-B | | 0.4921 | 12.50 | 3/32 | TAPZ-12.50 | TAKZ-12.50 | TANZ-12.50 | TAMZ-12.50 |
| Z-B | | 0.4961 | 12.60 | 3/32 | TAPZ-12.60 | TAKZ-12.60 | TANZ-12.60 | TAMZ-12.60 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



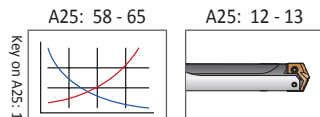
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



A Series Insert +
C Series Holder



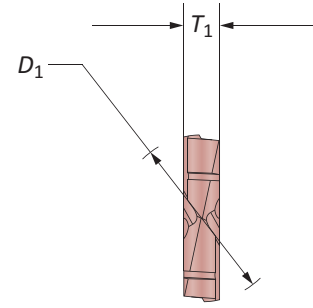
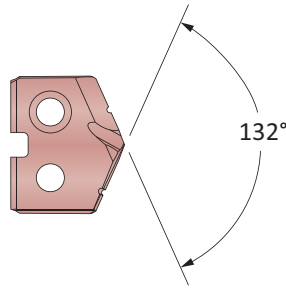
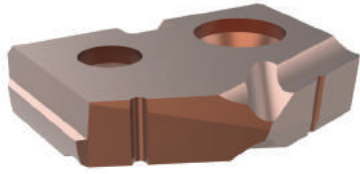
A25: 10

Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro HSS Drill Inserts

Z Series | Diameter Range: 0.4369" - 0.4998" (11.10 mm - 12.69 mm)



| Series | Fractional Equivalent | Insert | | | Part No. | |
|--------|-----------------------|---------------------|-------------------|----------------|------------|------------|
| | | D ₁ inch | D ₁ mm | T ₁ | | |
| Z-A | 7/16 | 0.4374 | 11.11 | 3/32 | TAXZ-11.11 | |
| Z-A | | 0.4409 | 11.20 | 3/32 | TAXZ-11.20 | |
| Z-A | | 0.4449 | 11.30 | 3/32 | TAXZ-11.30 | |
| Z-A | | 0.4488 | 11.40 | 3/32 | TAXZ-11.40 | |
| Z-A | | 0.4528 | 11.50 | 3/32 | TAXZ-11.50 | |
| Z-A | 29/64 | 0.4531 | 11.51 | 3/32 | TAXZ-11.51 | |
| Z-A | | 0.4567 | 11.60 | 3/32 | TAXZ-11.60 | |
| Z-A | | 0.4606 | 11.70 | 3/32 | TAXZ-11.70 | |
| Z-A | | 0.4646 | 11.80 | 3/32 | TAXZ-11.80 | |
| Z-A | 15/32 | 0.4689 | 11.91 | 3/32 | TAXZ-11.91 | |
| Z-A | | 0.4724 | 12.00 | 3/32 | TAXZ-12.00 | |
| Z-A | | 0.4764 | 12.10 | 3/32 | TAXZ-12.10 | |
| Z-B | | 31/64 | 0.4803 | 12.20 | 3/32 | TAXZ-12.20 |
| Z-B | | | 0.4843 | 12.30 | 3/32 | TAXZ-12.30 |
| Z-B | 0.4882 | | 12.40 | 3/32 | TAXZ-12.40 | |
| Z-B | 0.4921 | | 12.50 | 3/32 | TAXZ-12.50 | |
| Z-B | 0.4961 | | 12.60 | 3/32 | TAXZ-12.60 | |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



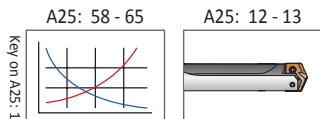
C Series Insert + A Series Holder



C Series Insert + C Series Holder



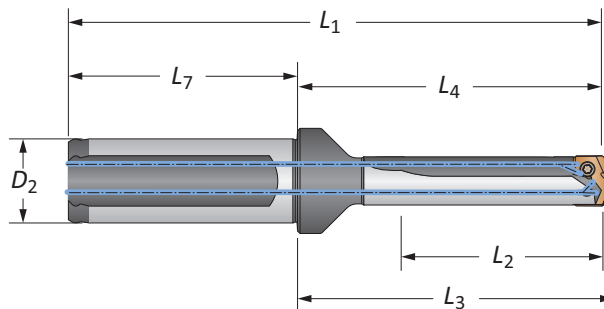
A Series Insert + C Series Holder



| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |






T-A Pro Drill Holders

Z Series Imperial | Diameter Range: 0.4369" - 0.4998"



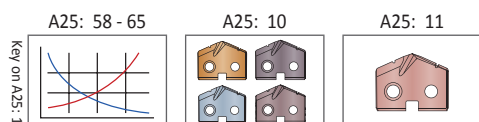
| | | Body | | | | Shank | | | | |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|--|
| Length | Sub Series | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | Part No | |
| STUB | A | 0.504 | 1.600 | 1.710 | 3.630 | 2.030 | 3/4 | Yes | HTAZA01-075F | |
| STUB | A | 0.504 | 1.600 | 1.710 | 3.630 | 2.030 | 3/4 | No | HTAZA01-075C | |
| STUB | B | 0.504 | 1.600 | 1.710 | 3.630 | 2.030 | 3/4 | Yes | HTAZB01-075F | |
| STUB | B | 0.504 | 1.600 | 1.710 | 3.630 | 2.030 | 3/4 | No | HTAZB01-075C | |
| 3xD | A | 1.452 | 2.693 | 2.803 | 4.723 | 2.030 | 3/4 | Yes | HTAZA03-075F | |
| 3xD | A | 1.452 | 2.693 | 2.803 | 4.723 | 2.030 | 3/4 | No | HTAZA03-075C | |
| 3xD | B | 1.452 | 2.693 | 2.803 | 4.723 | 2.030 | 3/4 | Yes | HTAZB03-075F | |
| 3xD | B | 1.452 | 2.693 | 2.803 | 4.723 | 2.030 | 3/4 | No | HTAZB03-075C | |
| 5xD | A | 2.400 | 3.641 | 3.751 | 5.671 | 2.030 | 3/4 | Yes | HTAZA05-075F | |
| 5xD | A | 2.400 | 3.641 | 3.751 | 5.671 | 2.030 | 3/4 | No | HTAZA05-075C | |
| 5xD | B | 2.400 | 3.641 | 3.751 | 5.671 | 2.030 | 3/4 | Yes | HTAZB05-075F | |
| 5xD | B | 2.400 | 3.641 | 3.751 | 5.671 | 2.030 | 3/4 | No | HTAZB05-075C | |
| 7xD | A | 3.348 | 4.589 | 4.699 | 6.619 | 2.030 | 3/4 | Yes | HTAZA07-075F | |
| 7xD | A | 3.348 | 4.589 | 4.699 | 6.619 | 2.030 | 3/4 | No | HTAZA07-075C | |
| 7xD | B | 3.348 | 4.589 | 4.699 | 6.619 | 2.030 | 3/4 | Yes | HTAZB07-075F | |
| 7xD | B | 3.348 | 4.589 | 4.699 | 6.619 | 2.030 | 3/4 | No | HTAZB07-075C | |
| 10xD | A | 4.770 | 6.011 | 6.121 | 8.041 | 2.030 | 3/4 | Yes | HTAZA10-075F | |
| 10xD | A | 4.770 | 6.011 | 6.121 | 8.041 | 2.030 | 3/4 | No | HTAZA10-075C | |
| 10xD | B | 4.770 | 6.011 | 6.121 | 8.041 | 2.030 | 3/4 | Yes | HTAZB10-075F | |
| 10xD | B | 4.770 | 6.011 | 6.121 | 8.041 | 2.030 | 3/4 | No | HTAZB10-075C | |
| 12xD | A | 5.718 | 6.959 | 7.069 | 8.989 | 2.030 | 3/4 | Yes | HTAZA12-075F | |
| 12xD | A | 5.718 | 6.959 | 7.069 | 8.989 | 2.030 | 3/4 | No | HTAZA12-075C | |
| 12xD | B | 5.718 | 6.959 | 7.069 | 8.989 | 2.030 | 3/4 | Yes | HTAZB12-075F | |
| 12xD | B | 5.718 | 6.959 | 7.069 | 8.989 | 2.030 | 3/4 | No | HTAZB12-075C | |
| 15xD | A | 7.140 | 8.381 | 8.491 | 10.411 | 2.030 | 3/4 | Yes | HTAZA15-075F | |
| 15xD | A | 7.140 | 8.381 | 8.491 | 10.411 | 2.030 | 3/4 | No | HTAZA15-075C | |
| 15xD | B | 7.140 | 8.381 | 8.491 | 10.411 | 2.030 | 3/4 | Yes | HTAZB15-075F | |
| 15xD | B | 7.140 | 8.381 | 8.491 | 10.411 | 2.030 | 3/4 | No | HTAZB15-075C | |

Connection Accessories

|  |  |  |  |  | Admissible Tightening Torque* |
|---|---|---|---|---|-------------------------------|
| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | 7.4 in-lbs (84 N-cm) |
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

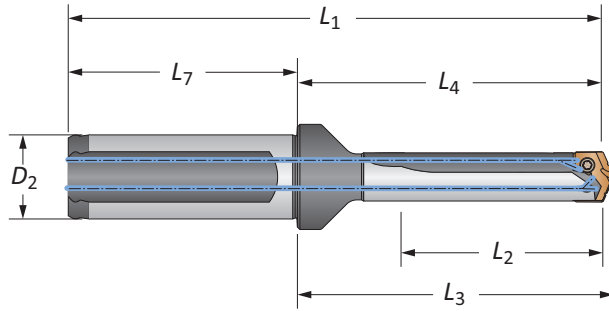


i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10






T-A Pro Drill Holders

Z Series Metric | Diameter Range: 11.11 mm - 12.69 mm



| Length | Sub Series | Body | | | | Shank | | | | Part No |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|---------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | | |
| STUB | A | 12.8 | 40.7 | 43.4 | 90.7 | 50.0 | 20 | Yes | HTAZA01-20FM | |
| STUB | A | 12.8 | 40.7 | 43.4 | 90.7 | 50.0 | 20 | No | HTAZA01-20CM | |
| STUB | B | 12.8 | 40.7 | 43.4 | 90.7 | 50.0 | 20 | Yes | HTAZB01-20FM | |
| STUB | B | 12.8 | 40.7 | 43.4 | 90.7 | 50.0 | 20 | No | HTAZB01-20CM | |
| 3xD | A | 36.9 | 68.4 | 71.2 | 118.4 | 50.0 | 20 | Yes | HTAZA03-20FM | |
| 3xD | A | 36.9 | 68.4 | 71.2 | 118.4 | 50.0 | 20 | No | HTAZA03-20CM | |
| 3xD | B | 36.9 | 68.4 | 71.2 | 118.4 | 50.0 | 20 | Yes | HTAZB03-20FM | |
| 3xD | B | 36.9 | 68.4 | 71.2 | 118.4 | 50.0 | 20 | No | HTAZB03-20CM | |
| 5xD | A | 61.0 | 92.5 | 95.3 | 142.5 | 50.0 | 20 | Yes | HTAZA05-20FM | |
| 5xD | A | 61.0 | 92.5 | 95.3 | 142.5 | 50.0 | 20 | No | HTAZA05-20CM | |
| 5xD | B | 61.0 | 92.5 | 95.3 | 142.5 | 50.0 | 20 | Yes | HTAZB05-20FM | |
| 5xD | B | 61.0 | 92.5 | 95.3 | 142.5 | 50.0 | 20 | No | HTAZB05-20CM | |
| 7xD | A | 85.0 | 116.5 | 119.3 | 166.6 | 50.0 | 20 | Yes | HTAZA07-20FM | |
| 7xD | A | 85.0 | 116.5 | 119.3 | 166.6 | 50.0 | 20 | No | HTAZA07-20CM | |
| 7xD | B | 85.0 | 116.5 | 119.3 | 166.6 | 50.0 | 20 | Yes | HTAZB07-20FM | |
| 7xD | B | 85.0 | 116.5 | 119.3 | 166.6 | 50.0 | 20 | No | HTAZB07-20CM | |
| 10xD | A | 121.2 | 152.7 | 155.5 | 202.7 | 50.0 | 20 | Yes | HTAZA10-20FM | |
| 10xD | A | 121.2 | 152.7 | 155.5 | 202.7 | 50.0 | 20 | No | HTAZA10-20CM | |
| 10xD | B | 121.2 | 152.7 | 155.5 | 202.7 | 50.0 | 20 | Yes | HTAZB10-20FM | |
| 10xD | B | 121.2 | 152.7 | 155.5 | 202.7 | 50.0 | 20 | No | HTAZB10-20CM | |
| 12xD | A | 145.2 | 176.7 | 179.5 | 226.8 | 50.0 | 20 | Yes | HTAZA12-20FM | |
| 12xD | A | 145.2 | 176.7 | 179.5 | 226.8 | 50.0 | 20 | No | HTAZA12-20CM | |
| 12xD | B | 145.2 | 176.7 | 179.5 | 226.8 | 50.0 | 20 | Yes | HTAZB12-20FM | |
| 12xD | B | 145.2 | 176.7 | 179.5 | 226.8 | 50.0 | 20 | No | HTAZB12-20CM | |
| 15xD | A | 181.4 | 212.9 | 215.7 | 262.9 | 50.0 | 20 | Yes | HTAZA15-20FM | |
| 15xD | A | 181.4 | 212.9 | 215.7 | 262.9 | 50.0 | 20 | No | HTAZA15-20CM | |
| 15xD | B | 181.4 | 212.9 | 215.7 | 262.9 | 50.0 | 20 | Yes | HTAZB15-20FM | |
| 15xD | B | 181.4 | 212.9 | 215.7 | 262.9 | 50.0 | 20 | No | HTAZB15-20CM | |

Connection Accessories

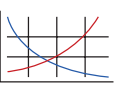
| | | | | | |
|---|---|---|--|---|---|
|  |  |  |  |  | Admissible Tightening Torque* 7.4 in-lbs (84 N-cm) |
| Insert Screws 7247-IP7-1 | Nylon Locking Screws 7247N-IP7-1 | Insert Driver 8IP-7 | Preset Torque Hand Driver 8IP-7TL | Replacement Tips 8IP-7B | |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

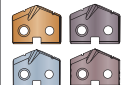
WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

Key on A25: 1

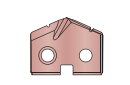
A25: 58 - 65



A25: 10



A25: 11

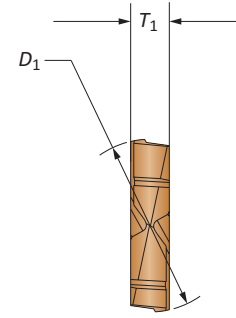
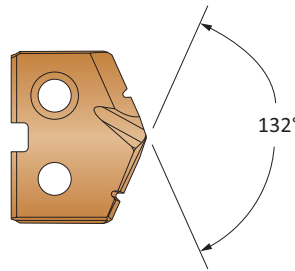
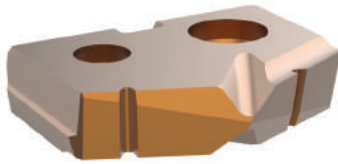






ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Screws sold in multiples of 10

T-A Pro Carbide Drill Inserts

0 Series | Diameter Range: 0.4999" - 0.6946" (12.70 mm - 17.64 mm)



| Insert | | | | |  |  |  |  |
|--------|-----------------------|---------------------|-------------------|----------------|---|--|---|---|
| Series | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | Part No. P | Part No. K | Part No. N | Part No. M |
| 0-A | 1/2 | 0.5000 | 12.70 | 1/8 | TAP0-12.70 | TAK0-12.70 | TAN0-12.70 | TAM0-12.70 |
| 0-A | | 0.5039 | 12.80 | 1/8 | TAP0-12.80 | TAK0-12.80 | TAN0-12.80 | TAM0-12.80 |
| 0-A | | 0.5079 | 12.90 | 1/8 | TAP0-12.90 | TAK0-12.90 | TAN0-12.90 | TAM0-12.90 |
| 0-A | | 0.5118 | 13.00 | 1/8 | TAP0-13.00 | TAK0-13.00 | TAN0-13.00 | TAM0-13.00 |
| 0-A | 33/64 | 0.5157 | 13.10 | 1/8 | TAP0-13.10 | TAK0-13.10 | TAN0-13.10 | TAM0-13.10 |
| 0-A | | 0.5197 | 13.20 | 1/8 | TAP0-13.20 | TAK0-13.20 | TAN0-13.20 | TAM0-13.20 |
| 0-A | | 0.5236 | 13.30 | 1/8 | TAP0-13.30 | TAK0-13.30 | TAN0-13.30 | TAM0-13.30 |
| 0-A | | 0.5276 | 13.40 | 1/8 | TAP0-13.40 | TAK0-13.40 | TAN0-13.40 | TAM0-13.40 |
| 0-A | 17/32 | 0.5311 | 13.49 | 1/8 | TAP0-13.49 | TAK0-13.49 | TAN0-13.49 | TAM0-13.49 |
| 0-A | | 0.5315 | 13.50 | 1/8 | TAP0-13.50 | TAK0-13.50 | TAN0-13.50 | TAM0-13.50 |
| 0-A | | 0.5354 | 13.60 | 1/8 | TAP0-13.60 | TAK0-13.60 | TAN0-13.60 | TAM0-13.60 |
| 0-A | | 0.5394 | 13.70 | 1/8 | TAP0-13.70 | TAK0-13.70 | TAN0-13.70 | TAM0-13.70 |
| 0-A | | 0.5433 | 13.80 | 1/8 | TAP0-13.80 | TAK0-13.80 | TAN0-13.80 | TAM0-13.80 |
| 0-A | 35/64 | 0.5469 | 13.89 | 1/8 | TAP0-13.89 | TAK0-13.89 | TAN0-13.89 | TAM0-13.89 |
| 0-B | | 0.5512 | 14.00 | 1/8 | TAP0-14.00 | TAK0-14.00 | TAN0-14.00 | TAM0-14.00 |
| 0-B | | 0.5551 | 14.10 | 1/8 | TAP0-14.10 | TAK0-14.10 | TAN0-14.10 | TAM0-14.10 |
| 0-B | | 0.5591 | 14.20 | 1/8 | TAP0-14.20 | TAK0-14.20 | TAN0-14.20 | TAM0-14.20 |
| 0-B | 9/16 | 0.5626 | 14.29 | 1/8 | TAP0-14.29 | TAK0-14.29 | TAN0-14.29 | TAM0-14.29 |
| 0-B | | 0.5669 | 14.40 | 1/8 | TAP0-14.40 | TAK0-14.40 | TAN0-14.40 | TAM0-14.40 |
| 0-B | | 0.5709 | 14.50 | 1/8 | TAP0-14.50 | TAK0-14.50 | TAN0-14.50 | TAM0-14.50 |
| 0-B | | 0.5748 | 14.60 | 1/8 | TAP0-14.60 | TAK0-14.60 | TAN0-14.60 | TAM0-14.60 |
| 0-B | 37/64 | 0.5780 | 14.68 | 1/8 | TAP0-14.68 | TAK0-14.68 | TAN0-14.68 | TAM0-14.68 |
| 0-B | | 0.5827 | 14.80 | 1/8 | TAP0-14.80 | TAK0-14.80 | TAN0-14.80 | TAM0-14.80 |
| 0-B | | 0.5866 | 14.90 | 1/8 | TAP0-14.90 | TAK0-14.90 | TAN0-14.90 | TAM0-14.90 |
| 0-B | | 0.5906 | 15.00 | 1/8 | TAP0-15.00 | TAK0-15.00 | TAN0-15.00 | TAM0-15.00 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



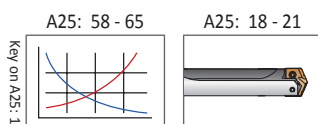
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



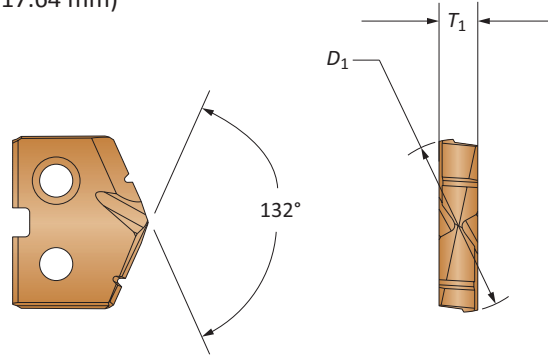
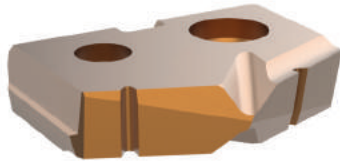
A Series Insert +
C Series Holder







| | |
|--|--|
| Sizes not shown are available upon request. When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro Carbide Drill Inserts


0 Series | Diameter Range: 0.4999" - 0.6946" (12.70 mm - 17.64 mm)




| Series | Fractional Equivalent | Insert | | |  |  |  |  |
|--------|-----------------------|------------|----------|-------|---|--|---|---|
| | | D_1 inch | D_1 mm | T_1 | Part No. | Part No. | Part No. | Part No. |
| | | P | K | N | M | | | |
| 0-C | 19/32 | 0.5937 | 15.08 | 1/8 | TAP0-15.08 | TAK0-15.08 | TAN0-15.08 | TAM0-15.08 |
| 0-C | | 0.5984 | 15.20 | 1/8 | TAP0-15.20 | TAK0-15.20 | TAN0-15.20 | TAM0-15.20 |
| 0-C | | 0.6004 | 15.25 | 1/8 | TAP0-15.25 | TAK0-15.25 | TAN0-15.25 | TAM0-15.25 |
| 0-C | | 0.6024 | 15.30 | 1/8 | TAP0-15.30 | TAK0-15.30 | TAN0-15.30 | TAM0-15.30 |
| 0-C | | 0.6063 | 15.40 | 1/8 | TAP0-15.40 | TAK0-15.40 | TAN0-15.40 | TAM0-15.40 |
| 0-C | 39/64 | 0.6094 | 15.48 | 1/8 | TAP0-15.48 | TAK0-15.48 | TAN0-15.48 | TAM0-15.48 |
| 0-C | | 0.6102 | 15.50 | 1/8 | TAP0-15.50 | TAK0-15.50 | TAN0-15.50 | TAM0-15.50 |
| 0-C | | 0.6142 | 15.60 | 1/8 | TAP0-15.60 | TAK0-15.60 | TAN0-15.60 | TAM0-15.60 |
| 0-C | | 0.6181 | 15.70 | 1/8 | TAP0-15.70 | TAK0-15.70 | TAN0-15.70 | TAM0-15.70 |
| 0-C | | 0.6220 | 15.80 | 1/8 | TAP0-15.80 | TAK0-15.80 | TAN0-15.80 | TAM0-15.80 |
| 0-C | 5/8 | 0.6252 | 15.88 | 1/8 | TAP0-15.88 | TAK0-15.88 | TAN0-15.88 | TAM0-15.88 |
| 0-C | | 0.6299 | 16.00 | 1/8 | TAP0-16.00 | TAK0-16.00 | TAN0-16.00 | TAM0-16.00 |
| 0-C | | 0.6331 | 16.08 | 1/8 | TAP0-16.08 | TAK0-16.08 | TAN0-16.08 | TAM0-16.08 |
| 0-C | | 0.6378 | 16.20 | 1/8 | TAP0-16.20 | TAK0-16.20 | TAN0-16.20 | TAM0-16.20 |
| 0-C | 41/64 | 0.6406 | 16.27 | 1/8 | TAP0-16.27 | TAK0-16.27 | TAN0-16.27 | TAM0-16.27 |
| 0-C | | 0.6457 | 16.40 | 1/8 | TAP0-16.40 | TAK0-16.40 | TAN0-16.40 | TAM0-16.40 |
| 0-D | | 0.6496 | 16.50 | 1/8 | TAP0-16.50 | TAK0-16.50 | TAN0-16.50 | TAM0-16.50 |
| 0-D | | 0.6535 | 16.60 | 1/8 | TAP0-16.60 | TAK0-16.60 | TAN0-16.60 | TAM0-16.60 |
| 0-D | 21/32 | 0.6563 | 16.67 | 1/8 | TAP0-16.67 | TAK0-16.67 | TAN0-16.67 | TAM0-16.67 |
| 0-D | | 0.6614 | 16.80 | 1/8 | TAP0-16.80 | TAK0-16.80 | TAN0-16.80 | TAM0-16.80 |
| 0-D | | 0.6654 | 16.90 | 1/8 | TAP0-16.90 | TAK0-16.90 | TAN0-16.90 | TAM0-16.90 |
| 0-D | | 0.6693 | 17.00 | 1/8 | TAP0-17.00 | TAK0-17.00 | TAN0-17.00 | TAM0-17.00 |
| 0-D | 43/64 | 0.6720 | 17.07 | 1/8 | TAP0-17.07 | TAK0-17.07 | TAN0-17.07 | TAM0-17.07 |
| 0-D | | 0.6732 | 17.10 | 1/8 | TAP0-17.10 | TAK0-17.10 | TAN0-17.10 | TAM0-17.10 |
| 0-D | | 0.6772 | 17.20 | 1/8 | TAP0-17.20 | TAK0-17.20 | TAN0-17.20 | TAM0-17.20 |
| 0-D | | 0.6811 | 17.30 | 1/8 | TAP0-17.30 | TAK0-17.30 | TAN0-17.30 | TAM0-17.30 |
| 0-D | | 0.6850 | 17.40 | 1/8 | TAP0-17.40 | TAK0-17.40 | TAN0-17.40 | TAM0-17.40 |
| 0-D | 11/16 | 0.6874 | 17.46 | 1/8 | TAP0-17.46 | TAK0-17.46 | TAN0-17.46 | TAM0-17.46 |
| 0-D | | 0.6890 | 17.50 | 1/8 | TAP0-17.50 | TAK0-17.50 | TAN0-17.50 | TAM0-17.50 |
| 0-D | | 0.6929 | 17.60 | 1/8 | TAP0-17.60 | TAK0-17.60 | TAN0-17.60 | TAM0-17.60 |

Inserts sold in multiples of 2


Sub Series Holders (A, B, C, D)
 Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.




A Series Insert +
A Series Holder



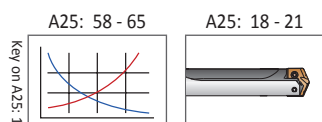
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

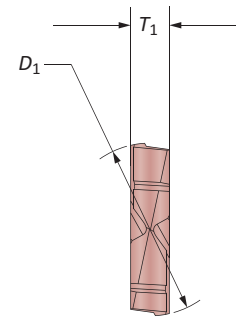
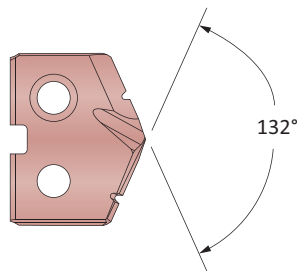
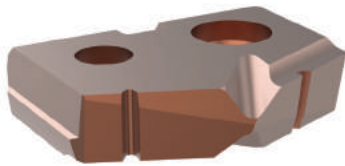


Sizes not shown are available upon request.
 When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro HSS Drill Inserts

0 Series | Diameter Range: 0.4999" - 0.6946" (12.70 mm - 17.64 mm)



| Series | Fractional Equivalent | Insert | | | Part No. |
|--------|-----------------------|------------|----------|------------|------------|
| | | D_1 inch | D_1 mm | T_1 | |
| 0-A | 1/2 | 0.5000 | 12.70 | 1/8 | TAX0-12.70 |
| 0-A | | 0.5039 | 12.80 | 1/8 | TAX0-12.80 |
| 0-A | | 0.5079 | 12.90 | 1/8 | TAX0-12.90 |
| 0-A | 33/64 | 0.5118 | 13.00 | 1/8 | TAX0-13.00 |
| 0-A | | 0.5157 | 13.10 | 1/8 | TAX0-13.10 |
| 0-A | | 0.5197 | 13.20 | 1/8 | TAX0-13.20 |
| 0-A | | 0.5236 | 13.30 | 1/8 | TAX0-13.30 |
| 0-A | | 0.5276 | 13.40 | 1/8 | TAX0-13.40 |
| 0-A | | 0.5311 | 13.49 | 1/8 | TAX0-13.49 |
| 0-A | 17/32 | 0.5315 | 13.50 | 1/8 | TAX0-13.50 |
| 0-A | | 0.5354 | 13.60 | 1/8 | TAX0-13.60 |
| 0-A | | 0.5394 | 13.70 | 1/8 | TAX0-13.70 |
| 0-A | | 0.5433 | 13.80 | 1/8 | TAX0-13.80 |
| 0-A | | 0.5469 | 13.89 | 1/8 | TAX0-13.89 |
| 0-B | | 0.5512 | 14.00 | 1/8 | TAX0-14.00 |
| 0-B | | 0.5551 | 14.10 | 1/8 | TAX0-14.10 |
| 0-B | 0.5591 | 14.20 | 1/8 | TAX0-14.20 | |
| 0-B | 9/16 | 0.5626 | 14.29 | 1/8 | TAX0-14.29 |
| 0-B | | 0.5669 | 14.40 | 1/8 | TAX0-14.40 |
| 0-B | | 0.5709 | 14.50 | 1/8 | TAX0-14.50 |
| 0-B | 37/64 | 0.5748 | 14.60 | 1/8 | TAX0-14.60 |
| 0-B | | 0.5780 | 14.68 | 1/8 | TAX0-14.68 |
| 0-B | | 0.5827 | 14.80 | 1/8 | TAX0-14.80 |
| 0-B | | 0.5866 | 14.90 | 1/8 | TAX0-14.90 |
| 0-B | | 0.5906 | 15.00 | 1/8 | TAX0-15.00 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



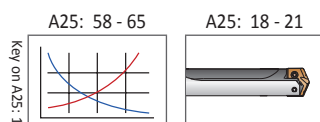
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



A Series Insert +
C Series Holder



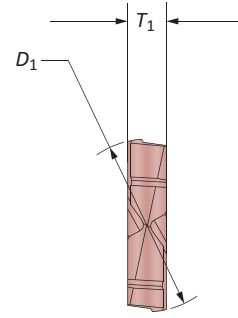
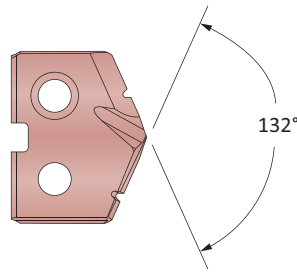
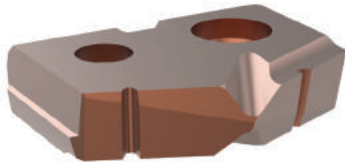
Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |



T-A Pro HSS Drill Inserts

0 Series | Diameter Range: 0.4999" - 0.6946" (12.70 mm - 17.64 mm)



| Series | Fractional Equivalent | Insert | | | Part No. | |
|--------|-----------------------|---------------------|-------------------|----------------|------------|------------|
| | | D ₁ inch | D ₁ mm | T ₁ | | |
| 0-C | 19/32 | 0.5937 | 15.08 | 1/8 | TAX0-15.08 | |
| 0-C | | 0.5984 | 15.20 | 1/8 | TAX0-15.20 | |
| 0-C | | 0.6004 | 15.25 | 1/8 | TAX0-15.25 | |
| 0-C | | 0.6024 | 15.30 | 1/8 | TAX0-15.30 | |
| 0-C | | 0.6063 | 15.40 | 1/8 | TAX0-15.40 | |
| 0-C | 39/64 | 0.6094 | 15.48 | 1/8 | TAX0-15.48 | |
| 0-C | | 0.6102 | 15.50 | 1/8 | TAX0-15.50 | |
| 0-C | | 0.6142 | 15.60 | 1/8 | TAX0-15.60 | |
| 0-C | | 0.6181 | 15.70 | 1/8 | TAX0-15.70 | |
| 0-C | | 0.6220 | 15.80 | 1/8 | TAX0-15.80 | |
| 0-C | 5/8 | 0.6252 | 15.88 | 1/8 | TAX0-15.88 | |
| 0-C | | 0.6299 | 16.00 | 1/8 | TAX0-16.00 | |
| 0-C | | 0.6331 | 16.08 | 1/8 | TAX0-16.08 | |
| 0-C | | 0.6378 | 16.20 | 1/8 | TAX0-16.20 | |
| 0-C | | 0.6406 | 16.27 | 1/8 | TAX0-16.27 | |
| 0-C | 41/64 | 0.6457 | 16.40 | 1/8 | TAX0-16.40 | |
| 0-D | | 0.6496 | 16.50 | 1/8 | TAX0-16.50 | |
| 0-D | | 0.6535 | 16.60 | 1/8 | TAX0-16.60 | |
| 0-D | | 21/32 | 0.6563 | 16.67 | 1/8 | TAX0-16.67 |
| 0-D | | | 0.6614 | 16.80 | 1/8 | TAX0-16.80 |
| 0-D | 0.6654 | | 16.90 | 1/8 | TAX0-16.90 | |
| 0-D | 0.6693 | | 17.00 | 1/8 | TAX0-17.00 | |
| 0-D | 0.6720 | | 17.07 | 1/8 | TAX0-17.07 | |
| 0-D | 43/64 | 0.6732 | 17.10 | 1/8 | TAX0-17.10 | |
| 0-D | | 0.6772 | 17.20 | 1/8 | TAX0-17.20 | |
| 0-D | | 0.6811 | 17.30 | 1/8 | TAX0-17.30 | |
| 0-D | | 0.6850 | 17.40 | 1/8 | TAX0-17.40 | |
| 0-D | | 0.6874 | 17.46 | 1/8 | TAX0-17.46 | |
| 0-D | 11/16 | 0.6890 | 17.50 | 1/8 | TAX0-17.50 | |
| 0-D | | 0.6929 | 17.60 | 1/8 | TAX0-17.60 | |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



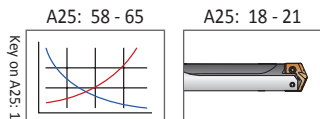
C Series Insert + A Series Holder



C Series Insert + C Series Holder



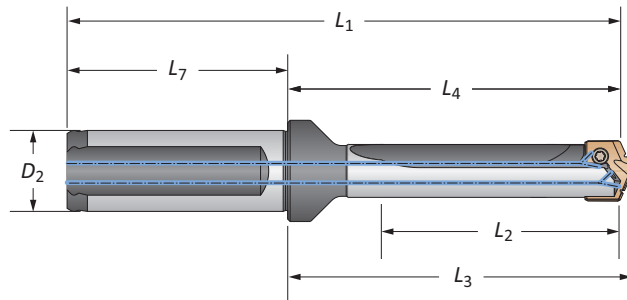
A Series Insert + C Series Holder



| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro Drill Holders

0 Series Imperial | Diameter Range: 0.4999" - 0.6946"



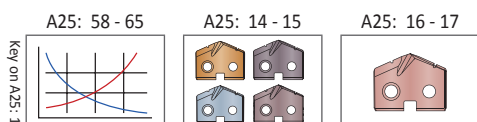
| | | Body | | | | Shank | | | | |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|--|
| Length | Sub Series | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | Part No | |
| STUB | A | 0.603 | 1.731 | 1.838 | 3.761 | 2.030 | 3/4 | Yes | HTA0A01-075F | |
| STUB | A | 0.603 | 1.731 | 1.838 | 3.761 | 2.030 | 3/4 | No | HTA0A01-075C | |
| STUB | B | 0.603 | 1.731 | 1.838 | 3.761 | 2.030 | 3/4 | Yes | HTA0B01-075F | |
| STUB | B | 0.603 | 1.731 | 1.838 | 3.761 | 2.030 | 3/4 | No | HTA0B01-075C | |
| STUB | C | 0.603 | 1.731 | 1.838 | 3.761 | 2.030 | 3/4 | Yes | HTA0C01-075F | |
| STUB | C | 0.603 | 1.731 | 1.838 | 3.761 | 2.030 | 3/4 | No | HTA0C01-075C | |
| STUB | D | 0.603 | 1.731 | 1.838 | 3.761 | 2.030 | 3/4 | Yes | HTA0D01-075F | |
| STUB | D | 0.603 | 1.731 | 1.838 | 3.761 | 2.030 | 3/4 | No | HTA0D01-075C | |
| 3xD | A | 1.809 | 3.064 | 3.171 | 5.094 | 2.030 | 3/4 | Yes | HTA0A03-075F | |
| 3xD | A | 1.809 | 3.064 | 3.171 | 5.094 | 2.030 | 3/4 | No | HTA0A03-075C | |
| 3xD | B | 1.809 | 3.064 | 3.171 | 5.094 | 2.030 | 3/4 | Yes | HTA0B03-075F | |
| 3xD | B | 1.809 | 3.064 | 3.171 | 5.094 | 2.030 | 3/4 | No | HTA0B03-075C | |
| 3xD | C | 1.809 | 3.064 | 3.171 | 5.094 | 2.030 | 3/4 | Yes | HTA0C03-075F | |
| 3xD | C | 1.809 | 3.064 | 3.171 | 5.094 | 2.030 | 3/4 | No | HTA0C03-075C | |
| 3xD | D | 1.809 | 3.064 | 3.171 | 5.094 | 2.030 | 3/4 | Yes | HTA0D03-075F | |
| 3xD | D | 1.809 | 3.064 | 3.171 | 5.094 | 2.030 | 3/4 | No | HTA0D03-075C | |
| 5xD | A | 3.015 | 4.270 | 4.377 | 6.300 | 2.030 | 3/4 | Yes | HTA0A05-075F | |
| 5xD | A | 3.015 | 4.270 | 4.377 | 6.300 | 2.030 | 3/4 | No | HTA0A05-075C | |
| 5xD | B | 3.015 | 4.270 | 4.377 | 6.300 | 2.030 | 3/4 | Yes | HTA0B05-075F | |
| 5xD | B | 3.015 | 4.270 | 4.377 | 6.300 | 2.030 | 3/4 | No | HTA0B05-075C | |
| 5xD | C | 3.015 | 4.270 | 4.377 | 6.300 | 2.030 | 3/4 | Yes | HTA0C05-075F | |
| 5xD | C | 3.015 | 4.270 | 4.377 | 6.300 | 2.030 | 3/4 | No | HTA0C05-075C | |
| 5xD | D | 3.015 | 4.270 | 4.377 | 6.300 | 2.030 | 3/4 | Yes | HTA0D05-075F | |
| 5xD | D | 3.015 | 4.270 | 4.377 | 6.300 | 2.030 | 3/4 | No | HTA0D05-075C | |
| 7xD | A | 4.221 | 5.476 | 5.583 | 7.506 | 2.030 | 3/4 | Yes | HTA0A07-075F | |
| 7xD | A | 4.221 | 5.476 | 5.583 | 7.506 | 2.030 | 3/4 | No | HTA0A07-075C | |
| 7xD | B | 4.221 | 5.476 | 5.583 | 7.506 | 2.030 | 3/4 | Yes | HTA0B07-075F | |
| 7xD | B | 4.221 | 5.476 | 5.583 | 7.506 | 2.030 | 3/4 | No | HTA0B07-075C | |
| 7xD | C | 4.221 | 5.476 | 5.583 | 7.506 | 2.030 | 3/4 | Yes | HTA0C07-075F | |
| 7xD | C | 4.221 | 5.476 | 5.583 | 7.506 | 2.030 | 3/4 | No | HTA0C07-075C | |
| 7xD | D | 4.221 | 5.476 | 5.583 | 7.506 | 2.030 | 3/4 | Yes | HTA0D07-075F | |
| 7xD | D | 4.221 | 5.476 | 5.583 | 7.506 | 2.030 | 3/4 | No | HTA0D07-075C | |

Connection Accessories

| | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|-----|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| A/B | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| C/D | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com



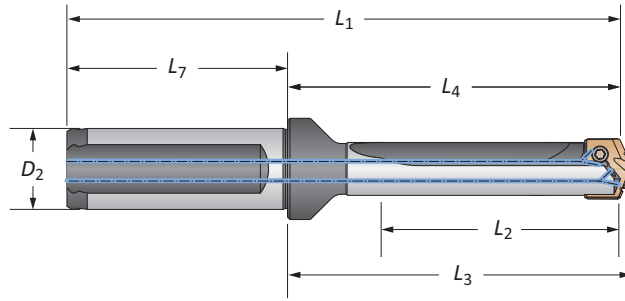
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10



T-A Pro Drill Holders

0 Series Imperial | Diameter Range: 0.4999" - 0.6946"



| Length | Sub Series | Body | | | | Shank | | | Flat | Part No |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|--------------|---------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | | |
| 10xD | A | 6.030 | 7.285 | 7.392 | 9.315 | 2.030 | 3/4 | Yes | HTA0A10-075F | |
| 10xD | A | 6.030 | 7.285 | 7.392 | 9.315 | 2.030 | 3/4 | No | HTA0A10-075C | |
| 10xD | B | 6.030 | 7.285 | 7.392 | 9.315 | 2.030 | 3/4 | Yes | HTA0B10-075F | |
| 10xD | B | 6.030 | 7.285 | 7.392 | 9.315 | 2.030 | 3/4 | No | HTA0B10-075C | |
| 10xD | C | 6.030 | 7.285 | 7.392 | 9.315 | 2.030 | 3/4 | Yes | HTA0C10-075F | |
| 10xD | C | 6.030 | 7.285 | 7.392 | 9.315 | 2.030 | 3/4 | No | HTA0C10-075C | |
| 10xD | D | 6.030 | 7.285 | 7.392 | 9.315 | 2.030 | 3/4 | Yes | HTA0D10-075F | |
| 10xD | D | 6.030 | 7.285 | 7.392 | 9.315 | 2.030 | 3/4 | No | HTA0D10-075C | |
| 12xD | A | 7.236 | 8.491 | 8.598 | 10.521 | 2.030 | 3/4 | Yes | HTA0A12-075F | |
| 12xD | A | 7.236 | 8.491 | 8.598 | 10.521 | 2.030 | 3/4 | No | HTA0A12-075C | |
| 12xD | B | 7.236 | 8.491 | 8.598 | 10.521 | 2.030 | 3/4 | Yes | HTA0B12-075F | |
| 12xD | B | 7.236 | 8.491 | 8.598 | 10.521 | 2.030 | 3/4 | No | HTA0B12-075C | |
| 12xD | C | 7.236 | 8.491 | 8.598 | 10.521 | 2.030 | 3/4 | Yes | HTA0C12-075F | |
| 12xD | C | 7.236 | 8.491 | 8.598 | 10.521 | 2.030 | 3/4 | No | HTA0C12-075C | |
| 12xD | D | 7.236 | 8.491 | 8.598 | 10.521 | 2.030 | 3/4 | Yes | HTA0D12-075F | |
| 12xD | D | 7.236 | 8.491 | 8.598 | 10.521 | 2.030 | 3/4 | No | HTA0D12-075C | |
| 15xD | A | 9.045 | 10.300 | 10.407 | 12.330 | 2.030 | 3/4 | Yes | HTA0A15-075F | |
| 15xD | A | 9.045 | 10.300 | 10.407 | 12.330 | 2.030 | 3/4 | No | HTA0A15-075C | |
| 15xD | B | 9.045 | 10.300 | 10.407 | 12.330 | 2.030 | 3/4 | Yes | HTA0B15-075F | |
| 15xD | B | 9.045 | 10.300 | 10.407 | 12.330 | 2.030 | 3/4 | No | HTA0B15-075C | |
| 15xD | C | 9.045 | 10.300 | 10.407 | 12.330 | 2.030 | 3/4 | Yes | HTA0C15-075F | |
| 15xD | C | 9.045 | 10.300 | 10.407 | 12.330 | 2.030 | 3/4 | No | HTA0C15-075C | |
| 15xD | D | 9.045 | 10.300 | 10.407 | 12.330 | 2.030 | 3/4 | Yes | HTA0D15-075F | |
| 15xD | D | 9.045 | 10.300 | 10.407 | 12.330 | 2.030 | 3/4 | No | HTA0D15-075C | |

Connection Accessories

| | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|-----|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| A/B | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| C/D | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65 A25: 14 - 15 A25: 16 - 17

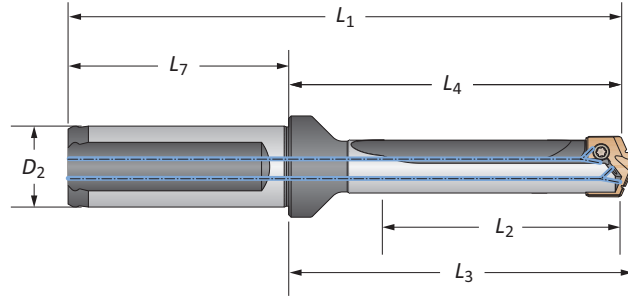
Key on A25: 1

ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Screws sold in multiples of 10

T-A Pro Drill Holders

0 Series Metric | Diameter Range: 12.70 mm - 17.64 mm



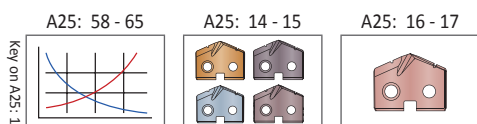
| | | Body | | | | Shank | | | |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|
| Length | Sub Series | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | Part No |
| STUB | A | 15.3 | 44.0 | 46.7 | 95.5 | 50.0 | 20 | Yes | HTA0A01-20FM |
| STUB | A | 15.3 | 44.0 | 46.7 | 95.5 | 50.0 | 20 | No | HTA0A01-20CM |
| STUB | B | 15.3 | 44.0 | 46.7 | 95.5 | 50.0 | 20 | Yes | HTA0B01-20FM |
| STUB | B | 15.3 | 44.0 | 46.7 | 95.5 | 50.0 | 20 | No | HTA0B01-20CM |
| STUB | C | 15.3 | 44.0 | 46.7 | 95.5 | 50.0 | 20 | Yes | HTA0C01-20FM |
| STUB | C | 15.3 | 44.0 | 46.7 | 95.5 | 50.0 | 20 | No | HTA0C01-20CM |
| STUB | D | 15.3 | 44.0 | 46.7 | 95.5 | 50.0 | 20 | Yes | HTA0D01-20FM |
| STUB | D | 15.3 | 44.0 | 46.7 | 95.5 | 50.0 | 20 | No | HTA0D01-20CM |
| 3xD | A | 45.9 | 77.8 | 80.5 | 129.4 | 50.0 | 20 | Yes | HTA0A03-20FM |
| 3xD | A | 45.9 | 77.8 | 80.5 | 129.4 | 50.0 | 20 | No | HTA0A03-20CM |
| 3xD | B | 45.9 | 77.8 | 80.5 | 129.4 | 50.0 | 20 | Yes | HTA0B03-20FM |
| 3xD | B | 45.9 | 77.8 | 80.5 | 129.4 | 50.0 | 20 | No | HTA0B03-20CM |
| 3xD | C | 45.9 | 77.8 | 80.5 | 129.4 | 50.0 | 20 | Yes | HTA0C03-20FM |
| 3xD | C | 45.9 | 77.8 | 80.5 | 129.4 | 50.0 | 20 | No | HTA0C03-20CM |
| 3xD | D | 45.9 | 77.8 | 80.5 | 129.4 | 50.0 | 20 | Yes | HTA0D03-20FM |
| 3xD | D | 45.9 | 77.8 | 80.5 | 129.4 | 50.0 | 20 | No | HTA0D03-20CM |
| 5xD | A | 76.6 | 108.5 | 111.2 | 160.0 | 50.0 | 20 | Yes | HTA0A05-20FM |
| 5xD | A | 76.6 | 108.5 | 111.2 | 160.0 | 50.0 | 20 | No | HTA0A05-20CM |
| 5xD | B | 76.6 | 108.5 | 111.2 | 160.0 | 50.0 | 20 | Yes | HTA0B05-20FM |
| 5xD | B | 76.6 | 108.5 | 111.2 | 160.0 | 50.0 | 20 | No | HTA0B05-20CM |
| 5xD | C | 76.6 | 108.5 | 111.2 | 160.0 | 50.0 | 20 | Yes | HTA0C05-20FM |
| 5xD | C | 76.6 | 108.5 | 111.2 | 160.0 | 50.0 | 20 | No | HTA0C05-20CM |
| 5xD | D | 76.6 | 108.5 | 111.2 | 160.0 | 50.0 | 20 | Yes | HTA0D05-20FM |
| 5xD | D | 76.6 | 108.5 | 111.2 | 160.0 | 50.0 | 20 | No | HTA0D05-20CM |
| 7xD | A | 107.2 | 139.1 | 141.8 | 190.7 | 50.0 | 20 | Yes | HTA0A07-20FM |
| 7xD | A | 107.2 | 139.1 | 141.8 | 190.7 | 50.0 | 20 | No | HTA0A07-20CM |
| 7xD | B | 107.2 | 139.1 | 141.8 | 190.7 | 50.0 | 20 | Yes | HTA0B07-20FM |
| 7xD | B | 107.2 | 139.1 | 141.8 | 190.7 | 50.0 | 20 | No | HTA0B07-20CM |
| 7xD | C | 107.2 | 139.1 | 141.8 | 190.7 | 50.0 | 20 | Yes | HTA0C07-20FM |
| 7xD | C | 107.2 | 139.1 | 141.8 | 190.7 | 50.0 | 20 | No | HTA0C07-20CM |
| 7xD | D | 107.2 | 139.1 | 141.8 | 190.7 | 50.0 | 20 | Yes | HTA0D07-20FM |
| 7xD | D | 107.2 | 139.1 | 141.8 | 190.7 | 50.0 | 20 | No | HTA0D07-20CM |

Connection Accessories

| | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|-----|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| A/B | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| C/D | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
 ext: 7611 | email: appeng@alliedmachine.com



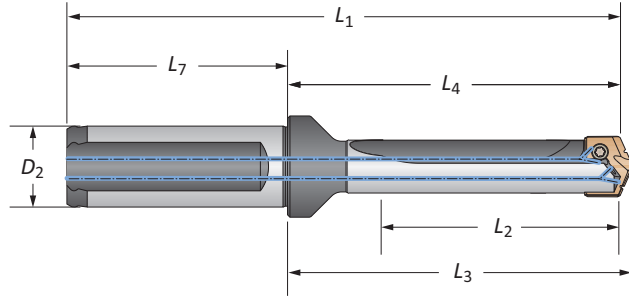
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10



T-A Pro Drill Holders

0 Series Metric | Diameter Range: 12.70 mm - 17.64 mm



| Length | Sub Series | Body | | | | Shank | | | | Part No |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|---------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | | |
| 10xD | A | 153.2 | 185.0 | 187.8 | 236.6 | 50.0 | 20 | Yes | HTA0A10-20FM | |
| 10xD | A | 153.2 | 185.0 | 187.8 | 236.6 | 50.0 | 20 | No | HTA0A10-20CM | |
| 10xD | B | 153.2 | 185.0 | 187.8 | 236.6 | 50.0 | 20 | Yes | HTA0B10-20FM | |
| 10xD | B | 153.2 | 185.0 | 187.8 | 236.6 | 50.0 | 20 | No | HTA0B10-20CM | |
| 10xD | C | 153.2 | 185.0 | 187.8 | 236.6 | 50.0 | 20 | Yes | HTA0C10-20FM | |
| 10xD | C | 153.2 | 185.0 | 187.8 | 236.6 | 50.0 | 20 | No | HTA0C10-20CM | |
| 10xD | D | 153.2 | 185.0 | 187.8 | 236.6 | 50.0 | 20 | Yes | HTA0D10-20FM | |
| 10xD | D | 153.2 | 185.0 | 187.8 | 236.6 | 50.0 | 20 | No | HTA0D10-20CM | |
| 12xD | A | 183.8 | 215.7 | 218.4 | 267.2 | 50.0 | 20 | Yes | HTA0A12-20FM | |
| 12xD | A | 183.8 | 215.7 | 218.4 | 267.2 | 50.0 | 20 | No | HTA0A12-20CM | |
| 12xD | B | 183.8 | 215.7 | 218.4 | 267.2 | 50.0 | 20 | Yes | HTA0B12-20FM | |
| 12xD | B | 183.8 | 215.7 | 218.4 | 267.2 | 50.0 | 20 | No | HTA0B12-20CM | |
| 12xD | C | 183.8 | 215.7 | 218.4 | 267.2 | 50.0 | 20 | Yes | HTA0C12-20FM | |
| 12xD | C | 183.8 | 215.7 | 218.4 | 267.2 | 50.0 | 20 | No | HTA0C12-20CM | |
| 12xD | D | 183.8 | 215.7 | 218.4 | 267.2 | 50.0 | 20 | Yes | HTA0D12-20FM | |
| 12xD | D | 183.8 | 215.7 | 218.4 | 267.2 | 50.0 | 20 | No | HTA0D12-20CM | |
| 15xD | A | 229.7 | 261.6 | 264.3 | 313.2 | 50.0 | 20 | Yes | HTA0A15-20FM | |
| 15xD | A | 229.7 | 261.6 | 264.3 | 313.2 | 50.0 | 20 | No | HTA0A15-20CM | |
| 15xD | B | 229.7 | 261.6 | 264.3 | 313.2 | 50.0 | 20 | Yes | HTA0B15-20FM | |
| 15xD | B | 229.7 | 261.6 | 264.3 | 313.2 | 50.0 | 20 | No | HTA0B15-20CM | |
| 15xD | C | 229.7 | 261.6 | 264.3 | 313.2 | 50.0 | 20 | Yes | HTA0C15-20FM | |
| 15xD | C | 229.7 | 261.6 | 264.3 | 313.2 | 50.0 | 20 | No | HTA0C15-20CM | |
| 15xD | D | 229.7 | 261.6 | 264.3 | 313.2 | 50.0 | 20 | Yes | HTA0D15-20FM | |
| 15xD | D | 229.7 | 261.6 | 264.3 | 313.2 | 50.0 | 20 | No | HTA0D15-20CM | |

Connection Accessories

| | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|-----|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| A/B | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| C/D | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65 A25: 14 - 15 A25: 16 - 17

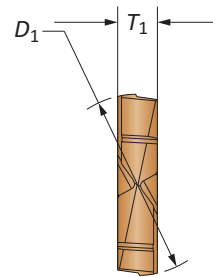
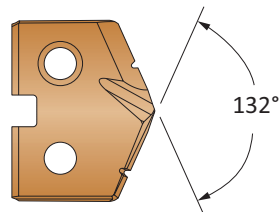
Key on A25: 1





ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Screws sold in multiples of 10

T-A Pro Carbide Drill Inserts

1 Series | Diameter Range: 0.6947" - 0.9596" (17.65 mm - 24.37 mm)



| Series | Fractional Equivalent | Insert | | |  |  |  |  |
|--------|-----------------------|------------|----------|-------|---|--|---|---|
| | | D_1 inch | D_1 mm | T_1 | Part No. P | Part No. K | Part No. N | Part No. M |
| 1-A | | 0.6969 | 17.70 | 5/32 | TAP1-17.70 | TAK1-17.70 | TAN1-17.70 | TAM1-17.70 |
| 1-A | | 0.7008 | 17.80 | 5/32 | TAP1-17.80 | TAK1-17.80 | TAN1-17.80 | TAM1-17.80 |
| 1-A | 45/64 | 0.7031 | 17.86 | 5/32 | TAP1-17.86 | TAK1-17.86 | TAN1-17.86 | TAM1-17.86 |
| 1-A | | 0.7047 | 17.90 | 5/32 | TAP1-17.90 | TAK1-17.90 | TAN1-17.90 | TAM1-17.90 |
| 1-A | | 0.7087 | 18.00 | 5/32 | TAP1-18.00 | TAK1-18.00 | TAN1-18.00 | TAM1-18.00 |
| 1-A | | 0.7126 | 18.10 | 5/32 | TAP1-18.10 | TAK1-18.10 | TAN1-18.10 | TAM1-18.10 |
| 1-A | | 0.7165 | 18.20 | 5/32 | TAP1-18.20 | TAK1-18.20 | TAN1-18.20 | TAM1-18.20 |
| 1-A | 23/32 | 0.7189 | 18.26 | 5/32 | TAP1-18.26 | TAK1-18.26 | TAN1-18.26 | TAM1-18.26 |
| 1-A | | 0.7205 | 18.30 | 5/32 | TAP1-18.30 | TAK1-18.30 | TAN1-18.30 | TAM1-18.30 |
| 1-A | | 0.7244 | 18.40 | 5/32 | TAP1-18.40 | TAK1-18.40 | TAN1-18.40 | TAM1-18.40 |
| 1-A | | 0.7283 | 18.50 | 5/32 | TAP1-18.50 | TAK1-18.50 | TAN1-18.50 | TAM1-18.50 |
| 1-A | | 0.7323 | 18.60 | 5/32 | TAP1-18.60 | TAK1-18.60 | TAN1-18.60 | TAM1-18.60 |
| 1-A | 47/64 | 0.7343 | 18.65 | 5/32 | TAP1-18.65 | TAK1-18.65 | TAN1-18.65 | TAM1-18.65 |
| 1-A | | 0.7362 | 18.70 | 5/32 | TAP1-18.70 | TAK1-18.70 | TAN1-18.70 | TAM1-18.70 |
| 1-A | | 0.7402 | 18.80 | 5/32 | TAP1-18.80 | TAK1-18.80 | TAN1-18.80 | TAM1-18.80 |
| 1-A | | 0.7441 | 18.90 | 5/32 | TAP1-18.90 | TAK1-18.90 | TAN1-18.90 | TAM1-18.90 |
| 1-A | | 0.7480 | 19.00 | 5/32 | TAP1-19.00 | TAK1-19.00 | TAN1-19.00 | TAM1-19.00 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



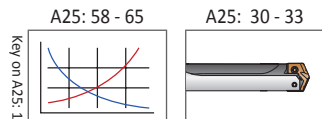
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



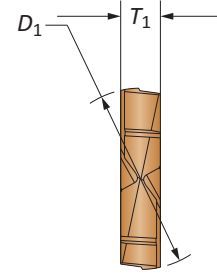
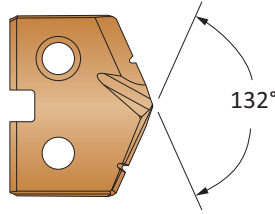
A Series Insert +
C Series Holder







| | |
|--|--|
| Sizes not shown are available upon request. When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro Carbide Drill Inserts

1 Series | Diameter Range: 0.6947" - 0.9596" (17.65 mm - 24.37 mm)



| Series | Fractional Equivalent | Insert | | |  |  |  |  |
|--------|-----------------------|------------|----------|-------|---|--|---|---|
| | | D_1 inch | D_1 mm | T_1 | Part No. P | Part No. K | Part No. N | Part No. M |
| 1-B | 3/4 | 0.7500 | 19.05 | 5/32 | TAP1-19.05 | TAK1-19.05 | TAN1-19.05 | TAM1-19.05 |
| 1-B | | 0.7520 | 19.10 | 5/32 | TAP1-19.10 | TAK1-19.10 | TAN1-19.10 | TAM1-19.10 |
| 1-B | | 0.7559 | 19.20 | 5/32 | TAP1-19.20 | TAK1-19.20 | TAN1-19.20 | TAM1-19.20 |
| 1-B | | 0.7579 | 19.25 | 5/32 | TAP1-19.25 | TAK1-19.25 | TAN1-19.25 | TAM1-19.25 |
| 1-B | | 0.7598 | 19.30 | 5/32 | TAP1-19.30 | TAK1-19.30 | TAN1-19.30 | TAM1-19.30 |
| 1-B | | 0.7638 | 19.40 | 5/32 | TAP1-19.40 | TAK1-19.40 | TAN1-19.40 | TAM1-19.40 |
| 1-B | 49/64 | 0.7657 | 19.45 | 5/32 | TAP1-19.45 | TAK1-19.45 | TAN1-19.45 | TAM1-19.45 |
| 1-B | | 0.7677 | 19.50 | 5/32 | TAP1-19.50 | TAK1-19.50 | TAN1-19.50 | TAM1-19.50 |
| 1-B | | 0.7717 | 19.60 | 5/32 | TAP1-19.60 | TAK1-19.60 | TAN1-19.60 | TAM1-19.60 |
| 1-B | | 0.7756 | 19.70 | 5/32 | TAP1-19.70 | TAK1-19.70 | TAN1-19.70 | TAM1-19.70 |
| 1-B | | 0.7795 | 19.80 | 5/32 | TAP1-19.80 | TAK1-19.80 | TAN1-19.80 | TAM1-19.80 |
| 1-B | 25/32 | 0.7811 | 19.84 | 5/32 | TAP1-19.84 | TAK1-19.84 | TAN1-19.84 | TAM1-19.84 |
| 1-B | | 0.7835 | 19.90 | 5/32 | TAP1-19.90 | TAK1-19.90 | TAN1-19.90 | TAM1-19.90 |
| 1-B | | 0.7874 | 20.00 | 5/32 | TAP1-20.00 | TAK1-20.00 | TAN1-20.00 | TAM1-20.00 |
| 1-B | | 0.7913 | 20.10 | 5/32 | TAP1-20.10 | TAK1-20.10 | TAN1-20.10 | TAM1-20.10 |
| 1-B | | 0.7953 | 20.20 | 5/32 | TAP1-20.20 | TAK1-20.20 | TAN1-20.20 | TAM1-20.20 |
| 1-B | 51/64 | 0.7969 | 20.24 | 5/32 | TAP1-20.24 | TAK1-20.24 | TAN1-20.24 | TAM1-20.24 |
| 1-B | | 0.7992 | 20.30 | 5/32 | TAP1-20.30 | TAK1-20.30 | TAN1-20.30 | TAM1-20.30 |
| 1-B | | 0.8031 | 20.40 | 5/32 | TAP1-20.40 | TAK1-20.40 | TAN1-20.40 | TAM1-20.40 |
| 1-B | | 0.8071 | 20.50 | 5/32 | TAP1-20.50 | TAK1-20.50 | TAN1-20.50 | TAM1-20.50 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



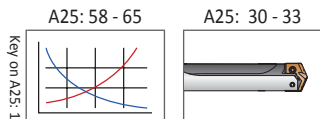
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

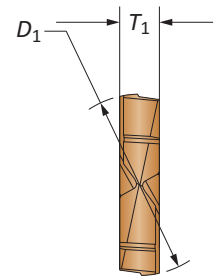
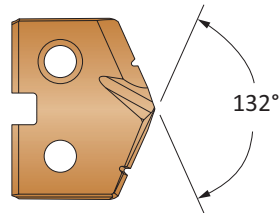






| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

T-A Pro Carbide Drill Inserts

1 Series | Diameter Range: 0.6947" - 0.9596" (17.65 mm - 24.37 mm)



| Series | Fractional Equivalent | Insert | | |  |  |  |  |
|--------|-----------------------|------------|----------|-------|---|--|---|---|
| | | D_1 inch | D_1 mm | T_1 | Part No. P | Part No. K | Part No. N | Part No. M |
| 1-C | | 0.8110 | 20.60 | 5/32 | TAP1-20.60 | TAK1-20.60 | TAN1-20.60 | TAM1-20.60 |
| 1-C | 13/16 | 0.8126 | 20.64 | 5/32 | TAP1-20.64 | TAK1-20.64 | TAN1-20.64 | TAM1-20.64 |
| 1-C | | 0.8150 | 20.70 | 5/32 | TAP1-20.70 | TAK1-20.70 | TAN1-20.70 | TAM1-20.70 |
| 1-C | | 0.8189 | 20.80 | 5/32 | TAP1-20.80 | TAK1-20.80 | TAN1-20.80 | TAM1-20.80 |
| 1-C | | 0.8228 | 20.90 | 5/32 | TAP1-20.90 | TAK1-20.90 | TAN1-20.90 | TAM1-20.90 |
| 1-C | | 0.8268 | 21.00 | 5/32 | TAP1-21.00 | TAK1-21.00 | TAN1-21.00 | TAM1-21.00 |
| 1-C | | 0.8307 | 21.10 | 5/32 | TAP1-21.10 | TAK1-21.10 | TAN1-21.10 | TAM1-21.10 |
| 1-C | | 0.8346 | 21.20 | 5/32 | TAP1-21.20 | TAK1-21.20 | TAN1-21.20 | TAM1-21.20 |
| 1-C | | 0.8386 | 21.30 | 5/32 | TAP1-21.30 | TAK1-21.30 | TAN1-21.30 | TAM1-21.30 |
| 1-C | | 0.8425 | 21.40 | 5/32 | TAP1-21.40 | TAK1-21.40 | TAN1-21.40 | TAM1-21.40 |
| 1-C | 27/32 | 0.8437 | 21.43 | 5/32 | TAP1-21.43 | TAK1-21.43 | TAN1-21.43 | TAM1-21.43 |
| 1-C | | 0.8465 | 21.50 | 5/32 | TAP1-21.50 | TAK1-21.50 | TAN1-21.50 | TAM1-21.50 |
| 1-C | | 0.8504 | 21.60 | 5/32 | TAP1-21.60 | TAK1-21.60 | TAN1-21.60 | TAM1-21.60 |
| 1-C | | 0.8543 | 21.70 | 5/32 | TAP1-21.70 | TAK1-21.70 | TAN1-21.70 | TAM1-21.70 |
| 1-C | | 0.8583 | 21.80 | 5/32 | TAP1-21.80 | TAK1-21.80 | TAN1-21.80 | TAM1-21.80 |
| 1-C | 55/64 | 0.8594 | 21.83 | 5/32 | TAP1-21.83 | TAK1-21.83 | TAN1-21.83 | TAM1-21.83 |
| 1-C | | 0.8622 | 21.90 | 5/32 | TAP1-21.90 | TAK1-21.90 | TAN1-21.90 | TAM1-21.90 |
| 1-C | | 0.8661 | 22.00 | 5/32 | TAP1-22.00 | TAK1-22.00 | TAN1-22.00 | TAM1-22.00 |
| 1-C | | 0.8701 | 22.10 | 5/32 | TAP1-22.10 | TAK1-22.10 | TAN1-22.10 | TAM1-22.10 |
| 1-C | | 0.8740 | 22.20 | 5/32 | TAP1-22.20 | TAK1-22.20 | TAN1-22.20 | TAM1-22.20 |
| 1-C | 7/8 | 0.8752 | 22.23 | 5/32 | TAP1-22.23 | TAK1-22.23 | TAN1-22.23 | TAM1-22.23 |
| 1-C | | 0.8780 | 22.30 | 5/32 | TAP1-22.30 | TAK1-22.30 | TAN1-22.30 | TAM1-22.30 |
| 1-C | | 0.8819 | 22.40 | 5/32 | TAP1-22.40 | TAK1-22.40 | TAN1-22.40 | TAM1-22.40 |
| 1-C | | 0.8858 | 22.50 | 5/32 | TAP1-22.50 | TAK1-22.50 | TAN1-22.50 | TAM1-22.50 |
| 1-C | 57/64 | 0.8906 | 22.62 | 5/32 | TAP1-22.62 | TAK1-22.62 | TAN1-22.62 | TAM1-22.62 |
| 1-C | | 0.8937 | 22.70 | 5/32 | TAP1-22.70 | TAK1-22.70 | TAN1-22.70 | TAM1-22.70 |
| 1-C | | 0.8976 | 22.80 | 5/32 | TAP1-22.80 | TAK1-22.80 | TAN1-22.80 | TAM1-22.80 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



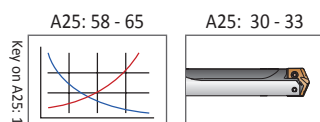
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

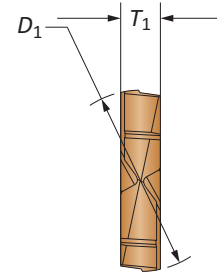
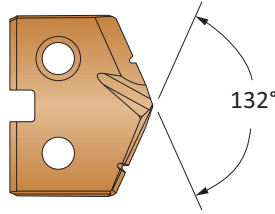






Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro Carbide Drill Inserts

1 Series | Diameter Range: 0.6947" - 0.9596" (17.65 mm - 24.37 mm)



| Insert | | | | |  |  |  |  |
|--------|-----------------------|---------------------|-------------------|----------------|---|--|---|---|
| Series | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | Part No. P | Part No. K | Part No. N | Part No. M |
| 1-D | | 0.9016 | 22.90 | 5/32 | TAP1-22.90 | TAK1-22.90 | TAN1-22.90 | TAM1-22.90 |
| 1-D | | 0.9055 | 23.00 | 5/32 | TAP1-23.00 | TAK1-23.00 | TAN1-23.00 | TAM1-23.00 |
| 1-D | 29/32 | 0.9063 | 23.02 | 5/32 | TAP1-23.02 | TAK1-23.02 | TAN1-23.02 | TAM1-23.02 |
| 1-D | | 0.9094 | 23.10 | 5/32 | TAP1-23.10 | TAK1-23.10 | TAN1-23.10 | TAM1-23.10 |
| 1-D | | 0.9134 | 23.20 | 5/32 | TAP1-23.20 | TAK1-23.20 | TAN1-23.20 | TAM1-23.20 |
| 1-D | | 0.9173 | 23.30 | 5/32 | TAP1-23.30 | TAK1-23.30 | TAN1-23.30 | TAM1-23.30 |
| 1-D | 59/64 | 0.9220 | 23.42 | 5/32 | TAP1-23.42 | TAK1-23.42 | TAN1-23.42 | TAM1-23.42 |
| 1-D | | 0.9252 | 23.50 | 5/32 | TAP1-23.50 | TAK1-23.50 | TAN1-23.50 | TAM1-23.50 |
| 1-D | | 0.9291 | 23.60 | 5/32 | TAP1-23.60 | TAK1-23.60 | TAN1-23.60 | TAM1-23.60 |
| 1-D | | 0.9331 | 23.70 | 5/32 | TAP1-23.70 | TAK1-23.70 | TAN1-23.70 | TAM1-23.70 |
| 1-D | 15/16 | 0.9374 | 23.81 | 5/32 | TAP1-23.81 | TAK1-23.81 | TAN1-23.81 | TAM1-23.81 |
| 1-D | | 0.9409 | 23.90 | 5/32 | TAP1-23.90 | TAK1-23.90 | TAN1-23.90 | TAM1-23.90 |
| 1-D | | 0.9449 | 24.00 | 5/32 | TAP1-24.00 | TAK1-24.00 | TAN1-24.00 | TAM1-24.00 |
| 1-D | | 0.9488 | 24.10 | 5/32 | TAP1-24.10 | TAK1-24.10 | TAN1-24.10 | TAM1-24.10 |
| 1-D | | 0.9528 | 24.20 | 5/32 | TAP1-24.20 | TAK1-24.20 | TAN1-24.20 | TAM1-24.20 |
| 1-D | | 0.9567 | 24.30 | 5/32 | TAP1-24.30 | TAK1-24.30 | TAN1-24.30 | TAM1-24.30 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



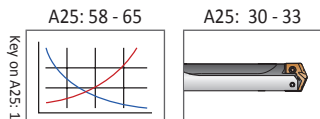
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



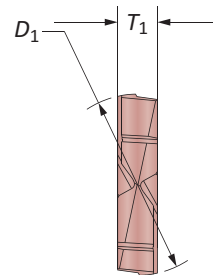
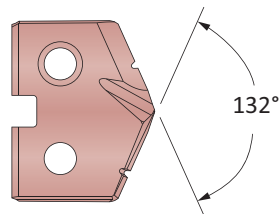
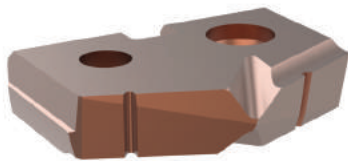
A Series Insert +
C Series Holder



| | |
|--|--|
| Sizes not shown are available upon request. When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro HSS Drill Inserts

1 Series | Diameter Range: 0.6947" - 0.9596" (17.65 mm - 24.37 mm)



| Series | Fractional Equivalent | Insert | | | Part No. |
|--------|-----------------------|------------|----------|-------|------------|
| | | D_1 inch | D_1 mm | T_1 | |
| 1-A | | 0.6969 | 17.70 | 5/32 | TAX1-17.70 |
| 1-A | | 0.7008 | 17.80 | 5/32 | TAX1-17.80 |
| 1-A | 45/64 | 0.7031 | 17.86 | 5/32 | TAX1-17.86 |
| 1-A | | 0.7047 | 17.90 | 5/32 | TAX1-17.90 |
| 1-A | | 0.7087 | 18.00 | 5/32 | TAX1-18.00 |
| 1-A | | 0.7126 | 18.10 | 5/32 | TAX1-18.10 |
| 1-A | | 0.7165 | 18.20 | 5/32 | TAX1-18.20 |
| 1-A | 23/32 | 0.7189 | 18.26 | 5/32 | TAX1-18.26 |
| 1-A | | 0.7205 | 18.30 | 5/32 | TAX1-18.30 |
| 1-A | | 0.7244 | 18.40 | 5/32 | TAX1-18.40 |
| 1-A | | 0.7283 | 18.50 | 5/32 | TAX1-18.50 |
| 1-A | | 0.7323 | 18.60 | 5/32 | TAX1-18.60 |
| 1-A | 47/64 | 0.7343 | 18.65 | 5/32 | TAX1-18.65 |
| 1-A | | 0.7362 | 18.70 | 5/32 | TAX1-18.70 |
| 1-A | | 0.7402 | 18.80 | 5/32 | TAX1-18.80 |
| 1-A | | 0.7441 | 18.90 | 5/32 | TAX1-18.90 |
| 1-A | | 0.7480 | 19.00 | 5/32 | TAX1-19.00 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



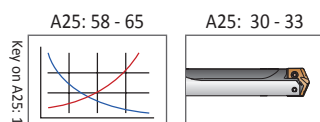
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

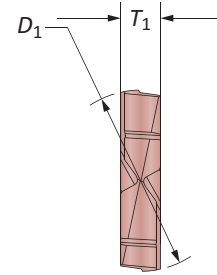
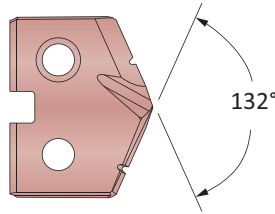
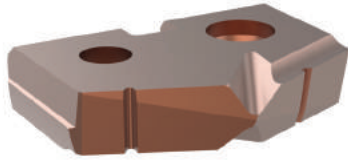


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro HSS Drill Inserts

1 Series | Diameter Range: 0.6947" - 0.9596" (17.65 mm - 24.37 mm)



| Series | Fractional Equivalent | Insert | | | Part No. |
|--------|-----------------------|---------------------|-------------------|----------------|------------|
| | | D ₁ inch | D ₁ mm | T ₁ | |
| 1-B | 3/4 | 0.7500 | 19.05 | 5/32 | TAX1-19.05 |
| 1-B | | 0.7520 | 19.10 | 5/32 | TAX1-19.10 |
| 1-B | | 0.7559 | 19.20 | 5/32 | TAX1-19.20 |
| 1-B | | 0.7579 | 19.25 | 5/32 | TAX1-19.25 |
| 1-B | | 0.7598 | 19.30 | 5/32 | TAX1-19.30 |
| 1-B | | 0.7638 | 19.40 | 5/32 | TAX1-19.40 |
| 1-B | 49/64 | 0.7657 | 19.45 | 5/32 | TAX1-19.45 |
| 1-B | | 0.7677 | 19.50 | 5/32 | TAX1-19.50 |
| 1-B | | 0.7717 | 19.60 | 5/32 | TAX1-19.60 |
| 1-B | | 0.7756 | 19.70 | 5/32 | TAX1-19.70 |
| 1-B | | 0.7795 | 19.80 | 5/32 | TAX1-19.80 |
| 1-B | | 0.7811 | 19.84 | 5/32 | TAX1-19.84 |
| 1-B | 25/32 | 0.7835 | 19.90 | 5/32 | TAX1-19.90 |
| 1-B | | 0.7874 | 20.00 | 5/32 | TAX1-20.00 |
| 1-B | | 0.7913 | 20.10 | 5/32 | TAX1-20.10 |
| 1-B | | 0.7953 | 20.20 | 5/32 | TAX1-20.20 |
| 1-B | | 0.7969 | 20.24 | 5/32 | TAX1-20.24 |
| 1-B | | 0.7992 | 20.30 | 5/32 | TAX1-20.30 |
| 1-B | 51/64 | 0.8031 | 20.40 | 5/32 | TAX1-20.40 |
| 1-B | | 0.8071 | 20.50 | 5/32 | TAX1-20.50 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



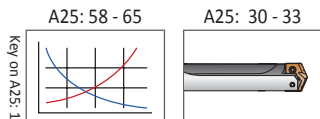
C Series Insert + A Series Holder



C Series Insert + C Series Holder



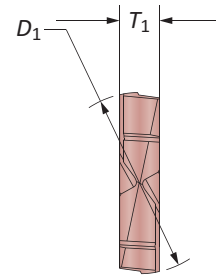
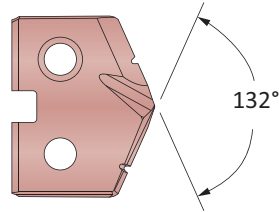
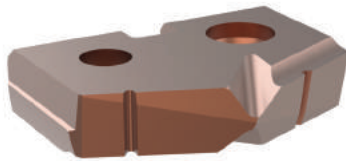
A Series Insert + C Series Holder



| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro HSS Drill Inserts

1 Series | Diameter Range: 0.6947" - 0.9596" (17.65 mm - 24.37 mm)



| Series | Fractional Equivalent | Insert | | | Part No. |
|--------|-----------------------|---------------------|-------------------|----------------|------------|
| | | D ₁ inch | D ₁ mm | T ₁ | |
| 1-C | | 0.8110 | 20.60 | 5/32 | TAX1-20.60 |
| 1-C | 13/16 | 0.8126 | 20.64 | 5/32 | TAX1-20.64 |
| 1-C | | 0.8150 | 20.70 | 5/32 | TAX1-20.70 |
| 1-C | | 0.8189 | 20.80 | 5/32 | TAX1-20.80 |
| 1-C | | 0.8228 | 20.90 | 5/32 | TAX1-20.90 |
| 1-C | | 0.8268 | 21.00 | 5/32 | TAX1-21.00 |
| 1-C | | 0.8307 | 21.10 | 5/32 | TAX1-21.10 |
| 1-C | | 0.8346 | 21.20 | 5/32 | TAX1-21.20 |
| 1-C | | 0.8386 | 21.30 | 5/32 | TAX1-21.30 |
| 1-C | | 0.8425 | 21.40 | 5/32 | TAX1-21.40 |
| 1-C | 27/32 | 0.8437 | 21.43 | 5/32 | TAX1-21.43 |
| 1-C | | 0.8465 | 21.50 | 5/32 | TAX1-21.50 |
| 1-C | | 0.8504 | 21.60 | 5/32 | TAX1-21.60 |
| 1-C | | 0.8543 | 21.70 | 5/32 | TAX1-21.70 |
| 1-C | | 0.8583 | 21.80 | 5/32 | TAX1-21.80 |
| 1-C | 55/64 | 0.8594 | 21.83 | 5/32 | TAX1-21.83 |
| 1-C | | 0.8622 | 21.90 | 5/32 | TAX1-21.90 |
| 1-C | | 0.8661 | 22.00 | 5/32 | TAX1-22.00 |
| 1-C | | 0.8701 | 22.10 | 5/32 | TAX1-22.10 |
| 1-C | | 0.8740 | 22.20 | 5/32 | TAX1-22.20 |
| 1-C | 7/8 | 0.8752 | 22.23 | 5/32 | TAX1-22.23 |
| 1-C | | 0.8780 | 22.30 | 5/32 | TAX1-22.30 |
| 1-C | | 0.8819 | 22.40 | 5/32 | TAX1-22.40 |
| 1-C | | 0.8858 | 22.50 | 5/32 | TAX1-22.50 |
| 1-C | 57/64 | 0.8906 | 22.62 | 5/32 | TAX1-22.62 |
| 1-C | | 0.8937 | 22.70 | 5/32 | TAX1-22.70 |
| 1-C | | 0.8976 | 22.80 | 5/32 | TAX1-22.80 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



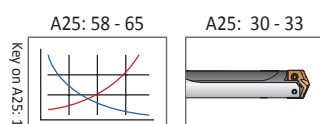
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

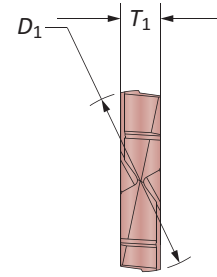
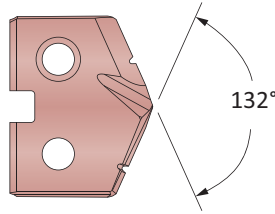
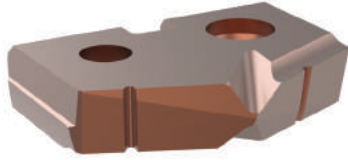



Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro HSS Drill Inserts

1 Series | Diameter Range: 0.6947" - 0.9596" (17.65 mm - 24.37 mm)



| Series | Fractional Equivalent | Insert | | | Part No. |
|--------|-----------------------|---------------------|-------------------|----------------|---|
| | | D ₁ inch | D ₁ mm | T ₁ | |
| 1-D | | 0.9016 | 22.90 | 5/32 |  X TAX1-22.90 |
| 1-D | | 0.9055 | 23.00 | 5/32 | TAX1-23.00 |
| 1-D | 29/32 | 0.9063 | 23.02 | 5/32 | TAX1-23.02 |
| 1-D | | 0.9094 | 23.10 | 5/32 | TAX1-23.10 |
| 1-D | | 0.9134 | 23.20 | 5/32 | TAX1-23.20 |
| 1-D | | 0.9173 | 23.30 | 5/32 | TAX1-23.30 |
| 1-D | 59/64 | 0.9220 | 23.42 | 5/32 | TAX1-23.42 |
| 1-D | | 0.9252 | 23.50 | 5/32 | TAX1-23.50 |
| 1-D | | 0.9291 | 23.60 | 5/32 | TAX1-23.60 |
| 1-D | | 0.9331 | 23.70 | 5/32 | TAX1-23.70 |
| 1-D | 15/16 | 0.9374 | 23.81 | 5/32 | TAX1-23.81 |
| 1-D | | 0.9409 | 23.90 | 5/32 | TAX1-23.90 |
| 1-D | | 0.9449 | 24.00 | 5/32 | TAX1-24.00 |
| 1-D | | 0.9488 | 24.10 | 5/32 | TAX1-24.10 |
| 1-D | | 0.9528 | 24.20 | 5/32 | TAX1-24.20 |
| 1-D | | 0.9567 | 24.30 | 5/32 | TAX1-24.30 |

Inserts sold in multiples of 2

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



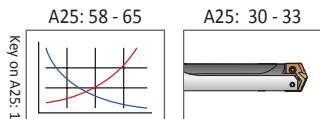
C Series Insert + A Series Holder



C Series Insert + C Series Holder



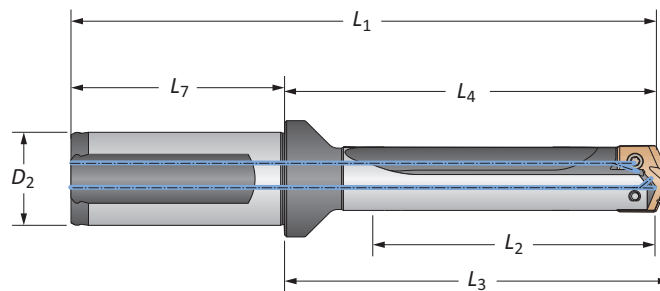
A Series Insert + C Series Holder



| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |






T-A Pro Drill Holders

1 Series Imperial | Diameter Range: 0.6947" - 0.9596"



| | | Body | | | | Shank | | | |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|
| Length | Sub Series | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | Part No |
| STUB | A | 0.825 | 2.224 | 2.364 | 4.504 | 2.280 | 1.00 | Yes | HTA1A01-100F |
| STUB | A | 0.825 | 2.224 | 2.364 | 4.504 | 2.280 | 1.00 | No | HTA1A01-100C |
| STUB | B | 0.825 | 2.224 | 2.364 | 4.504 | 2.280 | 1.00 | Yes | HTA1B01-100F |
| STUB | B | 0.825 | 2.224 | 2.364 | 4.504 | 2.280 | 1.00 | No | HTA1B01-100C |
| STUB | C | 0.825 | 2.224 | 2.364 | 4.504 | 2.280 | 1.00 | Yes | HTA1C01-100F |
| STUB | C | 0.825 | 2.224 | 2.364 | 4.504 | 2.280 | 1.00 | No | HTA1C01-100C |
| STUB | D | 0.825 | 2.224 | 2.364 | 4.504 | 2.280 | 1.00 | Yes | HTA1D01-100F |
| STUB | D | 0.825 | 2.224 | 2.364 | 4.504 | 2.280 | 1.00 | No | HTA1D01-100C |
| 3xD | A | 2.475 | 3.973 | 4.113 | 6.253 | 2.280 | 1.00 | Yes | HTA1A03-100F |
| 3xD | A | 2.475 | 3.973 | 4.113 | 6.253 | 2.280 | 1.00 | No | HTA1A03-100C |
| 3xD | B | 2.475 | 3.973 | 4.113 | 6.253 | 2.280 | 1.00 | Yes | HTA1B03-100F |
| 3xD | B | 2.475 | 3.973 | 4.113 | 6.253 | 2.280 | 1.00 | No | HTA1B03-100C |
| 3xD | C | 2.475 | 3.973 | 4.113 | 6.253 | 2.280 | 1.00 | Yes | HTA1C03-100F |
| 3xD | C | 2.475 | 3.973 | 4.113 | 6.253 | 2.280 | 1.00 | No | HTA1C03-100C |
| 3xD | D | 2.475 | 3.973 | 4.113 | 6.253 | 2.280 | 1.00 | Yes | HTA1D03-100F |
| 3xD | D | 2.475 | 3.973 | 4.113 | 6.253 | 2.280 | 1.00 | No | HTA1D03-100C |
| 5xD | A | 4.125 | 5.623 | 5.763 | 7.903 | 2.280 | 1.00 | Yes | HTA1A05-100F |
| 5xD | A | 4.125 | 5.623 | 5.763 | 7.903 | 2.280 | 1.00 | No | HTA1A05-100C |
| 5xD | B | 4.125 | 5.623 | 5.763 | 7.903 | 2.280 | 1.00 | Yes | HTA1B05-100F |
| 5xD | B | 4.125 | 5.623 | 5.763 | 7.903 | 2.280 | 1.00 | No | HTA1B05-100C |
| 5xD | C | 4.125 | 5.623 | 5.763 | 7.903 | 2.280 | 1.00 | Yes | HTA1C05-100F |
| 5xD | C | 4.125 | 5.623 | 5.763 | 7.903 | 2.280 | 1.00 | No | HTA1C05-100C |
| 5xD | D | 4.125 | 5.623 | 5.763 | 7.903 | 2.280 | 1.00 | Yes | HTA1D05-100F |
| 5xD | D | 4.125 | 5.623 | 5.763 | 7.903 | 2.280 | 1.00 | No | HTA1D05-100C |
| 7xD | A | 5.775 | 7.273 | 7.413 | 9.553 | 2.280 | 1.00 | Yes | HTA1A07-100F |
| 7xD | A | 5.775 | 7.273 | 7.413 | 9.553 | 2.280 | 1.00 | No | HTA1A07-100C |
| 7xD | B | 5.775 | 7.273 | 7.413 | 9.553 | 2.280 | 1.00 | Yes | HTA1B07-100F |
| 7xD | B | 5.775 | 7.273 | 7.413 | 9.553 | 2.280 | 1.00 | No | HTA1B07-100C |
| 7xD | C | 5.775 | 7.273 | 7.413 | 9.553 | 2.280 | 1.00 | Yes | HTA1C07-100F |
| 7xD | C | 5.775 | 7.273 | 7.413 | 9.553 | 2.280 | 1.00 | No | HTA1C07-100C |
| 7xD | D | 5.775 | 7.273 | 7.413 | 9.553 | 2.280 | 1.00 | Yes | HTA1D07-100F |
| 7xD | D | 5.775 | 7.273 | 7.413 | 9.553 | 2.280 | 1.00 | No | HTA1D07-100C |

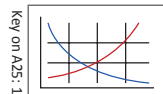
Connection Accessories

| |  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|-----|---|--|---|--|--|-------------------------------|
| A/B | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| C/D | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

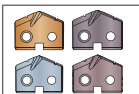
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

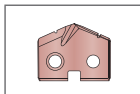
A25: 58 - 65



A25: 22 - 25



A25: 26 - 29

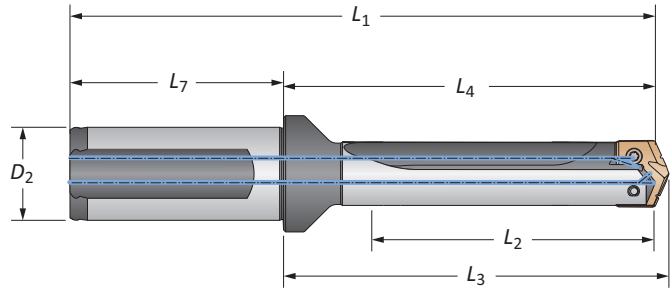


i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

T-A Pro Drill Holders

1 Series Imperial | Diameter Range: 0.6947 - 0.9596"



| Length | Sub Series | Body | | | | Shank | | | Flat | Part No |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|--------------|---------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | | |
| 10xD | A | 8.250 | 9.748 | 9.888 | 12.028 | 2.280 | 1.00 | Yes | HTA1A10-100F | |
| 10xD | A | 8.250 | 9.748 | 9.888 | 12.028 | 2.280 | 1.00 | No | HTA1A10-100C | |
| 10xD | B | 8.250 | 9.748 | 9.888 | 12.028 | 2.280 | 1.00 | Yes | HTA1B10-100F | |
| 10xD | B | 8.250 | 9.748 | 9.888 | 12.028 | 2.280 | 1.00 | No | HTA1B10-100C | |
| 10xD | C | 8.250 | 9.748 | 9.888 | 12.028 | 2.280 | 1.00 | Yes | HTA1C10-100F | |
| 10xD | C | 8.250 | 9.748 | 9.888 | 12.028 | 2.280 | 1.00 | No | HTA1C10-100C | |
| 10xD | D | 8.250 | 9.748 | 9.888 | 12.028 | 2.280 | 1.00 | Yes | HTA1D10-100F | |
| 10xD | D | 8.250 | 9.748 | 9.888 | 12.028 | 2.280 | 1.00 | No | HTA1D10-100C | |
| 12xD | A | 9.900 | 11.398 | 11.538 | 13.678 | 2.280 | 1.00 | Yes | HTA1A12-100F | |
| 12xD | A | 9.900 | 11.398 | 11.538 | 13.678 | 2.280 | 1.00 | No | HTA1A12-100C | |
| 12xD | B | 9.900 | 11.398 | 11.538 | 13.678 | 2.280 | 1.00 | Yes | HTA1B12-100F | |
| 12xD | B | 9.900 | 11.398 | 11.538 | 13.678 | 2.280 | 1.00 | No | HTA1B12-100C | |
| 12xD | C | 9.900 | 11.398 | 11.538 | 13.678 | 2.280 | 1.00 | Yes | HTA1C12-100F | |
| 12xD | C | 9.900 | 11.398 | 11.538 | 13.678 | 2.280 | 1.00 | No | HTA1C12-100C | |
| 12xD | D | 9.900 | 11.398 | 11.538 | 13.678 | 2.280 | 1.00 | Yes | HTA1D12-100F | |
| 12xD | D | 9.900 | 11.398 | 11.538 | 13.678 | 2.280 | 1.00 | No | HTA1D12-100C | |
| 15xD | A | 12.375 | 13.873 | 14.013 | 16.153 | 2.280 | 1.00 | Yes | HTA1A15-100F | |
| 15xD | A | 12.375 | 13.873 | 14.013 | 16.153 | 2.280 | 1.00 | No | HTA1A15-100C | |
| 15xD | B | 12.375 | 13.873 | 14.013 | 16.153 | 2.280 | 1.00 | Yes | HTA1B15-100F | |
| 15xD | B | 12.375 | 13.873 | 14.013 | 16.153 | 2.280 | 1.00 | No | HTA1B15-100C | |
| 15xD | C | 12.375 | 13.873 | 14.013 | 16.153 | 2.280 | 1.00 | Yes | HTA1C15-100F | |
| 15xD | C | 12.375 | 13.873 | 14.013 | 16.153 | 2.280 | 1.00 | No | HTA1C15-100C | |
| 15xD | D | 12.375 | 13.873 | 14.013 | 16.153 | 2.280 | 1.00 | Yes | HTA1D15-100F | |
| 15xD | D | 12.375 | 13.873 | 14.013 | 16.153 | 2.280 | 1.00 | No | HTA1D15-100C | |

Connection Accessories

| | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|-----|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| A/B | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| C/D | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65 A25: 22 - 25 A25: 26 - 29

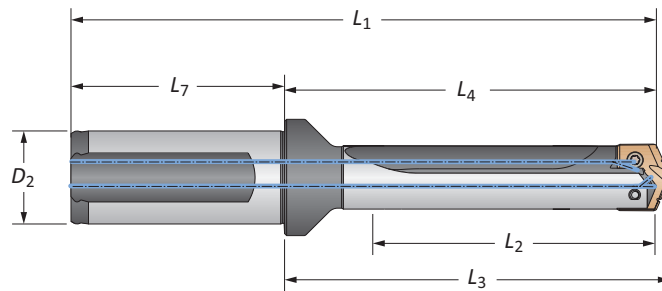
ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS




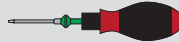

T-A Pro Drill Holders

1 Series Metric | Diameter Range: 17.65 mm - 24.37 mm



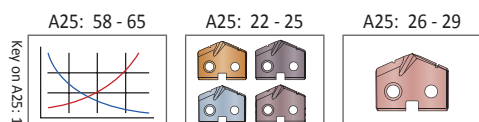
| | | Body | | | | Shank | | | | |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|--|
| Length | Sub Series | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | Part No | |
| STUB | A | 21.0 | 56.5 | 60.0 | 114.4 | 56.0 | 25 | Yes | HTA1A01-25FM | |
| STUB | A | 21.0 | 56.5 | 60.0 | 114.4 | 56.0 | 25 | No | HTA1A01-25CM | |
| STUB | B | 21.0 | 56.5 | 60.0 | 114.4 | 56.0 | 25 | Yes | HTA1B01-25FM | |
| STUB | B | 21.0 | 56.5 | 60.0 | 114.4 | 56.0 | 25 | No | HTA1B01-25CM | |
| STUB | C | 21.0 | 56.5 | 60.0 | 114.4 | 56.0 | 25 | Yes | HTA1C01-25FM | |
| STUB | C | 21.0 | 56.5 | 60.0 | 114.4 | 56.0 | 25 | No | HTA1C01-25CM | |
| STUB | D | 21.0 | 56.5 | 60.0 | 114.4 | 56.0 | 25 | Yes | HTA1D01-25FM | |
| STUB | D | 21.0 | 56.5 | 60.0 | 114.4 | 56.0 | 25 | No | HTA1D01-25CM | |
| 3xD | A | 62.9 | 100.9 | 104.5 | 158.8 | 56.0 | 25 | Yes | HTA1A03-25FM | |
| 3xD | A | 62.9 | 100.9 | 104.5 | 158.8 | 56.0 | 25 | No | HTA1A03-25CM | |
| 3xD | B | 62.9 | 100.9 | 104.5 | 158.8 | 56.0 | 25 | Yes | HTA1B03-25FM | |
| 3xD | B | 62.9 | 100.9 | 104.5 | 158.8 | 56.0 | 25 | No | HTA1B03-25CM | |
| 3xD | C | 62.9 | 100.9 | 104.5 | 158.8 | 56.0 | 25 | Yes | HTA1C03-25FM | |
| 3xD | C | 62.9 | 100.9 | 104.5 | 158.8 | 56.0 | 25 | No | HTA1C03-25CM | |
| 3xD | D | 62.9 | 100.9 | 104.5 | 158.8 | 56.0 | 25 | Yes | HTA1D03-25FM | |
| 3xD | D | 62.9 | 100.9 | 104.5 | 158.8 | 56.0 | 25 | No | HTA1D03-25CM | |
| 5xD | A | 104.8 | 142.8 | 146.4 | 200.7 | 56.0 | 25 | Yes | HTA1A05-25FM | |
| 5xD | A | 104.8 | 142.8 | 146.4 | 200.7 | 56.0 | 25 | No | HTA1A05-25CM | |
| 5xD | B | 104.8 | 142.8 | 146.4 | 200.7 | 56.0 | 25 | Yes | HTA1B05-25FM | |
| 5xD | B | 104.8 | 142.8 | 146.4 | 200.7 | 56.0 | 25 | No | HTA1B05-25CM | |
| 5xD | C | 104.8 | 142.8 | 146.4 | 200.7 | 56.0 | 25 | Yes | HTA1C05-25FM | |
| 5xD | C | 104.8 | 142.8 | 146.4 | 200.7 | 56.0 | 25 | No | HTA1C05-25CM | |
| 5xD | D | 104.8 | 142.8 | 146.4 | 200.7 | 56.0 | 25 | Yes | HTA1D05-25FM | |
| 5xD | D | 104.8 | 142.8 | 146.4 | 200.7 | 56.0 | 25 | No | HTA1D05-25CM | |
| 7xD | A | 146.7 | 184.7 | 188.3 | 242.7 | 56.0 | 25 | Yes | HTA1A07-25FM | |
| 7xD | A | 146.7 | 184.7 | 188.3 | 242.7 | 56.0 | 25 | No | HTA1A07-25CM | |
| 7xD | B | 146.7 | 184.7 | 188.3 | 242.7 | 56.0 | 25 | Yes | HTA1B07-25FM | |
| 7xD | B | 146.7 | 184.7 | 188.3 | 242.7 | 56.0 | 25 | No | HTA1B07-25CM | |
| 7xD | C | 146.7 | 184.7 | 188.3 | 242.7 | 56.0 | 25 | Yes | HTA1C07-25FM | |
| 7xD | C | 146.7 | 184.7 | 188.3 | 242.7 | 56.0 | 25 | No | HTA1C07-25CM | |
| 7xD | D | 146.7 | 184.7 | 188.3 | 242.7 | 56.0 | 25 | Yes | HTA1D07-25FM | |
| 7xD | D | 146.7 | 184.7 | 188.3 | 242.7 | 56.0 | 25 | No | HTA1D07-25CM | |

Connection Accessories

| |  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|-----|---|--|---|--|--|-------------------------------|
| A/B | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| C/D | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com



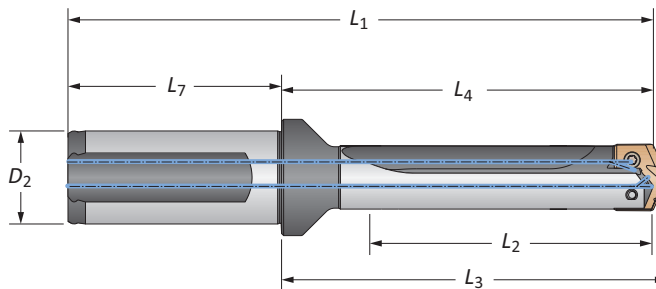
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10



T-A Pro Drill Holders

1 Series Metric | Diameter Range: 17.65 mm - 24.37 mm



| | | Body | | | | Shank | | | | Part No |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|---------|
| Length | Sub Series | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | | |
| 10xD | A | 209.6 | 247.6 | 251.2 | 305.5 | 56.0 | 25 | Yes | HTA1A10-25FM | |
| 10xD | A | 209.6 | 247.6 | 251.2 | 305.5 | 56.0 | 25 | No | HTA1A10-25CM | |
| 10xD | B | 209.6 | 247.6 | 251.2 | 305.5 | 56.0 | 25 | Yes | HTA1B10-25FM | |
| 10xD | B | 209.6 | 247.6 | 251.2 | 305.5 | 56.0 | 25 | No | HTA1B10-25CM | |
| 10xD | C | 209.6 | 247.6 | 251.2 | 305.5 | 56.0 | 25 | Yes | HTA1C10-25FM | |
| 10xD | C | 209.6 | 247.6 | 251.2 | 305.5 | 56.0 | 25 | No | HTA1C10-25CM | |
| 10xD | D | 209.6 | 247.6 | 251.2 | 305.5 | 56.0 | 25 | Yes | HTA1D10-25FM | |
| 10xD | D | 209.6 | 247.6 | 251.2 | 305.5 | 56.0 | 25 | No | HTA1D10-25CM | |
| 12xD | A | 251.5 | 289.5 | 293.1 | 347.4 | 56.0 | 25 | Yes | HTA1A12-25FM | |
| 12xD | A | 251.5 | 289.5 | 293.1 | 347.4 | 56.0 | 25 | No | HTA1A12-25CM | |
| 12xD | B | 251.5 | 289.5 | 293.1 | 347.4 | 56.0 | 25 | Yes | HTA1B12-25FM | |
| 12xD | B | 251.5 | 289.5 | 293.1 | 347.4 | 56.0 | 25 | No | HTA1B12-25CM | |
| 12xD | C | 251.5 | 289.5 | 293.1 | 347.4 | 56.0 | 25 | Yes | HTA1C12-25FM | |
| 12xD | C | 251.5 | 289.5 | 293.1 | 347.4 | 56.0 | 25 | No | HTA1C12-25CM | |
| 12xD | D | 251.5 | 289.5 | 293.1 | 347.4 | 56.0 | 25 | Yes | HTA1D12-25FM | |
| 12xD | D | 251.5 | 289.5 | 293.1 | 347.4 | 56.0 | 25 | No | HTA1D12-25CM | |
| 15xD | A | 314.3 | 352.4 | 355.9 | 410.3 | 56.0 | 25 | Yes | HTA1A15-25FM | |
| 15xD | A | 314.3 | 352.4 | 355.9 | 410.3 | 56.0 | 25 | No | HTA1A15-25CM | |
| 15xD | B | 314.3 | 352.4 | 355.9 | 410.3 | 56.0 | 25 | Yes | HTA1B15-25FM | |
| 15xD | B | 314.3 | 352.4 | 355.9 | 410.3 | 56.0 | 25 | No | HTA1B15-25CM | |
| 15xD | C | 314.3 | 352.4 | 355.9 | 410.3 | 56.0 | 25 | Yes | HTA1C15-25FM | |
| 15xD | C | 314.3 | 352.4 | 355.9 | 410.3 | 56.0 | 25 | No | HTA1C15-25CM | |
| 15xD | D | 314.3 | 352.4 | 355.9 | 410.3 | 56.0 | 25 | Yes | HTA1D15-25FM | |
| 15xD | D | 314.3 | 352.4 | 355.9 | 410.3 | 56.0 | 25 | No | HTA1D15-25CM | |

Connection Accessories

| | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|-----|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| A/B | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| C/D | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65 A25: 22 - 25 A25: 26 - 29

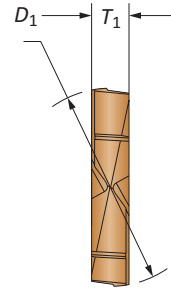
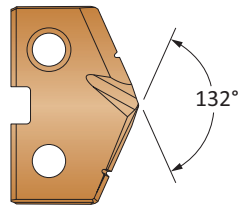
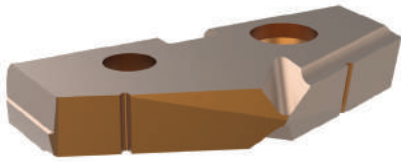
Key on A25: 1





ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Screws sold in multiples of 10

T-A Pro Carbide Drill Inserts

2 Series | Diameter Range: 0.9597" - 1.3797" (24.38 mm - 35.04 mm)



| Insert | | | | |  |  |  |  |
|--------|-----------------------|------------|----------|-------|---|--|---|---|
| Series | Fractional Equivalent | D_1 inch | D_1 mm | T_1 | Part No. P | Part No. K | Part No. N | Part No. M |
| 2-A | | 0.9606 | 24.40 | 3/16 | TAP2-24.40 | TAK2-24.40 | TAN2-24.40 | TAM2-24.40 |
| 2-A | | 0.9646 | 24.50 | 3/16 | TAP2-24.50 | TAK2-24.50 | TAN2-24.50 | TAM2-24.50 |
| 2-A | 31/32 | 0.9689 | 24.61 | 3/16 | TAP2-24.61 | TAK2-24.61 | TAN2-24.61 | TAM2-24.61 |
| 2-A | | 0.9724 | 24.70 | 3/16 | TAP2-24.70 | TAK2-24.70 | TAN2-24.70 | TAM2-24.70 |
| 2-A | | 0.9764 | 24.80 | 3/16 | TAP2-24.80 | TAK2-24.80 | TAN2-24.80 | TAM2-24.80 |
| 2-A | | 0.9803 | 24.90 | 3/16 | TAP2-24.90 | TAK2-24.90 | TAN2-24.90 | TAM2-24.90 |
| 2-A | 63/64 | 0.9843 | 25.00 | 3/16 | TAP2-25.00 | TAK2-25.00 | TAN2-25.00 | TAM2-25.00 |
| 2-A | | 0.9882 | 25.10 | 3/16 | TAP2-25.10 | TAK2-25.10 | TAN2-25.10 | TAM2-25.10 |
| 2-A | | 0.9921 | 25.20 | 3/16 | TAP2-25.20 | TAK2-25.20 | TAN2-25.20 | TAM2-25.20 |
| 2-A | | 0.9961 | 25.30 | 3/16 | TAP2-25.30 | TAK2-25.30 | TAN2-25.30 | TAM2-25.30 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



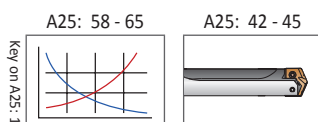
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

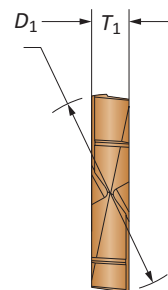
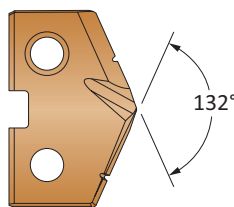






| | |
|---|--|
| Sizes not shown are available upon request. | |
| When ordering, please follow the example below: | |
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |



T-A Pro Carbide Drill Inserts

2 Series | Diameter Range: 0.9597" - 1.3797" (24.38 mm - 35.04 mm)



| Series | Fractional Equivalent | Insert | | |  |  |  |  |
|--------|-----------------------|------------|----------|-------|---|--|---|---|
| | | D_1 inch | D_1 mm | T_1 | Part No. P | Part No. K | Part No. N | Part No. M |
| 2-B | 1 | 1.0000 | 25.40 | 3/16 | TAP2-25.40 | TAK2-25.40 | TAN2-25.40 | TAM2-25.40 |
| 2-B | | 1.0039 | 25.50 | 3/16 | TAP2-25.50 | TAK2-25.50 | TAN2-25.50 | TAM2-25.50 |
| 2-B | | 1.0079 | 25.60 | 3/16 | TAP2-25.60 | TAK2-25.60 | TAN2-25.60 | TAM2-25.60 |
| 2-B | | 1.0118 | 25.70 | 3/16 | TAP2-25.70 | TAK2-25.70 | TAN2-25.70 | TAM2-25.70 |
| 2-B | | 1.0150 | 25.78 | 3/16 | TAP2-25.78 | TAK2-25.78 | TAN2-25.78 | TAM2-25.78 |
| 2-B | | 1.0197 | 25.90 | 3/16 | TAP2-25.90 | TAK2-25.90 | TAN2-25.90 | TAM2-25.90 |
| 2-B | | 1.0236 | 26.00 | 3/16 | TAP2-26.00 | TAK2-26.00 | TAN2-26.00 | TAM2-26.00 |
| 2-B | | 1.0276 | 26.10 | 3/16 | TAP2-26.10 | TAK2-26.10 | TAN2-26.10 | TAM2-26.10 |
| 2-B | 1-1/32 | 1.0315 | 26.20 | 3/16 | TAP2-26.20 | TAK2-26.20 | TAN2-26.20 | TAM2-26.20 |
| 2-B | | 1.0354 | 26.30 | 3/16 | TAP2-26.30 | TAK2-26.30 | TAN2-26.30 | TAM2-26.30 |
| 2-B | | 1.0394 | 26.40 | 3/16 | TAP2-26.40 | TAK2-26.40 | TAN2-26.40 | TAM2-26.40 |
| 2-B | | 1.0433 | 26.50 | 3/16 | TAP2-26.50 | TAK2-26.50 | TAN2-26.50 | TAM2-26.50 |
| 2-B | | 1.0461 | 26.57 | 3/16 | TAP2-26.57 | TAK2-26.57 | TAN2-26.57 | TAM2-26.57 |
| 2-B | 1-3/64 | 1.0469 | 26.59 | 3/16 | TAP2-26.59 | TAK2-26.59 | TAN2-26.59 | TAM2-26.59 |
| 2-B | | 1.0472 | 26.60 | 3/16 | TAP2-26.60 | TAK2-26.60 | TAN2-26.60 | TAM2-26.60 |
| 2-B | | 1.0512 | 26.70 | 3/16 | TAP2-26.70 | TAK2-26.70 | TAN2-26.70 | TAM2-26.70 |
| 2-B | | 1.0551 | 26.80 | 3/16 | TAP2-26.80 | TAK2-26.80 | TAN2-26.80 | TAM2-26.80 |
| 2-B | | 1.0591 | 26.90 | 3/16 | TAP2-26.90 | TAK2-26.90 | TAN2-26.90 | TAM2-26.90 |
| 2-B | 1-1/16 | 1.0626 | 26.99 | 3/16 | TAP2-26.99 | TAK2-26.99 | TAN2-26.99 | TAM2-26.99 |
| 2-B | | 1.0630 | 27.00 | 3/16 | TAP2-27.00 | TAK2-27.00 | TAN2-27.00 | TAM2-27.00 |
| 2-B | | 1.0669 | 27.10 | 3/16 | TAP2-27.10 | TAK2-27.10 | TAN2-27.10 | TAM2-27.10 |
| 2-B | | 1.0709 | 27.20 | 3/16 | TAP2-27.20 | TAK2-27.20 | TAN2-27.20 | TAM2-27.20 |
| 2-B | | 1.0748 | 27.30 | 3/16 | TAP2-27.30 | TAK2-27.30 | TAN2-27.30 | TAM2-27.30 |
| 2-B | | 1.0787 | 27.40 | 3/16 | TAP2-27.40 | TAK2-27.40 | TAN2-27.40 | TAM2-27.40 |
| 2-B | | 1.0827 | 27.50 | 3/16 | TAP2-27.50 | TAK2-27.50 | TAN2-27.50 | TAM2-27.50 |
| 2-B | | 1.0866 | 27.60 | 3/16 | TAP2-27.60 | TAK2-27.60 | TAN2-27.60 | TAM2-27.60 |
| 2-B | | 1.0906 | 27.70 | 3/16 | TAP2-27.70 | TAK2-27.70 | TAN2-27.70 | TAM2-27.70 |
| 2-B | 1-3/32 | 1.0937 | 27.78 | 3/16 | TAP2-27.78 | TAK2-27.78 | TAN2-27.78 | TAM2-27.78 |
| 2-B | | 1.0984 | 27.90 | 3/16 | TAP2-27.90 | TAK2-27.90 | TAN2-27.90 | TAM2-27.90 |
| 2-B | | 1.1024 | 28.00 | 3/16 | TAP2-28.00 | TAK2-28.00 | TAN2-28.00 | TAM2-28.00 |
| 2-B | | 1.1063 | 28.10 | 3/16 | TAP2-28.10 | TAK2-28.10 | TAN2-28.10 | TAM2-28.10 |
| 2-B | 1-7/64 | 1.1091 | 28.17 | 3/16 | TAP2-28.17 | TAK2-28.17 | TAN2-28.17 | TAM2-28.17 |
| 2-B | | 1.1102 | 28.20 | 3/16 | TAP2-28.20 | TAK2-28.20 | TAN2-28.20 | TAM2-28.20 |
| 2-B | | 1.1142 | 28.30 | 3/16 | TAP2-28.30 | TAK2-28.30 | TAN2-28.30 | TAM2-28.30 |
| 2-B | | 1.1181 | 28.40 | 3/16 | TAP2-28.40 | TAK2-28.40 | TAN2-28.40 | TAM2-28.40 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



C Series Insert + A Series Holder



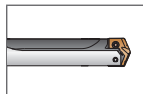
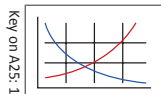
C Series Insert + C Series Holder



A Series Insert + C Series Holder

A25: 58 - 65

A25: 42 - 45



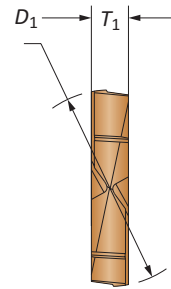
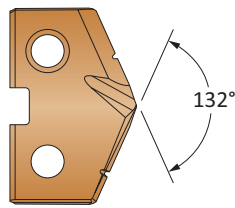
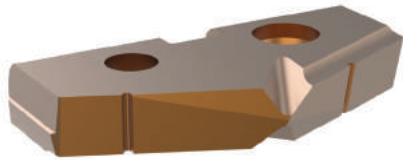
Sizes not shown are available upon request.





When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro Carbide Drill Inserts

2 Series | Diameter Range: 0.9597" - 1.3797" (24.38 mm - 35.04 mm)



| Insert | | | | |  |  |  |  |
|--------|-----------------------|---------------------|-------------------|----------------|---|--|---|---|
| Series | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | Part No. P | Part No. K | Part No. N | Part No. M |
| 2-C | | 1.1220 | 28.50 | 3/16 | TAP2-28.50 | TAK2-28.50 | TAN2-28.50 | TAM2-28.50 |
| 2-C | 1-1/8 | 1.1252 | 28.58 | 3/16 | TAP2-28.58 | TAK2-28.58 | TAN2-28.58 | TAM2-28.58 |
| 2-C | | 1.1299 | 28.70 | 3/16 | TAP2-28.70 | TAK2-28.70 | TAN2-28.70 | TAM2-28.70 |
| 2-C | | 1.1339 | 28.80 | 3/16 | TAP2-28.80 | TAK2-28.80 | TAN2-28.80 | TAM2-28.80 |
| 2-C | | 1.1378 | 28.90 | 3/16 | TAP2-28.90 | TAK2-28.90 | TAN2-28.90 | TAM2-28.90 |
| 2-C | | 1.1417 | 29.00 | 3/16 | TAP2-29.00 | TAK2-29.00 | TAN2-29.00 | TAM2-29.00 |
| 2-C | | 1.1457 | 29.10 | 3/16 | TAP2-29.10 | TAK2-29.10 | TAN2-29.10 | TAM2-29.10 |
| 2-C | | 1.1496 | 29.20 | 3/16 | TAP2-29.20 | TAK2-29.20 | TAN2-29.20 | TAM2-29.20 |
| 2-C | | 1.1535 | 29.30 | 3/16 | TAP2-29.30 | TAK2-29.30 | TAN2-29.30 | TAM2-29.30 |
| 2-C | 1-5/32 | 1.1563 | 29.37 | 3/16 | TAP2-29.37 | TAK2-29.37 | TAN2-29.37 | TAM2-29.37 |
| 2-C | | 1.1575 | 29.40 | 3/16 | TAP2-29.40 | TAK2-29.40 | TAN2-29.40 | TAM2-29.40 |
| 2-C | | 1.1614 | 29.50 | 3/16 | TAP2-29.50 | TAK2-29.50 | TAN2-29.50 | TAM2-29.50 |
| 2-C | | 1.1654 | 29.60 | 3/16 | TAP2-29.60 | TAK2-29.60 | TAN2-29.60 | TAM2-29.60 |
| 2-C | | 1.1693 | 29.70 | 3/16 | TAP2-29.70 | TAK2-29.70 | TAN2-29.70 | TAM2-29.70 |
| 2-C | | 1.1732 | 29.80 | 3/16 | TAP2-29.80 | TAK2-29.80 | TAN2-29.80 | TAM2-29.80 |
| 2-C | | 1.1772 | 29.90 | 3/16 | TAP2-29.90 | TAK2-29.90 | TAN2-29.90 | TAM2-29.90 |
| 2-C | | 1.1811 | 30.00 | 3/16 | TAP2-30.00 | TAK2-30.00 | TAN2-30.00 | TAM2-30.00 |
| 2-C | | 1.1850 | 30.10 | 3/16 | TAP2-30.10 | TAK2-30.10 | TAN2-30.10 | TAM2-30.10 |
| 2-C | 1-3/16 | 1.1874 | 30.16 | 3/16 | TAP2-30.16 | TAK2-30.16 | TAN2-30.16 | TAM2-30.16 |
| 2-C | | 1.1890 | 30.20 | 3/16 | TAP2-30.20 | TAK2-30.20 | TAN2-30.20 | TAM2-30.20 |
| 2-C | | 1.1929 | 30.30 | 3/16 | TAP2-30.30 | TAK2-30.30 | TAN2-30.30 | TAM2-30.30 |
| 2-C | | 1.1969 | 30.40 | 3/16 | TAP2-30.40 | TAK2-30.40 | TAN2-30.40 | TAM2-30.40 |
| 2-C | | 1.2008 | 30.50 | 3/16 | TAP2-30.50 | TAK2-30.50 | TAN2-30.50 | TAM2-30.50 |
| 2-C | | 1.2047 | 30.60 | 3/16 | TAP2-30.60 | TAK2-30.60 | TAN2-30.60 | TAM2-30.60 |
| 2-C | | 1.2087 | 30.70 | 3/16 | TAP2-30.70 | TAK2-30.70 | TAN2-30.70 | TAM2-30.70 |
| 2-C | | 1.2126 | 30.80 | 3/16 | TAP2-30.80 | TAK2-30.80 | TAN2-30.80 | TAM2-30.80 |
| 2-C | | 1.2165 | 30.90 | 3/16 | TAP2-30.90 | TAK2-30.90 | TAN2-30.90 | TAM2-30.90 |
| 2-C | 1-7/32 | 1.2189 | 30.96 | 3/16 | TAP2-30.96 | TAK2-30.96 | TAN2-30.96 | TAM2-30.96 |
| 2-C | | 1.2205 | 31.00 | 3/16 | TAP2-31.00 | TAK2-31.00 | TAN2-31.00 | TAM2-31.00 |
| 2-C | | 1.2244 | 31.10 | 3/16 | TAP2-31.10 | TAK2-31.10 | TAN2-31.10 | TAM2-31.10 |
| 2-C | | 1.2283 | 31.20 | 3/16 | TAP2-31.20 | TAK2-31.20 | TAN2-31.20 | TAM2-31.20 |
| 2-C | | 1.2323 | 31.30 | 3/16 | TAP2-31.30 | TAK2-31.30 | TAN2-31.30 | TAM2-31.30 |
| 2-C | | 1.2362 | 31.40 | 3/16 | TAP2-31.40 | TAK2-31.40 | TAN2-31.40 | TAM2-31.40 |
| 2-C | | 1.2402 | 31.50 | 3/16 | TAP2-31.50 | TAK2-31.50 | TAN2-31.50 | TAM2-31.50 |
| 2-C | | 1.2441 | 31.60 | 3/16 | TAP2-31.60 | TAK2-31.60 | TAN2-31.60 | TAM2-31.60 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



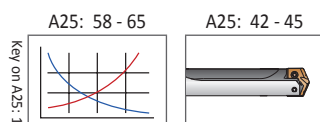
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



A Series Insert +
C Series Holder



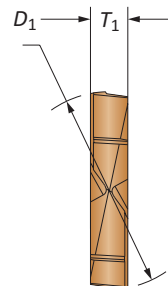
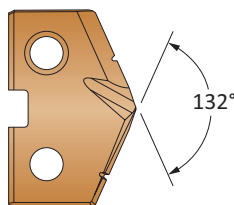
Sizes not shown are available upon request.
When ordering, please follow the example below:





| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |



T-A Pro Carbide Drill Inserts

2 Series | Diameter Range: 0.9597" - 1.3797" (24.38 mm - 35.04 mm)



| Insert | | | | |  |  |  |  |
|--------|-----------------------|---------------------|-------------------|----------------|---|--|---|---|
| Series | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | Part No. P | Part No. K | Part No. N | Part No. M |
| 2-D | | 1.2480 | 31.70 | 3/16 | TAP2-31.70 | TAK2-31.70 | TAN2-31.70 | TAM2-31.70 |
| 2-D | 1-1/4 | 1.2500 | 31.75 | 3/16 | TAP2-31.75 | TAK2-31.75 | TAN2-31.75 | TAM2-31.75 |
| 2-D | | 1.2520 | 31.80 | 3/16 | TAP2-31.80 | TAK2-31.80 | TAN2-31.80 | TAM2-31.80 |
| 2-D | | 1.2559 | 31.90 | 3/16 | TAP2-31.90 | TAK2-31.90 | TAN2-31.90 | TAM2-31.90 |
| 2-D | | 1.2598 | 32.00 | 3/16 | TAP2-32.00 | TAK2-32.00 | TAN2-32.00 | TAM2-32.00 |
| 2-D | | 1.2638 | 32.10 | 3/16 | TAP2-32.10 | TAK2-32.10 | TAN2-32.10 | TAM2-32.10 |
| 2-D | 1-17/64 | 1.2657 | 32.15 | 3/16 | TAP2-32.15 | TAK2-32.15 | TAN2-32.15 | TAM2-32.15 |
| 2-D | | 1.2677 | 32.20 | 3/16 | TAP2-32.20 | TAK2-32.20 | TAN2-32.20 | TAM2-32.20 |
| 2-D | | 1.2717 | 32.30 | 3/16 | TAP2-32.30 | TAK2-32.30 | TAN2-32.30 | TAM2-32.30 |
| 2-D | | 1.2756 | 32.40 | 3/16 | TAP2-32.40 | TAK2-32.40 | TAN2-32.40 | TAM2-32.40 |
| 2-D | | 1.2795 | 32.50 | 3/16 | TAP2-32.50 | TAK2-32.50 | TAN2-32.50 | TAM2-32.50 |
| 2-D | 1-9/32 | 1.2815 | 32.55 | 3/16 | TAP2-32.55 | TAK2-32.55 | TAN2-32.55 | TAM2-32.55 |
| 2-D | | 1.2835 | 32.60 | 3/16 | TAP2-32.60 | TAK2-32.60 | TAN2-32.60 | TAM2-32.60 |
| 2-D | | 1.2874 | 32.70 | 3/16 | TAP2-32.70 | TAK2-32.70 | TAN2-32.70 | TAM2-32.70 |
| 2-D | | 1.2913 | 32.80 | 3/16 | TAP2-32.80 | TAK2-32.80 | TAN2-32.80 | TAM2-32.80 |
| 2-D | | 1.2953 | 32.90 | 3/16 | TAP2-32.90 | TAK2-32.90 | TAN2-32.90 | TAM2-32.90 |
| 2-D | | 1.2992 | 33.00 | 3/16 | TAP2-33.00 | TAK2-33.00 | TAN2-33.00 | TAM2-33.00 |
| 2-D | | 1.3031 | 33.10 | 3/16 | TAP2-33.10 | TAK2-33.10 | TAN2-33.10 | TAM2-33.10 |
| 2-D | | 1.3071 | 33.20 | 3/16 | TAP2-33.20 | TAK2-33.20 | TAN2-33.20 | TAM2-33.20 |
| 2-D | | 1.3110 | 33.30 | 3/16 | TAP2-33.30 | TAK2-33.30 | TAN2-33.30 | TAM2-33.30 |
| 2-D | 1-5/16 | 1.3126 | 33.34 | 3/16 | TAP2-33.34 | TAK2-33.34 | TAN2-33.34 | TAM2-33.34 |
| 2-D | | 1.3150 | 33.40 | 3/16 | TAP2-33.40 | TAK2-33.40 | TAN2-33.40 | TAM2-33.40 |
| 2-D | | 1.3189 | 33.50 | 3/16 | TAP2-33.50 | TAK2-33.50 | TAN2-33.50 | TAM2-33.50 |
| 2-D | | 1.3228 | 33.60 | 3/16 | TAP2-33.60 | TAK2-33.60 | TAN2-33.60 | TAM2-33.60 |
| 2-D | | 1.3268 | 33.70 | 3/16 | TAP2-33.70 | TAK2-33.70 | TAN2-33.70 | TAM2-33.70 |
| 2-D | | 1.3307 | 33.80 | 3/16 | TAP2-33.80 | TAK2-33.80 | TAN2-33.80 | TAM2-33.80 |
| 2-D | | 1.3346 | 33.90 | 3/16 | TAP2-33.90 | TAK2-33.90 | TAN2-33.90 | TAM2-33.90 |
| 2-D | | 1.3386 | 34.00 | 3/16 | TAP2-34.00 | TAK2-34.00 | TAN2-34.00 | TAM2-34.00 |
| 2-D | | 1.3425 | 34.10 | 3/16 | TAP2-34.10 | TAK2-34.10 | TAN2-34.10 | TAM2-34.10 |
| 2-D | 1-11/32 | 1.3437 | 34.13 | 3/16 | TAP2-34.13 | TAK2-34.13 | TAN2-34.13 | TAM2-34.13 |
| 2-D | | 1.3465 | 34.20 | 3/16 | TAP2-34.20 | TAK2-34.20 | TAN2-34.20 | TAM2-34.20 |
| 2-D | | 1.3504 | 34.30 | 3/16 | TAP2-34.30 | TAK2-34.30 | TAN2-34.30 | TAM2-34.30 |
| 2-D | | 1.3543 | 34.40 | 3/16 | TAP2-34.40 | TAK2-34.40 | TAN2-34.40 | TAM2-34.40 |
| 2-D | | 1.3583 | 34.50 | 3/16 | TAP2-34.50 | TAK2-34.50 | TAN2-34.50 | TAM2-34.50 |
| 2-D | | 1.3622 | 34.60 | 3/16 | TAP2-34.60 | TAK2-34.60 | TAN2-34.60 | TAM2-34.60 |
| 2-D | | 1.3661 | 34.70 | 3/16 | TAP2-34.70 | TAK2-34.70 | TAN2-34.70 | TAM2-34.70 |
| 2-D | | 1.3701 | 34.80 | 3/16 | TAP2-34.80 | TAK2-34.80 | TAN2-34.80 | TAM2-34.80 |
| 2-D | | 1.3740 | 34.90 | 3/16 | TAP2-34.90 | TAK2-34.90 | TAN2-34.90 | TAM2-34.90 |
| 2-D | 1-3/8 | 1.3752 | 34.93 | 3/16 | TAP2-34.93 | TAK2-34.93 | TAN2-34.93 | TAM2-34.93 |
| 2-D | | 1.3780 | 35.00 | 3/16 | TAP2-35.00 | TAK2-35.00 | TAN2-35.00 | TAM2-35.00 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



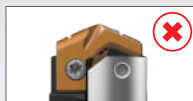
A Series Insert + A Series Holder



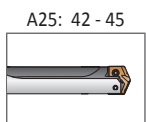
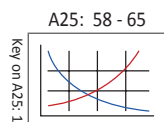
C Series Insert + A Series Holder



C Series Insert + C Series Holder



A Series Insert + C Series Holder



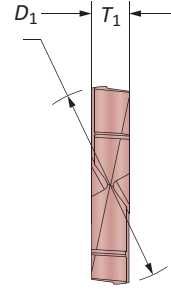
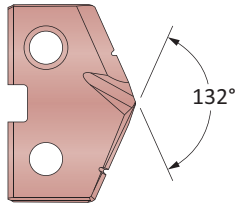
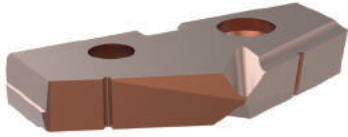
Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A Pro HSS Drill Inserts

2 Series | Diameter Range: 0.9597" - 1.3797" (24.38 mm - 35.04 mm)



| Series | Fractional Equivalent | Insert | | | Part No. |
|--------|-----------------------|------------|----------|-------|-----------------|
| | | D_1 inch | D_1 mm | T_1 | |
| 2-A | | 0.9606 | 24.40 | 3/16 | X TAX2-24.40 |
| 2-A | | 0.9646 | 24.50 | 3/16 | TAX2-24.50 |
| 2-A | 31/32 | 0.9689 | 24.61 | 3/16 | TAX2-24.61 |
| 2-A | | 0.9724 | 24.70 | 3/16 | TAX2-24.70 |
| 2-A | | 0.9764 | 24.80 | 3/16 | TAX2-24.80 |
| 2-A | | 0.9803 | 24.90 | 3/16 | TAX2-24.90 |
| 2-A | 63/64 | 0.9843 | 25.00 | 3/16 | TAX2-25.00 |
| 2-A | | 0.9882 | 25.10 | 3/16 | TAX2-25.10 |
| 2-A | | 0.9921 | 25.20 | 3/16 | TAX2-25.20 |
| 2-A | | 0.9961 | 25.30 | 3/16 | TAX2-25.30 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



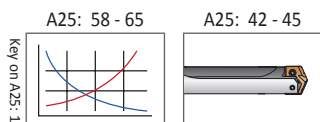
C Series Insert +
A Series Holder



C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

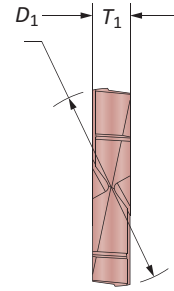
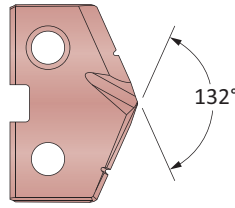
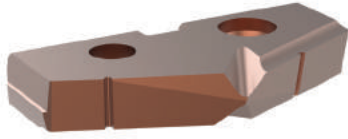


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro HSS Drill Inserts

2 Series | Diameter Range: 0.9597" - 1.3797" (24.38 mm - 35.04 mm)



| Series | Fractional Equivalent | Insert | | | Part No. |
|--------|-----------------------|---------------------|-------------------|----------------|------------|
| | | D ₁ inch | D ₁ mm | T ₁ | |
| 2-B | 1 | 1.0000 | 25.40 | 3/16 | TAX2-25.40 |
| 2-B | | 1.0039 | 25.50 | 3/16 | TAX2-25.50 |
| 2-B | | 1.0079 | 25.60 | 3/16 | TAX2-25.60 |
| 2-B | | 1.0118 | 25.70 | 3/16 | TAX2-25.70 |
| 2-B | | 1.0150 | 25.78 | 3/16 | TAX2-25.78 |
| 2-B | | 1.0197 | 25.90 | 3/16 | TAX2-25.90 |
| 2-B | | 1.0236 | 26.00 | 3/16 | TAX2-26.00 |
| 2-B | | 1.0276 | 26.10 | 3/16 | TAX2-26.10 |
| 2-B | 1-1/32 | 1.0315 | 26.20 | 3/16 | TAX2-26.20 |
| 2-B | | 1.0354 | 26.30 | 3/16 | TAX2-26.30 |
| 2-B | | 1.0394 | 26.40 | 3/16 | TAX2-26.40 |
| 2-B | | 1.0433 | 26.50 | 3/16 | TAX2-26.50 |
| 2-B | | 1.0461 | 26.57 | 3/16 | TAX2-26.57 |
| 2-B | 1-3/64 | 1.0469 | 26.59 | 3/16 | TAX2-26.59 |
| 2-B | | 1.0472 | 26.60 | 3/16 | TAX2-26.60 |
| 2-B | | 1.0512 | 26.70 | 3/16 | TAX2-26.70 |
| 2-B | | 1.0551 | 26.80 | 3/16 | TAX2-26.80 |
| 2-B | | 1.0591 | 26.90 | 3/16 | TAX2-26.90 |
| 2-B | 1-1/16 | 1.0626 | 26.99 | 3/16 | TAX2-26.99 |
| 2-B | | 1.0630 | 27.00 | 3/16 | TAX2-27.00 |
| 2-B | | 1.0669 | 27.10 | 3/16 | TAX2-27.10 |
| 2-B | | 1.0709 | 27.20 | 3/16 | TAX2-27.20 |
| 2-B | | 1.0748 | 27.30 | 3/16 | TAX2-27.30 |
| 2-B | | 1.0787 | 27.40 | 3/16 | TAX2-27.40 |
| 2-B | | 1.0827 | 27.50 | 3/16 | TAX2-27.50 |
| 2-B | | 1.0866 | 27.60 | 3/16 | TAX2-27.60 |
| 2-B | | 1.0906 | 27.70 | 3/16 | TAX2-27.70 |
| 2-B | 1-3/32 | 1.0937 | 27.78 | 3/16 | TAX2-27.78 |
| 2-B | | 1.0984 | 27.90 | 3/16 | TAX2-27.90 |
| 2-B | | 1.1024 | 28.00 | 3/16 | TAX2-28.00 |
| 2-B | | 1.1063 | 28.10 | 3/16 | TAX2-28.10 |
| 2-B | 1-7/64 | 1.1091 | 28.17 | 3/16 | TAX2-28.17 |
| 2-B | | 1.1102 | 28.20 | 3/16 | TAX2-28.20 |
| 2-B | | 1.1142 | 28.30 | 3/16 | TAX2-28.30 |
| 2-B | | 1.1181 | 28.40 | 3/16 | TAX2-28.40 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



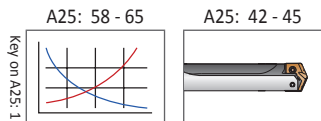
C Series Insert + A Series Holder



C Series Insert + C Series Holder



A Series Insert + C Series Holder



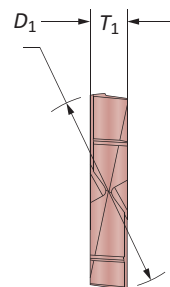
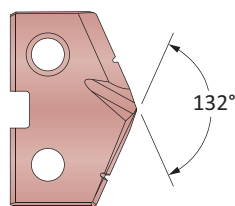
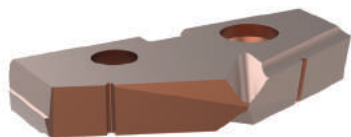
Sizes not shown are available upon request. When ordering, please follow the example below:


| | |
|-----------|---|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A Pro HSS Drill Inserts

2 Series | Diameter Range: 0.9597" - 1.3797" (24.38 mm - 35.04 mm)



| Insert | | | | |  |
|--------|-----------------------|---------------------|-------------------|----------------|---|
| Series | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | Part No. X |
| 2-C | | 1.1220 | 28.50 | 3/16 | TAX2-28.50 |
| 2-C | 1-1/8 | 1.1252 | 28.58 | 3/16 | TAX2-28.58 |
| 2-C | | 1.1299 | 28.70 | 3/16 | TAX2-28.70 |
| 2-C | | 1.1339 | 28.80 | 3/16 | TAX2-28.80 |
| 2-C | | 1.1378 | 28.90 | 3/16 | TAX2-28.90 |
| 2-C | | 1.1417 | 29.00 | 3/16 | TAX2-29.00 |
| 2-C | | 1.1457 | 29.10 | 3/16 | TAX2-29.10 |
| 2-C | | 1.1496 | 29.20 | 3/16 | TAX2-29.20 |
| 2-C | | 1.1535 | 29.30 | 3/16 | TAX2-29.30 |
| 2-C | 1-5/32 | 1.1563 | 29.37 | 3/16 | TAX2-29.37 |
| 2-C | | 1.1575 | 29.40 | 3/16 | TAX2-29.40 |
| 2-C | | 1.1614 | 29.50 | 3/16 | TAX2-29.50 |
| 2-C | | 1.1654 | 29.60 | 3/16 | TAX2-29.60 |
| 2-C | | 1.1693 | 29.70 | 3/16 | TAX2-29.70 |
| 2-C | | 1.1732 | 29.80 | 3/16 | TAX2-29.80 |
| 2-C | | 1.1772 | 29.90 | 3/16 | TAX2-29.90 |
| 2-C | | 1.1811 | 30.00 | 3/16 | TAX2-30.00 |
| 2-C | | 1.1850 | 30.10 | 3/16 | TAX2-30.10 |
| 2-C | 1-3/16 | 1.1874 | 30.16 | 3/16 | TAX2-30.16 |
| 2-C | | 1.1890 | 30.20 | 3/16 | TAX2-30.20 |
| 2-C | | 1.1929 | 30.30 | 3/16 | TAX2-30.30 |
| 2-C | | 1.1969 | 30.40 | 3/16 | TAX2-30.40 |
| 2-C | | 1.2008 | 30.50 | 3/16 | TAX2-30.50 |
| 2-C | | 1.2047 | 30.60 | 3/16 | TAX2-30.60 |
| 2-C | | 1.2087 | 30.70 | 3/16 | TAX2-30.70 |
| 2-C | | 1.2126 | 30.80 | 3/16 | TAX2-30.80 |
| 2-C | | 1.2165 | 30.90 | 3/16 | TAX2-30.90 |
| 2-C | 1-7/32 | 1.2189 | 30.96 | 3/16 | TAX2-30.96 |
| 2-C | | 1.2205 | 31.00 | 3/16 | TAX2-31.00 |
| 2-C | | 1.2244 | 31.10 | 3/16 | TAX2-31.10 |
| 2-C | | 1.2283 | 31.20 | 3/16 | TAX2-31.20 |
| 2-C | | 1.2323 | 31.30 | 3/16 | TAX2-31.30 |
| 2-C | | 1.2362 | 31.40 | 3/16 | TAX2-31.40 |
| 2-C | | 1.2402 | 31.50 | 3/16 | TAX2-31.50 |
| 2-C | | 1.2441 | 31.60 | 3/16 | TAX2-31.60 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



C Series Insert +
A Series Holder



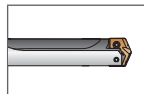
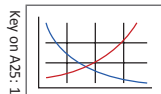
C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

A25: 58 - 65

A25: 42 - 45



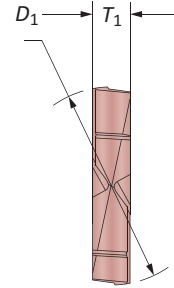
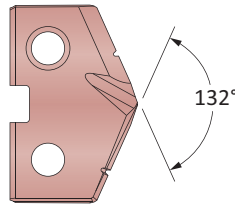
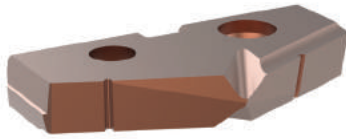
Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |



T-A Pro HSS Drill Inserts

2 Series | Diameter Range: 0.9597" - 1.3797" (24.38 mm - 35.04 mm)



| Series | Fractional Equivalent | Insert | | | Part No. |
|--------|-----------------------|---------------------|-------------------|----------------|------------|
| | | D ₁ inch | D ₁ mm | T ₁ | |
| 2-D | | 1.2480 | 31.70 | 3/16 | TAX2-31.70 |
| 2-D | 1-1/4 | 1.2500 | 31.75 | 3/16 | TAX2-31.75 |
| 2-D | | 1.2520 | 31.80 | 3/16 | TAX2-31.80 |
| 2-D | | 1.2559 | 31.90 | 3/16 | TAX2-31.90 |
| 2-D | | 1.2598 | 32.00 | 3/16 | TAX2-32.00 |
| 2-D | | 1.2638 | 32.10 | 3/16 | TAX2-32.10 |
| 2-D | 1-17/64 | 1.2657 | 32.15 | 3/16 | TAX2-32.15 |
| 2-D | | 1.2677 | 32.20 | 3/16 | TAX2-32.20 |
| 2-D | | 1.2717 | 32.30 | 3/16 | TAX2-32.30 |
| 2-D | | 1.2756 | 32.40 | 3/16 | TAX2-32.40 |
| 2-D | | 1.2795 | 32.50 | 3/16 | TAX2-32.50 |
| 2-D | 1-9/32 | 1.2815 | 32.55 | 3/16 | TAX2-32.55 |
| 2-D | | 1.2835 | 32.60 | 3/16 | TAX2-32.60 |
| 2-D | | 1.2874 | 32.70 | 3/16 | TAX2-32.70 |
| 2-D | | 1.2913 | 32.80 | 3/16 | TAX2-32.80 |
| 2-D | | 1.2953 | 32.90 | 3/16 | TAX2-32.90 |
| 2-D | | 1.2992 | 33.00 | 3/16 | TAX2-33.00 |
| 2-D | | 1.3031 | 33.10 | 3/16 | TAX2-33.10 |
| 2-D | | 1.3071 | 33.20 | 3/16 | TAX2-33.20 |
| 2-D | | 1.3110 | 33.30 | 3/16 | TAX2-33.30 |
| 2-D | 1-5/16 | 1.3126 | 33.34 | 3/16 | TAX2-33.34 |
| 2-D | | 1.3150 | 33.40 | 3/16 | TAX2-33.40 |
| 2-D | | 1.3189 | 33.50 | 3/16 | TAX2-33.50 |
| 2-D | | 1.3228 | 33.60 | 3/16 | TAX2-33.60 |
| 2-D | | 1.3268 | 33.70 | 3/16 | TAX2-33.70 |
| 2-D | | 1.3307 | 33.80 | 3/16 | TAX2-33.80 |
| 2-D | | 1.3346 | 33.90 | 3/16 | TAX2-33.90 |
| 2-D | | 1.3386 | 34.00 | 3/16 | TAX2-34.00 |
| 2-D | | 1.3425 | 34.10 | 3/16 | TAX2-34.10 |
| 2-D | 1-11/32 | 1.3437 | 34.13 | 3/16 | TAX2-34.13 |
| 2-D | | 1.3465 | 34.20 | 3/16 | TAX2-34.20 |
| 2-D | | 1.3504 | 34.30 | 3/16 | TAX2-34.30 |
| 2-D | | 1.3543 | 34.40 | 3/16 | TAX2-34.40 |
| 2-D | | 1.3583 | 34.50 | 3/16 | TAX2-34.50 |
| 2-D | | 1.3622 | 34.60 | 3/16 | TAX2-34.60 |
| 2-D | | 1.3661 | 34.70 | 3/16 | TAX2-34.70 |
| 2-D | | 1.3701 | 34.80 | 3/16 | TAX2-34.80 |
| 2-D | | 1.3740 | 34.90 | 3/16 | TAX2-34.90 |
| 2-D | 1-3/8 | 1.3752 | 34.93 | 3/16 | TAX2-34.93 |
| 2-D | | 1.3780 | 35.00 | 3/16 | TAX2-35.00 |

Inserts sold in multiples of 2

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



C Series Insert + A Series Holder



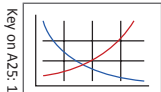
C Series Insert + C Series Holder



A Series Insert + C Series Holder

A25: 58 - 65

A25: 42 - 45



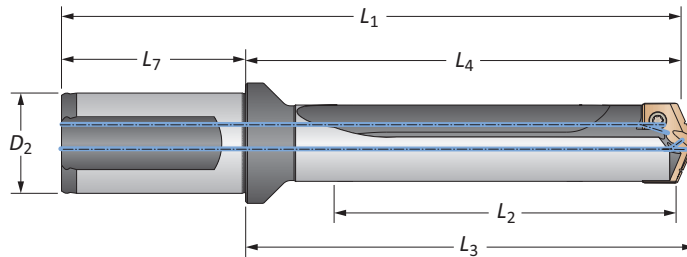
Sizes not shown are available upon request. When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A Pro Drill Holders

2 Series Imperial | Diameter Range: 0.9597" - 1.3797"



| | | Body | | | | Shank | | | | |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|--|
| Length | Sub Series | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | Part No | |
| STUB | A | 1.171 | 2.954 | 3.094 | 5.234 | 2.280 | 1-1/4 | Yes | HTA2A01-125F | |
| STUB | A | 1.171 | 2.954 | 3.094 | 5.234 | 2.280 | 1-1/4 | No | HTA2A01-125C | |
| STUB | B | 1.171 | 2.954 | 3.094 | 5.234 | 2.280 | 1-1/4 | Yes | HTA2B01-125F | |
| STUB | B | 1.171 | 2.954 | 3.094 | 5.234 | 2.280 | 1-1/4 | No | HTA2B01-125C | |
| STUB | C | 1.171 | 2.954 | 3.094 | 5.234 | 2.280 | 1-1/4 | Yes | HTA2C01-125F | |
| STUB | C | 1.171 | 2.954 | 3.094 | 5.234 | 2.280 | 1-1/4 | No | HTA2C01-125C | |
| STUB | D | 1.171 | 2.954 | 3.094 | 5.234 | 2.280 | 1-1/4 | Yes | HTA2D01-125F | |
| STUB | D | 1.171 | 2.954 | 3.094 | 5.234 | 2.280 | 1-1/4 | No | HTA2D01-125C | |
| 3xD | A | 3.513 | 5.411 | 5.551 | 7.691 | 2.280 | 1-1/4 | Yes | HTA2A03-125F | |
| 3xD | A | 3.513 | 5.411 | 5.551 | 7.691 | 2.280 | 1-1/4 | No | HTA2A03-125C | |
| 3xD | B | 3.513 | 5.411 | 5.551 | 7.691 | 2.280 | 1-1/4 | Yes | HTA2B03-125F | |
| 3xD | B | 3.513 | 5.411 | 5.551 | 7.691 | 2.280 | 1-1/4 | No | HTA2B03-125C | |
| 3xD | C | 3.513 | 5.411 | 5.551 | 7.691 | 2.280 | 1-1/4 | Yes | HTA2C03-125F | |
| 3xD | C | 3.513 | 5.411 | 5.551 | 7.691 | 2.280 | 1-1/4 | No | HTA2C03-125C | |
| 3xD | D | 3.513 | 5.411 | 5.551 | 7.691 | 2.280 | 1-1/4 | Yes | HTA2D03-125F | |
| 3xD | D | 3.513 | 5.411 | 5.551 | 7.691 | 2.280 | 1-1/4 | No | HTA2D03-125C | |
| 5xD | A | 5.855 | 7.753 | 7.893 | 10.033 | 2.280 | 1-1/4 | Yes | HTA2A05-125F | |
| 5xD | A | 5.855 | 7.753 | 7.893 | 10.033 | 2.280 | 1-1/4 | No | HTA2A05-125C | |
| 5xD | B | 5.855 | 7.753 | 7.893 | 10.033 | 2.280 | 1-1/4 | Yes | HTA2B05-125F | |
| 5xD | B | 5.855 | 7.753 | 7.893 | 10.033 | 2.280 | 1-1/4 | No | HTA2B05-125C | |
| 5xD | C | 5.855 | 7.753 | 7.893 | 10.033 | 2.280 | 1-1/4 | Yes | HTA2C05-125F | |
| 5xD | C | 5.855 | 7.753 | 7.893 | 10.033 | 2.280 | 1-1/4 | No | HTA2C05-125C | |
| 5xD | D | 5.855 | 7.753 | 7.893 | 10.033 | 2.280 | 1-1/4 | Yes | HTA2D05-125F | |
| 5xD | D | 5.855 | 7.753 | 7.893 | 10.033 | 2.280 | 1-1/4 | No | HTA2D05-125C | |
| 7xD | A | 8.197 | 10.095 | 10.235 | 12.375 | 2.280 | 1-1/4 | Yes | HTA2A07-125F | |
| 7xD | A | 8.197 | 10.095 | 10.235 | 12.375 | 2.280 | 1-1/4 | No | HTA2A07-125C | |
| 7xD | B | 8.197 | 10.095 | 10.235 | 12.375 | 2.280 | 1-1/4 | Yes | HTA2B07-125F | |
| 7xD | B | 8.197 | 10.095 | 10.235 | 12.375 | 2.280 | 1-1/4 | No | HTA2B07-125C | |
| 7xD | C | 8.197 | 10.095 | 10.235 | 12.375 | 2.280 | 1-1/4 | Yes | HTA2C07-125F | |
| 7xD | C | 8.197 | 10.095 | 10.235 | 12.375 | 2.280 | 1-1/4 | No | HTA2C07-125C | |
| 7xD | D | 8.197 | 10.095 | 10.235 | 12.375 | 2.280 | 1-1/4 | Yes | HTA2D07-125F | |
| 7xD | D | 8.197 | 10.095 | 10.235 | 12.375 | 2.280 | 1-1/4 | No | HTA2D07-125C | |

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

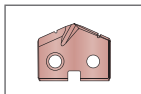
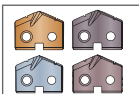
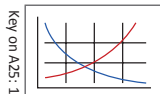
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
 ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65

A25: 34 - 37

A25: 38 - 41

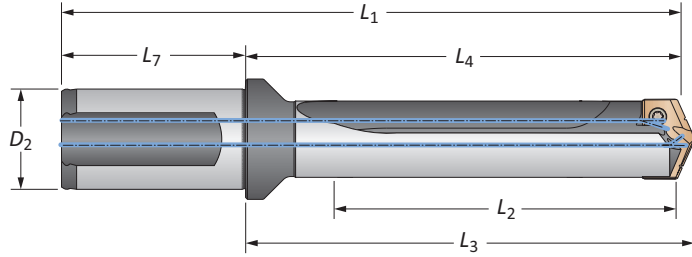


i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

T-A Pro Drill Holders

2 Series Imperial | Diameter Range: 0.9597" - 1.3797"



| Length | Sub Series | Body | | | | Shank | | | Flat | Part No |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|----------------|---------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | | |
| 10xD | A | 11.710 | 13.608 | 13.748 | 15.888 | 2.280 | 1-1/4 | Yes | ⚠ HTA2A10-125F | |
| 10xD | A | 11.710 | 13.608 | 13.748 | 15.888 | 2.280 | 1-1/4 | No | ⚠ HTA2A10-125C | |
| 10xD | B | 11.710 | 13.608 | 13.748 | 15.888 | 2.280 | 1-1/4 | Yes | ⚠ HTA2B10-125F | |
| 10xD | B | 11.710 | 13.608 | 13.748 | 15.888 | 2.280 | 1-1/4 | No | ⚠ HTA2B10-125C | |
| 10xD | C | 11.710 | 13.608 | 13.748 | 15.888 | 2.280 | 1-1/4 | Yes | ⚠ HTA2C10-125F | |
| 10xD | C | 11.710 | 13.608 | 13.748 | 15.888 | 2.280 | 1-1/4 | No | ⚠ HTA2C10-125C | |
| 10xD | D | 11.710 | 13.608 | 13.748 | 15.888 | 2.280 | 1-1/4 | Yes | ⚠ HTA2D10-125F | |
| 10xD | D | 11.710 | 13.608 | 13.748 | 15.888 | 2.280 | 1-1/4 | No | ⚠ HTA2D10-125C | |
| 12xD | A | 14.052 | 15.950 | 16.090 | 18.230 | 2.280 | 1-1/4 | Yes | ⚠ HTA2A12-125F | |
| 12xD | A | 14.052 | 15.950 | 16.090 | 18.230 | 2.280 | 1-1/4 | No | ⚠ HTA2A12-125C | |
| 12xD | B | 14.052 | 15.950 | 16.090 | 18.230 | 2.280 | 1-1/4 | Yes | ⚠ HTA2B12-125F | |
| 12xD | B | 14.052 | 15.950 | 16.090 | 18.230 | 2.280 | 1-1/4 | No | ⚠ HTA2B12-125C | |
| 12xD | C | 14.052 | 15.950 | 16.090 | 18.230 | 2.280 | 1-1/4 | Yes | ⚠ HTA2C12-125F | |
| 12xD | C | 14.052 | 15.950 | 16.090 | 18.230 | 2.280 | 1-1/4 | No | ⚠ HTA2C12-125C | |
| 12xD | D | 14.052 | 15.950 | 16.090 | 18.230 | 2.280 | 1-1/4 | Yes | ⚠ HTA2D12-125F | |
| 12xD | D | 14.052 | 15.950 | 16.090 | 18.230 | 2.280 | 1-1/4 | No | ⚠ HTA2D12-125C | |
| 15xD | A | 17.565 | 19.463 | 19.603 | 21.743 | 2.280 | 1-1/4 | Yes | ⚠ HTA2A15-125F | |
| 15xD | A | 17.565 | 19.463 | 19.603 | 21.743 | 2.280 | 1-1/4 | No | ⚠ HTA2A15-125C | |
| 15xD | B | 17.565 | 19.463 | 19.603 | 21.743 | 2.280 | 1-1/4 | Yes | ⚠ HTA2B15-125F | |
| 15xD | B | 17.565 | 19.463 | 19.603 | 21.743 | 2.280 | 1-1/4 | No | ⚠ HTA2B15-125C | |
| 15xD | C | 17.565 | 19.463 | 19.603 | 21.743 | 2.280 | 1-1/4 | Yes | ⚠ HTA2C15-125F | |
| 15xD | C | 17.565 | 19.463 | 19.603 | 21.743 | 2.280 | 1-1/4 | No | ⚠ HTA2C15-125C | |
| 15xD | D | 17.565 | 19.463 | 19.603 | 21.743 | 2.280 | 1-1/4 | Yes | ⚠ HTA2D15-125F | |
| 15xD | D | 17.565 | 19.463 | 19.603 | 21.743 | 2.280 | 1-1/4 | No | ⚠ HTA2D15-125C | |

Connection Accessories

| | | | | | |
|-------------|--------------|--------|----------|---------|-------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65 A25: 34 - 37 A25: 38 - 41

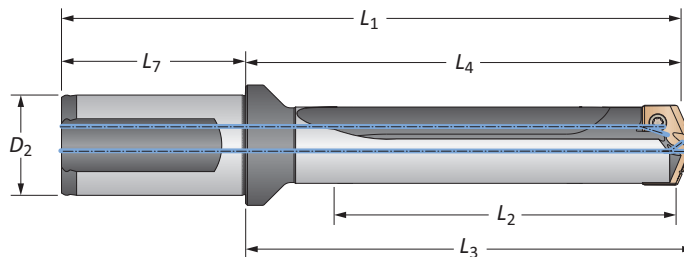
ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
F SPECIALS



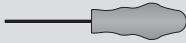


T-A Pro Drill Holders

2 Series Metric | Diameter Range: 24.38 mm - 35.04 mm



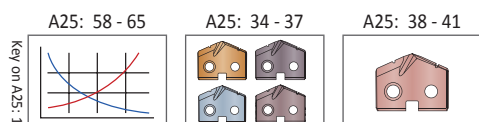
| Body | | | | | | Shank | | | Flat | Part No |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|--------------|---------|
| Length | Sub Series | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | | |
| STUB | A | 29.7 | 75.0 | 78.6 | 132.9 | 60.0 | 32 | Yes | HTA2A01-32FM | |
| STUB | A | 29.7 | 75.0 | 78.6 | 132.9 | 60.0 | 32 | No | HTA2A01-32CM | |
| STUB | B | 29.7 | 75.0 | 78.6 | 132.9 | 60.0 | 32 | Yes | HTA2B01-32FM | |
| STUB | B | 29.7 | 75.0 | 78.6 | 132.9 | 60.0 | 32 | No | HTA2B01-32CM | |
| STUB | C | 29.7 | 75.0 | 78.6 | 132.9 | 60.0 | 32 | Yes | HTA2C01-32FM | |
| STUB | C | 29.7 | 75.0 | 78.6 | 132.9 | 60.0 | 32 | No | HTA2C01-32CM | |
| STUB | D | 29.7 | 75.0 | 78.6 | 132.9 | 60.0 | 32 | Yes | HTA2D01-32FM | |
| STUB | D | 29.7 | 75.0 | 78.6 | 132.9 | 60.0 | 32 | No | HTA2D01-32CM | |
| 3xD | A | 89.2 | 137.4 | 141.0 | 195.4 | 60.0 | 32 | Yes | HTA2A03-32FM | |
| 3xD | A | 89.2 | 137.4 | 141.0 | 195.4 | 60.0 | 32 | No | HTA2A03-32CM | |
| 3xD | B | 89.2 | 137.4 | 141.0 | 195.4 | 60.0 | 32 | Yes | HTA2B03-32FM | |
| 3xD | B | 89.2 | 137.4 | 141.0 | 195.4 | 60.0 | 32 | No | HTA2B03-32CM | |
| 3xD | C | 89.2 | 137.4 | 141.0 | 195.4 | 60.0 | 32 | Yes | HTA2C03-32FM | |
| 3xD | C | 89.2 | 137.4 | 141.0 | 195.4 | 60.0 | 32 | No | HTA2C03-32CM | |
| 3xD | D | 89.2 | 137.4 | 141.0 | 195.4 | 60.0 | 32 | Yes | HTA2D03-32FM | |
| 3xD | D | 89.2 | 137.4 | 141.0 | 195.4 | 60.0 | 32 | No | HTA2D03-32CM | |
| 5xD | A | 148.7 | 196.9 | 200.5 | 254.8 | 60.0 | 32 | Yes | HTA2A05-32FM | |
| 5xD | A | 148.7 | 196.9 | 200.5 | 254.8 | 60.0 | 32 | No | HTA2A05-32CM | |
| 5xD | B | 148.7 | 196.9 | 200.5 | 254.8 | 60.0 | 32 | Yes | HTA2B05-32FM | |
| 5xD | B | 148.7 | 196.9 | 200.5 | 254.8 | 60.0 | 32 | No | HTA2B05-32CM | |
| 5xD | C | 148.7 | 196.9 | 200.5 | 254.8 | 60.0 | 32 | Yes | HTA2C05-32FM | |
| 5xD | C | 148.7 | 196.9 | 200.5 | 254.8 | 60.0 | 32 | No | HTA2C05-32CM | |
| 5xD | D | 148.7 | 196.9 | 200.5 | 254.8 | 60.0 | 32 | Yes | HTA2D05-32FM | |
| 5xD | D | 148.7 | 196.9 | 200.5 | 254.8 | 60.0 | 32 | No | HTA2D05-32CM | |
| 7xD | A | 208.2 | 256.4 | 260.0 | 314.3 | 60.0 | 32 | Yes | HTA2A07-32FM | |
| 7xD | A | 208.2 | 256.4 | 260.0 | 314.3 | 60.0 | 32 | No | HTA2A07-32CM | |
| 7xD | B | 208.2 | 256.4 | 260.0 | 314.3 | 60.0 | 32 | Yes | HTA2B07-32FM | |
| 7xD | B | 208.2 | 256.4 | 260.0 | 314.3 | 60.0 | 32 | No | HTA2B07-32CM | |
| 7xD | C | 208.2 | 256.4 | 260.0 | 314.3 | 60.0 | 32 | Yes | HTA2C07-32FM | |
| 7xD | C | 208.2 | 256.4 | 260.0 | 314.3 | 60.0 | 32 | No | HTA2C07-32CM | |
| 7xD | D | 208.2 | 256.4 | 260.0 | 314.3 | 60.0 | 32 | Yes | HTA2D07-32FM | |
| 7xD | D | 208.2 | 256.4 | 260.0 | 314.3 | 60.0 | 32 | No | HTA2D07-32CM | |

Connection Accessories

| | | | | | |
|---|---|---|---|---|-------------------------------|
|  |  |  |  |  | Admissible Tightening Torque* |
| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | |
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

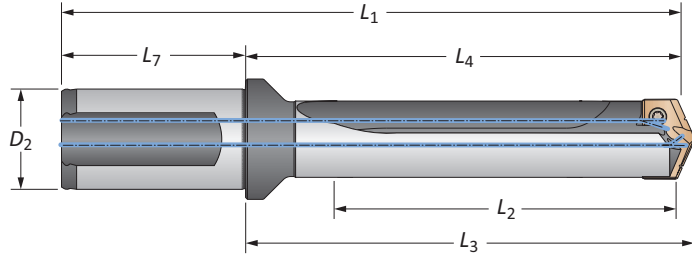


 = Imperial (in)
 = Metric (mm)

Screws sold in multiples of 10

T-A Pro Drill Holders

2 Series Metric | Diameter Range: 24.38 mm - 35.04 mm



| Length | Sub Series | Body | | | | Shank | | | Flat | Part No |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|----------------|---------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | | |
| 10xD | A | 297.4 | 345.6 | 349.2 | 403.6 | 60.0 | 32 | Yes | ⚠ HTA2A10-32FM | |
| 10xD | A | 297.4 | 345.6 | 349.2 | 403.6 | 60.0 | 32 | No | ⚠ HTA2A10-32CM | |
| 10xD | B | 297.4 | 345.6 | 349.2 | 403.6 | 60.0 | 32 | Yes | ⚠ HTA2B10-32FM | |
| 10xD | B | 297.4 | 345.6 | 349.2 | 403.6 | 60.0 | 32 | No | ⚠ HTA2B10-32CM | |
| 10xD | C | 297.4 | 345.6 | 349.2 | 403.6 | 60.0 | 32 | Yes | ⚠ HTA2C10-32FM | |
| 10xD | C | 297.4 | 345.6 | 349.2 | 403.6 | 60.0 | 32 | No | ⚠ HTA2C10-32CM | |
| 10xD | D | 297.4 | 345.6 | 349.2 | 403.6 | 60.0 | 32 | Yes | ⚠ HTA2D10-32FM | |
| 10xD | D | 297.4 | 345.6 | 349.2 | 403.6 | 60.0 | 32 | No | ⚠ HTA2D10-32CM | |
| 12xD | A | 356.9 | 405.1 | 408.7 | 463.0 | 60.0 | 32 | Yes | ⚠ HTA2A12-32FM | |
| 12xD | A | 356.9 | 405.1 | 408.7 | 463.0 | 60.0 | 32 | No | ⚠ HTA2A12-32CM | |
| 12xD | B | 356.9 | 405.1 | 408.7 | 463.0 | 60.0 | 32 | Yes | ⚠ HTA2B12-32FM | |
| 12xD | B | 356.9 | 405.1 | 408.7 | 463.0 | 60.0 | 32 | No | ⚠ HTA2B12-32CM | |
| 12xD | C | 356.9 | 405.1 | 408.7 | 463.0 | 60.0 | 32 | Yes | ⚠ HTA2C12-32FM | |
| 12xD | C | 356.9 | 405.1 | 408.7 | 463.0 | 60.0 | 32 | No | ⚠ HTA2C12-32CM | |
| 12xD | D | 356.9 | 405.1 | 408.7 | 463.0 | 60.0 | 32 | Yes | ⚠ HTA2D12-32FM | |
| 12xD | D | 356.9 | 405.1 | 408.7 | 463.0 | 60.0 | 32 | No | ⚠ HTA2D12-32CM | |
| 15xD | A | 446.2 | 494.4 | 497.9 | 552.3 | 60.0 | 32 | Yes | ⚠ HTA2A15-32FM | |
| 15xD | A | 446.2 | 494.4 | 497.9 | 552.3 | 60.0 | 32 | No | ⚠ HTA2A15-32CM | |
| 15xD | B | 446.2 | 494.4 | 497.9 | 552.3 | 60.0 | 32 | Yes | ⚠ HTA2B15-32FM | |
| 15xD | B | 446.2 | 494.4 | 497.9 | 552.3 | 60.0 | 32 | No | ⚠ HTA2B15-32CM | |
| 15xD | C | 446.2 | 494.4 | 497.9 | 552.3 | 60.0 | 32 | Yes | ⚠ HTA2C15-32FM | |
| 15xD | C | 446.2 | 494.4 | 497.9 | 552.3 | 60.0 | 32 | No | ⚠ HTA2C15-32CM | |
| 15xD | D | 446.2 | 494.4 | 497.9 | 552.3 | 60.0 | 32 | Yes | ⚠ HTA2D15-32FM | |
| 15xD | D | 446.2 | 494.4 | 497.9 | 552.3 | 60.0 | 32 | No | ⚠ HTA2D15-32CM | |

Connection Accessories

| | | | | | |
|-------------|--------------|--------|----------|---------|-------------------------------|
| | | | | | Admissible Tightening Torque* |
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65 A25: 34 - 37 A25: 38 - 41

Key on A25: 1

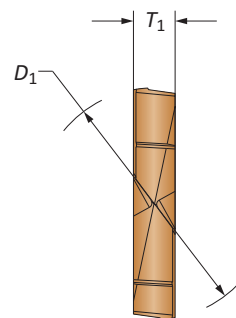
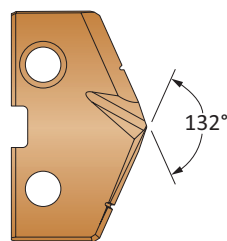
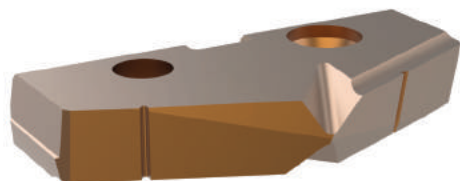
Ⓜ = Imperial (in)
Ⓜ = Metric (mm)





Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A Pro Carbide Drill Inserts

3 Series | Diameter Range: 1.3798" - 1.8820" (35.05 mm - 47.80 mm)



| Insert | | | | |  |  |  |  |
|--------|-----------------------|------------|----------|-------|---|--|---|---|
| Series | Fractional Equivalent | D_1 inch | D_1 mm | T_1 | Part No. P | Part No. K | Part No. N | Part No. M |
| 3-A | | 1.3819 | 35.10 | 1/4 | TAP3-35.10 | TAK3-35.10 | TAN3-35.10 | TAM3-35.10 |
| 3-A | | 1.3858 | 35.20 | 1/4 | TAP3-35.20 | TAK3-35.20 | TAN3-35.20 | TAM3-35.20 |
| 3-A | | 1.3898 | 35.30 | 1/4 | TAP3-35.30 | TAK3-35.30 | TAN3-35.30 | TAM3-35.30 |
| 3-A | | 1.3937 | 35.40 | 1/4 | TAP3-35.40 | TAK3-35.40 | TAN3-35.40 | TAM3-35.40 |
| 3-A | | 1.3976 | 35.50 | 1/4 | TAP3-35.50 | TAK3-35.50 | TAN3-35.50 | TAM3-35.50 |
| 3-A | | 1.4016 | 35.60 | 1/4 | TAP3-35.60 | TAK3-35.60 | TAN3-35.60 | TAM3-35.60 |
| 3-A | | 1.4055 | 35.70 | 1/4 | TAP3-35.70 | TAK3-35.70 | TAN3-35.70 | TAM3-35.70 |
| 3-A | 1-13/32 | 1.4063 | 35.72 | 1/4 | TAP3-35.72 | TAK3-35.72 | TAN3-35.72 | TAM3-35.72 |
| 3-A | | 1.4094 | 35.80 | 1/4 | TAP3-35.80 | TAK3-35.80 | TAN3-35.80 | TAM3-35.80 |
| 3-A | | 1.4134 | 35.90 | 1/4 | TAP3-35.90 | TAK3-35.90 | TAN3-35.90 | TAM3-35.90 |
| 3-A | | 1.4173 | 36.00 | 1/4 | TAP3-36.00 | TAK3-36.00 | TAN3-36.00 | TAM3-36.00 |
| 3-A | | 1.4213 | 36.10 | 1/4 | TAP3-36.10 | TAK3-36.10 | TAN3-36.10 | TAM3-36.10 |
| 3-A | | 1.4252 | 36.20 | 1/4 | TAP3-36.20 | TAK3-36.20 | TAN3-36.20 | TAM3-36.20 |
| 3-A | | 1.4291 | 36.30 | 1/4 | TAP3-36.30 | TAK3-36.30 | TAN3-36.30 | TAM3-36.30 |
| 3-A | | 1.4331 | 36.40 | 1/4 | TAP3-36.40 | TAK3-36.40 | TAN3-36.40 | TAM3-36.40 |
| 3-A | | 1.4370 | 36.50 | 1/4 | TAP3-36.50 | TAK3-36.50 | TAN3-36.50 | TAM3-36.50 |
| 3-A | 1-7/16 | 1.4374 | 36.51 | 1/4 | TAP3-36.51 | TAK3-36.51 | TAN3-36.51 | TAM3-36.51 |
| 3-A | | 1.4409 | 36.60 | 1/4 | TAP3-36.60 | TAK3-36.60 | TAN3-36.60 | TAM3-36.60 |
| 3-A | | 1.4449 | 36.70 | 1/4 | TAP3-36.70 | TAK3-36.70 | TAN3-36.70 | TAM3-36.70 |
| 3-A | | 1.4488 | 36.80 | 1/4 | TAP3-36.80 | TAK3-36.80 | TAN3-36.80 | TAM3-36.80 |
| 3-A | | 1.4528 | 36.90 | 1/4 | TAP3-36.90 | TAK3-36.90 | TAN3-36.90 | TAM3-36.90 |
| 3-A | | 1.4567 | 37.00 | 1/4 | TAP3-37.00 | TAK3-37.00 | TAN3-37.00 | TAM3-37.00 |
| 3-A | | 1.4606 | 37.10 | 1/4 | TAP3-37.10 | TAK3-37.10 | TAN3-37.10 | TAM3-37.10 |
| 3-A | | 1.4646 | 37.20 | 1/4 | TAP3-37.20 | TAK3-37.20 | TAN3-37.20 | TAM3-37.20 |
| 3-A | | 1.4685 | 37.30 | 1/4 | TAP3-37.30 | TAK3-37.30 | TAN3-37.30 | TAM3-37.30 |
| 3-A | 1-15/32 | 1.4689 | 37.31 | 1/4 | TAP3-37.31 | TAK3-37.31 | TAN3-37.31 | TAM3-37.31 |
| 3-A | | 1.4724 | 37.40 | 1/4 | TAP3-37.40 | TAK3-37.40 | TAN3-37.40 | TAM3-37.40 |
| 3-A | | 1.4764 | 37.50 | 1/4 | TAP3-37.50 | TAK3-37.50 | TAN3-37.50 | TAM3-37.50 |
| 3-A | | 1.4803 | 37.60 | 1/4 | TAP3-37.60 | TAK3-37.60 | TAN3-37.60 | TAM3-37.60 |
| 3-A | | 1.4843 | 37.70 | 1/4 | TAP3-37.70 | TAK3-37.70 | TAN3-37.70 | TAM3-37.70 |

Inserts sold in multiples of 1

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



C Series Insert +
A Series Holder



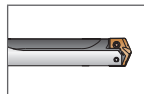
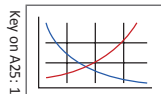
C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

A25: 58 - 65

A25: 54 - 57



Sizes not shown are available upon request.

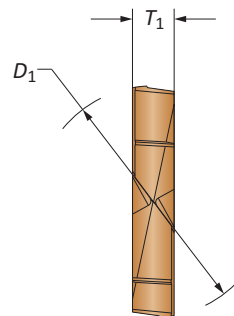
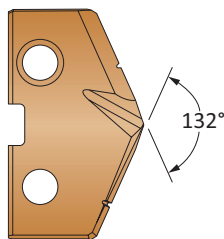
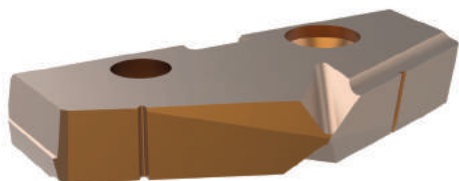
When ordering, please follow the example below:





| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |



T-A Pro Carbide Drill Inserts

3 Series | Diameter Range: 1.3798" - 1.8820" (35.05 mm - 47.80 mm)



| Series | Fractional Equivalent | Insert | | |  |  |  |  |
|--------|-----------------------|------------|----------|-------|---|--|---|---|
| | | D_1 inch | D_1 mm | T_1 | Part No. P | Part No. K | Part No. N | Part No. M |
| 3-B | | 1.4882 | 37.80 | 1/4 | TAP3-37.80 | TAK3-37.80 | TAN3-37.80 | TAM3-37.80 |
| 3-B | | 1.4921 | 37.90 | 1/4 | TAP3-37.90 | TAK3-37.90 | TAN3-37.90 | TAM3-37.90 |
| 3-B | | 1.4961 | 38.00 | 1/4 | TAP3-38.00 | TAK3-38.00 | TAN3-38.00 | TAM3-38.00 |
| 3-B | 1-1/2 | 1.5000 | 38.10 | 1/4 | TAP3-38.10 | TAK3-38.10 | TAN3-38.10 | TAM3-38.10 |
| 3-B | | 1.5039 | 38.20 | 1/4 | TAP3-38.20 | TAK3-38.20 | TAN3-38.20 | TAM3-38.20 |
| 3-B | | 1.5079 | 38.30 | 1/4 | TAP3-38.30 | TAK3-38.30 | TAN3-38.30 | TAM3-38.30 |
| 3-B | | 1.5118 | 38.40 | 1/4 | TAP3-38.40 | TAK3-38.40 | TAN3-38.40 | TAM3-38.40 |
| 3-B | | 1.5157 | 38.50 | 1/4 | TAP3-38.50 | TAK3-38.50 | TAN3-38.50 | TAM3-38.50 |
| 3-B | | 1.5197 | 38.60 | 1/4 | TAP3-38.60 | TAK3-38.60 | TAN3-38.60 | TAM3-38.60 |
| 3-B | | 1.5236 | 38.70 | 1/4 | TAP3-38.70 | TAK3-38.70 | TAN3-38.70 | TAM3-38.70 |
| 3-B | | 1.5276 | 38.80 | 1/4 | TAP3-38.80 | TAK3-38.80 | TAN3-38.80 | TAM3-38.80 |
| 3-B | 1-17/32 | 1.5311 | 38.89 | 1/4 | TAP3-38.89 | TAK3-38.89 | TAN3-38.89 | TAM3-38.89 |
| 3-B | | 1.5315 | 38.90 | 1/4 | TAP3-38.90 | TAK3-38.90 | TAN3-38.90 | TAM3-38.90 |
| 3-B | | 1.5354 | 39.00 | 1/4 | TAP3-39.00 | TAK3-39.00 | TAN3-39.00 | TAM3-39.00 |
| 3-B | | 1.5394 | 39.10 | 1/4 | TAP3-39.10 | TAK3-39.10 | TAN3-39.10 | TAM3-39.10 |
| 3-B | | 1.5433 | 39.20 | 1/4 | TAP3-39.20 | TAK3-39.20 | TAN3-39.20 | TAM3-39.20 |
| 3-B | | 1.5469 | 39.29 | 1/4 | TAP3-39.29 | TAK3-39.29 | TAN3-39.29 | TAM3-39.29 |
| 3-B | | 1.5472 | 39.30 | 1/4 | TAP3-39.30 | TAK3-39.30 | TAN3-39.30 | TAM3-39.30 |
| 3-B | | 1.5512 | 39.40 | 1/4 | TAP3-39.40 | TAK3-39.40 | TAN3-39.40 | TAM3-39.40 |
| 3-B | | 1.5551 | 39.50 | 1/4 | TAP3-39.50 | TAK3-39.50 | TAN3-39.50 | TAM3-39.50 |
| 3-B | | 1.5591 | 39.60 | 1/4 | TAP3-39.60 | TAK3-39.60 | TAN3-39.60 | TAM3-39.60 |
| 3-B | 1-9/16 | 1.5626 | 39.69 | 1/4 | TAP3-39.69 | TAK3-39.69 | TAN3-39.69 | TAM3-39.69 |
| 3-B | | 1.5630 | 39.70 | 1/4 | TAP3-39.70 | TAK3-39.70 | TAN3-39.70 | TAM3-39.70 |
| 3-B | | 1.5669 | 39.80 | 1/4 | TAP3-39.80 | TAK3-39.80 | TAN3-39.80 | TAM3-39.80 |
| 3-B | | 1.5709 | 39.90 | 1/4 | TAP3-39.90 | TAK3-39.90 | TAN3-39.90 | TAM3-39.90 |
| 3-B | | 1.5748 | 40.00 | 1/4 | TAP3-40.00 | TAK3-40.00 | TAN3-40.00 | TAM3-40.00 |
| 3-B | | 1.5787 | 40.10 | 1/4 | TAP3-40.10 | TAK3-40.10 | TAN3-40.10 | TAM3-40.10 |
| 3-B | | 1.5827 | 40.20 | 1/4 | TAP3-40.20 | TAK3-40.20 | TAN3-40.20 | TAM3-40.20 |
| 3-B | | 1.5866 | 40.30 | 1/4 | TAP3-40.30 | TAK3-40.30 | TAN3-40.30 | TAM3-40.30 |
| 3-B | | 1.5906 | 40.40 | 1/4 | TAP3-40.40 | TAK3-40.40 | TAN3-40.40 | TAM3-40.40 |
| 3-B | 1-19/32 | 1.5937 | 40.48 | 1/4 | TAP3-40.48 | TAK3-40.48 | TAN3-40.48 | TAM3-40.48 |
| 3-B | | 1.5945 | 40.50 | 1/4 | TAP3-40.50 | TAK3-40.50 | TAN3-40.50 | TAM3-40.50 |
| 3-B | | 1.5984 | 40.60 | 1/4 | TAP3-40.60 | TAK3-40.60 | TAN3-40.60 | TAM3-40.60 |
| 3-B | | 1.6024 | 40.70 | 1/4 | TAP3-40.70 | TAK3-40.70 | TAN3-40.70 | TAM3-40.70 |
| 3-B | | 1.6063 | 40.80 | 1/4 | TAP3-40.80 | TAK3-40.80 | TAN3-40.80 | TAM3-40.80 |
| 3-B | | 1.6102 | 40.90 | 1/4 | TAP3-40.90 | TAK3-40.90 | TAN3-40.90 | TAM3-40.90 |

Inserts sold in multiples of 1

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



C Series Insert + A Series Holder



C Series Insert + C Series Holder

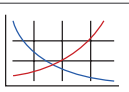


A Series Insert + C Series Holder

A25: 58 - 65

A25: 54 - 57

Key on A25: 1

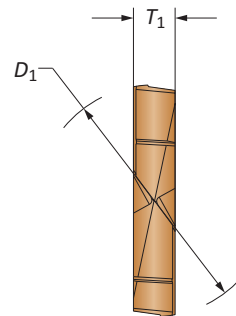
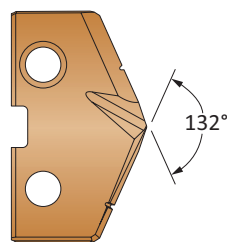
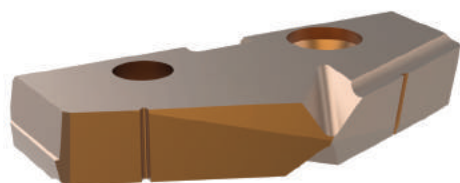






Sizes not shown are available upon request. When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro Carbide Drill Inserts

3 Series | Diameter Range: 1.3798" - 1.8820" (35.05 mm - 47.80 mm)



| Insert | | | | |  |  |  |  |
|--------|-----------------------|---------------------|-------------------|----------------|---|--|---|---|
| Series | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | Part No. P | Part No. K | Part No. N | Part No. M |
| 3-C | | 1.6142 | 41.00 | 1/4 | TAP3-41.00 | TAK3-41.00 | TAN3-41.00 | TAM3-41.00 |
| 3-C | | 1.6181 | 41.10 | 1/4 | TAP3-41.10 | TAK3-41.10 | TAN3-41.10 | TAM3-41.10 |
| 3-C | | 1.6220 | 41.20 | 1/4 | TAP3-41.20 | TAK3-41.20 | TAN3-41.20 | TAM3-41.20 |
| 3-C | 1-5/8 | 1.6252 | 41.28 | 1/4 | TAP3-41.28 | TAK3-41.28 | TAN3-41.28 | TAM3-41.28 |
| 3-C | | 1.6260 | 41.30 | 1/4 | TAP3-41.30 | TAK3-41.30 | TAN3-41.30 | TAM3-41.30 |
| 3-C | | 1.6299 | 41.40 | 1/4 | TAP3-41.40 | TAK3-41.40 | TAN3-41.40 | TAM3-41.40 |
| 3-C | | 1.6339 | 41.50 | 1/4 | TAP3-41.50 | TAK3-41.50 | TAN3-41.50 | TAM3-41.50 |
| 3-C | | 1.6378 | 41.60 | 1/4 | TAP3-41.60 | TAK3-41.60 | TAN3-41.60 | TAM3-41.60 |
| 3-C | | 1.6417 | 41.70 | 1/4 | TAP3-41.70 | TAK3-41.70 | TAN3-41.70 | TAM3-41.70 |
| 3-C | | 1.6457 | 41.80 | 1/4 | TAP3-41.80 | TAK3-41.80 | TAN3-41.80 | TAM3-41.80 |
| 3-C | | 1.6496 | 41.90 | 1/4 | TAP3-41.90 | TAK3-41.90 | TAN3-41.90 | TAM3-41.90 |
| 3-C | | 1.6535 | 42.00 | 1/4 | TAP3-42.00 | TAK3-42.00 | TAN3-42.00 | TAM3-42.00 |
| 3-C | 1-21/32 | 1.6563 | 42.07 | 1/4 | TAP3-42.07 | TAK3-42.07 | TAN3-42.07 | TAM3-42.07 |
| 3-C | | 1.6575 | 42.10 | 1/4 | TAP3-42.10 | TAK3-42.10 | TAN3-42.10 | TAM3-42.10 |
| 3-C | | 1.6614 | 42.20 | 1/4 | TAP3-42.20 | TAK3-42.20 | TAN3-42.20 | TAM3-42.20 |
| 3-C | | 1.6654 | 42.30 | 1/4 | TAP3-42.30 | TAK3-42.30 | TAN3-42.30 | TAM3-42.30 |
| 3-C | | 1.6693 | 42.40 | 1/4 | TAP3-42.40 | TAK3-42.40 | TAN3-42.40 | TAM3-42.40 |
| 3-C | | 1.6732 | 42.50 | 1/4 | TAP3-42.50 | TAK3-42.50 | TAN3-42.50 | TAM3-42.50 |
| 3-C | | 1.6772 | 42.60 | 1/4 | TAP3-42.60 | TAK3-42.60 | TAN3-42.60 | TAM3-42.60 |
| 3-C | | 1.6811 | 42.70 | 1/4 | TAP3-42.70 | TAK3-42.70 | TAN3-42.70 | TAM3-42.70 |
| 3-C | | 1.6850 | 42.80 | 1/4 | TAP3-42.80 | TAK3-42.80 | TAN3-42.80 | TAM3-42.80 |
| 3-C | 1-11/16 | 1.6874 | 42.86 | 1/4 | TAP3-42.86 | TAK3-42.86 | TAN3-42.86 | TAM3-42.86 |
| 3-C | | 1.6890 | 42.90 | 1/4 | TAP3-42.90 | TAK3-42.90 | TAN3-42.90 | TAM3-42.90 |
| 3-C | | 1.6929 | 43.00 | 1/4 | TAP3-43.00 | TAK3-43.00 | TAN3-43.00 | TAM3-43.00 |
| 3-C | | 1.6969 | 43.10 | 1/4 | TAP3-43.10 | TAK3-43.10 | TAN3-43.10 | TAM3-43.10 |
| 3-C | | 1.7008 | 43.20 | 1/4 | TAP3-43.20 | TAK3-43.20 | TAN3-43.20 | TAM3-43.20 |
| 3-C | | 1.7047 | 43.30 | 1/4 | TAP3-43.30 | TAK3-43.30 | TAN3-43.30 | TAM3-43.30 |
| 3-C | | 1.7087 | 43.40 | 1/4 | TAP3-43.40 | TAK3-43.40 | TAN3-43.40 | TAM3-43.40 |
| 3-C | | 1.7126 | 43.50 | 1/4 | TAP3-43.50 | TAK3-43.50 | TAN3-43.50 | TAM3-43.50 |
| 3-C | | 1.7165 | 43.60 | 1/4 | TAP3-43.60 | TAK3-43.60 | TAN3-43.60 | TAM3-43.60 |
| 3-C | 1-23/32 | 1.7189 | 43.66 | 1/4 | TAP3-43.66 | TAK3-43.66 | TAN3-43.66 | TAM3-43.66 |
| 3-C | | 1.7205 | 43.70 | 1/4 | TAP3-43.70 | TAK3-43.70 | TAN3-43.70 | TAM3-43.70 |
| 3-C | | 1.7244 | 43.80 | 1/4 | TAP3-43.80 | TAK3-43.80 | TAN3-43.80 | TAM3-43.80 |
| 3-C | | 1.7283 | 43.90 | 1/4 | TAP3-43.90 | TAK3-43.90 | TAN3-43.90 | TAM3-43.90 |
| 3-C | | 1.7323 | 44.00 | 1/4 | TAP3-44.00 | TAK3-44.00 | TAN3-44.00 | TAM3-44.00 |
| 3-C | | 1.7362 | 44.10 | 1/4 | TAP3-44.10 | TAK3-44.10 | TAN3-44.10 | TAM3-44.10 |
| 3-C | | 1.7402 | 44.20 | 1/4 | TAP3-44.20 | TAK3-44.20 | TAN3-44.20 | TAM3-44.20 |
| 3-C | | 1.7441 | 44.30 | 1/4 | TAP3-44.30 | TAK3-44.30 | TAN3-44.30 | TAM3-44.30 |

Inserts sold in multiples of 1

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



C Series Insert + A Series Holder



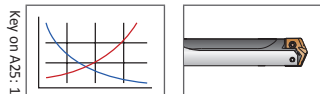
C Series Insert + C Series Holder



A Series Insert + C Series Holder

A25: 58 - 65

A25: 54 - 57

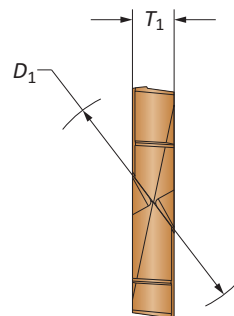
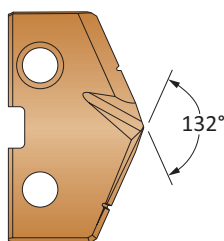
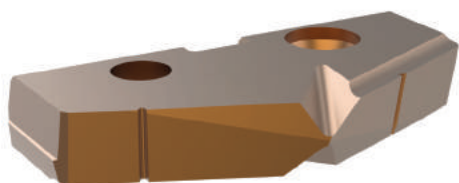






Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro Carbide Drill Inserts

3 Series | Diameter Range: 1.3798" - 1.8820" (35.05 mm - 47.80 mm)



| Insert | | | | |  |  |  |  |
|--------|-----------------------|---------------------|-------------------|----------------|---|--|---|---|
| Series | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | Part No. P | Part No. K | Part No. N | Part No. M |
| 3-D | | 1.7480 | 44.40 | 1/4 | TAP3-44.40 | TAK3-44.40 | TAN3-44.40 | TAM3-44.40 |
| 3-D | 1-3/4 | 1.7500 | 44.45 | 1/4 | TAP3-44.45 | TAK3-44.45 | TAN3-44.45 | TAM3-44.45 |
| 3-D | | 1.7520 | 44.50 | 1/4 | TAP3-44.50 | TAK3-44.50 | TAN3-44.50 | TAM3-44.50 |
| 3-D | | 1.7559 | 44.60 | 1/4 | TAP3-44.60 | TAK3-44.60 | TAN3-44.60 | TAM3-44.60 |
| 3-D | | 1.7598 | 44.70 | 1/4 | TAP3-44.70 | TAK3-44.70 | TAN3-44.70 | TAM3-44.70 |
| 3-D | | 1.7638 | 44.80 | 1/4 | TAP3-44.80 | TAK3-44.80 | TAN3-44.80 | TAM3-44.80 |
| 3-D | | 1.7677 | 44.90 | 1/4 | TAP3-44.90 | TAK3-44.90 | TAN3-44.90 | TAM3-44.90 |
| 3-D | | 1.7717 | 45.00 | 1/4 | TAP3-45.00 | TAK3-45.00 | TAN3-45.00 | TAM3-45.00 |
| 3-D | | 1.7756 | 45.10 | 1/4 | TAP3-45.10 | TAK3-45.10 | TAN3-45.10 | TAM3-45.10 |
| 3-D | | 1.7795 | 45.20 | 1/4 | TAP3-45.20 | TAK3-45.20 | TAN3-45.20 | TAM3-45.20 |
| 3-D | 1-25/32 | 1.7811 | 45.24 | 1/4 | TAP3-45.24 | TAK3-45.24 | TAN3-45.24 | TAM3-45.24 |
| 3-D | | 1.7835 | 45.30 | 1/4 | TAP3-45.30 | TAK3-45.30 | TAN3-45.30 | TAM3-45.30 |
| 3-D | | 1.7874 | 45.40 | 1/4 | TAP3-45.40 | TAK3-45.40 | TAN3-45.40 | TAM3-45.40 |
| 3-D | | 1.7913 | 45.50 | 1/4 | TAP3-45.50 | TAK3-45.50 | TAN3-45.50 | TAM3-45.50 |
| 3-D | | 1.7913 | 45.50 | 1/4 | TAP3-45.50 | TAK3-45.50 | TAN3-45.50 | TAM3-45.50 |
| 3-D | | 1.7953 | 45.60 | 1/4 | TAP3-45.60 | TAK3-45.60 | TAN3-45.60 | TAM3-45.60 |
| 3-D | | 1.7969 | 45.64 | 1/4 | TAP3-45.64 | TAK3-45.64 | TAN3-45.64 | TAM3-45.64 |
| 3-D | | 1.7992 | 45.70 | 1/4 | TAP3-45.70 | TAK3-45.70 | TAN3-45.70 | TAM3-45.70 |
| 3-D | | 1.8031 | 45.80 | 1/4 | TAP3-45.80 | TAK3-45.80 | TAN3-45.80 | TAM3-45.80 |
| 3-D | | 1.8071 | 45.90 | 1/4 | TAP3-45.90 | TAK3-45.90 | TAN3-45.90 | TAM3-45.90 |
| 3-D | | 1.8110 | 46.00 | 1/4 | TAP3-46.00 | TAK3-46.00 | TAN3-46.00 | TAM3-46.00 |
| 3-D | 1-13/16 | 1.8126 | 46.04 | 1/4 | TAP3-46.04 | TAK3-46.04 | TAN3-46.04 | TAM3-46.04 |
| 3-D | | 1.8150 | 46.10 | 1/4 | TAP3-46.10 | TAK3-46.10 | TAN3-46.10 | TAM3-46.10 |
| 3-D | | 1.8189 | 46.20 | 1/4 | TAP3-46.20 | TAK3-46.20 | TAN3-46.20 | TAM3-46.20 |
| 3-D | | 1.8228 | 46.30 | 1/4 | TAP3-46.30 | TAK3-46.30 | TAN3-46.30 | TAM3-46.30 |
| 3-D | | 1.8268 | 46.40 | 1/4 | TAP3-46.40 | TAK3-46.40 | TAN3-46.40 | TAM3-46.40 |
| 3-D | | 1.8307 | 46.50 | 1/4 | TAP3-46.50 | TAK3-46.50 | TAN3-46.50 | TAM3-46.50 |
| 3-D | | 1.8346 | 46.60 | 1/4 | TAP3-46.60 | TAK3-46.60 | TAN3-46.60 | TAM3-46.60 |
| 3-D | | 1.8386 | 46.70 | 1/4 | TAP3-46.70 | TAK3-46.70 | TAN3-46.70 | TAM3-46.70 |
| 3-D | | 1.8425 | 46.80 | 1/4 | TAP3-46.80 | TAK3-46.80 | TAN3-46.80 | TAM3-46.80 |
| 3-D | 1-27/32 | 1.8437 | 46.83 | 1/4 | TAP3-46.83 | TAK3-46.83 | TAN3-46.83 | TAM3-46.83 |
| 3-D | | 1.8465 | 46.90 | 1/4 | TAP3-46.90 | TAK3-46.90 | TAN3-46.90 | TAM3-46.90 |
| 3-D | | 1.8504 | 47.00 | 1/4 | TAP3-47.00 | TAK3-47.00 | TAN3-47.00 | TAM3-47.00 |
| 3-D | | 1.8543 | 47.10 | 1/4 | TAP3-47.10 | TAK3-47.10 | TAN3-47.10 | TAM3-47.10 |
| 3-D | | 1.8583 | 47.20 | 1/4 | TAP3-47.20 | TAK3-47.20 | TAN3-47.20 | TAM3-47.20 |
| 3-D | | 1.8622 | 47.30 | 1/4 | TAP3-47.30 | TAK3-47.30 | TAN3-47.30 | TAM3-47.30 |
| 3-D | | 1.8661 | 47.40 | 1/4 | TAP3-47.40 | TAK3-47.40 | TAN3-47.40 | TAM3-47.40 |
| 3-D | | 1.8701 | 47.50 | 1/4 | TAP3-47.50 | TAK3-47.50 | TAN3-47.50 | TAM3-47.50 |
| 3-D | | 1.8740 | 47.60 | 1/4 | TAP3-47.60 | TAK3-47.60 | TAN3-47.60 | TAM3-47.60 |
| 3-D | 1-7/8 | 1.8752 | 47.63 | 1/4 | TAP3-47.63 | TAK3-47.63 | TAN3-47.63 | TAM3-47.63 |

Inserts sold in multiples of 1

Sub Series Holders (A, B, C, D)

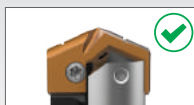
Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



C Series Insert + A Series Holder



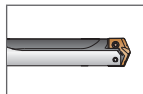
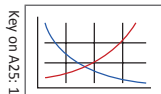
C Series Insert + C Series Holder



A Series Insert + C Series Holder

A25: 58 - 65

A25: 54 - 57



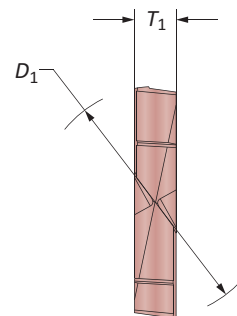
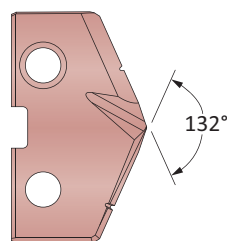
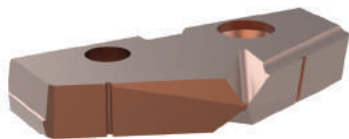
Sizes not shown are available upon request.


When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro HSS Drill Inserts

3 Series | Diameter Range: 1.3798" - 1.8820" (35.05 mm - 47.80 mm)



| Insert | | | | |  |
|--------|-----------------------|---------------------|-------------------|----------------|---|
| Series | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | Part No. |
| 3-A | | 1.3819 | 35.10 | 1/4 | X TAX3-35.10 |
| 3-A | | 1.3858 | 35.20 | 1/4 | TAX3-35.20 |
| 3-A | | 1.3898 | 35.30 | 1/4 | TAX3-35.30 |
| 3-A | | 1.3937 | 35.40 | 1/4 | TAX3-35.40 |
| 3-A | | 1.3976 | 35.50 | 1/4 | TAX3-35.50 |
| 3-A | | 1.4016 | 35.60 | 1/4 | TAX3-35.60 |
| 3-A | | 1.4055 | 35.70 | 1/4 | TAX3-35.70 |
| 3-A | 1-13/32 | 1.4063 | 35.72 | 1/4 | TAX3-35.72 |
| 3-A | | 1.4094 | 35.80 | 1/4 | TAX3-35.80 |
| 3-A | | 1.4134 | 35.90 | 1/4 | TAX3-35.90 |
| 3-A | | 1.4173 | 36.00 | 1/4 | TAX3-36.00 |
| 3-A | | 1.4213 | 36.10 | 1/4 | TAX3-36.10 |
| 3-A | | 1.4252 | 36.20 | 1/4 | TAX3-36.20 |
| 3-A | | 1.4291 | 36.30 | 1/4 | TAX3-36.30 |
| 3-A | | 1.4331 | 36.40 | 1/4 | TAX3-36.40 |
| 3-A | | 1.4370 | 36.50 | 1/4 | TAX3-36.50 |
| 3-A | 1-7/16 | 1.4374 | 36.51 | 1/4 | TAX3-36.51 |
| 3-A | | 1.4409 | 36.60 | 1/4 | TAX3-36.60 |
| 3-A | | 1.4449 | 36.70 | 1/4 | TAX3-36.70 |
| 3-A | | 1.4488 | 36.80 | 1/4 | TAX3-36.80 |
| 3-A | | 1.4528 | 36.90 | 1/4 | TAX3-36.90 |
| 3-A | | 1.4567 | 37.00 | 1/4 | TAX3-37.00 |
| 3-A | | 1.4606 | 37.10 | 1/4 | TAX3-37.10 |
| 3-A | | 1.4646 | 37.20 | 1/4 | TAX3-37.20 |
| 3-A | | 1.4685 | 37.30 | 1/4 | TAX3-37.30 |
| 3-A | 1-15/32 | 1.4689 | 37.31 | 1/4 | TAX3-37.31 |
| 3-A | | 1.4724 | 37.40 | 1/4 | TAX3-37.40 |
| 3-A | | 1.4764 | 37.50 | 1/4 | TAX3-37.50 |
| 3-A | | 1.4803 | 37.60 | 1/4 | TAX3-37.60 |
| 3-A | | 1.4843 | 37.70 | 1/4 | TAX3-37.70 |

Inserts sold in multiples of 1

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



C Series Insert +
A Series Holder



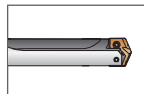
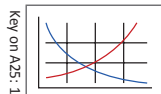
C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

A25: 58 - 65

A25: 54 - 57

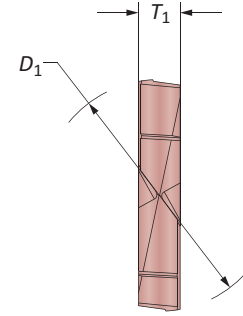
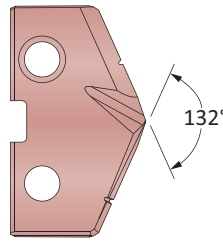
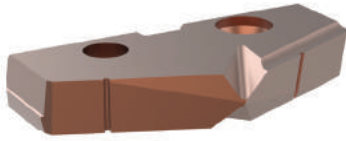


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro HSS Drill Inserts

3 Series | Diameter Range: 1.3798" - 1.8820" (35.05 mm - 47.80 mm)



| Series | Fractional Equivalent | Insert | | | Part No. |
|--------|-----------------------|---------------------|-------------------|----------------|------------|
| | | D ₁ inch | D ₁ mm | T ₁ | |
| 3-B | | 1.4882 | 37.80 | 1/4 | TAX3-37.80 |
| 3-B | | 1.4921 | 37.90 | 1/4 | TAX3-37.90 |
| 3-B | | 1.4961 | 38.00 | 1/4 | TAX3-38.00 |
| 3-B | 1-1/2 | 1.5000 | 38.10 | 1/4 | TAX3-38.10 |
| 3-B | | 1.5039 | 38.20 | 1/4 | TAX3-38.20 |
| 3-B | | 1.5079 | 38.30 | 1/4 | TAX3-38.30 |
| 3-B | | 1.5118 | 38.40 | 1/4 | TAX3-38.40 |
| 3-B | | 1.5157 | 38.50 | 1/4 | TAX3-38.50 |
| 3-B | | 1.5197 | 38.60 | 1/4 | TAX3-38.60 |
| 3-B | | 1.5236 | 38.70 | 1/4 | TAX3-38.70 |
| 3-B | | 1.5276 | 38.80 | 1/4 | TAX3-38.80 |
| 3-B | 1-17/32 | 1.5311 | 38.89 | 1/4 | TAX3-38.89 |
| 3-B | | 1.5315 | 38.90 | 1/4 | TAX3-38.90 |
| 3-B | | 1.5354 | 39.00 | 1/4 | TAX3-39.00 |
| 3-B | | 1.5394 | 39.10 | 1/4 | TAX3-39.10 |
| 3-B | | 1.5433 | 39.20 | 1/4 | TAX3-39.20 |
| 3-B | | 1.5469 | 39.29 | 1/4 | TAX3-39.29 |
| 3-B | | 1.5472 | 39.30 | 1/4 | TAX3-39.30 |
| 3-B | | 1.5512 | 39.40 | 1/4 | TAX3-39.40 |
| 3-B | | 1.5551 | 39.50 | 1/4 | TAX3-39.50 |
| 3-B | | 1.5591 | 39.60 | 1/4 | TAX3-39.60 |
| 3-B | 1-9/16 | 1.5626 | 39.69 | 1/4 | TAX3-39.69 |
| 3-B | | 1.5630 | 39.70 | 1/4 | TAX3-39.70 |
| 3-B | | 1.5669 | 39.80 | 1/4 | TAX3-39.80 |
| 3-B | | 1.5709 | 39.90 | 1/4 | TAX3-39.90 |
| 3-B | | 1.5748 | 40.00 | 1/4 | TAX3-40.00 |
| 3-B | | 1.5787 | 40.10 | 1/4 | TAX3-40.10 |
| 3-B | | 1.5827 | 40.20 | 1/4 | TAX3-40.20 |
| 3-B | | 1.5866 | 40.30 | 1/4 | TAX3-40.30 |
| 3-B | | 1.5906 | 40.40 | 1/4 | TAX3-40.40 |
| 3-B | 1-19/32 | 1.5937 | 40.48 | 1/4 | TAX3-40.48 |
| 3-B | | 1.5945 | 40.50 | 1/4 | TAX3-40.50 |
| 3-B | | 1.5984 | 40.60 | 1/4 | TAX3-40.60 |
| 3-B | | 1.6024 | 40.70 | 1/4 | TAX3-40.70 |
| 3-B | | 1.6063 | 40.80 | 1/4 | TAX3-40.80 |
| 3-B | | 1.6102 | 40.90 | 1/4 | TAX3-40.90 |

Inserts sold in multiples of 1

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



C Series Insert + A Series Holder



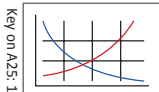
C Series Insert + C Series Holder



A Series Insert + C Series Holder

A25: 58 - 65

A25: 54 - 57

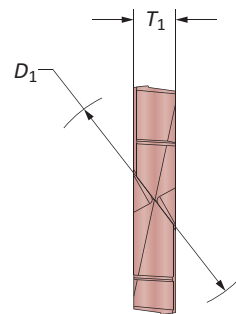
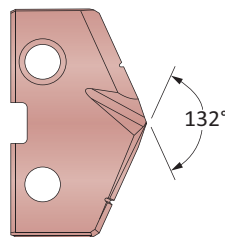
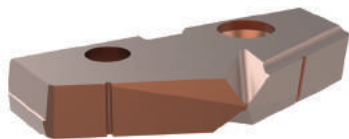



Sizes not shown are available upon request. When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |

T-A Pro HSS Drill Inserts

3 Series | Diameter Range: 1.3798" - 1.8820" (35.05 mm - 47.80 mm)



| Insert | | | | |  |
|--------|-----------------------|---------------------|-------------------|----------------|---|
| Series | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | Part No. |
| 3-C | | 1.6142 | 41.00 | 1/4 | X TAX3-41.00 |
| 3-C | | 1.6181 | 41.10 | 1/4 | TAX3-41.10 |
| 3-C | | 1.6220 | 41.20 | 1/4 | TAX3-41.20 |
| 3-C | 1-5/8 | 1.6252 | 41.28 | 1/4 | TAX3-41.28 |
| 3-C | | 1.6260 | 41.30 | 1/4 | TAX3-41.30 |
| 3-C | | 1.6299 | 41.40 | 1/4 | TAX3-41.40 |
| 3-C | | 1.6339 | 41.50 | 1/4 | TAX3-41.50 |
| 3-C | | 1.6378 | 41.60 | 1/4 | TAX3-41.60 |
| 3-C | | 1.6417 | 41.70 | 1/4 | TAX3-41.70 |
| 3-C | | 1.6457 | 41.80 | 1/4 | TAX3-41.80 |
| 3-C | | 1.6496 | 41.90 | 1/4 | TAX3-41.90 |
| 3-C | | 1.6535 | 42.00 | 1/4 | TAX3-42.00 |
| 3-C | 1-21/32 | 1.6563 | 42.07 | 1/4 | TAX3-42.07 |
| 3-C | | 1.6575 | 42.10 | 1/4 | TAX3-42.10 |
| 3-C | | 1.6614 | 42.20 | 1/4 | TAX3-42.20 |
| 3-C | | 1.6654 | 42.30 | 1/4 | TAX3-42.30 |
| 3-C | | 1.6693 | 42.40 | 1/4 | TAX3-42.40 |
| 3-C | | 1.6732 | 42.50 | 1/4 | TAX3-42.50 |
| 3-C | | 1.6772 | 42.60 | 1/4 | TAX3-42.60 |
| 3-C | | 1.6811 | 42.70 | 1/4 | TAX3-42.70 |
| 3-C | | 1.6850 | 42.80 | 1/4 | TAX3-42.80 |
| 3-C | 1-11/16 | 1.6874 | 42.86 | 1/4 | TAX3-42.86 |
| 3-C | | 1.6890 | 42.90 | 1/4 | TAX3-42.90 |
| 3-C | | 1.6929 | 43.00 | 1/4 | TAX3-43.00 |
| 3-C | | 1.6969 | 43.10 | 1/4 | TAX3-43.10 |
| 3-C | | 1.7008 | 43.20 | 1/4 | TAX3-43.20 |
| 3-C | | 1.7047 | 43.30 | 1/4 | TAX3-43.30 |
| 3-C | | 1.7087 | 43.40 | 1/4 | TAX3-43.40 |
| 3-C | | 1.7126 | 43.50 | 1/4 | TAX3-43.50 |
| 3-C | | 1.7165 | 43.60 | 1/4 | TAX3-43.60 |
| 3-C | 1-23/32 | 1.7189 | 43.66 | 1/4 | TAX3-43.66 |
| 3-C | | 1.7205 | 43.70 | 1/4 | TAX3-43.70 |
| 3-C | | 1.7244 | 43.80 | 1/4 | TAX3-43.80 |
| 3-C | | 1.7283 | 43.90 | 1/4 | TAX3-43.90 |
| 3-C | | 1.7323 | 44.00 | 1/4 | TAX3-44.00 |
| 3-C | | 1.7362 | 44.10 | 1/4 | TAX3-44.10 |
| 3-C | | 1.7402 | 44.20 | 1/4 | TAX3-44.20 |
| 3-C | | 1.7441 | 44.30 | 1/4 | TAX3-44.30 |

Inserts sold in multiples of 1

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert +
A Series Holder



C Series Insert +
A Series Holder



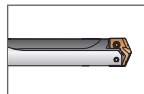
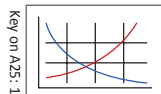
C Series Insert +
C Series Holder



A Series Insert +
C Series Holder

A25: 58 - 65

A25: 54 - 57



Sizes not shown are available upon request.

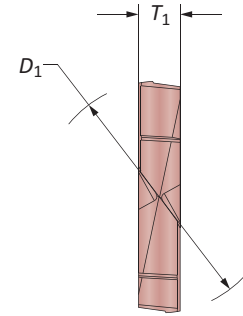
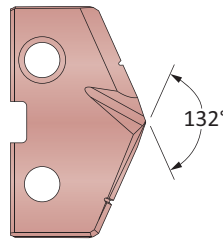
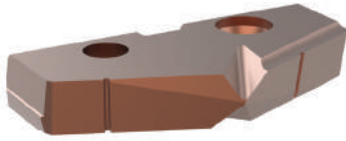
When ordering, please follow the example below:


| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |



T-A Pro HSS Drill Inserts

3 Series | Diameter Range: 1.3798" - 1.8820" (35.05 mm - 47.80 mm)



| Insert | | | | |  |
|--------|-----------------------|---------------------|-------------------|----------------|---|
| Series | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | Part No. X |
| 3-D | | 1.7480 | 44.40 | 1/4 | TAX3-44.40 |
| 3-D | 1-3/4 | 1.7500 | 44.45 | 1/4 | TAX3-44.45 |
| 3-D | | 1.7520 | 44.50 | 1/4 | TAX3-44.50 |
| 3-D | | 1.7559 | 44.60 | 1/4 | TAX3-44.60 |
| 3-D | | 1.7598 | 44.70 | 1/4 | TAX3-44.70 |
| 3-D | | 1.7638 | 44.80 | 1/4 | TAX3-44.80 |
| 3-D | | 1.7677 | 44.90 | 1/4 | TAX3-44.90 |
| 3-D | | 1.7717 | 45.00 | 1/4 | TAX3-45.00 |
| 3-D | | 1.7756 | 45.10 | 1/4 | TAX3-45.10 |
| 3-D | | 1.7795 | 45.20 | 1/4 | TAX3-45.20 |
| 3-D | 1-25/32 | 1.7811 | 45.24 | 1/4 | TAX3-45.24 |
| 3-D | | 1.7835 | 45.30 | 1/4 | TAX3-45.30 |
| 3-D | | 1.7874 | 45.40 | 1/4 | TAX3-45.40 |
| 3-D | | 1.7913 | 45.50 | 1/4 | TAX3-45.50 |
| 3-D | | 1.7913 | 45.50 | 1/4 | TAX3-45.50 |
| 3-D | | 1.7953 | 45.60 | 1/4 | TAX3-45.60 |
| 3-D | | 1.7969 | 45.64 | 1/4 | TAX3-45.64 |
| 3-D | | 1.7992 | 45.70 | 1/4 | TAX3-45.70 |
| 3-D | | 1.8031 | 45.80 | 1/4 | TAX3-45.80 |
| 3-D | | 1.8071 | 45.90 | 1/4 | TAX3-45.90 |
| 3-D | | 1.8110 | 46.00 | 1/4 | TAX3-46.00 |
| 3-D | 1-13/16 | 1.8126 | 46.04 | 1/4 | TAX3-46.04 |
| 3-D | | 1.8150 | 46.10 | 1/4 | TAX3-46.10 |
| 3-D | | 1.8189 | 46.20 | 1/4 | TAX3-46.20 |
| 3-D | | 1.8228 | 46.30 | 1/4 | TAX3-46.30 |
| 3-D | | 1.8268 | 46.40 | 1/4 | TAX3-46.40 |
| 3-D | | 1.8307 | 46.50 | 1/4 | TAX3-46.50 |
| 3-D | | 1.8346 | 46.60 | 1/4 | TAX3-46.60 |
| 3-D | | 1.8386 | 46.70 | 1/4 | TAX3-46.70 |
| 3-D | | 1.8425 | 46.80 | 1/4 | TAX3-46.80 |
| 3-D | 1-27/32 | 1.8437 | 46.83 | 1/4 | TAX3-46.83 |
| 3-D | | 1.8465 | 46.90 | 1/4 | TAX3-46.90 |
| 3-D | | 1.8504 | 47.00 | 1/4 | TAX3-47.00 |
| 3-D | | 1.8543 | 47.10 | 1/4 | TAX3-47.10 |
| 3-D | | 1.8583 | 47.20 | 1/4 | TAX3-47.20 |
| 3-D | | 1.8622 | 47.30 | 1/4 | TAX3-47.30 |
| 3-D | | 1.8661 | 47.40 | 1/4 | TAX3-47.40 |
| 3-D | | 1.8701 | 47.50 | 1/4 | TAX3-47.50 |
| 3-D | | 1.8740 | 47.60 | 1/4 | TAX3-47.60 |
| 3-D | 1-7/8 | 1.8752 | 47.63 | 1/4 | TAX3-47.63 |

Inserts sold in multiples of 1

Sub Series Holders (A, B, C, D)

Sub series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified sub series inserts should be used with equivalent or smaller sub series holders.



A Series Insert + A Series Holder



C Series Insert + A Series Holder



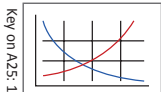
C Series Insert + C Series Holder



A Series Insert + C Series Holder

A25: 58 - 65

A25: 54 - 57



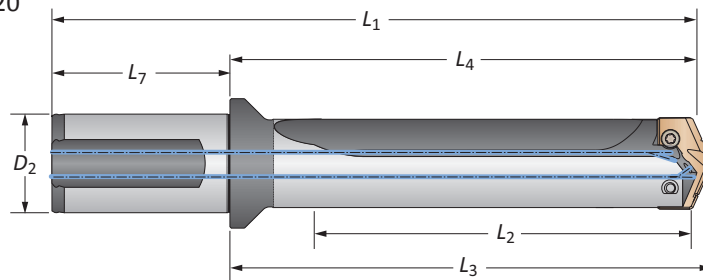
Sizes not shown are available upon request.

When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.5180", Steel, 0 series = use Part No. TAP0-13.16 |
| Metric: | 13.16 mm, Steel, 0 series = use Part No. TAP0-13.16 |




T-A Pro Drill Holders

3 Series Imperial | Diameter Range: 1.3798" - 1.8820"



| | | Body | | | | Shank | | | | |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|--|
| Length | Sub Series | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | Part No | |
| STUB | A | 1.618 | 3.634 | 3.821 | 6.322 | 2.688 | 1-1/2 | Yes | HTA3A01-150F | |
| STUB | A | 1.618 | 3.634 | 3.821 | 6.322 | 2.688 | 1-1/2 | No | HTA3A01-150C | |
| STUB | B | 1.618 | 3.634 | 3.821 | 6.322 | 2.688 | 1-1/2 | Yes | HTA3B01-150F | |
| STUB | B | 1.618 | 3.634 | 3.821 | 6.322 | 2.688 | 1-1/2 | No | HTA3B01-150C | |
| STUB | C | 1.618 | 3.634 | 3.821 | 6.322 | 2.688 | 1-1/2 | Yes | HTA3C01-150F | |
| STUB | C | 1.618 | 3.634 | 3.821 | 6.322 | 2.688 | 1-1/2 | No | HTA3C01-150C | |
| STUB | D | 1.618 | 3.634 | 3.821 | 6.322 | 2.688 | 1-1/2 | Yes | HTA3D01-150F | |
| STUB | D | 1.618 | 3.634 | 3.821 | 6.322 | 2.688 | 1-1/2 | No | HTA3D01-150C | |
| 3xD | A | 4.854 | 7.089 | 7.276 | 9.777 | 2.688 | 1-1/2 | Yes | HTA3A03-150F | |
| 3xD | A | 4.854 | 7.089 | 7.276 | 9.777 | 2.688 | 1-1/2 | No | HTA3A03-150C | |
| 3xD | B | 4.854 | 7.089 | 7.276 | 9.777 | 2.688 | 1-1/2 | Yes | HTA3B03-150F | |
| 3xD | B | 4.854 | 7.089 | 7.276 | 9.777 | 2.688 | 1-1/2 | No | HTA3B03-150C | |
| 3xD | C | 4.854 | 7.089 | 7.276 | 9.777 | 2.688 | 1-1/2 | Yes | HTA3C03-150F | |
| 3xD | C | 4.854 | 7.089 | 7.276 | 9.777 | 2.688 | 1-1/2 | No | HTA3C03-150C | |
| 3xD | D | 4.854 | 7.089 | 7.276 | 9.777 | 2.688 | 1-1/2 | Yes | HTA3D03-150F | |
| 3xD | D | 4.854 | 7.089 | 7.276 | 9.777 | 2.688 | 1-1/2 | No | HTA3D03-150C | |
| 5xD | A | 8.090 | 10.325 | 10.512 | 13.013 | 2.688 | 1-1/2 | Yes | HTA3A05-150F | |
| 5xD | A | 8.090 | 10.325 | 10.512 | 13.013 | 2.688 | 1-1/2 | No | HTA3A05-150C | |
| 5xD | B | 8.090 | 10.325 | 10.512 | 13.013 | 2.688 | 1-1/2 | Yes | HTA3B05-150F | |
| 5xD | B | 8.090 | 10.325 | 10.512 | 13.013 | 2.688 | 1-1/2 | No | HTA3B05-150C | |
| 5xD | C | 8.090 | 10.325 | 10.512 | 13.013 | 2.688 | 1-1/2 | Yes | HTA3C05-150F | |
| 5xD | C | 8.090 | 10.325 | 10.512 | 13.013 | 2.688 | 1-1/2 | No | HTA3C05-150C | |
| 5xD | D | 8.090 | 10.325 | 10.512 | 13.013 | 2.688 | 1-1/2 | Yes | HTA3D05-150F | |
| 5xD | D | 8.090 | 10.325 | 10.512 | 13.013 | 2.688 | 1-1/2 | No | HTA3D05-150C | |
| 7xD | A | 11.326 | 13.561 | 13.748 | 16.249 | 2.688 | 1-1/2 | Yes | HTA3A07-150F | |
| 7xD | A | 11.326 | 13.561 | 13.748 | 16.249 | 2.688 | 1-1/2 | No | HTA3A07-150C | |
| 7xD | B | 11.326 | 13.561 | 13.748 | 16.249 | 2.688 | 1-1/2 | Yes | HTA3B07-150F | |
| 7xD | B | 11.326 | 13.561 | 13.748 | 16.249 | 2.688 | 1-1/2 | No | HTA3B07-150C | |
| 7xD | C | 11.326 | 13.561 | 13.748 | 16.249 | 2.688 | 1-1/2 | Yes | HTA3C07-150F | |
| 7xD | C | 11.326 | 13.561 | 13.748 | 16.249 | 2.688 | 1-1/2 | No | HTA3C07-150C | |
| 7xD | D | 11.326 | 13.561 | 13.748 | 16.249 | 2.688 | 1-1/2 | Yes | HTA3D07-150F | |
| 7xD | D | 11.326 | 13.561 | 13.748 | 16.249 | 2.688 | 1-1/2 | No | HTA3D07-150C | |

Connection Accessories

|  Insert Screws |  Nylon Locking Screws |  Insert Driver | Admissible Tightening Torque* |
|--|---|---|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | 121.3 in-lbs (1370 N-cm) |

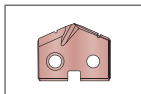
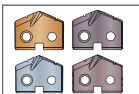
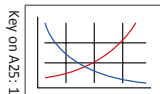
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65

A25: 46 - 49

A25: 50 - 53

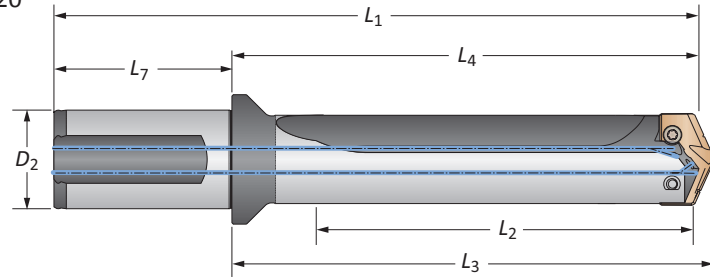


i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

T-A Pro Drill Holders

3 Series Imperial | Diameter Range: 1.3798" - 1.8820"



| Length | Sub Series | Body | | | | Shank | | | Flat | Part No |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|--------------|---------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | | |
| 10xD | A | 16.180 | 18.415 | 18.602 | 21.103 | 2.688 | 1-1/2 | Yes | HTA3A10-150F | |
| 10xD | A | 16.180 | 18.415 | 18.602 | 21.103 | 2.688 | 1-1/2 | No | HTA3A10-150C | |
| 10xD | B | 16.180 | 18.415 | 18.602 | 21.103 | 2.688 | 1-1/2 | Yes | HTA3B10-150F | |
| 10xD | B | 16.180 | 18.415 | 18.602 | 21.103 | 2.688 | 1-1/2 | No | HTA3B10-150C | |
| 10xD | C | 16.180 | 18.415 | 18.602 | 21.103 | 2.688 | 1-1/2 | Yes | HTA3C10-150F | |
| 10xD | C | 16.180 | 18.415 | 18.602 | 21.103 | 2.688 | 1-1/2 | No | HTA3C10-150C | |
| 10xD | D | 16.180 | 18.415 | 18.602 | 21.103 | 2.688 | 1-1/2 | Yes | HTA3D10-150F | |
| 10xD | D | 16.180 | 18.415 | 18.602 | 21.103 | 2.688 | 1-1/2 | No | HTA3D10-150C | |
| 12xD | A | 19.416 | 21.651 | 21.838 | 24.339 | 2.688 | 1-1/2 | Yes | HTA3A12-150F | |
| 12xD | A | 19.416 | 21.651 | 21.838 | 24.339 | 2.688 | 1-1/2 | No | HTA3A12-150C | |
| 12xD | B | 19.416 | 21.651 | 21.838 | 24.339 | 2.688 | 1-1/2 | Yes | HTA3B12-150F | |
| 12xD | B | 19.416 | 21.651 | 21.838 | 24.339 | 2.688 | 1-1/2 | No | HTA3B12-150C | |
| 12xD | C | 19.416 | 21.651 | 21.838 | 24.339 | 2.688 | 1-1/2 | Yes | HTA3C12-150F | |
| 12xD | C | 19.416 | 21.651 | 21.838 | 24.339 | 2.688 | 1-1/2 | No | HTA3C12-150C | |
| 12xD | D | 19.416 | 21.651 | 21.838 | 24.339 | 2.688 | 1-1/2 | Yes | HTA3D12-150F | |
| 12xD | D | 19.416 | 21.651 | 21.838 | 24.339 | 2.688 | 1-1/2 | No | HTA3D12-150C | |
| 15xD | A | 24.270 | 26.505 | 26.692 | 29.193 | 2.688 | 1-1/2 | Yes | HTA3A15-150F | |
| 15xD | A | 24.270 | 26.505 | 26.692 | 29.193 | 2.688 | 1-1/2 | No | HTA3A15-150C | |
| 15xD | B | 24.270 | 26.505 | 26.692 | 29.193 | 2.688 | 1-1/2 | Yes | HTA3B15-150F | |
| 15xD | B | 24.270 | 26.505 | 26.692 | 29.193 | 2.688 | 1-1/2 | No | HTA3B15-150C | |
| 15xD | C | 24.270 | 26.505 | 26.692 | 29.193 | 2.688 | 1-1/2 | Yes | HTA3C15-150F | |
| 15xD | C | 24.270 | 26.505 | 26.692 | 29.193 | 2.688 | 1-1/2 | No | HTA3C15-150C | |
| 15xD | D | 24.270 | 26.505 | 26.692 | 29.193 | 2.688 | 1-1/2 | Yes | HTA3D15-150F | |
| 15xD | D | 24.270 | 26.505 | 26.692 | 29.193 | 2.688 | 1-1/2 | No | HTA3D15-150C | |

Connection Accessories

| | | | |
|---------------|----------------------|---------------|-------------------------------|
| | | | Admissible Tightening Torque* |
| Insert Screws | Nylon Locking Screws | Insert Driver | |
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65 A25: 46 - 49 A25: 50 - 53

Key on A25: 1

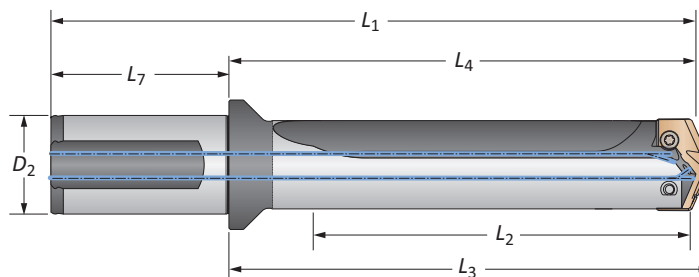
ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURISHING
E THREADING
F SPECIALS



T-A Pro Drill Holders

3 Series Metric | Diameter Range: 35.05 mm - 47.80 mm



| | | Body | | | | Shank | | | |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|--------------|
| Length | Sub Series | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | Flat | Part No |
| STUB | A | 41.1 | 92.3 | 97.1 | 160.6 | 70.0 | 40 | Yes | HTA3A01-40FM |
| STUB | A | 41.1 | 92.3 | 97.1 | 160.6 | 70.0 | 40 | No | HTA3A01-40CM |
| STUB | B | 41.1 | 92.3 | 97.1 | 160.6 | 70.0 | 40 | Yes | HTA3B01-40FM |
| STUB | B | 41.1 | 92.3 | 97.1 | 160.6 | 70.0 | 40 | No | HTA3B01-40CM |
| STUB | C | 41.1 | 92.3 | 97.1 | 160.6 | 70.0 | 40 | Yes | HTA3C01-40FM |
| STUB | C | 41.1 | 92.3 | 97.1 | 160.6 | 70.0 | 40 | No | HTA3C01-40CM |
| STUB | D | 41.1 | 92.3 | 97.1 | 160.6 | 70.0 | 40 | Yes | HTA3D01-40FM |
| STUB | D | 41.1 | 92.3 | 97.1 | 160.6 | 70.0 | 40 | No | HTA3D01-40CM |
| 3xD | A | 123.3 | 180.1 | 184.8 | 248.3 | 70.0 | 40 | Yes | HTA3A03-40FM |
| 3xD | A | 123.3 | 180.1 | 184.8 | 248.3 | 70.0 | 40 | No | HTA3A03-40CM |
| 3xD | B | 123.3 | 180.1 | 184.8 | 248.3 | 70.0 | 40 | Yes | HTA3B03-40FM |
| 3xD | B | 123.3 | 180.1 | 184.8 | 248.3 | 70.0 | 40 | No | HTA3B03-40CM |
| 3xD | C | 123.3 | 180.1 | 184.8 | 248.3 | 70.0 | 40 | Yes | HTA3C03-40FM |
| 3xD | C | 123.3 | 180.1 | 184.8 | 248.3 | 70.0 | 40 | No | HTA3C03-40CM |
| 3xD | D | 123.3 | 180.1 | 184.8 | 248.3 | 70.0 | 40 | Yes | HTA3D03-40FM |
| 3xD | D | 123.3 | 180.1 | 184.8 | 248.3 | 70.0 | 40 | No | HTA3D03-40CM |
| 5xD | A | 205.5 | 262.2 | 267.0 | 330.5 | 70.0 | 40 | Yes | HTA3A05-40FM |
| 5xD | A | 205.5 | 262.2 | 267.0 | 330.5 | 70.0 | 40 | No | HTA3A05-40CM |
| 5xD | B | 205.5 | 262.2 | 267.0 | 330.5 | 70.0 | 40 | Yes | HTA3B05-40FM |
| 5xD | B | 205.5 | 262.2 | 267.0 | 330.5 | 70.0 | 40 | No | HTA3B05-40CM |
| 5xD | C | 205.5 | 262.2 | 267.0 | 330.5 | 70.0 | 40 | Yes | HTA3C05-40FM |
| 5xD | C | 205.5 | 262.2 | 267.0 | 330.5 | 70.0 | 40 | No | HTA3C05-40CM |
| 5xD | D | 205.5 | 262.2 | 267.0 | 330.5 | 70.0 | 40 | Yes | HTA3D05-40FM |
| 5xD | D | 205.5 | 262.2 | 267.0 | 330.5 | 70.0 | 40 | No | HTA3D05-40CM |
| 7xD | A | 287.7 | 344.4 | 349.2 | 412.7 | 70.0 | 40 | Yes | HTA3A07-40FM |
| 7xD | A | 287.7 | 344.4 | 349.2 | 412.7 | 70.0 | 40 | No | HTA3A07-40CM |
| 7xD | B | 287.7 | 344.4 | 349.2 | 412.7 | 70.0 | 40 | Yes | HTA3B07-40FM |
| 7xD | B | 287.7 | 344.4 | 349.2 | 412.7 | 70.0 | 40 | No | HTA3B07-40CM |
| 7xD | C | 287.7 | 344.4 | 349.2 | 412.7 | 70.0 | 40 | Yes | HTA3C07-40FM |
| 7xD | C | 287.7 | 344.4 | 349.2 | 412.7 | 70.0 | 40 | No | HTA3C07-40CM |
| 7xD | D | 287.7 | 344.4 | 349.2 | 412.7 | 70.0 | 40 | Yes | HTA3D07-40FM |
| 7xD | D | 287.7 | 344.4 | 349.2 | 412.7 | 70.0 | 40 | No | HTA3D07-40CM |

Connection Accessories

|  Insert Screws |  Nylon Locking Screws |  Insert Driver | Admissible Tightening Torque* |
|--|---|---|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | 121.3 in-lbs (1370 N-cm) |

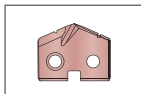
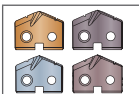
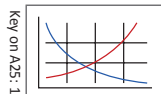
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65

A25: 46 - 49

A25: 50 - 53

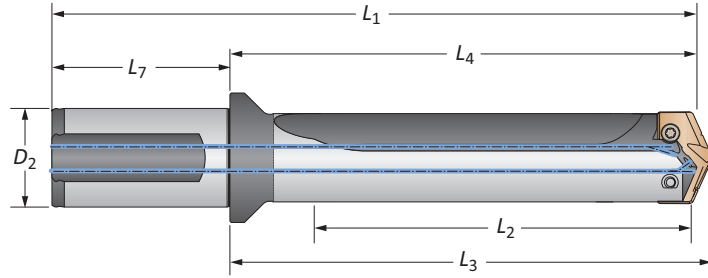


i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

T-A Pro Drill Holders

3 Series Metric | Diameter Range: 35.05 mm - 47.80 mm



| Length | Sub Series | Body | | | | Shank | | | Flat | Part No |
|--------|------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|----------------|---------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | | | |
| 10xD | A | 411.0 | 467.7 | 472.5 | 536.0 | 70.0 | 40 | Yes | ⚠ HTA3A10-40FM | |
| 10xD | A | 411.0 | 467.7 | 472.5 | 536.0 | 70.0 | 40 | No | ⚠ HTA3A10-40CM | |
| 10xD | B | 411.0 | 467.7 | 472.5 | 536.0 | 70.0 | 40 | Yes | ⚠ HTA3B10-40FM | |
| 10xD | B | 411.0 | 467.7 | 472.5 | 536.0 | 70.0 | 40 | No | ⚠ HTA3B10-40CM | |
| 10xD | C | 411.0 | 467.7 | 472.5 | 536.0 | 70.0 | 40 | Yes | ⚠ HTA3C10-40FM | |
| 10xD | C | 411.0 | 467.7 | 472.5 | 536.0 | 70.0 | 40 | No | ⚠ HTA3C10-40CM | |
| 10xD | D | 411.0 | 467.7 | 472.5 | 536.0 | 70.0 | 40 | Yes | ⚠ HTA3D10-40FM | |
| 10xD | D | 411.0 | 467.7 | 472.5 | 536.0 | 70.0 | 40 | No | ⚠ HTA3D10-40CM | |
| 12xD | A | 493.2 | 549.9 | 554.7 | 618.2 | 70.0 | 40 | Yes | ⚠ HTA3A12-40FM | |
| 12xD | A | 493.2 | 549.9 | 554.7 | 618.2 | 70.0 | 40 | No | ⚠ HTA3A12-40CM | |
| 12xD | B | 493.2 | 549.9 | 554.7 | 618.2 | 70.0 | 40 | Yes | ⚠ HTA3B12-40FM | |
| 12xD | B | 493.2 | 549.9 | 554.7 | 618.2 | 70.0 | 40 | No | ⚠ HTA3B12-40CM | |
| 12xD | C | 493.2 | 549.9 | 554.7 | 618.2 | 70.0 | 40 | Yes | ⚠ HTA3C12-40FM | |
| 12xD | C | 493.2 | 549.9 | 554.7 | 618.2 | 70.0 | 40 | No | ⚠ HTA3C12-40CM | |
| 12xD | D | 493.2 | 549.9 | 554.7 | 618.2 | 70.0 | 40 | Yes | ⚠ HTA3D12-40FM | |
| 12xD | D | 493.2 | 549.9 | 554.7 | 618.2 | 70.0 | 40 | No | ⚠ HTA3D12-40CM | |
| 15xD | A | 616.5 | 673.2 | 678.0 | 741.5 | 70.0 | 40 | Yes | ⚠ HTA3A15-40FM | |
| 15xD | A | 616.5 | 673.2 | 678.0 | 741.5 | 70.0 | 40 | No | ⚠ HTA3A15-40CM | |
| 15xD | B | 616.5 | 673.2 | 678.0 | 741.5 | 70.0 | 40 | Yes | ⚠ HTA3B15-40FM | |
| 15xD | B | 616.5 | 673.2 | 678.0 | 741.5 | 70.0 | 40 | No | ⚠ HTA3B15-40CM | |
| 15xD | C | 616.5 | 673.2 | 678.0 | 741.5 | 70.0 | 40 | Yes | ⚠ HTA3C15-40FM | |
| 15xD | C | 616.5 | 673.2 | 678.0 | 741.5 | 70.0 | 40 | No | ⚠ HTA3C15-40CM | |
| 15xD | D | 616.5 | 673.2 | 678.0 | 741.5 | 70.0 | 40 | Yes | ⚠ HTA3D15-40FM | |
| 15xD | D | 616.5 | 673.2 | 678.0 | 741.5 | 70.0 | 40 | No | ⚠ HTA3D15-40CM | |

Connection Accessories

| | | | |
|---------------|----------------------|---------------|--------------------------------------|
| | | | Admissible Tightening Torque* |
| Insert Screws | Nylon Locking Screws | Insert Driver | |
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A25: 68 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

A25: 58 - 65 A25: 46 - 49 A25: 50 - 53

ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
F SPECIALS

Carbide Recommended Drilling Data | Imperial (inch)

| Material | Hardness (BHN) | Insert Grade | Speed (SFM) | Feed Rate (IPR) by Diameter | | | | | |
|---|---|--------------|-------------|-----------------------------|---------------|-----------------|-----------------|-------------------|-------|
| | | | | 3/8" - 33/64" | 1/2" - 11/16" | 45/64" - 15/16" | 31/32" - 1-3/8" | 1-13/32" - 1-7/8" | |
| P Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | P | 475 | 0.007 | 0.010 | 0.013 | 0.016 | 0.020 | |
| | 150 - 200 | P | 440 | 0.007 | 0.010 | 0.013 | 0.016 | 0.020 | |
| | 200 - 250 | P | 410 | 0.006 | 0.010 | 0.013 | 0.016 | 0.020 | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | P | 425 | 0.006 | 0.009 | 0.012 | 0.015 | 0.019 |
| | | 125 - 175 | P | 410 | 0.006 | 0.009 | 0.012 | 0.015 | 0.019 |
| | | 175 - 225 | P | 385 | 0.005 | 0.008 | 0.010 | 0.014 | 0.018 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | P | 355 | 0.005 | 0.008 | 0.010 | 0.014 | 0.018 |
| | | 125 - 175 | P | 410 | 0.006 | 0.009 | 0.012 | 0.015 | 0.019 |
| | | 175 - 225 | P | 385 | 0.005 | 0.008 | 0.010 | 0.014 | 0.018 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | P | 355 | 0.005 | 0.008 | 0.010 | 0.014 | 0.018 |
| | | 275 - 325 | P | 330 | 0.004 | 0.007 | 0.009 | 0.012 | 0.016 |
| | | 125 - 175 | P | 420 | 0.006 | 0.009 | 0.012 | 0.014 | 0.017 |
| 175 - 225 | | P | 390 | 0.005 | 0.008 | 0.011 | 0.014 | 0.017 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 275 | P | 360 | 0.005 | 0.008 | 0.011 | 0.014 | 0.017 | |
| | 275 - 325 | P | 340 | 0.004 | 0.007 | 0.010 | 0.012 | 0.015 | |
| | 325 - 375 | P | 310 | 0.003 | 0.007 | 0.010 | 0.012 | 0.015 | |
| | 100 - 150 | P | 400 | 0.006 | 0.010 | 0.012 | 0.014 | 0.018 | |
| Structural Steel A36, A285, A516, etc. | 150 - 250 | P | 340 | 0.005 | 0.009 | 0.010 | 0.012 | 0.016 | |
| | 250 - 350 | P | 280 | 0.004 | 0.008 | 0.009 | 0.010 | 0.014 | |
| | 150 - 200 | P | 220 | 0.004 | 0.006 | 0.008 | 0.010 | 0.012 | |
| Tool Steel H-13, H-21, A-4, S-3, etc. | 200 - 250 | P | 180 | 0.004 | 0.006 | 0.008 | 0.010 | 0.012 | |
| | S High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | M | 110 | 0.002 | 0.005 | 0.007 | 0.008 | 0.009 |
| 220 - 310 | | M | 85 | 0.002 | 0.003 | 0.005 | 0.006 | 0.007 | |
| Titanium Alloy | | 140 - 220 | M | 150 | 0.003 | 0.004 | 0.007 | 0.008 | 0.009 |
| | | 220 - 310 | M | 120 | 0.003 | 0.003 | 0.005 | 0.006 | 0.007 |
| Aerospace Alloy S82 | 185 - 275 | M | 150 | 0.003 | 0.004 | 0.007 | 0.008 | 0.009 | |
| | 275 - 350 | M | 120 | 0.003 | 0.003 | 0.005 | 0.006 | 0.007 | |

7xD and 10xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 200 SFM • 0.80 | = 160 SFM |
| 0.008 IPR • 0.80 | = 0.0064 IPR |

12xD and 15xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (12xD) |
|--------------------------|-------------------|
| 200 SFM • 0.70 | = 140 SFM |
| 0.008 IPR • 0.70 | = 0.0056 IPR |

Coolant Recommendations

| Series | STUB, 3xD, 5xD | | 7xD, 10xD | | 12xD, 15xD | |
|--------|----------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM |
| Z | 450 | 4 | 550 | 6 | 650 | 8 |
| 0 | 350 | 6 | 450 | 9 | 550 | 12 |
| 1 | 300 | 8 | 400 | 10 | 500 | 12 |
| 2 | 250 | 10 | 350 | 13 | 450 | 16 |
| 3 | 200 | 12 | 300 | 14 | 400 | 18 |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A Pro holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures.

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation chart for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, 12xD, and 15xD holder lengths, see adjustment example above.

Carbide Recommended Drilling Data | Imperial (inch)

| Material | Hardness (BHN) | Insert Grade | Speed (SFM) | Feed Rate (IPR) by Diameter | | | | | |
|--|--|--------------|-------------|-----------------------------|---------------|-----------------|-----------------|-------------------|-------|
| | | | | 3/8" - 33/64" | 1/2" - 11/16" | 45/64" - 15/16" | 31/32" - 1-3/8" | 1-13/32" - 1-7/8" | |
| M Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | M | 280 | 0.005 | 0.010 | 0.011 | 0.012 | 0.013 | |
| | 275 - 350 | M | 230 | 0.004 | 0.009 | 0.010 | 0.011 | 0.012 | |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | M | 280 | 0.003 | 0.004 | 0.005 | 0.008 | 0.011 |
| | | 185 - 275 | M | 250 | 0.002 | 0.003 | 0.004 | 0.007 | 0.009 |
| | Stainless Steel 300L Series 304L, 316L, etc. | 135 - 185 | M | 325 | 0.003 | 0.004 | 0.005 | 0.008 | 0.011 |
| | | 185 - 275 | M | 280 | 0.002 | 0.003 | 0.004 | 0.007 | 0.009 |
| | PH Stainless 17-4, 13-8, 15-5 | 275-350 | M | 280 | 0.003 | 0.004 | 0.005 | 0.008 | 0.011 |
| | | 350-425 | M | 250 | 0.002 | 0.003 | 0.004 | 0.007 | 0.009 |
| Super Duplex Stainless Steel | 135 - 185 | M | 250 | 0.003 | 0.004 | 0.005 | 0.008 | 0.011 | |
| | 185 - 275 | M | 230 | 0.002 | 0.003 | 0.004 | 0.007 | 0.009 | |
| H Wear Plate Hardox®, AR400, T-1, etc. | 400 | P | 70 | 0.003 | 0.006 | 0.008 | 0.009 | 0.012 | |
| | 500 | P | 45 | 0.002 | 0.005 | 0.007 | 0.008 | 0.010 | |
| | 600 | - | - | - | - | - | - | - | |
| | Hardened Steel | 300 - 400 | P | 95 | 0.003 | 0.006 | 0.008 | 0.009 | 0.012 |
| 400 - 500 | | P | 45 | 0.002 | 0.005 | 0.007 | 0.008 | 0.010 | |
| K SG / Nodular Cast Iron | 120 - 150 | K | 600 | 0.007 | 0.012 | 0.016 | 0.020 | 0.024 | |
| | 150 - 200 | K | 550 | 0.006 | 0.011 | 0.014 | 0.018 | 0.022 | |
| | 200 - 220 | K | 500 | 0.006 | 0.009 | 0.012 | 0.016 | 0.018 | |
| | 220 - 260 | K | 450 | 0.005 | 0.007 | 0.009 | 0.012 | 0.014 | |
| | 260 - 320 | K | 400 | 0.004 | 0.006 | 0.007 | 0.009 | 0.012 | |
| N Cast Aluminum | 30 | N | 1100 | 0.008 | 0.013 | 0.016 | 0.020 | 0.022 | |
| | 180 | N | 600 | 0.008 | 0.013 | 0.016 | 0.018 | 0.022 | |
| | Wrought Aluminum | 30 | N | 1100 | 0.009 | 0.013 | 0.017 | 0.020 | 0.024 |
| | | 180 | N | 600 | 0.005 | 0.007 | 0.010 | 0.013 | 0.016 |
| | Aluminum Bronze | 100 - 200 | N | 500 | 0.006 | 0.011 | 0.014 | 0.018 | 0.022 |
| | | 200 - 250 | N | 300 | 0.005 | 0.007 | 0.009 | 0.012 | 0.014 |
| | Brass | 100 | N | 650 | 0.007 | 0.012 | 0.016 | 0.020 | 0.024 |
| Copper | 60 | N | 430 | 0.002 | 0.003 | 0.006 | 0.008 | 0.010 | |

7xD and 10xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 200 SFM • 0.80 | = 160 SFM |
| 0.008 IPR • 0.80 | = 0.0064 IPR |

12xD and 15xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (12xD) |
|--------------------------|-------------------|
| 200 SFM • 0.70 | = 140 SFM |
| 0.008 IPR • 0.70 | = 0.0056 IPR |

Coolant Recommendations

| Series | STUB, 3xD, 5xD | | 7xD, 10xD | | 12xD, 15xD | |
|----------|----------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM |
| Z | 450 | 4 | 550 | 6 | 650 | 8 |
| 0 | 350 | 6 | 450 | 9 | 550 | 12 |
| 1 | 300 | 8 | 400 | 10 | 500 | 12 |
| 2 | 250 | 10 | 350 | 13 | 450 | 16 |
| 3 | 200 | 12 | 300 | 14 | 400 | 18 |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A Pro holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures.
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation chart for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, 12xD, and 15xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

High-Speed Steel Recommended Drilling Data | Imperial (inch)

| Material | Hardness (BHN) | Insert Grade | Speed (SFM) | Feed Rate (IPR) by Diameter | | | | |
|--|----------------|--------------|-------------|-----------------------------|---------------|-----------------|-----------------|-------------------|
| | | | | 3/8" - 33/64" | 1/2" - 11/16" | 45/64" - 15/16" | 31/32" - 1-3/8" | 1-13/32" - 1-7/8" |
| Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | X | 350 | 0.007 | 0.010 | 0.013 | 0.016 | 0.020 |
| | 150 - 200 | X | 325 | 0.007 | 0.010 | 0.013 | 0.016 | 0.020 |
| | 200 - 250 | X | 300 | 0.006 | 0.010 | 0.013 | 0.016 | 0.020 |
| Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | X | 315 | 0.006 | 0.009 | 0.012 | 0.015 | 0.019 |
| | 125 - 175 | X | 300 | 0.006 | 0.009 | 0.012 | 0.015 | 0.019 |
| | 175 - 225 | X | 285 | 0.005 | 0.008 | 0.010 | 0.014 | 0.018 |
| Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | X | 265 | 0.005 | 0.008 | 0.010 | 0.014 | 0.018 |
| | 125 - 175 | X | 300 | 0.006 | 0.009 | 0.012 | 0.015 | 0.019 |
| | 175 - 225 | X | 285 | 0.005 | 0.008 | 0.010 | 0.014 | 0.018 |
| Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | X | 265 | 0.005 | 0.008 | 0.010 | 0.014 | 0.018 |
| | 275 - 325 | X | 235 | 0.004 | 0.007 | 0.009 | 0.012 | 0.016 |
| | 125 - 175 | X | 250 | 0.006 | 0.009 | 0.012 | 0.014 | 0.017 |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 175 - 225 | X | 235 | 0.005 | 0.008 | 0.011 | 0.014 | 0.017 |
| | 225 - 275 | X | 220 | 0.005 | 0.008 | 0.011 | 0.014 | 0.017 |
| | 275 - 325 | X | 205 | 0.004 | 0.007 | 0.010 | 0.012 | 0.015 |
| | 325 - 375 | X | 190 | 0.003 | 0.007 | 0.010 | 0.012 | 0.015 |
| Structural Steel A36, A285, A516, etc. | 225 - 300 | X | 135 | 0.004 | 0.007 | 0.010 | 0.013 | 0.015 |
| | 300 - 350 | X | 110 | 0.003 | 0.006 | 0.009 | 0.012 | 0.014 |
| | 350 - 400 | X | 90 | 0.003 | 0.006 | 0.008 | 0.011 | 0.013 |
| Tool Steel H-13, H-21, A-4, S-3, etc. | 100 - 150 | X | 250 | 0.006 | 0.010 | 0.012 | 0.014 | 0.018 |
| | 150 - 250 | X | 210 | 0.005 | 0.009 | 0.010 | 0.012 | 0.016 |
| | 250 - 350 | X | 175 | 0.004 | 0.008 | 0.009 | 0.010 | 0.014 |
| High-Temp Alloy Hastelloy B, Inconel 600, etc. | 150 - 200 | X | 145 | 0.004 | 0.006 | 0.008 | 0.010 | 0.012 |
| | 200 - 250 | X | 120 | 0.004 | 0.006 | 0.008 | 0.010 | 0.012 |
| Titanium Alloy | 140 - 220 | X | 45 | 0.003 | 0.007 | 0.008 | 0.010 | 0.012 |
| | 220 - 310 | X | 40 | 0.003 | 0.006 | 0.007 | 0.008 | 0.010 |
| | 140 - 220 | X | 60 | 0.003 | 0.007 | 0.008 | 0.010 | 0.012 |
| | 220 - 310 | X | 50 | 0.003 | 0.006 | 0.007 | 0.008 | 0.010 |
| Aerospace Alloy S82 | 185 - 275 | X | 125 | 0.005 | 0.008 | 0.009 | 0.010 | 0.014 |
| | 275 - 350 | X | 110 | 0.004 | 0.007 | 0.008 | 0.008 | 0.012 |

7xD and 10xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 200 SFM • 0.80 | = 160 SFM |
| 0.008 IPR • 0.80 | = 0.0064 IPR |

12xD and 15xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (12xD) |
|--------------------------|-------------------|
| 200 SFM • 0.70 | = 140 SFM |
| 0.008 IPR • 0.70 | = 0.0056 IPR |

Coolant Recommendations

| Series | STUB, 3xD, 5xD | | 7xD, 10xD | | 12xD, 15xD | |
|--------|----------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM |
| Z | 450 | 4 | 550 | 6 | 650 | 8 |
| 0 | 350 | 6 | 450 | 9 | 550 | 12 |
| 1 | 300 | 8 | 400 | 10 | 500 | 12 |
| 2 | 250 | 10 | 350 | 13 | 450 | 16 |
| 3 | 200 | 12 | 300 | 14 | 400 | 18 |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A Pro holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures.

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation chart for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, 12xD, and 15xD holder lengths, see adjustment example above.

High-Speed Steel Recommended Drilling Data | Imperial (inch)

| Material | Hardness (BHN) | Insert Grade | Speed (SFM) | Feed Rate (IPR) by Diameter | | | | | |
|--|--|--------------|-------------|-----------------------------|---------------|-----------------|-----------------|-------------------|-------|
| | | | | 3/8" - 33/64" | 1/2" - 11/16" | 45/64" - 15/16" | 31/32" - 1-3/8" | 1-13/32" - 1-7/8" | |
| M Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | X | 125 | 0.005 | 0.010 | 0.011 | 0.012 | 0.013 | |
| | 275 - 350 | X | 110 | 0.004 | 0.009 | 0.010 | 0.011 | 0.012 | |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | X | 125 | 0.005 | 0.007 | 0.008 | 0.009 | 0.012 |
| | | 185 - 275 | X | 110 | 0.004 | 0.006 | 0.007 | 0.008 | 0.011 |
| | PH Stainless 17-4, 13-8, 15-5 | 275-350 | X | 95 | 0.003 | 0.004 | 0.006 | 0.008 | 0.010 |
| | | 350-425 | X | 75 | 0.003 | 0.004 | 0.006 | 0.008 | 0.010 |
| Super Duplex Stainless Steel | 135 - 185 | X | 125 | 0.005 | 0.005 | 0.006 | 0.006 | 0.007 | |
| | 185 - 275 | X | 110 | 0.004 | 0.005 | 0.005 | 0.006 | 0.006 | |
| H Wear Plate Hardox®, AR400, T-1, etc. | 400 | X | 60 | 0.003 | 0.006 | 0.008 | 0.009 | 0.012 | |
| | 500 | X | 45 | 0.002 | 0.005 | 0.007 | 0.008 | 0.010 | |
| | 600 | - | - | - | - | - | - | - | |
| | Hardened Steel | 300 - 400 | X | 75 | 0.003 | 0.006 | 0.008 | 0.009 | 0.012 |
| 400 - 500 | | X | 45 | 0.002 | 0.005 | 0.007 | 0.008 | 0.010 | |
| K SG / Nodular Cast Iron | 120 - 150 | X | 300 | 0.007 | 0.012 | 0.016 | 0.020 | 0.024 | |
| | 150 - 200 | X | 275 | 0.006 | 0.011 | 0.014 | 0.018 | 0.022 | |
| | 200 - 220 | X | 240 | 0.006 | 0.009 | 0.012 | 0.016 | 0.018 | |
| | 220 - 260 | X | 215 | 0.005 | 0.007 | 0.009 | 0.012 | 0.014 | |
| | 260 - 320 | X | 175 | 0.004 | 0.006 | 0.007 | 0.009 | 0.012 | |
| N Cast Aluminum | 30 | X | 600 | 0.008 | 0.013 | 0.016 | 0.020 | 0.022 | |
| | 180 | X | 300 | 0.008 | 0.013 | 0.016 | 0.018 | 0.022 | |
| | Wrought Aluminum | 30 | X | 900 | 0.009 | 0.013 | 0.017 | 0.020 | 0.024 |
| | | 180 | X | 600 | 0.005 | 0.007 | 0.010 | 0.013 | 0.016 |
| | Aluminum Bronze | 100 - 200 | X | 300 | 0.006 | 0.011 | 0.014 | 0.018 | 0.022 |
| | | 200 - 250 | X | 250 | 0.005 | 0.007 | 0.009 | 0.012 | 0.014 |
| Brass | 100 | X | 485 | 0.007 | 0.012 | 0.016 | 0.020 | 0.024 | |
| Copper | 60 | X | 320 | 0.002 | 0.003 | 0.006 | 0.008 | 0.010 | |

7xD and 10xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 200 SFM • 0.80 | = 160 SFM |
| 0.008 IPR • 0.80 | = 0.0064 IPR |

12xD and 15xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (12xD) |
|--------------------------|-------------------|
| 200 SFM • 0.70 | = 140 SFM |
| 0.008 IPR • 0.70 | = 0.0056 IPR |

Coolant Recommendations

| Series | STUB, 3xD, 5xD | | 7xD, 10xD | | 12xD, 15xD | |
|----------|----------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM | Pressure PSI | Flow Rate GPM |
| Z | 450 | 4 | 550 | 6 | 650 | 8 |
| 0 | 350 | 6 | 450 | 9 | 550 | 12 |
| 1 | 300 | 8 | 400 | 10 | 500 | 12 |
| 2 | 250 | 10 | 350 | 13 | 450 | 16 |
| 3 | 200 | 12 | 300 | 14 | 400 | 18 |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A Pro holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures.
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation chart for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, 12xD, and 15xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Carbide Recommended Drilling Data | Metric (mm)

| Material | Hardness (BHN) | Insert Grade | Speed (M/min) | Feed Rate (mm/rev) by Diameter | | | | | |
|---|---|--------------|---------------|--------------------------------|---------------------|---------------------|---------------------|---------------------|------|
| | | | | 9.50 mm - 12.69 mm | 12.70 mm - 17.64 mm | 17.65 mm - 24.37 mm | 24.38 mm - 35.04 mm | 35.05 mm - 47.80 mm | |
| P Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | P | 145 | 0.18 | 0.25 | 0.33 | 0.410 | 0.51 | |
| | 150 - 200 | P | 135 | 0.18 | 0.25 | 0.33 | 0.41 | 0.51 | |
| | 200 - 250 | P | 125 | 0.15 | 0.25 | 0.33 | 0.41 | 0.51 | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | P | 130 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 |
| | | 125 - 175 | P | 125 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 |
| | | 175 - 225 | P | 115 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | P | 110 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 |
| | | 125 - 175 | P | 125 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 |
| | | 175 - 225 | P | 115 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | P | 110 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 |
| | | 275 - 325 | P | 100 | 0.10 | 0.18 | 0.23 | 0.30 | 0.41 |
| | | 125 - 175 | P | 130 | 0.15 | 0.23 | 0.30 | 0.36 | 0.43 |
| 175 - 225 | | P | 120 | 0.13 | 0.20 | 0.28 | 0.36 | 0.43 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 275 | P | 110 | 0.13 | 0.20 | 0.28 | 0.36 | 0.43 | |
| | 275 - 325 | P | 105 | 0.10 | 0.18 | 0.25 | 0.30 | 0.38 | |
| | 325 - 375 | P | 95 | 0.08 | 0.18 | 0.25 | 0.30 | 0.38 | |
| Structural Steel A36, A285, A516, etc. | 225 - 300 | P | 105 | 0.10 | 0.18 | 0.25 | 0.33 | 0.38 | |
| | 300 - 350 | P | 100 | 0.08 | 0.15 | 0.23 | 0.30 | 0.36 | |
| | 350 - 400 | P | 90 | 0.08 | 0.15 | 0.20 | 0.28 | 0.33 | |
| Tool Steel H-13, H-21, A-4, S-3, etc. | 100 - 150 | P | 120 | 0.15 | 0.25 | 0.30 | 0.36 | 0.46 | |
| | 150 - 250 | P | 105 | 0.13 | 0.23 | 0.25 | 0.30 | 0.41 | |
| | 250 - 350 | P | 85 | 0.10 | 0.20 | 0.23 | 0.25 | 0.36 | |
| S High-Temp Alloy Hastelloy B, Inconel 600, etc. | 150 - 200 | P | 65 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | |
| | 200 - 250 | P | 55 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | |
| | 140 - 220 | M | 33 | 0.05 | 0.13 | 0.18 | 0.20 | 0.23 | |
| | 220 - 310 | M | 26 | 0.05 | 0.08 | 0.13 | 0.15 | 0.18 | |
| | Titanium Alloy | 140 - 220 | M | 45 | 0.08 | 0.10 | 0.18 | 0.20 | 0.23 |
| | | 220 - 310 | M | 36 | 0.08 | 0.08 | 0.13 | 0.15 | 0.18 |
| Aerospace Alloy S82 | 185 - 275 | M | 45 | 0.08 | 0.10 | 0.18 | 0.20 | 0.23 | |
| | 275 - 350 | M | 36 | 0.08 | 0.08 | 0.13 | 0.15 | 0.18 | |

7xD and 10xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 100 M/min • 0.80 | = 80 M/min |
| 0.2 mm/rev • 0.80 | = 0.16 mm/rev |

12xD and 15xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (12xD) |
|--------------------------|-------------------|
| 100 M/min • 0.70 | = 70 M/min |
| 0.2 mm/rev • 0.70 | = 0.14 mm/rev |

Coolant Recommendations

| Series | STUB, 3xD, 5xD | | 7xD, 10xD | | 12xD, 15xD | |
|--------|----------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM |
| Z | 31 | 15 | 34 | 22 | 45 | 30 |
| 0 | 24 | 22 | 31 | 34 | 34 | 45 |
| 1 | 21 | 30 | 27 | 38 | 34 | 45 |
| 2 | 17 | 38 | 24 | 49 | 31 | 60 |
| 3 | 14 | 45 | 21 | 53 | 27 | 68 |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A Pro holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures.

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation chart for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, 12xD, and 15xD holder lengths, see adjustment example above.

Carbide Recommended Drilling Data | Metric (mm)

| Material | Hardness (BHN) | Insert Grade | Speed (M/min) | Feed Rate (mm/rev) by Diameter | | | | | |
|--|--|--------------|---------------|--------------------------------|---------------------|---------------------|---------------------|---------------------|------|
| | | | | 9.50 mm - 12.69 mm | 12.70 mm - 17.64 mm | 17.65 mm - 24.37 mm | 24.38 mm - 35.04 mm | 35.05 mm - 47.80 mm | |
| M Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | M | 85 | 0.13 | 0.25 | 0.28 | 0.30 | 0.33 | |
| | 275 - 350 | M | 75 | 0.10 | 0.23 | 0.25 | 0.28 | 0.30 | |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | M | 85 | 0.08 | 0.10 | 0.13 | 0.20 | 0.28 |
| | | 185 - 275 | M | 75 | 0.05 | 0.08 | 0.10 | 0.18 | 0.23 |
| | Stainless Steel 300L Series 304L, 316L etc. | 135 - 185 | M | 100 | 0.08 | 0.10 | 0.13 | 0.20 | 0.28 |
| | | 185 - 275 | M | 85 | 0.05 | 0.08 | 0.10 | 0.18 | 0.23 |
| | PH Stainless 17-4, 13-8, 15-5 | 275-350 | M | 85 | 0.08 | 0.10 | 0.13 | 0.20 | 0.28 |
| | | 350-425 | M | 75 | 0.05 | 0.08 | 0.10 | 0.18 | 0.23 |
| Super Duplex Stainless Steel | 135 - 185 | M | 75 | 0.08 | 0.10 | 0.13 | 0.20 | 0.28 | |
| | 185 - 275 | M | 70 | 0.05 | 0.08 | 0.10 | 0.18 | 0.23 | |
| H Wear Plate Hardox®, AR400, T-1, etc. | 400 | P | 20 | 0.08 | 0.15 | 0.20 | 0.23 | 0.30 | |
| | 500 | P | 15 | 0.05 | 0.13 | 0.18 | 0.20 | 0.25 | |
| | 600 | - | - | - | - | - | - | - | |
| | Hardened Steel | 300 - 400 | P | 30 | 0.08 | 0.15 | 0.20 | 0.23 | 0.30 |
| 400 - 500 | | P | 15 | 0.05 | 0.13 | 0.18 | 0.20 | 0.25 | |
| K SG / Nodular Cast Iron | 120 - 150 | K | 185 | 0.18 | 0.30 | 0.41 | 0.51 | 0.61 | |
| | 150 - 200 | K | 170 | 0.15 | 0.28 | 0.36 | 0.46 | 0.56 | |
| | 200 - 220 | K | 150 | 0.15 | 0.23 | 0.30 | 0.41 | 0.46 | |
| | 220 - 260 | K | 135 | 0.13 | 0.18 | 0.23 | 0.30 | 0.36 | |
| | 260 - 320 | K | 120 | 0.10 | 0.15 | 0.18 | 0.23 | 0.30 | |
| N Cast Aluminum | 30 | N | 335 | 0.20 | 0.33 | 0.41 | 0.51 | 0.56 | |
| | 180 | N | 185 | 0.20 | 0.33 | 0.41 | 0.46 | 0.56 | |
| | Wrought Aluminum | 30 | N | 335 | 0.23 | 0.33 | 0.43 | 0.51 | 0.61 |
| | | 180 | N | 185 | 0.13 | 0.18 | 0.25 | 0.33 | 0.41 |
| | Aluminum Bronze | 100 - 200 | N | 150 | 0.15 | 0.28 | 0.36 | 0.46 | 0.56 |
| | | 200 - 250 | N | 90 | 0.13 | 0.18 | 0.23 | 0.30 | 0.36 |
| | Brass | 100 | N | 200 | 0.18 | 0.30 | 0.41 | 0.51 | 0.61 |
| Copper | 60 | N | 130 | 0.05 | 0.08 | 0.15 | 0.20 | 0.25 | |

7xD and 10xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 100 M/min • 0.80 | = 80 M/min |
| 0.2 mm/rev • 0.80 | = 0.16 mm/rev |

12xD and 15xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (12xD) |
|--------------------------|-------------------|
| 100 M/min • 0.70 | = 70 M/min |
| 0.2 mm/rev • 0.70 | = 0.14 mm/rev |

Coolant Recommendations

| Series | STUB, 3xD, 5xD | | 7xD, 10xD | | 12xD, 15xD | |
|----------|----------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM |
| Z | 31 | 15 | 34 | 22 | 45 | 30 |
| 0 | 24 | 22 | 31 | 34 | 34 | 45 |
| 1 | 21 | 30 | 27 | 38 | 34 | 45 |
| 2 | 17 | 38 | 24 | 49 | 31 | 60 |
| 3 | 14 | 45 | 21 | 53 | 27 | 68 |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A Pro holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures.
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation chart for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, 12xD, and 15xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

High-Speed Steel Recommended Drilling Data | Metric (mm)

| Material | Hardness (BHN) | Insert Grade | Speed (M/min) | Feed Rate (mm/rev) by Diameter | | | | | |
|--|-----------------------|--------------|---------------|--------------------------------|---------------------|---------------------|---------------------|---------------------|------|
| | | | | 9.50 mm - 12.69 mm | 12.70 mm - 17.64 mm | 17.65 mm - 24.37 mm | 24.38 mm - 35.04 mm | 35.05 mm - 47.80 mm | |
| Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | X | 105 | 0.18 | 0.25 | 0.33 | 0.41 | 0.51 | |
| | 150 - 200 | X | 100 | 0.18 | 0.25 | 0.33 | 0.41 | 0.51 | |
| | 200 - 250 | X | 90 | 0.15 | 0.25 | 0.33 | 0.41 | 0.51 | |
| Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | X | 95 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 | |
| | 125 - 175 | X | 90 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 | |
| | 175 - 225 | X | 85 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | |
| Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | X | 80 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | |
| | 125 - 175 | X | 90 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 | |
| | 175 - 225 | X | 85 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | |
| Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | X | 80 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | |
| | 275 - 325 | X | 70 | 0.10 | 0.18 | 0.23 | 0.30 | 0.41 | |
| | 125 - 175 | X | 75 | 0.15 | 0.23 | 0.30 | 0.36 | 0.43 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 175 - 225 | X | 70 | 0.13 | 0.20 | 0.28 | 0.36 | 0.43 | |
| | 225 - 275 | X | 65 | 0.13 | 0.20 | 0.28 | 0.36 | 0.43 | |
| | 275 - 325 | X | 60 | 0.10 | 0.18 | 0.25 | 0.30 | 0.38 | |
| | 325 - 375 | X | 60 | 0.08 | 0.18 | 0.25 | 0.30 | 0.38 | |
| Structural Steel A36, A285, A516, etc. | 225 - 300 | X | 40 | 0.10 | 0.18 | 0.25 | 0.33 | 0.38 | |
| | 300 - 350 | X | 35 | 0.08 | 0.15 | 0.23 | 0.30 | 0.36 | |
| | 350 - 400 | X | 25 | 0.08 | 0.15 | 0.20 | 0.28 | 0.33 | |
| Tool Steel H-13, H-21, A-4, S-3, etc. | 100 - 150 | X | 75 | 0.15 | 0.25 | 0.30 | 0.36 | 0.46 | |
| | 150 - 250 | X | 65 | 0.13 | 0.23 | 0.25 | 0.30 | 0.41 | |
| | 250 - 350 | X | 55 | 0.10 | 0.20 | 0.23 | 0.25 | 0.36 | |
| High-Temp Alloy Hastelloy B, Inconel 600, etc. | 150 - 200 | X | 45 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | |
| | 200 - 250 | X | 35 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | |
| | 140 - 220 | X | 15 | 0.08 | 0.18 | 0.20 | 0.25 | 0.30 | |
| | 220 - 310 | X | 10 | 0.08 | 0.15 | 0.18 | 0.20 | 0.25 | |
| | Titanium Alloy | 140 - 220 | X | 20 | 0.08 | 0.18 | 0.20 | 0.25 | 0.30 |
| | | 220 - 310 | X | 15 | 0.08 | 0.15 | 0.18 | 0.20 | 0.25 |
| Aerospace Alloy S82 | 185 - 275 | X | 40 | 0.13 | 0.20 | 0.23 | 0.25 | 0.36 | |
| | 275 - 350 | X | 35 | 0.10 | 0.18 | 0.20 | 0.20 | 0.30 | |

7xD and 10xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 100 M/min • 0.80 | = 80 M/min |
| 0.2 mm/rev • 0.80 | = 0.16 mm/rev |

12xD and 15xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (12xD) |
|--------------------------|-------------------|
| 100 M/min • 0.70 | = 70 M/min |
| 0.2 mm/rev • 0.70 | = 0.14 mm/rev |

Coolant Recommendations

| Series | STUB, 3xD, 5xD | | 7xD, 10xD | | 12xD, 15xD | |
|--------|----------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM |
| Z | 31 | 15 | 34 | 22 | 45 | 30 |
| 0 | 24 | 22 | 31 | 34 | 34 | 45 |
| 1 | 21 | 30 | 27 | 38 | 34 | 45 |
| 2 | 17 | 38 | 24 | 49 | 31 | 60 |
| 3 | 14 | 45 | 21 | 53 | 27 | 68 |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A Pro holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures.

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation chart for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, 12xD, and 15xD holder lengths, see adjustment example above.

High-Speed Steel Recommended Drilling Data | Metric (mm)

| Material | Hardness (BHN) | Insert Grade | Speed (M/min) | Feed Rate (mm/rev) by Diameter | | | | | |
|--|--|--------------|---------------|--------------------------------|---------------------|---------------------|---------------------|---------------------|------|
| | | | | 9.50 mm - 12.69 mm | 12.70 mm - 17.64 mm | 17.65 mm - 24.37 mm | 24.38 mm - 35.04 mm | 35.05 mm - 47.80 mm | |
| M Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | X | 40 | 0.13 | 0.25 | 0.28 | 0.30 | 0.33 | |
| | 275 - 350 | X | 35 | 0.10 | 0.23 | 0.25 | 0.28 | 0.30 | |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | X | 40 | 0.13 | 0.18 | 0.20 | 0.23 | 0.30 |
| | | 185 - 275 | X | 35 | 0.10 | 0.15 | 0.18 | 0.20 | 0.28 |
| | PH Stainless 17-4, 13-8, 15-5 | 275-350 | X | 30 | 0.08 | 0.10 | 0.15 | 0.20 | 0.25 |
| | | 350-425 | X | 25 | 0.08 | 0.10 | 0.15 | 0.20 | 0.25 |
| Super Duplex Stainless Steel | 135 - 185 | X | 40 | 0.13 | 0.13 | 0.15 | 0.15 | 0.18 | |
| | 185 - 275 | X | 35 | 0.10 | 0.13 | 0.13 | 0.15 | 0.15 | |
| H Wear Plate Hardox®, AR400, T-1, etc. | 400 | X | 20 | 0.08 | 0.15 | 0.20 | 0.23 | 0.30 | |
| | 500 | X | 15 | 0.05 | 0.13 | 0.18 | 0.20 | 0.25 | |
| | 600 | - | - | - | - | - | - | - | |
| | Hardened Steel | 300 - 400 | X | 30 | 0.08 | 0.15 | 0.20 | 0.23 | 0.30 |
| 400 - 500 | | X | 15 | 0.05 | 0.13 | 0.18 | 0.20 | 0.25 | |
| K SG / Nodular Cast Iron | 120 - 150 | X | 90 | 0.18 | 0.30 | 0.41 | 0.51 | 0.61 | |
| | 150 - 200 | X | 85 | 0.15 | 0.28 | 0.36 | 0.46 | 0.56 | |
| | 200 - 220 | X | 75 | 0.15 | 0.23 | 0.30 | 0.41 | 0.46 | |
| | 220 - 260 | X | 65 | 0.13 | 0.18 | 0.23 | 0.30 | 0.36 | |
| | 260 - 320 | X | 55 | 0.10 | 0.15 | 0.18 | 0.23 | 0.30 | |
| N Cast Aluminum | 30 | X | 185 | 0.20 | 0.33 | 0.41 | 0.51 | 0.56 | |
| | 180 | X | 90 | 0.20 | 0.33 | 0.41 | 0.46 | 0.56 | |
| | Wrought Aluminum | 30 | X | 275 | 0.23 | 0.33 | 0.43 | 0.51 | 0.61 |
| | | 180 | X | 185 | 0.13 | 0.18 | 0.25 | 0.33 | 0.41 |
| | Aluminum Bronze | 100 - 200 | X | 90 | 0.15 | 0.28 | 0.36 | 0.46 | 0.56 |
| | | 200 - 250 | X | 75 | 0.13 | 0.18 | 0.23 | 0.30 | 0.36 |
| | Brass | 100 | X | 150 | 0.18 | 0.30 | 0.41 | 0.51 | 0.61 |
| Copper | 60 | X | 100 | 0.05 | 0.08 | 0.15 | 0.20 | 0.25 | |

7xD and 10xD Adjustment Example (0.80 Adjustment)

| Data • Adjustment Value | Speed/Feed (7xD) |
|-------------------------|------------------|
| 100 M/min • 0.80 | = 80 M/min |
| 0.2 mm/rev • 0.80 | = 0.16 mm/rev |

12xD and 15xD Adjustment Example (0.70 Adjustment)

| Speed • Adjustment Value | Speed/Feed (12xD) |
|--------------------------|-------------------|
| 100 M/min • 0.70 | = 70 M/min |
| 0.2 mm/rev • 0.70 | = 0.14 mm/rev |

Coolant Recommendations

| Series | STUB, 3xD, 5xD | | 7xD, 10xD | | 12xD, 15xD | |
|----------|----------------|---------------|--------------|---------------|--------------|---------------|
| | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM | Pressure BAR | Flow Rate LPM |
| Z | 31 | 15 | 34 | 22 | 45 | 30 |
| 0 | 24 | 22 | 31 | 34 | 34 | 45 |
| 1 | 21 | 30 | 27 | 38 | 34 | 45 |
| 2 | 17 | 38 | 24 | 49 | 31 | 60 |
| 3 | 14 | 45 | 21 | 53 | 27 | 68 |

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A Pro holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures.
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the coolant recommendation chart for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. For 7xD, 10xD, 12xD, and 15xD holder lengths, see adjustment example above.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Tap Drill Information and Formulas | Imperial (inch)

American - Unified Inch Screw Thread

| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
|------------|----------------|--------------------|-----------------|------------------------|--------------------|----------------------|
| 1/2 - 20 | 29/64 | 0.4531 | 72% | 0.003 | 0.4561 | 68% |
| 9/16 - 12 | 12.0 mm | 0.4724 | 72% | 0.003 | 0.4754 | 69% |
| | 31/64 | 0.4844 | 83% | 0.003 | 0.4874 | 80% |
| 9/16 - 18 | 1/2 | 0.5000 | 87% | 0.003 | 0.5030 | 82% |
| | 13.0 mm | 0.5118 | 70% | 0.003 | 0.5148 | 66% |
| | 31/64 | 0.5156 | 65% | 0.003 | 0.5186 | 61% |
| 5/8 - 11 | 17/32 | 0.5313 | 79% | 0.003 | 0.5343 | 77% |
| 5/8 - 12 | 35/64 | 0.5469 | 72% | 0.003 | 0.5499 | 69% |
| 5/8 - 18 | 9/16 | 0.5625 | 87% | 0.003 | 0.5655 | 82% |
| | 14.5 mm | 0.5709 | 75% | 0.003 | 0.5739 | 71% |
| | 37/64 | 0.5781 | 65% | 0.003 | 0.5811 | 61% |
| 11/16 - 12 | 39/64 | 0.6094 | 72% | 0.003 | 0.6124 | 69% |
| 3/4 - 10 | 41/64 | 0.6406 | 84% | 0.003 | 0.6436 | 82% |
| | 16.5 mm | 0.6496 | 77% | 0.003 | 0.6526 | 75% |
| | 21/32 | 0.6563 | 72% | 0.003 | 0.6593 | 70% |
| 3/4 - 12 | 43/64 | 0.6719 | 72% | 0.003 | 0.6749 | 69% |
| 3/4 - 16 | 11/16 | 0.6875 | 77% | 0.003 | 0.6905 | 73% |
| | 17.5 mm | 0.6890 | 75% | 0.003 | 0.6920 | 71% |
| 7/8 - 9 | 49/64 | 0.7656 | 76% | 0.003 | 0.7686 | 74% |
| | 25/32 | 0.7813 | 65% | 0.003 | 0.7843 | 63% |
| 7/8 - 14 | 51/64 | 0.7969 | 84% | 0.003 | 0.7999 | 81% |
| | 13/16 | 0.8125 | 67% | 0.003 | 0.8155 | 64% |
| 15/16 - 12 | 55/64 | 0.8594 | 72% | 0.003 | 0.8624 | 69% |
| 15/16 - 20 | 57/64 | 0.8906 | 72% | 0.003 | 0.8936 | 68% |
| 1 - 8 | 22.0 mm | 0.8661 | 82% | 0.003 | 0.8691 | 81% |
| | 7/8 | 0.8750 | 77% | 0.003 | 0.8780 | 75% |
| | 57/64 | 0.8906 | 67% | 0.003 | 0.8936 | 65% |
| 1 - 12 | 29/32 | 0.9063 | 87% | 0.003 | 0.9093 | 84% |
| | 59/64 | 0.9219 | 72% | 0.003 | 0.9249 | 69% |
| 1 - 14 | 15/16 | 0.9375 | 67% | 0.003 | 0.9405 | 64% |
| 1-1/8 - 12 | 1-1/32 | 1.0313 | 87% | 0.003 | 1.0343 | 84% |
| | 1-3/64 | 1.0469 | 72% | 0.003 | 1.0499 | 69% |
| 1-1/4 - 7 | 1-7/64 | 1.1094 | 76% | 0.003 | 1.1124 | 74% |

Taper Pipe Thread (NPT)

| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
|----------|----------------|--------------------|-----------------|------------------------|--------------------|----------------------|
| 1/4 - 18 | 7/16 | 0.4375 | - | 0.003 | 0.4405 | - |
| 3/8 - 18 | 9/16 | 0.5625 | - | 0.003 | 0.5655 | - |
| 1/2 - 14 | 45/64 | 0.7031 | - | 0.003 | 0.7061 | - |
| 3/4 - 14 | 29/32 | 0.9063 | - | 0.003 | 0.9093 | - |

* Based on nominal tap drill diameter

** Based on 0.003" probable mean oversize

To calculate the percent of full thread for a given hole diameter:

$$\% \text{ Thread} = \# \text{ of threads per inch} \cdot \frac{(\text{Basic major diameter of thread} - \text{Drill hole size})}{.0130}$$

Notes

- The above tap drill information represents probable thread percentages for the standard tap drills stocked at Allied Machine. Special insert diameters may be required in order to meet a user specific percentage of thread requirement.
- The 0.003" probable mean oversize hole condition is based on optimum cutting conditions. Probable percent of full thread may vary based on less ideal cutting conditions.
- The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the editor of the *Machinery's Handbook*.

Formulas

| | | |
|----|-------------------|---|
| 1. | RPM | = (3.82 • SFM) / DIA |
| | where: | |
| | RPM | = revolutions per minute (rev/min) |
| | SFM | = speed (ft/min) |
| | DIA | = diameter of drill (inch) |
| 2. | IPM | = RPM • IPR |
| | where: | |
| | IPM | = inches per minute (in/min) |
| | RPM | = revolutions per minute (rev/min) |
| | IPR | = feed rate (in/rev) |
| 3. | SFM | = RPM • 0.262 • DIA |
| | where: | |
| | SFM | = speed (ft/min) |
| | RPM | = revolutions per minute (rev/min) |
| | DIA | = diameter of drill (inch) |
| 4. | Thrust | = 153,700 • IPR • DIA • K _m |
| | where: | |
| | Thrust | = axial thrust (lbs) |
| | IPR | = feed rate (in/rev) |
| | DIA | = diameter of drill (inch) |
| | K _m | = specific cutting energy (lbs/in ²) |
| 5. | Tool Power | = .6991 • IPR • RPM • K _m • DIA ² |
| | where: | |
| | Tool Power | = tool power (HP) |
| | IPR | = feed rate (in/rev) |
| | RPM | = revolutions per minute (rev/min) |
| | K _m | = specific cutting energy (lbs/in ²) |
| | DIA | = diameter of drill (inch) |

Material Constants

| Type of Material | Hardness | K _m (lbs/in ²) |
|------------------------------|---------------|---------------------------------------|
| Plain Carbon and Alloy Steel | 85 - 200 BHN | 0.79 |
| | 200 - 275 BHN | 0.94 |
| | 275 - 375 BHN | 1.00 |
| High-Temperature Alloys | - | 1.44 |
| Titanium Alloy | - | 0.72 |
| Stainless Steels | 135 - 275 BHN | 0.94 |
| | 30 - 45 RC | 1.08 |
| Cast Iron | 100 - 200 BHN | 0.50 |
| | 200 - 300 BHN | 1.08 |
| Copper Alloy | 20 - 80 RB | 0.43 |
| | 80 - 100 RB | 0.72 |
| Aluminum Alloy | - | 0.22 |
| Magnesium Alloy | - | 0.16 |

Tap Drill Information and Formulas | Metric (mm)

| Tap Size | Tap Drill Size | Decimal Equivalent (inch) | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
|-----------|----------------|---------------------------|-----------------|------------------------|--------------------|----------------------|
| 12 X 1.25 | 27/64 | 0.4219 | 79% | 0.075 mm | 10.79 mm | 74% |
| | 10.8 mm | 0.4252 | 74% | 0.075 mm | 10.88 mm | 69% |
| 14 X 2.0 | 15/32 | 0.4688 | 81% | 0.075 mm | 11.98 mm | 78% |
| | 12.0 mm | 0.4724 | 77% | 0.075 mm | 12.08 mm | 74% |
| 14 X 1.5 | 12.5 mm | 0.4921 | 77% | 0.075 mm | 12.58 mm | 73% |
| 16 X 2.0 | 14.0 mm | 0.5512 | 77% | 0.075 mm | 14.08 mm | 74% |
| 16 X 1.5 | 14.5 mm | 0.5709 | 77% | 0.075 mm | 14.58 mm | 73% |
| | 37/64 | 0.5781 | 68% | 0.075 mm | 14.76 mm | 64% |
| 18 X 2.5 | 15.5 mm | 0.6102 | 77% | 0.075 mm | 15.58 mm | 75% |
| 18 X 1.5 | 16.5 mm | 0.6496 | 77% | 0.075 mm | 16.58 mm | 73% |
| | 21/32 | 0.6563 | 68% | 0.075 mm | 16.75 mm | 64% |
| 20 X 2.5 | 11/16 | 0.6875 | 78% | 0.075 mm | 17.54 mm | 76% |
| | 17.5 mm | 0.6890 | 77% | 0.075 mm | 17.58 mm | 74% |
| 20 X 1.5 | 18.5 mm | 0.7283 | 77% | 0.075 mm | 18.58 mm | 73% |
| | 47/64 | 0.7344 | 69% | 0.075 mm | 18.66 mm | 65% |
| 22 X 2.5 | 49/64 | 0.7656 | 79% | 0.075 mm | 19.52 mm | 76% |
| | 19.5 mm | 0.7677 | 77% | 0.075 mm | 19.58 mm | 75% |
| 22 X 1.5 | 20.5 mm | 0.8071 | 77% | 0.075 mm | 20.58 mm | 73% |
| | 13/16 | 0.8125 | 70% | 0.075 mm | 20.71 mm | 66% |
| 24 X 3 | 13/16 | 0.8125 | 86% | 0.075 mm | 20.71 mm | 84% |
| | 21.0 mm | 0.8268 | 76% | 0.075 mm | 21.08 mm | 75% |
| 24 X 2 | 22.0 mm | 0.8661 | 77% | 0.075 mm | 22.08 mm | 74% |
| | 7/8 | 0.8750 | 68% | 0.075 mm | 22.30 mm | 65% |
| 27 X 3 | 24.0 mm | 0.9449 | 77% | 0.075 mm | 24.08 mm | 75% |

Formulas

| | |
|----|---|
| 1. | RPM = (318.47 • M/min) / DIA |
| | where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm) |
| 2. | mm/min = RPM • mm/rev |
| | where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev) |
| 3. | M/min = RPM • 0.003 • DIA |
| | where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm) |
| 4. | Thrust = 154 • (mm/rev) • DIA • K _m |
| | where: Thrust = axial thrust (N) mm/rev = feed rate (mm/rev) DIA = diameter of drill (mm) K _m = specific cutting energy (kPa) |
| 5. | Tool Power = ((mm/rev) • RPM • K _m • DIA ²) / 218604.8 |
| | where: Tool Power = tool power (HP) mm/rev = feed rate (mm/rev) RPM = revolutions per minute (rev/min) K _m = specific cutting energy (kPa) DIA = diameter of drill (mm) |

BSP and ISO 7-1

| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
|----------|----------------|--------------------|-----------------|------------------------|--------------------|----------------------|
| 1/4-19 | 7/16 | 0.4375 | - | 0.075mm | 11.19 mm | - |
| 3/8-19 | 37/64 | 0.5781 | - | 0.075mm | 14.76 mm | - |
| 1/2-14 | 23/32 | 0.7188 | - | 0.075mm | 18.33 mm | - |
| 3/4-14 | 15/16 | 0.9375 | - | 0.075mm | 23.89 mm | - |

* Based on nominal tap drill diameter

** Based on 0.075mm probable mean oversize

To calculate the percent of full thread for a given hole diameter:

$$\% \text{ Thread} = \frac{76.93}{\text{Pitch (mm)}} \cdot (\text{Basic major diameter} - \text{Drill hole size})$$

Notes

- The above tap drill information represents probable thread percentages for the standard tap drills stocked at Allied Machine. Special insert diameters may be required in order to meet a user specific percentage of thread requirement.
- The 0.075mm probable mean oversize hole condition is based on optimum cutting conditions. Probable percent of full thread may vary based on less ideal cutting conditions.
- The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the editor of the *Machinery's Handbook*.


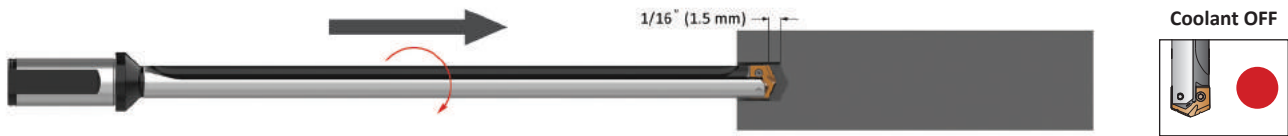




Material Constants

| Type of Material | Hardness | K _m (kPa) |
|------------------------------|---------------|----------------------|
| Plain Carbon and Alloy Steel | 85 - 200 BHN | 5.45 |
| | 200 - 275 BHN | 6.48 |
| | 275 - 375 BHN | 6.89 |
| | 375 - 425 BHN | 7.93 |
| High-Temperature Alloys | - | 9.93 |
| Titanium Alloy | - | 4.96 |
| Stainless Steels | 135 - 275 BHN | 6.48 |
| | 30 - 45 RC | 7.45 |
| Cast Iron | 100 - 200 BHN | 3.45 |
| | 200 - 300 BHN | 7.45 |
| Copper Alloy | 20 - 80 RB | 2.96 |
| | 80 - 100 RB | 4.96 |
| Aluminum Alloy | - | 1.52 |
| Magnesium Alloy | - | 1.10 |

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Deep Hole Drilling Guidelines

T-A Pro | 10xD, 12xD, and 15xD Holders

| | | | |
|-----------------|--|---|--|
| A DRILLING | <p>1. Pilot Hole 100 % RPM 100% IPR (mm/rev)</p> | <p>Establish the pilot hole using the same diameter short drill to a depth of 2xD minimum. Utilize a pilot drill with the same or larger included point angle.</p> |  |
| B BORING | <p>2. Feed-in 50 RPM max 12 IPM (300 mm/min)</p> | <p>Feed the longer drill within 1/16" (1.5 mm) short of the established pilot hole bottom at a maximum of 50 RPM and 12 IPM (300 mm/min) feed rate.</p> |  |
| C REAMING | <p>3. Deep Hole Transition Drilling 50 % RPM 75% IPR (mm/rev)</p> | <p>Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed. Minimum of one second dwell is required to meet full speed before feeding.</p> |  |
| D BURNISHING | <p>4. Deep Hole Drilling - Blind 100% RPM 100% IPR (mm/rev)</p> | <p>Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts. No peck cycle recommended.</p> |  |
| E THREADING | <p>5. Deep Hole Drilling - at Breakout 50% RPM 75% IPR (mm/rev)</p> | <p>For through holes only: Reduce speed by 50% and feed by 25% prior to breakout. Do not breakout more than 1/8" (3 mm) past the full diameter of the drill.</p> |  |
| X SPECIALS | <p>6. Drill Retract 50 RPM max</p> | <p>Reduce speed to a maximum of 50 RPM before retracting from the hole.</p> |  |

1. WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A Pro holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures.

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Troubleshooting Guide

| | Potential Problem | | | | | | | | | | | | | | | | | | | |
|--|-------------------------|-------------|-----------------|-----------------|------------|---------------------|---------|--------------|-------------------|-------------------------|-----------------------|-----------------|---------------|----------------------|-------------------|----------------|------------------|----------------|---------------------------|---|
| | Accelerated corner wear | Barber pole | Bell-mouth hole | Insert chipping | Blue chips | Built-Up Edge (BUE) | Chatter | Chip packing | Chipping of point | Damaged or broken tools | Excessive margin wear | High flank wear | Hole lead off | Hole out of position | Hole out of round | Over-size hole | Poor hole finish | Poor tool life | Power spikes - Load meter | |
| Setup Condition | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Possible Solutions |
| Worn or misaligned spindle (lathe, screw machine, chucker) | 1 | 2 | 3 | | | | 7 | | 9 | 10 | 11 | | 13 | | | 16 | 17 | | | <ul style="list-style-type: none"> Align spindle and turret or tailstock. Repair spindle. |
| Use of low rigidity machine tools | | 2 | 3 | 4 | | | 7 | | 9 | 10 | | | 13 | 14 | | | | | | <ul style="list-style-type: none"> Reduce penetration rate to fall within the physical limits of the machine or setup (NOTICE: Do not reduce feed below threshold of good chip formation). |
| Poor work piece support | | 2 | | 4 | | | 7 | | | 10 | 11 | | | | 15 | | 17 | | | <ul style="list-style-type: none"> Provide additional support for the work piece. Reduce penetration rate to fall within the physical limits of the machine or setup (NOTICE: Do not reduce feed below threshold of good chip formation). |
| Flood coolant, low coolant pressure, or low coolant volume | 1 | | | | 5 | 6 | | 8 | | 10 | | 12 | | | | 16 | 17 | 18 | 19 | <ul style="list-style-type: none"> Run coolant through tool holder when drilling greater than 1xD. Increase coolant pressure and volume through the tool holder. Reduce penetration rate to fall within the coolant limitations (NOTICE: Do not reduce feed below threshold of good chip formation). Add a peck cycle to help clear chips. |
| Interrupted cuts. Entry or exit surfaces that are not perpendicular to the spindle (draft angles, parting lines, curved or stepped surfaces, cross holes, and cast or forged surfaces) | | | | 4 | | | 7 | | 9 | 10 | 11 | | 13 | 14 | 15 | 16 | 17 | 18 | | <ul style="list-style-type: none"> Pre-mill (spot face) entry or exit surface to remove interruption. Decrease feed as much as 50% through entry or exit interruption. Use short holders in low impact entry cuts. |
| Material harder than expected or running tools beyond recommended speed | 1 | | | | 5 | 6 | | | | 10 | | 12 | | | | | | 18 | | <ul style="list-style-type: none"> Reduce speed. Increase coolant pressure and volume. Improve coolant condition by use of quality products and regular maintenance. |
| Poor material micro-structure or foreign particles (forgings and castings that have not been normalized or annealed, poorly prepared steel, flame cut parts, and sand casting) | | | | 4 | | 6 | | | | 10 | | 12 | 13 | | | | | 18 | | <ul style="list-style-type: none"> Compare performance of other tools for similar wear problems, which may indicate poor micro-structure. Anneal or normalize parts to improve micro-structure for machining. Reduce feeds (NOTICE: Do not reduce feed below threshold of good chip formation). |
| Poor chip control | | | | | | | | 8 | | 10 | 11 | | 13 | | | 16 | 17 | 18 | 19 | <ul style="list-style-type: none"> Increase feed to recommended levels. Contact Allied's Application Engineering group for technical recommendations. Increase coolant pressure and volume. Improve coolant condition by use of quality products and regular maintenance. |
| Spot drilled holes with included angle less than that matching T-A Pro or cored holes | 1 | | | 4 | | | 7 | | | | | | 13 | | | | | 18 | | <ul style="list-style-type: none"> Spot hole with short tool of same or greater included angle as T-A Pro drill insert. Reduce feed (NOTICE: Do not reduce feed below threshold of good chip formation). If possible, drill from solid. |

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

SECTION

A30

T-A® Drilling System

T-A® Drilling System

Replaceable Insert Drilling System | GEN2 T-A® | T-A®

► Diameter Range: 0.374" - 4.507" (9.50 mm - 114.48 mm)



This is Not Yesterday's Spade Drill

The T-A drilling system is an innovation inspired by the Universal replaceable spade insert drilling system. However, with the development of the GEN2 T-A insert, along with the countless geometry options for the T-A, this drilling system provides benefits and performance that spade blade inserts of the past never could.

With constant innovations in holder designs, insert geometries and coatings, and coolant dispersion, the T-A drilling system continues to evolve and become much more productive and powerful than ever before.

| | | |
|--------------------------------|---------------------------|--|
| Excellent hole size and finish | Optimizes chip evacuation | Wide range of geometry options available |
|--------------------------------|---------------------------|--|

Applicable Industries



Aerospace



Agriculture



Automotive



Firearms



General Machining



Oil & Gas



Renewable Energy

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

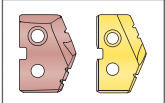
NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

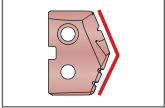
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



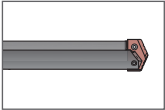
T-A Inserts

Refers to the range of inserts that connect with the corresponding holders



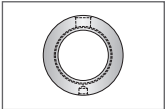
Available Insert Geometries

Details for the different geometry options available for each T-A insert style



T-A Holders

Refers to the range of holders that connect with the corresponding inserts



Rotary Coolant Adapter (RCA) Information

Detailed instructions and information regarding the corresponding part(s)



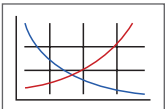
T-ACR 45 Chamfer Rings

Refers to the range of T-ACR 45 chamfer rings available for the corresponding holders



Technical Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling



Coolant-Through Option

Indicates that the product is coolant through

| Series | Diameter Range | |
|--------|-----------------|-----------------|
| | Imperial (inch) | Metric (mm) |
| Y | 0.374 - 0.436 | 9.50 - 11.07 |
| Z | 0.437 - 0.510 | 11.10 - 12.95 |
| 0 | 0.511 - 0.695 | 12.98 - 17.65 |
| 1 | 0.690 - 0.960 | 17.53 - 24.38 |
| 2 | 0.961 - 1.380 | 24.41 - 35.05 |
| 3 | 1.353 - 1.882 | 34.36 - 47.80 |
| 4 | 1.850 - 2.570 | 46.99 - 65.28 |
| 5 | 2.456 - 3.000 | 62.38 - 76.20 |
| 6 | 3.001 - 3.507 | 76.22 - 89.08 |
| 7 | 3.508 - 4.000 | 89.10 - 101.60 |
| 8 | 4.001 - 4.507 | 101.63 - 114.48 |

Introduction Information

T-A Inserts Overview 2 - 3
 T-A Insert Geometries 4 - 6
 T-A Holders Overview 7
 Technical Information 8 - 9
 Product Nomenclature 10 - 11

T-A Drill Series

Y Series 12 - 21
 Z Series 22 - 31
 0 Series 32 - 43
 1 Series 44 - 57
 2 Series 58 - 73
 3 Series 74 - 85
 4 Series 86 - 93
 5 and 6 Series 94 - 101
 7 and 8 Series 102 - 109

T-A Drill Adapters

Rotary Coolant Adapters (RCA) 110
 T-ACR 45 Chamfer Rings 111















Recommended Cutting Data

| | |
|---|---|
| Imperial (inch) | GEN2 T-A® 112 - 115 |
| | T-A 116 - 119 |
| | Flat Bottom Geometry 120 - 123 |
| | Diamond Coating 124 |
| | Tap Drill Information 125 |
| | Coolant Recommendations 126 - 127 |
| | GEN2 T-A 128 - 131 |
| | T-A 132 - 135 |
| | Flat Bottom Geometry 136 - 139 |
| | Diamond Coating 140 |
| Tap Drill Information 141 | |
| Coolant Recommendations 142 - 143 | |















Troubleshooting Guide 144 - 145

Deep Hole Drilling Guidelines 146






T-A Drilling System Overview | Drill Inserts

| Series | Y Series | Z Series | 0 Series | 1 Series | 2 Series | 3 Series | 4 Series |
|---------------------|---|---|---|---|---|---|---|
| GEN2 T-A® |  |  |  |  |  |  |  |
| D ₁ inch | 0.374 - 0.436 | 0.437 - 0.510 | 0.511 - 0.695 | 0.690 - 0.960 | 0.961 - 1.380 | 1.353 - 1.882 | 1.850 - 2.570 |
| D ₁ mm | 9.50 - 11.07 | 11.10 - 12.95 | 12.98 - 17.65 | 17.53 - 24.38 | 24.41 - 35.05 | 34.36 - 47.80 | 46.99 - 65.28 |
| Half Series Option* |  |  |  |  |  |  |  |
| HSS Substrates | Super Cobalt | Super Cobalt | Super Cobalt | Super Cobalt | Super Cobalt | HSS Super Cobalt Premium Cobalt | HSS Super Cobalt |
| Carbide Substrates | C1 (K35) C2 (K20) | C1 (K35) C2 (K20) | C1 (K35) C2 (K20) | C1 (K35) C2 (K20) | C1 (K35) C2 (K20) | - | - |
| Coatings | AM200® AM300® | AM200® AM300® | AM200® AM300® | AM200® AM300® | AM200® AM300® | AM200® TiN | AM200® TiN |





*See page A30: 7 for more information regarding half series options





| Series | Y Series | Z Series | 0 Series | 1 Series | 2 Series | 3 Series | 4 Series |
|---------------------|---|---|---|---|---|---|---|
| T-A® |  |  |  |  |  |  |  |
| D ₁ inch | 0.374 - 0.436 | 0.437 - 0.510 | 0.511 - 0.695 | 0.690 - 0.960 | 0.961 - 1.380 | 1.353 - 1.882 | 1.850 - 2.570 |
| D ₁ mm | 9.50 - 11.07 | 11.10 - 12.95 | 12.98 - 17.65 | 17.53 - 24.38 | 24.41 - 35.05 | 34.36 - 47.80 | 46.99 - 65.28 |
| Half Series Option* |  |  |  |  |  |  |  |
| HSS Substrates | Super Cobalt Premium Cobalt | Super Cobalt Premium Cobalt | Super Cobalt Premium Cobalt | HSS Super Cobalt Premium Cobalt | HSS Super Cobalt Premium Cobalt | Super Cobalt | Super Cobalt |
| Carbide Substrates | C2 (K20) C3 (K10) C5 (P40) N2 | C2 (K20) C3 (K10) C5 (P40) N2 | C2 (K20) C3 (K10) C5 (P40) N2 | C2 (K20) C3 (K10) C5 (P40) N2 | C2 (K20) C3 (K10) C5 (P40) N2 | C2 (K20) C5 (P40) | - |
| Coatings | TiN TiAlN TiCN | TiN TiAlN TiCN | TiN TiAlN TiCN | TiN TiAlN TiCN | TiN TiAlN TiCN | TiN | TiN |

*See page A30: 7 for more information regarding half series options

| Drill Insert Coatings | | | | |
|---|---|--|---|---|
|  <p>AM300®</p> <ul style="list-style-type: none"> Increased heat resistance over AM200® coating Up to 20% increased tool life over AM200 coating Provides superior tool life at high penetration rates Color: copper/orange |  <p>AM200®</p> <ul style="list-style-type: none"> First choice for increased heat resistance over TiN, TiCN, and TiAlN with improved wear capabilities Allows for improved tool life and higher penetration rates Over 20% increase in tool life compared to TiAlN coating Color: copper/bronze |  <p>TiN</p> <ul style="list-style-type: none"> General purpose coating Improved tool life over non-coated inserts Excellent choice for aluminum Color: gold/yellow |  <p>TiAlN</p> <ul style="list-style-type: none"> Excellent choice for wear resistance over high surface speeds Excellent oxidation resistance Maximum working temperature 800°C Color: violet/grey |  <p>TiCN</p> <ul style="list-style-type: none"> Excellent choice for wear resistance over low surface speeds High hardness/wear resistance Maximum working temperature 400°C Color: blue/grey |

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

| 5 Series | 6 Series | 7 Series | 8 Series |
|---|---|--|---|
|  |  |  |  |
| 2.456 - 3.000 | 3.001 - 3.507 | 3.508 - 4.000 | 4.001 - 4.507 |
| 62.38 - 76.20 | 76.22 - 89.08 | 89.10 - 101.60 | 101.63 - 114.48 |
| ✘ | ✘ | ✘ | ✘ |
| HSS Super Cobalt | HSS Super Cobalt | HSS Super Cobalt | HSS Super Cobalt |
| - | - | - | - |
| AM200® TiN | AM200® TiN | AM200® TiN | AM200® TiN |

| 5 Series | 6 Series | 7 Series | 8 Series |
|--|--|---|--|
|  |  |  |  |
| 2.456 - 3.000 | 3.001 - 3.507 | 3.508 - 4.000 | 4.001 - 4.507 |
| 62.38 - 76.20 | 76.22 - 89.08 | 89.10 - 101.60 | 101.63 - 114.48 |
| ✘ | ✘ | ✘ | ✘ |
| HSS Super Cobalt | HSS Super Cobalt | HSS Super Cobalt | HSS Super Cobalt |
| - | - | - | - |
| TiN | TiN | TiN | TiN |

| Drill Insert Grades | | | |
|--|---|--|--|
| <p>HSS (T-A® / GEN2 T-A®)</p> <p>First choice for general purpose use. Suited for difficult machining applications with low rigidity, as well as deep hole drilling. Recommended for drilling most steels, cast irons, and aluminum alloys up to 275 BHN.</p> | <p>HSS Super Cobalt (T-A® / GEN2 T-A®)</p> <p>Suited for good-to-rigid machining applications, used for drilling exotic and high-alloy materials, or general use when surface speed needs to be increased. For use in material hardness up to 350 BHN.</p> | <p>HSS Premium Cobalt (T-A® / GEN2 T-A®)</p> <p>Suited for rigid machining applications, used for drilling exotic and high alloy materials, or general use when surface speed needs to be increased. For material hardness up to 400 BHN.</p> | <p>Carbide C5 (P40) (T-A®)</p> <p>Excellent for drilling free-machining steel, low/medium-carbon steels, alloy steels, high-strength steels, tool steels, and hardened steels.</p> |
| <p>Carbide C3 (K10) (T-A®)</p> <p>Designed for drilling grey/white cast irons. The special geometry offers substantial increase in penetration rates and provides exceptional edge strength and tool life.</p> | <p>Carbide C2 (K20) (T-A® / GEN2 T-A®)</p> <p>Excellent for drilling high-temperature alloys, titanium alloys, cast aluminum, SG/nodular cast iron, grey/white iron, aluminum bronze, brass, copper, and certain stainless steels.</p> | <p>Carbide C1 (K35) (T-A® / GEN2 T-A®)</p> <p>Excellent for drilling free-machining steels, low/medium-carbon steels, alloy steels, high -strength steels, tool steels, and hardened steels.</p> | <p>Carbide N2 (T-A®)</p> <p>Allied's N2 carbide is used with CVD diamond coating. This improves the insert's hardness, durability, and performance, which extends tool life between 30 - 50x over uncoated carbide.</p> |

Insert Geometries

There's a Geometry for That

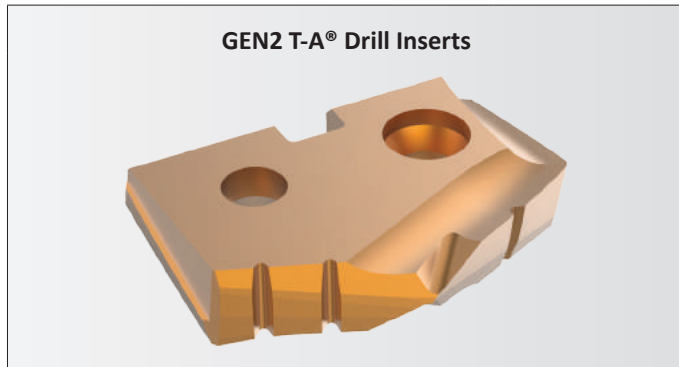
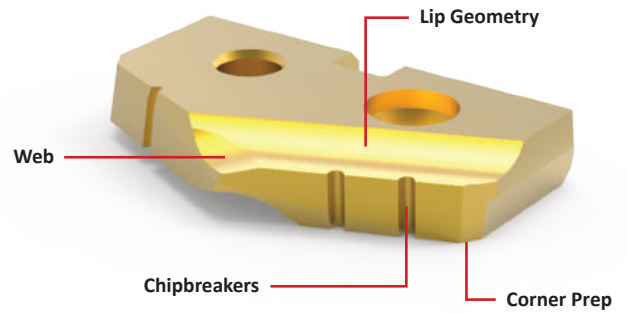
Allied Machine knows there isn't a one-size-fits-all solution when it comes to holemaking. To better accommodate the countless holes our customers drill, we have developed multiple geometry options with new geometries in development at all times.

If you're unsure which geometry would be best for your application, give our Application Engineers a call. They're standing by ready to point you in the right direction.

☎ 1.330.343.4283

☎ 1.800.321.5537 (toll free United States and Canada)

✉ appeng@alliedmachine.com



GEN2 T-A® Drill Inserts



T-A® Drill Inserts

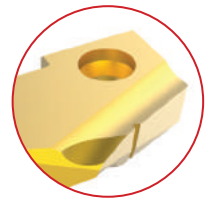
Standard

- Offers substantial increases in penetration rates and tool life
- Improves centering, drill stability, chip formation, and lowers drill forces
- Provides smoother breakout on through hole applications



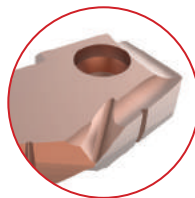
Standard

- Offers excellent penetration rates and tool life
- Smooth break-out on through holes
- Increases drill stability and chip formation
- Ideally suited for low-to-high rigidity machining applications



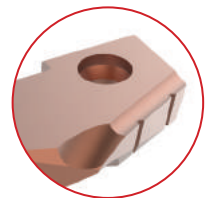
High Efficiency (-HE)

- Excellent chip formation in materials with very high elasticity/ductility and poor chip forming conditions
- Effective in lower-powered machines
- Material example: low-carbon steel (not suitable for stainless steel)



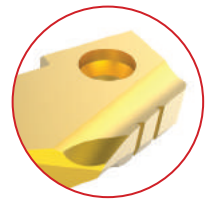
Tiny Chip (-TC)

- Unique lip and point design for excellent chip control
- Improved capabilities in long-chipping materials such as low-carbon steels and soft alloy steels
- Enhanced performance in lower-powered machines for better chip formation at lower feed rates



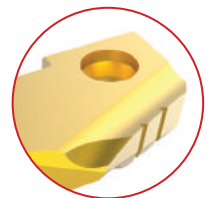
Corner Radius (-CR)

- Improves exit burrs
- Excellent surface finish in most applications
- Improves heat dispersion and tool life
- Can be used in addition to other geometries (as a special)



Special Corner Preparation (-SK)

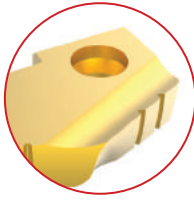
- Ideal for machining cast iron materials
- Larger than a standard corner clip
- Improves heat resistance
- Standard feature on CI, HI, and HR geometries



continued on next page

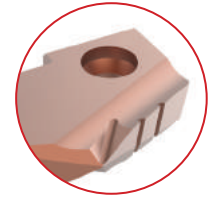
Cam Point (-CP)

- Helical cam ground point
- Improves drill stability and centering characteristics
- Reduces bellmouthing when using longer holders
- Target materials: steels, cast/forged steels, cast iron



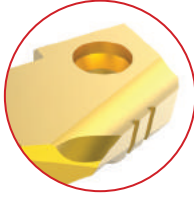
Notch Point® (-NP)

- Reduces bellmouth and lead-off
- Increases stability in deep hole applications
- Reduces thrust
- Can be used in addition to other geometries like cast iron, high rake, and high impact



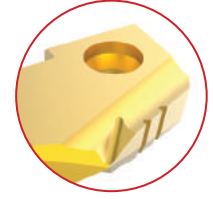
High Impact (-HI)

- Designed for materials with hardness > 200 BHN (700 N/mm²)
- Enhances chip formation in materials with high elasticity/ductility and poor chip forming characteristics
- SK corner clip improves tool life
- Target materials: structural/cast and forged steels (not suitable for stainless steel)



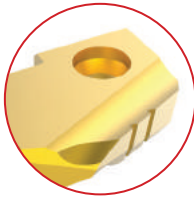
High Impact Notch Point® (-IN)

- Combination of high impact and Notch Point geometries
- Increases stability in deep hole applications
- Enhances chip formation in materials with high elasticity/ductility and poor chip forming characteristics



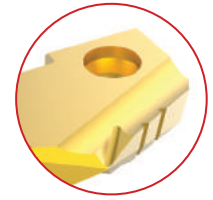
High Rake (-HR)

- Designed for materials with hardness < 200 BHN (700 N/mm²)
- Improves chip formation in materials with very high elasticity/ductility, extremely poor chip forming characteristics, and low material hardness
- SK corner clip improves tool life
- Target materials: soft steels, steel castings and forgings (not suitable for stainless steel)



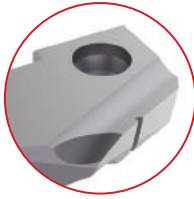
High Rake Notch Point® (-RN)

- Combination of high rake and Notch Point geometries
- Reduces bellmouth and lead-off
- Improves chip formation in materials with very high elasticity/ductility, extremely poor chip forming characteristics, and low material hardness



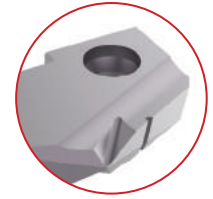
Cast Iron (-CI)

- Specifically designed for use in grey and white cast irons
- Exceptional edge strength
- SK2 corner preparation for improved tool life
- Standard geometry on C3 (K10) carbide inserts



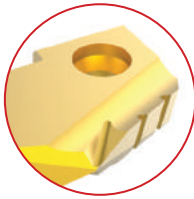
Cast Iron Notch Point® (-CN)

- Combination of cast iron and Notch Point geometries
- Increases stability in deep hole applications
- Specifically designed for use in grey and white cast irons



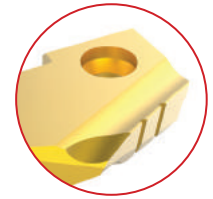
Aluminum (-AN)

- First choice for machining aluminum
- Enhanced geometry improves chip formation and hole quality
- TiN coating improves heat resistance and extends tool life



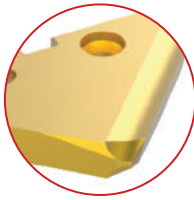
Brass (-BR)

- Improves tool life due to the specialized geometry and edge preparation
- Reduces self-feed tendency



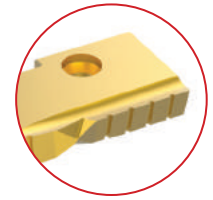
90° Spot and Chamfer (-SP)

- Center cutting web design improves stability and strength
- Eliminates the need for a secondary chamfering operation
- Available with chipbreakers (see -SW below)



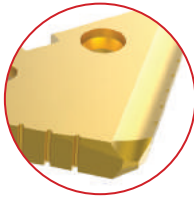
Flat Bottom (-FB)

- Ideal for flattening or squaring the bottom of preexisting holes with high rigidity
- Includes small 10° point on the nose of the insert
- Available without chipbreakers (see -FN below)



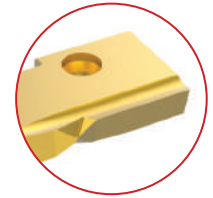
90° Spot and Chamfer (-SW)

- Center cutting web design improves stability and strength
- Eliminates the need for a secondary chamfering operation
- With added chipbreakers



Flat Bottom (-FN)

- Ideal for flattening or squaring the bottom of preexisting holes with high rigidity
- Includes small 10° point on the nose of the insert
- Available with chipbreakers (see -FB above)



Available Standard Insert Geometries

The following table shows which geometries are available as a standard item (based on insert type and series). If you need a geometry on your insert but it is not listed as available, please call the Application Engineering department to discuss quoting your insert as a special to include the desired geometry.

Additional lead time and process fees may apply.

| Available Additional Geometries | | GEN2 T-A® | | | T-A® | | | | | | |
|---------------------------------|----------------------------|--------------|--------------|--------------|--------------|----------|----------|-----------------|--------------|--------------|----------|
| | | Y - 2 Series | 3 - 4 Series | 5 - 8 Series | HSS Inserts | | | Carbide Inserts | | | |
| | | Y - 2 Series | 3 - 4 Series | 5 - 8 Series | Y - 2 Series | 3 Series | 4 Series | 5 - 8 Series | Y - Z Series | 0 - 2 Series | 3 Series |
| -AN | Aluminum | | | | ● | | | | ● | ● | |
| -BT | BT-A Specific | | | | | | | | ● | ● | ● |
| -BR | Brass | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| -CI | Cast Iron | | ● | | ● | ● | ● | | ● | ● | ● |
| -CN | Cast Iron Notch Point® | | | | ● | ● | | | ● | ● | ● |
| -CP | Cam Point | | | | ● | | | | ● | ● | |
| -CR | Corner Radius | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| -FB | Flat Bottom | | | | ● | ● | ● | | ● | ● | |
| -FN | Flat Bottom | | | | ● | ● | ● | | ● | ● | |
| -HE | High Efficiency | ● | ● | | | | | | | | |
| -HI | High Impact | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| -HR | High Rake | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| -IN | High Impact Notch Point® | | | | ● | ● | | | ● | ● | ● |
| -NC | No Chipbreaker | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| -NP | Notch Point® | | | | ● | ● | | | ● | ● | ● |
| -RN | High Rake Notch Point® | | | | ● | ● | | | ● | ● | ● |
| -SK | Special Corner Preparation | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| -SP | 90° Spot and Chamfer | | | | ● | ● | | | | | |
| -SW | 90° Spot and Chamfer | | | | ● | ● | | | | | |
| -TC | Tiny Chip | | | | ● | ● | ● | ● | ● | ● | ● |
| -WC | No Corner Clips | | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Drill Holders

Holder Length Options (for use with both T-A GEN2 and T-A inserts)



Stub Length | Series: Y - 3 (straight flute flanged shank only)



Short Length | Series: ALL



Intermediate Length | Series: ALL



Standard Length | Series: ALL



Standard Plus Length | Series: Y - 2 (helical flute flanged shank only)



Extended Length | Series: 0 - 3



Long Length | Series: 0 - 2



Long Plus Length | Series: 0



XL Length | Series: ALL



3XL Length | Series: ALL

Holder Shank Options



ER Collet Shank
Series: Y, Z, 0



Straight Shank
Series: ALL



Morse Taper Shank
Series: ALL



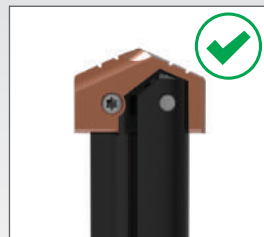
Flanged Shank
Series: ALL

Half Series Holders (0.5, 1.5, 2.5)

Half series holders are recommended when running carbide inserts toward the upper end of the series drill range, as well as in tougher applications requiring more insert support and holder strength. **NOTE:** Only specified half series inserts should be used with half series holders.



Standard Series Insert +
Standard Series Holder



Half Series Insert +
Standard Series Holder



Half Series Insert +
Half Series Holder



Standard Series Insert +
Half Series Holder

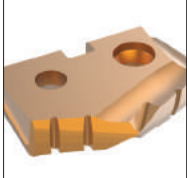
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

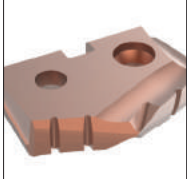
Technical Information

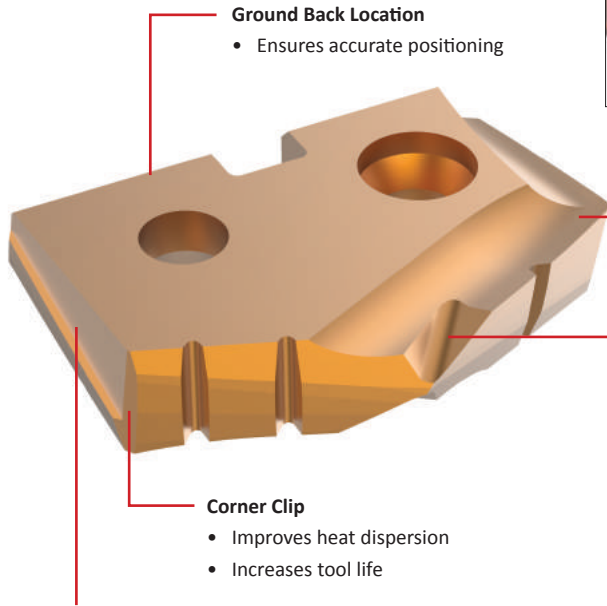
Next Level Solutions: GEN2 T-A®

What takes a solution to the next level? When you make innovative designs and enhancements to a product that already achieves high performance results, you push the boundaries of what is known. And when you push the known boundaries, the unknown becomes the next level.

After all, everything begins as unknown.

| | |
|---|--|
|  | <p style="text-align: center;">AM300® Coating</p> <ul style="list-style-type: none"> • Provides superior tool life at high penetration rates • Improves heat resistance over AM200® coating • Increases tool life up to 20% over AM200 coating |
|---|--|

| | |
|---|--|
|  | <p style="text-align: center;">AM200® Coating</p> <ul style="list-style-type: none"> • Improves heat resistance over TiN, TiCN, and TiAlN with improved wear capabilities • Increases penetration rates • Increases tool life more than 20% over TiAlN coating |
|---|--|



Ground Back Location

- Ensures accurate positioning

Curved Cutting Edge (not all series)

- Enhances chip formation

Notch Point® Geometry

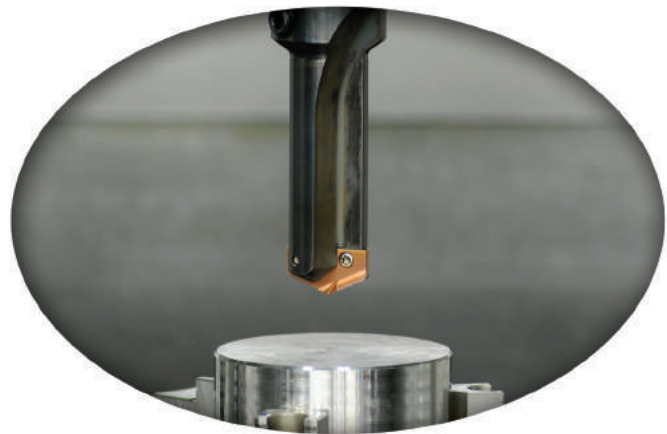
- Improves stability and hole straightness
- Reduces thrust

Corner Clip

- Improves heat dispersion
- Increases tool life

Helical Margin (not all series)

- Increases drill stability



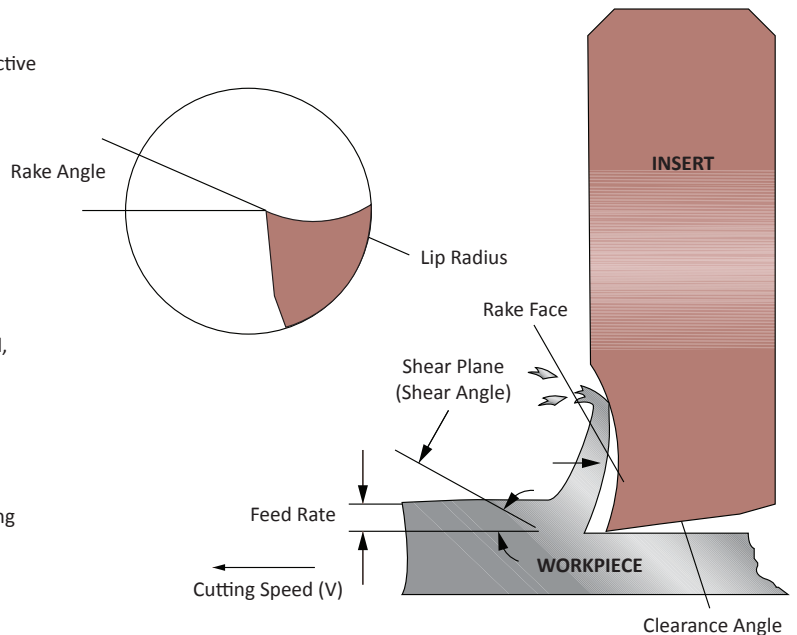
Improving Chip Formation

Achieving optimal chip formation is crucial. The quality of the chips being produced directly affects everything in the entire process: the cycle time, the tool life, the scrap rate, and the quality and condition of the final machined hole.

We know how important chip formation is. That's why we constantly improve and develop new geometries to create a better, more productive T-A product.

Setting Up New Applications

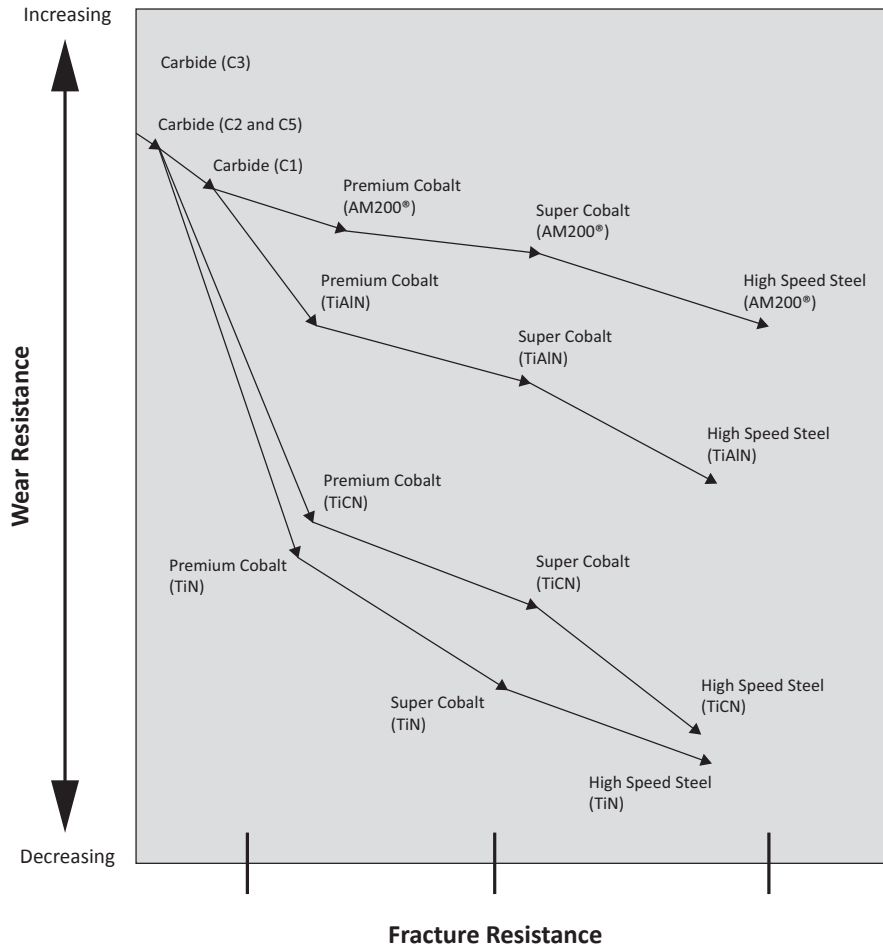
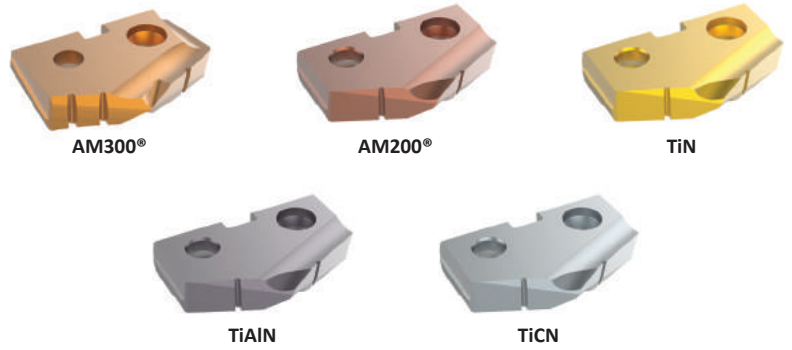
- Check coolant flows adequately through the tool before beginning
- Drill a short hole 1xD deep initially
- The chips produced should be short in length and material colored, not straw or blue
- Measure the hole produced to check that it is within the desired tolerance
- If all is correct, continue to machine the remainder of the hole
- Ensure the drilling process is quiet and smooth with no chip packing



Wear vs Toughness

When selecting a grade of cutting tool material for your application, both wear resistance and grade toughness should be considered. The greater the wear resistance a cutting tool material exhibits, the more likely chipping or fracture is to occur. This requires more rigid machining conditions.

On the other hand, to effectively machine some materials, cobalt or carbide grades of cutting tool material may be required. The graph will aid you in the selection of a cutting tool material with the right combination of wear resistance and toughness to make your application both efficient and cost-effective.



T-A System Guidelines for Use

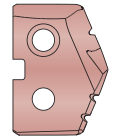
- Select the shortest holder possible for the application
- Ensure the T-A holder is held securely and is within 0.003" (0.08 mm) of center line
- The T-A insert should be installed in the slot of the holder using the TORX Plus screws provided. These should be tightened to the values listed on the T-A holder pages
- The holder slot should be clean from dirt or debris
- Check that the insert outer diameter is a minimum of 0.012" (0.30 mm) larger than the holder body diameter
- Use the recommended cutting data section for guidance when selecting correct insert grades, along with speeds and feeds
- **NOTE:** These cutting parameters are starting conditions only and make no allowance for machine or component rigidity



Product Nomenclature

T-A Drill Inserts

| | | | | | |
|----------|----------|----------|----------|---|-------------|
| 4 | 5 | 3 | H | - | 0115 |
| 1 | 2 | 3 | 4 | | 5 |



| 1. Insert | 2. Material | 3. Series | 4. Coating | 5. Diameter |
|---|--|--|---|---|
| 1 = T-A® 4 = GEN2 T-A® | 3 = HSS 5 = Super cobalt 8 = Premium cobalt C1 = C1 (K35) carbide C2 = C2 (K20) carbide C3 = C3 (K10) carbide C5 = C5 (P40) carbide | Y = Y series 4 = 4 series Z = Z series 5 = 5 series 0 = 0 series 6 = 6 series 1 = 1 series 7 = 7 series 2 = 2 series 8 = 8 series 3 = 3 series | P = AM300® H = AM200® A = TiAlN N = TiCN T = TiN | 0017 = Inch .515 = Decimal 13 = Metric |

Ordering Instructions

► Standard Items:

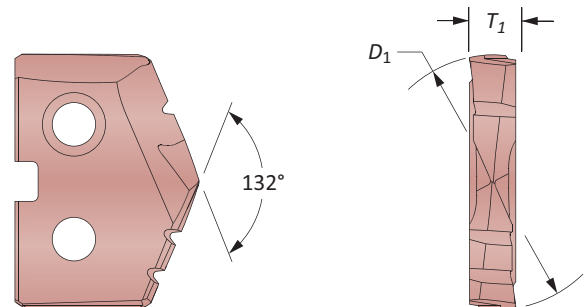
All orders are processed through Allied Machine's computerized order entry and invoicing system. Please specify the correct item number as well as a full description of the desired item(s) so we can process your order accurately and efficiently. Incorrect item numbers and/or descriptions will cause unnecessary delays and possible returns that are subject to a 10% restocking charge. Your assistance is critical if we are to achieve our goal of processing orders and shipping in-stock items error free within 24 hours.

► Non-Standard Sizes and Geometries:

| | |
|--|---|
| Nonstandard diameter | Substitute the required diameter in place of the standard diameter. Ex: Standard item number 132T-0101 Nonstandard diameter with standard geometry (inch) 132T-1.0200 (Note: 4 decimal places) Nonstandard diameter with standard geometry (metric) 132T-34.20 (Note: 2 decimal places) |
| Special geometry | Add the special geometry code at the end of the standard item number (see pages A30: 4 - 6 for geometry options). Ex: Standard item number 132T-0101 Standard diameter with special geometry (inch) 132T-0101-SK |
| Nonstandard diameter with special geometry | Replace the standard diameter and add the special geometry code. Ex: Standard item number 132T-0101 Nonstandard diameter with special geometry (inch) 132T-1.0200-SK (Note: 4 decimal places) |

Reference Key

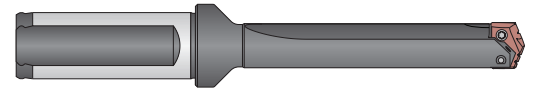
| Symbol | Attribute |
|--------|------------------|
| D_1 | Insert diameter |
| T_1 | Insert thickness |



Product Nomenclature

T-A Drill Holders

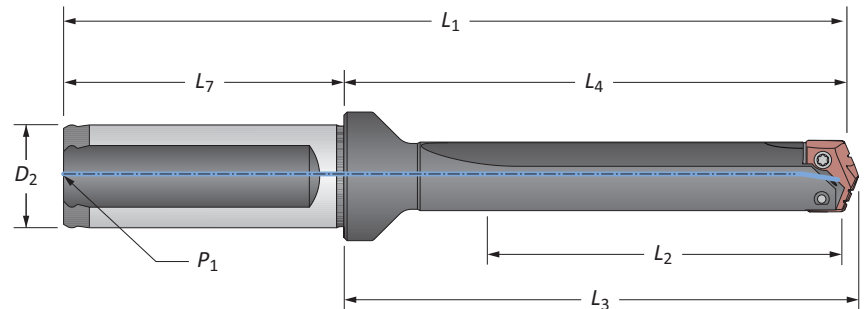
| | | | | | | |
|----------|-----------|-----------|----------|---|------------|----------|
| 2 | 30 | 20 | S | - | 004 | I |
| 1 | 2 | 3 | 4 | | 5 | 6 |



| 1. Holder | 2. Length | 3. Series | 4. Flute | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|---------------|---------------|---------------|-----------------|---------------|---------------|-----------------|---------------|---------------|---------------|-----------------|---------------|-----------------------------|--|--------------|------------|--|--------------|------------|--|----------|--|--|----------|--|---|--|--|
| 2 = T-A holder | 10 = Stub 20 = Short 30 = Intermediate 40 = Standard 45 = Standard Plus 50 = Extended 60 = Long 65 = Long Plus 70 = XL 90 = 3XL | <table border="0"> <tr> <td>Y0 = Y series</td> <td>20 = 2 series</td> </tr> <tr> <td>Z0 = Z series</td> <td>25 = 2.5 series</td> </tr> <tr> <td>00 = 0 series</td> <td>30 = 3 series</td> </tr> <tr> <td>05 = 0.5 series</td> <td>40 = 4 series</td> </tr> <tr> <td>10 = 1 series</td> <td>50 = 5 series</td> </tr> <tr> <td>15 = 1.5 series</td> <td>70 = 7 series</td> </tr> </table> | Y0 = Y series | 20 = 2 series | Z0 = Z series | 25 = 2.5 series | 00 = 0 series | 30 = 3 series | 05 = 0.5 series | 40 = 4 series | 10 = 1 series | 50 = 5 series | 15 = 1.5 series | 70 = 7 series | S = Straight H = Helical | | | | | | | | | | | | | | | |
| Y0 = Y series | 20 = 2 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Z0 = Z series | 25 = 2.5 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00 = 0 series | 30 = 3 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05 = 0.5 series | 40 = 4 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 = 1 series | 50 = 5 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 = 1.5 series | 70 = 7 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. Shank Designator | 6. Shank Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0"> <thead> <tr> <th>Morse Taper</th> <th>Imperial</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>002 = 2MT</td> <td>063 = 5/8"</td> <td>16 = 16 mm</td> </tr> <tr> <td>003 = 3MT</td> <td>075 = 3/4"</td> <td>20 = 20 mm</td> </tr> <tr> <td>004 = 4MT</td> <td>100 = 1"</td> <td>25 = 25 mm</td> </tr> <tr> <td>005 = 5MT</td> <td>125 = 1-1/4"</td> <td>32 = 32 mm</td> </tr> <tr> <td></td> <td>150 = 1-1/2"</td> <td>40 = 40 mm</td> </tr> <tr> <td></td> <td>175 = 1-3/4"</td> <td>50 = 50 mm</td> </tr> <tr> <td></td> <td>200 = 2"</td> <td></td> </tr> <tr> <td></td> <td>300 = 3"</td> <td></td> </tr> </tbody> </table> | Morse Taper | Imperial | Metric | 002 = 2MT | 063 = 5/8" | 16 = 16 mm | 003 = 3MT | 075 = 3/4" | 20 = 20 mm | 004 = 4MT | 100 = 1" | 25 = 25 mm | 005 = 5MT | 125 = 1-1/4" | 32 = 32 mm | | 150 = 1-1/2" | 40 = 40 mm | | 175 = 1-3/4" | 50 = 50 mm | | 200 = 2" | | | 300 = 3" | | I = Imperial Morse taper M = Metric Morse taper L = Lathe shank F = Flanged shank FM = Flanged metric shank ER = ER Collet | | |
| Morse Taper | Imperial | Metric | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 002 = 2MT | 063 = 5/8" | 16 = 16 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 003 = 3MT | 075 = 3/4" | 20 = 20 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 004 = 4MT | 100 = 1" | 25 = 25 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 005 = 5MT | 125 = 1-1/4" | 32 = 32 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 150 = 1-1/2" | 40 = 40 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 175 = 1-3/4" | 50 = 50 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 200 = 2" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 300 = 3" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

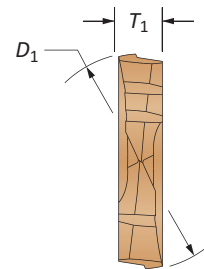
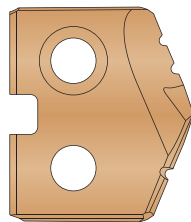
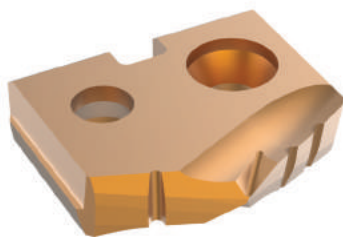
Reference Key

| Symbol | Attribute |
|------------|-------------------------------|
| D_2 | Shank diameter |
| L_1 | Overall length |
| L_2 | Drill depth |
| L_3 | Holder reference length |
| L_4 | Holder length |
| L_7 | Shank length |
| P_1 | Rear pipe tap |
| P_2 | Side pipe tap |
| RCA | Corresponding RCA item number |
| MT | Morse taper size |
| ER | ER collet size |






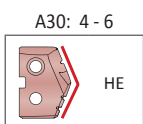
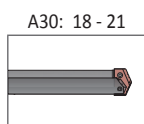
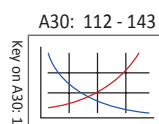
GEN2 T-A® Drill Inserts

Y Series | Diameter Range: 0.374" - 0.436" (9.50 mm - 11.07 mm)



HSS Inserts – Super Cobalt • Carbide Inserts – C2 (K20) | C1 (K35)

| Fractional Equivalent | Insert | | | HSS Part No. | Carbide Part No. | |
|-----------------------|------------|----------|-------|--|---|---|
| | D_1 inch | D_1 mm | T_1 |  AM200® Super Cobalt |  AM300® C2 (K20) |  AM300® C1 (K35) |
| – | 0.3740 | 9.50 | 3/32 | 45YH-9.5 | 4C2YP-9.5 | 4C1YP-9.5 |
| 3/8 | 0.3750 | 9.53 | 3/32 | 45YH-0012 | 4C2YP-0012 | 4C1YP-0012 |
| W | 0.3860 | 9.80 | 3/32 | 45YH-.386 | 4C2YP-.386 | 4C1YP-.386 |
| 25/64 | 0.3906 | 9.92 | 3/32 | 45YH-.390 | 4C2YP-.390 | 4C1YP-.390 |
| – | 0.3937 | 10.00 | 3/32 | 45YH-10 | 4C2YP-10 | 4C1YP-10 |
| – | 0.4016 | 10.20 | 3/32 | 45YH-10.2 | 4C2YP-10.2 | 4C1YP-10.2 |
| 13/32 | 0.4063 | 10.32 | 3/32 | 45YH-0013 | 4C2YP-0013 | 4C1YP-0013 |
| – | 0.4134 | 10.50 | 3/32 | 45YH-10.5 | 4C2YP-10.5 | 4C1YP-10.5 |
| 27/64 | 0.4219 | 10.72 | 3/32 | 45YH-.421 | 4C2YP-.421 | 4C1YP-.421 |
| – | 0.4252 | 10.80 | 3/32 | 45YH-10.8 | 4C2YP-10.8 | 4C1YP-10.8 |
| – | 0.4331 | 11.00 | 3/32 | 45YH-11 | 4C2YP-11 | 4C1YP-11 |



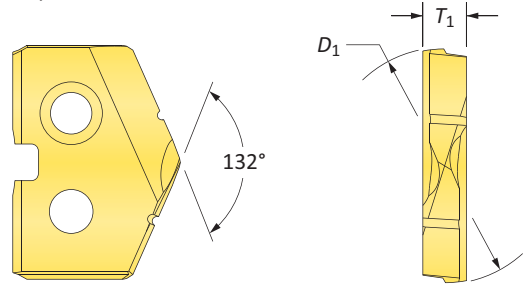
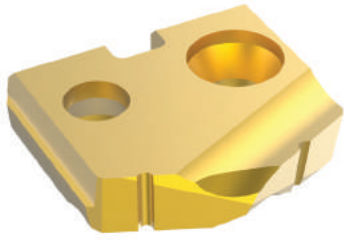
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 45YT-XXXX | TiAlN = 45YA-XXXX |
| TiCN = 45YN-XXXX | AM200® = 45YH-XXXX |




Inserts sold in quantities of 2

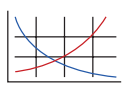



T-A® Drill Inserts


Y Series | HSS | Diameter Range: 0.374" - 0.436" (9.50 mm - 11.07 mm)



HSS Inserts – Premium Cobalt

| Fractional Equivalent | Insert | | | Part No. | | |
|-----------------------|------------|----------|-------|--|---|--|
| | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiCN |
| - | 0.3740 | 9.50 | 3/32 | 18YT-9.5 | 18YA-9.5 | 18YN-9.5 |
| 3/8 | 0.3750 | 9.53 | 3/32 | 18YT-0012 | 18YA-0012 | 18YN-0012 |
| W | 0.3860 | 9.80 | 3/32 | 18YT-.386 | 18YA-.386 | 18YN-.386 |
| 25/64 | 0.3906 | 9.92 | 3/32 | 18YT-.390 | 18YA-.390 | 18YN-.390 |
| - | 0.3937 | 10.00 | 3/32 | 18YT-10 | 18YA-10 | 18YN-10 |
| - | 0.4016 | 10.20 | 3/32 | 18YT-10.2 | 18YA-10.2 | 18YN-10.2 |
| 13/32 | 0.4063 | 10.32 | 3/32 | 18YT-0013 | 18YA-0013 | 18YN-0013 |
| - | 0.4134 | 10.50 | 3/32 | 18YT-10.5 | 18YA-10.5 | 18YN-10.5 |
| 27/64 | 0.4219 | 10.72 | 3/32 | 18YT-.421 | 18YA-.421 | 18YN-.421 |
| - | 0.4252 | 10.80 | 3/32 | 18YT-10.8 | 18YA-10.8 | 18YN-10.8 |
| - | 0.4331 | 11.00 | 3/32 | 18YT-11 | 18YA-11 | 18YN-11 |

A30: 112 - 143   A30: 18 - 21  A30: 4 - 6  HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC

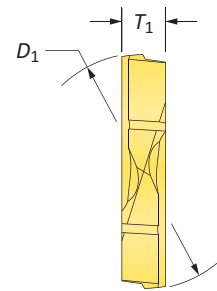
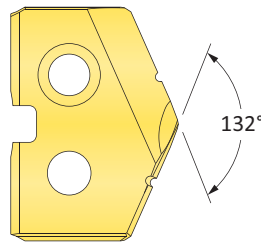
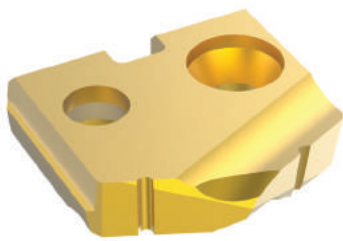
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. 

Inserts sold in quantities of 2




| | |
|-------------------------|---------------------------|
| TiN = 18YT-XXXX | TiAlN = 18YA-XXXX |
| TiCN = 18YN-XXXX | AM200® = 18YH-XXXX |

T-A® Drill Inserts

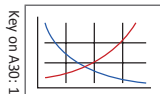
Y Series | HSS | Diameter Range: 0.374" - 0.436" (9.50 mm - 11.07 mm)



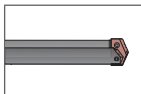
HSS Inserts – Super Cobalt

| Fractional Equivalent | Insert | | | Part No. | | |
|-----------------------|------------|----------|-------|--|---|--|
| | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiCN |
| – | 0.3740 | 9.50 | 3/32 | 15YT-9.5 | 15YA-9.5 | 15YN-9.5 |
| 3/8 | 0.3750 | 9.53 | 3/32 | 15YT-0012 | 15YA-0012 | 15YN-0012 |
| W | 0.3860 | 9.80 | 3/32 | 15YT-386 | 15YA-386 | 15YN-386 |
| 25/64 | 0.3906 | 9.92 | 3/32 | 15YT-390 | 15YA-390 | 15YN-390 |
| – | 0.3937 | 10.00 | 3/32 | 15YT-10 | 15YA-10 | 15YN-10 |
| – | 0.4016 | 10.20 | 3/32 | 15YT-10.2 | 15YA-10.2 | 15YN-10.2 |
| 13/32 | 0.4063 | 10.32 | 3/32 | 15YT-0013 | 15YA-0013 | 15YN-0013 |
| – | 0.4134 | 10.50 | 3/32 | 15YT-10.5 | 15YA-10.5 | 15YN-10.5 |
| 27/64 | 0.4219 | 10.72 | 3/32 | 15YT-421 | 15YA-421 | 15YN-421 |
| – | 0.4252 | 10.80 | 3/32 | 15YT-10.8 | 15YA-10.8 | 15YN-10.8 |
| – | 0.4331 | 11.00 | 3/32 | 15YT-11 | 15YA-11 | 15YN-11 |

A30: 112 - 143



A30: 18 - 21



A30: 4 - 6



HI, HR, CR, TC, SK,
NP, IN, RN, CN, AN,
BR, CI, CP, NC, WC

Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

TiN = 15YT-XXXX

TiAlN = 15YA-XXXX

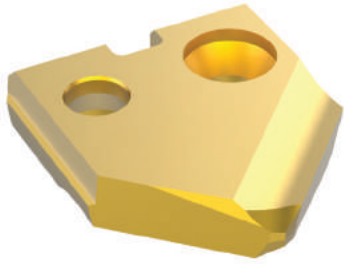
TiCN = 15YN-XXXX

AM200® = 15YH-XXXX

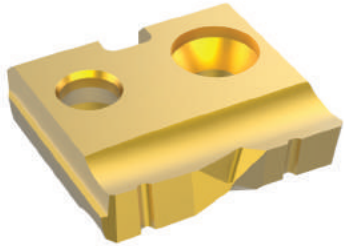
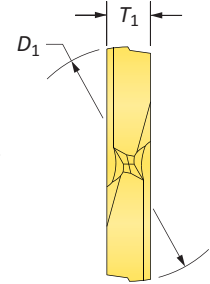
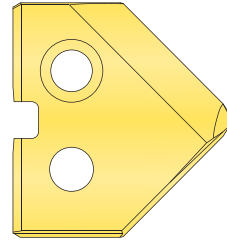
Inserts sold in quantities of 2

T-A® Drill Inserts

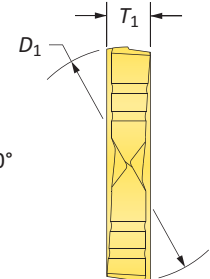
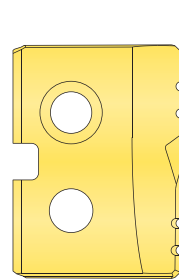
Y Series | HSS | Diameter Range: 0.374" - 0.436" (9.50 mm - 11.07 mm)







90° Spot & Chamfer

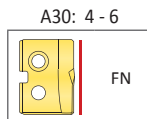
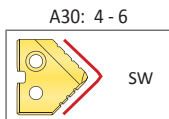
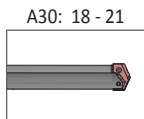
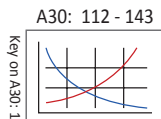


Flat Bottom



HSS Inserts – Super Cobalt

| Fractional Equivalent | Insert | | | 90° Spot & Chamfer Part No. | | | Flat Bottom Part No. |
|-----------------------|---------------------|-------------------|----------------|--|---|---|--|
| | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiCN |  TiN |
| – | 0.3740 | 9.50 | 3/32 | 15YT-9.5-SP | 15YA-9.5-SP | 15YN-9.5-SP | 15YT-9.5-FB |
| 3/8 | 0.3750 | 9.53 | 3/32 | 15YT-0012-SP | 15YA-0012-SP | 15YN-0012-SP | 15YT-0012-FB |
| W | 0.3860 | 9.80 | 3/32 | 15YT-.386-SP | 15YA-.386-SP | 15YN-.386-SP | 15YT-.386-FB |
| 25/64 | 0.3906 | 9.92 | 3/32 | 15YT-.390-SP | 15YA-.390-SP | 15YN-.390-SP | 15YT-.390-FB |
| – | 0.3937 | 10.00 | 3/32 | 15YT-10-SP | 15YA-10-SP | 15YN-10-SP | 15YT-10-FB |
| – | 0.4016 | 10.20 | 3/32 | 15YT-10.2-SP | 15YA-10.2-SP | 15YN-10.2-SP | 15YT-10.2-FB |
| 13/32 | 0.4063 | 10.32 | 3/32 | 15YT-0013-SP | 15YA-0013-SP | 15YN-0013-SP | 15YT-0013-FB |
| – | 0.4134 | 10.50 | 3/32 | 15YT-10.5-SP | 15YA-10.5-SP | 15YN-10.5-SP | 15YT-10.5-FB |
| 27/64 | 0.4219 | 10.72 | 3/32 | 15YT-.421-SP | 15YA-.421-SP | 15YN-.421-SP | 15YT-.421-FB |
| – | 0.4252 | 10.80 | 3/32 | 15YT-10.8-SP | 15YA-10.8-SP | 15YN-10.8-SP | 15YT-10.8-FB |
| – | 0.4331 | 11.00 | 3/32 | 15YT-11-SP | 15YA-11-SP | 15YN-11-SP | 15YT-11-FB |



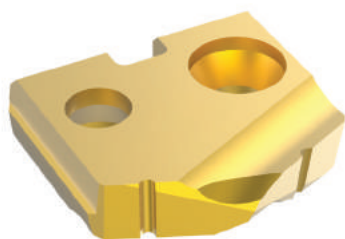
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 15YT-XXXX | TiAlN = 15YA-XXXX |
| TiCN = 15YN-XXXX | AM200® = 15YH-XXXX |

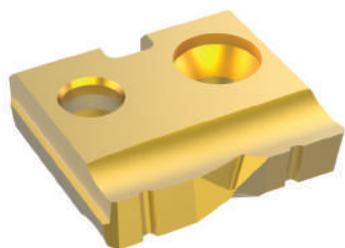
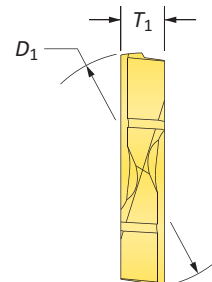
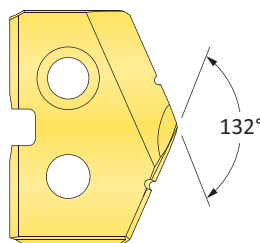
Inserts sold in quantities of 2

T-A® Drill Inserts

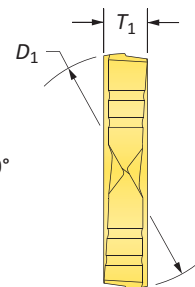
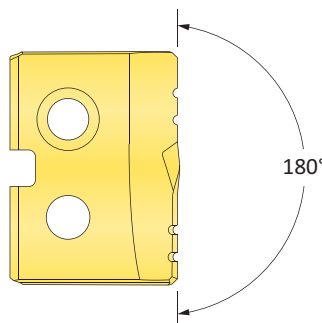
Y Series | Carbide | Diameter Range: 0.374" - 0.436" (9.50 mm - 11.07 mm)






Standard



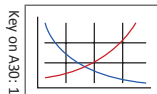
Flat Bottom



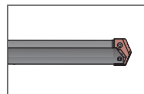
Carbide Inserts – C2 (K20)

| Fractional Equivalent | Insert | | | Part No. | | Flat Bottom Part No. |
|-----------------------|------------|----------|-------|--|--|--|
| | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiN |
| - | 0.3740 | 9.50 | 3/32 | 1C2YT-9.5 | 1C2YA-9.5 | 1C2YT-9.5-FB |
| 3/8 | 0.3750 | 9.53 | 3/32 | 1C2YT-0012 | 1C2YA-0012 | 1C2YT-0012-FB |
| W | 0.3860 | 9.80 | 3/32 | 1C2YT-.386 | 1C2YA-.386 | 1C2YT-.386-FB |
| 25/64 | 0.3906 | 9.92 | 3/32 | 1C2YT-.390 | 1C2YA-.390 | 1C2YT-.390-FB |
| - | 0.3937 | 10.00 | 3/32 | 1C2YT-10 | 1C2YA-10 | 1C2YT-10-FB |
| - | 0.4016 | 10.20 | 3/32 | 1C2YT-10.2 | 1C2YA-10.2 | 1C2YT-10.2-FB |
| 13/32 | 0.4063 | 10.32 | 3/32 | 1C2YT-0013 | 1C2YA-0013 | 1C2YT-0013-FB |
| - | 0.4134 | 10.50 | 3/32 | 1C2YT-10.5 | 1C2YA-10.5 | 1C2YT-10.5-FB |
| 27/64 | 0.4219 | 10.72 | 3/32 | 1C2YT-.421 | 1C2YA-.421 | 1C2YT-.421-FB |
| - | 0.4252 | 10.80 | 3/32 | 1C2YT-10.8 | 1C2YA-10.8 | 1C2YT-10.8-FB |
| - | 0.4331 | 11.00 | 3/32 | 1C2YT-11 | 1C2YA-11 | 1C2YT-11-FB |

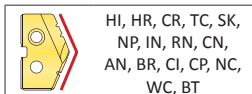
A30: 112 - 143



A30: 18 - 21

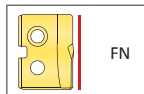


A30: 4 - 6



HI, HR, CR, TC, SK,
NP, IN, RN, CN,
AN, BR, CI, CP, NC,
WC, BT

A30: 4 - 6



FN

Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

TiN = 1C2YT-XXXX

TiAlN = 1C2YA-XXXX

TiCN = 1C2YN-XXXX

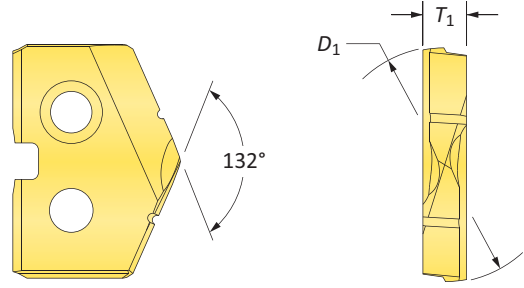
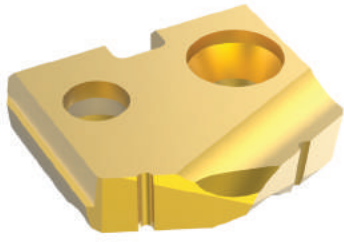
AM200® = 1C2YH-XXXX

Inserts sold in quantities of 1







T-A® Drill Inserts

Y Series | Carbide | Diameter Range: 0.374" - 0.436" (9.50 mm - 11.07 mm)



Carbide Inserts – C5 (P40) | C3 (K10) | N2

| Fractional Equivalent | Insert | | | C5 Part No. | | C3 Part No. | N2 Part No. |
|-----------------------|---------------------|-------------------|----------------|---|---|---|---|
| | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiAlN (Cast Iron) |  Diamond Film* |
| - | 0.3740 | 9.50 | 3/32 | 1C5YT-9.5 | 1C5YA-9.5 | 1C3YA-9.5-CI | 1N2YD-9.5 |
| 3/8 | 0.3750 | 9.53 | 3/32 | 1C5YT-0012 | 1C5YA-0012 | 1C3YA-0012-CI | 1N2YD-0012 |
| W | 0.3860 | 9.80 | 3/32 | 1C5YT-.386 | 1C5YA-.386 | 1C3YA-.386-CI | 1N2YD-.386 |
| 25/64 | 0.3906 | 9.92 | 3/32 | 1C5YT-.390 | 1C5YA-.390 | 1C3YA-.390-CI | 1N2YD-.390 |
| - | 0.3937 | 10.00 | 3/32 | 1C5YT-10 | 1C5YA-10 | 1C3YA-10-CI | 1N2YD-10 |
| - | 0.4016 | 10.20 | 3/32 | 1C5YT-10.2 | 1C5YA-10.2 | 1C3YA-10.2-CI | 1N2YD-10.2 |
| 13/32 | 0.4063 | 10.32 | 3/32 | 1C5YT-0013 | 1C5YA-0013 | 1C3YA-0013-CI | 1N2YD-0013 |
| - | 0.4134 | 10.50 | 3/32 | 1C5YT-10.5 | 1C5YA-10.5 | 1C3YA-10.5-CI | 1N2YD-10.5 |
| 27/64 | 0.4219 | 10.72 | 3/32 | 1C5YT-.421 | 1C5YA-.421 | 1C3YA-.421-CI | 1N2YD-.421 |
| - | 0.4252 | 10.80 | 3/32 | 1C5YT-10.8 | 1C5YA-10.8 | 1C3YA-10.8-CI | 1N2YD-10.8 |
| - | 0.4331 | 11.00 | 3/32 | 1C5YT-11 | 1C5YA-11 | 1C3YA-11-CI | 1N2YD-11 |

*Diamond Film is only available in standard geometry. For additional geometries, please contact Application Engineering.

A30: 112 - 143

Key on A30-1

A30: 18 - 21

A30: 4 - 6

HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC, BT

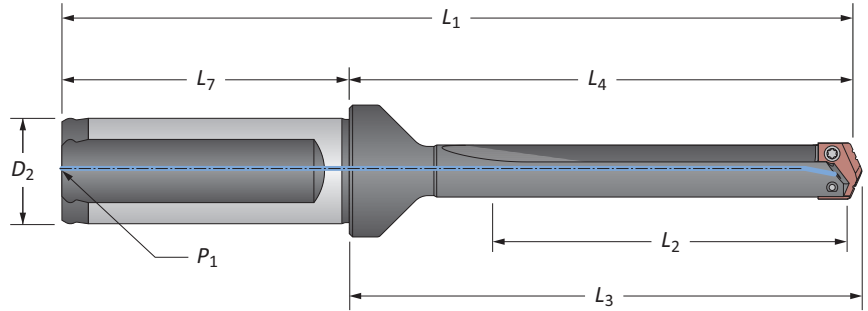
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1

| | |
|--------------------------|----------------------------|
| TiN = 1C5YT-XXXX | TiAlN = 1C5YA-XXXX |
| TiCN = 1C5YN-XXXX | AM200® = 1C5YH-XXXX |

T-A® Drill Insert Holders

Y Series | Flange Shank | Diameter Range: 0.374" - 0.436" (9.50 mm - 11.07 mm)

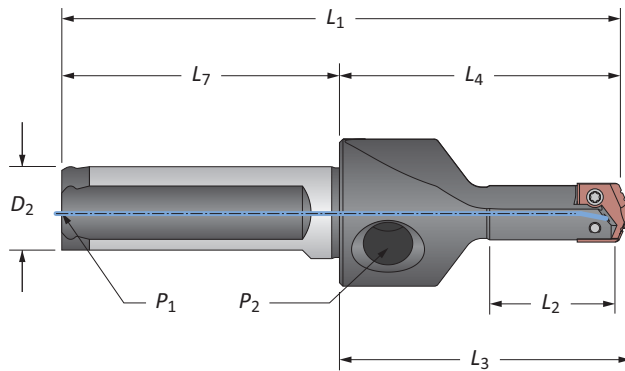


Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i Short | 1-1/4 | 2-13/32 | 2-1/2 | 4-7/16 | 3/4 | 2-1/32 | 1/8 | 220Y0S-075F |
| i Standard | 2-3/8 | 3-17/32 | 3-5/8 | 5-9/16 | 3/4 | 2-1/32 | 1/8 | 240Y0S-075F |
| i Extended | 4-3/8 | 5-17/32 | 5-5/8 | 7-9/16 | 3/4 | 2-1/32 | 1/8 | ▲ 250Y0S-075F |
| m Short | 31.8 | 61.1 | 63.5 | 111.1 | 20.0 | 50.0 | 1/8* | 220Y0S-20FM |
| m XL | 222 | 251.7 | 254.1 | 301.7 | 20.0 | 50.0 | 1/8* | ▲ 270Y0S-20FM |
| m 3XL | 290 | 319.9 | 322.3 | 369.9 | 20.0 | 50.0 | 1/8* | ▲ 290Y0S-20FM |

*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/8" side pipe tap (P₂)



Straight Flute (Stub Length)

| Length | Body | | | | Shank | | | Part No. |
|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i Stub | 3/4 | 1-7/8 | 1-31/32 | 3-3/4 | 5/8 | 1-7/8 | 1/16 | 210Y0S-063F |
| m Stub | 19.1 | 47.6 | 50.0 | 95.6 | 16.0 | 48.0 | 1/16* | 210Y0S-16FM |

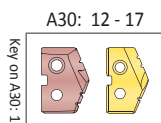
*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/8" side pipe tap (P₂)

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 724-IP7-1 | 724N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)
m = Metric (mm)

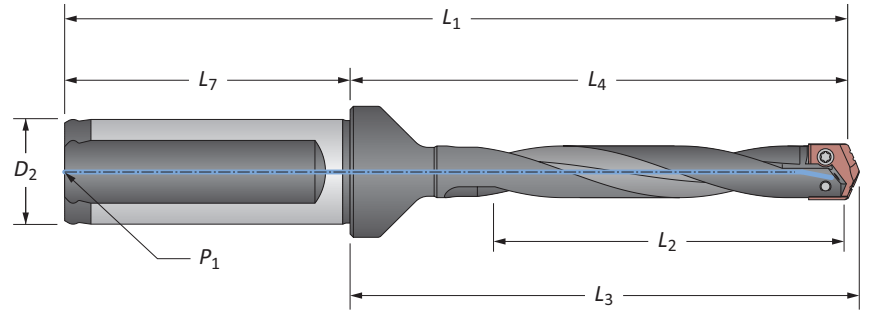
Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



T-A® Drill Insert Holders

Y Series | Flange Shank | Diameter Range: 0.374" - 0.436" (9.50 mm - 11.07 mm)



Helical Flute

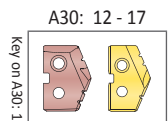
| Length | Body | | | | Shank | | | Part No. |
|------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i Standard | 2-3/8 | 3-17/32 | 3-5/8 | 5-9/16 | 3/4 | 2-1/32 | 1/8 | 240Y0H-075F |
| i Standard Plus | 3-3/8 | 4-35/64 | 4-41/64 | 6-43/64 | 3/4 | 2-1/32 | 1/8 | ⚠ 245Y0H-075F |
| i Extended | 4-3/8 | 5-17/32 | 5-5/8 | 7-9/16 | 3/4 | 2-1/32 | 1/8 | ⚠ 250Y0H-075F |
| m Standard | 60.3 | 89.7 | 92.1 | 139.7 | 20.0 | 50.0 | 1/8* | 240Y0H-20FM |
| m Standard Plus | 86.0 | 115.4 | 117.8 | 165.4 | 20.0 | 50.0 | 1/8* | ⚠ 245Y0H-20FM |
| m Extended | 111.1 | 140.5 | 142.9 | 190.5 | 20.0 | 50.0 | 1/8* | ⚠ 250Y0H-20FM |

*Metric thread to BSP and ISO 7-1

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 724-IP7-1 | 724N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



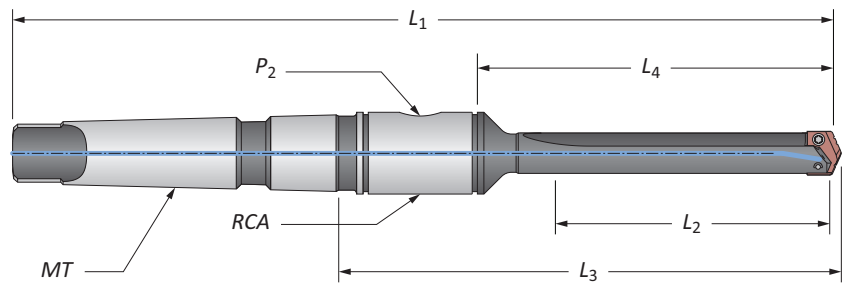
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

Y Series | Taper Shank | Diameter Range: 0.374" - 0.436" (9.50 mm - 11.07 mm)

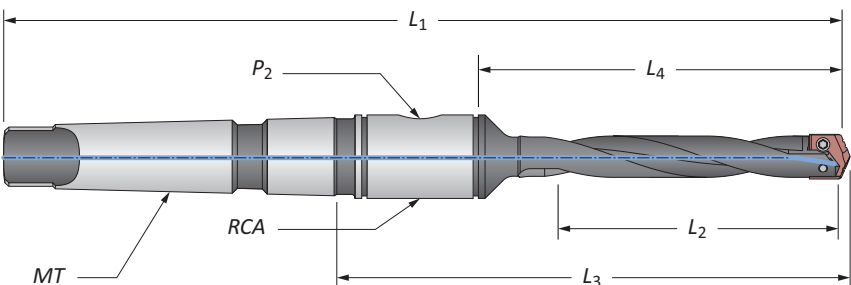


Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| Short | 1-1/4 | 2-1/32 | 3-15/32 | 6-5/16 | #2 | 1/16 | 2T-2SR | 220Y0S-002I |
| Standard | 2-3/8 | 3-5/32 | 4-19/32 | 7-7/16 | #2 | 1/16 | 2T-2SR | 240Y0S-002I |
| Extended | 4-3/8 | 5-5/32 | 6-19/32 | 9-7/16 | #2 | 1/16 | 2T-2SR | 250Y0S-002I |
| Short | 31.8 | 51.5 | 88.0 | 160.3 | #2** | 1/16* | 2T-2SRM | 220Y0S-002M |

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Helical Flute

| Length | Body | | | | Shank | | | Part No. |
|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| Standard | 2-3/8 | 3-5/32 | 4-19/32 | 7-7/16 | #2 | 1/16 | 2T-2SR | 240Y0H-002I |
| Extended | 4-3/8 | 5-5/32 | 6-19/32 | 9-7/16 | #2 | 1/16 | 2T-2SR | 250Y0H-002I |
| Standard | 60.3 | 80.2 | 116.7 | 188.9 | #2** | 1/16* | 2T-2SRM | 240Y0H-002M |
| Extended | 111.1 | 130.9 | 167.4 | 239.7 | #2** | 1/16* | 2T-2SRM | 250Y0H-002M |

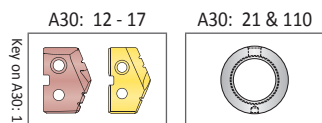
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 724-IP7-1 | 724N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

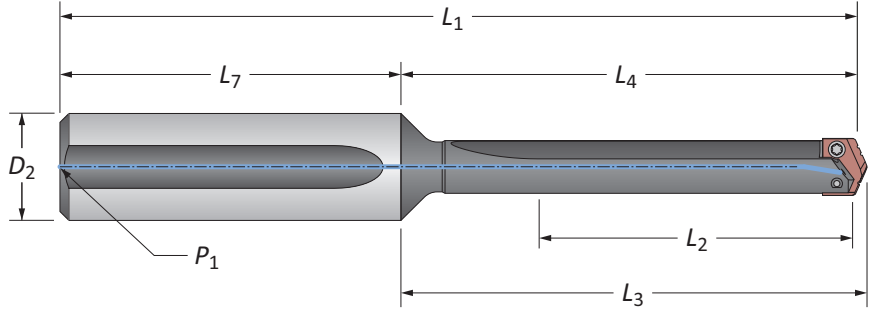
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

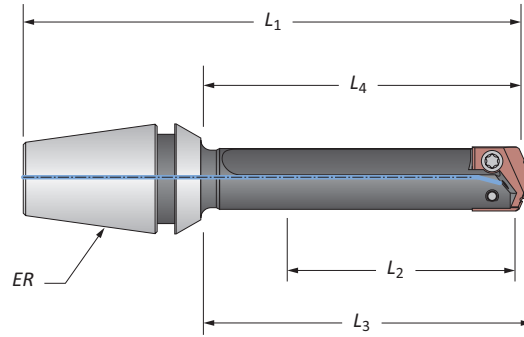
T-A® Drill Insert Holders

Y Series | Straight Shank | ER Collet | Diameter Range: 0.374" - 0.436" (9.50 mm - 11.07 mm)



Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| Short | 1-1/4 | 2-1/32 | 2-1/8 | 4-13/32 | 3/4 | 2-3/8 | 1/8 | 220Y0S-075L |
| Standard | 2-3/8 | 3-5/32 | 3-1/4 | 5-17/32 | 3/4 | 2-3/8 | 1/8 | 240Y0S-075L |
| Extended | 4-3/8 | 5-5/32 | 5-1/4 | 7-17/32 | 3/4 | 2-3/8 | 1/8 | ⚠ 250Y0S-075L |
| XL | 8-3/4 | 9-17/32 | 9-5/8 | 11-29/32 | 3/4 | 2-3/8 | 1/8 | ⚠ 270Y0S-075L |
| 3XL | 11-7/16 | 12-7/32 | 12-5/16 | 14-19/32 | 3/4 | 2-3/8 | 1/8 | ⚠ 290Y0S-075L |



ER Collet Holder

| L ₂ | Body | | | ER | Part No. | Collet Nut without Retaining Ring |
|----------------|----------------|----------------|----------------|-------|-------------|-----------------------------------|
| | L ₄ | L ₃ | L ₁ | | | |
| 1-3/8 | 1-29/32 | 2 | 3-5/64 | ER-16 | 210Y0S-16ER | ER-16N |
| 1-3/8 | 1-29/32 | 2 | 3-15/64 | ER-20 | 210Y0S-20ER | ER-20N |

T-A Drill Accessories

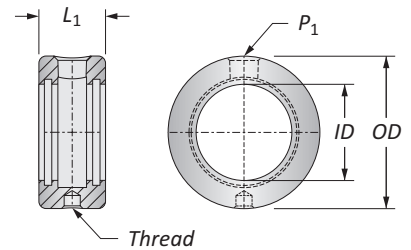
Y Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No. | RCA O-Rings | |
|-------|-------|----------------|--------------------|----------------|-----------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| 3/4 | 1-3/4 | 7/8 | 5/16-18 | 1/8 | ⚠ 2T-2SR | 2T1-2SR | 2T1-2OR-10 |
| 19.05 | 44.45 | 22.23 | M8 x 1.25 | 1/8* | ⚠ 2T-2SRM | 2T1-2SR | 2T1-2OR-10 |

*Thread to BSP and ISO 7-1 | **RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

⚠ Refer to page A30: 110 for proper RCA assembly and safety information



Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 724-IP7-1 | 724N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

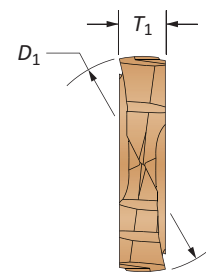
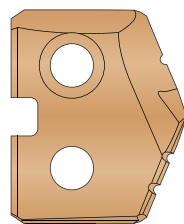
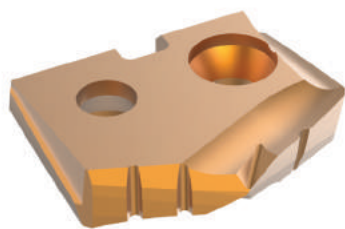
ⓘ = Imperial (in)

Ⓜ = Metric (mm)




Screws sold in packs of 10
O-rings sold in packs of 10

GEN2 T-A® Drill Inserts

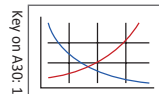
Z Series | Diameter Range: 0.437" - 0.510" (11.10 mm - 12.95 mm)



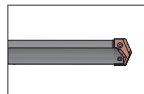
HSS Inserts – Super Cobalt • Carbide Inserts – C2 (K20) | C1 (K35)

| Fractional Equivalent | Insert | | | HSS Part No. | Carbide Part No. | |
|-----------------------|------------|----------|-------|--|---|---|
| | D_1 inch | D_1 mm | T_1 |  AM200® Super Cobalt |  AM300® C2 (K20) |  AM300® C1 (K35) |
| 7/16 | 0.4375 | 11.11 | 3/32 | 45ZH-0014 | 4C2ZP-0014 | 4C1ZP-0014 |
| – | 0.4510 | 11.46 | 3/32 | 45ZH-.451 | 4C2ZP-.451 | 4C1ZP-.451 |
| – | 0.4528 | 11.50 | 3/32 | 45ZH-11.5 | 4C2ZP-11.5 | 4C1ZP-11.5 |
| 29/64 | 0.4531 | 11.51 | 3/32 | 45ZH-.453 | 4C2ZP-.453 | 4C1ZP-.453 |
| 15/32 | 0.4688 | 11.91 | 3/32 | 45ZH-0015 | 4C2ZP-0015 | 4C1ZP-0015 |
| – | 0.4724 | 12.00 | 3/32 | 45ZH-12 | 4C2ZP-12 | 4C1ZP-12 |
| 31/64 | 0.4844 | 12.30 | 3/32 | 45ZH-.484 | 4C2ZP-.484 | 4C1ZP-.484 |
| – | 0.4921 | 12.50 | 3/32 | 45ZH-12.5 | 4C2ZP-12.5 | 4C1ZP-12.5 |
| 1/2 | 0.5000 | 12.70 | 3/32 | 45ZH-0016 | 4C2ZP-0016 | 4C1ZP-0016 |
| – | 0.5060 | 12.85 | 3/32 | 45ZH-.506 | 4C2ZP-.506 | 4C1ZP-.506 |
| – | 0.5100 | 12.95 | 3/32 | 45ZH-.510 | 4C2ZP-.510 | 4C1ZP-.510 |

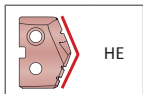
A30: 112 - 143



A30: 28 - 31



A30: 4 - 6



Key on A30: 1

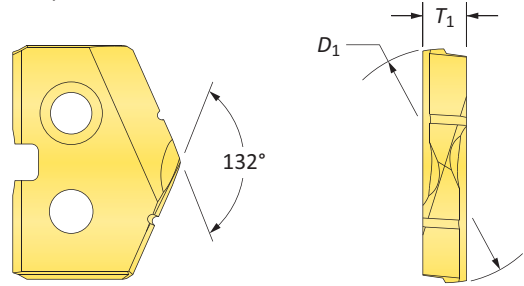
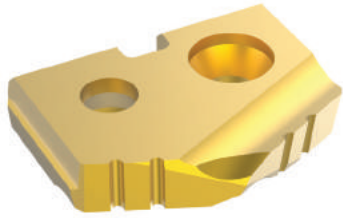
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 45ZT-XXXX | TiAlN = 45ZA-XXXX |
| TiCN = 45ZN-XXXX | AM200® = 45ZH-XXXX |




Inserts sold in quantities of 2

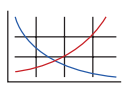

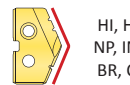

T-A® Drill Inserts


Z Series | HSS | Diameter Range: 0.437" - 0.510" (11.10 mm - 12.95 mm)



HSS Inserts – Premium Cobalt

| Fractional Equivalent | Insert | | | Part No. | | |
|-----------------------|------------|----------|-------|--|---|--|
| | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiCN |
| 7/16 | 0.4375 | 11.11 | 3/32 | 18ZT-0014 | 18ZA-0014 | 18ZN-0014 |
| - | 0.4510 | 11.46 | 3/32 | 18ZT-.451 | 18ZA-.451 | 18ZN-.451 |
| - | 0.4528 | 11.50 | 3/32 | 18ZT-11.5 | 18ZA-11.5 | 18ZN-11.5 |
| 29/64 | 0.4531 | 11.51 | 3/32 | 18ZT-.453 | 18ZA-.453 | 18ZN-.453 |
| 15/32 | 0.4688 | 11.91 | 3/32 | 18ZT-0015 | 18ZA-0015 | 18ZN-0015 |
| - | 0.4724 | 12.00 | 3/32 | 18ZT-12 | 18ZA-12 | 18ZN-12 |
| 31/64 | 0.4844 | 12.30 | 3/32 | 18ZT-.484 | 18ZA-.484 | 18ZN-.484 |
| - | 0.4921 | 12.50 | 3/32 | 18ZT-12.5 | 18ZA-12.5 | 18ZN-12.5 |
| 1/2 | 0.5000 | 12.70 | 3/32 | 18ZT-0016 | 18ZA-0016 | 18ZN-0016 |
| - | 0.5060 | 12.85 | 3/32 | 18ZT-.506 | 18ZA-.506 | 18ZN-.506 |
| - | 0.5100 | 12.95 | 3/32 | 18ZT-.510 | 18ZA-.510 | 18ZN-.510 |

A30: 112 - 143   A30: 28 - 31  A30: 4 - 6  HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC

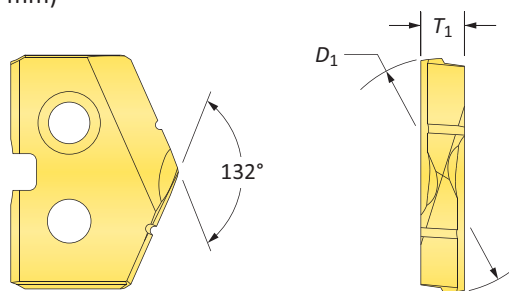
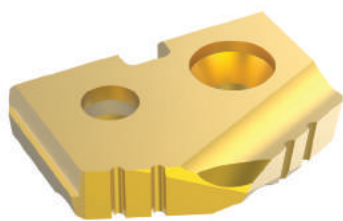
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. 

Inserts sold in quantities of 2




| | |
|-------------------------|---------------------------|
| TiN = 18ZT-XXXX | TiAlN = 18ZA-XXXX |
| TiCN = 18ZN-XXXX | AM200® = 18ZH-XXXX |

T-A® Drill Inserts

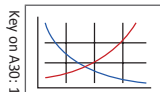
Z Series | HSS | Diameter Range: 0.437" - 0.510" (11.10 mm - 12.95 mm)



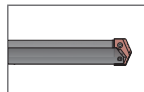
HSS Inserts – Super Cobalt

| Fractional Equivalent | Insert | | | Part No. | | |
|-----------------------|------------|----------|-------|--|---|--|
| | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiCN |
| 7/16 | 0.4375 | 11.11 | 3/32 | 15ZT-0014 | 15ZA-0014 | 15ZN-0014 |
| – | 0.4510 | 11.46 | 3/32 | 15ZT-.451 | 15ZA-.451 | 15ZN-.451 |
| – | 0.4528 | 11.50 | 3/32 | 15ZT-11.5 | 15ZA-11.5 | 15ZN-11.5 |
| 29/64 | 0.4531 | 11.51 | 3/32 | 15ZT-.453 | 15ZA-.453 | 15ZN-.453 |
| 15/32 | 0.4688 | 11.91 | 3/32 | 15ZT-0015 | 15ZA-0015 | 15ZN-0015 |
| – | 0.4724 | 12.00 | 3/32 | 15ZT-12 | 15ZA-12 | 15ZN-12 |
| 31/64 | 0.4844 | 12.30 | 3/32 | 15ZT-.484 | 15ZA-.484 | 15ZN-.484 |
| – | 0.4921 | 12.50 | 3/32 | 15ZT-12.5 | 15ZA-12.5 | 15ZN-12.5 |
| 1/2 | 0.5000 | 12.70 | 3/32 | 15ZT-0016 | 15ZA-0016 | 15ZN-0016 |
| – | 0.5060 | 12.85 | 3/32 | 15ZT-.506 | 15ZA-.506 | 15ZN-.506 |
| – | 0.5100 | 12.95 | 3/32 | 15ZT-.510 | 15ZA-.510 | 15ZN-.510 |

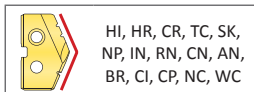
A30: 112 - 143



A30: 28 - 31



A30: 4 - 6



HI, HR, CR, TC, SK,
NP, IN, RN, CN, AN,
BR, CI, CP, NC, WC

Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

TiN = 15ZT-XXXX

TiAlN = 15ZA-XXXX

TiCN = 15ZN-XXXX

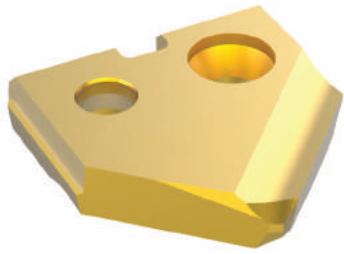
AM200® = 15ZH-XXXX

Inserts sold in quantities of 2

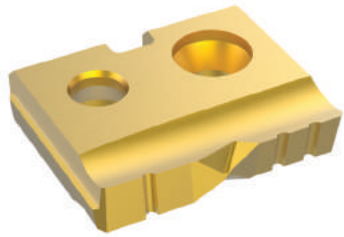
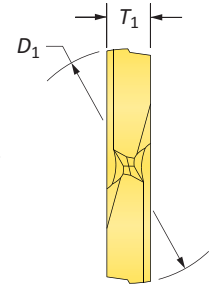
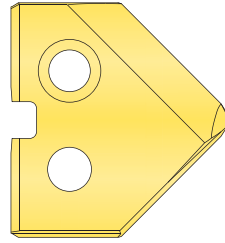


T-A® Drill Inserts

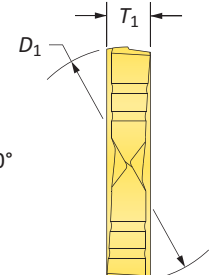
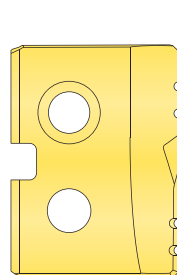
Z Series | HSS | Diameter Range: 0.437" - 0.510" (11.10 mm - 12.95 mm)



90° Spot & Chamfer

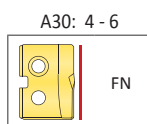
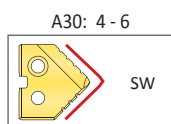
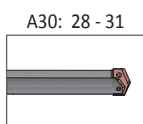
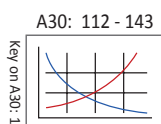


Flat Bottom



HSS Inserts – Super Cobalt

| Fractional Equivalent | Insert | | | 90° Spot & Chamfer Part No. | | | Flat Bottom Part No. |
|-----------------------|---------------------|-------------------|----------------|-----------------------------|--------------|--------------|----------------------|
| | D ₁ inch | D ₁ mm | T ₁ | TiN | TiAlN | TiCN | TiN |
| 7/16 | 0.4375 | 11.11 | 3/32 | 15ZT-0014-SP | 15ZA-0014-SP | 15ZN-0014-SP | 15ZT-0014-FB |
| - | 0.4510 | 11.46 | 3/32 | 15ZT-.451-SP | 15ZA-.451-SP | 15ZN-.451-SP | 15ZT-.451-FB |
| - | 0.4528 | 11.50 | 3/32 | 15ZT-11.5-SP | 15ZA-11.5-SP | 15ZN-11.5-SP | 15ZT-11.5-FB |
| 29/64 | 0.4531 | 11.51 | 3/32 | 15ZT-.453-SP | 15ZA-.453-SP | 15ZN-.453-SP | 15ZT-.453-FB |
| 15/32 | 0.4688 | 11.91 | 3/32 | 15ZT-0015-SP | 15ZA-0015-SP | 15ZN-0015-SP | 15ZT-0015-FB |
| - | 0.4724 | 12.00 | 3/32 | 15ZT-12-SP | 15ZA-12-SP | 15ZN-12-SP | 15ZT-12-FB |
| 31/64 | 0.4844 | 12.30 | 3/32 | 15ZT-.484-SP | 15ZA-.484-SP | 15ZN-.484-SP | 15ZT-.484-FB |
| - | 0.4921 | 12.50 | 3/32 | 15ZT-12.5-SP | 15ZA-12.5-SP | 15ZN-12.5-SP | 15ZT-12.5-FB |
| 1/2 | 0.5000 | 12.70 | 3/32 | 15ZT-0016-SP | 15ZA-0016-SP | 15ZN-0016-SP | 15ZT-0016-FB |
| - | 0.5060 | 12.85 | 3/32 | 15ZT-.506-SP | 15ZA-.506-SP | 15ZN-.506-SP | 15ZT-.506-FB |
| - | 0.5100 | 12.95 | 3/32 | 15ZT-.510-SP | 15ZA-.510-SP | 15ZN-.510-SP | 15ZT-.510-FB |



Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 15ZT-XXXX | TiAlN = 15ZA-XXXX |
| TiCN = 15ZN-XXXX | AM200® = 15ZH-XXXX |

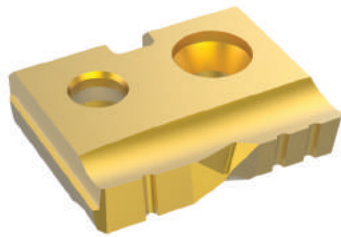
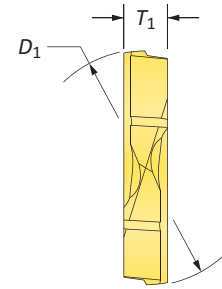
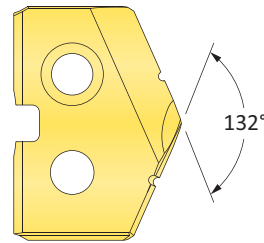
Inserts sold in quantities of 2

T-A® Drill Inserts

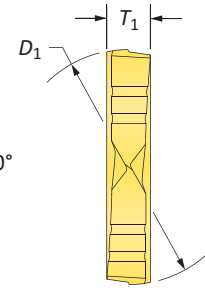
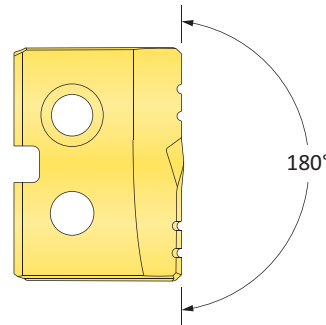
Z Series | Carbide | Diameter Range: 0.437" - 0.510" (11.10 mm - 12.95 mm)






Standard



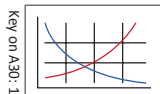
Flat Bottom



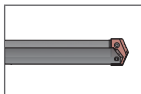
Carbide Inserts – C2 (K20)

| Fractional Equivalent | Insert | | | Part No. | | Flat Bottom Part No. |
|-----------------------|------------|----------|-------|--|--|--|
| | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiN |
| 7/16 | 0.4375 | 11.11 | 3/32 | 1C2ZT-0014 | 1C2ZA-0014 | 1C2ZT-0014-FB |
| - | 0.4510 | 11.46 | 3/32 | 1C2ZT-.451 | 1C2ZA-.451 | 1C2ZT-.451-FB |
| - | 0.4528 | 11.50 | 3/32 | 1C2ZT-11.5 | 1C2ZA-11.5 | 1C2ZT-11.5-FB |
| 29/64 | 0.4531 | 11.51 | 3/32 | 1C2ZT-.453 | 1C2ZA-.453 | 1C2ZT-.453-FB |
| 15/32 | 0.4688 | 11.91 | 3/32 | 1C2ZT-0015 | 1C2ZA-0015 | 1C2ZT-0015-FB |
| - | 0.4724 | 12.00 | 3/32 | 1C2ZT-12 | 1C2ZA-12 | 1C2ZT-12-FB |
| 31/64 | 0.4844 | 12.30 | 3/32 | 1C2ZT-.484 | 1C2ZA-.484 | 1C2ZT-.484-FB |
| - | 0.4921 | 12.50 | 3/32 | 1C2ZT-12.5 | 1C2ZA-12.5 | 1C2ZT-12.5-FB |
| 1/2 | 0.5000 | 12.70 | 3/32 | 1C2ZT-0016 | 1C2ZA-0016 | 1C2ZT-0016-FB |
| - | 0.5060 | 12.85 | 3/32 | 1C2ZT-.506 | 1C2ZA-.506 | 1C2ZT-.506-FB |
| - | 0.5100 | 12.95 | 3/32 | 1C2ZT-.510 | 1C2ZA-.510 | 1C2ZT-.510-FB |

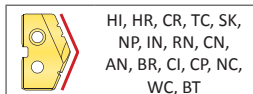
A30: 112 - 143



A30: 28 - 31

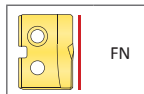


A30: 4 - 6



HI, HR, CR, TC, SK,
NP, IN, RN, CN,
AN, BR, CI, CP, NC,
WC, BT

A30: 4 - 6



FN

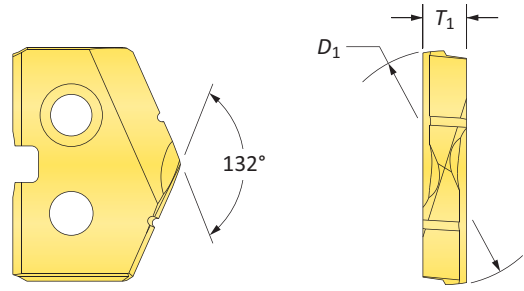
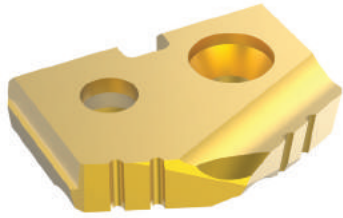
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|-------------------|---------------------|
| TiN = 1C2ZT-XXXX | TiAlN = 1C2ZA-XXXX |
| TiCN = 1C2ZN-XXXX | AM200® = 1C2ZH-XXXX |





Inserts sold in quantities of 1

T-A® Drill Inserts

Z Series | Carbide | Diameter Range: 0.437" - 0.510" (11.10 mm - 12.95 mm)

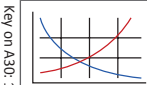


Carbide Inserts – C5 (P40) | C3 (K10) | N2

| Fractional Equivalent | Insert | | | C5 Part No. | | C3 Part No. | N2 Part No. |
|-----------------------|---------------------|-------------------|----------------|---|---|---|---|
| | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiAlN (Cast Iron) |  Diamond Film* |
| 7/16 | 0.4375 | 11.11 | 3/32 | 1C5ZT-0014 | 1C5ZA-0014 | 1C3ZA-0014-CI | 1N2ZD-0014 |
| - | 0.4510 | 11.46 | 3/32 | 1C5ZT-.451 | 1C5ZA-.451 | 1C3ZA-.451-CI | 1N2ZD-.451 |
| - | 0.4528 | 11.50 | 3/32 | 1C5ZT-11.5 | 1C5ZA-11.5 | 1C3ZA-11.5-CI | 1N2ZD-11.5 |
| 29/64 | 0.4531 | 11.51 | 3/32 | 1C5ZT-.453 | 1C5ZA-.453 | 1C3ZA-.453-CI | 1N2ZD-.453 |
| 15/32 | 0.4688 | 11.91 | 3/32 | 1C5ZT-0015 | 1C5ZA-0015 | 1C3ZA-0015-CI | 1N2ZD-0015 |
| - | 0.4724 | 12.00 | 3/32 | 1C5ZT-12 | 1C5ZA-12 | 1C3ZA-12-CI | 1N2ZD-12 |
| 31/64 | 0.4844 | 12.30 | 3/32 | 1C5ZT-.484 | 1C5ZA-.484 | 1C3ZA-.484-CI | 1N2ZD-.484 |
| - | 0.4921 | 12.50 | 3/32 | 1C5ZT-12.5 | 1C5ZA-12.5 | 1C3ZA-12.5-CI | 1N2ZD-12.5 |
| 1/2 | 0.5000 | 12.70 | 3/32 | 1C5ZT-0016 | 1C5ZA-0016 | 1C3ZA-0016-CI | 1N2ZD-0016 |
| - | 0.5060 | 12.85 | 3/32 | 1C5ZT-.506 | 1C5ZA-.506 | 1C3ZA-.506-CI | 1N2ZD-.506 |
| - | 0.5100 | 12.95 | 3/32 | 1C5ZT-.510 | 1C5ZA-.510 | 1C3ZA-.510-CI | 1N2ZD-.510 |


*Diamond Film is only available in standard geometry. For additional geometries, please contact Application Engineering.

A30: 112 - 143




Key on A30-1

A30: 28 - 31



A30: 4 - 6



HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC, BT

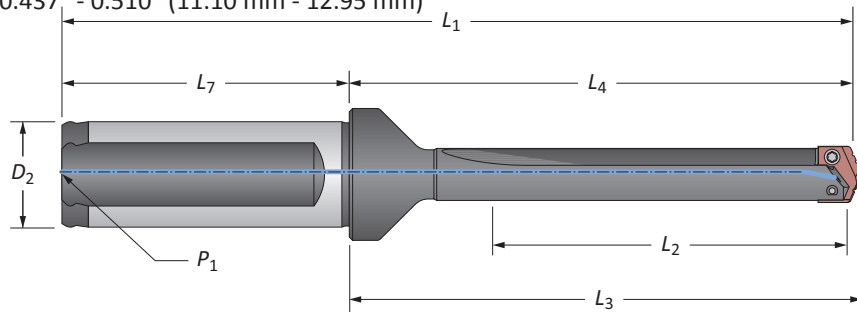
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1

| | |
|--------------------------|----------------------------|
| TiN = 1C5ZT-XXXX | TiAlN = 1C5ZA-XXXX |
| TiCN = 1C5ZN-XXXX | AM200® = 1C5ZH-XXXX |

T-A® Drill Insert Holders

Z Series | Flange Shank | Diameter Range: 0.437" - 0.510" (11.10 mm - 12.95 mm)

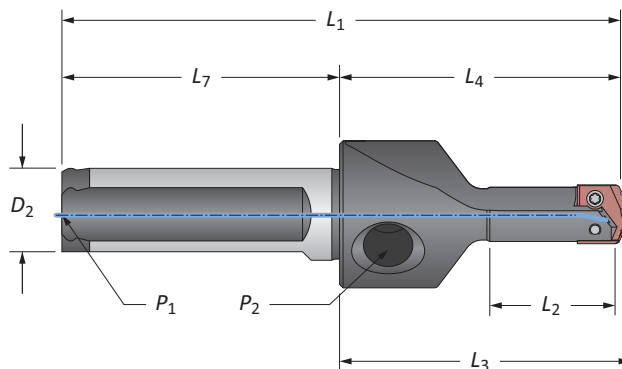


Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|----------------|-------|---------|-------|--------|-------|--------|-------|----------------------|
| | L_2 | L_4 | L_3 | L_1 | D_2 | L_7 | P_1 | |
| i Short | 1-1/4 | 2-13/32 | 2-1/2 | 4-7/16 | 3/4 | 2-1/32 | 1/8 | 220Z0S-075F |
| Standard | 2-3/8 | 3-17/32 | 3-5/8 | 5-9/16 | 3/4 | 2-1/32 | 1/8 | 240Z0S-075F |
| Extended | 4-3/8 | 5-17/32 | 5-5/8 | 7-9/16 | 3/4 | 2-1/32 | 1/8 | ▲ 250Z0S-075F |
| m Short | 31.8 | 61.1 | 63.5 | 111.1 | 20.0 | 50.0 | 1/8* | 220Z0S-20FM |
| XL | 222.3 | 251.7 | 254.1 | 301.7 | 20.0 | 50.0 | 1/8* | ▲ 270Z0S-20FM |
| 3XL | 290.5 | 319.9 | 322.3 | 369.9 | 20.0 | 50.0 | 1/8* | ▲ 290Z0S-20FM |

*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/8" side pipe tap (P_2)



Straight Flute (Stub Length)

| Length | Body | | | | Shank | | | Part No. |
|---------------|-------|---------|---------|---------|-------|-------|-------|-------------|
| | L_2 | L_4 | L_3 | L_1 | D_2 | L_7 | P_1 | |
| i Stub | 3/4 | 1-51/64 | 1-57/64 | 3-43/64 | 5/8 | 1-7/8 | 1/16 | 210Z0S-063F |
| m Stub | 19.1 | 45.6 | 48.0 | 93.6 | 16.0 | 48.0 | 1/16* | 210Z0S-16FM |

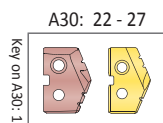
*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/8" side pipe tap (P_2)

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

m = Metric (mm)

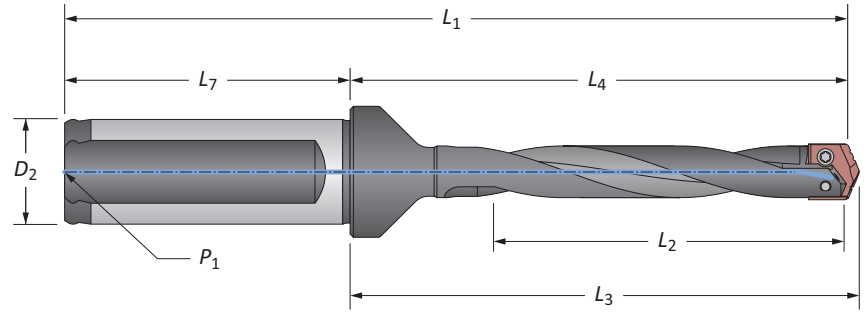
Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



T-A® Drill Insert Holders

Z Series | Flange Shank | Diameter Range: 0.437" - 0.510" (11.10 mm - 12.95 mm)



Helical Flute

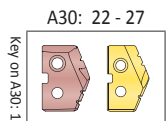
| Length | Body | | | | Shank | | | Part No. | |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|---------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| i | Standard | 2-3/8 | 3-17/32 | 3-5/8 | 5-9/16 | 3/4 | 2-1/32 | 1/8 | 240Z0H-075F |
| | Standard Plus | 3-3/8 | 4-35/64 | 4-41/64 | 6-43/64 | 3/4 | 2-1/32 | 1/8 | ⚠ 245Z0H-075F |
| | Extended | 4-3/8 | 5-17/32 | 5-5/8 | 7-9/16 | 3/4 | 2-1/32 | 1/8 | ⚠ 250Z0H-075F |
| | Long | 7-1/16 | 8-1/4 | 8-11/32 | 10-3/8 | 3/4 | 2-1/32 | 1/8 | ⚠ 260Z0H-075F |
| m | Standard | 60.3 | 89.7 | 92.1 | 139.7 | 20.0 | 50.0 | 1/8* | 240Z0H-20FM |
| | Standard Plus | 86.0 | 115.4 | 117.8 | 165.4 | 20.0 | 50.0 | 1/8* | ⚠ 245Z0H-20FM |
| | Extended | 111.1 | 140.5 | 142.9 | 190.5 | 20.0 | 50.0 | 1/8* | ⚠ 250Z0H-20FM |
| | Long | 180.0 | 209.4 | 211.8 | 259.4 | 20.0 | 50.0 | 1/8* | ⚠ 260Z0H-20FM |

*Metric thread to BSP and ISO 7-1

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



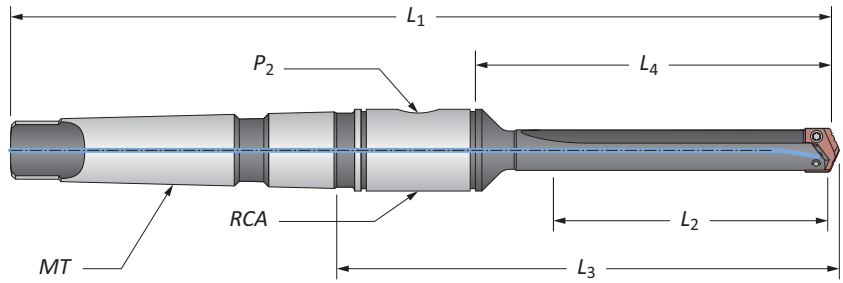
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

Z Series | Taper Shank | Diameter Range: 0.437" - 0.510" (11.10 mm - 12.95 mm)

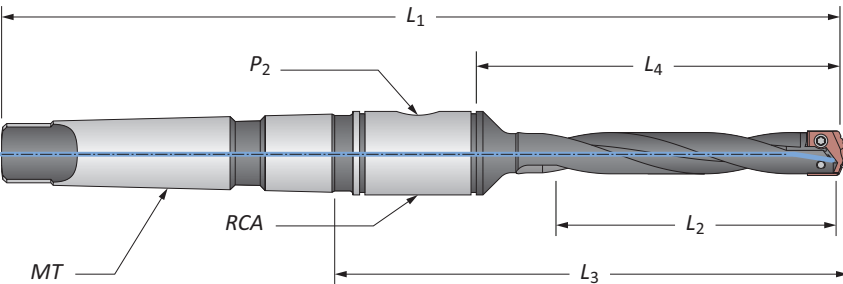


Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| Short | 1-1/4 | 2-1/32 | 3-15/32 | 6-5/16 | #2 | 1/16 | 2T-2SR | 220Z0S-002I |
| Standard | 2-3/8 | 3-5/32 | 4-19/32 | 7-7/16 | #2 | 1/16 | 2T-2SR | 240Z0S-002I |
| Extended | 4-3/8 | 5-5/32 | 6-19/32 | 9-7/16 | #2 | 1/16 | 2T-2SR | 250Z0S-002I |
| Short | 31.8 | 51.5 | 88.0 | 160.3 | #2** | 1/16* | 2T-2SRM | 220Z0S-002M |

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Helical Flute

| Length | Body | | | | Shank | | | Part No. |
|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| Standard | 2-3/8 | 3-5/32 | 4-19/32 | 7-7/16 | #2 | 1/16 | 2T-2SR | 240Z0H-002I |
| Extended | 4-3/8 | 5-5/32 | 6-19/32 | 9-7/16 | #2 | 1/16 | 2T-2SR | 250Z0H-002I |
| Standard | 60.3 | 80.2 | 116.7 | 188.9 | #2** | 1/16* | 2T-2SRM | 240Z0H-002M |
| Extended | 111.1 | 130.9 | 167.4 | 239.7 | #2** | 1/16* | 2T-2SRM | 250Z0H-002M |

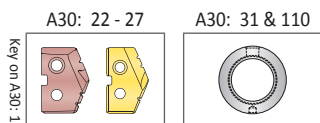
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

m = Metric (mm)

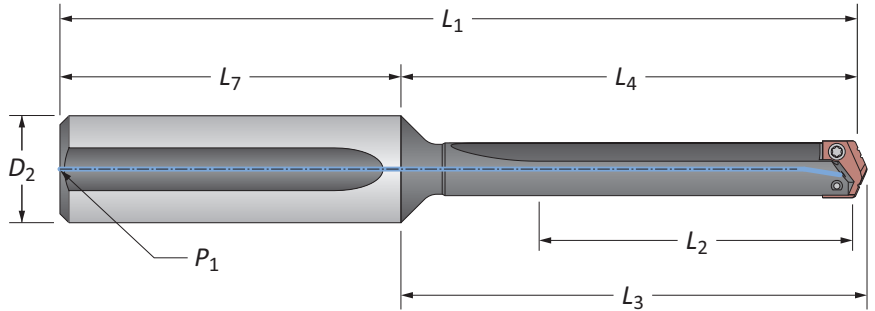
Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



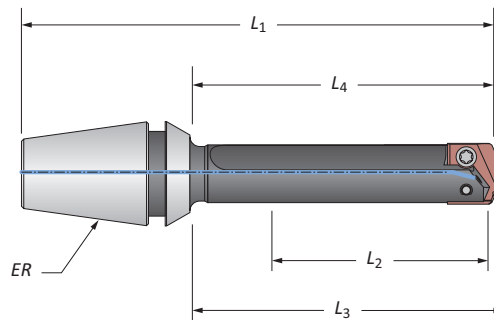
T-A® Drill Insert Holders

Z Series | Straight Shank | ER Collet | Diameter Range: 0.437" - 0.510" (11.10 mm - 12.95 mm)



Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| Short | 1-1/4 | 2-1/32 | 2-1/8 | 4-7/16 | 3/4 | 2-3/8 | 1/8 | 220Z0S-075L |
| Standard | 2-3/8 | 3-5/32 | 3-1/4 | 5-17/32 | 3/4 | 2-3/8 | 1/8 | 240Z0S-075L |
| Extended | 4-3/8 | 5-5/32 | 5-1/4 | 7-17/32 | 3/4 | 2-3/8 | 1/8 | 250Z0S-075L |
| XL | 8-3/4 | 9-17/32 | 9-5/8 | 11-29/32 | 3/4 | 2-3/8 | 1/8 | 270Z0S-075L |
| 3XL | 11-7/16 | 12-7/32 | 12-5/16 | 14-19/32 | 3/4 | 2-3/8 | 1/8 | 290Z0S-075L |



ER Collet Holder

| Length | Body | | | | ER | Part No. | Collet Nut without Retaining Ring |
|--------|----------------|----------------|----------------|----------------|-------------|----------|-----------------------------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | | | |
| 1-3/8 | 1-29/32 | 2 | 3-5/64 | ER-16 | 210Z0S-16ER | ER-16N | |
| 1-3/8 | 1-29/32 | 2 | 3-15/64 | ER-20 | 210Z0S-20ER | ER-20N | |

T-A Drill Accessories

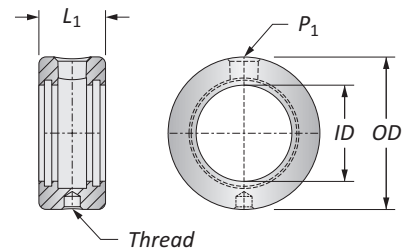
Z Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No. | RCA O-Rings | |
|-------|-------|----------------|--------------------|----------------|----------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| 3/4 | 1-3/4 | 7/8 | 5/16-18 | 1/8 | 2T-2SR | 2T1-2SR | 2T1-2OR-10 |
| 19.05 | 44.45 | 22.23 | M8 x 1.25 | 1/8* | 2T-2SRM | 2T1-2SR | 2T1-2OR-10 |

*Thread to BSP and ISO 7-1 | **RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

Refer to page A30: 110 for proper RCA assembly and safety information



Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

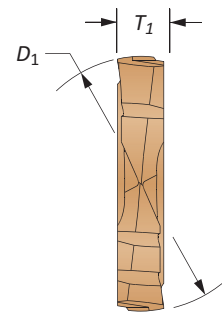
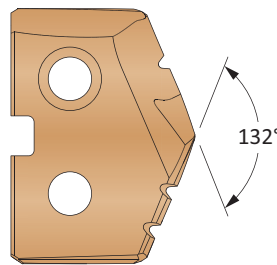
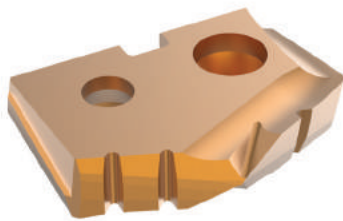
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.




ⓘ = Imperial (in)
 ⓘ = Metric (mm)
 Screws sold in packs of 10
 O-rings sold in packs of 10

GEN2 T-A® Drill Inserts

0 Series | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)

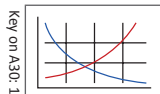


HSS Inserts – Super Cobalt • Carbide Inserts – C2 (K20) | C1 (K35)

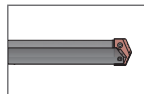
| Series | Fractional Equivalent | Insert | | | HSS Part No. | Carbide Part No. | |
|--------|-----------------------|------------|----------|-----------|--|---|---|
| | | D_1 inch | D_1 mm | T_1 |  AM200® Super Cobalt |  AM300® C2 (K20) |  AM300® C1 (K35) |
| 0 | - | 0.5118 | 13.00 | 1/8 | 450H-13 | 4C20P-13 | 4C10P-13 |
| | 33/64 | 0.5156 | 13.10 | 1/8 | 450H-.515 | 4C20P-.515 | 4C10P-.515 |
| | 17/32 | 0.5313 | 13.49 | 1/8 | 450H-0017 | 4C20P-0017 | 4C10P-0017 |
| | - | 0.5315 | 13.50 | 1/8 | 450H-13.5 | 4C20P-13.5 | 4C10P-13.5 |
| | 35/64 | 0.5469 | 13.89 | 1/8 | 450H-.546 | 4C20P-.546 | 4C10P-.546 |
| | - | 0.5512 | 14.00 | 1/8 | 450H-14 | 4C20P-14 | 4C10P-14 |
| | 9/16 | 0.5625 | 14.29 | 1/8 | 450H-0018 | 4C20P-0018 | 4C10P-0018 |
| | - | 0.5709 | 14.50 | 1/8 | 450H-14.5 | 4C20P-14.5 | 4C10P-14.5 |
| | 37/64 | 0.5781 | 14.68 | 1/8 | 450H-.578 | 4C20P-.578 | 4C10P-.578 |
| | - | 0.5906 | 15.00 | 1/8 | 450H-15 | 4C20P-15 | 4C10P-15 |
| 0.5 | 19/32 | 0.5938 | 15.08 | 1/8 | 450H-0019 | 4C20P-0019 | 4C10P-0019 |
| | 39/64 | 0.6094 | 15.48 | 1/8 | 450H-.609 | 4C20P-.609 | 4C10P-.609 |
| | - | 0.6102 | 15.50 | 1/8 | 450H-15.5 | 4C20P-15.5 | 4C10P-15.5 |
| | 5/8 | 0.6250 | 15.88 | 1/8 | 450H-0020 | 4C20P-0020 | 4C10P-0020 |
| | - | 0.6299 | 16.00 | 1/8 | 450H-16 | 4C20P-16 | 4C10P-16 |
| | 41/64 | 0.6406 | 16.27 | 1/8 | 450H-.640 | 4C20P-.640 | 4C10P-.640 |
| | - | 0.6496 | 16.50 | 1/8 | 450H-16.5 | 4C20P-16.5 | 4C10P-16.5 |
| | 21/32 | 0.6563 | 16.67 | 1/8 | 450H-0021 | 4C20P-0021 | 4C10P-0021 |
| | - | 0.6693 | 17.00 | 1/8 | 450H-17 | 4C20P-17 | 4C10P-17 |
| | 43/64 | 0.6719 | 17.07 | 1/8 | 450H-.671 | 4C20P-.671 | 4C10P-.671 |
| 11/16 | 0.6875 | 17.46 | 1/8 | 450H-0022 | 4C20P-0022 | 4C10P-0022 | |
| - | 0.6890 | 17.50 | 1/8 | 450H-17.5 | 4C20P-17.5 | 4C10P-17.5 | |

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

A30: 112 - 143



A30: 38 - 42



A30: 4 - 6



HE

Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

TiN = 450T-XXXX

TiAlN = 450A-XXXX

TiCN = 450N-XXXX

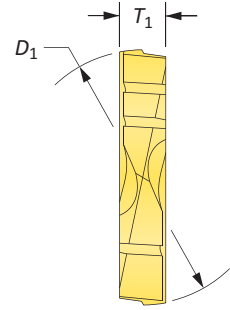
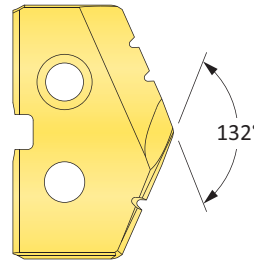
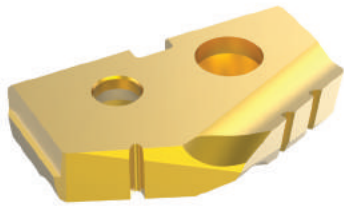
AM200® = 450H-XXXX

Inserts sold in quantities of 2






T-A® Drill Inserts

0 Series | HSS | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)



HSS Inserts – Premium Cobalt

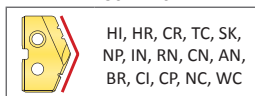
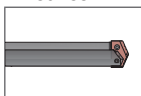
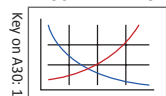
| Series | Fractional Equivalent | Insert | | | Part No. | | |
|--------|-----------------------|---------------------|-------------------|------------------|--|---|--|
| | | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiCN |
| 0 | – | 0.5118 | 13.00 | 1/8 | 180T-13 | 180A-13 | 180N-13 |
| | 33/64 | 0.5156 | 13.10 | 1/8 | 180T-.515 | 180A-.515 | 180N-.515 |
| | 17/32 | 0.5313 | 13.49 | 1/8 | 180T-0017 | 180A-0017 | 180N-0017 |
| | – | 0.5315 | 13.50 | 1/8 | 180T-13.5 | 180A-13.5 | 180N-13.5 |
| | 35/64 | 0.5469 | 13.89 | 1/8 | 180T-.546 | 180A-.546 | 180N-.546 |
| | – | 0.5512 | 14.00 | 1/8 | 180T-14 | 180A-14 | 180N-14 |
| | 9/16 | 0.5625 | 14.29 | 1/8 | 180T-0018 | 180A-0018 | 180N-0018 |
| | – | 0.5709 | 14.50 | 1/8 | 180T-14.5 | 180A-14.5 | 180N-14.5 |
| | 37/64 | 0.5781 | 14.68 | 1/8 | 180T-.578 | 180A-.578 | 180N-.578 |
| 0.5 | – | 0.5906 | 15.00 | 1/8 | 180T-15 | 180A-15 | 180N-15 |
| | 19/32 | 0.5938 | 15.08 | 1/8 | 180T-0019 | 180A-0019 | 180N-0019 |
| | 39/64 | 0.6094 | 15.48 | 1/8 | 180T-.609 | 180A-.609 | 180N-.609 |
| | – | 0.6102 | 15.50 | 1/8 | 180T-15.5 | 180A-15.5 | 180N-15.5 |
| | 5/8 | 0.6250 | 15.88 | 1/8 | 180T-0020 | 180A-0020 | 180N-0020 |
| | – | 0.6299 | 16.00 | 1/8 | 180T-16 | 180A-16 | 180N-16 |
| | 41/64 | 0.6406 | 16.27 | 1/8 | 180T-.640 | 180A-.640 | 180N-.640 |
| | – | 0.6496 | 16.50 | 1/8 | 180T-16.5 | 180A-16.5 | 180N-16.5 |
| | 21/32 | 0.6563 | 16.67 | 1/8 | 180T-0021 | 180A-0021 | 180N-0021 |
| | – | 0.6693 | 17.00 | 1/8 | 180T-17 | 180A-17 | 180N-17 |
| | 43/64 | 0.6719 | 17.07 | 1/8 | 180T-.671 | 180A-.671 | 180N-.671 |
| | 11/16 | 0.6875 | 17.46 | 1/8 | 180T-0022 | 180A-0022 | 180N-0022 |
| – | 0.6890 | 17.50 | 1/8 | 180T-17.5 | 180A-17.5 | 180N-17.5 | |

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

A30: 112 - 143

A30: 38 - 42

A30: 4 - 6



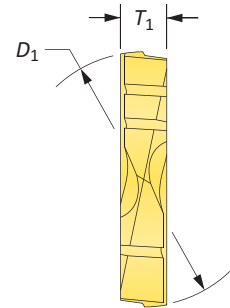
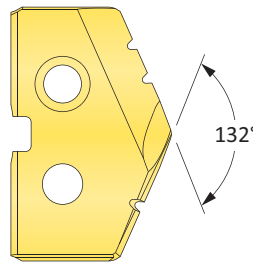
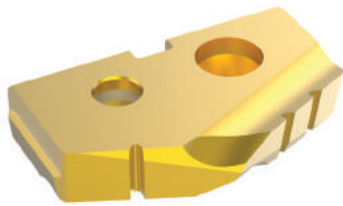
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2




| | |
|------------------|--------------------|
| TiN = 180T-XXXX | TiAlN = 180A-XXXX |
| TiCN = 180N-XXXX | AM200® = 180H-XXXX |

T-A® Drill Inserts

0 Series | HSS | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)



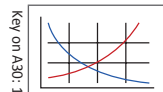
HSS Inserts – Super Cobalt

| Series | Fractional Equivalent | Insert | | | Part No. | | |
|--------|-----------------------|------------|----------|-----------|--|---|--|
| | | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiCN |
| 0 | - | 0.5118 | 13.00 | 1/8 | 150T-13 | 150A-13 | 150N-13 |
| | 33/64 | 0.5156 | 13.10 | 1/8 | 150T-.515 | 150A-.515 | 150N-.515 |
| | 17/32 | 0.5313 | 13.49 | 1/8 | 150T-0017 | 150A-0017 | 150N-0017 |
| | - | 0.5315 | 13.50 | 1/8 | 150T-13.5 | 150A-13.5 | 150N-13.5 |
| | 35/64 | 0.5469 | 13.89 | 1/8 | 150T-.546 | 150A-.546 | 150N-.546 |
| | - | 0.5512 | 14.00 | 1/8 | 150T-14 | 150A-14 | 150N-14 |
| | 9/16 | 0.5625 | 14.29 | 1/8 | 150T-0018 | 150A-0018 | 150N-0018 |
| | - | 0.5709 | 14.50 | 1/8 | 150T-14.5 | 150A-14.5 | 150N-14.5 |
| | 37/64 | 0.5781 | 14.68 | 1/8 | 150T-.578 | 150A-.578 | 150N-.578 |
| | - | 0.5906 | 15.00 | 1/8 | 150T-15 | 150A-15 | 150N-15 |
| 19/32 | 0.5938 | 15.08 | 1/8 | 150T-0019 | 150A-0019 | 150N-0019 | |
| 0.5 | 39/64 | 0.6094 | 15.48 | 1/8 | 150T-.609 | 150A-.609 | 150N-.609 |
| | - | 0.6102 | 15.50 | 1/8 | 150T-15.5 | 150A-15.5 | 150N-15.5 |
| | 5/8 | 0.6250 | 15.88 | 1/8 | 150T-0020 | 150A-0020 | 150N-0020 |
| | - | 0.6299 | 16.00 | 1/8 | 150T-16 | 150A-16 | 150N-16 |
| | 41/64 | 0.6406 | 16.27 | 1/8 | 150T-.640 | 150A-.640 | 150N-.640 |
| | - | 0.6496 | 16.50 | 1/8 | 150T-16.5 | 150A-16.5 | 150N-16.5 |
| | 21/32 | 0.6563 | 16.67 | 1/8 | 150T-0021 | 150A-0021 | 150N-0021 |
| | - | 0.6693 | 17.00 | 1/8 | 150T-17 | 150A-17 | 150N-17 |
| | 43/64 | 0.6719 | 17.07 | 1/8 | 150T-.671 | 150A-.671 | 150N-.671 |
| | 11/16 | 0.6875 | 17.46 | 1/8 | 150T-0022 | 150A-0022 | 150N-0022 |
| - | 0.6890 | 17.50 | 1/8 | 150T-17.5 | 150A-17.5 | 150N-17.5 | |

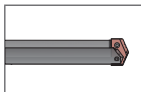
NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

Inserts sold in quantities of 2

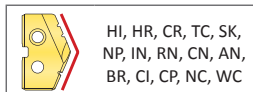
A30: 112 - 143



A30: 38 - 42



A30: 4 - 6



HI, HR, CR, TC, SK,
NP, IN, RN, CN, AN,
BR, CI, CP, NC, WC

Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

TiN = 150T-XXXX

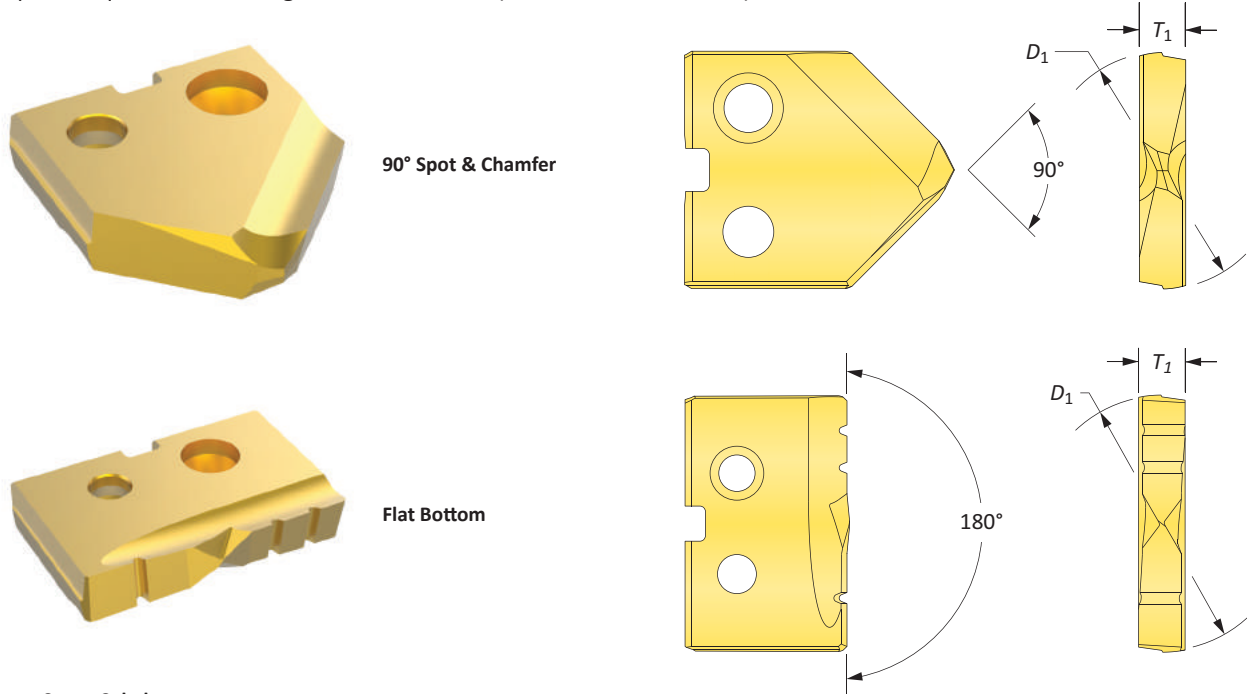
TiAlN = 150A-XXXX

TiCN = 150N-XXXX





AM200® = 150H-XXXX

T-A® Drill Inserts

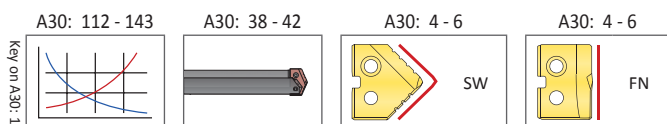
0 Series | HSS | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)



HSS Inserts – Super Cobalt

| Series | Insert | | | | 90° Spot & Chamfer Part No. | | | Flat Bottom Part No. |
|--------|-----------------------|---------------------|-------------------|----------------|--|---|---|--|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ |  TIN |  TiAlN |  TiCN |  TIN |
| 0 | - | 0.5118 | 13.00 | 1/8 | 150T-13-SP | 150A-13-SP | 150N-13-SP | 150T-13-FB |
| | 33/64 | 0.5156 | 13.10 | 1/8 | 150T-515-SP | 150A-515-SP | 150N-515-SP | 150T-515-FB |
| | 17/32 | 0.5313 | 13.49 | 1/8 | 150T-0017-SP | 150A-0017-SP | 150N-0017-SP | 150T-0017-FB |
| | - | 0.5315 | 13.50 | 1/8 | 150T-13.5-SP | 150A-13.5-SP | 150N-13.5-SP | 150T-13.5-FB |
| | 35/64 | 0.5469 | 13.89 | 1/8 | 150T-546-SP | 150A-546-SP | 150N-546-SP | 150T-546-FB |
| | - | 0.5512 | 14.00 | 1/8 | 150T-14-SP | 150A-14-SP | 150N-14-SP | 150T-14-FB |
| | 9/16 | 0.5625 | 14.29 | 1/8 | 150T-0018-SP | 150A-0018-SP | 150N-0018-SP | 150T-0018-FB |
| | - | 0.5709 | 14.50 | 1/8 | 150T-14.5-SP | 150A-14.5-SP | 150N-14.5-SP | 150T-14.5-FB |
| | 37/64 | 0.5781 | 14.68 | 1/8 | 150T-578-SP | 150A-578-SP | 150N-578-SP | 150T-578-FB |
| 0.5 | - | 0.5906 | 15.00 | 1/8 | 150T-15-SP | 150A-15-SP | 150N-15-SP | 150T-15-FB |
| | 19/32 | 0.5938 | 15.08 | 1/8 | 150T-0019-SP | 150A-0019-SP | 150N-0019-SP | 150T-0019-FB |
| | 39/64 | 0.6094 | 15.48 | 1/8 | 150T-609-SP | 150A-609-SP | 150N-609-SP | 150T-609-FB |
| | - | 0.6102 | 15.50 | 1/8 | 150T-15.5-SP | 150A-15.5-SP | 150N-15.5-SP | 150T-15.5-FB |
| | 5/8 | 0.6250 | 15.88 | 1/8 | 150T-0020-SP | 150A-0020-SP | 150N-0020-SP | 150T-0020-FB |
| | - | 0.6299 | 16.00 | 1/8 | 150T-16-SP | 150A-16-SP | 150N-16-SP | 150T-16-FB |
| | 41/64 | 0.6406 | 16.27 | 1/8 | 150T-640-SP | 150A-640-SP | 150N-640-SP | 150T-640-FB |
| | - | 0.6496 | 16.50 | 1/8 | 150T-16.5-SP | 150A-16.5-SP | 150N-16.5-SP | 150T-16.5-FB |
| | 21/32 | 0.6563 | 16.67 | 1/8 | 150T-0021-SP | 150A-0021-SP | 150N-0021-SP | 150T-0021-FB |
| | - | 0.6693 | 17.00 | 1/8 | 150T-17-SP | 150A-17-SP | 150N-17-SP | 150T-17-FB |
| | 43/64 | 0.6719 | 17.07 | 1/8 | 150T-671-SP | 150A-671-SP | 150N-671-SP | 150T-671-FB |
| - | 0.6875 | 17.46 | 1/8 | 150T-0022-SP | 150A-0022-SP | 150N-0022-SP | 150T-0022-FB | |
| - | 0.6890 | 17.50 | 1/8 | 150T-17.5-SP | 150A-17.5-SP | 150N-17.5-SP | 150T-17.5-FB | |

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.



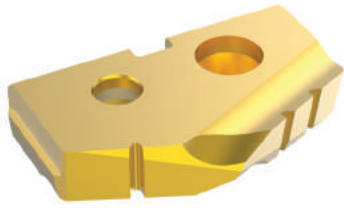
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 150T-XXXX | TiAlN = 150A-XXXX |
| TiCN = 150N-XXXX | AM200® = 150H-XXXX |

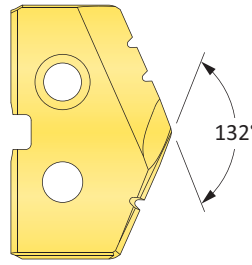
Inserts sold in quantities of 2

T-A® Drill Inserts

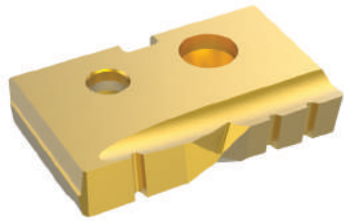
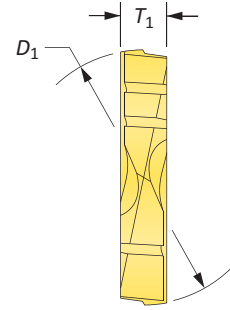
0 Series | Carbide | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)



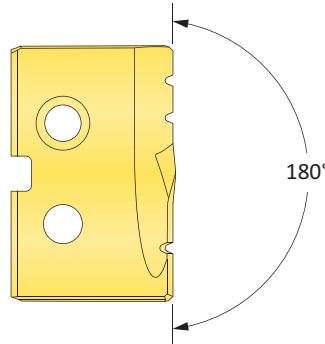
Standard



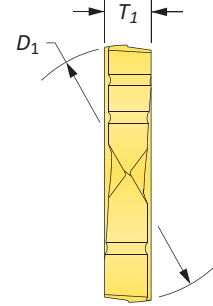
132°






Flat Bottom



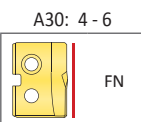
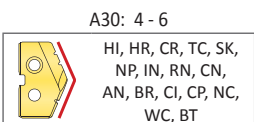
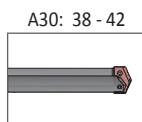
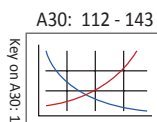
180°



Carbide Inserts – C2 (K20)

| Series | Fractional Equivalent | Insert | | | Part No. | | Flat Bottom Part No. |
|--------|-----------------------|---------------------|-------------------|-------------------|--|--|--|
| | | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiN |
| 0 | - | 0.5118 | 13.00 | 1/8 | 1C20T-13 | 1C20A-13 | 1C20T-13-FB |
| | 33/64 | 0.5156 | 13.10 | 1/8 | 1C20T-.515 | 1C20A-.515 | 1C20T-.515-FB |
| | 17/32 | 0.5313 | 13.49 | 1/8 | 1C20T-0017 | 1C20A-0017 | 1C20T-0017-FB |
| | - | 0.5315 | 13.50 | 1/8 | 1C20T-13.5 | 1C20A-13.5 | 1C20T-13.5-FB |
| | 35/64 | 0.5469 | 13.89 | 1/8 | 1C20T-.546 | 1C20A-.546 | 1C20T-.546-FB |
| | - | 0.5512 | 14.00 | 1/8 | 1C20T-14 | 1C20A-14 | 1C20T-14-FB |
| | 9/16 | 0.5625 | 14.29 | 1/8 | 1C20T-0018 | 1C20A-0018 | 1C20T-0018-FB |
| | - | 0.5709 | 14.50 | 1/8 | 1C20T-14.5 | 1C20A-14.5 | 1C20T-14.5-FB |
| | 37/64 | 0.5781 | 14.68 | 1/8 | 1C20T-.578 | 1C20A-.578 | 1C20T-.578-FB |
| | - | 0.5906 | 15.00 | 1/8 | 1C20T-15 | 1C20A-15 | 1C20T-15-FB |
| 19/32 | 0.5938 | 15.08 | 1/8 | 1C20T-0019 | 1C20A-0019 | 1C20T-0019-FB | |
| 0.5 | 39/64 | 0.6094 | 15.48 | 1/8 | 1C20T-.609 | 1C20A-.609 | 1C20T-.609-FB |
| | - | 0.6102 | 15.50 | 1/8 | 1C20T-15.5 | 1C20A-15.5 | 1C20T-15.5-FB |
| | 5/8 | 0.6250 | 15.88 | 1/8 | 1C20T-0020 | 1C20A-0020 | 1C20T-0020-FB |
| | - | 0.6299 | 16.00 | 1/8 | 1C20T-16 | 1C20A-16 | 1C20T-16-FB |
| | 41/64 | 0.6406 | 16.27 | 1/8 | 1C20T-.640 | 1C20A-.640 | 1C20T-.640-FB |
| | - | 0.6496 | 16.50 | 1/8 | 1C20T-16.5 | 1C20A-16.5 | 1C20T-16.5-FB |
| | 21/32 | 0.6563 | 16.67 | 1/8 | 1C20T-0021 | 1C20A-0021 | 1C20T-0021-FB |
| | - | 0.6693 | 17.00 | 1/8 | 1C20T-17 | 1C20A-17 | 1C20T-17-FB |
| | 43/64 | 0.6719 | 17.07 | 1/8 | 1C20T-.671 | 1C20A-.671 | 1C20T-.671-FB |
| | 11/16 | 0.6875 | 17.46 | 1/8 | 1C20T-0022 | 1C20A-0022 | 1C20T-0022-FB |
| - | 0.6890 | 17.50 | 1/8 | 1C20T-17.5 | 1C20A-17.5 | 1C20T-17.5-FB | |

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.



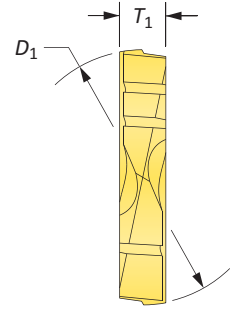
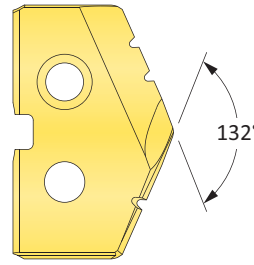
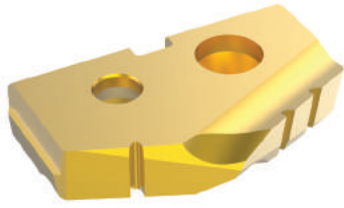
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|-------------------|---------------------|
| TiN = 1C20T-XXXX | TiAlN = 1C20A-XXXX |
| TiCN = 1C20N-XXXX | AM200® = 1C20H-XXXX |





Inserts sold in quantities of 1

T-A® Drill Inserts

0 Series | Carbide | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)



Carbide Inserts – C5 (P40) | C3 (K10) | N2

| Series | Insert | | | | C5 Part No. | | C3 Part No. | N2 Part No. |
|--------|-----------------------|---------------------|-------------------|-------------------|---|--|---|---|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiAlN (Cast Iron) |  Diamond Film* |
| 0 | – | 0.5118 | 13.00 | 1/8 | 1C50T-13 | 1C50A-13 | 1C30A-13-CI | 1N20D-13 |
| | 33/64 | 0.5156 | 13.10 | 1/8 | 1C50T-.515 | 1C50A-.515 | 1C30A-.515-CI | 1N20D-.515 |
| | 17/32 | 0.5313 | 13.49 | 1/8 | 1C50T-0017 | 1C50A-0017 | 1C30A-0017-CI | 1N20D-0017 |
| | – | 0.5315 | 13.50 | 1/8 | 1C50T-13.5 | 1C50A-13.5 | 1C30A-13.5-CI | 1N20D-13.5 |
| | 35/64 | 0.5469 | 13.89 | 1/8 | 1C50T-.546 | 1C50A-.546 | 1C30A-.546-CI | 1N20D-.546 |
| | – | 0.5512 | 14.00 | 1/8 | 1C50T-14 | 1C50A-14 | 1C30A-14-CI | 1N20D-14 |
| | 9/16 | 0.5625 | 14.29 | 1/8 | 1C50T-0018 | 1C50A-0018 | 1C30A-0018-CI | 1N20D-0018 |
| | – | 0.5709 | 14.50 | 1/8 | 1C50T-14.5 | 1C50A-14.5 | 1C30A-14.5-CI | 1N20D-14.5 |
| | 37/64 | 0.5781 | 14.68 | 1/8 | 1C50T-.578 | 1C50A-.578 | 1C30A-.578-CI | 1N20D-.578 |
| | – | 0.5906 | 15.00 | 1/8 | 1C50T-15 | 1C50A-15 | 1C30A-15-CI | 1N20D-15 |
| 19/32 | 0.5938 | 15.08 | 1/8 | 1C50T-0019 | 1C50A-0019 | 1C30A-0019-CI | 1N20D-0019 | |
| 0.5 | 39/64 | 0.6094 | 15.48 | 1/8 | 1C50T-.609 | 1C50A-.609 | 1C30A-.609-CI | 1N20D-.609 |
| | – | 0.6102 | 15.50 | 1/8 | 1C50T-15.5 | 1C50A-15.5 | 1C30A-15.5-CI | 1N20D-15.5 |
| | 5/8 | 0.6250 | 15.88 | 1/8 | 1C50T-0020 | 1C50A-0020 | 1C30A-0020-CI | 1N20D-0020 |
| | – | 0.6299 | 16.00 | 1/8 | 1C50T-16 | 1C50A-16 | 1C30A-16-CI | 1N20D-16 |
| | 41/64 | 0.6406 | 16.27 | 1/8 | 1C50T-.640 | 1C50A-.640 | 1C30A-.640-CI | 1N20D-.640 |
| | – | 0.6496 | 16.50 | 1/8 | 1C50T-16.5 | 1C50A-16.5 | 1C30A-16.5-CI | 1N20D-16.5 |
| | 21/32 | 0.6563 | 16.67 | 1/8 | 1C50T-0021 | 1C50A-0021 | 1C30A-0021-CI | 1N20D-0021 |
| | – | 0.6693 | 17.00 | 1/8 | 1C50T-17 | 1C50A-17 | 1C30A-17-CI | 1N20D-17 |
| | 43/64 | 0.6719 | 17.07 | 1/8 | 1C50T-.671 | 1C50A-.671 | 1C30A-.671-CI | 1N20D-.671 |
| | 11/16 | 0.6875 | 17.46 | 1/8 | 1C50T-0022 | 1C50A-0022 | 1C30A-0022-CI | 1N20D-0022 |
| – | 0.6890 | 17.50 | 1/8 | 1C50T-17.5 | 1C50A-17.5 | 1C30A-17.5-CI | 1N20D-17.5 | |

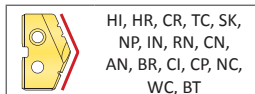
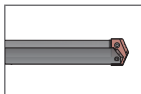
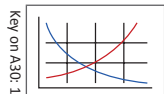
NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

*Diamond Film is only available in standard geometry. For additional geometries, please contact Application Engineering.

A30: 112 - 143

A30: 38 - 42

A30: 4 - 6



HI, HR, CR, TC, SK,
NP, IN, RN, CN,
AN, BR, CI, CP, NC,
WC, BT

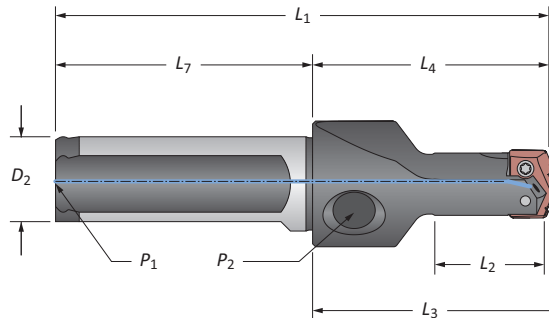
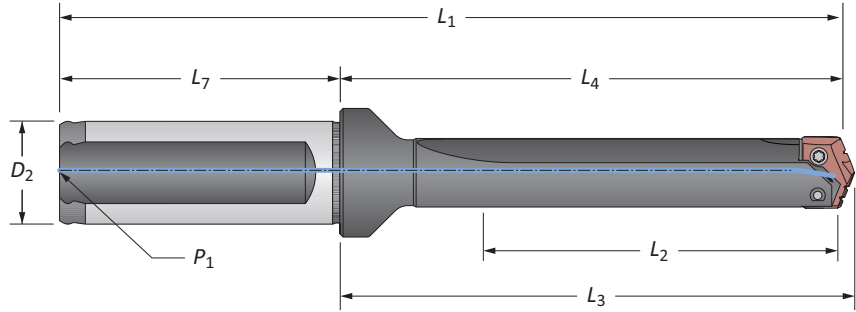
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1

| | |
|--------------------------|----------------------------|
| TiN = 1C50T-XXXX | TiAlN = 1C50A-XXXX |
| TiCN = 1C50N-XXXX | AM200® = 1C50H-XXXX |

T-A® Drill Insert Holders

0 Series | Flange Shank | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)



Stub Length

Straight Flute

| Series | Length | Body | | | | Shank | | | Part No. |
|--------|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| 0 | Stub | 7/8 | 1-7/8 | 1-63/64 | 3-29/32 | 3/4 | 2-1/32 | 1/8 | 21000S-075F |
| | Short | 1-3/8 | 2-1/2 | 2-39/64 | 4-17/32 | 3/4 | 2-1/32 | 1/8 | 22000S-075F |
| | Standard | 2-1/2 | 3-5/8 | 3-47/64 | 5-21/32 | 3/4 | 2-1/32 | 1/8 | 24000S-075F |
| | Extended | 4-1/2 | 5-5/8 | 5-47/64 | 7-21/32 | 3/4 | 2-1/32 | 1/8 | ▲ 25000S-075F |
| 0.5 | Stub | 7/8 | 1-7/8 | 1-63/64 | 3-29/32 | 3/4 | 2-1/32 | 1/8 | 21005S-075F |
| | Short | 1-3/8 | 2-1/2 | 2-39/64 | 4-17/32 | 3/4 | 2-1/32 | 1/8 | 22005S-075F |
| | Standard | 2-1/2 | 3-5/8 | 3-47/64 | 5-21/32 | 3/4 | 2-1/32 | 1/8 | 24005S-075F |
| | Extended | 4-1/2 | 5-5/8 | 5-47/64 | 7-21/32 | 3/4 | 2-1/32 | 1/8 | ▲ 25005S-075F |
| 0 | Stub | 22.2 | 47.6 | 50.4 | 97.6 | 20.0 | 50.0 | 1/8* | 21000S-20FM |
| | Short | 34.9 | 63.5 | 66.3 | 113.5 | 20.0 | 50.0 | 1/8* | 22000S-20FM |
| | XL | 295.0 | 323.9 | 326.7 | 373.9 | 20.0 | 50.0 | 1/8* | ▲ 27000S-20FM |
| | 3XL | 387.0 | 416.0 | 418.8 | 466.0 | 20.0 | 50.0 | 1/8* | ▲ 29000S-20FM |
| | 0.5 | Stub | 22.2 | 47.6 | 50.4 | 97.6 | 20.0 | 50.0 | 1/8* |
| | Short | 34.9 | 63.5 | 66.3 | 113.5 | 20.0 | 50.0 | 1/8* | 22005S-20FM |

*Metric thread to BSP and ISO 7-1

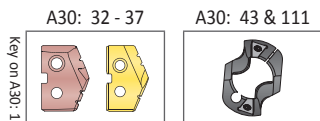
NOTE: Stub length holders have a 1/8" side pipe tap (P₂)

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 0 | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| 0.5 | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



Key on A30: 1

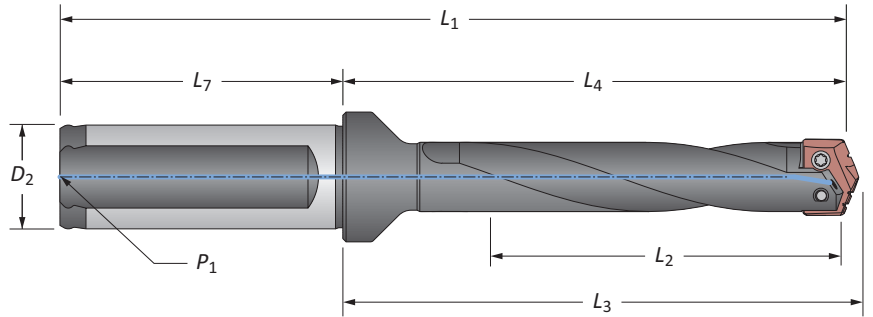
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

0 Series | Flange Shank | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)



Helical Flute

| Series | Length | Body | | | | Shank | | | Part No. |
|--------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i | Standard | 2-1/2 | 3-5/8 | 3-47/64 | 5-21/32 | 3/4 | 2-1/32 | 1/8 | 24000H-075F |
| | Standard Plus | 3-1/2 | 4-5/8 | 4-37/64 | 6-39/64 | 3/4 | 2-1/32 | 1/8 | ⚠ 24500H-075F |
| | Extended | 4-1/2 | 5-5/8 | 5-47/64 | 7-21/32 | 3/4 | 2-1/32 | 1/8 | ⚠ 25000H-075F |
| | Long | 7 | 8-1/8 | 8-15/64 | 10-5/32 | 3/4 | 2-1/32 | 1/8 | ⚠ 26000H-075F |
| | Long Plus | 9-7/16 | 10-37/64 | 10-11/16 | 12-23/32 | 3/4 | 2-1/32 | 1/8 | ⚠ 26500H-075F |
| 0.5 | Standard | 2-1/2 | 3-5/8 | 3-47/64 | 5-21/32 | 3/4 | 2-1/32 | 1/8 | 24005H-075F |
| | Extended | 4-1/2 | 5-5/8 | 5-47/64 | 7-21/32 | 3/4 | 2-1/32 | 1/8 | ⚠ 25005H-075F |
| | Long | 7 | 8-1/8 | 8-15/64 | 10-5/32 | 3/4 | 2-1/32 | 1/8 | ⚠ 26005H-075F |
| ii | Standard | 63.5 | 92.1 | 94.9 | 142.1 | 20.0 | 50.0 | 1/8* | 24000H-20FM |
| | Standard Plus | 89.0 | 117.6 | 120.4 | 167.6 | 20.0 | 50.0 | 1/8* | ⚠ 24500H-20FM |
| | Extended | 114.3 | 142.9 | 145.7 | 192.9 | 20.0 | 50.0 | 1/8* | ⚠ 25000H-20FM |
| | Long | 177.8 | 206.4 | 209.1 | 256.4 | 20.0 | 50.0 | 1/8* | ⚠ 26000H-20FM |
| | Long Plus | 240.0 | 268.6 | 271.4 | 318.6 | 20.0 | 50.0 | 1/8* | ⚠ 26500H-20FM |
| | Standard | 63.5 | 92.1 | 94.9 | 142.1 | 20.0 | 50.0 | 1/8* | 24005H-20FM |
| | Extended | 114.3 | 142.9 | 145.7 | 192.9 | 20.0 | 50.0 | 1/8* | ⚠ 25005H-20FM |
| | Long | 177.8 | 206.4 | 209.1 | 256.4 | 20.0 | 50.0 | 1/8* | ⚠ 26005H-20FM |

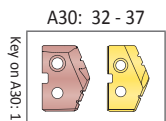
*Metric thread to BSP and ISO 7-1NTE: 0.5 hold)

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 0 | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| 0.5 | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



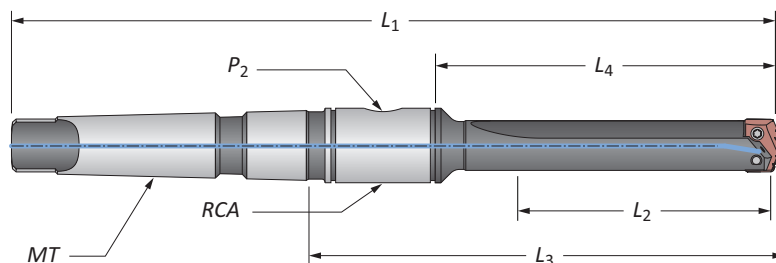
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

0 Series | Taper Shank | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)



Straight Flute

| Series | Length | Body | | | | Shank | | | Part No. |
|--------|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| 0 | Short | 1-3/8 | 2-3/16 | 3-15/32 | 6-15/32 | #2 | 1/16 | 2T-2SR | 22000S-002I |
| | Standard | 2-1/2 | 3-5/16 | 4-49/64 | 7-19/32 | #2 | 1/16 | 2T-2SR | 24000S-002I |
| | Extended | 4-1/2 | 5-5/16 | 6-49/64 | 9-19/32 | #2 | 1/16 | 2T-2SR | 25000S-002I |
| 0.5 | Short | 1-3/8 | 2-3/16 | 3-41/64 | 6-15/32 | #2 | 1/16 | 2T-2SR | 22005S-002I |
| | Standard | 2-1/2 | 3-5/16 | 4-49/64 | 7-19/32 | #2 | 1/16 | 2T-2SR | 24005S-002I |
| | Extended | 4-1/2 | 5-5/16 | 6-49/64 | 9-19/32 | #2 | 1/16 | 2T-2SR | 25005S-002I |
| 0 | Short | 35.0 | 55.5 | 92.4 | 164.3 | #2** | 1/16* | 2T-2SRM | 22000S-002M |
| | 0.5 | Short | 35.0 | 55.5 | 92.4 | 92.4 | 164.3 | #2** | 1/16* |

*Metric thread to BSP and ISO 7-1

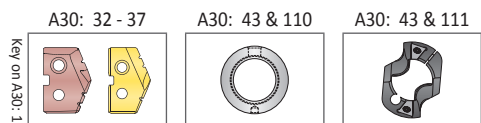
**Per ISO 296 type BEK

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 0 | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| 0.5 | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)
m = Metric (mm)

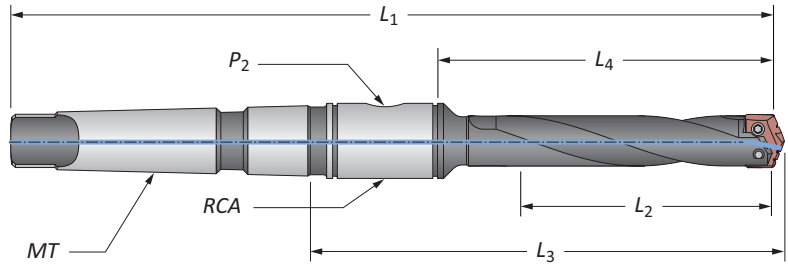
Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



T-A Drill Insert Holders

0 Series | Taper Shank | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)



Helical Flute

| Series | Length | Body | | | | Shank | | | Part No. | |
|--------|--------|----------------|----------------|----------------|----------------|---------|----------------|-------|----------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | | |
| i | 0 | Standard | 2-1/2 | 3-5/16 | 4-49/64 | 7-19/32 | #2 | 1/16 | 2T-2SR | 24000H-002I |
| | 0.5 | Extended | 4-1/2 | 5-5/16 | 6-49/64 | 9-19/32 | #2 | 1/16 | 2T-2SR | 25000H-002I |
| | | Long | 7 | 7-13/16 | 8-17/64 | 12-3/32 | #2 | 1/16 | 2T-2SR | 26000H-002I |
| m | 0 | Standard | 63.5 | 84.1 | 121.0 | 192.9 | #2** | 1/16* | 2T-2SRM | 24000H-002M |
| | | Extended | 114.3 | 135.0 | 171.8 | 243.7 | #2** | 1/16* | 2T-2SRM | 25000H-002M |
| | | Long | 177.8 | 198.5 | 235.3 | 307.2 | #2** | 1/16* | 2T-2SRM | 26000H-002M |
| | 0.5 | Standard | 63.5 | 84.1 | 121.0 | 192.9 | #2** | 1/16* | 2T-2SRM | 24005H-002M |
| | | Extended | 114.3 | 135.0 | 171.8 | 243.7 | #2** | 1/16* | 2T-2SRM | 25005H-002M |
| | | Long | 177.8 | 198.5 | 235.3 | 307.2 | #2** | 1/16* | 2T-2SRM | 26005H-002M |

*Metric thread to BSP and ISO 7-1

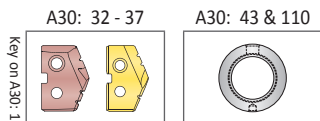
**Per ISO 296 type BEK

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 0 | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| 0.5 | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



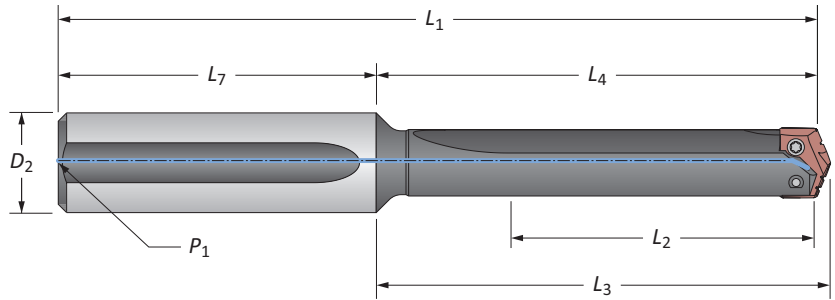
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

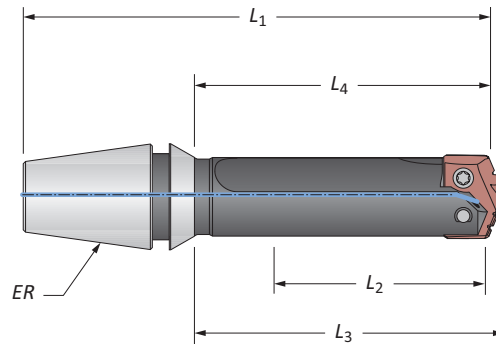
0 Series | Straight Shank | ER Collet | Diameter Range: 0.511" - 0.695" (12.98 mm - 17.65 mm)



Straight Flute

| Series | Length | Body | | | | Shank | | | Part No. |
|--------|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| 0 | Short | 1-3/8 | 2-3/16 | 2-19/64 | 4-9/16 | 3/4 | 2-3/8 | 1/8 | 22000S-075L |
| | Standard | 2-1/2 | 3-5/16 | 3-27/64 | 5-11/16 | 3/4 | 2-3/8 | 1/8 | 24000S-075L |
| | Extended | 4-1/2 | 5-5/16 | 5-27/64 | 7-11/16 | 3/4 | 2-3/8 | 1/8 | 25000S-075L |
| | Long | 7 | 7-13/16 | 7-59/64 | 10-3/16 | 3/4 | 2-3/8 | 1/8 | 26000S-075L |
| | XL | 11-5/8 | 12-7/16 | 12-35/64 | 14-13/16 | 3/4 | 2-3/8 | 1/8 | 27000S-075L |
| 0.5 | 3XL | 15-1/4 | 16-1/16 | 16-11/64 | 18-7/16 | 3/4 | 2-3/8 | 1/8 | 29000S-075L |
| | Short | 1-3/8 | 2-3/16 | 2-19/64 | 4-9/16 | 3/4 | 2-3/8 | 1/8* | 22005S-075L |
| | Standard | 2-1/2 | 3-5/16 | 3-27/64 | 5-11/16 | 3/4 | 2-3/8 | 1/8* | 24005S-075L |
| | Extended | 4-1/2 | 5-5/16 | 5-27/64 | 7-11/16 | 3/4 | 2-3/8 | 1/8* | 25005S-075L |
| | Long | 7 | 7-13/16 | 7-59/64 | 10-3/16 | 3/4 | 2-3/8 | 1/8* | 26005S-075L |

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.



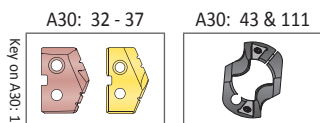
ER Collet Holder

| Series | Body | | | | ER | Part No. | Collet Nut without Retaining Ring |
|--------|----------------|----------------|----------------|----------------|-------|-------------|-----------------------------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | | | |
| 0 | 1-3/8 | 1-57/64 | 2 | 3-5/64 | ER-16 | 21000S-16ER | ER-16N |
| | 1-3/8 | 1-57/64 | 2 | 3-15/64 | ER-20 | 21000S-20ER | ER-20N |

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 0 | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| 0.5 | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)
m = Metric (mm)

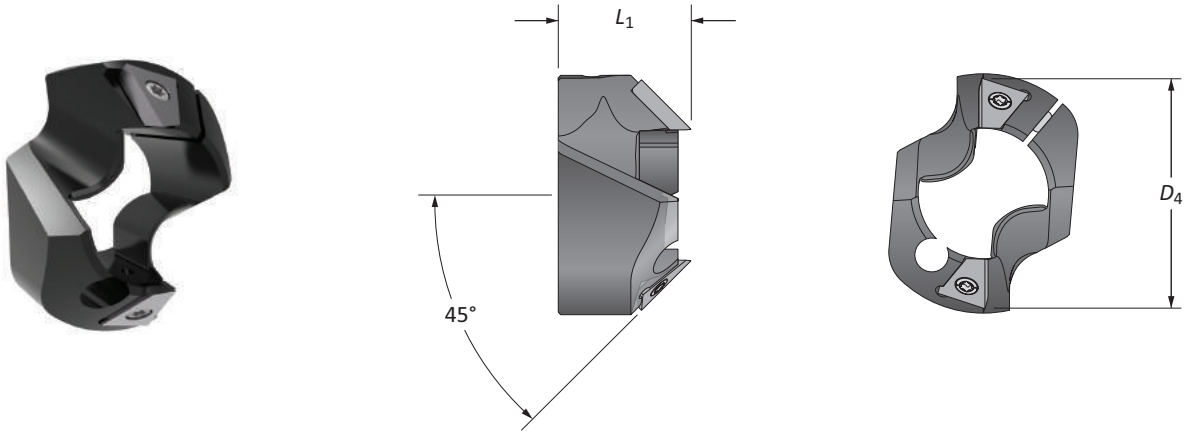
Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



T-A® Drill Accessories

O Series | Chamfer Rings | Rotary Coolant Adapters | Torx® Plus Screws

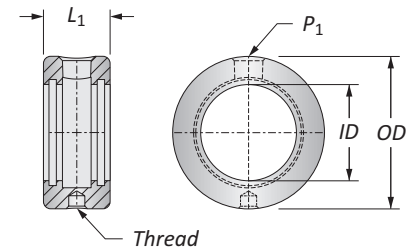


T-ACR 45 Chamfer Ring

| Holder Series | D ₁ Range | Chamfer Ring | | Part No. | Insert Part No. | Insert Screw | Insert Driver | Clamping Screw | Insert Driver |
|---------------|----------------------|----------------|----------------|-------------------|-----------------|--------------|---------------|----------------|---------------|
| | | D ₄ | L ₁ | | | | | | |
| 0 | 0.5118 - 0.6890 | 13/16 | 0.676 | T-ACR-45-0 | T-ACRI-45-B-C5A | 7255-IP8-1 | 8IP-8 | 7375-IP9-1 | 8IP-9 |

Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No. | RCA O-Rings | |
|----------------|-------|----------------|--------------------|----------------|------------------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| i 3/4 | 1-3/4 | 7/8 | 5/16-18 | 1/8 | ⚠ 2T-2SR | 2T1-2SR | 2T1-2OR-10 |
| m 19.05 | 44.45 | 22.23 | M8 x 1.25 | 1/8* | ⚠ 2T-2SRM | 2T1-2SR | 2T1-2OR-10 |



*Thread to BSP and ISO 7-1

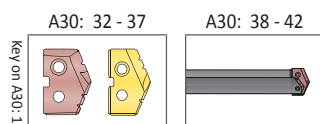
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

⚠ Refer to page A30: 110 for proper RCA assembly and safety information

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 0 | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| 0.5 | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

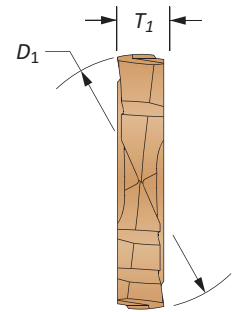
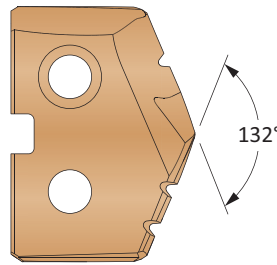
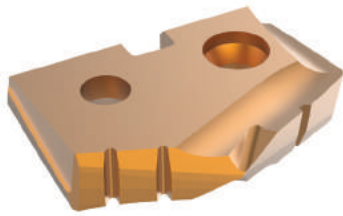


i = Imperial (in)
m = Metric (mm)
 Chamfer Ring Inserts sold separately
 Screws sold in packs of 10
 O-rings sold in packs of 10




⚠ WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.

GEN2 T-A® Drill Inserts

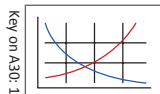
1 Series | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)



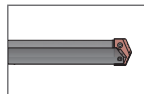
HSS Inserts – Super Cobalt • Carbide Inserts – C2 (K20) | C1 (K35)

| Series | Fractional Equivalent | Insert | | | HSS Part No. | Carbide Part No. | |
|--------|-----------------------|------------|----------|-----------|--|---|---|
| | | D_1 inch | D_1 mm | T_1 |  AM200® Super Cobalt |  AM300® C2 (K20) |  AM300® C1 (K35) |
| 1 | 45/64 | 0.7031 | 17.86 | 5/32 | 451H-.703 | 4C21P-.703 | 4C11P-.703 |
| | - | 0.7087 | 18.00 | 5/32 | 451H-18 | 4C21P-18 | 4C11P-18 |
| | 23/32 | 0.7188 | 18.26 | 5/32 | 451H-0023 | 4C21P-0023 | 4C11P-0023 |
| | - | 0.7283 | 18.50 | 5/32 | 451H-18.5 | 4C21P-18.5 | 4C11P-18.5 |
| | 47/64 | 0.7344 | 18.65 | 5/32 | 451H-.734 | 4C21P-.734 | 4C11P-.734 |
| | - | 0.7480 | 19.00 | 5/32 | 451H-19 | 4C21P-19 | 4C11P-19 |
| | 3/4 | 0.7500 | 19.05 | 5/32 | 451H-0024 | 4C21P-0024 | 4C11P-0024 |
| | 49/64 | 0.7656 | 19.45 | 5/32 | 451H-.765 | 4C21P-.765 | 4C11P-.765 |
| | - | 0.7677 | 19.50 | 5/32 | 451H-19.5 | 4C21P-19.5 | 4C11P-19.5 |
| | 25/32 | 0.7813 | 19.84 | 5/32 | 451H-0025 | 4C21P-0025 | 4C11P-0025 |
| | - | 0.7874 | 20.00 | 5/32 | 451H-20 | 4C21P-20 | 4C11P-20 |
| | 51/64 | 0.7969 | 20.24 | 5/32 | 451H-.796 | 4C21P-.796 | 4C11P-.796 |
| | - | 0.8010 | 20.34 | 5/32 | 451H-.801 | 4C21P-.801 | 4C11P-.801 |
| | - | 0.8071 | 20.50 | 5/32 | 451H-20.5 | 4C21P-20.5 | 4C11P-20.5 |
| | 13/16 | 0.8125 | 20.64 | 5/32 | 451H-0026 | 4C21P-0026 | 4C11P-0026 |
| | - | 0.8268 | 21.00 | 5/32 | 451H-21 | 4C21P-21 | 4C11P-21 |
| 27/32 | 0.8438 | 21.43 | 5/32 | 451H-0027 | 4C21P-0027 | 4C11P-0027 | |
| - | 0.8465 | 21.50 | 5/32 | 451H-21.5 | 4C21P-21.5 | 4C11P-21.5 | |
| 1.5 | 55/64 | 0.8594 | 21.83 | 5/32 | 451H-.859 | 4C21P-.859 | 4C11P-.859 |
| | - | 0.8661 | 22.00 | 5/32 | 451H-22 | 4C21P-22 | 4C11P-22 |
| | 7/8 | 0.8750 | 22.23 | 5/32 | 451H-0028 | 4C21P-0028 | 4C11P-0028 |
| | - | 0.8858 | 22.50 | 5/32 | 451H-22.5 | 4C21P-22.5 | 4C11P-22.5 |
| | 57/64 | 0.8906 | 22.62 | 5/32 | 451H-.890 | 4C21P-.890 | 4C11P-.890 |
| | - | 0.9055 | 23.00 | 5/32 | 451H-23 | 4C21P-23 | 4C11P-23 |
| | 29/32 | 0.9063 | 23.02 | 5/32 | 451H-0029 | 4C21P-0029 | 4C11P-0029 |
| | 59/64 | 0.9219 | 23.42 | 5/32 | 451H-.921 | 4C21P-.921 | 4C11P-.921 |
| | - | 0.9252 | 23.50 | 5/32 | 451H-23.5 | 4C21P-23.5 | 4C11P-23.5 |
| | 15/16 | 0.9375 | 23.81 | 5/32 | 451H-0030 | 4C21P-0030 | 4C11P-0030 |
| - | 0.9449 | 24.00 | 5/32 | 451H-24 | 4C21P-24 | 4C11P-24 | |

A30: 112 - 143



A30: 52 - 56



A30: 4 - 6



HE

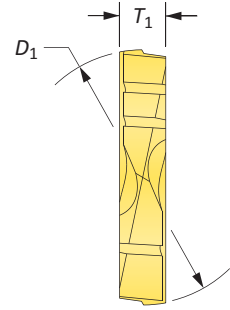
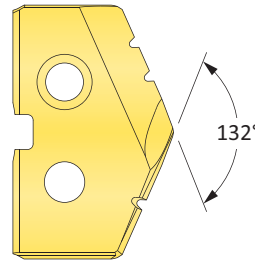
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 451T-XXXX | TiAlN = 451A-XXXX |
| TiCN = 451N-XXXX | AM200® = 451H-XXXX |




Inserts sold in quantities of 2

T-A® Drill Inserts

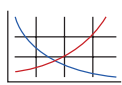
1 Series | HSS | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)




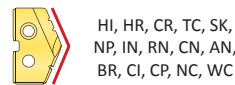
HSS Inserts – Premium Cobalt

| Series | Fractional Equivalent | Insert | | | Part No. | | |
|--------|-----------------------|------------|----------|------------------|--|---|--|
| | | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiCN |
| 1 | 45/64 | 0.7031 | 17.86 | 5/32 | 181T-.703 | 181A-.703 | 181N-.703 |
| | – | 0.7087 | 18.00 | 5/32 | 181T-18 | 181A-18 | 181N-18 |
| | 23/32 | 0.7188 | 18.26 | 5/32 | 181T-0023 | 181A-0023 | 181N-0023 |
| | – | 0.7283 | 18.50 | 5/32 | 181T-18.5 | 181A-18.5 | 181N-18.5 |
| | 47/64 | 0.7344 | 18.65 | 5/32 | 181T-.734 | 181A-.734 | 181N-.734 |
| | – | 0.7480 | 19.00 | 5/32 | 181T-19 | 181A-19 | 181N-19 |
| | 3/4 | 0.7500 | 19.05 | 5/32 | 181T-0024 | 181A-0024 | 181N-0024 |
| | 49/64 | 0.7656 | 19.45 | 5/32 | 181T-.765 | 181A-.765 | 181N-.765 |
| | – | 0.7677 | 19.50 | 5/32 | 181T-19.5 | 181A-19.5 | 181N-19.5 |
| | 25/32 | 0.7813 | 19.84 | 5/32 | 181T-0025 | 181A-0025 | 181N-0025 |
| | – | 0.7874 | 20.00 | 5/32 | 181T-20 | 181A-20 | 181N-20 |
| | 51/64 | 0.7969 | 20.24 | 5/32 | 181T-.796 | 181A-.796 | 181N-.796 |
| | – | 0.8010 | 20.34 | 5/32 | 181T-.801 | 181A-.801 | 181N-.801 |
| | – | 0.8071 | 20.50 | 5/32 | 181T-20.5 | 181A-20.5 | 181N-20.5 |
| | 13/16 | 0.8125 | 20.64 | 5/32 | 181T-0026 | 181A-0026 | 181N-0026 |
| – | 0.8268 | 21.00 | 5/32 | 181T-21 | 181A-21 | 181N-21 | |
| 27/32 | 0.8438 | 21.43 | 5/32 | 181T-0027 | 181A-0027 | 181N-0027 | |
| – | 0.8465 | 21.50 | 5/32 | 181T-21.5 | 181A-21.5 | 181N-21.5 | |
| 1.5 | 55/64 | 0.8594 | 21.83 | 5/32 | 181T-.859 | 181A-.859 | 181N-.859 |
| | – | 0.8661 | 22.00 | 5/32 | 181T-22 | 181A-22 | 181N-22 |
| | 7/8 | 0.8750 | 22.23 | 5/32 | 181T-0028 | 181A-0028 | 181N-0028 |
| | – | 0.8858 | 22.50 | 5/32 | 181T-22.5 | 181A-22.5 | 181N-22.5 |
| | 57/64 | 0.8906 | 22.62 | 5/32 | 181T-.890 | 181A-.890 | 181N-.890 |
| | – | 0.9055 | 23.00 | 5/32 | 181T-23 | 181A-23 | 181N-23 |
| | 29/32 | 0.9063 | 23.02 | 5/32 | 181T-0029 | 181A-0029 | 181N-0029 |
| | 59/64 | 0.9219 | 23.42 | 5/32 | 181T-.921 | 181A-.921 | 181N-.921 |
| | – | 0.9252 | 23.50 | 5/32 | 181T-23.5 | 181A-23.5 | 181N-23.5 |
| | 15/16 | 0.9375 | 23.81 | 5/32 | 181T-0030 | 181A-0030 | 181N-0030 |
| – | 0.9449 | 24.00 | 5/32 | 181T-24 | 181A-24 | 181N-24 | |

NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

A30: 112 - 143 

A30: 52 - 56 

A30: 4 - 6 
 HI, HR, CR, TC, SK,
 NP, IN, RN, CN, AN,
 BR, CI, CP, NC, WC

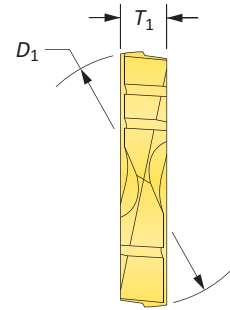
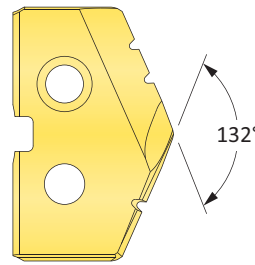
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2




| | |
|-------------------------|---------------------------|
| TiN = 181T-XXXX | TiAlN = 181A-XXXX |
| TiCN = 181N-XXXX | AM200® = 181H-XXXX |

T-A® Drill Inserts

1 Series | HSS | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)



HSS Inserts – Super Cobalt

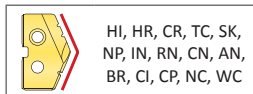
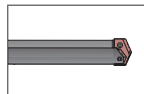
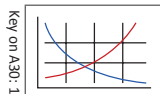
| Series | Insert | | | | Part No. | | |
|--------|-----------------------|------------|----------|-----------|--|---|--|
| | Fractional Equivalent | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiCN |
| 1 | 45/64 | 0.7031 | 17.86 | 5/32 | 151T-.703 | 151A-.703 | 151N-.703 |
| | - | 0.7087 | 18.00 | 5/32 | 151T-18 | 151A-18 | 151N-18 |
| | 23/32 | 0.7188 | 18.26 | 5/32 | 151T-0023 | 151A-0023 | 151N-0023 |
| | - | 0.7283 | 18.50 | 5/32 | 151T-18.5 | 151A-18.5 | 151N-18.5 |
| | 47/64 | 0.7344 | 18.65 | 5/32 | 151T-.734 | 151A-.734 | 151N-.734 |
| | - | 0.7480 | 19.00 | 5/32 | 151T-19 | 151A-19 | 151N-19 |
| | 3/4 | 0.7500 | 19.05 | 5/32 | 151T-0024 | 151A-0024 | 151N-0024 |
| | 49/64 | 0.7656 | 19.45 | 5/32 | 151T-.765 | 151A-.765 | 151N-.765 |
| | - | 0.7677 | 19.50 | 5/32 | 151T-19.5 | 151A-19.5 | 151N-19.5 |
| | 25/32 | 0.7813 | 19.84 | 5/32 | 151T-0025 | 151A-0025 | 151N-0025 |
| | - | 0.7874 | 20.00 | 5/32 | 151T-20 | 151A-20 | 151N-20 |
| | 51/64 | 0.7969 | 20.24 | 5/32 | 151T-.796 | 151A-.796 | 151N-.796 |
| | - | 0.8010 | 20.34 | 5/32 | 151T-.801 | 151A-.801 | 151N-.801 |
| | - | 0.8071 | 20.50 | 5/32 | 151T-20.5 | 151A-20.5 | 151N-20.5 |
| | 13/16 | 0.8125 | 20.64 | 5/32 | 151T-0026 | 151A-0026 | 151N-0026 |
| | - | 0.8268 | 21.00 | 5/32 | 151T-21 | 151A-21 | 151N-21 |
| 27/32 | 0.8438 | 21.43 | 5/32 | 151T-0027 | 151A-0027 | 151N-0027 | |
| - | 0.8465 | 21.50 | 5/32 | 151T-21.5 | 151A-21.5 | 151N-21.5 | |
| 1.5 | 55/64 | 0.8594 | 21.83 | 5/32 | 151T-.859 | 151A-.859 | 151N-.859 |
| | - | 0.8661 | 22.00 | 5/32 | 151T-22 | 151A-22 | 151N-22 |
| | 7/8 | 0.8750 | 22.23 | 5/32 | 151T-0028 | 151A-0028 | 151N-0028 |
| | - | 0.8858 | 22.50 | 5/32 | 151T-22.5 | 151A-22.5 | 151N-22.5 |
| | 57/64 | 0.8906 | 22.62 | 5/32 | 151T-.890 | 151A-.890 | 151N-.890 |
| | - | 0.9055 | 23.00 | 5/32 | 151T-23 | 151A-23 | 151N-23 |
| | 29/32 | 0.9063 | 23.02 | 5/32 | 151T-0029 | 151A-0029 | 151N-0029 |
| | 59/64 | 0.9219 | 23.42 | 5/32 | 151T-.921 | 151A-.921 | 151N-.921 |
| | - | 0.9252 | 23.50 | 5/32 | 151T-23.5 | 151A-23.5 | 151N-23.5 |
| 15/16 | 0.9375 | 23.81 | 5/32 | 151T-0030 | 151A-0030 | 151N-0030 | |
| - | 0.9449 | 24.00 | 5/32 | 151T-24 | 151A-24 | 151N-24 | |

NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

A30: 112 - 143

A30: 52 - 56

A30: 4 - 6



Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

TiN = 151T-XXXX

TiAlN = 151A-XXXX

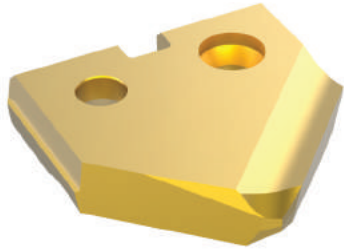
TiCN = 151N-XXXX

AM200® = 151H-XXXX

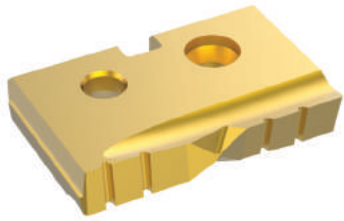
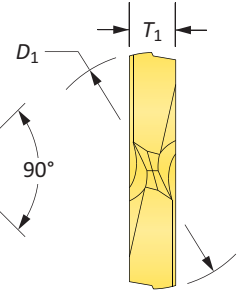
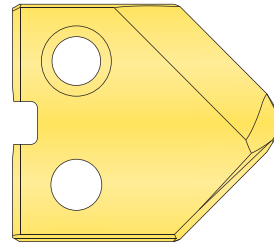
Inserts sold in quantities of 2

T-A® Drill Inserts

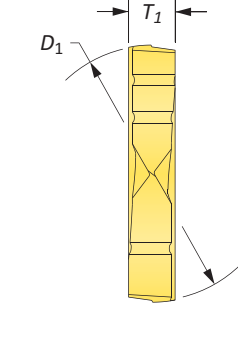
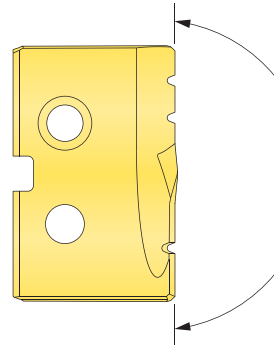
1 Series | HSS | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)







90° Spot & Chamfer



Flat Bottom



HSS Inserts – Super Cobalt

| Series | Insert | | | | 90° Spot & Chamfer Part No. | | | Flat Bottom Part No. |
|--------|-----------------------|---------------------|-------------------|----------------|--|---|---|--|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiCN |  TiN |
| 1 | 45/64 | 0.7031 | 17.86 | 5/32 | 151T-.703-SP | 151A-.703-SP | 151N-.703-SP | 151T-.703-FB |
| | - | 0.7087 | 18.00 | 5/32 | 151T-18-SP | 151A-18-SP | 151N-18-SP | 151T-18-FB |
| | 23/32 | 0.7188 | 18.26 | 5/32 | 151T-0023-SP | 151A-0023-SP | 151N-0023-SP | 151T-0023-FB |
| | - | 0.7283 | 18.50 | 5/32 | 151T-18.5-SP | 151A-18.5-SP | 151N-18.5-SP | 151T-18.5-FB |
| | 47/64 | 0.7344 | 18.65 | 5/32 | 151T-.734-SP | 151A-.734-SP | 151N-.734-SP | 151T-.734-FB |
| | - | 0.7480 | 19.00 | 5/32 | 151T-19-SP | 151A-19-SP | 151N-19-SP | 151T-19-FB |
| | 3/4 | 0.7500 | 19.05 | 5/32 | 151T-0024-SP | 151A-0024-SP | 151N-0024-SP | 151T-0024-FB |
| | 49/64 | 0.7656 | 19.45 | 5/32 | 151T-.765-SP | 151A-.765-SP | 151N-.765-SP | 151T-.765-FB |
| | - | 0.7677 | 19.50 | 5/32 | 151T-19.5-SP | 151A-19.5-SP | 151N-19.5-SP | 151T-19.5-FB |
| | 25/32 | 0.7813 | 19.84 | 5/32 | 151T-0025-SP | 151A-0025-SP | 151N-0025-SP | 151T-0025-FB |
| | - | 0.7874 | 20.00 | 5/32 | 151T-20-SP | 151A-20-SP | 151N-20-SP | 151T-20-FB |
| | 51/64 | 0.7969 | 20.24 | 5/32 | 151T-.796-SP | 151A-.796-SP | 151N-.796-SP | 151T-.796-FB |
| | - | 0.8010 | 20.34 | 5/32 | 151T-.801-SP | 151A-.801-SP | 151N-.801-SP | 151T-.801-FB |
| | - | 0.8071 | 20.50 | 5/32 | 151T-20.5-SP | 151A-20.5-SP | 151N-20.5-SP | 151T-20.5-FB |
| | 13/16 | 0.8125 | 20.64 | 5/32 | 151T-0026-SP | 151A-0026-SP | 151N-0026-SP | 151T-0026-FB |
| | - | 0.8268 | 21.00 | 5/32 | 151T-21-SP | 151A-21-SP | 151N-21-SP | 151T-21-FB |
| 27/32 | 0.8438 | 21.43 | 5/32 | 151T-0027-SP | 151A-0027-SP | 151N-0027-SP | 151T-0027-FB | |
| - | 0.8465 | 21.50 | 5/32 | 151T-21.5-SP | 151A-21.5-SP | 151N-21.5-SP | 151T-21.5-FB | |
| 1.5 | 55/64 | 0.8594 | 21.83 | 5/32 | 151T-.859-SP | 151A-.859-SP | 151N-.859-SP | 151T-.859-FB |
| | - | 0.8661 | 22.00 | 5/32 | 151T-22-SP | 151A-22-SP | 151N-22-SP | 151T-22-FB |
| | 7/8 | 0.8750 | 22.23 | 5/32 | 151T-0028-SP | 151A-0028-SP | 151N-0028-SP | 151T-0028-FB |
| | - | 0.8858 | 22.50 | 5/32 | 151T-22.5-SP | 151A-22.5-SP | 151N-22.5-SP | 151T-22.5-FB |
| | 57/64 | 0.8906 | 22.62 | 5/32 | 151T-.890-SP | 151A-.890-SP | 151N-.890-SP | 151T-.890-FB |
| | - | 0.9055 | 23.00 | 5/32 | 151T-23-SP | 151A-23-SP | 151N-23-SP | 151T-23-FB |
| | 29/32 | 0.9063 | 23.02 | 5/32 | 151T-0029-SP | 151A-0029-SP | 151N-0029-SP | 151T-0029-FB |
| | 59/64 | 0.9219 | 23.42 | 5/32 | 151T-.921-SP | 151A-.921-SP | 151N-.921-SP | 151T-.921-FB |
| | - | 0.9252 | 23.50 | 5/32 | 151T-23.5-SP | 151A-23.5-SP | 151N-23.5-SP | 151T-23.5-FB |
| | 15/16 | 0.9375 | 23.81 | 5/32 | 151T-0030-SP | 151A-0030-SP | 151N-0030-SP | 151T-0030-FB |
| - | 0.9449 | 24.00 | 5/32 | 151T-24-SP | 151A-24-SP | 151N-24-SP | 151T-24-FB | |

NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

A30: 112 - 143

A30: 52 - 56

A30: 4 - 6

SW

A30: 4 - 6

FN

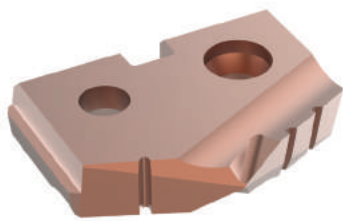
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 151T-XXXX | TiAlN = 151A-XXXX |
| TiCN = 151N-XXXX | AM200® = 151H-XXXX |

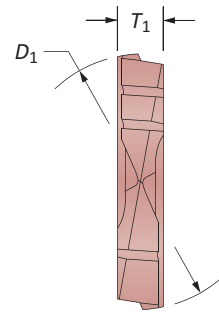
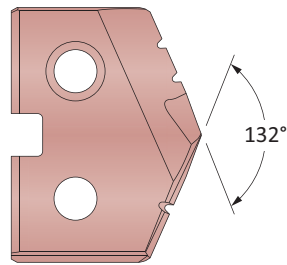
Inserts sold in quantities of 2

T-A® Drill Inserts



1 Series | HSS | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)

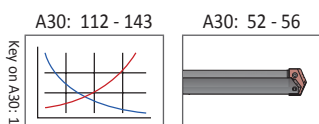


Tube Sheet



HSS Inserts – Super Cobalt | HSS

| Series | Fractional Equivalent | Insert | | | Part No. | |
|--------|-----------------------|------------|----------|-------|---|---|
| | | D_1 inch | D_1 mm | T_1 | Super Cobalt | HSS |
| 1 | – | 0.7580 | 19.25 | 5/32 |  151H-.7580-IN |  131H-.7580-IN |
| | 49/64 | 0.7656 | 19.45 | 5/32 | 151H-.765-IN | 131H-.765-IN |
| | 25/32 | 0.7813 | 19.85 | 5/32 | 151H-0025-IN | 131H-0025-IN |



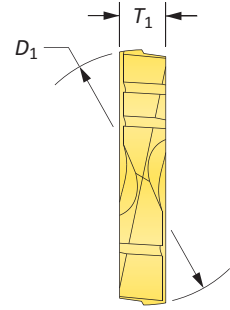
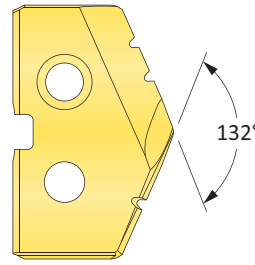
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 151T-XXXX | TiAlN = 151A-XXXX |
| TiCN = 151N-XXXX | AM200® = 151H-XXXX |




Inserts sold in quantities of 2

T-A® Drill Inserts

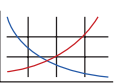
1 Series | HSS | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)





HSS Inserts – HSS

| Series | Fractional Equivalent | Insert | | | Part No. | | |
|--------|-----------------------|---------------------|-------------------|----------------|--|---|--|
| | | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiCN |
| 1 | 45/64 | 0.7031 | 17.86 | 5/32 | 131T-703 | 131A-703 | 131N-703 |
| | - | 0.7087 | 18.00 | 5/32 | 131T-18 | 131A-18 | 131N-18 |
| | 23/32 | 0.7188 | 18.26 | 5/32 | 131T-0023 | 131A-0023 | 131N-0023 |
| | - | 0.7283 | 18.50 | 5/32 | 131T-18.5 | 131A-18.5 | 131N-18.5 |
| | 47/64 | 0.7344 | 18.65 | 5/32 | 131T-.734 | 131A-.734 | 131N-.734 |
| | - | 0.7480 | 19.00 | 5/32 | 131T-19 | 131A-19 | 131N-19 |
| | 3/4 | 0.7500 | 19.05 | 5/32 | 131T-0024 | 131A-0024 | 131N-0024 |
| | 49/64 | 0.7656 | 19.45 | 5/32 | 131T-.765 | 131A-.765 | 131N-.765 |
| | - | 0.7677 | 19.50 | 5/32 | 131T-19.5 | 131A-19.5 | 131N-19.5 |
| | 25/32 | 0.7813 | 19.84 | 5/32 | 131T-0025 | 131A-0025 | 131N-0025 |
| | - | 0.7874 | 20.00 | 5/32 | 131T-20 | 131A-20 | 131N-20 |
| | 51/64 | 0.7969 | 20.24 | 5/32 | 131T-.796 | 131A-.796 | 131N-.796 |
| | - | 0.8010 | 20.34 | 5/32 | 131T-.801 | 131A-.801 | 131N-.801 |
| | - | 0.8071 | 20.50 | 5/32 | 131T-20.5 | 131A-20.5 | 131N-20.5 |
| | 13/16 | 0.8125 | 20.64 | 5/32 | 131T-0026 | 131A-0026 | 131N-0026 |
| - | 0.8268 | 21.00 | 5/32 | 131T-21 | 131A-21 | 131N-21 | |
| 27/32 | 0.8438 | 21.43 | 5/32 | 131T-0027 | 131A-0027 | 131N-0027 | |
| - | 0.8465 | 21.50 | 5/32 | 131T-21.5 | 131A-21.5 | 131N-21.5 | |
| 1.5 | 55/64 | 0.8594 | 21.83 | 5/32 | 131T-.859 | 131A-.859 | 131N-.859 |
| | - | 0.8661 | 22.00 | 5/32 | 131T-22 | 131A-22 | 131N-22 |
| | 7/8 | 0.8750 | 22.23 | 5/32 | 131T-0028 | 131A-0028 | 131N-0028 |
| | - | 0.8858 | 22.50 | 5/32 | 131T-22.5 | 131A-22.5 | 131N-22.5 |
| | 57/64 | 0.8906 | 22.62 | 5/32 | 131T-.890 | 131A-.890 | 131N-.890 |
| | - | 0.9055 | 23.00 | 5/32 | 131T-23 | 131A-23 | 131N-23 |
| | 29/32 | 0.9063 | 23.02 | 5/32 | 131T-0029 | 131A-0029 | 131N-0029 |
| | 59/64 | 0.9219 | 23.42 | 5/32 | 131T-.921 | 131A-.921 | 131N-.921 |
| | - | 0.9252 | 23.50 | 5/32 | 131T-23.5 | 131A-23.5 | 131N-23.5 |
| | 15/16 | 0.9375 | 23.81 | 5/32 | 131T-0030 | 131A-0030 | 131N-0030 |
| - | 0.9449 | 24.00 | 5/32 | 131T-24 | 131A-24 | 131N-24 | |

NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

A30: 112 - 143 

A30: 52 - 56 

A30: 4 - 6 
 HI, HR, CR, TC, SK,
 NP, IN, RN, CN, AN,
 BR, CI, CP, NC, WC

Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2

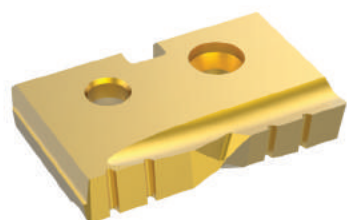
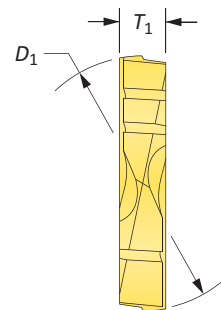
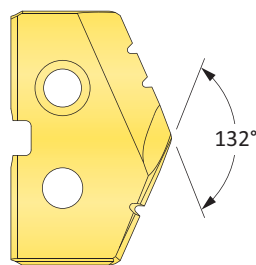
| | |
|------------------|--------------------|
| TiN = 131T-XXXX | TiAlN = 131A-XXXX |
| TiCN = 131N-XXXX | AM200® = 131H-XXXX |

T-A® Drill Inserts

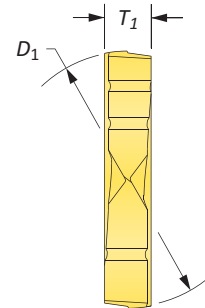
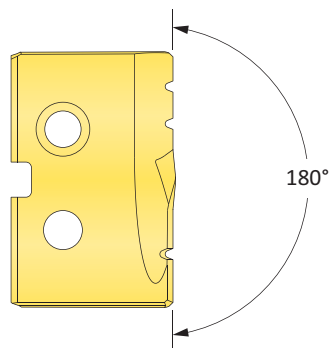
1 Series | Carbide | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)






Standard



Flat Bottom



Carbide Inserts – C2 (K20)

| Series | Fractional Equivalent | Insert | | | Part No. | | Flat Bottom Part No. |
|--------|-----------------------|------------|----------|-------------------|---|---|---|
| | | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiN |
| 1 | 45/64 | 0.7031 | 17.86 | 5/32 | 1C21T-.703 | 1C21A-.703 | 1C21T-.703-FB |
| | - | 0.7087 | 18.00 | 5/32 | 1C21T-18 | 1C21A-18 | 1C21T-18-FB |
| | 23/32 | 0.7188 | 18.26 | 5/32 | 1C21T-0023 | 1C21A-0023 | 1C21T-0023-FB |
| | - | 0.7283 | 18.50 | 5/32 | 1C21T-18.5 | 1C21A-18.5 | 1C21T-18.5-FB |
| | 47/64 | 0.7344 | 18.65 | 5/32 | 1C21T-.734 | 1C21A-.734 | 1C21T-.734-FB |
| | - | 0.7480 | 19.00 | 5/32 | 1C21T-19 | 1C21A-19 | 1C21T-19-FB |
| | 3/4 | 0.7500 | 19.05 | 5/32 | 1C21T-0024 | 1C21A-0024 | 1C21T-0024-FB |
| | 49/64 | 0.7656 | 19.45 | 5/32 | 1C21T-.765 | 1C21A-.765 | 1C21T-.765-FB |
| | - | 0.7677 | 19.50 | 5/32 | 1C21T-19.5 | 1C21A-19.5 | 1C21T-19.5-FB |
| | 25/32 | 0.7813 | 19.84 | 5/32 | 1C21T-0025 | 1C21A-0025 | 1C21T-0025-FB |
| | - | 0.7874 | 20.00 | 5/32 | 1C21T-20 | 1C21A-20 | 1C21T-20-FB |
| | 51/64 | 0.7969 | 20.24 | 5/32 | 1C21T-.796 | 1C21A-.796 | 1C21T-.796-FB |
| | - | 0.8010 | 20.34 | 5/32 | 1C21T-.801 | 1C21A-.801 | 1C21T-.801-FB |
| | - | 0.8071 | 20.50 | 5/32 | 1C21T-20.5 | 1C21A-20.5 | 1C21T-20.5-FB |
| | 13/16 | 0.8125 | 20.64 | 5/32 | 1C21T-0026 | 1C21A-0026 | 1C21T-0026-FB |
| | - | 0.8268 | 21.00 | 5/32 | 1C21T-21 | 1C21A-21 | 1C21T-21-FB |
| | 27/32 | 0.8438 | 21.43 | 5/32 | 1C21T-0027 | 1C21A-0027 | 1C21T-0027-FB |
| - | 0.8465 | 21.50 | 5/32 | 1C21T-21.5 | 1C21A-21.5 | 1C21T-21.5-FB | |
| 1.5 | 55/64 | 0.8594 | 21.83 | 5/32 | 1C21T-.859 | 1C21A-.859 | 1C21T-.859-FB |
| | - | 0.8661 | 22.00 | 5/32 | 1C21T-22 | 1C21A-22 | 1C21T-22-FB |
| | 7/8 | 0.8750 | 22.23 | 5/32 | 1C21T-0028 | 1C21A-0028 | 1C21T-0028-FB |
| | - | 0.8858 | 22.50 | 5/32 | 1C21T-22.5 | 1C21A-22.5 | 1C21T-22.5-FB |
| | 57/64 | 0.8906 | 22.62 | 5/32 | 1C21T-.890 | 1C21A-.890 | 1C21T-.890-FB |
| | - | 0.9055 | 23.00 | 5/32 | 1C21T-23 | 1C21A-23 | 1C21T-23-FB |
| | 29/32 | 0.9063 | 23.02 | 5/32 | 1C21T-0029 | 1C21A-0029 | 1C21T-0029-FB |
| | 59/64 | 0.9219 | 23.42 | 5/32 | 1C21T-.921 | 1C21A-.921 | 1C21T-.921-FB |
| | - | 0.9252 | 23.50 | 5/32 | 1C21T-23.5 | 1C21A-23.5 | 1C21T-23.5-FB |
| | 15/16 | 0.9375 | 23.81 | 5/32 | 1C21T-0030 | 1C21A-0030 | 1C21T-0030-FB |
| - | 0.9449 | 24.00 | 5/32 | 1C21T-24 | 1C21A-24 | 1C21T-24-FB | |

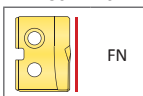
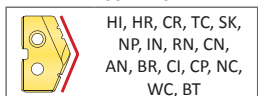
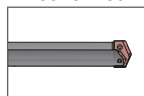
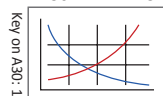
NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

A30: 112 - 143

A30: 52 - 56

A30: 4 - 6

A30: 4 - 6



HI, HR, CR, TC, SK,
NP, IN, RN, CN,
AN, BR, CI, CP, NC,
WC, BT

FN

Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

TiN = 1C21T-XXXX

TiAlN = 1C21A-XXXX

TiCN = 1C21N-XXXX

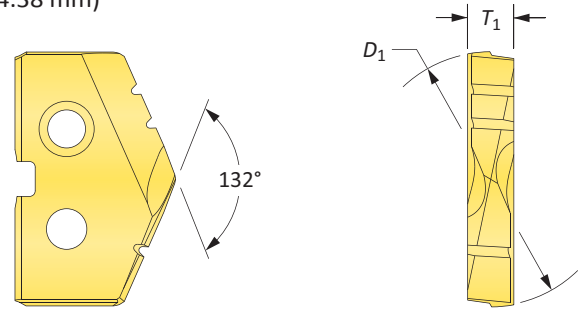
AM200® = 1C21H-XXXX

Inserts sold in quantities of 2



T-A® Drill Inserts

1 Series | Carbide | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)

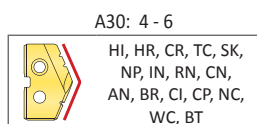
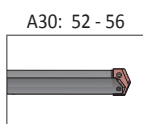
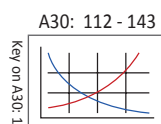


Carbide Inserts – C5 (P40) | C3 (K10) | N2

| Series | Insert | | | | C5 Part No. | | C3 Part No. | N2 Part No. |
|--------|-----------------------|---------------------|-------------------|----------------|-------------|---------------|-------------------|---------------|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ | TiN | TiAlN | TiAlN (Cast Iron) | Diamond Film* |
| 1 | 45/64 | 0.7031 | 17.86 | 5/32 | 1C51T-.703 | 1C51A-.703 | 1C31A-.703-CI | 1N21D-.703 |
| | - | 0.7087 | 18.00 | 5/32 | 1C51T-18 | 1C51A-18 | 1C31A-18-CI | 1N21D-18 |
| | 23/32 | 0.7188 | 18.26 | 5/32 | 1C51T-0023 | 1C51A-0023 | 1C31A-0023-CI | 1N21D-0023 |
| | - | 0.7283 | 18.50 | 5/32 | 1C51T-18.5 | 1C51A-18.5 | 1C31A-18.5-CI | 1N21D-18.5 |
| | 47/64 | 0.7344 | 18.65 | 5/32 | 1C51T-.734 | 1C51A-.734 | 1C31A-.734-CI | 1N21D-.734 |
| | - | 0.7480 | 19.00 | 5/32 | 1C51T-19 | 1C51A-19 | 1C31A-19-CI | 1N21D-19 |
| | 3/4 | 0.7500 | 19.05 | 5/32 | 1C51T-0024 | 1C51A-0024 | 1C31A-0024-CI | 1N21D-0024 |
| | 49/64 | 0.7656 | 19.45 | 5/32 | 1C51T-.765 | 1C51A-.765 | 1C31A-.765-CI | 1N21D-.765 |
| | - | 0.7677 | 19.50 | 5/32 | 1C51T-19.5 | 1C51A-19.5 | 1C31A-19.5-CI | 1N21D-19.5 |
| | 25/32 | 0.7813 | 19.84 | 5/32 | 1C51T-0025 | 1C51A-0025 | 1C31A-0025-CI | 1N21D-0025 |
| | - | 0.7874 | 20.00 | 5/32 | 1C51T-20 | 1C51A-20 | 1C31A-20-CI | 1N21D-20 |
| | 51/64 | 0.7969 | 20.24 | 5/32 | 1C51T-.796 | 1C51A-.796 | 1C31A-.796-CI | 1N21D-.796 |
| | - | 0.8010 | 20.34 | 5/32 | 1C51T-.801 | 1C51A-.801 | 1C31A-.801-CI | 1N21D-.801 |
| | - | 0.8071 | 20.50 | 5/32 | 1C51T-20.5 | 1C51A-20.5 | 1C31A-20.5-CI | 1N21D-20.5 |
| | 13/16 | 0.8125 | 20.64 | 5/32 | 1C51T-0026 | 1C51A-0026 | 1C31A-0026-CI | 1N21D-0026 |
| | - | 0.8268 | 21.00 | 5/32 | 1C51T-21 | 1C51A-21 | 1C31A-21-CI | 1N21D-21 |
| 27/32 | 0.8438 | 21.43 | 5/32 | 1C51T-0027 | 1C51A-0027 | 1C31A-0027-CI | 1N21D-0027 | |
| - | 0.8465 | 21.50 | 5/32 | 1C51T-21.5 | 1C51A-21.5 | 1C31A-21.5-CI | 1N21D-21.5 | |
| 1.5 | 55/64 | 0.8594 | 21.83 | 5/32 | 1C51T-.859 | 1C51A-.859 | 1C31A-.859-CI | 1N21D-.859 |
| | - | 0.8661 | 22.00 | 5/32 | 1C51T-22 | 1C51A-22 | 1C31A-22-CI | 1N21D-22 |
| | 7/8 | 0.8750 | 22.23 | 5/32 | 1C51T-0028 | 1C51A-0028 | 1C31A-0028-CI | 1N21D-0028 |
| | - | 0.8858 | 22.50 | 5/32 | 1C51T-22.5 | 1C51A-22.5 | 1C31A-22.5-CI | 1N21D-22.5 |
| | 57/64 | 0.8906 | 22.62 | 5/32 | 1C51T-.890 | 1C51A-.890 | 1C31A-.890-CI | 1N21D-.890 |
| | - | 0.9055 | 23.00 | 5/32 | 1C51T-23 | 1C51A-23 | 1C31A-23-CI | 1N21D-23 |
| | 29/32 | 0.9063 | 23.02 | 5/32 | 1C51T-0029 | 1C51A-0029 | 1C31A-0029-CI | 1N21D-0029 |
| | 59/64 | 0.9219 | 23.42 | 5/32 | 1C51T-.921 | 1C51A-.921 | 1C31A-.921-CI | 1N21D-.921 |
| | - | 0.9252 | 23.50 | 5/32 | 1C51T-23.5 | 1C51A-23.5 | 1C31A-23.5-CI | 1N21D-23.5 |
| | 15/16 | 0.9375 | 23.81 | 5/32 | 1C51T-0030 | 1C51A-0030 | 1C31A-0030-CI | 1N21D-0030 |
| - | 0.9449 | 24.00 | 5/32 | 1C51T-24 | 1C51A-24 | 1C31A-24-CI | 1N21D-24 | |

NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

*Diamond Film is only available in standard geometry. For additional geometries, please contact Application Engineering.



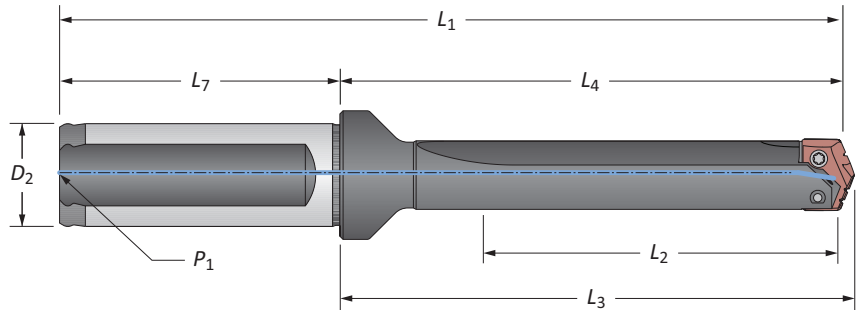
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|-------------------|---------------------|
| TiN = 1C51T-XXXX | TiAlN = 1C51A-XXXX |
| TiCN = 1C51N-XXXX | AM200® = 1C51H-XXXX |

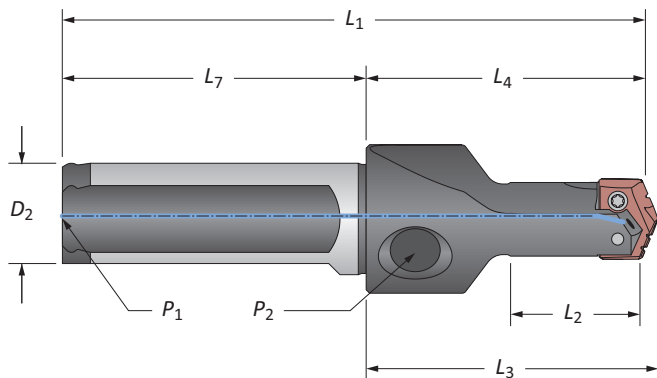
Inserts sold in quantities of 2

T-A® Drill Insert Holders

1 Series | Flange Shank | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)



Stub Length



Straight Flute

| Series | Length | Body | | | | Shank | | | Part No. | |
|--------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| 1 | Stub | 1-7/8 | 2-63/64 | 3-1/8 | 5-17/64 | 1 | 2-9/32 | 1/8 | 21010S-100F | |
| | Short | 2-5/8 | 4-7/32 | 4-23/64 | 6-1/2 | 1 | 2-9/32 | 1/8 | 22010S-100F | |
| | Intermediate | 4-5/8 | 6-3/32 | 6-15/64 | 8-3/8 | 1 | 2-9/32 | 1/8 | 23010S-100F | |
| | Standard | 6-5/8 | 8-3/32 | 8-15/64 | 10-3/8 | 1 | 2-9/32 | 1/8 | 24010S-100F | |
| | Extended | 10-5/8 | 12-3/32 | 12-15/64 | 14-3/8 | 1 | 2-9/32 | 1/8 | 25010S-100F | |
| 1.5 | Stub | 2-1/4 | 3-31/64 | 3-5/8 | 5-49/64 | 1 | 2-9/32 | 1/8 | 21015S-100F | |
| | Short | 2-5/8 | 4-7/32 | 4-23/64 | 6-1/2 | 1 | 2-9/32 | 1/8 | 22015S-100F | |
| | Intermediate | 4-5/8 | 6-3/32 | 6-15/64 | 8-3/8 | 1 | 2-9/32 | 1/8 | 23015S-100F | |
| | Standard | 6-5/8 | 8-3/32 | 8-15/64 | 10-3/8 | 1 | 2-9/32 | 1/8 | 24015S-100F | |
| | Extended | 10-5/8 | 12-3/32 | 12-15/64 | 14-3/8 | 1 | 2-9/32 | 1/8 | 25015S-100F | |
| m | 1 | Stub | 47.6 | 75.8 | 79.4 | 131.8 | 25.0 | 56.0 | 1/8* | 21010S-25FM |
| | | Short | 66.7 | 107.2 | 110.7 | 163.2 | 25.0 | 56.0 | 1/8* | 22010S-25FM |
| | | XL | 457.0 | 494.5 | 498.1 | 550.5 | 25.0 | 56.0 | 1/8* | 27010S-25FM |
| | | 3XL | 569.0 | 602.5 | 606.1 | 658.5 | 25.0 | 56.0 | 1/8* | 29010S-25FM |
| | 1.5 | Stub | 57.2 | 88.5 | 92.1 | 144.5 | 25.0 | 56.0 | 1/8* | 21015S-25FM |
| | | Short | 66.7 | 107.2 | 110.7 | 163.2 | 25.0 | 56.0 | 1/8* | 22015S-25FM |

*Metric thread to BSP and ISO 7-1

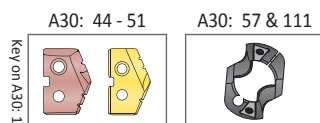
NOTE: Stub length holders have a 1/8" side pipe tap (P₂)

NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 1 | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| 1.5 | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

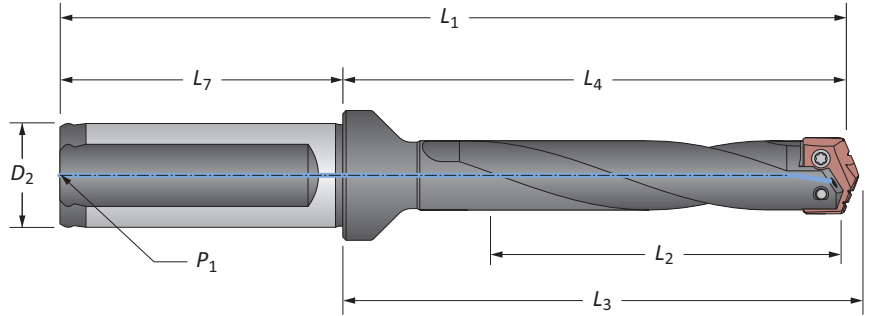
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

1 Series | Flange Shank | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)



Helical Flute

| Series | Length | Body | | | | Shank | | | Part No. |
|--------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i | Intermediate | 4-5/8 | 6-3/32 | 6-15/64 | 8-3/8 | 1 | 2-9/32 | 1/8 | 23010H-100F |
| | Standard | 6-5/8 | 8-3/32 | 8-15/64 | 10-3/8 | 1 | 2-9/32 | 1/8 | 24010H-100F |
| | Standard Plus | 8-5/8 | 10-3/32 | 10-15/64 | 12-33/64 | 1 | 2-9/32 | 1/8 | 24510H-100F |
| | Extended | 10-5/8 | 12-3/32 | 12-15/64 | 14-3/8 | 1 | 2-9/32 | 1/8 | 25010H-100F |
| | Long | 14-3/8 | 15-27/32 | 15-63/64 | 18-17/64 | 1 | 2-9/32 | 1/8 | 26010H-100F |
| 1.5 | Intermediate | 4-5/8 | 6-3/32 | 6-15/64 | 8-3/8 | 1 | 2-9/32 | 1/8 | 23015H-100F |
| | Standard | 6-5/8 | 8-3/32 | 8-15/64 | 10-3/8 | 1 | 2-9/32 | 1/8 | 24015H-100F |
| | Extended | 10-5/8 | 12-3/32 | 12-15/64 | 14-3/8 | 1 | 2-9/32 | 1/8 | 25015H-100F |
| ii | Intermediate | 117.5 | 154.8 | 158.4 | 210.8 | 25.0 | 56.0 | 1/8* | 23010H-25FM |
| | Standard | 168.3 | 205.6 | 209.2 | 261.6 | 25.0 | 56.0 | 1/8* | 24010H-25FM |
| | Standard Plus | 219.0 | 256.3 | 259.9 | 312.3 | 25.0 | 56.0 | 1/8* | 24510H-25FM |
| | Extended | 269.9 | 307.2 | 310.8 | 363.2 | 25.0 | 56.0 | 1/8* | 25010H-25FM |
| | Long | 365.0 | 402.3 | 405.9 | 458.3 | 25.0 | 56.0 | 1/8* | 26010H-25FM |
| 1.5 | Intermediate | 117.5 | 154.8 | 158.4 | 210.8 | 25.0 | 56.0 | 1/8* | 23015H-25FM |
| | Standard | 168.3 | 205.6 | 209.2 | 261.6 | 25.0 | 56.0 | 1/8* | 24015H-25FM |
| | Extended | 269.9 | 307.2 | 310.8 | 363.2 | 25.0 | 56.0 | 1/8* | 25015H-25FM |

*Metric thread to BSP and ISO 7-1

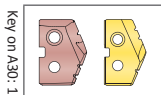
NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 1 | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| 1.5 | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A30: 44 - 51



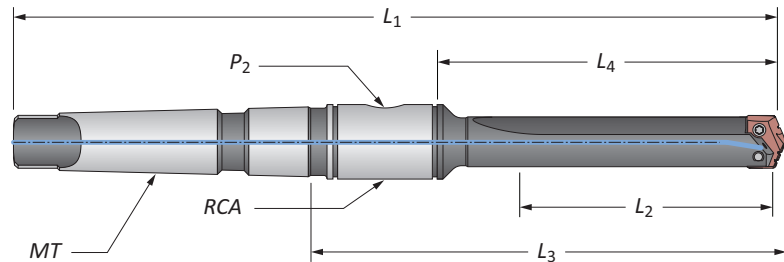
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

1 Series | Taper Shank | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)



Straight Flute

| Series | Length | Body | | | | Shank | | | Part No. | |
|--------|--------------|----------------|----------------|----------------|----------------|-------|----------------|--------|-------------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | | |
| 1 | Short | 2-3/4 | 3-7/8 | 5-39/64 | 9-5/32 | #3 | 1/8 | 2T-3SR | 22010S-003I | |
| | Short | 2-3/4 | 3-7/8 | 5-39/64 | 10-5/32 | #4 | 1/8 | 2T-3SR | 22010S-004I | |
| | Intermediate | 4-3/4 | 5-7/8 | 7-39/64 | 11-5/32 | #3 | 1/8 | 2T-3SR | 23010S-003I | |
| | Standard | 6-3/4 | 7-7/8 | 9-39/64 | 13-5/32 | #3 | 1/8 | 2T-3SR | 24010S-003I | |
| | Standard | 6-3/4 | 7-7/8 | 9-43/64 | 14-5/32 | #4 | 1/8 | 2T-3SR | 24010S-004I | |
| 1.5 | Extended | 10-3/4 | 11-7/8 | 13-39/64 | 17-5/32 | #3 | 1/8 | 2T-3SR | 25010S-003I | |
| | Short | 2-3/4 | 3-7/8 | 5-39/64 | 9-5/32 | #3 | 1/8 | 2T-3SR | 22015S-003I | |
| | Short | 2-3/4 | 3-7/8 | 5-39/64 | 10-5/32 | #4 | 1/8 | 2T-3SR | 22015S-004I | |
| | Intermediate | 4-3/4 | 5-7/8 | 7-39/64 | 11-5/32 | #3 | 1/8 | 2T-3SR | 23015S-003I | |
| | Standard | 6-3/4 | 7-7/8 | 9-39/64 | 13-5/32 | #3 | 1/8 | 2T-3SR | 24015S-003I | |
| | Standard | 6-3/4 | 7-7/8 | 9-39/64 | 14-5/32 | #4 | 1/8 | 2T-3SR | 24015S-004I | |
| m | 1 | Short | 69.8 | 98.4 | 142.5 | 232.5 | #3** | 1/8* | 2T-3SRM | 22010S-003M |
| | 1.5 | Short | 69.8 | 98.4 | 142.5 | 232.5 | #3** | 1/8* | 2T-3SRM | 22015S-003M |

*Metric thread to BSP and ISO 7-1

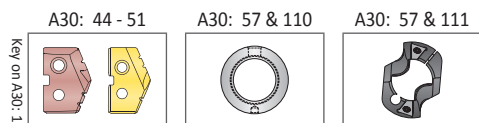
**Per ISO 296 type BEK

NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 1 | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| 1.5 | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



Key on A30: 1

i = Imperial (in)

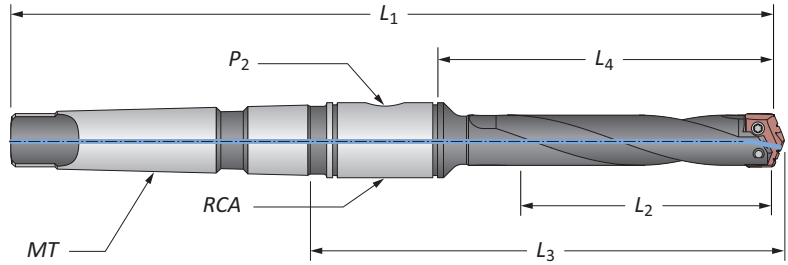
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

1 Series | Taper Shank | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)



Helical Flute

| Series | Length | Body | | | | Shank | | | Part No. | |
|--------|--------|----------------|----------------|----------------|----------------|---------|----------------|------|----------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | | |
| i | 1 | Intermediate | 4-3/4 | 5-7/8 | 7-39/64 | 11-5/32 | #3 | 1/8 | 2T-3SR | 23010H-003I |
| | | Standard | 6-3/4 | 7-7/8 | 9-39/64 | 13-5/32 | #3 | 1/8 | 2T-3SR | 24010H-003I |
| | | Standard | 6-3/4 | 7-7/8 | 9-43/64 | 14-5/32 | #4 | 1/8 | 2T-3SR | 24010H-004I |
| | | Extended | 10-3/4 | 11-7/8 | 13-39/64 | 17-5/32 | #3 | 1/8 | 2T-3SR | 25010H-003I |
| i | 1.5 | Intermediate | 4-3/4 | 5-7/8 | 7-39/64 | 11-5/32 | #3 | 1/8 | 2T-3SR | 23015H-003I |
| | | Standard | 6-3/4 | 7-7/8 | 9-39/64 | 13-5/32 | #3 | 1/8 | 2T-3SR | 24015H-003I |
| | | Standard | 6-3/4 | 7-7/8 | 9-43/64 | 14-5/32 | #4 | 1/8 | 2T-3SR | 24015H-004I |
| | | Extended | 10-3/4 | 11-7/8 | 13-39/64 | 17-5/32 | #3 | 1/8 | 2T-3SR | 25015H-003I |
| m | 1 | Intermediate | 120.7 | 149.2 | 193.3 | 283.3 | #3** | 1/8* | 2T-3SRM | 23010H-003M |
| | | Standard | 171.5 | 200.0 | 244.1 | 334.2 | #3** | 1/8* | 2T-3SRM | 24010H-003M |
| | | Extended | 273.1 | 301.6 | 345.7 | 435.8 | #3** | 1/8* | 2T-3SRM | 25010H-003M |
| | 1.5 | Intermediate | 120.7 | 149.2 | 193.3 | 283.3 | #3** | 1/8* | 2T-3SRM | 23015H-003M |
| | | Standard | 171.5 | 200.0 | 244.1 | 334.2 | #3** | 1/8* | 2T-3SRM | 24015H-003M |
| | | Extended | 273.1 | 301.6 | 345.7 | 435.8 | #3** | 1/8* | 2T-3SRM | 25015H-003M |

*Metric thread to BSP and ISO 7-1

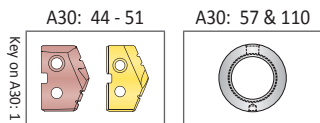
**Per ISO 296 type BEK

NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 1 | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| 1.5 | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)
m = Metric (mm)

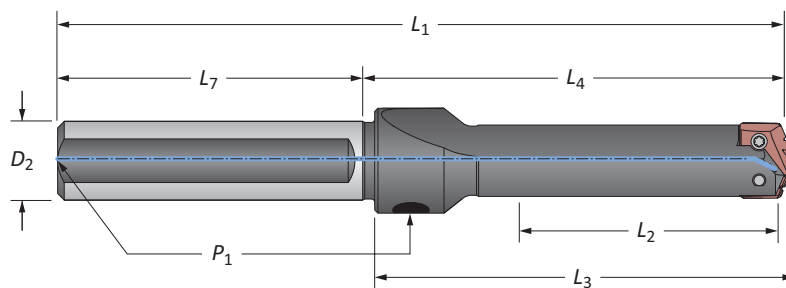
Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Drill Insert Holders

1 Series | Straight Shank | Diameter Range: 0.690" - 0.960" (17.53 mm - 24.38 mm)



Straight Flute

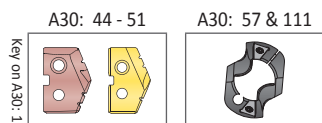
| Series | Length | Body | | | | Shank | | | Part No. |
|--------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| 1 | Short | 2-5/8 | 3-7/8 | 4-1/64 | 6-7/8 | 3/4 | 3 | 1/8 | 22010S-075L |
| | Short | 2-5/8 | 3-7/8 | 4-1/64 | 6-7/8 | 1 | 3 | 1/8 | 22010S-100L |
| | Intermediate | 4-5/8 | 5-7/8 | 6-1/64 | 8-7/8 | 1 | 3 | 1/8 | 23010S-100L |
| | Standard | 6-5/8 | 7-7/8 | 8-1/64 | 10-7/8 | 3/4 | 3 | 1/8 | 24010S-075L |
| | Standard | 6-5/8 | 7-7/8 | 8-1/64 | 10-7/8 | 1 | 3 | 1/8 | 24010S-100L |
| | Extended | 10-5/8 | 11-7/8 | 12-1/64 | 14-7/8 | 1 | 3 | 1/8 | 25010S-100L |
| | XL | 18 | 19-1/4 | 19-25/64 | 22-1/4 | 1 | 3 | 1/8 | 27010S-100L |
| 1.5 | 3XL | 22-1/4 | 23-1/2 | 23-41/64 | 26-1/2 | 1 | 3 | 1/8 | 29010S-100L |
| | Short | 2-5/8 | 3-7/8 | 4-1/64 | 6-7/8 | 3/4 | 3 | 1/8* | 22015S-075L |
| | Short | 2-5/8 | 3-7/8 | 4-1/64 | 6-7/8 | 1 | 3 | 1/8* | 22015S-100L |
| | Intermediate | 4-5/8 | 5-7/8 | 6-1/64 | 8-7/8 | 1 | 3 | 1/8* | 23015S-100L |
| | Standard | 6-5/8 | 7-7/8 | 8-1/64 | 10-7/8 | 3/4 | 3 | 1/8* | 24015S-075L |
| | Standard | 6-5/8 | 7-7/8 | 8-1/64 | 10-7/8 | 1 | 3 | 1/8* | 24015S-100L |
| | Extended | 10-5/8 | 11-7/8 | 12-1/64 | 14-7/8 | 1 | 3 | 1/8* | 25015S-100L |

NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 1 | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| 1.5 | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

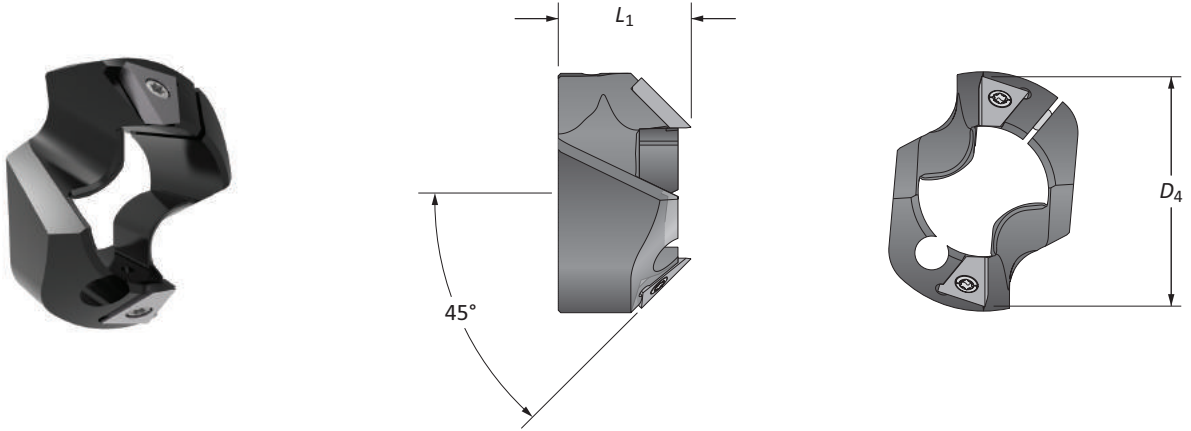
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Accessories

1 Series | Chamfer Rings | Rotary Coolant Adapters | Torx® Plus Screws |

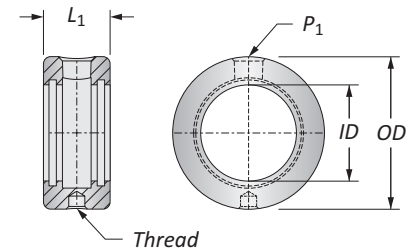


T-ACR 45 Chamfer Ring

| Holder Series | D ₁ Range | Chamfer Ring | | Part No. | Insert Part No. | Insert Screw | Insert Driver | Clamping Screw | Insert Driver |
|---------------|----------------------|----------------|----------------|--------------|-----------------|--------------|---------------|----------------|---------------|
| | | D ₄ | L ₁ | | | | | | |
| 1 | 0.6900 - 0.9600 | 1-3/64 | 51/64 | T-ACR-45-1 | T-ACRI-45-B-C5A | 7255-IP8-1 | 8IP-8 | 7495-IP15-1 | 8IP-15 |
| 1.5 | 0.8540 - 0.9600 | 1-1/8 | 57/64 | T-ACR-45-1.5 | T-ACRI-45-B-C5A | 7255-IP8-1 | 8IP-8 | 7495-IP15-1 | 8IP-15 |

Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No. | RCA O-Rings | |
|-------|-------|----------------|--------------------|----------------|----------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| 1 | 2-1/8 | 1-1/8 | 5/16-18 | 1/8 | 2T-3SR | 2T1-3SR | 2T1-3OR-10 |
| 25.40 | 53.97 | 28.57 | M8 x 1.25 | 1/8* | 2T-3SRM | 2T1-3SR | 2T1-3OR-10 |



*Thread to BSP and ISO 7-1

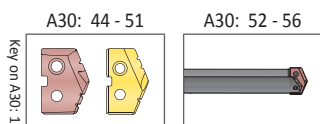
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

▲ Refer to page A30: 110 for proper RCA assembly and safety information

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 1 | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| 1.5 | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



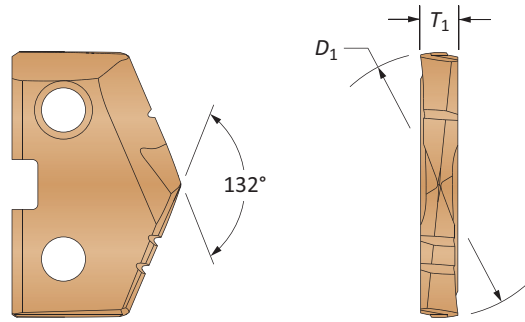
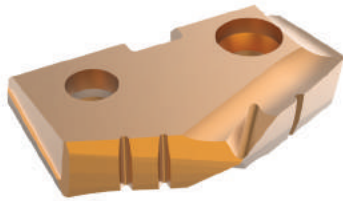
ⓘ = Imperial (in)
 Ⓜ = Metric (mm)

Chamfer Ring Inserts sold separately
 Screws sold in packs of 10
 O-rings sold in packs of 10




WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.

GEN2 T-A® Drill Inserts

2 Series | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)

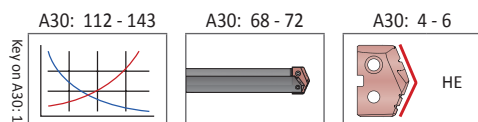


HSS Inserts – Super Cobalt • Carbide Inserts – C2 (K20) | C1 (K35)

| Series | Fractional Equivalent | Insert | | | HSS Part No. | Carbide Part No. | |
|--------|-----------------------|------------|----------|-----------|--|---|---|
| | | D_1 inch | D_1 mm | T_1 |  AM200® Super Cobalt |  AM300® C2 (K20) |  AM300® C1 (K35) |
| 2 | - | 0.9646 | 24.50 | 3/16 | 452H-24.5 | 4C22P-24.5 | 4C12P-24.5 |
| | 31/32 | 0.9688 | 24.61 | 3/16 | 452H-0031 | 4C22P-0031 | 4C12P-0031 |
| | - | 0.9760 | 24.79 | 3/16 | 452H-.976 | 4C22P-.976 | 4C12P-.976 |
| | 63/64 | 0.9843 | 25.00 | 3/16 | 452H-25 | 4C22P-25 | 4C12P-25 |
| | 1 | 1.0000 | 25.40 | 3/16 | 452H-0100 | 4C22P-0100 | 4C12P-0100 |
| | - | 1.0039 | 25.50 | 3/16 | 452H-25.5 | 4C22P-25.5 | 4C12P-25.5 |
| | 1-1/64 | 1.0156 | 25.80 | 3/16 | 452H-1.015 | 4C22P-1.015 | 4C12P-1.015 |
| | - | 1.0236 | 26.00 | 3/16 | 452H-26 | 4C22P-26 | 4C12P-26 |
| | 1-1/32 | 1.0313 | 26.19 | 3/16 | 452H-0101 | 4C22P-0101 | 4C12P-0101 |
| | - | 1.0433 | 26.50 | 3/16 | 452H-26.5 | 4C22P-26.5 | 4C12P-26.5 |
| | 1-3/64 | 1.0469 | 26.59 | 3/16 | 452H-1.046 | 4C22P-1.046 | 4C12P-1.046 |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 452H-0102 | 4C22P-0102 | 4C12P-0102 |
| | - | 1.0630 | 27.00 | 3/16 | 452H-27 | 4C22P-27 | 4C12P-27 |
| | - | 1.0827 | 27.50 | 3/16 | 452H-27.5 | 4C22P-27.5 | 4C12P-27.5 |
| | 1-3/32 | 1.0938 | 27.78 | 3/16 | 452H-0103 | 4C22P-0103 | 4C12P-0103 |
| | - | 1.1024 | 28.00 | 3/16 | 452H-28 | 4C22P-28 | 4C12P-28 |
| | 1-7/64 | 1.1094 | 28.18 | 3/16 | 452H-1.109 | 4C22P-1.109 | 4C12P-1.109 |
| | - | 1.1220 | 28.50 | 3/16 | 452H-28.5 | 4C22P-28.5 | 4C12P-28.5 |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 452H-0104 | 4C22P-0104 | 4C12P-0104 |
| | - | 1.1417 | 29.00 | 3/16 | 452H-29 | 4C22P-29 | 4C12P-29 |
| 1-5/32 | 1.1563 | 29.37 | 3/16 | 452H-0105 | 4C22P-0105 | 4C12P-0105 | |
| - | 1.1614 | 29.50 | 3/16 | 452H-29.5 | 4C22P-29.5 | 4C12P-29.5 | |
| - | 1.1811 | 30.00 | 3/16 | 452H-30 | 4C22P-30 | 4C12P-30 | |
| 2.5 | 1-3/16 | 1.1875 | 30.16 | 3/16 | 452H-0106 | 4C22P-0106 | 4C12P-0106 |
| | - | 1.2008 | 30.50 | 3/16 | 452H-30.5 | 4C22P-30.5 | 4C12P-30.5 |
| | 1-7/32 | 1.2188 | 30.96 | 3/16 | 452H-0107 | 4C22P-0107 | 4C12P-0107 |
| | - | 1.2205 | 31.00 | 3/16 | 452H-31 | 4C22P-31 | 4C12P-31 |
| | - | 1.2260 | 31.14 | 3/16 | 452H-1.226 | 4C22P-1.226 | 4C12P-1.226 |
| | - | 1.2310 | 31.26 | 3/16 | 452H-1.231 | 4C22P-1.231 | 4C12P-1.231 |
| | - | 1.2340 | 31.34 | 3/16 | 452H-1.234 | 4C22P-1.234 | 4C12P-1.234 |
| | - | 1.2402 | 31.50 | 3/16 | 452H-31.5 | 4C22P-31.5 | 4C12P-31.5 |
| | 1-1/4 | 1.2500 | 31.75 | 3/16 | 452H-0108 | 4C22P-0108 | 4C12P-0108 |
| | - | 1.2598 | 32.00 | 3/16 | 452H-32 | 4C22P-32 | 4C12P-32 |
| | - | 1.2795 | 32.50 | 3/16 | 452H-32.5 | 4C22P-32.5 | 4C12P-32.5 |
| | 1-9/32 | 1.2813 | 32.54 | 3/16 | 452H-0109 | 4C22P-0109 | 4C12P-0109 |
| | - | 1.2992 | 33.00 | 3/16 | 452H-33 | 4C22P-33 | 4C12P-33 |
| | 1-5/16 | 1.3125 | 33.34 | 3/16 | 452H-0110 | 4C22P-0110 | 4C12P-0110 |
| | - | 1.3189 | 33.50 | 3/16 | 452H-33.5 | 4C22P-33.5 | 4C12P-33.5 |
| | - | 1.3386 | 34.00 | 3/16 | 452H-34 | 4C22P-34 | 4C12P-34 |
| | 1-11/32 | 1.3438 | 34.13 | 3/16 | 452H-0111 | 4C22P-0111 | 4C12P-0111 |
| | - | 1.3582 | 34.50 | 3/16 | 452H-34.5 | 4C22P-34.5 | 4C12P-34.5 |
| | 1-3/8 | 1.3750 | 34.93 | 3/16 | 452H-0112 | 4C22P-0112 | 4C12P-0112 |
| | - | 1.3780 | 35.00 | 3/16 | 452H-35 | 4C22P-35 | 4C12P-35 |

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

Inserts sold in quantities of 2

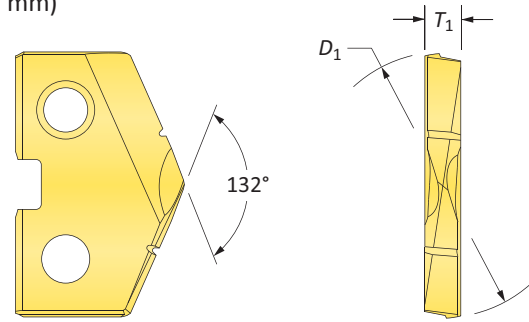
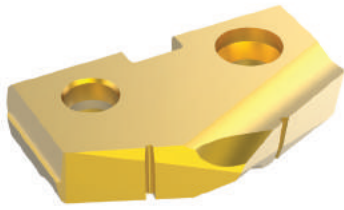


Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →




| | |
|------------------|--------------------|
| TiN = 452T-XXXX | TiAlN = 452A-XXXX |
| TiCN = 452N-XXXX | AM200® = 452H-XXXX |

T-A® Drill Inserts

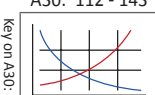
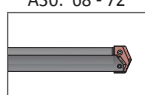

2 Series | HSS | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



HSS Inserts – Premium Cobalt

| Series | Fractional Equivalent | Insert | | | Part No. | | |
|--------|-----------------------|---------------------|-------------------|----------------|--|---|--|
| | | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiCN |
| 2 | – | 0.9646 | 24.50 | 3/16 | 182T-24.5 | 182A-24.5 | 182N-24.5 |
| | 31/32 | 0.9688 | 24.61 | 3/16 | 182T-0031 | 182A-0031 | 182N-0031 |
| | – | 0.9760 | 24.79 | 3/16 | 182T-.976 | 182A-.976 | 182N-.976 |
| | 63/64 | 0.9843 | 25.00 | 3/16 | 182T-25 | 182A-25 | 182N-25 |
| | 1 | 1.0000 | 25.40 | 3/16 | 182T-0100 | 182A-0100 | 182N-0100 |
| | – | 1.0039 | 25.50 | 3/16 | 182T-25.5 | 182A-25.5 | 182N-25.5 |
| | 1-1/64 | 1.0156 | 25.80 | 3/16 | 182T-1.015 | 182A-1.015 | 182N-1.015 |
| | – | 1.0236 | 26.00 | 3/16 | 182T-26 | 182A-26 | 182N-26 |
| | 1-1/32 | 1.0313 | 26.19 | 3/16 | 182T-0101 | 182A-0101 | 182N-0101 |
| | – | 1.0433 | 26.50 | 3/16 | 182T-26.5 | 182A-26.5 | 182N-26.5 |
| | 1-3/64 | 1.0469 | 26.59 | 3/16 | 182T-1.046 | 182A-1.046 | 182N-1.046 |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 182T-0102 | 182A-0102 | 182N-0102 |
| | – | 1.0630 | 27.00 | 3/16 | 182T-27 | 182A-27 | 182N-27 |
| | – | 1.0827 | 27.50 | 3/16 | 182T-27.5 | 182A-27.5 | 182N-27.5 |
| | 1-3/32 | 1.0938 | 27.78 | 3/16 | 182T-0103 | 182A-0103 | 182N-0103 |
| | – | 1.1024 | 28.00 | 3/16 | 182T-28 | 182A-28 | 182N-28 |
| | 1-7/64 | 1.1094 | 28.18 | 3/16 | 182T-1.109 | 182A-1.109 | 182N-1.109 |
| | – | 1.1220 | 28.50 | 3/16 | 182T-28.5 | 182A-28.5 | 182N-28.5 |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 182T-0104 | 182A-0104 | 182N-0104 |
| | – | 1.1417 | 29.00 | 3/16 | 182T-29 | 182A-29 | 182N-29 |
| 1-5/32 | 1.1563 | 29.37 | 3/16 | 182T-0105 | 182A-0105 | 182N-0105 | |
| – | 1.1614 | 29.50 | 3/16 | 182T-29.5 | 182A-29.5 | 182N-29.5 | |
| – | 1.1811 | 30.00 | 3/16 | 182T-30 | 182A-30 | 182N-30 | |
| 2.5 | 1-3/16 | 1.1875 | 30.16 | 3/16 | 182T-0106 | 182A-0106 | 182N-0106 |
| | – | 1.2008 | 30.50 | 3/16 | 182T-30.5 | 182A-30.5 | 182N-30.5 |
| | 1-7/32 | 1.2188 | 30.96 | 3/16 | 182T-0107 | 182A-0107 | 182N-0107 |
| | – | 1.2205 | 31.00 | 3/16 | 182T-31 | 182A-31 | 182N-31 |
| | – | 1.2260 | 31.14 | 3/16 | 182T-1.226 | 182A-1.226 | 182N-1.226 |
| | – | 1.2310 | 31.26 | 3/16 | 182T-1.231 | 182A-1.231 | 182N-1.231 |
| | – | 1.2340 | 31.34 | 3/16 | 182T-1.234 | 182A-1.234 | 182N-1.234 |
| | – | 1.2402 | 31.50 | 3/16 | 182T-31.5 | 182A-31.5 | 182N-31.5 |
| | 1-1/4 | 1.2500 | 31.75 | 3/16 | 182T-0108 | 182A-0108 | 182N-0108 |
| | – | 1.2598 | 32.00 | 3/16 | 182T-32 | 182A-32 | 182N-32 |
| | – | 1.2795 | 32.50 | 3/16 | 182T-32.5 | 182A-32.5 | 182N-32.5 |
| | 1-9/32 | 1.2813 | 32.54 | 3/16 | 182T-0109 | 182A-0109 | 182N-0109 |
| | – | 1.2992 | 33.00 | 3/16 | 182T-33 | 182A-33 | 182N-33 |
| | 1-5/16 | 1.3125 | 33.34 | 3/16 | 182T-0110 | 182A-0110 | 182N-0110 |
| | – | 1.3189 | 33.50 | 3/16 | 182T-33.5 | 182A-33.5 | 182N-33.5 |
| | – | 1.3386 | 34.00 | 3/16 | 182T-34 | 182A-34 | 182N-34 |
| | 1-11/32 | 1.3438 | 34.13 | 3/16 | 182T-0111 | 182A-0111 | 182N-0111 |
| | – | 1.3582 | 34.50 | 3/16 | 182T-34.5 | 182A-34.5 | 182N-34.5 |
| | 1-3/8 | 1.3750 | 34.93 | 3/16 | 182T-0112 | 182A-0112 | 182N-0112 |
| | – | 1.3780 | 35.00 | 3/16 | 182T-35 | 182A-35 | 182N-35 |

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

A30: 112 - 143  A30: 68 - 72  A30: 4 - 6  HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC

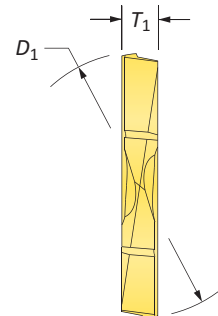
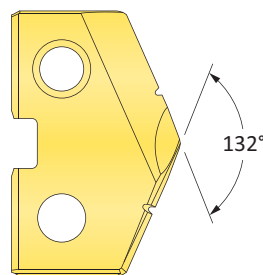
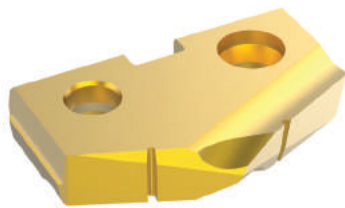
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 182T-XXXX | TiAlN = 182A-XXXX |
| TiCN = 182N-XXXX | AM200® = 182H-XXXX |




Inserts sold in quantities of 2

T-A® Drill Inserts

2 Series | HSS | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)

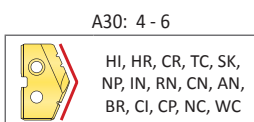
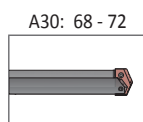
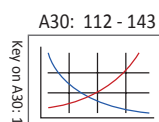


HSS Inserts – Super Cobalt

| Series | Fractional Equivalent | Insert | | | Part No. | | |
|--------|-----------------------|------------|----------|-----------|--|---|--|
| | | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiCN |
| 2 | - | 0.9646 | 24.50 | 3/16 | 152T-24.5 | 152A-24.5 | 152N-24.5 |
| | 31/32 | 0.9688 | 24.61 | 3/16 | 152T-0031 | 152A-0031 | 152N-0031 |
| | - | 0.9760 | 24.79 | 3/16 | 152T-.976 | 152A-.976 | 152N-.976 |
| | 63/64 | 0.9843 | 25.00 | 3/16 | 152T-25 | 152A-25 | 152N-25 |
| | 1 | 1.0000 | 25.40 | 3/16 | 152T-0100 | 152A-0100 | 152N-0100 |
| | - | 1.0039 | 25.50 | 3/16 | 152T-25.5 | 152A-25.5 | 152N-25.5 |
| | 1-1/64 | 1.0156 | 25.80 | 3/16 | 152T-1.015 | 152A-1.015 | 152N-1.015 |
| | - | 1.0236 | 26.00 | 3/16 | 152T-26 | 152A-26 | 152N-26 |
| | 1-1/32 | 1.0313 | 26.19 | 3/16 | 152T-0101 | 152A-0101 | 152N-0101 |
| | - | 1.0433 | 26.50 | 3/16 | 152T-26.5 | 152A-26.5 | 152N-26.5 |
| | 1-3/64 | 1.0469 | 26.59 | 3/16 | 152T-1.046 | 152A-1.046 | 152N-1.046 |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 152T-0102 | 152A-0102 | 152N-0102 |
| | - | 1.0630 | 27.00 | 3/16 | 152T-27 | 152A-27 | 152N-27 |
| | - | 1.0827 | 27.50 | 3/16 | 152T-27.5 | 152A-27.5 | 152N-27.5 |
| | 1-3/32 | 1.0938 | 27.78 | 3/16 | 152T-0103 | 152A-0103 | 152N-0103 |
| | - | 1.1024 | 28.00 | 3/16 | 152T-28 | 152A-28 | 152N-28 |
| | 1-7/64 | 1.1094 | 28.18 | 3/16 | 152T-1.109 | 152A-1.109 | 152N-1.109 |
| | - | 1.1220 | 28.50 | 3/16 | 152T-28.5 | 152A-28.5 | 152N-28.5 |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 152T-0104 | 152A-0104 | 152N-0104 |
| | - | 1.1417 | 29.00 | 3/16 | 152T-29 | 152A-29 | 152N-29 |
| 1-5/32 | 1.1563 | 29.37 | 3/16 | 152T-0105 | 152A-0105 | 152N-0105 | |
| - | 1.1614 | 29.50 | 3/16 | 152T-29.5 | 152A-29.5 | 152N-29.5 | |
| - | 1.1811 | 30.00 | 3/16 | 152T-30 | 152A-30 | 152N-30 | |
| 2.5 | 1-3/16 | 1.1875 | 30.16 | 3/16 | 152T-0106 | 152A-0106 | 152N-0106 |
| | - | 1.2008 | 30.50 | 3/16 | 152T-30.5 | 152A-30.5 | 152N-30.5 |
| | 1-7/32 | 1.2188 | 30.96 | 3/16 | 152T-0107 | 152A-0107 | 152N-0107 |
| | - | 1.2205 | 31.00 | 3/16 | 152T-31 | 152A-31 | 152N-31 |
| | - | 1.2260 | 31.14 | 3/16 | 152T-1.226 | 152A-1.226 | 152N-1.226 |
| | - | 1.2310 | 31.26 | 3/16 | 152T-1.231 | 152A-1.231 | 152N-1.231 |
| | - | 1.2340 | 31.34 | 3/16 | 152T-1.234 | 152A-1.234 | 152N-1.234 |
| | - | 1.2402 | 31.50 | 3/16 | 152T-31.5 | 152A-31.5 | 152N-31.5 |
| | 1-1/4 | 1.2500 | 31.75 | 3/16 | 152T-0108 | 152A-0108 | 152N-0108 |
| | - | 1.2598 | 32.00 | 3/16 | 152T-32 | 152A-32 | 152N-32 |
| | - | 1.2795 | 32.50 | 3/16 | 152T-32.5 | 152A-32.5 | 152N-32.5 |
| | 1-9/32 | 1.2813 | 32.54 | 3/16 | 152T-0109 | 152A-0109 | 152N-0109 |
| | - | 1.2992 | 33.00 | 3/16 | 152T-33 | 152A-33 | 152N-33 |
| | 1-5/16 | 1.3125 | 33.34 | 3/16 | 152T-0110 | 152A-0110 | 152N-0110 |
| | - | 1.3189 | 33.50 | 3/16 | 152T-33.5 | 152A-33.5 | 152N-33.5 |
| | - | 1.3386 | 34.00 | 3/16 | 152T-34 | 152A-34 | 152N-34 |
| | 1-11/32 | 1.3438 | 34.13 | 3/16 | 152T-0111 | 152A-0111 | 152N-0111 |
| | - | 1.3582 | 34.50 | 3/16 | 152T-34.5 | 152A-34.5 | 152N-34.5 |
| | 1-3/8 | 1.3750 | 34.93 | 3/16 | 152T-0112 | 152A-0112 | 152N-0112 |
| | - | 1.3780 | 35.00 | 3/16 | 152T-35 | 152A-35 | 152N-35 |

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

Inserts sold in quantities of 2



Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

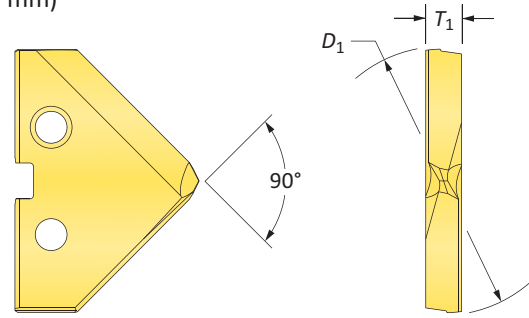
| | |
|------------------|--------------------|
| TiN = 152T-XXXX | TiAlN = 152A-XXXX |
| TiCN = 152N-XXXX | AM200® = 152H-XXXX |

T-A® Drill Inserts




2 Series | HSS | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



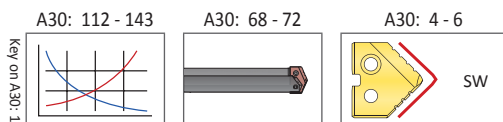
90° Spot & Chamfer



HSS Inserts – Super Cobalt

| Series | Fractional Equivalent | Insert | | | 90° Spot & Chamfer Part No. | | |
|--------|-----------------------|---------------------|-------------------|----------------|---|---|--|
| | | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiCN |
| 2 | – | 0.9646 | 24.50 | 3/16 | 152T-24.5-SP | 152A-24.5-SP | 152N-24.5-SP |
| | 31/32 | 0.9688 | 24.61 | 3/16 | 152T-0031-SP | 152A-0031-SP | 152N-0031-SP |
| | – | 0.9760 | 24.79 | 3/16 | 152T-.976-SP | 152A-.976-SP | 152N-.976-SP |
| | 63/64 | 0.9843 | 25.00 | 3/16 | 152T-25-SP | 152A-25-SP | 152N-25-SP |
| | 1 | 1.0000 | 25.40 | 3/16 | 152T-0100-SP | 152A-0100-SP | 152N-0100-SP |
| | – | 1.0039 | 25.50 | 3/16 | 152T-25.5-SP | 152A-25.5-SP | 152N-25.5-SP |
| | 1-1/64 | 1.0156 | 25.80 | 3/16 | 152T-1.015-SP | 152A-1.015-SP | 152N-1.015-SP |
| | – | 1.0236 | 26.00 | 3/16 | 152T-26-SP | 152A-26-SP | 152N-26-SP |
| | 1-1/32 | 1.0313 | 26.19 | 3/16 | 152T-0101-SP | 152A-0101-SP | 152N-0101-SP |
| | – | 1.0433 | 26.50 | 3/16 | 152T-26.5-SP | 152A-26.5-SP | 152N-26.5-SP |
| | 1-3/64 | 1.0469 | 26.59 | 3/16 | 152T-1.046-SP | 152A-1.046-SP | 152N-1.046-SP |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 152T-0102-SP | 152A-0102-SP | 152N-0102-SP |
| | – | 1.0630 | 27.00 | 3/16 | 152T-27-SP | 152A-27-SP | 152N-27-SP |
| | – | 1.0827 | 27.50 | 3/16 | 152T-27.5-SP | 152A-27.5-SP | 152N-27.5-SP |
| | 1-3/32 | 1.0938 | 27.78 | 3/16 | 152T-0103-SP | 152A-0103-SP | 152N-0103-SP |
| | – | 1.1024 | 28.00 | 3/16 | 152T-28-SP | 152A-28-SP | 152N-28-SP |
| | 1-7/64 | 1.1094 | 28.18 | 3/16 | 152T-1.109-SP | 152A-1.109-SP | 152N-1.109-SP |
| | – | 1.1220 | 28.50 | 3/16 | 152T-28.5-SP | 152A-28.5-SP | 152N-28.5-SP |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 152T-0104-SP | 152A-0104-SP | 152N-0104-SP |
| | – | 1.1417 | 29.00 | 3/16 | 152T-29-SP | 152A-29-SP | 152N-29-SP |
| 1-5/32 | 1.1563 | 29.37 | 3/16 | 152T-0105-SP | 152A-0105-SP | 152N-0105-SP | |
| – | 1.1614 | 29.50 | 3/16 | 152T-29.5-SP | 152A-29.5-SP | 152N-29.5-SP | |
| – | 1.1811 | 30.00 | 3/16 | 152T-30-SP | 152A-30-SP | 152N-30-SP | |
| 2.5 | 1-3/16 | 1.1875 | 30.16 | 3/16 | 152T-0106-SP | 152A-0106-SP | 152N-0106-SP |
| | – | 1.2008 | 30.50 | 3/16 | 152T-30.5-SP | 152A-30.5-SP | 152N-30.5-SP |
| | 1-7/32 | 1.2188 | 30.96 | 3/16 | 152T-0107-SP | 152A-0107-SP | 152N-0107-SP |
| | – | 1.2205 | 31.00 | 3/16 | 152T-31-SP | 152A-31-SP | 152N-31-SP |
| | – | 1.2260 | 31.14 | 3/16 | 152T-1.226-SP | 152A-1.226-SP | 152N-1.226-SP |
| | – | 1.2310 | 31.26 | 3/16 | 152T-1.231-SP | 152A-1.231-SP | 152N-1.231-SP |
| | – | 1.2340 | 31.34 | 3/16 | 152T-1.234-SP | 152A-1.234-SP | 152N-1.234-SP |
| | – | 1.2402 | 31.50 | 3/16 | 152T-31.5-SP | 152A-31.5-SP | 152N-31.5-SP |
| | 1-1/4 | 1.2500 | 31.75 | 3/16 | 152T-0108-SP | 152A-0108-SP | 152N-0108-SP |
| | – | 1.2598 | 32.00 | 3/16 | 152T-32-SP | 152A-32-SP | 152N-32-SP |
| | – | 1.2795 | 32.50 | 3/16 | 152T-32.5-SP | 152A-32.5-SP | 152N-32.5-SP |
| | 1-9/32 | 1.2813 | 32.54 | 3/16 | 152T-0109-SP | 152A-0109-SP | 152N-0109-SP |
| | – | 1.2992 | 33.00 | 3/16 | 152T-33-SP | 152A-33-SP | 152N-33-SP |
| | 1-5/16 | 1.3125 | 33.34 | 3/16 | 152T-0110-SP | 152A-0110-SP | 152N-0110-SP |
| | – | 1.3189 | 33.50 | 3/16 | 152T-33.5-SP | 152A-33.5-SP | 152N-33.5-SP |
| | – | 1.3386 | 34.00 | 3/16 | 152T-34-SP | 152A-34-SP | 152N-34-SP |
| | 1-11/32 | 1.3438 | 34.13 | 3/16 | 152T-0111-SP | 152A-0111-SP | 152N-0111-SP |
| | – | 1.3582 | 34.50 | 3/16 | 152T-34.5-SP | 152A-34.5-SP | 152N-34.5-SP |
| | 1-3/8 | 1.3750 | 34.93 | 3/16 | 152T-0112-SP | 152A-0112-SP | 152N-0112-SP |
| | – | 1.3780 | 35.00 | 3/16 | 152T-35-SP | 152A-35-SP | 152N-35-SP |

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.



Inserts sold in quantities of 2

Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

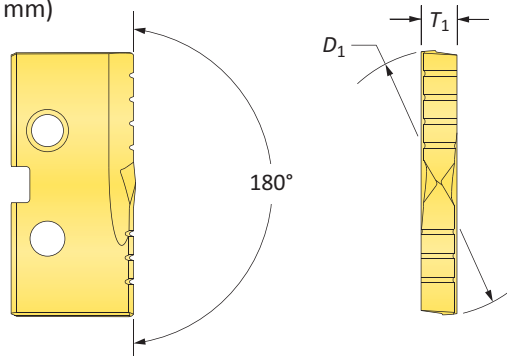
| | |
|------------------|--------------------|
| TiN = 152T-XXXX | TiAlN = 152A-XXXX |
| TiCN = 152N-XXXX | AM200® = 152H-XXXX |

T-A® Drill Inserts


2 Series | HSS | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



Flat Bottom



HSS Inserts – Super Cobalt

| Series | Fractional Equivalent | Insert | | | Flat Bottom Part No. |
|--------|-----------------------|------------|----------|--------------|---|
| | | D_1 inch | D_1 mm | T_1 | TiN  |
| 2 | - | 0.9646 | 24.50 | 3/16 | 152T-24.5-FB |
| | 31/32 | 0.9688 | 24.61 | 3/16 | 152T-0031-FB |
| | - | 0.9760 | 24.79 | 3/16 | 152T-.976-FB |
| | 63/64 | 0.9843 | 25.00 | 3/16 | 152T-25-FB |
| | 1 | 1.0000 | 25.40 | 3/16 | 152T-0100-FB |
| | - | 1.0039 | 25.50 | 3/16 | 152T-25.5-FB |
| | 1-1/64 | 1.0156 | 25.80 | 3/16 | 152T-1.015-FB |
| | - | 1.0236 | 26.00 | 3/16 | 152T-26-FB |
| | 1-1/32 | 1.0313 | 26.19 | 3/16 | 152T-0101-FB |
| | - | 1.0433 | 26.50 | 3/16 | 152T-26.5-FB |
| | 1-3/64 | 1.0469 | 26.59 | 3/16 | 152T-1.046-FB |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 152T-0102-FB |
| | - | 1.0630 | 27.00 | 3/16 | 152T-27-FB |
| | - | 1.0827 | 27.50 | 3/16 | 152T-27.5-FB |
| | 1-3/32 | 1.0938 | 27.78 | 3/16 | 152T-0103-FB |
| | - | 1.1024 | 28.00 | 3/16 | 152T-28-FB |
| | 1-7/64 | 1.1094 | 28.18 | 3/16 | 152T-1.109-FB |
| | - | 1.1220 | 28.50 | 3/16 | 152T-28.5-FB |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 152T-0104-FB |
| | - | 1.1417 | 29.00 | 3/16 | 152T-29-FB |
| 1-5/32 | 1.1563 | 29.37 | 3/16 | 152T-0105-FB | |
| - | 1.1614 | 29.50 | 3/16 | 152T-29.5-FB | |
| - | 1.1811 | 30.00 | 3/16 | 152T-30-FB | |
| 2.5 | 1-3/16 | 1.1875 | 30.16 | 3/16 | 152T-0106-FB |
| | - | 1.2008 | 30.50 | 3/16 | 152T-30.5-FB |
| | 1-7/32 | 1.2188 | 30.96 | 3/16 | 152T-0107-FB |
| | - | 1.2205 | 31.00 | 3/16 | 152T-31-FB |
| | - | 1.2260 | 31.14 | 3/16 | 152T-1.226-FB |
| | - | 1.2310 | 31.26 | 3/16 | 152T-1.231-FB |
| | - | 1.2340 | 31.34 | 3/16 | 152T-1.234-FB |
| | - | 1.2402 | 31.50 | 3/16 | 152T-31.5-FB |
| | 1-1/4 | 1.2500 | 31.75 | 3/16 | 152T-0108-FB |
| | - | 1.2598 | 32.00 | 3/16 | 152T-32-FB |
| | - | 1.2795 | 32.50 | 3/16 | 152T-32.5-FB |
| | 1-9/32 | 1.2813 | 32.54 | 3/16 | 152T-0109-FB |
| | - | 1.2992 | 33.00 | 3/16 | 152T-33-FB |
| | 1-5/16 | 1.3125 | 33.34 | 3/16 | 152T-0110-FB |
| | - | 1.3189 | 33.50 | 3/16 | 152T-33.5-FB |
| | - | 1.3386 | 34.00 | 3/16 | 152T-34-FB |
| | 1-11/32 | 1.3438 | 34.13 | 3/16 | 152T-0111-FB |
| | - | 1.3582 | 34.50 | 3/16 | 152T-34.5-FB |
| | 1-3/8 | 1.3750 | 34.93 | 3/16 | 152T-0112-FB |
| | - | 1.3780 | 35.00 | 3/16 | 152T-35-FB |

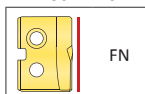
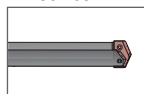
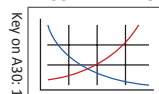
NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

Inserts sold in quantities of 2

A30: 112 - 143

A30: 68 - 72

A30: 4 - 6



Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

TiN = 152T-XXXX

TiAlN = 152A-XXXX

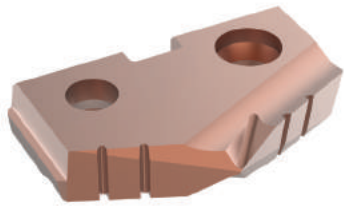
TiCN = 152N-XXXX

AM200® = 152H-XXXX

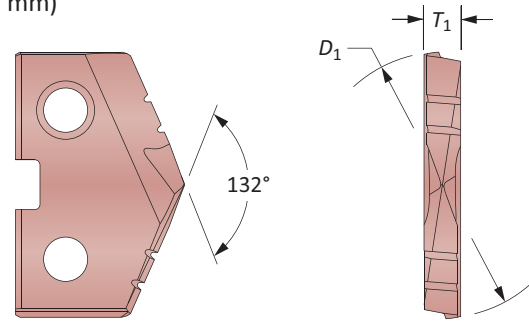


T-A® Drill Inserts



2 Series | HSS | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



Tube Sheet



HSS Inserts – Super Cobalt | HSS

| Series | Fractional Equivalent | Insert | | | Part No. | |
|--------|-----------------------|------------|----------|-------|--|---|
| | | D_1 inch | D_1 mm | T_1 |  Super Cobalt |  HSS |
| 2 | – | 1.0080 | 25.60 | 3/16 | 152H-1.0080-IN | 132H-1.0080-IN |
| | 1-1/64 | 1.0156 | 25.80 | 3/16 | 152H-1.015-IN | 132H-1.015-IN |
| | 1-1/32 | 1.0313 | 26.19 | 3/16 | 152H-0101-IN | 132H-0101-IN |

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

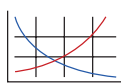
E

THREADING

X


SPECIALS

A30: 112 - 143



Key on A30-1

A30: 68 - 72



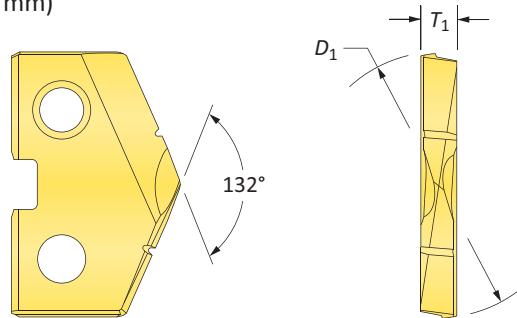
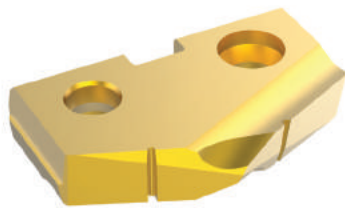
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2




| | |
|-------------------------|---------------------------|
| TiN = 152T-XXXX | TiAlN = 152A-XXXX |
| TiCN = 152N-XXXX | AM200® = 152H-XXXX |

T-A® Drill Inserts

2 Series | HSS | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



HSS Inserts – HSS

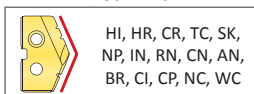
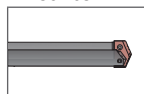
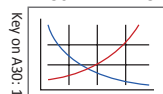
| Series | Insert | | | | Part No. | | |
|--------|-----------------------|---------------------|-------------------|----------------|--|---|--|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |  TiCN |
| 2 | - | 0.9646 | 24.50 | 3/16 | 132T-24.5 | 132A-24.5 | 132N-24.5 |
| | 31/32 | 0.9688 | 24.61 | 3/16 | 132T-0031 | 132A-0031 | 132N-0031 |
| | - | 0.9760 | 24.79 | 3/16 | 132T-.976 | 132A-.976 | 132N-.976 |
| | 63/64 | 0.9843 | 25.00 | 3/16 | 132T-25 | 132A-25 | 132N-25 |
| | 1 | 1.0000 | 25.40 | 3/16 | 132T-0100 | 132A-0100 | 132N-0100 |
| | - | 1.0039 | 25.50 | 3/16 | 132T-25.5 | 132A-25.5 | 132N-25.5 |
| | 1-1/64 | 1.0156 | 25.80 | 3/16 | 132T-1.015 | 132A-1.015 | 132N-1.015 |
| | - | 1.0236 | 26.00 | 3/16 | 132T-26 | 132A-26 | 132N-26 |
| | 1-1/32 | 1.0313 | 26.19 | 3/16 | 132T-0101 | 132A-0101 | 132N-0101 |
| | - | 1.0433 | 26.50 | 3/16 | 132T-26.5 | 132A-26.5 | 132N-26.5 |
| | 1-3/64 | 1.0469 | 26.59 | 3/16 | 132T-1.046 | 132A-1.046 | 132N-1.046 |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 132T-0102 | 132A-0102 | 132N-0102 |
| | - | 1.0630 | 27.00 | 3/16 | 132T-27 | 132A-27 | 132N-27 |
| | - | 1.0827 | 27.50 | 3/16 | 132T-27.5 | 132A-27.5 | 132N-27.5 |
| | 1-3/32 | 1.0938 | 27.78 | 3/16 | 132T-0103 | 132A-0103 | 132N-0103 |
| | - | 1.1024 | 28.00 | 3/16 | 132T-28 | 132A-28 | 132N-28 |
| | 1-7/64 | 1.1094 | 28.18 | 3/16 | 132T-1.109 | 132A-1.109 | 132N-1.109 |
| | - | 1.1220 | 28.50 | 3/16 | 132T-28.5 | 132A-28.5 | 132N-28.5 |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 132T-0104 | 132A-0104 | 132N-0104 |
| | - | 1.1417 | 29.00 | 3/16 | 132T-29 | 132A-29 | 132N-29 |
| 1-5/32 | 1.1563 | 29.37 | 3/16 | 132T-0105 | 132A-0105 | 132N-0105 | |
| - | 1.1614 | 29.50 | 3/16 | 132T-29.5 | 132A-29.5 | 132N-29.5 | |
| - | 1.1811 | 30.00 | 3/16 | 132T-30 | 132A-30 | 132N-30 | |
| 2.5 | 1-3/16 | 1.1875 | 30.16 | 3/16 | 132T-0106 | 132A-0106 | 132N-0106 |
| | - | 1.2008 | 30.50 | 3/16 | 132T-30.5 | 132A-30.5 | 132N-30.5 |
| | 1-7/32 | 1.2188 | 30.96 | 3/16 | 132T-0107 | 132A-0107 | 132N-0107 |
| | - | 1.2205 | 31.00 | 3/16 | 132T-31 | 132A-31 | 132N-31 |
| | - | 1.2260 | 31.14 | 3/16 | 132T-1.226 | 132A-1.226 | 132N-1.226 |
| | - | 1.2310 | 31.26 | 3/16 | 132T-1.231 | 132A-1.231 | 132N-1.231 |
| | - | 1.2340 | 31.34 | 3/16 | 132T-1.234 | 132A-1.234 | 132N-1.234 |
| | - | 1.2402 | 31.50 | 3/16 | 132T-31.5 | 132A-31.5 | 132N-31.5 |
| | 1-1/4 | 1.2500 | 31.75 | 3/16 | 132T-0108 | 132A-0108 | 132N-0108 |
| | - | 1.2598 | 32.00 | 3/16 | 132T-32 | 132A-32 | 132N-32 |
| | - | 1.2795 | 32.50 | 3/16 | 132T-32.5 | 132A-32.5 | 132N-32.5 |
| | 1-9/32 | 1.2813 | 32.54 | 3/16 | 132T-0109 | 132A-0109 | 132N-0109 |
| | - | 1.2992 | 33.00 | 3/16 | 132T-33 | 132A-33 | 132N-33 |
| | 1-5/16 | 1.3125 | 33.34 | 3/16 | 132T-0110 | 132A-0110 | 132N-0110 |
| | - | 1.3189 | 33.50 | 3/16 | 132T-33.5 | 132A-33.5 | 132N-33.5 |
| | - | 1.3386 | 34.00 | 3/16 | 132T-34 | 132A-34 | 132N-34 |
| | 1-11/32 | 1.3438 | 34.13 | 3/16 | 132T-0111 | 132A-0111 | 132N-0111 |
| | - | 1.3582 | 34.50 | 3/16 | 132T-34.5 | 132A-34.5 | 132N-34.5 |
| | 1-3/8 | 1.3750 | 34.93 | 3/16 | 132T-0112 | 132A-0112 | 132N-0112 |
| | - | 1.3780 | 35.00 | 3/16 | 132T-35 | 132A-35 | 132N-35 |

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

A30: 112 - 143

A30: 68 - 72

A30: 4 - 6



Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

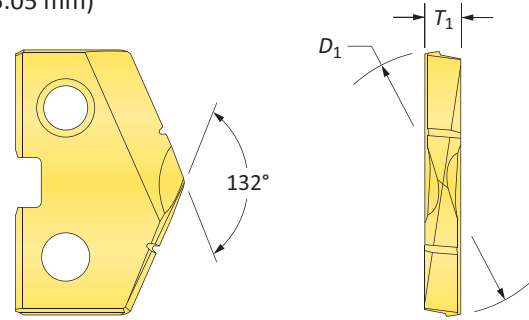
| | |
|------------------|--------------------|
| TiN = 132T-XXXX | TiAlN = 132A-XXXX |
| TiCN = 132N-XXXX | AM200® = 132H-XXXX |

Inserts sold in quantities of 2





T-A® Drill Inserts

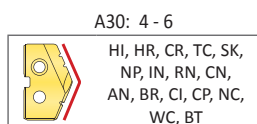
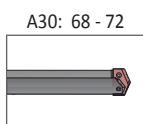
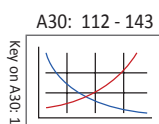
2 Series | Carbide | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



Carbide Inserts – C2 (K20)

| Series | Fractional Equivalent | Insert | | | Part No. | |
|--------|-----------------------|---------------------|-------------------|----------------|---|---|
| | | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |
| 2 | - | 0.9646 | 24.50 | 3/16 | 1C22T-24.5 | 1C22A-24.5 |
| | 31/32 | 0.9688 | 24.61 | 3/16 | 1C22T-0031 | 1C22A-0031 |
| | - | 0.9760 | 24.79 | 3/16 | 1C22T-.976 | 1C22A-.976 |
| | 63/64 | 0.9843 | 25.00 | 3/16 | 1C22T-25 | 1C22A-25 |
| | 1 | 1.0000 | 25.40 | 3/16 | 1C22T-0100 | 1C22A-0100 |
| | - | 1.0039 | 25.50 | 3/16 | 1C22T-25.5 | 1C22A-25.5 |
| | 1-1/64 | 1.0156 | 25.80 | 3/16 | 1C22T-1.015 | 1C22A-1.015 |
| | - | 1.0236 | 26.00 | 3/16 | 1C22T-26 | 1C22A-26 |
| | 1-1/32 | 1.0313 | 26.19 | 3/16 | 1C22T-0101 | 1C22A-0101 |
| | - | 1.0433 | 26.50 | 3/16 | 1C22T-26.5 | 1C22A-26.5 |
| | 1-3/64 | 1.0469 | 26.59 | 3/16 | 1C22T-1.046 | 1C22A-1.046 |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 1C22T-0102 | 1C22A-0102 |
| | - | 1.0630 | 27.00 | 3/16 | 1C22T-27 | 1C22A-27 |
| | - | 1.0827 | 27.50 | 3/16 | 1C22T-27.5 | 1C22A-27.5 |
| | 1-3/32 | 1.0938 | 27.78 | 3/16 | 1C22T-0103 | 1C22A-0103 |
| | - | 1.1024 | 28.00 | 3/16 | 1C22T-28 | 1C22A-28 |
| | 1-7/64 | 1.1094 | 28.18 | 3/16 | 1C22T-1.109 | 1C22A-1.109 |
| | - | 1.1220 | 28.50 | 3/16 | 1C22T-28.5 | 1C22A-28.5 |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 1C22T-0104 | 1C22A-0104 |
| | - | 1.1417 | 29.00 | 3/16 | 1C22T-29 | 1C22A-29 |
| 1-5/32 | 1.1563 | 29.37 | 3/16 | 1C22T-0105 | 1C22A-0105 | |
| - | 1.1614 | 29.50 | 3/16 | 1C22T-29.5 | 1C22A-29.5 | |
| - | 1.1811 | 30.00 | 3/16 | 1C22T-30 | 1C22A-30 | |
| 2.5 | 1-3/16 | 1.1875 | 30.16 | 3/16 | 1C22T-0106 | 1C22A-0106 |
| | - | 1.2008 | 30.50 | 3/16 | 1C22T-30.5 | 1C22A-30.5 |
| | 1-7/32 | 1.2188 | 30.96 | 3/16 | 1C22T-0107 | 1C22A-0107 |
| | - | 1.2205 | 31.00 | 3/16 | 1C22T-31 | 1C22A-31 |
| | - | 1.2260 | 31.14 | 3/16 | 1C22T-1.226 | 1C22A-1.226 |
| | - | 1.2310 | 31.26 | 3/16 | 1C22T-1.231 | 1C22A-1.231 |
| | - | 1.2340 | 31.34 | 3/16 | 1C22T-1.234 | 1C22A-1.234 |
| | - | 1.2402 | 31.50 | 3/16 | 1C22T-31.5 | 1C22A-31.5 |
| | 1-1/4 | 1.2500 | 31.75 | 3/16 | 1C22T-0108 | 1C22A-0108 |
| | - | 1.2598 | 32.00 | 3/16 | 1C22T-32 | 1C22A-32 |
| | - | 1.2795 | 32.50 | 3/16 | 1C22T-32.5 | 1C22A-32.5 |
| | 1-9/32 | 1.2813 | 32.54 | 3/16 | 1C22T-0109 | 1C22A-0109 |
| | - | 1.2992 | 33.00 | 3/16 | 1C22T-33 | 1C22A-33 |
| | 1-5/16 | 1.3125 | 33.34 | 3/16 | 1C22T-0110 | 1C22A-0110 |
| | - | 1.3189 | 33.50 | 3/16 | 1C22T-33.5 | 1C22A-33.5 |
| | - | 1.3386 | 34.00 | 3/16 | 1C22T-34 | 1C22A-34 |
| | 1-11/32 | 1.3438 | 34.13 | 3/16 | 1C22T-0111 | 1C22A-0111 |
| | - | 1.3582 | 34.50 | 3/16 | 1C22T-34.5 | 1C22A-34.5 |
| | 1-3/8 | 1.3750 | 34.93 | 3/16 | 1C22T-0112 | 1C22A-0112 |
| | - | 1.3780 | 35.00 | 3/16 | 1C22T-35 | 1C22A-35 |

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.



Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|-------------------|---------------------|
| TiN = 1C22T-XXXX | TiAlN = 1C22A-XXXX |
| TiCN = 1C22N-XXXX | AM200® = 1C22H-XXXX |

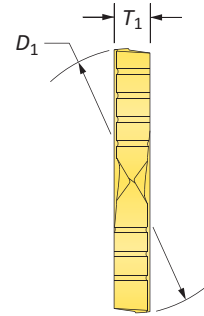
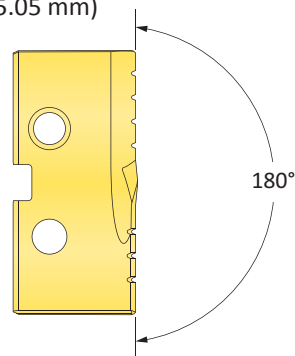
Inserts sold in quantities of 1

T-A® Drill Inserts

2 Series | Carbide | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



Flat Bottom



Carbide Inserts – C2 (K20)

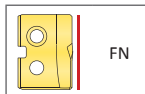
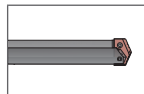
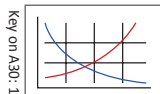
| Series | Fractional Equivalent | Insert | | | Flat Bottom Part No. |
|---------|-----------------------|------------|----------|----------------|----------------------|
| | | D_1 inch | D_1 mm | T_1 | TiN |
| 2 | - | 0.9646 | 24.50 | 3/16 | 1C22T-24.5-FB |
| | 31/32 | 0.9688 | 24.61 | 3/16 | 1C22T-0031-FB |
| | - | 0.9760 | 24.79 | 3/16 | 1C22T-.976-FB |
| | 63/64 | 0.9843 | 25.00 | 3/16 | 1C22T-25-FB |
| | 1 | 1.0000 | 25.40 | 3/16 | 1C22T-0100-FB |
| | - | 1.0039 | 25.50 | 3/16 | 1C22T-25.5-FB |
| | 1-1/64 | 1.0156 | 25.80 | 3/16 | 1C22T-1.015-FB |
| | - | 1.0236 | 26.00 | 3/16 | 1C22T-26-FB |
| | 1-1/32 | 1.0313 | 26.19 | 3/16 | 1C22T-0101-FB |
| | - | 1.0433 | 26.50 | 3/16 | 1C22T-26.5-FB |
| | 1-3/64 | 1.0469 | 26.59 | 3/16 | 1C22T-1.046-FB |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 1C22T-0102-FB |
| | - | 1.0630 | 27.00 | 3/16 | 1C22T-27-FB |
| | - | 1.0827 | 27.50 | 3/16 | 1C22T-27.5-FB |
| | 1-3/32 | 1.0938 | 27.78 | 3/16 | 1C22T-0103-FB |
| | - | 1.1024 | 28.00 | 3/16 | 1C22T-28-FB |
| | 1-7/64 | 1.1094 | 28.18 | 3/16 | 1C22T-1.109-FB |
| | - | 1.1220 | 28.50 | 3/16 | 1C22T-28.5-FB |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 1C22T-0104-FB |
| | - | 1.1417 | 29.00 | 3/16 | 1C22T-29-FB |
| 1-5/32 | 1.1563 | 29.37 | 3/16 | 1C22T-0105-FB | |
| - | 1.1614 | 29.50 | 3/16 | 1C22T-29.5-FB | |
| - | 1.1811 | 30.00 | 3/16 | 1C22T-30-FB | |
| 1-3/16 | 1.1875 | 30.16 | 3/16 | 1C22T-0106-FB | |
| - | 1.2008 | 30.50 | 3/16 | 1C22T-30.5-FB | |
| 1-7/32 | 1.2188 | 30.96 | 3/16 | 1C22T-0107-FB | |
| - | 1.2205 | 31.00 | 3/16 | 1C22T-31-FB | |
| - | 1.2260 | 31.14 | 3/16 | 1C22T-1.226-FB | |
| - | 1.2310 | 31.26 | 3/16 | 1C22T-1.231-FB | |
| - | 1.2340 | 31.34 | 3/16 | 1C22T-1.234-FB | |
| - | 1.2402 | 31.50 | 3/16 | 1C22T-31.5-FB | |
| 1-1/4 | 1.2500 | 31.75 | 3/16 | 1C22T-0108-FB | |
| - | 1.2598 | 32.00 | 3/16 | 1C22T-32-FB | |
| - | 1.2795 | 32.50 | 3/16 | 1C22T-32.5-FB | |
| 1-9/32 | 1.2813 | 32.54 | 3/16 | 1C22T-0109-FB | |
| - | 1.2992 | 33.00 | 3/16 | 1C22T-33-FB | |
| 1-5/16 | 1.3125 | 33.34 | 3/16 | 1C22T-0110-FB | |
| - | 1.3189 | 33.50 | 3/16 | 1C22T-33.5-FB | |
| - | 1.3386 | 34.00 | 3/16 | 1C22T-34-FB | |
| 1-11/32 | 1.3438 | 34.13 | 3/16 | 1C22T-0111-FB | |
| - | 1.3582 | 34.50 | 3/16 | 1C22T-34.5-FB | |
| 1-3/8 | 1.3750 | 34.93 | 3/16 | 1C22T-0112-FB | |
| - | 1.3780 | 35.00 | 3/16 | 1C22T-35-FB | |

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

A30: 112 - 143

A30: 68 - 72

A30: 4 - 6



FN

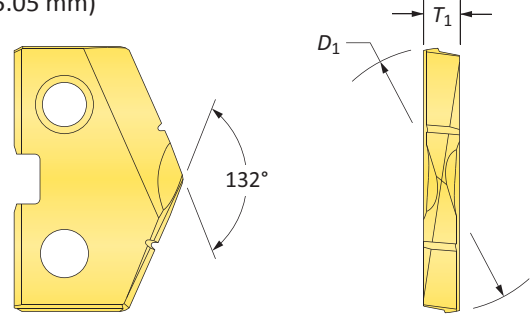
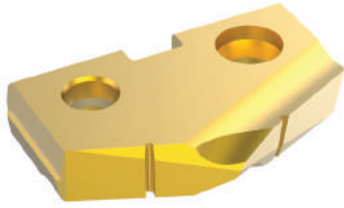
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|-------------------|---------------------|
| TiN = 1C22T-XXXX | TiAlN = 1C22A-XXXX |
| TiCN = 1C22N-XXXX | AM200® = 1C22H-XXXX |





Inserts sold in quantities of 1

T-A® Drill Inserts

2 Series | Carbide | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



Carbide Inserts – C5 (P40) | C3 (K10) | N2

| Series | Insert | | | | C5 Part No. | | C3 Part No. | N2 Part No. |
|---------|-----------------------|---------------------|-------------------|----------------|---|--|---|---|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ |  TIN |  TiAlN |  TiAlN (Cast Iron) |  Diamond Film* |
| 2 | - | 0.9646 | 24.50 | 3/16 | 1C52T-24.5 | 1C52A-24.5 | 1C32A-24.5-CI | 1N22D-24.5 |
| | 31/32 | 0.9688 | 24.61 | 3/16 | 1C52T-0031 | 1C52A-0031 | 1C32A-0031-CI | 1N22D-0031 |
| | - | 0.9760 | 24.79 | 3/16 | 1C52T-.976 | 1C52A-.976 | 1C32A-.976-CI | 1N22D-.976 |
| | 63/64 | 0.9843 | 25.00 | 3/16 | 1C52T-25 | 1C52A-25 | 1C32A-25-CI | 1N22D-25 |
| | 1 | 1.0000 | 25.40 | 3/16 | 1C52T-0100 | 1C52A-0100 | 1C32A-0100-CI | 1N22D-0100 |
| | - | 1.0039 | 25.50 | 3/16 | 1C52T-25.5 | 1C52A-25.5 | 1C32A-25.5-CI | 1N22D-25.5 |
| | 1-1/64 | 1.0156 | 25.80 | 3/16 | 1C52T-1.015 | 1C52A-1.015 | 1C32A-1.015-CI | 1N22D-1.015 |
| | - | 1.0236 | 26.00 | 3/16 | 1C52T-26 | 1C52A-26 | 1C32A-26-CI | 1N22D-26 |
| | 1-1/32 | 1.0313 | 26.19 | 3/16 | 1C52T-0101 | 1C52A-0101 | 1C32A-0101-CI | 1N22D-0101 |
| | - | 1.0433 | 26.50 | 3/16 | 1C52T-26.5 | 1C52A-26.5 | 1C32A-26.5-CI | 1N22D-26.5 |
| | 1-3/64 | 1.0469 | 26.59 | 3/16 | 1C52T-1.046 | 1C52A-1.046 | 1C32A-1.046-CI | 1N22D-1.046 |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 1C52T-0102 | 1C52A-0102 | 1C32A-0102-CI | 1N22D-0102 |
| | - | 1.0630 | 27.00 | 3/16 | 1C52T-27 | 1C52A-27 | 1C32A-27-CI | 1N22D-27 |
| | - | 1.0827 | 27.50 | 3/16 | 1C52T-27.5 | 1C52A-27.5 | 1C32A-27.5-CI | 1N22D-27.5 |
| | 1-3/32 | 1.0938 | 27.78 | 3/16 | 1C52T-0103 | 1C52A-0103 | 1C32A-0103-CI | 1N22D-0103 |
| | - | 1.1024 | 28.00 | 3/16 | 1C52T-28 | 1C52A-28 | 1C32A-28-CI | 1N22D-28 |
| | 1-7/64 | 1.1094 | 28.18 | 3/16 | 1C52T-1.109 | 1C52A-1.109 | 1C32A-1.109-CI | 1N22D-1.109 |
| | - | 1.1220 | 28.50 | 3/16 | 1C52T-28.5 | 1C52A-28.5 | 1C32A-28.5-CI | 1N22D-28.5 |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 1C52T-0104 | 1C52A-0104 | 1C32A-0104-CI | 1N22D-0104 |
| | - | 1.1417 | 29.00 | 3/16 | 1C52T-29 | 1C52A-29 | 1C32A-29-CI | 1N22D-29 |
| | 1-5/32 | 1.1563 | 29.37 | 3/16 | 1C52T-0105 | 1C52A-0105 | 1C32A-0105-CI | 1N22D-0105 |
| - | 1.1614 | 29.50 | 3/16 | 1C52T-29.5 | 1C52A-29.5 | 1C32A-29.5-CI | 1N22D-29.5 | |
| - | 1.1811 | 30.00 | 3/16 | 1C52T-30 | 1C52A-30 | 1C32A-30-CI | 1N22D-30 | |
| 1-3/16 | 1.1875 | 30.16 | 3/16 | 1C52T-0106 | 1C52A-0106 | 1C32A-0106-CI | 1N22D-0106 | |
| - | 1.2008 | 30.50 | 3/16 | 1C52T-30.5 | 1C52A-30.5 | 1C32A-30.5-CI | 1N22D-30.5 | |
| 1-7/32 | 1.2188 | 30.96 | 3/16 | 1C52T-0107 | 1C52A-0107 | 1C32A-0107-CI | 1N22D-0107 | |
| - | 1.2205 | 31.00 | 3/16 | 1C52T-31 | 1C52A-31 | 1C32A-31-CI | 1N22D-31 | |
| - | 1.2260 | 31.14 | 3/16 | 1C52T-1.226 | 1C52A-1.226 | 1C32A-1.226-CI | 1N22D-1.226 | |
| - | 1.2310 | 31.26 | 3/16 | 1C52T-1.231 | 1C52A-1.231 | 1C32A-1.231-CI | 1N22D-1.231 | |
| - | 1.2340 | 31.34 | 3/16 | 1C52T-1.234 | 1C52A-1.234 | 1C32A-1.234-CI | 1N22D-1.234 | |
| - | 1.2402 | 31.50 | 3/16 | 1C52T-31.5 | 1C52A-31.5 | 1C32A-31.5-CI | 1N22D-31.5 | |
| 1-1/4 | 1.2500 | 31.75 | 3/16 | 1C52T-0108 | 1C52A-0108 | 1C32A-0108-CI | 1N22D-0108 | |
| - | 1.2598 | 32.00 | 3/16 | 1C52T-32 | 1C52A-32 | 1C32A-32-CI | 1N22D-32 | |
| - | 1.2795 | 32.50 | 3/16 | 1C52T-32.5 | 1C52A-32.5 | 1C32A-32.5-CI | 1N22D-32.5 | |
| 1-9/32 | 1.2813 | 32.54 | 3/16 | 1C52T-0109 | 1C52A-0109 | 1C32A-0109-CI | 1N22D-0109 | |
| - | 1.2992 | 33.00 | 3/16 | 1C52T-33 | 1C52A-33 | 1C32A-33-CI | 1N22D-33 | |
| 1-5/16 | 1.3125 | 33.34 | 3/16 | 1C52T-0110 | 1C52A-0110 | 1C32A-0110-CI | 1N22D-0110 | |
| - | 1.3189 | 33.50 | 3/16 | 1C52T-33.5 | 1C52A-33.5 | 1C32A-33.5-CI | 1N22D-33.5 | |
| - | 1.3386 | 34.00 | 3/16 | 1C52T-34 | 1C52A-34 | 1C32A-34-CI | 1N22D-34 | |
| 1-11/32 | 1.3438 | 34.13 | 3/16 | 1C52T-0111 | 1C52A-0111 | 1C32A-0111-CI | 1N22D-0111 | |
| - | 1.3582 | 34.50 | 3/16 | 1C52T-34.5 | 1C52A-34.5 | 1C32A-34.5-CI | 1N22D-34.5 | |
| 1-3/8 | 1.3750 | 34.93 | 3/16 | 1C52T-0112 | 1C52A-0112 | 1C32A-0112-CI | 1N22D-0112 | |
| - | 1.3780 | 35.00 | 3/16 | 1C52T-35 | 1C52A-35 | 1C32A-35-CI | 1N22D-35 | |

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

*Diamond Film is only available in standard geometry. For additional geometries, please contact Application Engineering.

Inserts sold in quantities of 1

A30: 112 - 143

A30: 68 - 72

A30: 4 - 6

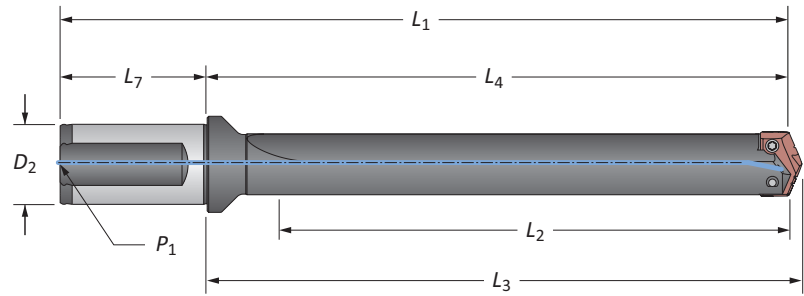
HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC, BT

Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

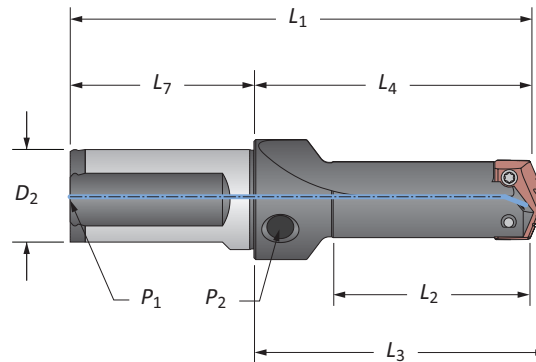
| | |
|-------------------|---------------------|
| TiN = 1C52T-XXXX | TiAlN = 1C52A-XXXX |
| TiCN = 1C52N-XXXX | AM200® = 1C52H-XXXX |

T-A® Drill Insert Holders

2 Series | Flange Shank | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



Stub Length



Straight Flute

| Series | Length | Body | | | | Shank | | | Part No. |
|--------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| 2 | Stub | 2-1/4 | 3-31/64 | 3-5/8 | 5-49/64 | 1-1/4 | 2-9/32 | 1/4 | 21020S-125F |
| | Short | 3-5/8 | 5-1/16 | 5-13/64 | 7-11/32 | 1-1/4 | 2-9/32 | 1/4 | 22020S-125F |
| | Intermediate | 5-3/8 | 7-1/16 | 7-13/64 | 9-11/32 | 1-1/4 | 2-9/32 | 1/4 | 23020S-125F |
| | Standard | 7-3/8 | 9-1/16 | 9-13/64 | 11-11/32 | 1-1/4 | 2-9/32 | 1/4 | 24020S-125F |
| | Extended | 11-3/8 | 13-1/16 | 13-13/64 | 15-11/32 | 1-1/4 | 2-9/32 | 1/4 | 25020S-125F |
| 2.5 | Stub | 3-3/8 | 4-55/64 | 5 | 7-9/64 | 1-1/4 | 2-9/32 | 1/4 | 21025S-125F |
| | Short | 3-5/8 | 5-1/16 | 5-13/64 | 7-11/32 | 1-1/4 | 2-9/32 | 1/4 | 22025S-125F |
| | Intermediate | 5-3/8 | 7-1/16 | 7-13/64 | 9-11/32 | 1-1/4 | 2-9/32 | 1/4 | 23025S-125F |
| | Standard | 7-3/8 | 9-1/16 | 9-13/64 | 11-11/32 | 1-1/4 | 2-9/32 | 1/4 | 24025S-125F |
| | Extended | 11-3/8 | 13-1/16 | 13-13/64 | 15-11/32 | 1-1/4 | 2-9/32 | 1/4 | 25025S-125F |
| 2 | Stub | 57.2 | 88.5 | 92.1 | 148.5 | 32.0 | 60.0 | 1/4* | 21020S-32FM |
| | Short | 85.7 | 128.6 | 132.2 | 188.6 | 32.0 | 60.0 | 1/4* | 22020S-32FM |
| | XL | 511.0 | 554.1 | 557.7 | 614.1 | 32.0 | 60.0 | 1/4* | 27020S-32FM |
| | 3XL | 692.0 | 735.1 | 738.7 | 795.1 | 32.0 | 60.0 | 1/4* | 29020S-32FM |
| | 2.5 | Stub | 85.7 | 123.4 | 127.0 | 183.4 | 32.0 | 60.0 | 1/4* |
| Short | | 85.7 | 128.6 | 132.2 | 188.6 | 32.0 | 60.0 | 1/4* | 22025S-32FM |

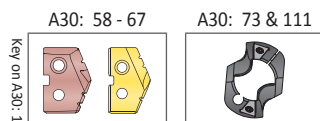
*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/8" side pipe tap (P₂)

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



Key on A30: 1

i = Imperial (in)

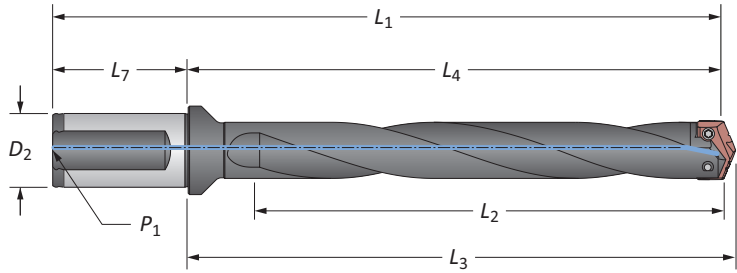
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

2 Series | Flange Shank | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



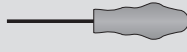
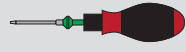



Helical Flute

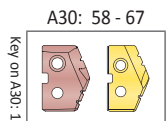
| Series | Length | Body | | | | Shank | | | Part No. | |
|----------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|---------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| i | 2 | Intermediate | 5-3/8 | 7-1/16 | 7-13/64 | 9-11/32 | 1-1/4 | 2-9/32 | 1/4 | 23020H-125F |
| | | Standard | 7-3/8 | 9-1/16 | 9-13/64 | 11-11/32 | 1-1/4 | 2-9/32 | 1/4 | 24020H-125F |
| | | Standard Plus | 9-3/8 | 11-1/16 | 11-13/64 | 13-31/64 | 1-1/4 | 2-9/32 | 1/4 | ⚠ 24520H-125F |
| | | Extended | 11-3/8 | 13-1/16 | 13-13/64 | 15-11/32 | 1-1/4 | 2-9/32 | 1/4 | ⚠ 25020H-125F |
| | | Long | 16-1/8 | 17-53/64 | 7-31/32 | 20-1/4 | 1-1/4 | 2-9/32 | 1/4 | ⚠ 26020H-125F |
| 2.5 | 2.5 | Intermediate | 5-3/8 | 7-1/16 | 7-13/64 | 9-11/32 | 1-1/4 | 2-9/32 | 1/4 | 23025H-125F |
| | | Standard | 7-3/8 | 9-1/16 | 9-13/64 | 11-11/32 | 1-1/4 | 2-9/32 | 1/4 | 24025H-125F |
| | | Extended | 11-3/8 | 13-1/16 | 13-13/64 | 15-11/32 | 1-1/4 | 2-9/32 | 1/4 | ⚠ 25025H-125F |
| ii | 2 | Intermediate | 136.5 | 179.4 | 183.0 | 239.4 | 32.0 | 60.0 | 1/4* | 23020H-32FM |
| | | Standard | 187.3 | 230.2 | 233.8 | 290.2 | 32.0 | 60.0 | 1/4* | 24020H-32FM |
| | | Standard Plus | 238.0 | 280.9 | 284.5 | 340.9 | 32.0 | 60.0 | 1/4* | ⚠ 24520H-32FM |
| | | Extended | 288.9 | 331.8 | 335.4 | 391.8 | 32.0 | 60.0 | 1/4* | ⚠ 25020H-32FM |
| | | Long | 410.0 | 452.9 | 456.5 | 512.9 | 32.0 | 60.0 | 1/4* | ⚠ 26020H-32FM |
| | 2.5 | 2.5 | Intermediate | 136.5 | 179.4 | 183.0 | 239.4 | 32.0 | 60.0 | 1/4* |
| Standard | | | 187.3 | 230.2 | 233.8 | 290.2 | 32.0 | 60.0 | 1/4* | 24025H-32FM |
| Extended | | | 288.9 | 331.8 | 335.4 | 391.8 | 32.0 | 60.0 | 1/4* | ⚠ 25025H-32FM |

*Metric thread to BSP and ISO 7-1

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---|--|--|---|---|-------------------------------|
|  7495-IP15-1 |  7495N-IP15-1 |  8IP-15 |  8IP-15TL |  8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



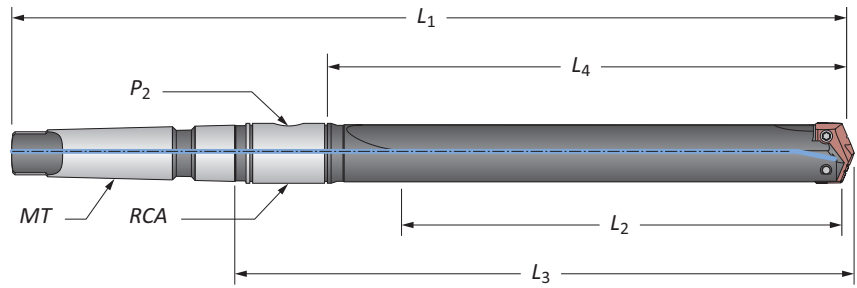
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

2 Series | Taper Shank | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



Straight Flute

| Series | Length | Body | | | | Shank | | | Part No. |
|--------|--------------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| 2 | Short | 3-3/8 | 4-1/2 | 6-15/64 | 9-25/32 | #3 | 1/8 | 2T-3SR | 22020S-003I |
| | Short | 3-3/8 | 4-1/2 | 6-19/64 | 10-25/32 | #4 | 1/8 | 2T-3SR | 22020S-004I |
| | Intermediate | 5-3/8 | 6-1/2 | 8-19/64 | 12-25/32 | #4 | 1/8 | 2T-3SR | 23020S-004I |
| | Standard | 7-3/8 | 8-1/2 | 10-15/64 | 13-25/32 | #3 | 1/8 | 2T-3SR | 24020S-003I |
| | Standard | 7-3/8 | 8-1/2 | 10-19/64 | 14-25/32 | #4 | 1/8 | 2T-3SR | 24020S-004I |
| 2.5 | Extended | 11-3/8 | 12-1/2 | 14-15/64 | 18-25/32 | #4 | 1/4 | 2T-3SR | 25020S-004I |
| | Short | 3-3/8 | 4-1/2 | 6-15/64 | 9-25/32 | #3 | 1/8 | 2T-3SR | 22025S-003I |
| | Short | 3-3/8 | 4-1/2 | 6-37/64 | 11-1/16 | #4 | 1/4 | 2T-4SR | 22025S-004I |
| | Intermediate | 5-3/8 | 6-1/2 | 8-37/64 | 13-1/16 | #4 | 1/4 | 2T-4SR | 23025S-004I |
| | Standard | 7-3/8 | 8-1/2 | 10-15/64 | 13-25/32 | #3 | 1/8 | 2T-3SR | 24025S-003I |
| | Standard | 7-3/8 | 8-1/2 | 10-37/64 | 15-1/16 | #4 | 1/8 | 2T-4SR | 24025S-004I |
| 2 | Extended | 11-3/8 | 12-1/2 | 14-37/64 | 19-1/16 | #4 | 1/4 | 2T-4SR | 25025S-004I |
| | Short | 92.1 | 114.3 | 142.5 | 273.8 | #4** | 1/8* | 2T-3SRM | 22020S-004M |
| 2.5 | Short | 92.1 | 114.3 | 142.5 | 281.0 | #4** | 1/4* | 2T-4SRM | 22025S-004M |

*Metric thread to BSP and ISO 7-1

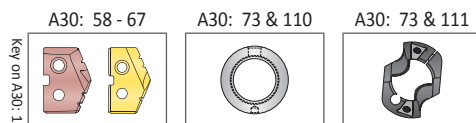
**Per ISO 296 type BEK

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



Key on A30: 1

i = Imperial (in)

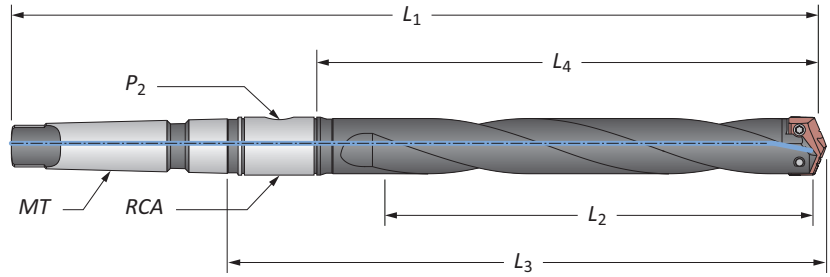
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

2 Series | Taper Shank | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



Helical Flute

| Series | Length | Body | | | | Shank | | | Part No. | |
|--------|--------|----------------|----------------|----------------|----------------|----------|----------------|------|----------|---------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | | |
| i | 2 | Intermediate | 5-3/8 | 6-1/2 | 8-19/64 | 12-25/32 | #4 | 1/8 | 2T-3SR | 23020H-004I |
| | | Standard | 7-3/8 | 8-1/2 | 10-15/64 | 13-25/32 | #3 | 1/8 | 2T-3SR | 24020H-003I |
| | | Standard | 7-3/8 | 8-1/2 | 10-19/64 | 14-25/32 | #4 | 1/8 | 2T-3SR | 24020H-004I |
| | | Extended | 11-3/8 | 12-1/2 | 14-15/64 | 18-25/32 | #4 | 1/8 | 2T-3SR | ⚠ 25020H-004I |
| i | 2.5 | Intermediate | 5-3/8 | 6-1/2 | 8-37/64 | 13-1/16 | #4 | 1/4 | 2T-4SR | 23025H-004I |
| | | Standard | 7-3/8 | 8-1/2 | 10-15/64 | 13-25/32 | #3 | 1/8 | 2T-3SR | 24025H-003I |
| | | Standard | 7-3/8 | 8-1/2 | 10-37/64 | 15-1/16 | #4 | 1/4 | 2T-4SR | 24025H-004I |
| | | Extended | 11-3/8 | 12-1/2 | 14-37/64 | 19-1/16 | #4 | 1/4 | 2T-4SR | ⚠ 25025H-004I |
| m | 2 | Intermediate | 136.5 | 165.1 | 211.2 | 324.6 | #4** | 1/8* | 2T-3SRM | 23020H-004M |
| | | Standard | 187.3 | 215.9 | 262.0 | 375.4 | #4** | 1/8* | 2T-3SRM | 24020H-004M |
| | | Extended | 289.0 | 317.5 | 363.6 | 477.0 | #4** | 1/8* | 2T-3SRM | ⚠ 25020H-004M |
| | 2.5 | Intermediate | 136.5 | 165.1 | 218.4 | 331.8 | #4** | 1/4* | 2T-4SRM | 23025H-004M |
| | | Standard | 187.3 | 215.9 | 269.2 | 382.6 | #4** | 1/4* | 2T-4SRM | 24025H-004M |
| | | Extended | 289.0 | 317.5 | 370.8 | 484.2 | #4** | 1/4* | 2T-4SRM | ⚠ 25025H-004M |

*Metric thread to BSP and ISO 7-1

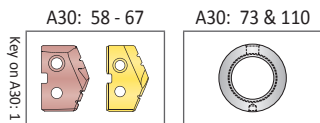
**Per ISO 296 type BEK

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)
m = Metric (mm)

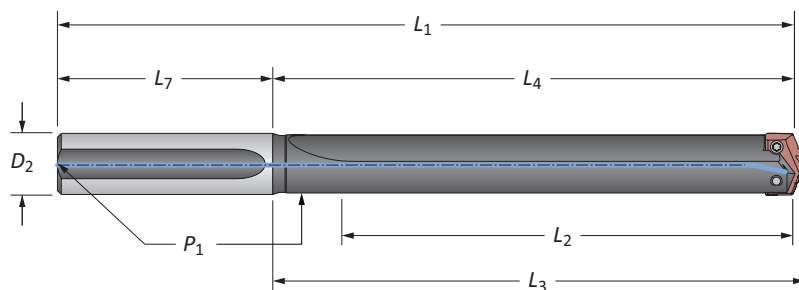
Screws sold in quantities of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Drill Insert Holders

2 Series | Straight Shank | Diameter Range: 0.961" - 1.380" (24.41 mm - 35.05 mm)



Straight Flute

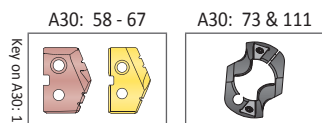
| Series | Length | Body | | | | Shank | | | Part No. |
|--------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| 2 | Short | 3-3/8 | 4-1/2 | 4-41/64 | 8 | 1 | 3-1/2 | 1/8 | 22020S-100L |
| | Short | 3-3/8 | 4-1/2 | 4-41/64 | 8 | 1-1/4 | 3-1/2 | 1/8 | 22020S-125L |
| | Intermediate | 5-3/8 | 6-1/2 | 6-41/64 | 10 | 1-1/4 | 3-1/2 | 1/8 | 23020S-125L |
| | Standard | 7-3/8 | 8-1/2 | 8-41/64 | 12 | 1 | 3-1/2 | 1/8 | 24020S-100L |
| | Standard | 7-3/8 | 8-1/2 | 8-41/64 | 12 | 1-1/4 | 3-1/2 | 1/8 | 24020S-125L |
| | Extended | 11-3/8 | 12-1/2 | 12-41/64 | 16 | 1-1/4 | 3-1/2 | 1/8 | 25020S-125L |
| | XL | 20-1/8 | 21-1/4 | 21-25/64 | 24-3/4 | 1-1/4 | 3-1/2 | 1/8 | 27020S-125L |
| 2.5 | 3XL | 27-1/4 | 28-3/8 | 28-33/64 | 31-7/8 | 1-1/4 | 3-1/2 | 1/8 | 29020S-125L |
| | Short | 3-3/8 | 4-1/2 | 4-41/64 | 8 | 1 | 3-1/2 | 1/8* | 22025S-100L |
| | Short | 3-3/8 | 4-1/2 | 4-41/64 | 8 | 1-1/4 | 3-1/2 | 1/8* | 22025S-125L |
| | Intermediate | 5-3/8 | 6-1/2 | 6-41/64 | 10 | 1-1/4 | 3-1/2 | 1/8* | 23025S-125L |
| | Standard | 7-3/8 | 8-1/2 | 8-41/64 | 12 | 1 | 3-1/2 | 1/8* | 24025S-100L |
| | Standard | 7-3/8 | 8-1/2 | 8-41/64 | 12 | 1-1/4 | 3-1/2 | 1/8* | 24025S-125L |
| | Extended | 11-3/8 | 12-1/2 | 12-41/64 | 16 | 1-1/4 | 3-1/2 | 1/8* | 25025S-125L |

NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

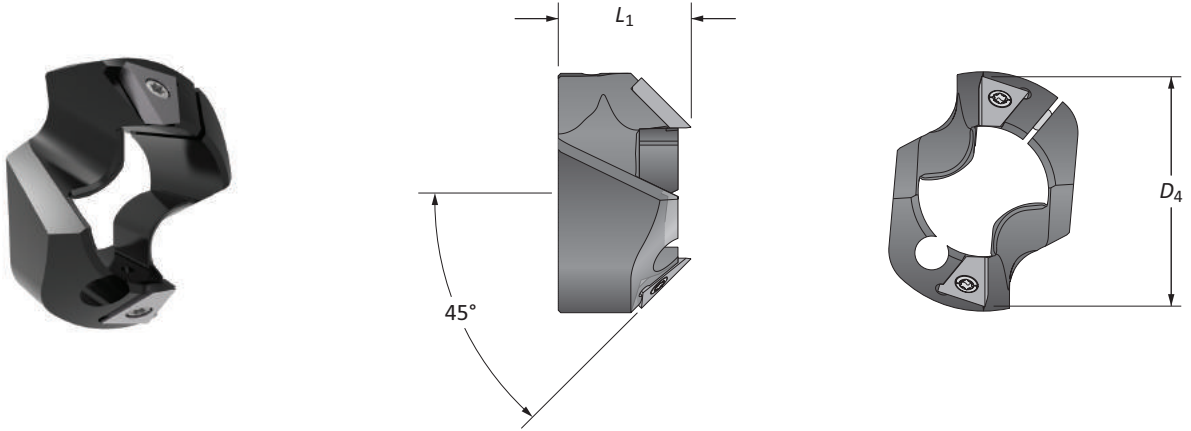
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Accessories

2 Series | Chamfer Rings | Rotary Coolant Adapters | Torx® Plus Screws

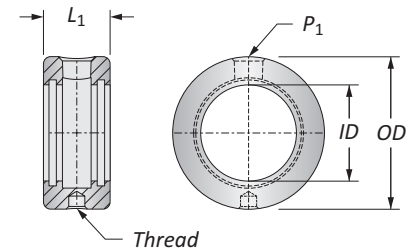


T-ACR 45 Chamfer Ring

| Holder Series | D ₁ Range | Chamfer Ring | | Part No. | Insert Part No. | Insert Screw | Insert Driver | Clamping Screw | Insert Driver |
|---------------|----------------------|----------------|----------------|------------|-----------------|--------------|---------------|----------------|---------------|
| | | D ₄ | L ₁ | | | | | | |
| 2 | 0.9610 - 1.3800 | 1-9/16 | 1 | T-ACR-45-2 | T-ACRI-45-B-C5A | 7255-IP8-1 | 8IP-8 | 7514-IP20-1 | 8IP-20 |

Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No. | RCA O-Rings | |
|----|-------|----------------|--------------------|----------------|-----------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| 1 | 2-1/8 | 1-1/8 | 5/16-18 | 1/8 | ▲ 2T-3SR | 2T1-3SR | 2T1-3OR-10 |
| | 1-1/4 | 2-1/2 | 3/8-16 | 1/4 | ▲ 2T-4SR | 2T1-4SR | 2T1-4OR-10 |
| m | 25.40 | 53.97 | M8 x 1.25 | 1/8* | ▲ 2T-3SRM | 2T1-3SR | 2T1-3OR-10 |
| | 31.75 | 63.50 | M10 x 1.50 | 1/4* | ▲ 2T-4SRM | 2T1-4SR | 2T1-4OR-10 |



*Thread to BSP and ISO 7-1

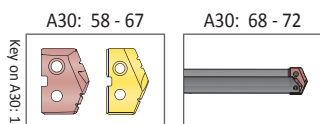
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

▲ Refer to page A30: 110 for proper RCA assembly and safety information

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



Key on A30: 1

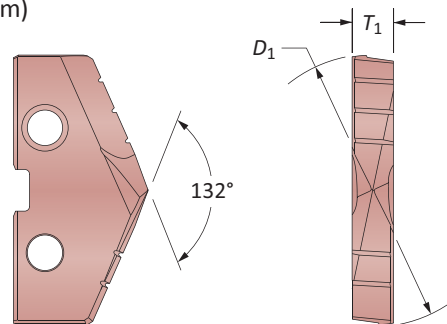
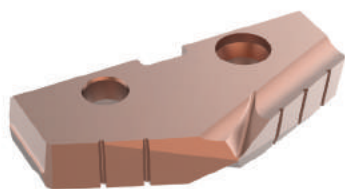
1 = Imperial (in)
m = Metric (mm)

Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

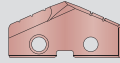

WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.

GEN2 T-A® Drill Inserts

3 Series | HSS | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)



HSS Inserts – Premium Cobalt

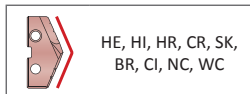
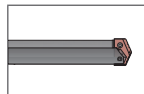
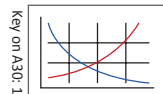
| Fractional Equivalent | Insert | | | Part No. | |
|-----------------------|------------|----------|-------|--|---|
| | D_1 inch | D_1 mm | T_1 |  AM200® |  TiN |
| 1-13/32 | 1.4063 | 35.72 | 1/4 | 483H-0113 | 483T-0113 |
| – | 1.4173 | 36.00 | 1/4 | 483H-36 | 483T-36 |
| 1-7/16 | 1.4375 | 36.51 | 1/4 | 483H-0114 | 483T-0114 |
| – | 1.4567 | 37.00 | 1/4 | 483H-37 | 483T-37 |
| 1-15/32 | 1.4688 | 37.31 | 1/4 | 483H-0115 | 483T-0115 |
| – | 1.4961 | 38.00 | 1/4 | 483H-38 | 483T-38 |
| 1-1/2 | 1.5000 | 38.10 | 1/4 | 483H-0116 | 483T-0116 |
| 1-17/32 | 1.5313 | 38.89 | 1/4 | 483H-0117 | 483T-0117 |
| – | 1.5354 | 39.00 | 1/4 | 483H-39 | 483T-39 |
| – | 1.5470 | 39.29 | 1/4 | 483H-1.547 | 483T-1.547 |
| 1-9/16 | 1.5625 | 39.69 | 1/4 | 483H-0118 | 483T-0118 |
| – | 1.5748 | 40.00 | 1/4 | 483H-40 | 483T-40 |
| 1-19/32 | 1.5938 | 40.48 | 1/4 | 483H-0119 | 483T-0119 |
| – | 1.6142 | 41.00 | 1/4 | 483H-41 | 483T-41 |
| 1-5/8 | 1.6250 | 41.28 | 1/4 | 483H-0120 | 483T-0120 |
| – | 1.6535 | 42.00 | 1/4 | 483H-42 | 483T-42 |
| 1-21/32 | 1.6563 | 42.07 | 1/4 | 483H-0121 | 483T-0121 |
| 1-11/16 | 1.6875 | 42.86 | 1/4 | 483H-0122 | 483T-0122 |
| – | 1.6929 | 43.00 | 1/4 | 483H-43 | 483T-43 |
| 1-23/32 | 1.7188 | 43.66 | 1/4 | 483H-0123 | 483T-0123 |
| – | 1.7323 | 44.00 | 1/4 | 483H-44 | 483T-44 |
| 1-3/4 | 1.7500 | 44.45 | 1/4 | 483H-0124 | 483T-0124 |
| – | 1.7717 | 45.00 | 1/4 | 483H-45 | 483T-45 |
| 1-25/32 | 1.7813 | 45.24 | 1/4 | 483H-0125 | 483T-0125 |
| – | 1.7913 | 45.50 | 1/4 | 483H-45.5 | 483T-45.5 |
| – | 1.7970 | 45.64 | 1/4 | 483H-1.797 | 483T-1.797 |
| – | 1.8110 | 46.00 | 1/4 | 483H-46 | 483T-46 |
| 1-13/16 | 1.8125 | 46.04 | 1/4 | 483H-0126 | 483T-0126 |
| 1-27/32 | 1.8438 | 46.83 | 1/4 | 483H-0127 | 483T-0127 |
| – | 1.8504 | 47.00 | 1/4 | 483H-47 | 483T-47 |
| 1-7/8 | 1.8750 | 47.63 | 1/4 | 483H-0128 | 483T-0128 |

Inserts sold in quantities of 1

A30: 112 - 143

A30: 82 - 85

A30: 4 - 6

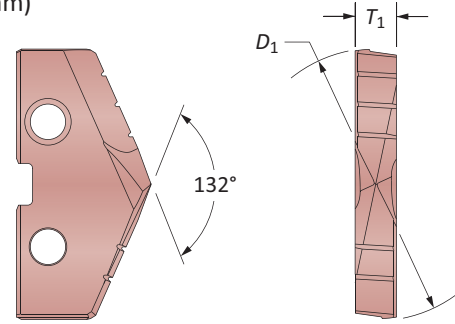
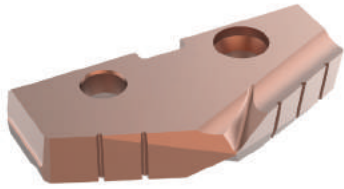


Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

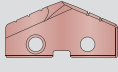
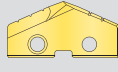
| | |
|------------------|--------------------|
| TiN = 483T-XXXX | TiAlN = 483A-XXXX |
| TiCN = 483N-XXXX | AM200® = 483H-XXXX |

GEN2 T-A® Drill Inserts

3 Series | HSS | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)

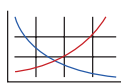


HSS Inserts – Super Cobalt


| Fractional Equivalent | Insert | | | Part No. | |
|-----------------------|------------|----------|-------|--|---|
| | D_1 inch | D_1 mm | T_1 |  AM200® |  TiN |
| 1-13/32 | 1.4063 | 35.72 | 1/4 | 453H-0113 | 453T-0113 |
| - | 1.4173 | 36.00 | 1/4 | 453H-36 | 453T-36 |
| 1-7/16 | 1.4375 | 36.51 | 1/4 | 453H-0114 | 453T-0114 |
| - | 1.4567 | 37.00 | 1/4 | 453H-37 | 453T-37 |
| 1-15/32 | 1.4688 | 37.31 | 1/4 | 453H-0115 | 453T-0115 |
| - | 1.4961 | 38.00 | 1/4 | 453H-38 | 453T-38 |
| 1-1/2 | 1.5000 | 38.10 | 1/4 | 453H-0116 | 453T-0116 |
| 1-17/32 | 1.5313 | 38.89 | 1/4 | 453H-0117 | 453T-0117 |
| - | 1.5354 | 39.00 | 1/4 | 453H-39 | 453T-39 |
| - | 1.5470 | 39.29 | 1/4 | 453H-1.547 | 453T-1.547 |
| 1-9/16 | 1.5625 | 39.69 | 1/4 | 453H-0118 | 453T-0118 |
| - | 1.5748 | 40.00 | 1/4 | 453H-40 | 453T-40 |
| 1-19/32 | 1.5938 | 40.48 | 1/4 | 453H-0119 | 453T-0119 |
| - | 1.6142 | 41.00 | 1/4 | 453H-41 | 453T-41 |
| 1-5/8 | 1.6250 | 41.28 | 1/4 | 453H-0120 | 453T-0120 |
| - | 1.6535 | 42.00 | 1/4 | 453H-42 | 453T-42 |
| 1-21/32 | 1.6563 | 42.07 | 1/4 | 453H-0121 | 453T-0121 |
| 1-11/16 | 1.6875 | 42.86 | 1/4 | 453H-0122 | 453T-0122 |
| - | 1.6929 | 43.00 | 1/4 | 453H-43 | 453T-43 |
| 1-23/32 | 1.7188 | 43.66 | 1/4 | 453H-0123 | 453T-0123 |
| - | 1.7323 | 44.00 | 1/4 | 453H-44 | 453T-44 |
| 1-3/4 | 1.7500 | 44.45 | 1/4 | 453H-0124 | 453T-0124 |
| - | 1.7717 | 45.00 | 1/4 | 453H-45 | 453T-45 |
| 1-25/32 | 1.7813 | 45.24 | 1/4 | 453H-0125 | 453T-0125 |
| - | 1.7913 | 45.50 | 1/4 | 453H-45.5 | 453T-45.5 |
| - | 1.7970 | 45.64 | 1/4 | 453H-1.797 | 453T-1.797 |
| - | 1.8110 | 46.00 | 1/4 | 453H-46 | 453T-46 |
| 1-13/16 | 1.8125 | 46.04 | 1/4 | 453H-0126 | 453T-0126 |
| 1-27/32 | 1.8438 | 46.83 | 1/4 | 453H-0127 | 453T-0127 |
| - | 1.8504 | 47.00 | 1/4 | 453H-47 | 453T-47 |
| 1-7/8 | 1.8750 | 47.63 | 1/4 | 453H-0128 | 453T-0128 |

Key on A30-1


A30: 112 - 143



A30: 82 - 85



A30: 4 - 6



HE, HI, HR, CR, SK,
BR, CI, NC, WC

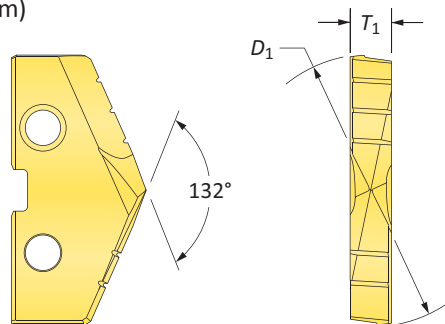
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 453T-XXXX | TiAlN = 453A-XXXX |
| TiCN = 453N-XXXX | AM200® = 453H-XXXX |

Inserts sold in quantities of 1

GEN2 T-A® Drill Inserts

3 Series | HSS | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)

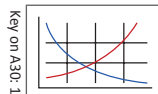


HSS Inserts – HSS

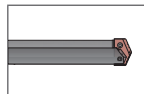
| Fractional Equivalent | Insert | | | Part No. |
|-----------------------|------------|----------|-------|------------|
| | D_1 inch | D_1 mm | T_1 | |
| 1-13/32 | 1.4063 | 35.72 | 1/4 | 433T-0113 |
| - | 1.4173 | 36.00 | 1/4 | 433T-36 |
| 1-7/16 | 1.4375 | 36.51 | 1/4 | 433T-0114 |
| - | 1.4567 | 37.00 | 1/4 | 433T-37 |
| 1-15/32 | 1.4688 | 37.31 | 1/4 | 433T-0115 |
| - | 1.4961 | 38.00 | 1/4 | 433T-38 |
| 1-1/2 | 1.5000 | 38.10 | 1/4 | 433T-0116 |
| 1-17/32 | 1.5313 | 38.89 | 1/4 | 433T-0117 |
| - | 1.5354 | 39.00 | 1/4 | 433T-39 |
| - | 1.5470 | 39.29 | 1/4 | 433T-1.547 |
| 1-9/16 | 1.5625 | 39.69 | 1/4 | 433T-0118 |
| - | 1.5748 | 40.00 | 1/4 | 433T-40 |
| 1-19/32 | 1.5938 | 40.48 | 1/4 | 433T-0119 |
| - | 1.6142 | 41.00 | 1/4 | 433T-41 |
| 1-5/8 | 1.6250 | 41.28 | 1/4 | 433T-0120 |
| - | 1.6535 | 42.00 | 1/4 | 433T-42 |
| 1-21/32 | 1.6563 | 42.07 | 1/4 | 433T-0121 |
| 1-11/16 | 1.6875 | 42.86 | 1/4 | 433T-0122 |
| - | 1.6929 | 43.00 | 1/4 | 433T-43 |
| 1-23/32 | 1.7188 | 43.66 | 1/4 | 433T-0123 |
| - | 1.7323 | 44.00 | 1/4 | 433T-44 |
| 1-3/4 | 1.7500 | 44.45 | 1/4 | 433T-0124 |
| - | 1.7717 | 45.00 | 1/4 | 433T-45 |
| 1-25/32 | 1.7813 | 45.24 | 1/4 | 433T-0125 |
| - | 1.7913 | 45.50 | 1/4 | 433T-45.5 |
| - | 1.7970 | 45.64 | 1/4 | 433T-1.797 |
| - | 1.8110 | 46.00 | 1/4 | 433T-46 |
| 1-13/16 | 1.8125 | 46.04 | 1/4 | 433T-0126 |
| 1-27/32 | 1.8438 | 46.83 | 1/4 | 433T-0127 |
| - | 1.8504 | 47.00 | 1/4 | 433T-47 |
| 1-7/8 | 1.8750 | 47.63 | 1/4 | 433T-0128 |

Inserts sold in quantities of 1

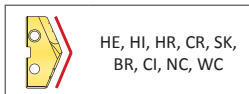
A30: 112 - 143



A30: 82 - 85



A30: 4 - 6



Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

TiN = 433T-XXXX

TiAlN = 433A-XXXX

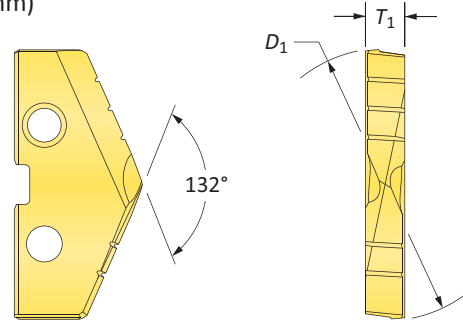
TiCN = 433N-XXXX

AM200® = 433H-XXXX



T-A® Drill Inserts

3 Series | HSS | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)



HSS Inserts – Super Cobalt

| Fractional Equivalent | Insert | | | Part No. |
|-----------------------|---------------------|-------------------|----------------|------------|
| | D ₁ inch | D ₁ mm | T ₁ | |
| 1-13/32 | 1.4063 | 35.72 | 1/4 | 153T-0113 |
| - | 1.4173 | 36.00 | 1/4 | 153T-36 |
| 1-7/16 | 1.4375 | 36.51 | 1/4 | 153T-0114 |
| - | 1.4567 | 37.00 | 1/4 | 153T-37 |
| 1-15/32 | 1.4688 | 37.31 | 1/4 | 153T-0115 |
| - | 1.4961 | 38.00 | 1/4 | 153T-38 |
| 1-1/2 | 1.5000 | 38.10 | 1/4 | 153T-0116 |
| 1-17/32 | 1.5313 | 38.89 | 1/4 | 153T-0117 |
| - | 1.5354 | 39.00 | 1/4 | 153T-39 |
| - | 1.5470 | 39.29 | 1/4 | 153T-1.547 |
| 1-9/16 | 1.5625 | 39.69 | 1/4 | 153T-0118 |
| - | 1.5748 | 40.00 | 1/4 | 153T-40 |
| 1-19/32 | 1.5938 | 40.48 | 1/4 | 153T-0119 |
| - | 1.6142 | 41.00 | 1/4 | 153T-41 |
| 1-5/8 | 1.6250 | 41.28 | 1/4 | 153T-0120 |
| - | 1.6535 | 42.00 | 1/4 | 153T-42 |
| 1-21/32 | 1.6563 | 42.07 | 1/4 | 153T-0121 |
| 1-11/16 | 1.6875 | 42.86 | 1/4 | 153T-0122 |
| - | 1.6929 | 43.00 | 1/4 | 153T-43 |
| 1-23/32 | 1.7188 | 43.66 | 1/4 | 153T-0123 |
| - | 1.7323 | 44.00 | 1/4 | 153T-44 |
| 1-3/4 | 1.7500 | 44.45 | 1/4 | 153T-0124 |
| - | 1.7717 | 45.00 | 1/4 | 153T-45 |
| 1-25/32 | 1.7813 | 45.24 | 1/4 | 153T-0125 |
| - | 1.7913 | 45.50 | 1/4 | 153T-45.5 |
| - | 1.7970 | 45.64 | 1/4 | 153T-1.797 |
| - | 1.8110 | 46.00 | 1/4 | 153T-46 |
| 1-13/16 | 1.8125 | 46.04 | 1/4 | 153T-0126 |
| 1-27/32 | 1.8438 | 46.83 | 1/4 | 153T-0127 |
| - | 1.8504 | 47.00 | 1/4 | 153T-47 |
| 1-7/8 | 1.8750 | 47.63 | 1/4 | 153T-0128 |

A30: 112 - 143 A30: 82 - 85 A30: 4 - 6

HI, HR, CR, SK, BR, CI, NC, WC, TC, CN, IN, NP, RN

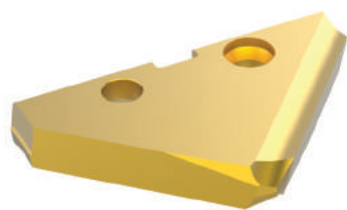
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1

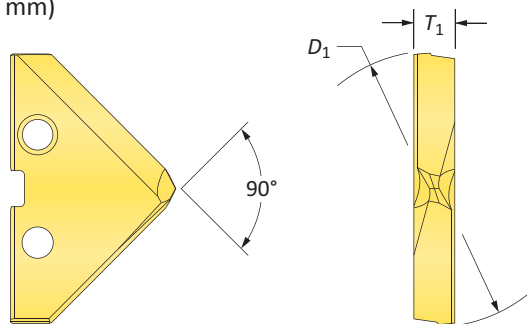
| | |
|------------------|--------------------|
| TiN = 153T-XXXX | TiAlN = 153A-XXXX |
| TiCN = 153N-XXXX | AM200® = 153H-XXXX |

T-A® Drill Inserts




3 Series | HSS | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)



90° Spot & Chamfer



HSS Inserts – Super Cobalt

| Fractional Equivalent | Insert | | | Part No. | | |
|-----------------------|------------|----------|-------|--|---|--|
| | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |  TiCN |
| 1-13/32 | 1.4063 | 35.72 | 1/4 | 153T-0113-SP | 153A-0113-SP | 153N-0113-SP |
| – | 1.4173 | 36.00 | 1/4 | 153T-36-SP | 153A-36-SP | 153N-36-SP |
| 1-7/16 | 1.4375 | 36.51 | 1/4 | 153T-0114-SP | 153A-0114-SP | 153N-0114-SP |
| – | 1.4567 | 37.00 | 1/4 | 153T-37-SP | 153A-37-SP | 153N-37-SP |
| 1-15/32 | 1.4688 | 37.31 | 1/4 | 153T-0115-SP | 153A-0115-SP | 153N-0115-SP |
| – | 1.4961 | 38.00 | 1/4 | 153T-38-SP | 153A-38-SP | 153N-38-SP |
| 1-1/2 | 1.5000 | 38.10 | 1/4 | 153T-0116-SP | 153A-0116-SP | 153N-0116-SP |
| 1-17/32 | 1.5313 | 38.89 | 1/4 | 153T-0117-SP | 153A-0117-SP | 153N-0117-SP |
| – | 1.5354 | 39.00 | 1/4 | 153T-39-SP | 153A-39-SP | 153N-39-SP |
| – | 1.5470 | 39.29 | 1/4 | 153T-1.547-SP | 153A-1.547-SP | 153N-1.547-SP |
| 1-9/16 | 1.5625 | 39.69 | 1/4 | 153T-0118-SP | 153A-0118-SP | 153N-0118-SP |
| – | 1.5748 | 40.00 | 1/4 | 153T-40-SP | 153A-40-SP | 153N-40-SP |
| 1-19/32 | 1.5938 | 40.48 | 1/4 | 153T-0119-SP | 153A-0119-SP | 153N-0119-SP |
| – | 1.6142 | 41.00 | 1/4 | 153T-41-SP | 153A-41-SP | 153N-41-SP |
| 1-5/8 | 1.6250 | 41.28 | 1/4 | 153T-0120-SP | 153A-0120-SP | 153N-0120-SP |
| – | 1.6535 | 42.00 | 1/4 | 153T-42-SP | 153A-42-SP | 153N-42-SP |
| 1-21/32 | 1.6563 | 42.07 | 1/4 | 153T-0121-SP | 153A-0121-SP | 153N-0121-SP |
| 1-11/16 | 1.6875 | 42.86 | 1/4 | 153T-0122-SP | 153A-0122-SP | 153N-0122-SP |
| – | 1.6929 | 43.00 | 1/4 | 153T-43-SP | 153A-43-SP | 153N-43-SP |
| 1-23/32 | 1.7188 | 43.66 | 1/4 | 153T-0123-SP | 153A-0123-SP | 153N-0123-SP |
| – | 1.7323 | 44.00 | 1/4 | 153T-44-SP | 153A-44-SP | 153N-44-SP |
| 1-3/4 | 1.7500 | 44.45 | 1/4 | 153T-0124-SP | 153A-0124-SP | 153N-0124-SP |
| – | 1.7717 | 45.00 | 1/4 | 153T-45-SP | 153A-45-SP | 153N-45-SP |
| 1-25/32 | 1.7813 | 45.24 | 1/4 | 153T-0125-SP | 153A-0125-SP | 153N-0125-SP |
| – | 1.7913 | 45.50 | 1/4 | 153T-45.5-SP | 153A-45.5-SP | 153N-45.5-SP |
| – | 1.7970 | 45.64 | 1/4 | 153T-1.797-SP | 153A-1.797-SP | 153N-1.797-SP |
| – | 1.8110 | 46.00 | 1/4 | 153T-46-SP | 153A-46-SP | 153N-46-SP |
| 1-13/16 | 1.8125 | 46.04 | 1/4 | 153T-0126-SP | 153A-0126-SP | 153N-0126-SP |
| 1-27/32 | 1.8438 | 46.83 | 1/4 | 153T-0127-SP | 153A-0127-SP | 153N-0127-SP |
| – | 1.8504 | 47.00 | 1/4 | 153T-47-SP | 153A-47-SP | 153N-47-SP |
| 1-7/8 | 1.8750 | 47.63 | 1/4 | 153T-0128-SP | 153A-0128-SP | 153N-0128-SP |

Inserts sold in quantities of 1

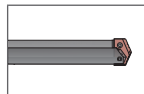
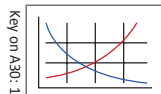
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 153T-XXXX | TiAlN = 153A-XXXX |
| TiCN = 153N-XXXX | AM200® = 153H-XXXX |

A30: 112 - 143

A30: 82 - 85

A30: 4 - 6

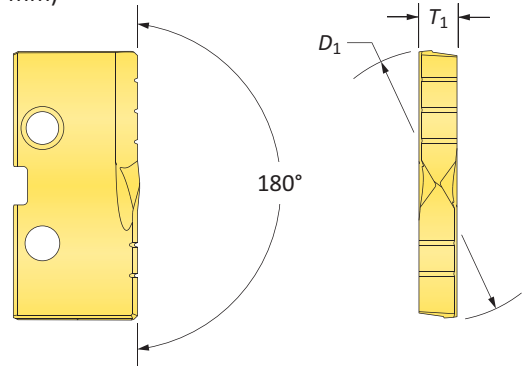


T-A® Drill Inserts

3 Series | HSS | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)



Flat Bottom



HSS Inserts – Super Cobalt

| Fractional Equivalent | Insert | | | Part No. |
|-----------------------|---------------------|-------------------|----------------|---------------|
| | D ₁ inch | D ₁ mm | T ₁ | |
| 1-13/32 | 1.4063 | 35.72 | 1/4 | 153T-0113-FB |
| - | 1.4173 | 36.00 | 1/4 | 153T-36-FB |
| 1-7/16 | 1.4375 | 36.51 | 1/4 | 153T-0114-FB |
| - | 1.4567 | 37.00 | 1/4 | 153T-37-FB |
| 1-15/32 | 1.4688 | 37.31 | 1/4 | 153T-0115-FB |
| - | 1.4961 | 38.00 | 1/4 | 153T-38-FB |
| 1-1/2 | 1.5000 | 38.10 | 1/4 | 153T-0116-FB |
| 1-17/32 | 1.5313 | 38.89 | 1/4 | 153T-0117-FB |
| - | 1.5354 | 39.00 | 1/4 | 153T-39-FB |
| - | 1.5470 | 39.29 | 1/4 | 153T-1.547-FB |
| 1-9/16 | 1.5625 | 39.69 | 1/4 | 153T-0118-FB |
| - | 1.5748 | 40.00 | 1/4 | 153T-40-FB |
| 1-19/32 | 1.5938 | 40.48 | 1/4 | 153T-0119-FB |
| - | 1.6142 | 41.00 | 1/4 | 153T-41-FB |
| 1-5/8 | 1.6250 | 41.28 | 1/4 | 153T-0120-FB |
| - | 1.6535 | 42.00 | 1/4 | 153T-42-FB |
| 1-21/32 | 1.6563 | 42.07 | 1/4 | 153T-0121-FB |
| 1-11/16 | 1.6875 | 42.86 | 1/4 | 153T-0122-FB |
| - | 1.6929 | 43.00 | 1/4 | 153T-43-FB |
| 1-23/32 | 1.7188 | 43.66 | 1/4 | 153T-0123-FB |
| - | 1.7323 | 44.00 | 1/4 | 153T-44-FB |
| 1-3/4 | 1.7500 | 44.45 | 1/4 | 153T-0124-FB |
| - | 1.7717 | 45.00 | 1/4 | 153T-45-FB |
| 1-25/32 | 1.7813 | 45.24 | 1/4 | 153T-0125-FB |
| - | 1.7913 | 45.50 | 1/4 | 153T-45.5-FB |
| - | 1.7970 | 45.64 | 1/4 | 153T-1.797-FB |
| - | 1.8110 | 46.00 | 1/4 | 153T-46-FB |
| 1-13/16 | 1.8125 | 46.04 | 1/4 | 153T-0126-FB |
| 1-27/32 | 1.8438 | 46.83 | 1/4 | 153T-0127-FB |
| - | 1.8504 | 47.00 | 1/4 | 153T-47-FB |
| 1-7/8 | 1.8750 | 47.63 | 1/4 | 153T-0128-FB |

Key on A30-1

A30: 112 - 143

A30: 82 - 85

A30: 4 - 6

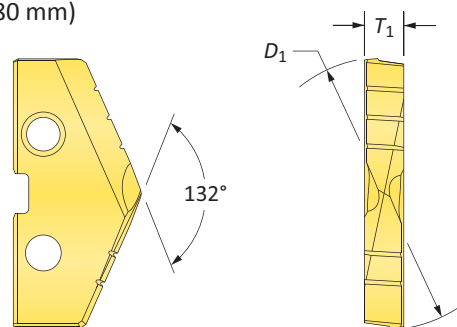
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1


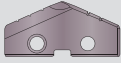
| | |
|------------------|--------------------|
| TiN = 153T-XXXX | TiAlN = 153A-XXXX |
| TiCN = 153N-XXXX | AM200® = 153H-XXXX |

T-A® Drill Inserts

3 Series | Carbide | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)



Carbide Inserts – C2 (K20)

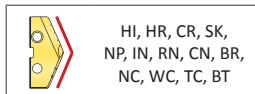
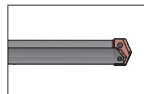
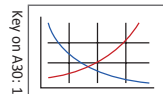
| Fractional Equivalent | Insert | | | Part No. | |
|-----------------------|------------|----------|-------|---|---|
| | D_1 inch | D_1 mm | T_1 |  TiN |  TiAlN |
| 1-13/32 | 1.4063 | 35.72 | 1/4 | 1C23T-0113 | 1C23A-0113 |
| - | 1.4173 | 36.00 | 1/4 | 1C23T-36 | 1C23A-36 |
| 1-7/16 | 1.4375 | 36.51 | 1/4 | 1C23T-0114 | 1C23A-0114 |
| - | 1.4567 | 37.00 | 1/4 | 1C23T-37 | 1C23A-37 |
| 1-15/32 | 1.4688 | 37.31 | 1/4 | 1C23T-0115 | 1C23A-0115 |
| - | 1.4961 | 38.00 | 1/4 | 1C23T-38 | 1C23A-38 |
| 1-1/2 | 1.5000 | 38.10 | 1/4 | 1C23T-0116 | 1C23A-0116 |
| 1-17/32 | 1.5313 | 38.89 | 1/4 | 1C23T-0117 | 1C23A-0117 |
| - | 1.5354 | 39.00 | 1/4 | 1C23T-39 | 1C23A-39 |
| - | 1.5470 | 39.29 | 1/4 | 1C23T-1.547 | 1C23A-1.547 |
| 1-9/16 | 1.5625 | 39.69 | 1/4 | 1C23T-0118 | 1C23A-0118 |
| - | 1.5748 | 40.00 | 1/4 | 1C23T-40 | 1C23A-40 |
| 1-19/32 | 1.5938 | 40.48 | 1/4 | 1C23T-0119 | 1C23A-0119 |
| - | 1.6142 | 41.00 | 1/4 | 1C23T-41 | 1C23A-41 |
| 1-5/8 | 1.6250 | 41.28 | 1/4 | 1C23T-0120 | 1C23A-0120 |
| - | 1.6535 | 42.00 | 1/4 | 1C23T-42 | 1C23A-42 |
| 1-21/32 | 1.6563 | 42.07 | 1/4 | 1C23T-0121 | 1C23A-0121 |
| 1-11/16 | 1.6875 | 42.86 | 1/4 | 1C23T-0122 | 1C23A-0122 |
| - | 1.6929 | 43.00 | 1/4 | 1C23T-43 | 1C23A-43 |
| 1-23/32 | 1.7188 | 43.66 | 1/4 | 1C23T-0123 | 1C23A-0123 |
| - | 1.7323 | 44.00 | 1/4 | 1C23T-44 | 1C23A-44 |
| 1-3/4 | 1.7500 | 44.45 | 1/4 | 1C23T-0124 | 1C23A-0124 |
| - | 1.7717 | 45.00 | 1/4 | 1C23T-45 | 1C23A-45 |
| 1-25/32 | 1.7813 | 45.24 | 1/4 | 1C23T-0125 | 1C23A-0125 |
| - | 1.7913 | 45.50 | 1/4 | 1C23T-45.5 | 1C23A-45.5 |
| - | 1.7970 | 45.64 | 1/4 | 1C23T-1.797 | 1C23A-1.797 |
| - | 1.8110 | 46.00 | 1/4 | 1C23T-46 | 1C23A-46 |
| 1-13/16 | 1.8125 | 46.04 | 1/4 | 1C23T-0126 | 1C23A-0126 |
| 1-27/32 | 1.8438 | 46.83 | 1/4 | 1C23T-0127 | 1C23A-0127 |
| - | 1.8504 | 47.00 | 1/4 | 1C23T-47 | 1C23A-47 |
| 1-7/8 | 1.8750 | 47.63 | 1/4 | 1C23T-0128 | 1C23A-0128 |

Inserts sold in quantities of 1

A30: 112 - 143

A30: 82 - 85

A30: 4 - 6

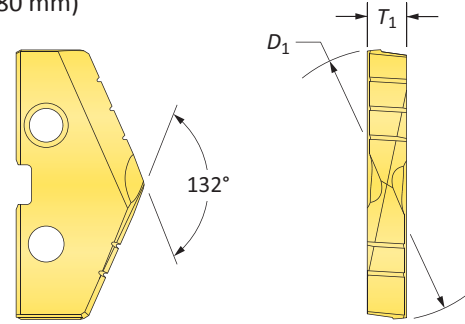


Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

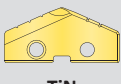

| | |
|-------------------|---------------------|
| TiN = 1C23T-XXXX | TiAlN = 1C23A-XXXX |
| TiCN = 1C23N-XXXX | AM200® = 1C23H-XXXX |

T-A® Drill Inserts

3 Series | Carbide | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)



Carbide Inserts – C5 (P40)

| Fractional Equivalent | Insert | | | Part No. | |
|-----------------------|---------------------|-------------------|----------------|---|---|
| | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiAlN |
| 1-13/32 | 1.4063 | 35.72 | 1/4 | 1C53T-0113 | 1C53A-0113 |
| - | 1.4173 | 36.00 | 1/4 | 1C53T-36 | 1C53A-36 |
| 1-7/16 | 1.4375 | 36.51 | 1/4 | 1C53T-0114 | 1C53A-0114 |
| - | 1.4567 | 37.00 | 1/4 | 1C53T-37 | 1C53A-37 |
| 1-15/32 | 1.4688 | 37.31 | 1/4 | 1C53T-0115 | 1C53A-0115 |
| - | 1.4961 | 38.00 | 1/4 | 1C53T-38 | 1C53A-38 |
| 1-1/2 | 1.5000 | 38.10 | 1/4 | 1C53T-0116 | 1C53A-0116 |
| 1-17/32 | 1.5313 | 38.89 | 1/4 | 1C53T-0117 | 1C53A-0117 |
| - | 1.5354 | 39.00 | 1/4 | 1C53T-39 | 1C53A-39 |
| - | 1.5470 | 39.29 | 1/4 | 1C53T-1.547 | 1C53A-1.547 |
| 1-9/16 | 1.5625 | 39.69 | 1/4 | 1C53T-0118 | 1C53A-0118 |
| - | 1.5748 | 40.00 | 1/4 | 1C53T-40 | 1C53A-40 |
| 1-19/32 | 1.5938 | 40.48 | 1/4 | 1C53T-0119 | 1C53A-0119 |
| - | 1.6142 | 41.00 | 1/4 | 1C53T-41 | 1C53A-41 |
| 1-5/8 | 1.6250 | 41.28 | 1/4 | 1C53T-0120 | 1C53A-0120 |
| - | 1.6535 | 42.00 | 1/4 | 1C53T-42 | 1C53A-42 |
| 1-21/32 | 1.6563 | 42.07 | 1/4 | 1C53T-0121 | 1C53A-0121 |
| 1-11/16 | 1.6875 | 42.86 | 1/4 | 1C53T-0122 | 1C53A-0122 |
| - | 1.6929 | 43.00 | 1/4 | 1C53T-43 | 1C53A-43 |
| 1-23/32 | 1.7188 | 43.66 | 1/4 | 1C53T-0123 | 1C53A-0123 |
| - | 1.7323 | 44.00 | 1/4 | 1C53T-44 | 1C53A-44 |
| 1-3/4 | 1.7500 | 44.45 | 1/4 | 1C53T-0124 | 1C53A-0124 |
| - | 1.7717 | 45.00 | 1/4 | 1C53T-45 | 1C53A-45 |
| 1-25/32 | 1.7813 | 45.24 | 1/4 | 1C53T-0125 | 1C53A-0125 |
| - | 1.7913 | 45.50 | 1/4 | 1C53T-45.5 | 1C53A-45.5 |
| - | 1.7970 | 45.64 | 1/4 | 1C53T-1.797 | 1C53A-1.797 |
| - | 1.8110 | 46.00 | 1/4 | 1C53T-46 | 1C53A-46 |
| 1-13/16 | 1.8125 | 46.04 | 1/4 | 1C53T-0126 | 1C53A-0126 |
| 1-27/32 | 1.8438 | 46.83 | 1/4 | 1C53T-0127 | 1C53A-0127 |
| - | 1.8504 | 47.00 | 1/4 | 1C53T-47 | 1C53A-47 |
| 1-7/8 | 1.8750 | 47.63 | 1/4 | 1C53T-0128 | 1C53A-0128 |

A30: 112 - 143

A30: 82 - 85

A30: 4 - 6

HI, HR, CR, SK,
NP, IN, RN, CN, BR,
NC, WC, TC, BT

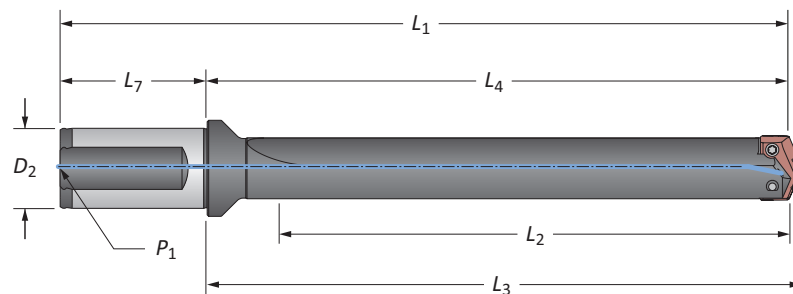
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|-------------------|---------------------|
| TiN = 1C53T-XXXX | TiAlN = 1C53A-XXXX |
| TiCN = 1C53N-XXXX | AM200® = 1C53H-XXXX |

Inserts sold in quantities of 1

T-A® Drill Insert Holders

3 Series | Flange Shank | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)

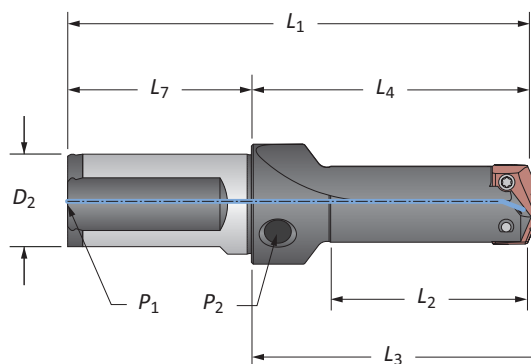


Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|-----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i Short | 4-3/4 | 6-13/16 | 7 | 9-1/2 | 1-1/2 | 2-11/16 | 1/4 | 22030S-150F |
| i Intermediate | 6-1/2 | 8-9/16 | 8-3/4 | 11-1/4 | 1-1/2 | 2-11/16 | 1/4 | 23030S-150F |
| i Standard | 8-1/4 | 10-5/16 | 10-1/2 | 13 | 1-1/2 | 2-11/16 | 1/4 | 24030S-150F |
| m Short | 120.7 | 173.0 | 177.8 | 243.0 | 40.0 | 70.0 | 1/4* | 22030S-40FM |
| m Extended | 349.3 | 401.6 | 406.4 | 471.6 | 40.0 | 70.0 | 1/4* | 25030S-40FM |
| m XL | 558.8 | 611.1 | 615.9 | 681.1 | 40.0 | 70.0 | 1/4* | 27030S-40FM |
| m 3XL | 787.4 | 839.7 | 844.5 | 909.7 | 40.0 | 70.0 | 1/4* | 29030S-40FM |

*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/4" side pipe tap (P₂)



Straight Flute (Stub Length)

| Length | Body | | | | Shank | | | Part No. |
|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i Stub | 3 | 4-59/64 | 5-7/64 | 7-39/64 | 1-1/2 | 2-11/16 | 1/4 | 21030S-150F |
| m Stub | 76.2 | 125.0 | 129.8 | 195.0 | 40.0 | 70.0 | 1/4* | 21030S-40FM |

*Metric thread to BSP and ISO 7-1

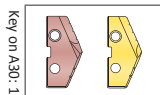
NOTE: Stub length holders have a 1/4" side pipe tap (P₂)

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | - | - | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A30: 74 - 81



i = Imperial (in)

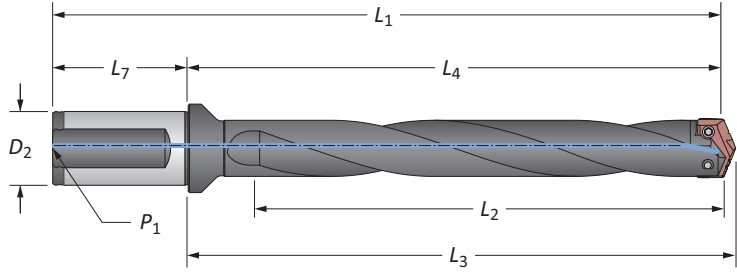
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

3 Series | Flange Shank | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)



Helical Flute

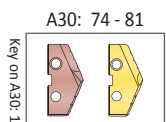
| Length | Body | | | | Shank | | | Part No. | |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| i | Intermediate | 6-1/2 | 8-9/16 | 8-3/4 | 11-1/4 | 1-1/2 | 2-11/16 | 1/4 | 23030H-150F |
| | Standard | 8-1/4 | 10-5/16 | 10-1/2 | 13 | 1-1/2 | 2-11/16 | 1/4 | 24030H-150F |
| m | Intermediate | 165.1 | 217.5 | 222.3 | 287.5 | 40.0 | 70.0 | 1/4* | 23030H-40FM |
| | Standard | 209.6 | 261.9 | 266.7 | 331.9 | 40.0 | 70.0 | 1/4* | 24030H-40FM |

*Metric thread to BSP and ISO 7-1

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | - | - | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

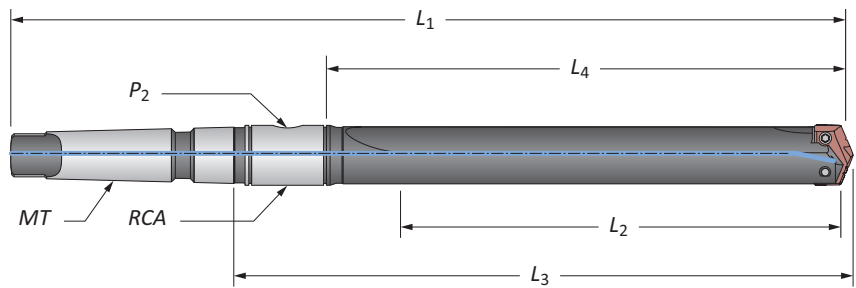


i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

T-A® Drill Insert Holders

3 Series | Taper Shank | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)

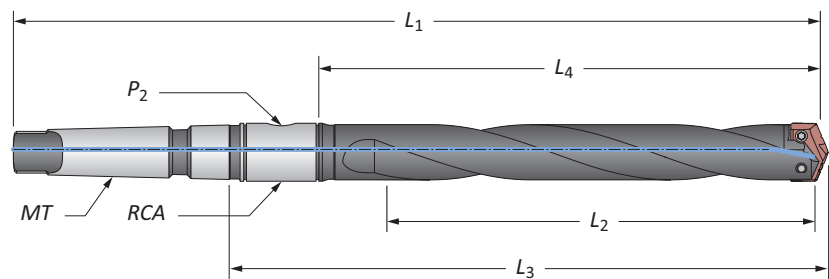


Straight Flute

| Length | Body | | | | Shank | | | Part No. | |
|--------|----------------|----------------|----------------|----------------|----------|----------------|--------|-------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | | |
| i | Short | 4-3/4 | 6 | 8-1/8 | 12-9/16 | #4 | 1/4 | 2T-4SR | 22030S-004I |
| | Short | 4-3/4 | 6 | 8-1/8 | 13-13/16 | #5 | 1/4 | 2T-5SR | 22030S-005I |
| | Intermediate | 6-1/2 | 7-3/4 | 9-7/8 | 14-5/16 | #4 | 1/4 | 2T-4SR | 23030S-004I |
| | Standard | 8-1/4 | 9-1/2 | 11-5/8 | 16-1/16 | #4 | 1/4 | 2T-4SR | 24030S-004I |
| | Standard | 8-1/4 | 9-1/2 | 11-5/8 | 17-5/16 | #5 | 1/4 | 2T-5SR | 24030S-005I |
| | Extended | 13-3/4 | 15 | 17-1/8 | 21-9/16 | #4 | 1/4 | 2T-4SR | 25030S-004I |
| | XL | 22 | 23-1/4 | 25-3/8 | 29-13/16 | #4 | 1/4 | 2T-4SR | 27030S-004I |
| 3XL | 31 | 32-1/4 | 34-3/8 | 38-13/16 | #4 | 1/4 | 2T-4SR | 29030S-004I | |
| m | Short | 120.6 | 152.4 | 206.4 | 319.1 | #4** | 1/4* | 2T-4SRM | 22030S-004M |
| | Extended | 349.3 | 381.0 | 435.0 | 547.7 | #4** | 1/4* | 2T-4SRM | 25030S-004M |
| | XL | 558.8 | 590.6 | 644.6 | 757.2 | #4** | 1/4* | 2T-4SRM | 27030S-004M |
| | 3XL | 787.4 | 819.2 | 873.2 | 985.8 | #4** | 1/4* | 2T-4SRM | 29030S-004M |

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Helical Flute

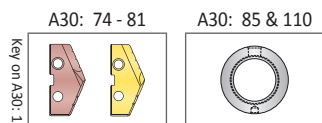
| Length | Body | | | | Shank | | | Part No. | |
|--------|----------------|----------------|----------------|----------------|-------|----------------|------|----------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | | |
| m | Intermediate | 165.1 | 196.9 | 250.9 | 363.6 | #4** | 1/4* | 2T-4SRM | 23030H-004M |
| | Standard | 209.5 | 241.3 | 295.3 | 408.0 | #4** | 1/4* | 2T-4SRM | 24030H-004M |

*Metric thread to BSP and ISO 7-1 | **Per ISO 296 type BEK

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | - | - | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

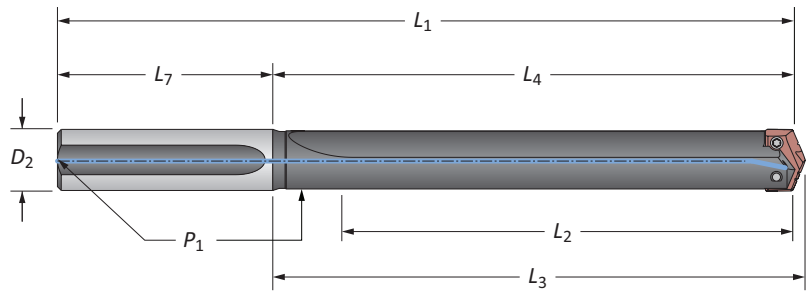
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

3 Series | Straight Shank | Diameter Range: 1.353" - 1.882" (34.36 mm - 47.80 mm)



Straight Flute

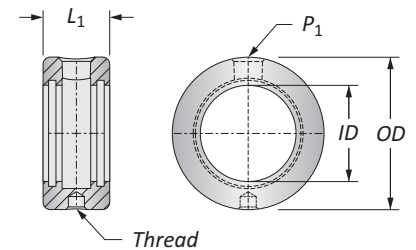
| Length | Body | | | | Shank | | | Part No. |
|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| Short | 4-3/4 | 6 | 6-3/16 | 10 | 1-1/4 | 4 | 1/4 | 22030S-125L |
| Short | 4-3/4 | 6 | 6-3/16 | 10 | 1-1/2 | 4 | 1/4 | 22030S-150L |
| Intermediate | 6-1/2 | 7-3/4 | 7-15/16 | 11-3/4 | 1-1/2 | 4 | 1/4 | 23030S-150L |
| Standard | 8-1/4 | 9-1/2 | 9-11/16 | 13-1/2 | 1-1/4 | 4 | 1/4 | 24030S-125L |
| Standard | 8-1/4 | 9-1/2 | 9-11/16 | 13-1/2 | 1-1/2 | 4 | 1/4 | 24030S-150L |
| Extended | 13-3/4 | 15-3/16 | 15 | 19 | 1-1/4 | 4 | 1/4 | 25030S-125L |
| XL | 22 | 23-1/4 | 23-7/16 | 27-1/4 | 1-1/2 | 4 | 1/4 | 27030S-150L |
| 3XL | 31 | 32-1/4 | 32-7/16 | 36-1/4 | 1-1/2 | 4 | 1/4 | 29030S-150L |

T-A Drill Accessories

3 Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No. | RCA O-Rings | | |
|-------|-------|----------------|--------------------|----------------|----------|----------------|--------------|--|
| | | | | | | Kit Part No.** | Replacements | |
| 1-1/4 | 2-1/2 | 1-3/8 | 3/8-16 | 1/4 | 2T-4SR | 2T1-4SR | 2T1-4OR-10 | |
| 1-3/4 | 3 | 1-3/8 | 3/8-16 | 1/4 | 2T-5SR | 2T1-5SR | 2T1-5OR-10 | |
| 31.75 | 63.50 | 34.92 | M10 x 1.50 | 1/4* | 2T-4SRM | 2T1-4SR | 2T1-4OR-10 | |
| 44.45 | 76.20 | 34.92 | M10 x 1.50 | 1/4* | 2T-5SRM | 2T1-5SR | 2T1-5OR-10 | |



*Thread to BSP and ISO 7-1

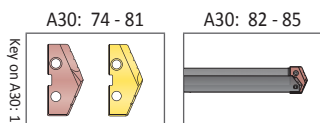
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

Refer to page A30: 110 for proper RCA assembly and safety information

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | - | - | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



ⓘ = Imperial (in)

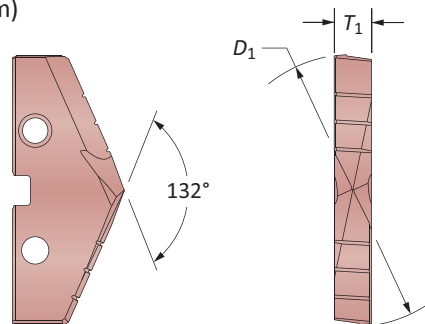
Ⓜ = Metric (mm)

Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

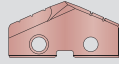
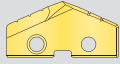
WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

GEN2 T-A® Drill Inserts

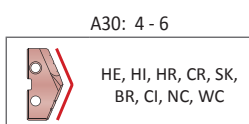
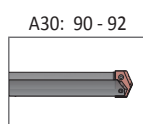
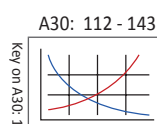
4 Series | HSS | Diameter Range: 1.850" - 2.570" (46.99 mm - 65.28 mm)



HSS Inserts – Super Cobalt

| Fractional Equivalent | Insert | | | Part No. | |
|-----------------------|------------|----------|-------|--|---|
| | D_1 inch | D_1 mm | T_1 |  AM200® |  TiN |
| – | 1.8898 | 48.00 | 5/16 | 454H-48 | 454T-48 |
| 1-29/32 | 1.9063 | 48.42 | 5/16 | 454H-0129 | 454T-0129 |
| – | 1.9291 | 49.00 | 5/16 | 454H-49 | 454T-49 |
| 1-15/16 | 1.9375 | 49.21 | 5/16 | 454H-0130 | 454T-0130 |
| – | 1.9685 | 50.00 | 5/16 | 454H-50 | 454T-50 |
| 1-31/32 | 1.9688 | 50.01 | 5/16 | 454H-0131 | 454T-0131 |
| 2 | 2.0000 | 50.80 | 5/16 | 454H-0200 | 454T-0200 |
| – | 2.0079 | 51.00 | 5/16 | 454H-51 | 454T-51 |
| 2-1/32 | 2.0313 | 51.59 | 5/16 | 454H-0201 | 454T-0201 |
| 2-3/64 | 2.0472 | 52.00 | 5/16 | 454H-52 | 454T-52 |
| 2-1/16 | 2.0625 | 52.39 | 5/16 | 454H-0202 | 454T-0202 |
| – | 2.0866 | 53.00 | 5/16 | 454H-53 | 454T-53 |
| 2-3/32 | 2.0938 | 53.18 | 5/16 | 454H-0203 | 454T-0203 |
| 2-1/8 | 2.1250 | 53.98 | 5/16 | 454H-0204 | 454T-0204 |
| – | 2.1260 | 54.00 | 5/16 | 454H-54 | 454T-54 |
| 2-5/32 | 2.1563 | 54.77 | 5/16 | 454H-0205 | 454T-0205 |
| – | 2.1654 | 55.00 | 5/16 | 454H-55 | 454T-55 |
| 2-3/16 | 2.1875 | 55.56 | 5/16 | 454H-0206 | 454T-0206 |
| – | 2.2047 | 56.00 | 5/16 | 454H-56 | 454T-56 |
| 2-7/32 | 2.2188 | 56.36 | 5/16 | 454H-0207 | 454T-0207 |
| – | 2.2441 | 57.00 | 5/16 | 454H-57 | 454T-57 |
| 2-1/4 | 2.2500 | 57.15 | 5/16 | 454H-0208 | 454T-0208 |
| 2-9/32 | 2.2813 | 57.94 | 5/16 | 454H-0209 | 454T-0209 |
| – | 2.2835 | 58.00 | 5/16 | 454H-58 | 454T-58 |
| 2-5/16 | 2.3125 | 58.74 | 5/16 | 454H-0210 | 454T-0210 |
| – | 2.3228 | 59.00 | 5/16 | 454H-59 | 454T-59 |
| 2-11/32 | 2.3438 | 59.53 | 5/16 | 454H-0211 | 454T-0211 |
| – | 2.3622 | 60.00 | 5/16 | 454H-60 | 454T-60 |
| 2-3/8 | 2.3750 | 60.33 | 5/16 | 454H-0212 | 454T-0212 |
| – | 2.4016 | 61.00 | 5/16 | 454H-61 | 454T-61 |
| 2-13/32 | 2.4063 | 61.12 | 5/16 | 454H-0213 | 454T-0213 |
| 2-7/16 | 2.4375 | 61.91 | 5/16 | 454H-0214 | 454T-0214 |
| – | 2.4409 | 62.00 | 5/16 | 454H-62 | 454T-62 |
| 2-15/32 | 2.4688 | 62.71 | 5/16 | 454H-0215 | 454T-0215 |
| – | 2.4803 | 63.00 | 5/16 | 454H-63 | 454T-63 |
| 2-1/2 | 2.5000 | 63.50 | 5/16 | 454H-0216 | 454T-0216 |
| – | 2.5197 | 64.00 | 5/16 | 454H-64 | 454T-64 |
| 2-17/32 | 2.5313 | 64.29 | 5/16 | 454H-0217 | 454T-0217 |
| – | 2.5591 | 65.00 | 5/16 | 454H-65 | 454T-65 |
| 2-9/16 | 2.5625 | 65.09 | 5/16 | 454H-0218 | 454T-0218 |

Inserts sold in quantities of 1



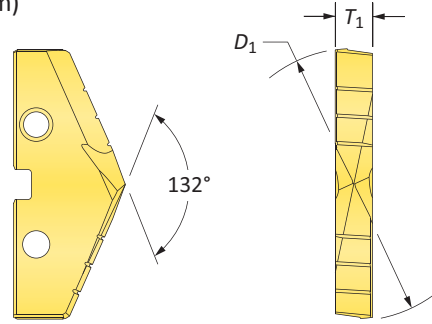
Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 454T-XXXX | TiAlN = 454A-XXXX |
| TiCN = 454N-XXXX | AM200® = 454H-XXXX |



GEN2 T-A® Drill Inserts

4 Series | HSS | Diameter Range: 1.850" - 2.570" (46.99 mm - 65.28 mm)



HSS Inserts – HSS

| Fractional Equivalent | Insert | | | Part No. |
|-----------------------|---------------------|-------------------|----------------|-----------|
| | D ₁ inch | D ₁ mm | T ₁ | |
| - | 1.8898 | 48.00 | 5/16 | 434T-48 |
| 1-29/32 | 1.9063 | 48.42 | 5/16 | 434T-0129 |
| - | 1.9291 | 49.00 | 5/16 | 434T-49 |
| 1-15/16 | 1.9375 | 49.21 | 5/16 | 434T-0130 |
| - | 1.9685 | 50.00 | 5/16 | 434T-50 |
| 1-31/32 | 1.9688 | 50.01 | 5/16 | 434T-0131 |
| 2 | 2.0000 | 50.80 | 5/16 | 434T-0200 |
| - | 2.0079 | 51.00 | 5/16 | 434T-51 |
| 2-1/32 | 2.0313 | 51.59 | 5/16 | 434T-0201 |
| 2-3/64 | 2.0472 | 52.00 | 5/16 | 434T-52 |
| 2-1/16 | 2.0625 | 52.39 | 5/16 | 434T-0202 |
| - | 2.0866 | 53.00 | 5/16 | 434T-53 |
| 2-3/32 | 2.0938 | 53.18 | 5/16 | 434T-0203 |
| 2-1/8 | 2.1250 | 53.98 | 5/16 | 434T-0204 |
| - | 2.1260 | 54.00 | 5/16 | 434T-54 |
| 2-5/32 | 2.1563 | 54.77 | 5/16 | 434T-0205 |
| - | 2.1654 | 55.00 | 5/16 | 434T-55 |
| 2-3/16 | 2.1875 | 55.56 | 5/16 | 434T-0206 |
| - | 2.2047 | 56.00 | 5/16 | 434T-56 |
| 2-7/32 | 2.2188 | 56.36 | 5/16 | 434T-0207 |
| - | 2.2441 | 57.00 | 5/16 | 434T-57 |
| 2-1/4 | 2.2500 | 57.15 | 5/16 | 434T-0208 |
| 2-9/32 | 2.2813 | 57.94 | 5/16 | 434T-0209 |
| - | 2.2835 | 58.00 | 5/16 | 434T-58 |
| 2-5/16 | 2.3125 | 58.74 | 5/16 | 434T-0210 |
| - | 2.3228 | 59.00 | 5/16 | 434T-59 |
| 2-11/32 | 2.3438 | 59.53 | 5/16 | 434T-0211 |
| - | 2.3622 | 60.00 | 5/16 | 434T-60 |
| 2-3/8 | 2.3750 | 60.33 | 5/16 | 434T-0212 |
| - | 2.4016 | 61.00 | 5/16 | 434T-61 |
| 2-13/32 | 2.4063 | 61.12 | 5/16 | 434T-0213 |
| 2-7/16 | 2.4375 | 61.91 | 5/16 | 434T-0214 |
| - | 2.4409 | 62.00 | 5/16 | 434T-62 |
| 2-15/32 | 2.4688 | 62.71 | 5/16 | 434T-0215 |
| - | 2.4803 | 63.00 | 5/16 | 434T-63 |
| 2-1/2 | 2.5000 | 63.50 | 5/16 | 434T-0216 |
| - | 2.5197 | 64.00 | 5/16 | 434T-64 |
| 2-17/32 | 2.5313 | 64.29 | 5/16 | 434T-0217 |
| - | 2.5591 | 65.00 | 5/16 | 434T-65 |
| 2-9/16 | 2.5625 | 65.09 | 5/16 | 434T-0218 |

A30: 112 - 143 A30: 90 - 92 A30: 4 - 6

HE, HI, HR, CR, SK, BR, CI, NC, WC

Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

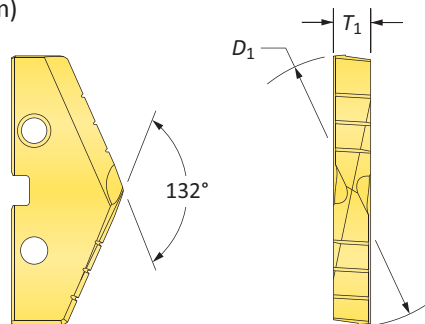
| | |
|------------------|--------------------|
| TiN = 434T-XXXX | TiAlN = 434A-XXXX |
| TiCN = 434N-XXXX | AM200® = 434H-XXXX |

Inserts sold in quantities of 1

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Drill Inserts

4 Series | HSS | Diameter Range: 1.850" - 2.570" (46.99 mm - 65.28 mm)



HSS Inserts – Super Cobalt

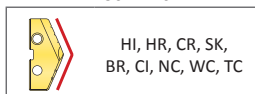
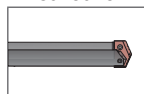
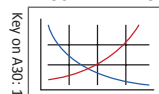
| Fractional Equivalent | Insert | | | Part No. |
|-----------------------|------------|----------|-------|-----------|
| | D_1 inch | D_1 mm | T_1 | |
| - | 1.8898 | 48.00 | 5/16 | 154T-48 |
| 1-29/32 | 1.9063 | 48.42 | 5/16 | 154T-0129 |
| - | 1.9291 | 49.00 | 5/16 | 154T-49 |
| 1-15/16 | 1.9375 | 49.21 | 5/16 | 154T-0130 |
| - | 1.9685 | 50.00 | 5/16 | 154T-50 |
| 1-31/32 | 1.9688 | 50.01 | 5/16 | 154T-0131 |
| 2 | 2.0000 | 50.80 | 5/16 | 154T-0200 |
| - | 2.0079 | 51.00 | 5/16 | 154T-51 |
| 2-1/32 | 2.0313 | 51.59 | 5/16 | 154T-0201 |
| 2-3/64 | 2.0472 | 52.00 | 5/16 | 154T-52 |
| 2-1/16 | 2.0625 | 52.39 | 5/16 | 154T-0202 |
| - | 2.0866 | 53.00 | 5/16 | 154T-53 |
| 2-3/32 | 2.0938 | 53.18 | 5/16 | 154T-0203 |
| 2-1/8 | 2.1250 | 53.98 | 5/16 | 154T-0204 |
| - | 2.1260 | 54.00 | 5/16 | 154T-54 |
| 2-5/32 | 2.1563 | 54.77 | 5/16 | 154T-0205 |
| - | 2.1654 | 55.00 | 5/16 | 154T-55 |
| 2-3/16 | 2.1875 | 55.56 | 5/16 | 154T-0206 |
| - | 2.2047 | 56.00 | 5/16 | 154T-56 |
| 2-7/32 | 2.2188 | 56.36 | 5/16 | 154T-0207 |
| - | 2.2441 | 57.00 | 5/16 | 154T-57 |
| 2-1/4 | 2.2500 | 57.15 | 5/16 | 154T-0208 |
| 2-9/32 | 2.2813 | 57.94 | 5/16 | 154T-0209 |
| - | 2.2835 | 58.00 | 5/16 | 154T-58 |
| 2-5/16 | 2.3125 | 58.74 | 5/16 | 154T-0210 |
| - | 2.3228 | 59.00 | 5/16 | 154T-59 |
| 2-11/32 | 2.3438 | 59.53 | 5/16 | 154T-0211 |
| - | 2.3622 | 60.00 | 5/16 | 154T-60 |
| 2-3/8 | 2.3750 | 60.33 | 5/16 | 154T-0212 |
| - | 2.4016 | 61.00 | 5/16 | 154T-61 |
| 2-13/32 | 2.4063 | 61.12 | 5/16 | 154T-0213 |
| 2-7/16 | 2.4375 | 61.91 | 5/16 | 154T-0214 |
| - | 2.4409 | 62.00 | 5/16 | 154T-62 |
| 2-15/32 | 2.4688 | 62.71 | 5/16 | 154T-0215 |
| - | 2.4803 | 63.00 | 5/16 | 154T-63 |
| 2-1/2 | 2.5000 | 63.50 | 5/16 | 154T-0216 |
| - | 2.5197 | 64.00 | 5/16 | 154T-64 |
| 2-17/32 | 2.5313 | 64.29 | 5/16 | 154T-0217 |
| - | 2.5591 | 65.00 | 5/16 | 154T-65 |
| 2-9/16 | 2.5625 | 65.09 | 5/16 | 154T-0218 |

Inserts sold in quantities of 1

A30: 112 - 143

A30: 90 - 92

A30: 4 - 6



Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

TiN = 154T-XXXX

TiAlN = 154A-XXXX

TiCN = 154N-XXXX

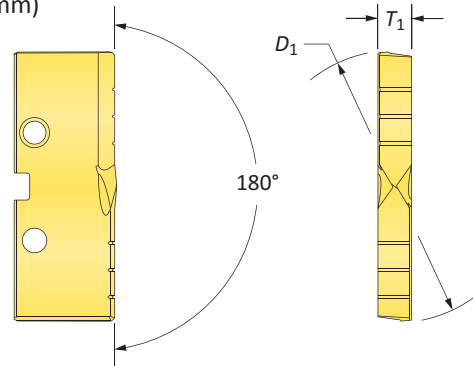
AM200® = 154H-XXXX

T-A® Drill Inserts

4 Series | HSS | Diameter Range: 1.850" - 2.570" (46.99 mm - 65.28 mm)



Flat Bottom



HSS Inserts – Super Cobalt

| Fractional Equivalent | Insert | | | Part No. |
|-----------------------|---------------------|-------------------|----------------|--------------|
| | D ₁ inch | D ₁ mm | T ₁ | |
| - | 1.8898 | 48.00 | 5/16 | 154T-48-FB |
| 1-29/32 | 1.9063 | 48.42 | 5/16 | 154T-0129-FB |
| - | 1.9291 | 49.00 | 5/16 | 154T-49-FB |
| 1-15/16 | 1.9375 | 49.21 | 5/16 | 154T-0130-FB |
| - | 1.9685 | 50.00 | 5/16 | 154T-50-FB |
| 1-31/32 | 1.9688 | 50.01 | 5/16 | 154T-0131-FB |
| 2 | 2.0000 | 50.80 | 5/16 | 154T-0200-FB |
| - | 2.0079 | 51.00 | 5/16 | 154T-51-FB |
| 2-1/32 | 2.0313 | 51.59 | 5/16 | 154T-0201-FB |
| 2-3/64 | 2.0472 | 52.00 | 5/16 | 154T-52-FB |
| 2-1/16 | 2.0625 | 52.39 | 5/16 | 154T-0202-FB |
| - | 2.0866 | 53.00 | 5/16 | 154T-53-FB |
| 2-3/32 | 2.0938 | 53.18 | 5/16 | 154T-0203-FB |
| 2-1/8 | 2.1250 | 53.98 | 5/16 | 154T-0204-FB |
| - | 2.1260 | 54.00 | 5/16 | 154T-54-FB |
| 2-5/32 | 2.1563 | 54.77 | 5/16 | 154T-0205-FB |
| - | 2.1654 | 55.00 | 5/16 | 154T-55-FB |
| 2-3/16 | 2.1875 | 55.56 | 5/16 | 154T-0206-FB |
| - | 2.2047 | 56.00 | 5/16 | 154T-56-FB |
| 2-7/32 | 2.2188 | 56.36 | 5/16 | 154T-0207-FB |
| - | 2.2441 | 57.00 | 5/16 | 154T-57-FB |
| 2-1/4 | 2.2500 | 57.15 | 5/16 | 154T-0208-FB |
| 2-9/32 | 2.2813 | 57.94 | 5/16 | 154T-0209-FB |
| - | 2.2835 | 58.00 | 5/16 | 154T-58-FB |
| 2-5/16 | 2.3125 | 58.74 | 5/16 | 154T-0210-FB |
| - | 2.3228 | 59.00 | 5/16 | 154T-59-FB |
| 2-11/32 | 2.3438 | 59.53 | 5/16 | 154T-0211-FB |
| - | 2.3622 | 60.00 | 5/16 | 154T-60-FB |
| 2-3/8 | 2.3750 | 60.33 | 5/16 | 154T-0212-FB |
| - | 2.4016 | 61.00 | 5/16 | 154T-61-FB |
| 2-13/32 | 2.4063 | 61.12 | 5/16 | 154T-0213-FB |
| 2-7/16 | 2.4375 | 61.91 | 5/16 | 154T-0214-FB |
| - | 2.4409 | 62.00 | 5/16 | 154T-62-FB |
| 2-15/32 | 2.4688 | 62.71 | 5/16 | 154T-0215-FB |
| - | 2.4803 | 63.00 | 5/16 | 154T-63-FB |
| 2-1/2 | 2.5000 | 63.50 | 5/16 | 154T-0216-FB |
| - | 2.5197 | 64.00 | 5/16 | 154T-64-FB |
| 2-17/32 | 2.5313 | 64.29 | 5/16 | 154T-0217-FB |
| - | 2.5591 | 65.00 | 5/16 | 154T-65-FB |
| 2-9/16 | 2.5625 | 65.09 | 5/16 | 154T-0218-FB |

Key on A30-1

A30: 112 - 143

A30: 90 - 92

A30: 4 - 6

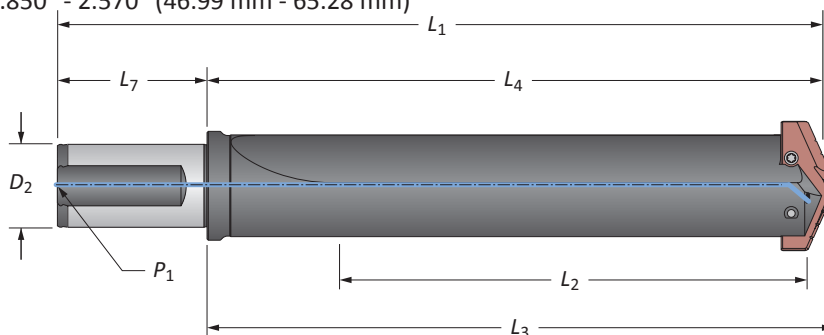
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1

| | |
|------------------|--------------------|
| TiN = 154T-XXXX | TiAlN = 154A-XXXX |
| TiCN = 154N-XXXX | AM200® = 154H-XXXX |

T-A® Drill Insert Holders

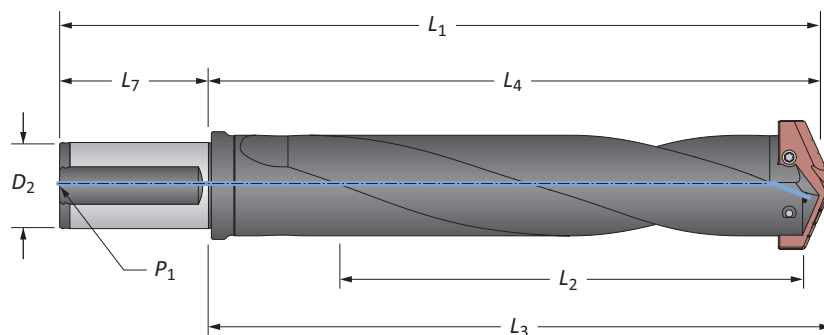
4 Series | Flange Shank | Diameter Range: 1.850" - 2.570" (46.99 mm - 65.28 mm)



Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i Short | 5-1/8 | 7-1/16 | 7-1/4 | 9-3/4 | 1-1/2 | 2-11/16 | 1/4 | 22040S-150F |
| i Standard | 9-1/8 | 11-1/16 | 11-1/4 | 13-3/4 | 1-1/2 | 2-11/16 | 1/4 | 24040S-150F |
| m Short | 130.2 | 179.4 | 184.0 | 249.4 | 40.0 | 70.0 | 1/4* | 22040S-40FM |
| m Extended | 422.3 | 471.5 | 476.0 | 541.5 | 40.0 | 70.0 | 1/4* | 25040S-40FM |
| m XL | 625.0 | 674.7 | 679.0 | 744.7 | 40.0 | 70.0 | 1/4* | 27040S-40FM |
| m 3XL | 879.0 | 928.7 | 933.0 | 998.7 | 40.0 | 70.0 | 1/4* | 29040S-40FM |

*Metric thread to BSP and ISO 7-1



Helical Flute

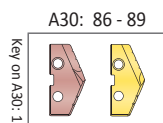
| Length | Body | | | | Shank | | | Part No. |
|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i Standard | 9-1/8 | 11-1/16 | 11-1/4 | 13-3/4 | 1-1/2 | 2-11/16 | 1/4 | 24040H-150F |
| m Standard | 231.8 | 281.0 | 285.8 | 351.0 | 40.0 | 70.0 | 1/4* | 24040H-40FM |

*Metric thread to BSP and ISO 7-1

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | - | - | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

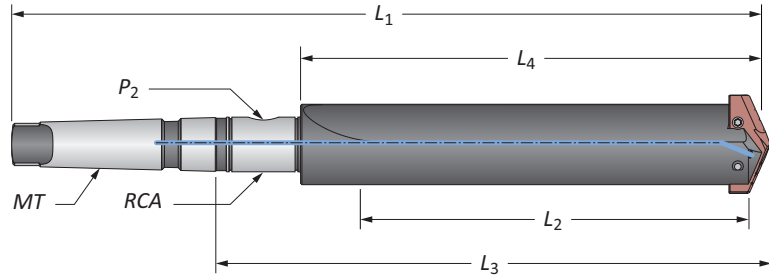
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

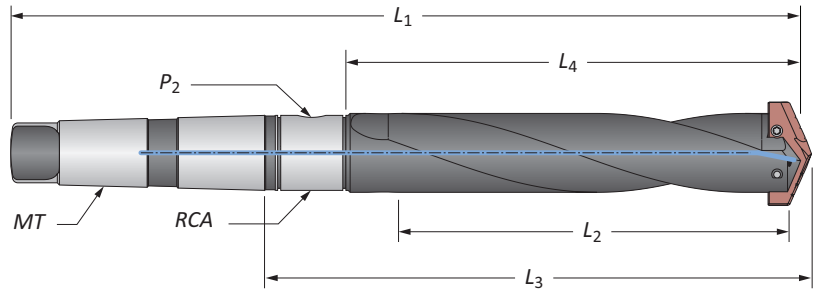
4 Series | Taper Shank | Diameter Range: 1.850" - 2.570" (46.99 mm - 65.28 mm)



Straight Flute

| | Length | Body | | | | Shank | | | Part No. |
|---|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| i | Short | 5-1/8 | 6-1/2 | 8-5/8 | 13-1/16 | #4 | 1/4 | 2T-4SR | 22040S-004I |
| | Short | 5-1/8 | 6-1/2 | 8-5/8 | 14-5/16 | #5 | 1/4 | 2T-5SR | 22040S-005I |
| | Standard | 9-1/8 | 10-1/2 | 12-5/8 | 17-1/16 | #4 | 1/4 | 2T-4SR | 24040S-004I |
| | Standard | 9-1/8 | 10-1/2 | 12-5/8 | 18-5/16 | #5 | 1/4 | 2T-5SR | 24040S-005I |
| | Extended | 16-5/8 | 18 | 20-1/8 | 25-13/16 | #5 | 1/4 | 2T-5SR | 25040S-005I |
| | XL | 24-5/8 | 26 | 28-1/8 | 33-13/16 | #5 | 1/4 | 2T-5SR | 27040S-005I |
| m | 3XL | 34-5/8 | 36 | 38-1/8 | 43-13/16 | #5 | 1/4 | 2T-5SR | 29040S-005I |
| | Short | 130.1 | 165.1 | 219.1 | 363.5 | #5** | 1/4* | 2T-5SRM | 22040S-005M |
| | Extended | 422.3 | 457.2 | 511.2 | 655.6 | #5** | 1/4* | 2T-5SRM | 25040S-005M |
| | XL | 625.0 | 660.4 | 714.4 | 858.8 | #5** | 1/4* | 2T-5SRM | 27040S-005M |
| | 3XL | 879.0 | 914.4 | 968.4 | 1112.8 | #5** | 1/4* | 2T-5SRM | 29040S-005M |

*Metric thread to BSP and ISO 7-1
 **Per ISO 296 type BEK



Helical Flute

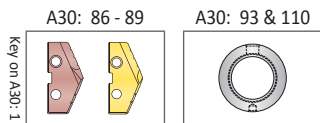
| | Length | Body | | | | Shank | | | Part No. |
|---|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| m | Standard | 231.8 | 266.7 | 320.7 | 465.1 | #5** | 1/4* | 2T-5SRM | 24040H-005M |

*Metric thread to BSP and ISO 7-1
 **Per ISO 296 type BEK

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | - | - | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



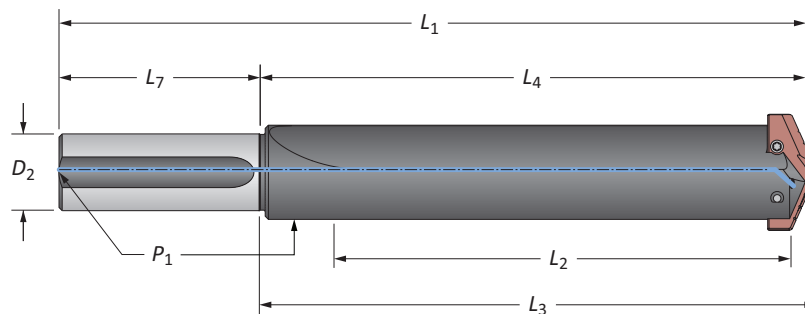
i = Imperial (in)
 m = Metric (mm)
 Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

T-A® Drill Insert Holders

4 Series | Straight Shank | Diameter Range: 1.850" - 2.570" (46.99 mm - 65.28 mm)



Straight Flute

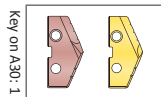
| Length | Body | | | | Shank | | | Part No. |
|----------|--------|--------|----------|--------|-------|-------|-------|-------------|
| | L_2 | L_4 | L_3 | L_1 | D_2 | L_7 | P_1 | |
| Short | 5-1/8 | 6-1/2 | 6-11/16 | 10-1/2 | 1-1/2 | 4 | 1/4 | 22040S-150L |
| Short | 5-1/8 | 6-1/2 | 6-11/16 | 10-1/2 | 1-3/4 | 4 | 1/4 | 22040S-175L |
| Standard | 9-1/8 | 10-1/2 | 10-11/16 | 14-1/2 | 1-1/2 | 4 | 1/4 | 24040S-150L |
| Standard | 9-1/8 | 10-1/2 | 10-11/16 | 14-1/2 | 1-3/4 | 4 | 1/4 | 24040S-175L |
| Extended | 16-5/8 | 18 | 18-3/16 | 22 | 1-1/2 | 4 | 1/4 | 25040S-150L |
| XL | 24-5/8 | 26 | 26-3/16 | 30 | 1-1/2 | 4 | 1/4 | 27040S-150L |
| 3XL | 34-5/8 | 36 | 36-3/16 | 40 | 1-1/2 | 4 | 1/4 | 29040S-150L |

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | - | - | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A30: 86 - 89



i = Imperial (in)

m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

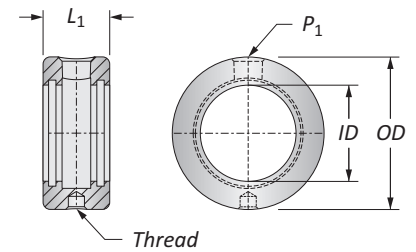


T-A® Drill Accessories

4 Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter (RCA) and Accessories

| | ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No. | RCA O-Rings | |
|---|-------|-------|----------------|--------------------|----------------|-----------|----------------|--------------|
| | | | | | | | Kit Part No.** | Replacements |
| i | 1-1/4 | 2-1/2 | 1-3/8 | 3/8-16 | 1/4 | ⚠ 2T-4SR | 2T1-4SR | 2T1-4OR-10 |
| | 1-3/4 | 3 | 1-3/8 | 3/8-16 | 1/4 | ⚠ 2T-5SR | 2T1-5SR | 2T1-5OR-10 |
| m | 31.75 | 63.50 | 34.92 | M10 x 1.50 | 1/4* | ⚠ 2T-4SRM | 2T1-4SR | 2T1-4OR-10 |
| | 44.45 | 76.20 | 34.92 | M10 x 1.50 | 1/4* | ⚠ 2T-5SRM | 2T1-5SR | 2T1-5OR-10 |



*Thread to BSP and ISO 7-1

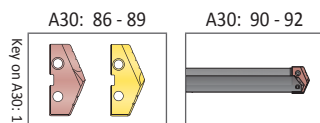
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

⚠ Refer to page A30: 110 for proper RCA assembly and safety information

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | - | - | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

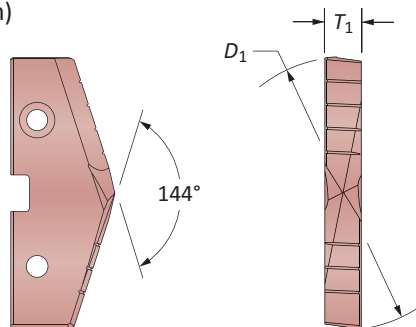
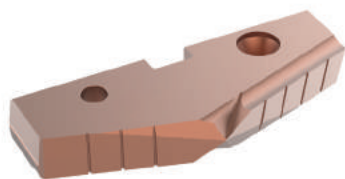


i = Imperial (in)
m = Metric (mm)
Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

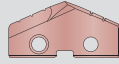

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

GEN2 T-A® Drill Inserts

5 Series | HSS | Diameter Range: 2.456" - 3.000" (62.38 mm - 76.20 mm)



HSS Inserts – Super Cobalt | HSS

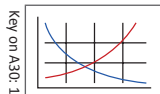
| Fractional Equivalent | Insert | | | Super Cobalt Part No. | HSS Part No. |
|-----------------------|------------|----------|-------|--|---|
| | D_1 inch | D_1 mm | T_1 |  AM200® |  TiN |
| 2-1/2 | 2.5000 | 63.50 | 7/16 | 455H-0216 | 435T-0216 |
| – | 2.5197 | 64.00 | 7/16 | 455H-64 | 435T-64 |
| 2-17/32 | 2.5313 | 64.29 | 7/16 | 455H-0217 | 435T-0217 |
| 2-9/16 | 2.5625 | 65.09 | 7/16 | 455H-0218 | 435T-0218 |
| 2-19/32 | 2.5938 | 65.88 | 7/16 | 455H-0219 | 435T-0219 |
| – | 2.5984 | 66.00 | 7/16 | 455H-66 | 435T-66 |
| 2-5/8 | 2.6250 | 66.68 | 7/16 | 455H-0220 | 435T-0220 |
| 2-21/32 | 2.6563 | 67.47 | 7/16 | 455H-0221 | 435T-0221 |
| – | 2.6772 | 68.00 | 7/16 | 455H-68 | 435T-68 |
| 2-11/16 | 2.6875 | 68.26 | 7/16 | 455H-0222 | 435T-0222 |
| 2-23/32 | 2.7188 | 69.05 | 7/16 | 455H-0223 | 435T-0223 |
| 2-3/4 | 2.7500 | 69.85 | 7/16 | 455H-0224 | 435T-0224 |
| – | 2.7559 | 70.00 | 7/16 | 455H-70 | 435T-70 |
| 2-25/32 | 2.7813 | 70.64 | 7/16 | 455H-0225 | 435T-0225 |
| 2-13/16 | 2.8125 | 71.44 | 7/16 | 455H-0226 | 435T-0226 |
| – | 2.8346 | 72.00 | 7/16 | 455H-72 | 435T-72 |
| 2-27/32 | 2.8438 | 72.23 | 7/16 | 455H-0227 | 435T-0227 |
| 2-7/8 | 2.8750 | 73.03 | 7/16 | 455H-0228 | 435T-0228 |
| 2-29/32 | 2.9063 | 73.82 | 7/16 | 455H-0229 | 435T-0229 |
| – | 2.9134 | 74.00 | 7/16 | 455H-74 | 435T-74 |
| 2-15/16 | 2.9375 | 74.41 | 7/16 | 455H-0230 | 435T-0230 |
| 2-31/32 | 2.9688 | 75.61 | 7/16 | 455H-0231 | 435T-0231 |
| – | 2.9921 | 76.00 | 7/16 | 455H-76 | 435T-76 |
| 3 | 3.0000 | 76.20 | 7/16 | 455H-0300 | 435T-0300 |

D BURNISHING

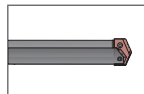
F THREADING

X SPECIALS

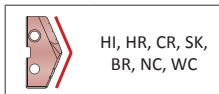
A30: 112 - 143



A30: 98 - 100



A30: 4 - 6



HI, HR, CR, SK,
BR, NC, WC

Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

TiN = 455T-XXXX

TiAlN = 455A-XXXX

TiCN = 455N-XXXX

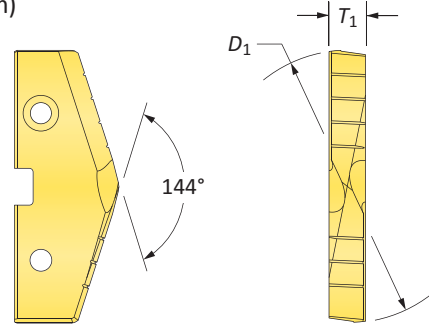
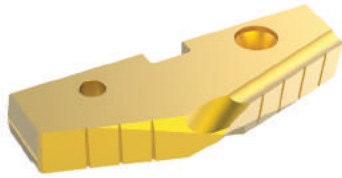
AM200® = 455H-XXXX

Inserts sold in quantities of 1

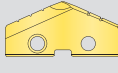
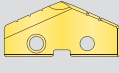


T-A® Drill Inserts

5 Series | HSS | Diameter Range: 2.456" - 3.000" (62.38 mm - 76.20 mm)



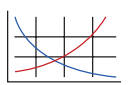
HSS Inserts – Super Cobalt | HSS

| Fractional Equivalent | Insert | | | Super Cobalt Part No.* | HSS Part No. |
|-----------------------|---------------------|-------------------|----------------|---|---|
| | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiN |
| 2-1/2 | 2.5000 | 63.50 | 7/16 | 155T-0216 | 135T-0216 |
| - | 2.5197 | 64.00 | 7/16 | 155T-64 | 135T-64 |
| 2-17/32 | 2.5313 | 64.29 | 7/16 | 155T-0217 | 135T-0217 |
| 2-9/16 | 2.5625 | 65.09 | 7/16 | 155T-0218 | 135T-0218 |
| 2-19/32 | 2.5938 | 65.88 | 7/16 | 155T-0219 | 135T-0219 |
| - | 2.5984 | 66.00 | 7/16 | 155T-66 | 135T-66 |
| 2-5/8 | 2.6250 | 66.68 | 7/16 | 155T-0220 | 135T-0220 |
| 2-21/32 | 2.6563 | 67.47 | 7/16 | 155T-0221 | 135T-0221 |
| - | 2.6772 | 68.00 | 7/16 | 155T-68 | 135T-68 |
| 2-11/16 | 2.6875 | 68.26 | 7/16 | 155T-0222 | 135T-0222 |
| 2-23/32 | 2.7188 | 69.05 | 7/16 | 155T-0223 | 135T-0223 |
| 2-3/4 | 2.7500 | 69.85 | 7/16 | 155T-0224 | 135T-0224 |
| - | 2.7559 | 70.00 | 7/16 | 155T-70 | 135T-70 |
| 2-25/32 | 2.7813 | 70.64 | 7/16 | 155T-0225 | 135T-0225 |
| 2-13/16 | 2.8125 | 71.44 | 7/16 | 155T-0226 | 135T-0226 |
| - | 2.8346 | 72.00 | 7/16 | 155T-72 | 135T-72 |
| 2-27/32 | 2.8438 | 72.23 | 7/16 | 155T-0227 | 135T-0227 |
| 2-7/8 | 2.8750 | 73.03 | 7/16 | 155T-0228 | 135T-0228 |
| 2-29/32 | 2.9063 | 73.82 | 7/16 | 155T-0229 | 135T-0229 |
| - | 2.9134 | 74.00 | 7/16 | 155T-74 | 135T-74 |
| 2-15/16 | 2.9375 | 74.41 | 7/16 | 155T-0230 | 135T-0230 |
| 2-31/32 | 2.9688 | 75.61 | 7/16 | 155T-0231 | 135T-0231 |
| - | 2.9921 | 76.00 | 7/16 | 155T-76 | 135T-76 |
| 3 | 3.0000 | 76.20 | 7/16 | 155T-0300 | 135T-0300 |


*Available as non-stocked standard

Key on A30-1


A30: 112 - 143



A30: 98 - 100



A30: 4 - 6



HI, HR, CR, SK,
BR, NC, WC, TC

Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

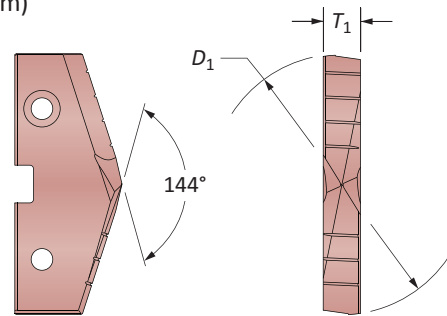
| | |
|------------------|--------------------|
| TiN = 155T-XXXX | TiAlN = 155A-XXXX |
| TiCN = 155N-XXXX | AM200® = 155H-XXXX |

Inserts sold in quantities of 1

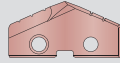

GEN2 T-A® Drill Inserts

6 Series | HSS | Diameter Range: 3.001" - 3.507" (76.22 mm - 89.08 mm)

(for use with 5 series holders)



HSS Inserts – Super Cobalt | HSS

| Fractional Equivalent | Insert | | | Super Cobalt Part No. | HSS Part No. |
|-----------------------|------------|----------|-------|--|---|
| | D_1 inch | D_1 mm | T_1 |  AM200® |  TiN |
| 3-1/32 | 3.0313 | 76.99 | 7/16 | 456H-0301 | 436T-0301 |
| 3-1/16 | 3.0625 | 77.79 | 7/16 | 456H-0302 | 436T-0302 |
| – | 3.0709 | 78.00 | 7/16 | 456H-78 | 436T-78 |
| 3-3/32 | 3.0938 | 78.58 | 7/16 | 456H-0303 | 436T-0303 |
| 3-1/8 | 3.1250 | 79.38 | 7/16 | 456H-0304 | 436T-0304 |
| – | 3.1496 | 80.00 | 7/16 | 456H-80 | 436T-80 |
| 3-5/32 | 3.1563 | 80.17 | 7/16 | 456H-0305 | 436T-0305 |
| 3-3/16 | 3.1875 | 80.96 | 7/16 | 456H-0306 | 436T-0306 |
| 3-7/32 | 3.2188 | 81.76 | 7/16 | 456H-0307 | 436T-0307 |
| – | 3.2283 | 82.00 | 7/16 | 456H-82 | 436T-82 |
| 3-1/4 | 3.2500 | 82.55 | 7/16 | 456H-0308 | 436T-0308 |
| 3-9/32 | 3.2813 | 83.34 | 7/16 | 456H-0309 | 436T-0309 |
| – | 3.3071 | 84.00 | 7/16 | 456H-84 | 436T-84 |
| 3-5/16 | 3.3125 | 84.14 | 7/16 | 456H-0310 | 436T-0310 |
| 3-11/32 | 3.3438 | 84.93 | 7/16 | 456H-0311 | 436T-0311 |
| 3-3/8 | 3.3750 | 85.73 | 7/16 | 456H-0312 | 436T-0312 |
| – | 3.3858 | 86.00 | 7/16 | 456H-86 | 436T-86 |
| 3-13/32 | 3.4063 | 86.52 | 7/16 | 456H-0313 | 436T-0313 |
| 3-7/16 | 3.4375 | 87.31 | 7/16 | 456H-0314 | 436T-0314 |
| – | 3.4646 | 88.00 | 7/16 | 456H-88 | 436T-88 |
| 3-15/32 | 3.4688 | 88.11 | 7/16 | 456H-0315 | 436T-0315 |
| 3-1/2 | 3.5000 | 88.90 | 7/16 | 456H-0316 | 436T-0316 |

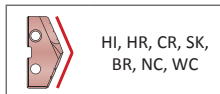
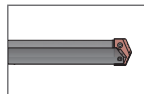
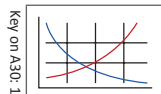
A
DRILLINGB
BORINGC
REAMINGD
BURNISHINGE
THREADINGX
SPECIALS

Inserts sold in quantities of 1

A30: 112 - 143

A30: 98 - 100

A30: 4 - 6



Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

TiN = 456T-XXXX

TiAlN = 456A-XXXX

TiCN = 456N-XXXX

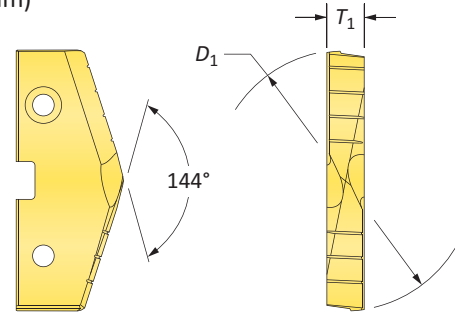
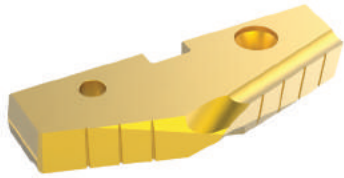
AM200® = 456H-XXXX



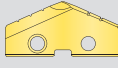
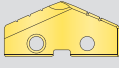
T-A® Drill Inserts

6 Series | HSS | Diameter Range: 3.001" - 3.507" (76.22 mm - 89.08 mm)

(for use with 5 series holders)



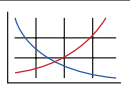
HSS Inserts – Super Cobalt | HSS

| Fractional Equivalent | Insert | | | Super Cobalt Part No.* | HSS Part No. |
|-----------------------|---------------------|-------------------|----------------|---|---|
| | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiN |
| 3-1/32 | 3.0313 | 76.99 | 7/16 | 156T-0301 | 136T-0301 |
| 3-1/16 | 3.0625 | 77.79 | 7/16 | 156T-0302 | 136T-0302 |
| - | 3.0709 | 78.00 | 7/16 | 156T-78 | 136T-78 |
| 3-3/32 | 3.0938 | 78.58 | 7/16 | 156T-0303 | 136T-0303 |
| 3-1/8 | 3.1250 | 79.38 | 7/16 | 156T-0304 | 136T-0304 |
| - | 3.1496 | 80.00 | 7/16 | 156T-80 | 136T-80 |
| 3-5/32 | 3.1563 | 80.17 | 7/16 | 156T-0305 | 136T-0305 |
| 3-3/16 | 3.1875 | 80.96 | 7/16 | 156T-0306 | 136T-0306 |
| 3-7/32 | 3.2188 | 81.76 | 7/16 | 156T-0307 | 136T-0307 |
| - | 3.2283 | 82.00 | 7/16 | 156T-82 | 136T-82 |
| 3-1/4 | 3.2500 | 82.55 | 7/16 | 156T-0308 | 136T-0308 |
| 3-9/32 | 3.2813 | 83.34 | 7/16 | 156T-0309 | 136T-0309 |
| - | 3.3071 | 84.00 | 7/16 | 156T-84 | 136T-84 |
| 3-5/16 | 3.3125 | 84.14 | 7/16 | 156T-0310 | 136T-0310 |
| 3-11/32 | 3.3438 | 84.93 | 7/16 | 156T-0311 | 136T-0311 |
| 3-3/8 | 3.3750 | 85.73 | 7/16 | 156T-0312 | 136T-0312 |
| - | 3.3858 | 86.00 | 7/16 | 156T-86 | 136T-86 |
| 3-13/32 | 3.4063 | 86.52 | 7/16 | 156T-0313 | 136T-0313 |
| 3-7/16 | 3.4375 | 87.31 | 7/16 | 156T-0314 | 136T-0314 |
| - | 3.4646 | 88.00 | 7/16 | 156T-88 | 136T-88 |
| 3-15/32 | 3.4688 | 88.11 | 7/16 | 156T-0315 | 136T-0315 |
| 3-1/2 | 3.5000 | 88.90 | 7/16 | 156T-0316 | 136T-0316 |


*Available as non-stocked standard

Key on A30-1


A30: 112 - 143



A30: 98 - 100



A30: 4 - 6



HI, HR, CR, SK,
BR, NC, WC, TC

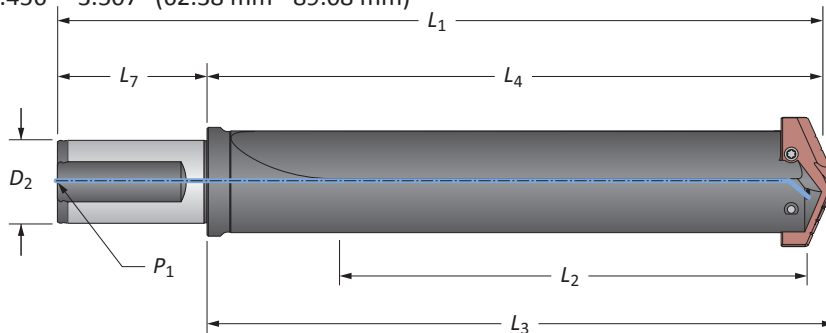
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 156T-XXXX | TiAlN = 156A-XXXX |
| TiCN = 156N-XXXX | AM200® = 156H-XXXX |

Inserts sold in quantities of 1

T-A® Drill Insert Holders

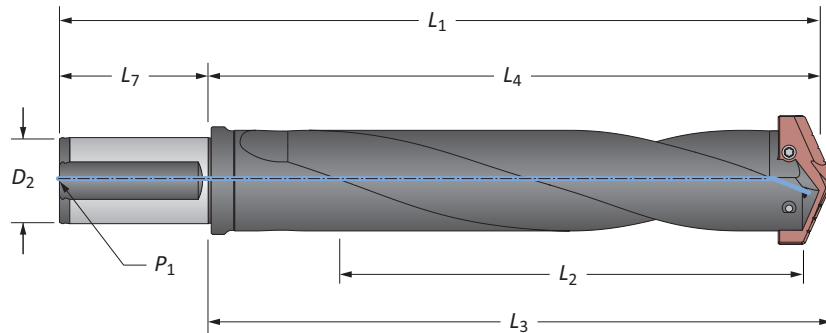
5 Series | Flange Shank | Diameter Range: 2.456" - 3.507" (62.38 mm - 89.08 mm)



Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i Short | 6-49/64 | 8-1/2 | 8-3/4 | 13-1/4 | 2 | 4-1/2 | 1/2 | 22050S-200F |
| Extended | 18-17/64 | 20 | 20-1/4 | 24-3/4 | 2 | 4-1/2 | 1/2 | 25050S-200F |
| m Short | 172 | 215.9 | 222.3 | 302.3 | 50.0 | 80.0 | 1/2* | 22050S-50FM |
| Extended | 464 | 508 | 514.4 | 594.4 | 50.0 | 80.0 | 1/2* | 25050S-50FM |

*Metric thread to BSP and ISO 7-1



Helical Flute

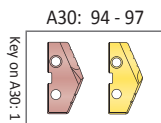
| Length | Body | | | | Shank | | | Part No. |
|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| i Standard | 10-3/4 | 12-1/2 | 12-3/4 | 17-1/4 | 2 | 4-1/2 | 1/2 | 24050H-200F |
| m Standard | 273 | 317.5 | 323.9 | 403.9 | 50.0 | 80.0 | 1/2* | 24050H-50FM |

*Metric thread to BSP and ISO 7-1

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7619-IP25-1 | - | 8IP-25 | - | - | 155.0 in-lbs (1750 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



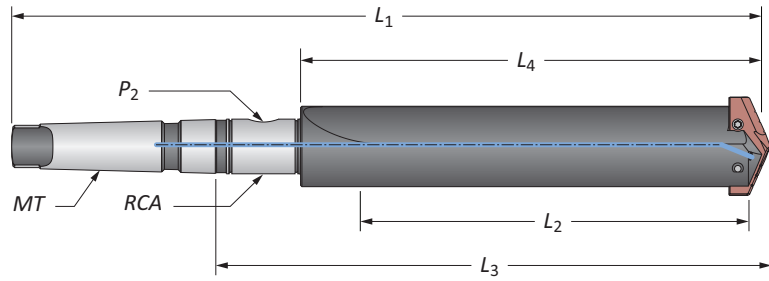
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

5 Series | Taper Shank | Diameter Range: 2.456" - 3.507" (62.38 mm - 89.08 mm)

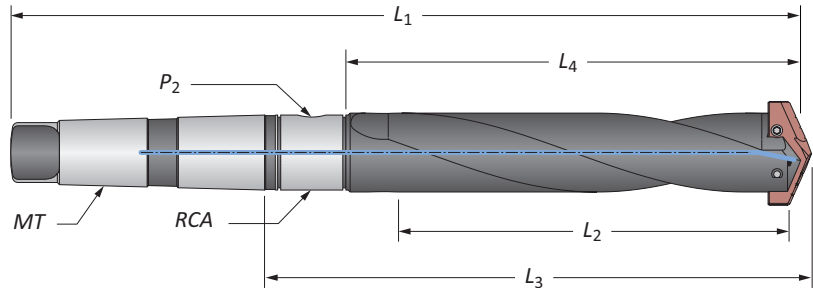


Straight Flute

| | Length | Body | | | | Shank | | | Part No. |
|---|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| i | Short | 6-3/4 | 8-1/2 | 11-5/16 | 16-15/16 | #5 | 1/2 | 2T-6SR | 22050S-005I |
| | Standard | 10-3/4 | 12-1/2 | 15-5/16 | 20-15/16 | #5 | 1/2 | 2T-6SR | 24050S-005I |
| | Extended | 18-1/4 | 20 | 22-13/16 | 28-7/16 | #5 | 1/2 | 2T-6SR | 25050S-005I |
| | XL | 26 | 27-3/4 | 30-9/16 | 36-3/16 | #5 | 1/2 | 2T-6SR | 27050S-005I |
| | 3XL | 35 | 36-3/4 | 39-9/16 | 45-3/16 | #5 | 1/2 | 2T-6SR | 29050S-005I |
| m | Short | 171.5 | 215.9 | 287.3 | 430.2 | #5** | 1/2* | 2T-6SRM | 22050S-005M |
| | Extended | 463.6 | 508.0 | 579.4 | 722.3 | #5** | 1/2* | 2T-6SRM | 25050S-005M |
| | XL | 660.0 | 704.8 | 776.2 | 919.1 | #5** | 1/2* | 2T-6SRM | 27050S-005M |
| | 3XL | 889.0 | 933.4 | 1004.8 | 1147.7 | #5** | 1/2* | 2T-6SRM | 29050S-005M |

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Helical Flute

| | Length | Body | | | | Shank | | | Part No. |
|---|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| m | Standard | 273.1 | 317.5 | 388.9 | 531.8 | #5** | 1/2* | 2T-6SRM | 24050H-005M |

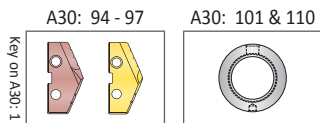
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7619-IP25-1 | - | 8IP-25 | - | - | 155.0 in-lbs (1750 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

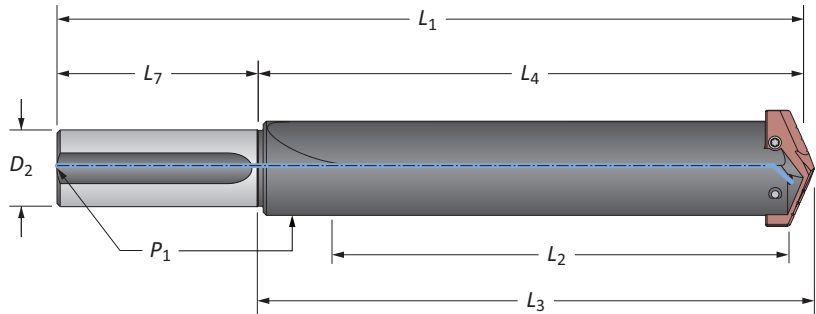
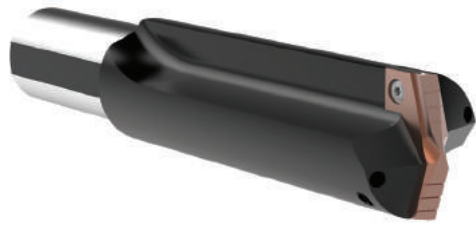
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

5 Series | Straight Shank | Diameter Range: 2.456" - 3.507" (62.38 mm - 89.08 mm)



Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| Short | 6-3/4 | 8-1/2 | 8-3/4 | 12-1/2 | 2 | 4 | 1/2 | 22050S-200L |
| Standard | 10-3/4 | 12-1/2 | 12-3/4 | 16-1/2 | 2 | 4 | 1/2 | 24050S-200L |
| Extended | 18-1/4 | 20 | 20-1/4 | 24 | 2 | 4 | 1/2 | 25050S-200L |
| XL | 26 | 27-3/4 | 28 | 31-3/4 | 2 | 4 | 1/2 | 27050S-200L |
| 3XL | 35 | 36-3/4 | 37 | 40-3/4 | 2 | 4 | 1/2 | 29050S-200L |

C REAMING

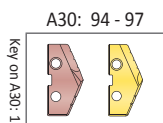
D BURNISHING

F THREADING

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7619-IP25-1 | - | 8IP-25 | - | - | 155.0 in-lbs (1750 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

X SPECIALS



T-A® Drill Accessories

5/6 Series | Rotary Coolant Adapters | Torx® Plus Screws

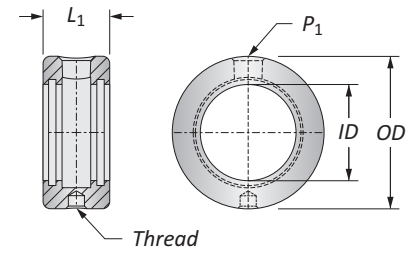
Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No. | RCA O-Rings | |
|----------------|-------|----------------|--------------------|----------------|------------------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| i 2-1/4 | 3-3/4 | 1-3/4 | 1/2-13 | 1/2 | ⚠ 2T-6SR | 2T1-6SR | 2T1-6OR-10 |
| m 57.15 | 95.27 | 44.45 | M12 x 1.75 | 1/2* | ⚠ 2T-6SRM | 2T1-6SR | 2T1-6OR-10 |

*Thread to BSP and ISO 7-1

**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

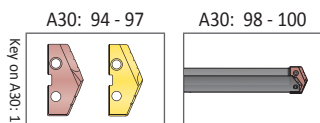
⚠ Refer to page A30: 110 for proper RCA assembly and safety information



Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7619-IP25-1 | - | 8IP-25 | - | - | 155.0 in-lbs (1750 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



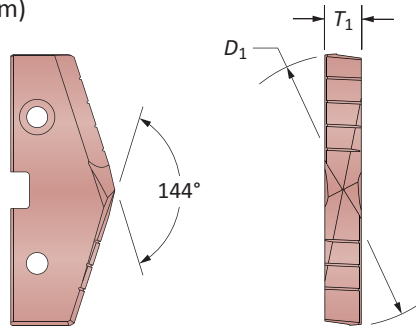
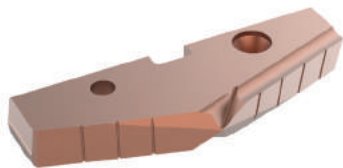
i = Imperial (in)
m = Metric (mm)
 Inserts sold separately
 Screws sold in packs of 10
 O-rings sold in packs of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

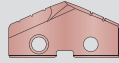

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

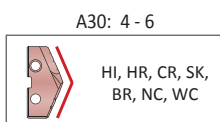
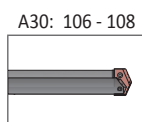
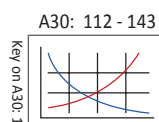
GEN2 T-A® Drill Inserts

7 Series | HSS | Diameter Range: 3.508" - 4.000" (89.10 mm - 101.60 mm)



HSS Inserts – Super Cobalt | HSS

| Fractional Equivalent | Insert | | | Super Cobalt Part No. | HSS Part No. |
|-----------------------|------------|----------|-------|--|---|
| | D_1 inch | D_1 mm | T_1 |  AM200® |  TiN |
| 3-17/32 | 3.5313 | 89.69 | 7/16 | 457H-0317 | 437T-0317 |
| – | 3.5433 | 90.00 | 7/16 | 457H-90 | 437T-90 |
| 3-9/16 | 3.5625 | 90.49 | 7/16 | 457H-0318 | 437T-0318 |
| 3-19/32 | 3.5938 | 91.28 | 7/16 | 457H-0319 | 437T-0319 |
| – | 3.6221 | 92.00 | 7/16 | 457H-92 | 437T-92 |
| 3-5/8 | 3.6250 | 92.08 | 7/16 | 457H-0320 | 437T-0320 |
| 3-21/32 | 3.6563 | 92.87 | 7/16 | 457H-0321 | 437T-0321 |
| 3-11/16 | 3.6875 | 93.66 | 7/16 | 457H-0322 | 437T-0322 |
| – | 3.7008 | 94.00 | 7/16 | 457H-94 | 437T-94 |
| 3-23/32 | 3.7188 | 94.46 | 7/16 | 457H-0323 | 437T-0323 |
| 3-3/4 | 3.7500 | 95.25 | 7/16 | 457H-0324 | 437T-0324 |
| – | 3.7795 | 96.00 | 7/16 | 457H-96 | 437T-96 |
| 3-25/32 | 3.7813 | 96.04 | 7/16 | 457H-0325 | 437T-0325 |
| 3-13/16 | 3.8125 | 96.84 | 7/16 | 457H-0326 | 437T-0326 |
| 3-27/32 | 3.8438 | 97.63 | 7/16 | 457H-0327 | 437T-0327 |
| – | 3.8583 | 98.00 | 7/16 | 457H-98 | 437T-98 |
| 3-7/8 | 3.8750 | 98.43 | 7/16 | 457H-0328 | 437T-0328 |
| 3-29/32 | 3.9063 | 99.22 | 7/16 | 457H-0329 | 437T-0329 |
| – | 3.9370 | 100.00 | 7/16 | 457H-100 | 437T-100 |
| 3-15/16 | 3.9375 | 100.01 | 7/16 | 457H-0330 | 437T-0330 |
| 3-31/32 | 3.9688 | 100.81 | 7/16 | 457H-0331 | 437T-0331 |
| 4 | 4.0000 | 101.60 | 7/16 | 457H-0400 | 437T-0400 |



Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

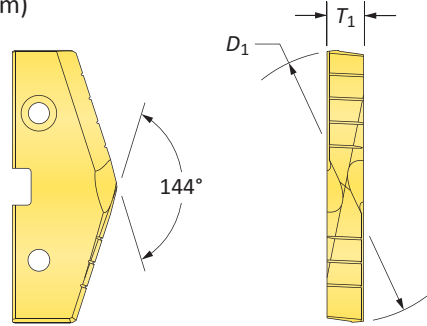
| | |
|------------------|--------------------|
| TiN = 457T-XXXX | TiAlN = 457A-XXXX |
| TiCN = 457N-XXXX | AM200® = 457H-XXXX |

Inserts sold in quantities of 1

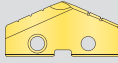



T-A® Drill Inserts

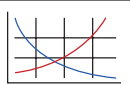


7 Series | HSS | Diameter Range: 3.508" - 4.000" (89.10 mm - 101.60 mm)



HSS Inserts – Super Cobalt | HSS

| Fractional Equivalent | Insert | | | Super Cobalt Part No.* | HSS Part No. |
|-----------------------|---------------------|-------------------|----------------|---|---|
| | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiN |
| 3-17/32 | 3.5313 | 89.69 | 7/16 | 157T-0317 | 137T-0317 |
| - | 3.5433 | 90.00 | 7/16 | 157T-90 | 137T-90 |
| 3-9/16 | 3.5625 | 90.49 | 7/16 | 157T-0318 | 137T-0318 |
| 3-19/32 | 3.5938 | 91.28 | 7/16 | 157T-0319 | 137T-0319 |
| - | 3.6221 | 92.00 | 7/16 | 157T-92 | 137T-92 |
| 3-5/8 | 3.6250 | 92.08 | 7/16 | 157T-0320 | 137T-0320 |
| 3-21/32 | 3.6563 | 92.87 | 7/16 | 157T-0321 | 137T-0321 |
| 3-11/16 | 3.6875 | 93.66 | 7/16 | 157T-0322 | 137T-0322 |
| - | 3.7008 | 94.00 | 7/16 | 157T-94 | 137T-94 |
| 3-23/32 | 3.7188 | 94.46 | 7/16 | 157T-0323 | 137T-0323 |
| 3-3/4 | 3.7500 | 95.25 | 7/16 | 157T-0324 | 137T-0324 |
| - | 3.7795 | 96.00 | 7/16 | 157T-96 | 137T-96 |
| 3-25/32 | 3.7813 | 96.04 | 7/16 | 157T-0325 | 137T-0325 |
| 3-13/16 | 3.8125 | 96.84 | 7/16 | 157T-0326 | 137T-0326 |
| 3-27/32 | 3.8438 | 97.63 | 7/16 | 157T-0327 | 137T-0327 |
| - | 3.8583 | 98.00 | 7/16 | 157T-98 | 137T-98 |
| 3-7/8 | 3.8750 | 98.43 | 7/16 | 157T-0328 | 137T-0328 |
| 3-29/32 | 3.9063 | 99.22 | 7/16 | 157T-0329 | 137T-0329 |
| - | 3.9370 | 100.00 | 7/16 | 157T-100 | 137T-100 |
| 3-15/16 | 3.9375 | 100.01 | 7/16 | 157T-0330 | 137T-0330 |
| 3-31/32 | 3.9688 | 100.81 | 7/16 | 157T-0331 | 137T-0331 |
| 4 | 4.0000 | 101.60 | 7/16 | 157T-0400 | 137T-0400 |

*Available as non-stocked standard

A30: 112 - 143  A30: 106 - 108  A30: 4 - 6  HI, HR, CR, SK, BR, NC, WC, TC

Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 157T-XXXX | TiAlN = 157A-XXXX |
| TiCN = 157N-XXXX | AM200® = 157H-XXXX |

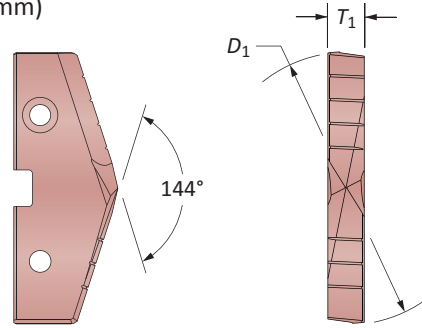
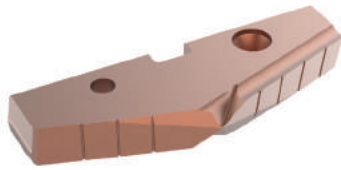
Inserts sold in quantities of 1

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

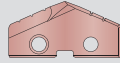

GEN2 T-A® Drill Inserts

8 Series | HSS | Diameter Range: 4.001" - 4.507" (101.63 mm - 114.48 mm)

(for use with 7 series holders)



HSS Inserts – Super Cobalt | HSS

| Fractional Equivalent | Insert | | | Super Cobalt Part No. | HSS Part No. |
|-----------------------|------------|----------|-------|--|---|
| | D_1 inch | D_1 mm | T_1 |  AM200® |  TiN |
| 4-1/64 | 4.0157 | 102.00 | 7/16 | 458H-102 | 438T-102 |
| 4-1/16 | 4.0625 | 103.19 | 7/16 | 458H-0402 | 438T-0402 |
| 4-3/32 | 4.0945 | 104.00 | 7/16 | 458H-104 | 438T-104 |
| 4-1/8 | 4.1250 | 104.75 | 7/16 | 458H-0404 | 438T-0404 |
| – | 4.1732 | 106.00 | 7/16 | 458H-106 | 438T-106 |
| 4-3/16 | 4.1875 | 106.36 | 7/16 | 458H-0406 | 438T-0406 |
| 4-1/4 | 4.2500 | 107.95 | 7/16 | 458H-0408 | 438T-0408 |
| – | 4.2520 | 108.00 | 7/16 | 458H-108 | 438T-108 |
| 4-5/16 | 4.3125 | 109.54 | 7/16 | 458H-0410 | 438T-0410 |
| – | 4.3307 | 110.00 | 7/16 | 458H-110 | 438T-110 |
| 4-3/8 | 4.3750 | 111.13 | 7/16 | 458H-0412 | 438T-0412 |
| – | 4.4094 | 112.00 | 7/16 | 458H-112 | 438T-112 |
| 4-7/16 | 4.4375 | 112.71 | 7/16 | 458H-0414 | 438T-0414 |
| – | 4.4882 | 114.00 | 7/16 | 458H-114 | 438T-114 |
| 4-1/2 | 4.5000 | 114.30 | 7/16 | 458H-0416 | 438T-0416 |

D

BURNISHING

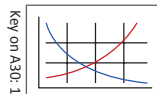
F

THREADING

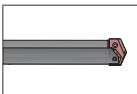
X

SPECIALS

A30: 112 - 143



A30: 106 - 108



A30: 4 - 6



HI, HR, CR, SK,
BR, NC, WC

Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 458T-XXXX | TiAlN = 458A-XXXX |
| TiCN = 458N-XXXX | AM200® = 458H-XXXX |

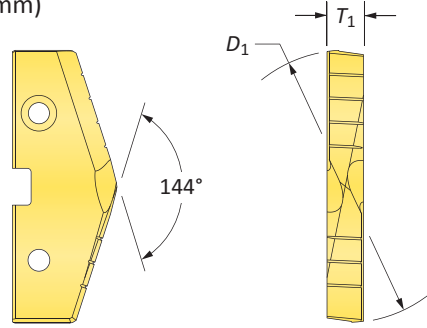
Inserts sold in quantities of 1





T-A® Drill Inserts

8 Series | HSS | Diameter Range: 4.001" - 4.507" (101.63 mm - 114.48 mm)

(for use with 7 series holders)

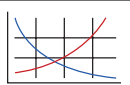


HSS Inserts – Super Cobalt | HSS


| Fractional Equivalent | Insert | | | Super Cobalt Part No.* | HSS Part No. |
|-----------------------|---------------------|-------------------|----------------|---|---|
| | D ₁ inch | D ₁ mm | T ₁ |  TiN |  TiN |
| 4-1/64 | 4.0157 | 102.00 | 7/16 | 158T-102 | 138T-102 |
| 4-1/16 | 4.0625 | 103.19 | 7/16 | 158T-0402 | 138T-0402 |
| 4-3/32 | 4.0945 | 104.00 | 7/16 | 158T-104 | 138T-104 |
| 4-1/8 | 4.1250 | 104.75 | 7/16 | 158T-0404 | 138T-0404 |
| - | 4.1732 | 106.00 | 7/16 | 158T-106 | 138T-106 |
| 4-3/16 | 4.1875 | 106.36 | 7/16 | 158T-0406 | 138T-0406 |
| 4-1/4 | 4.2500 | 107.95 | 7/16 | 158T-0408 | 138T-0408 |
| - | 4.2520 | 108.00 | 7/16 | 158T-108 | 138T-108 |
| 4-5/16 | 4.3125 | 109.54 | 7/16 | 158T-0410 | 138T-0410 |
| - | 4.3307 | 110.00 | 7/16 | 158T-110 | 138T-110 |
| 4-3/8 | 4.3750 | 111.13 | 7/16 | 158T-0412 | 138T-0412 |
| - | 4.4094 | 112.00 | 7/16 | 158T-112 | 138T-112 |
| 4-7/16 | 4.4375 | 112.71 | 7/16 | 158T-0414 | 138T-0414 |
| - | 4.4882 | 114.00 | 7/16 | 158T-114 | 138T-114 |
| 4-1/2 | 4.5000 | 114.30 | 7/16 | 158T-0416 | 138T-0416 |

*Available as non-stocked standard


A30: 112 - 143



A30: 106 - 108



A30: 4 - 6



HI, HR, CR, SK,
BR, NC, WC, TC

Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

| | |
|------------------|--------------------|
| TiN = 158T-XXXX | TiAlN = 158A-XXXX |
| TiCN = 158N-XXXX | AM200® = 158H-XXXX |

Inserts sold in quantities of 1

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

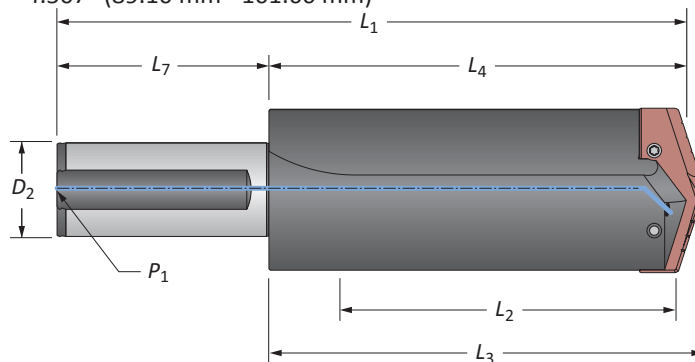
THREADING

X

SPECIALS

T-A® Drill Insert Holders

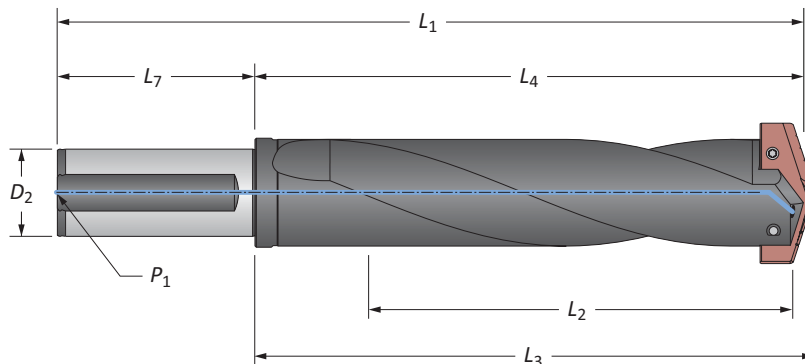
7 Series | Flange Shank | Diameter Range: 3.5080" - 4.507" (89.10 mm - 101.60 mm)



Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|----------------|----------|----------|--------|--------|-------|-------|-------|--------------------|
| | L_2 | L_4 | L_3 | L_1 | D_2 | L_7 | P_1 | |
| i Short | 6-49/64 | 8-7/8 | 9-1/8 | 13-5/8 | 2 | 4-1/2 | 1/2 | 22070S-200F |
| Extended | 21-57/64 | 23-57/64 | 24-1/4 | 27-3/4 | 2 | 4-1/2 | 1/2 | 25070S-200F |
| m Short | 172 | 225.4 | 231.8 | 311.8 | 50.0 | 80.0 | 1/2* | 22070S-50FM |
| Extended | 556 | 606.9 | 616 | 696 | 50.0 | 80.0 | 1/2* | 25070S-50FM |

*Metric thread to BSP and ISO 7-1



Helical Flute

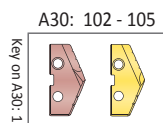
| Length | Body | | | | Shank | | | Part No. |
|-------------------|--------|--------|--------|--------|-------|-------|-------|--------------------|
| | L_2 | L_4 | L_3 | L_1 | D_2 | L_7 | P_1 | |
| i Standard | 10-3/4 | 12-7/8 | 13-1/8 | 17-5/8 | 2 | 4-1/2 | 1/2 | 24070H-200F |
| m Standard | 273 | 327 | 333.4 | 413.4 | 50.0 | 80.0 | 1/2* | 24070H-50FM |

*Metric thread to BSP and ISO 7-1

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7619-IP25-1 | - | 8IP-25 | - | - | 155.0 in-lbs (1750 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

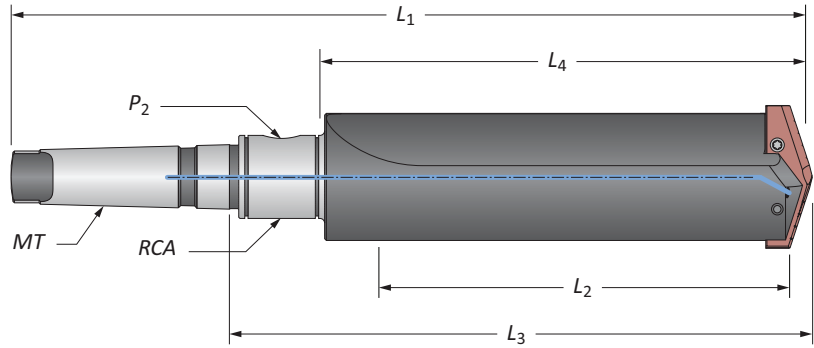


i = Imperial (in)
m = Metric (mm)
 Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

7 Series | Taper Shank | Diameter Range: 3.508" - 4.507" (89.10 mm - 101.60 mm)

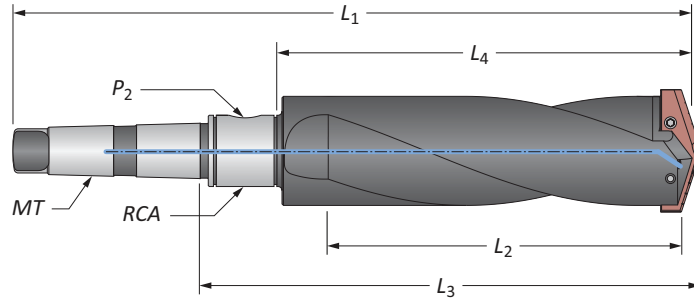


Straight Flute

| | Length | Body | | | | Shank | | | Part No. |
|---|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|---------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| i | Short | 6-3/4 | 8-7/8 | 11-11/16 | 17-5/16 | #5 | 1/2 | 2T-6SR | 22070S-005I |
| | Standard | 10-3/4 | 12-7/8 | 15-11/16 | 21-5/16 | #5 | 1/2 | 2T-6SR | 24070S-005I |
| | Extended | 21-7/8 | 24 | 26-13/16 | 32-7/16 | #5 | 1/2 | 2T-6SR | ▲ 25070S-005I |
| | XL | 27 | 29-1/8 | 31-15/16 | 37-9/16 | #5 | 1/2 | 2T-6SR | ▲ 27070S-005I |
| | 3XL | 37 | 39-1/8 | 41-5/16 | 47-9/16 | #5 | 1/2 | 2T-6SR | ▲ 29070S-005I |
| m | Short | 171.5 | 225.4 | 296.8 | 439.7 | #5** | 1/2* | 2T-6SRM | 22070S-005M |
| | Extended | 555.6 | 609.6 | 681.1 | 823.9 | #5** | 1/2* | 2T-6SRM | ▲ 25070S-005M |
| | XL | 685.0 | 739.7 | 811.2 | 954.0 | #5** | 1/2* | 2T-6SRM | ▲ 27070S-005M |
| | 3XL | 939.0 | 993.7 | 1065.2 | 1208.0 | #5** | 1/2* | 2T-6SRM | ▲ 29070S-005M |

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Helical Flute

| | Length | Body | | | | Shank | | | Part No. |
|---|----------|----------------|----------------|----------------|----------------|-------|----------------|---------|-------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | MT | P ₂ | RCA | |
| m | Standard | 273.1 | 327.0 | 398.5 | 541.3 | #5** | 1/2* | 2T-6SRM | 24070H-005M |

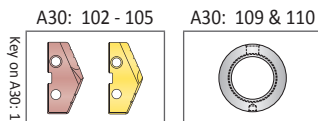
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7619-IP25-1 | - | 8IP-25 | - | - | 155.0 in-lbs (1750 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



Key on A30-1

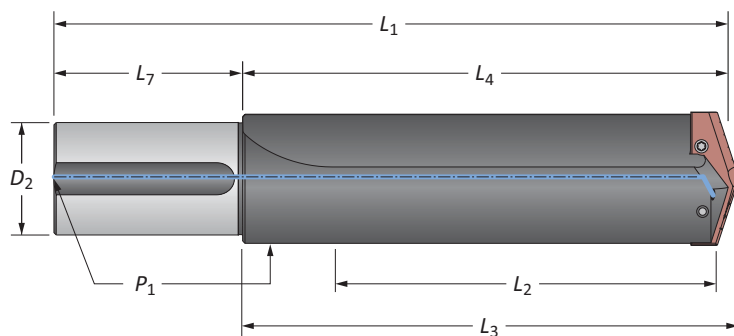
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Insert Holders

7 Series | Straight Shank | Diameter Range: 3.508" - 4.507" (89.10 mm - 101.60 mm)



Straight Flute

| Length | Body | | | | Shank | | | Part No. |
|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | D ₂ | L ₇ | P ₁ | |
| Short | 6-3/4 | 8-7/8 | 9-1/8 | 13-7/8 | 3 | 5 | 1/2 | 22070S-300L |
| Standard | 10-3/4 | 12-7/8 | 13-1/8 | 17-7/8 | 3 | 5 | 1/2 | 24070S-300L |
| i Extended | 21-7/8 | 24 | 24-1/4 | 29 | 3 | 5 | 1/2 | m 25070S-300L |
| XL | 27 | 29-1/8 | 29-3/8 | 34-1/8 | 3 | 5 | 1/2 | m 27070S-300L |
| 3XL | 37 | 39-1/8 | 39-3/8 | 44-1/8 | 3 | 5 | 1/2 | m 29070S-300L |

C

REAMING

D

BURNISHING

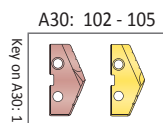
F

THREADING

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7619-IP25-1 | - | 8IP-25 | - | - | 155.0 in-lbs (1750 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

m = Metric (mm)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

X

SPECIALS

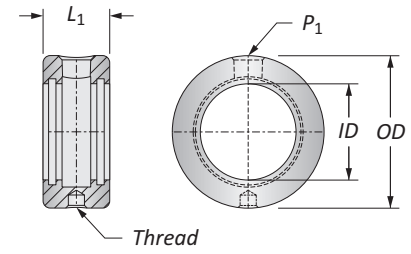


T-A® Drill Accessories

7/8 Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter (RCA) and Accessories

| | ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No. | RCA O-Rings | |
|----------|-------|-------|----------------|--------------------|----------------|------------------|----------------|--------------|
| | | | | | | | Kit Part No.** | Replacements |
| i | 2-1/4 | 3-3/4 | 1-3/4 | 1/2-13 | 1/2 | ⚠ 2T-6SR | 2T1-6SR | 2T1-6OR-10 |
| m | 57.15 | 95.27 | 44.45 | M12 x 1.75 | 1/2* | ⚠ 2T-6SRM | 2T1-6SR | 2T1-6OR-10 |



*Thread to BSP and ISO 7-1

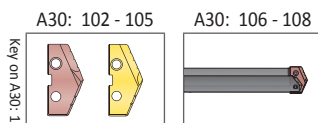
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

⚠ Refer to page A30: 110 for proper RCA assembly and safety information

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7619-IP25-1 | - | 8IP-25 | - | - | 155.0 in-lbs (1750 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)
m = Metric (mm)

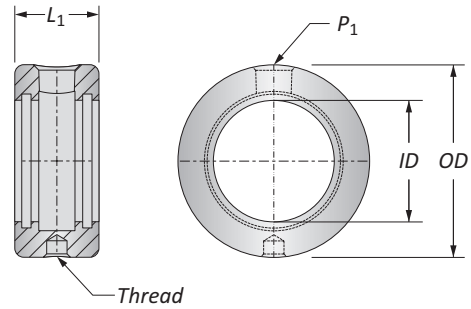
Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Rotary Coolant Adapters (RCA)

Morse Taper Shanks



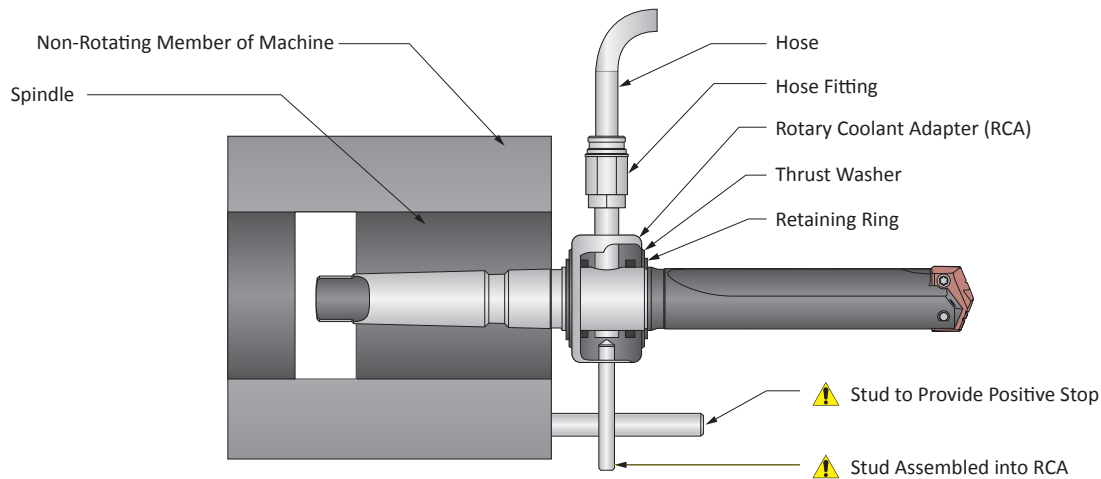
| Holder Series | ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No. | Max Recommended RPM | RCA O-Rings | | |
|---------------|---------|-------|----------------|--------------------|----------------|----------|---------------------|----------------|--------------|------------|
| | | | | | | | | Kit Part No.** | Replacements | |
| i | Y, Z, 0 | 3/4 | 1-3/4 | 7/8 | 5/16 - 18 | 1/8 | ⚠ 2T-2SR | 3500 | 2T1-2SR | 2T1-2OR-10 |
| | 1, 2 | 1 | 2-1/8 | 1-1/8 | 5/16 - 18 | 1/8 | ⚠ 2T-3SR | 2500 | 2T1-3SR | 2T1-3OR-10 |
| | 2, 3, 4 | 1-1/4 | 2-1/2 | 1-3/8 | 3/8 - 16 | 1/4 | ⚠ 2T-4SR | 2000 | 2T1-4SR | 2T1-4OR-10 |
| | 3, 4 | 1-3/4 | 3 | 1-3/8 | 3/8 - 16 | 1/4 | ⚠ 2T-5SR | 1500 | 2T1-5SR | 2T1-5OR-10 |
| | 5, 7 | 2-1/4 | 3-3/4 | 1-3/4 | 1/2 - 13 | 1/2 | ⚠ 2T-6SR | 1100 | 2T1-6SR | 2T1-6OR-10 |
| m | Y, Z, 0 | 19.05 | 44.45 | 22.23 | M8 x 1.25 | 1/8* | ⚠ 2T-2SRM | 3500 | 2T1-2SR | 2T1-2OR-10 |
| | 1, 2 | 25.40 | 53.97 | 28.57 | M8 x 1.25 | 1/8* | ⚠ 2T-3SRM | 2500 | 2T1-3SR | 2T1-3OR-10 |
| | 2, 3, 4 | 31.75 | 63.50 | 34.92 | M10 x 1.50 | 1/4* | ⚠ 2T-4SRM | 2000 | 2T1-4SR | 2T1-4OR-10 |
| | 3, 4 | 44.45 | 76.20 | 34.92 | M10 x 1.50 | 1/4* | ⚠ 2T-5SRM | 1500 | 2T1-5SR | 2T1-5OR-10 |
| | 5, 7 | 57.15 | 95.27 | 44.45 | M12 x 1.75 | 1/2* | ⚠ 2T-6SRM | 1100 | 2T1-6SR | 2T1-6OR-10 |

*Thread to BSP and ISO 7-1

**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

NOTE: Max recommended pressure is 600 PSI (42 bar)

NOTE: Recommendations above are based on water and oil based coolants



i = Imperial (in)

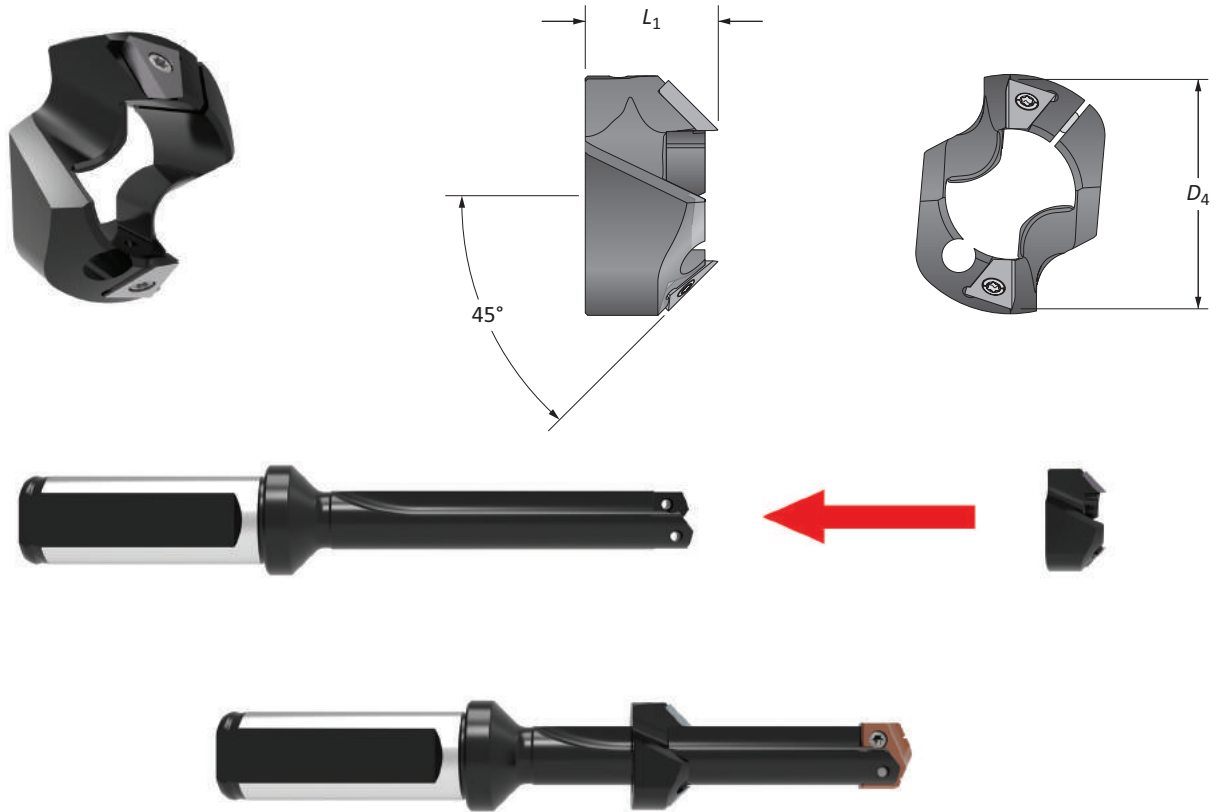
m = Metric (mm)




O-rings sold in packs of 10

⚠ WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.

T-ACR 45 Chamfer Rings

Straight Flute Holders



| Holder Series | D ₁ Range | Chamfer Ring | | Part No. |  Insert Part No. |  Insert Screw | Insert Driver |  Clamping Screw | Insert Driver |
|---------------|----------------------|----------------|----------------|---------------------|---|--|---------------|--|---------------|
| | | D ₄ | L ₁ | | | | | | |
| 0 | 0.5118 - 0.6890 | 13/16 | 0.676 | T-ACR-45-0 | T-ACRI-45-B-C5A | 7255-IP8-1 | 8IP-8 | 7375-IP9-1 | 8IP-9 |
| 1 | 0.6900 - 0.9600 | 1-3/64 | 51/64 | T-ACR-45-1 | T-ACRI-45-B-C5A | 7255-IP8-1 | 8IP-8 | 7495-IP15-1 | 8IP-15 |
| 1.5 | 0.8540 - 0.9600 | 1-1/8 | 57/64 | T-ACR-45-1.5 | T-ACRI-45-B-C5A | 7255-IP8-1 | 8IP-8 | 7495-IP15-1 | 8IP-15 |
| 2 | 0.9610 - 1.3800 | 1-9/16 | 1 | T-ACR-45-2 | T-ACRI-45-B-C5A | 7255-IP8-1 | 8IP-8 | 7514-IP20-1 | 8IP-20 |

Highlights and Other Information

- Produces a 45° chamfer only
- Clamping screw allows for setting at any length along the flute
- Double effective cutting with face mounted inserts provides increased feed rates and greater insert strength
- The ring is balanced to match the holder center of gravity to ensure stability
- Inserts only available in C5 carbide and TiAIN coating
- Ideal for short-run or time-sensitive jobs that require quick delivery


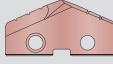


IMPORTANT: T-A chamfer rings can only be used with straight flute T-A holders

Inserts sold in quantities of 2
Screws sold in quantities of 10

GEN2 T-A® Recommended Drilling Data | Imperial (inch)

HSS Inserts

| ISO | Material | Hardness (BHN) | HSS Grade | SFM | | Feed Rate (IPR) by Diameter | |
|--|---|---|-----------|---|--|-----------------------------|-----------------|
| | | | |  TiN |  AM200® | 3/8" - 1/2" | 33/64" - 11/16" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | HSS | 200 | 325 | 0.008 | 0.012 |
| | | 150 - 200 | HSS | 180 | 300 | 0.007 | 0.011 |
| | | 200 - 250 | HSS | 160 | 280 | 0.006 | 0.010 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | HSS | 170 | 290 | 0.008 ❖ | 0.010 |
| | | 125 - 175 | HSS | 160 | 275 | 0.007 ❖ | 0.010 |
| | | 175 - 225 | HSS | 150 | 260 | 0.006 ❖ | 0.009 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | HSS | 140 | 240 | 0.005 ❖ | 0.009 |
| | | 125 - 175 | HSS | 160 | 275 | 0.007 | 0.010 |
| | | 175 - 225 | HSS | 150 | 260 | 0.006 | 0.009 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | HSS | 140 | 240 | 0.006 | 0.009 |
| | | 275 - 325 | SC | 130 | 225 | 0.005 | 0.008 |
| | | 325 - 375 | SC | 110 | 180 | 0.004 | 0.007 |
| 275 - 325 | | SC | 120 | 195 | 0.005 | 0.008 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 325 - 375 | SC | 110 | 180 | 0.004 | 0.007 | |
| | 225 - 300 | SC | 80 | 125 | 0.006 ❖ | 0.009 | |
| | 300 - 350 | SC | 60 | 100 | 0.005 ❖ | 0.008 | |
| Structural Steel A36, A285, A516, etc. | 350 - 400 | SC | 50 | 80 | 0.004 ❖ | 0.007 | |
| | 100 - 150 | HSS | 140 | 235 | 0.008 ❖ | 0.011 | |
| | 150 - 250 | HSS | 120 | 190 | 0.006 ❖ | 0.010 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 250 - 350 | SC | 100 | 160 | 0.005 ❖ | 0.009 | |
| | 150 - 200 | SC | 80 | 125 | 0.004 | 0.007 | |
| | 200 - 250 | SC | 60 | 105 | 0.004 | 0.007 | |
| | S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | SC | 30 | 45 | 0.004 ❖ |
| Titanium Alloy | | 220 - 310 | SC | 25 | 40 | 0.004 ❖ | 0.006 |
| | | 140 - 220 | SC | 35 | 55 | 0.004 ❖ | 0.007 |
| Aerospace Alloy S82 | | 220 - 310 | SC | 30 | 50 | 0.003 ❖ | 0.006 |
| | 185 - 275 | SC | 75 | 110 | 0.006 ❖ | 0.008 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 275 - 350 | SC | 60 | 100 | 0.005 ❖ | 0.007 |
| | | 135 - 185 | SC | 75 | 110 | 0.003 ❖ | 0.007 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 185 - 275 | SC | 60 | 100 | 0.003 ❖ | 0.006 |
| | | 135 - 185 | SC | 60 | 85 | 0.003 ❖ | 0.007 |
| | Super Duplex Stainless Steel | 185 - 275 | SC | 50 | 70 | 0.003 ❖ | 0.006 |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | SC | 45 | 70 | 0.003 ❖ | 0.006 |
| | | 500 | SC | 35 | 45 | 0.002 ❖ | 0.005 |
| | | 600 | - | - | - | 0.004 ❖ | 0.006 |
| | Hardened Steel | 300 - 400 | SC | 50 | 95 | - | - |
| 400 - 500 | | SC | 35 | 45 | 0.002 ❖ | 0.005 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | HSS | 170 | 290 | 0.008 | 0.012 |
| | | 150 - 200 | HSS | 150 | 260 | 0.007 | 0.011 |
| | | 200 - 220 | HSS | 130 | 225 | 0.006 | 0.009 |
| | | 220 - 260 | SC | 110 | 190 | 0.005 | 0.008 |
| | | 260 - 320 | SC | 90 | 155 | 0.005 | 0.007 |
| N | Cast Aluminum | 30 | HSS | 600 | - | 0.009 | 0.015 |
| | | 180 | HSS | 300 | - | 0.008 | 0.013 |
| | Wrought Aluminum | 30 | HSS | 600 | 900 | 0.005 | 0.013 |
| | | 180 | HSS | 300 | 650 | 0.005 | 0.007 |
| | Aluminum Bronze | 100 - 200 | SC | 170 | 270 | 0.006 | 0.009 |
| | | 200 - 250 | SC | 130 | 210 | 0.005 | 0.007 |
| | Brass | 100 | HSS | 300 | 470 | 0.007 | 0.011 |
| Copper | 60 | SC | 130 | 190 | 0.003 ❖ | 0.004 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| Feed Rate (IPR) by Diameter | | | | |
|-----------------------------|-----------------|-------------------|--------------------|-------------------|
| 45/64" - 15/16" | 31/32" - 1-3/8" | 1-13/32" - 1-7/8" | 1-29/32" - 2-9/16" | 2-19/32" - 4-1/2" |
| 0.016 | 0.019 | 0.020 | 0.023 | 0.028 |
| 0.015 | 0.017 | 0.020 | 0.023 | 0.028 |
| 0.014 | 0.016 | 0.020 | 0.023 | 0.028 |
| 0.014 | 0.018 | 0.019 | 0.023 | 0.027 |
| 0.014 | 0.017 | 0.019 | 0.023 | 0.027 |
| 0.013 | 0.016 | 0.018 | 0.021 | 0.024 |
| 0.013 | 0.016 | 0.018 | 0.021 | 0.024 |
| 0.014 | 0.017 | 0.019 | 0.023 | 0.027 |
| 0.013 | 0.016 | 0.018 | 0.021 | 0.024 |
| 0.013 | 0.016 | 0.018 | 0.021 | 0.024 |
| 0.012 | 0.015 | 0.016 | 0.019 | 0.022 |
| 0.014 | 0.017 | 0.017 | 0.019 | 0.022 |
| 0.013 | 0.016 | 0.017 | 0.019 | 0.022 |
| 0.013 | 0.016 | 0.017 | 0.019 | 0.022 |
| 0.012 | 0.015 | 0.015 | 0.017 | 0.020 |
| 0.011 | 0.014 | 0.015 | 0.017 | 0.020 |
| 0.011 | 0.013 | 0.014 | 0.017 | 0.020 |
| 0.010 | 0.012 | 0.014 | 0.017 | 0.020 |
| 0.009 | 0.011 | 0.012 | 0.015 | 0.018 |
| 0.015 | 0.017 | 0.018 | 0.021 | 0.026 |
| 0.013 | 0.015 | 0.016 | 0.019 | 0.024 |
| 0.012 | 0.013 | 0.014 | 0.017 | 0.020 |
| 0.010 | 0.012 | 0.012 | 0.015 | 0.017 |
| 0.010 | 0.012 | 0.012 | 0.015 | 0.017 |
| 0.009 | 0.011 | 0.012 | 0.015 | 0.017 |
| 0.008 | 0.010 | 0.010 | 0.012 | 0.014 |
| 0.008 | 0.010 | 0.012 | 0.015 | 0.017 |
| 0.007 | 0.009 | 0.010 | 0.012 | 0.014 |
| 0.009 | 0.011 | 0.014 | 0.016 | 0.020 |
| 0.008 | 0.010 | 0.012 | 0.014 | 0.018 |
| 0.008 | 0.011 | 0.014 | 0.016 | 0.020 |
| 0.007 | 0.010 | 0.012 | 0.014 | 0.018 |
| 0.008 | 0.011 | 0.014 | 0.016 | 0.020 |
| 0.007 | 0.010 | 0.012 | 0.014 | 0.018 |
| 0.008 | 0.009 | 0.012 | 0.016 | 0.018 |
| 0.007 | 0.008 | 0.010 | 0.012 | 0.016 |
| 0.009 | 0.011 | 0.012 | 0.016 | 0.018 |
| - | - | - | - | - |
| 0.007 | 0.009 | 0.010 | 0.012 | 0.016 |
| 0.016 | 0.020 | 0.024 | 0.027 | 0.030 |
| 0.015 | 0.019 | 0.022 | 0.025 | 0.028 |
| 0.013 | 0.017 | 0.018 | 0.021 | 0.024 |
| 0.011 | 0.014 | 0.014 | 0.017 | 0.020 |
| 0.010 | 0.012 | 0.012 | 0.014 | 0.016 |
| 0.018 | 0.023 | 0.022 | 0.025 | 0.025 |
| 0.016 | 0.020 | 0.022 | 0.025 | 0.025 |
| 0.016 | 0.020 | 0.022 | 0.025 | 0.025 |
| 0.012 | 0.014 | 0.022 | 0.025 | 0.025 |
| 0.012 | 0.015 | 0.017 | 0.019 | 0.021 |
| 0.009 | 0.011 | 0.014 | 0.016 | 0.018 |
| 0.013 | 0.018 | 0.019 | 0.021 | 0.023 |
| 0.007 | 0.010 | 0.009 | 0.011 | 0.012 |

Deep Hole Drilling Speed and Feed Adjustment

| | Holder Length | | | | |
|-------|---------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

$$200 \cdot 0.75 = 150 \text{ SFM} \qquad 0.008 \cdot 0.90 = 0.007 \text{ IPR}$$

Formulas

- RPM = (3.82 • SFM) / DIA**

where:

 - RPM = revolutions per minute (rev/min)
 - SFM = speed (ft/min)
 - DIA = diameter of drill (inch)
- IPM = RPM • IPR**

where:

 - IPM = inches per minute (in/min)
 - RPM = revolutions per minute (rev/min)
 - IPR = feed rate (in/rev)
- SFM = RPM • 0.262 • DIA**

where:

 - SFM = speed (ft/min)
 - RPM = revolutions per minute (rev/min)
 - DIA = diameter of drill (inch)


⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.


GEN2 T-A® Recommended Drilling Data | Imperial (inch)

Carbide Inserts

| ISO | Material | Hardness (BHN) | Carbide Grade | SFM  AM300® | Feed Rate (IPR) by Diameter | | | |
|--|---|---|---------------|--|-----------------------------|-----------------|-----------------|-----------------|
| | | | | | 3/8" - 1/2" | 33/64" - 11/16" | 45/64" - 15/16" | 31/32" - 1-3/8" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | C1 | 480 | 0.008 | 0.012 | 0.016 | 0.019 |
| | | 150 - 200 | C1 | 415 | 0.007 | 0.011 | 0.015 | 0.017 |
| | | 200 - 250 | C1 | 390 | 0.006 | 0.010 | 0.014 | 0.016 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | C1 | 450 | 0.008 ❖ | 0.010 | 0.014 | 0.018 |
| | | 125 - 175 | C1 | 390 | 0.007 ❖ | 0.010 | 0.014 | 0.017 |
| | | 175 - 225 | C1 | 355 | 0.006 ❖ | 0.009 | 0.013 | 0.016 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | C1 | 310 | 0.005 ❖ | 0.009 | 0.013 | 0.016 |
| | | 125 - 175 | C1 | 390 | 0.007 | 0.010 | 0.014 | 0.017 |
| | | 175 - 225 | C1 | 355 | 0.006 | 0.009 | 0.013 | 0.016 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | C1 | 310 | 0.006 | 0.009 | 0.013 | 0.016 |
| | | 275 - 325 | C1 | 265 | 0.005 | 0.008 | 0.012 | 0.015 |
| | | 275 - 325 | C1 | 285 | 0.005 | 0.008 | 0.012 | 0.015 |
| 325 - 375 | | C1 | 255 | 0.004 | 0.007 | 0.011 | 0.014 | |
| 125 - 175 | | C1 | 375 | 0.007 | 0.010 | 0.014 | 0.017 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 175 - 225 | C1 | 345 | 0.006 | 0.009 | 0.013 | 0.016 | |
| | 225 - 300 | C1 | 230 | 0.006 ❖ | 0.009 | 0.011 | 0.013 | |
| | 300 - 350 | C1 | 205 | 0.005 ❖ | 0.008 | 0.010 | 0.012 | |
| Structural Steel A36, A285, A516, etc. | 350 - 400 | C1 | 185 | 0.004 ❖ | 0.007 | 0.009 | 0.011 | |
| | 100 - 150 | C1 | 355 | 0.008 ❖ | 0.011 | 0.015 | 0.017 | |
| | 150 - 250 | C1 | 285 | 0.006 ❖ | 0.010 | 0.013 | 0.015 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 250 - 350 | C1 | 265 | 0.005 ❖ | 0.009 | 0.012 | 0.013 | |
| | 150 - 200 | C1 | 255 | 0.007 | 0.007 | 0.010 | 0.012 | |
| | 200 - 250 | C1 | 195 | 0.007 | 0.007 | 0.010 | 0.012 | |
| | S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | C2 | 120 | 0.004 ❖ | 0.007 | 0.009 |
| 220 - 310 | | | C2 | 95 | 0.004 ❖ | 0.006 | 0.008 | 0.010 |
| Titanium Alloy | | 140 - 220 | C2 | 140 | 0.004 ❖ | 0.007 | 0.008 | 0.011 |
| | | 220 - 310 | C2 | 110 | 0.003 ❖ | 0.006 | 0.007 | 0.009 |
| Aerospace Alloy S82 | | 185 - 275 | C2 | 240 | 0.005 ❖ | 0.006 | 0.007 | 0.009 |
| | 275 - 350 | C2 | 180 | 0.004 ❖ | 0.005 | 0.006 | 0.008 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | C2 | 240 | 0.007 ❖ | 0.009 | 0.012 | 0.014 |
| | | 275 - 350 | C2 | 180 | 0.006 ❖ | 0.008 | 0.011 | 0.012 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | C2 | 240 | 0.006 ❖ | 0.007 | 0.009 | 0.012 |
| | | 185 - 275 | C2 | 180 | 0.005 ❖ | 0.006 | 0.008 | 0.009 |
| | Super Duplex Stainless Steel | 135 - 185 | C2 | 125 | 0.005 ❖ | 0.007 | 0.008 | 0.010 |
| 185 - 275 | | C2 | 100 | 0.004 ❖ | 0.006 | 0.007 | 0.009 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| ISO | Material | Hardness (BHN) | Carbide Grade | SFM | Feed Rate (IPR) by Diameter | | | |
|-----------|---|----------------|---------------|---|-----------------------------|-----------------|-----------------|-----------------|
| | | | |  AM300® | 3/8" - 1/2" | 33/64" - 11/16" | 45/64" - 15/16" | 31/32" - 1-3/8" |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | C2 | 150 | 0.003 ❖ | 0.005 | 0.008 | 0.010 |
| | | 500 | C2 | 120 | 0.002 ❖ | 0.004 | 0.006 | 0.008 |
| | | 600 | C2 | 100 | 0.001 ❖ | 0.003 | 0.005 | 0.006 |
| | Hardened Steel | 300 - 400 | C1 | 150 | 0.004 ❖ | 0.006 | 0.009 | 0.011 |
| 400 - 500 | | C1 | 120 | 0.003 ❖ | 0.005 | 0.008 | 0.010 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | C2 | 500 | 0.008 | 0.012 | 0.015 | 0.019 |
| | | 150 - 200 | C2 | 480 | 0.007 | 0.011 | 0.013 | 0.017 |
| | | 200 - 220 | C2 | 430 | 0.006 | 0.009 | 0.012 | 0.015 |
| | | 220 - 260 | C2 | 370 | 0.005 | 0.008 | 0.011 | 0.013 |
| | | 260 - 320 | C2 | 335 | 0.005 | 0.007 | 0.010 | 0.011 |
| N | Cast Aluminum | 30 | C2 | 975 | 0.009 | 0.015 | 0.018 | 0.023 |
| | | 180 | C2 | 730 | 0.008 | 0.013 | 0.016 | 0.020 |
| | Wrought Aluminum | 30 | C2 | 1385 | 0.005 | 0.013 | 0.016 | 0.020 |
| | | 180 | C2 | 975 | 0.005 | 0.007 | 0.012 | 0.014 |
| | Aluminum Bronze | 100 - 200 | C2 | 360 | 0.006 | 0.009 | 0.012 | 0.015 |
| | | 200 - 250 | C2 | 300 | 0.005 | 0.007 | 0.009 | 0.011 |
| | Brass | 100 | C2 | 650 | 0.007 | 0.011 | 0.013 | 0.018 |
| Copper | 60 | C2 | 420 | 0.003 ❖ | 0.004 | 0.007 | 0.010 | |

❖ Contact our Application Engineering department for assistance when machining these materials

Deep Hole Drilling Speed and Feed Adjustment

| | ⚠ Holder Length | | | | |
|-------|-----------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

| | |
|------------------------------------|--|
| $200 \cdot 0.75 = 150 \text{ SFM}$ | $0.008 \cdot 0.90 = 0.007 \text{ IPR}$ |
|------------------------------------|--|

Formulas

| | | |
|--|---|---|
| <p>1. $RPM = (3.82 \cdot SFM) / DIA$</p> <p>where:</p> <ul style="list-style-type: none"> RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch) | <p>2. $IPM = RPM \cdot IPR$</p> <p>where:</p> <ul style="list-style-type: none"> IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev) | <p>3. $SFM = RPM \cdot 0.262 \cdot DIA$</p> <p>where:</p> <ul style="list-style-type: none"> SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch) |
|--|---|---|

⚠ WARNING Tool failure can cause serious injury. To prevent:




- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

T-A® Recommended Drilling Data | Imperial (inch)

HSS Inserts

| ISO | Material | Hardness (BHN) | HSS Grade | SFM | | | Feed Rate (IPR) by Diameter | |
|--|---|----------------|-----------|---|--|--|-----------------------------|-----------------|
| | | | |  TiN |  TiAlN |  TiCN | 3/8" - 1/2" | 33/64" - 11/16" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | HSS | 200 | 280 | 260 | 0.007 | 0.010 |
| | | 150 - 200 | HSS | 180 | 260 | 235 | 0.007 | 0.010 |
| | | 200 - 250 | HSS | 160 | 240 | 210 | 0.006 | 0.010 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | HSS | 170 | 250 | 220 | 0.006 ❖ | 0.009 |
| | | 125 - 175 | HSS | 160 | 240 | 210 | 0.006 ❖ | 0.009 |
| | | 175 - 225 | HSS | 150 | 225 | 195 | 0.005 ❖ | 0.008 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | HSS | 140 | 210 | 180 | 0.005 ❖ | 0.008 |
| | | 125 - 175 | HSS | 160 | 240 | 210 | 0.006 | 0.009 |
| | | 175 - 225 | HSS | 150 | 225 | 195 | 0.005 | 0.008 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | HSS | 140 | 210 | 180 | 0.005 | 0.008 |
| | | 275 - 325 | SC, PC | 130 | 195 | 170 | 0.004 | 0.007 |
| | | 325 - 375 | SC, PC | 110 | 155 | 145 | 0.003 | 0.006 |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 300 | SC, PC | 80 | 110 | 100 | 0.005 ❖ | 0.007 | |
| | 300 - 350 | SC, PC | 60 | 85 | 80 | 0.004 ❖ | 0.007 | |
| | 350 - 400 | PC | 50 | 70 | 65 | 0.003 ❖ | 0.006 | |
| Structural Steel A36, A285, A516, etc. | 100 - 150 | HSS | 140 | 200 | 180 | 0.006 ❖ | 0.010 | |
| | 150 - 250 | HSS | 120 | 170 | 155 | 0.005 ❖ | 0.009 | |
| | 250 - 350 | SC, PC | 100 | 140 | 130 | 0.003 ❖ | 0.008 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | SC | 80 | 110 | 105 | 0.004 | 0.006 | |
| | 200 - 250 | SC, PC | 60 | 90 | 85 | 0.004 | 0.006 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | SC, PC | 30 | 40 | 35 | 0.003 ❖ | 0.007 |
| | | 220 - 310 | PC | 25 | 35 | 30 | 0.003 ❖ | 0.006 |
| | Titanium Alloy | 140 - 220 | SC, PC | 35 | 50 | 45 | 0.003 ❖ | 0.007 |
| | | 220 - 310 | PC | 30 | 45 | 35 | 0.003 ❖ | 0.006 |
| Aerospace Alloy S82 | 185 - 275 | SC, PC | 75 | 105 | 95 | 0.006 ❖ | 0.008 | |
| | 275 - 350 | SC, PC | 60 | 90 | 80 | 0.005 ❖ | 0.007 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | SC, PC | 75 | 105 | 95 | 0.009 | 0.010 |
| | | 275 - 350 | SC, PC | 60 | 90 | 80 | 0.008 | 0.009 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | SC, PC | 75 | 105 | 95 | 0.007 | 0.007 |
| | | 185 - 275 | SC, PC | 60 | 90 | 80 | 0.006 | 0.006 |
| | Super Duplex Stainless Steel | 135 - 185 | SC, PC | 60 | 80 | 70 | 0.005 | 0.005 |
| 185 - 275 | | SC, PC | 50 | 65 | 60 | 0.004 | 0.005 | |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | SC, PC | 45 | 70 | 55 | 0.003 ❖ | 0.006 |
| | | 500 | PC | 35 | 45 | 40 | 0.002 ❖ | 0.005 |
| | | 600 | N/A | - | - | - | - | - |
| | Hardened Steel | 300 - 400 | PC | 50 | 95 | 70 | 0.003 ❖ | 0.006 |
| 400 - 500 | | PC | 35 | 45 | 40 | 0.002 ❖ | 0.005 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | HSS | 170 | 250 | 220 | 0.007 | 0.012 |
| | | 150 - 200 | HSS | 150 | 225 | 195 | 0.006 | 0.011 |
| | | 200 - 220 | HSS | 130 | 195 | 170 | 0.006 | 0.009 |
| | | 220 - 260 | SC, PC | 110 | 165 | 145 | 0.005 | 0.007 |
| | | 260 - 320 | SC, PC | 90 | 135 | 120 | 0.004 | 0.006 |
| N | Cast Aluminum | 30 | HSS | 600 | 850 | 750 | 0.008 | 0.013 |
| | | 180 | HSS | 300 | 450 | 400 | 0.008 | 0.013 |
| | Wrought Aluminum | 30 | HSS | 600 | 850 | 750 | 0.004 | 0.006 |
| | | 180 | HSS | 300 | 450 | 400 | 0.008 | 0.013 |
| | Aluminum Bronze | 100 - 200 | SC | 170 | 250 | 220 | 0.006 | 0.011 |
| | | 200 - 250 | SC | 130 | 190 | 170 | 0.005 | 0.007 |
| | Brass | 100 | HSS | 300 | 445 | 400 | 0.007 | 0.012 |
| Copper | 60 | SC | 130 | 165 | 150 | 0.002 ❖ | 0.003 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| Feed Rate (IPR) by Diameter | | | | |
|-----------------------------|-----------------|-------------------|--------------------|-------------------|
| 45/64" - 15/16" | 31/32" - 1-3/8" | 1-13/32" - 1-7/8" | 1-29/32" - 2-9/16" | 2-19/32" - 4-1/2" |
| 0.013 | 0.016 | 0.020 | 0.023 | 0.028 |
| 0.013 | 0.016 | 0.020 | 0.023 | 0.028 |
| 0.013 | 0.016 | 0.020 | 0.023 | 0.028 |
| 0.012 | 0.015 | 0.019 | 0.023 | 0.027 |
| 0.012 | 0.015 | 0.019 | 0.023 | 0.027 |
| 0.010 | 0.014 | 0.018 | 0.021 | 0.024 |
| 0.010 | 0.014 | 0.018 | 0.021 | 0.024 |
| 0.012 | 0.015 | 0.019 | 0.023 | 0.027 |
| 0.010 | 0.014 | 0.018 | 0.021 | 0.024 |
| 0.010 | 0.014 | 0.018 | 0.021 | 0.024 |
| 0.009 | 0.012 | 0.016 | 0.019 | 0.022 |
| 0.010 | 0.014 | 0.017 | 0.019 | 0.022 |
| 0.010 | 0.014 | 0.017 | 0.019 | 0.022 |
| 0.010 | 0.014 | 0.017 | 0.019 | 0.022 |
| 0.009 | 0.012 | 0.015 | 0.017 | 0.020 |
| 0.009 | 0.012 | 0.015 | 0.017 | 0.020 |
| 0.009 | 0.010 | 0.014 | 0.017 | 0.020 |
| 0.009 | 0.010 | 0.014 | 0.017 | 0.020 |
| 0.008 | 0.009 | 0.012 | 0.015 | 0.018 |
| 0.012 | 0.014 | 0.018 | 0.021 | 0.026 |
| 0.010 | 0.012 | 0.016 | 0.019 | 0.024 |
| 0.009 | 0.010 | 0.014 | 0.017 | 0.020 |
| 0.008 | 0.010 | 0.012 | 0.015 | 0.017 |
| 0.008 | 0.010 | 0.012 | 0.015 | 0.017 |
| 0.008 | 0.010 | 0.012 | 0.015 | 0.017 |
| 0.007 | 0.008 | 0.010 | 0.012 | 0.015 |
| 0.008 | 0.010 | 0.012 | 0.015 | 0.018 |
| 0.007 | 0.008 | 0.010 | 0.012 | 0.015 |
| 0.009 | 0.010 | 0.014 | 0.016 | 0.020 |
| 0.008 | 0.008 | 0.012 | 0.014 | 0.018 |
| 0.011 | 0.012 | 0.013 | 0.014 | 0.015 |
| 0.010 | 0.011 | 0.012 | 0.013 | 0.014 |
| 0.008 | 0.008 | 0.009 | 0.009 | 0.010 |
| 0.007 | 0.007 | 0.008 | 0.008 | 0.009 |
| 0.006 | 0.006 | 0.007 | 0.008 | 0.008 |
| 0.005 | 0.006 | 0.006 | 0.007 | 0.007 |
| 0.008 | 0.009 | 0.012 | 0.016 | 0.018 |
| 0.007 | 0.008 | 0.010 | 0.012 | 0.016 |
| - | - | - | - | - |
| 0.008 | 0.009 | 0.012 | 0.016 | 0.018 |
| 0.007 | 0.008 | 0.010 | 0.012 | 0.016 |
| 0.016 | 0.020 | 0.024 | 0.027 | 0.030 |
| 0.014 | 0.018 | 0.022 | 0.025 | 0.028 |
| 0.012 | 0.016 | 0.018 | 0.021 | 0.024 |
| 0.009 | 0.012 | 0.014 | 0.017 | 0.020 |
| 0.007 | 0.009 | 0.012 | 0.014 | 0.016 |
| 0.016 | 0.020 | 0.022 | 0.025 | 0.025 |
| 0.016 | 0.018 | 0.022 | 0.025 | 0.025 |
| 0.010 | 0.012 | 0.022 | 0.025 | 0.025 |
| 0.016 | 0.018 | 0.022 | 0.025 | 0.025 |
| 0.014 | 0.018 | 0.022 | 0.026 | 0.028 |
| 0.009 | 0.012 | 0.014 | 0.017 | 0.020 |
| 0.016 | 0.020 | 0.024 | 0.028 | 0.030 |
| 0.006 | 0.008 | 0.012 | 0.014 | 0.016 |

Deep Hole Drilling Speed and Feed Adjustment

| | Holder Length | | | | |
|-------|---------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

$200 \cdot 0.75 = 150 \text{ SFM}$ $0.008 \cdot 0.90 = 0.007 \text{ IPR}$

Formulas

- RPM = (3.82 • SFM) / DIA**

where:

 - RPM = revolutions per minute (rev/min)
 - SFM = speed (ft/min)
 - DIA = diameter of drill (inch)
- IPM = RPM • IPR**

where:

 - IPM = inches per minute (in/min)
 - RPM = revolutions per minute (rev/min)
 - IPR = feed rate (in/rev)
- SFM = RPM • 0.262 • DIA**

where:

 - SFM = speed (ft/min)
 - RPM = revolutions per minute (rev/min)
 - DIA = diameter of drill (inch)




⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.




T-A® Recommended Drilling Data | Imperial (inch)

Carbide Inserts

| ISO | Material | Hardness (BHN) | Carbide Grade | SFM | | | Feed Rate (IPR) by Diameter | | | | |
|---|--|--|---------------|---|---|--|-----------------------------|-----------------|-----------------|-----------------|-------------------|
| | | | |  TiN |  TiAlN |  TiCN | 3/8" - 1/2" | 33/64" - 11/16" | 45/64" - 15/16" | 31/32" - 1-3/8" | 1-13/32" - 1-7/8" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | C5 | 320 | 420 | 375 | 0.008 | 0.012 | 0.015 | 0.018 | 0.021 |
| | | 150 - 200 | C5 | 280 | 360 | 325 | 0.007 | 0.011 | 0.014 | 0.016 | 0.019 |
| | | 200 - 250 | C5 | 260 | 340 | 295 | 0.006 | 0.010 | 0.013 | 0.015 | 0.017 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | C5 | 300 | 390 | 360 | 0.008 ❖ | 0.010 | 0.013 | 0.017 | 0.019 |
| | | 125 - 175 | C5 | 260 | 340 | 295 | 0.007 ❖ | 0.010 | 0.013 | 0.016 | 0.018 |
| | | 175 - 225 | C5 | 240 | 310 | 270 | 0.006 ❖ | 0.009 | 0.012 | 0.015 | 0.017 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | C5 | 260 | 340 | 295 | 0.007 | 0.010 | 0.013 | 0.016 | 0.018 |
| | | 175 - 225 | C5 | 240 | 310 | 275 | 0.006 | 0.009 | 0.012 | 0.015 | 0.017 |
| | | 225 - 275 | C5 | 210 | 270 | 235 | 0.006 | 0.009 | 0.012 | 0.015 | 0.017 |
| | Alloy Steel 4140, 5140, 8640, etc. | 275 - 325 | C5 | 180 | 230 | 205 | 0.005 | 0.008 | 0.011 | 0.014 | 0.016 |
| | | 125 - 175 | C5 | 250 | 325 | 285 | 0.007 | 0.010 | 0.013 | 0.016 | 0.018 |
| | | 175 - 225 | C5 | 230 | 300 | 260 | 0.006 | 0.009 | 0.012 | 0.015 | 0.017 |
| 225 - 275 | | C5 | 210 | 270 | 235 | 0.006 | 0.009 | 0.012 | 0.015 | 0.017 | |
| 275 - 325 | | C5 | 200 | 250 | 225 | 0.005 | 0.008 | 0.011 | 0.014 | 0.016 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 325 - 375 | C5 | 170 | 220 | 195 | 0.004 | 0.007 | 0.010 | 0.013 | 0.015 | |
| | 225 - 300 | C5 | 160 | 200 | 180 | 0.006 ❖ | 0.009 | 0.010 | 0.012 | 0.015 | |
| | 300 - 350 | C5 | 140 | 180 | 160 | 0.005 ❖ | 0.008 | 0.009 | 0.011 | 0.014 | |
| Structural Steel A36, A285, A516, etc. | 350 - 400 | C5 | 120 | 160 | 140 | 0.004 ❖ | 0.007 | 0.008 | 0.010 | 0.012 | |
| | 100 - 150 | C5 | 240 | 310 | 275 | 0.008 ❖ | 0.011 | 0.014 | 0.016 | 0.018 | |
| | 150 - 250 | C5 | 200 | 250 | 225 | 0.006 ❖ | 0.010 | 0.012 | 0.014 | 0.016 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 250 - 350 | C5 | 180 | 230 | 205 | 0.005 ❖ | 0.009 | 0.011 | 0.012 | 0.014 | |
| | 150 - 200 | C5 | 160 | 220 | 190 | 0.004 | 0.007 | 0.009 | 0.011 | 0.013 | |
| | 200 - 250 | C5 | 120 | 170 | 145 | 0.004 | 0.007 | 0.009 | 0.011 | 0.013 | |
| | S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | C2 | 80 | 105 | 90 | 0.004 ❖ | 0.007 | 0.009 | 0.011 |
| 220 - 310 | | | C2 | 60 | 85 | 70 | 0.004 ❖ | 0.006 | 0.008 | 0.010 | 0.012 |
| Titanium Alloy | | 140 - 220 | C2 | 100 | 125 | 105 | 0.004 ❖ | 0.007 | 0.009 | 0.011 | 0.013 |
| | | 220 - 310 | C2 | 80 | 110 | 90 | 0.004 ❖ | 0.006 | 0.008 | 0.010 | 0.012 |
| Aerospace Alloy S82 | | 185 - 275 | C2 | 160 | 210 | 185 | 0.007 ❖ | 0.006 | 0.011 | 0.014 | 0.016 |
| | 275 - 350 | C2 | 120 | 160 | 140 | 0.006 ❖ | 0.008 | 0.010 | 0.012 | 0.014 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | C2 | 160 | 210 | 185 | 0.007 ❖ | 0.008 | 0.011 | 0.014 | 0.016 |
| | | 275 - 350 | C2 | 120 | 160 | 140 | 0.006 ❖ | 0.007 | 0.010 | 0.012 | 0.014 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | C2 | 160 | 210 | 185 | 0.005 ❖ | 0.007 | 0.009 | 0.010 | 0.012 |
| | | 185 - 275 | C2 | 120 | 160 | 140 | 0.004 ❖ | 0.006 | 0.008 | 0.009 | 0.010 |
| | Super Duplex Stainless Steel | 135 - 185 | C2 | 80 | 110 | 95 | 0.004 ❖ | 0.007 | 0.008 | 0.009 | 0.011 |
| 185 - 275 | | C2 | 60 | 80 | 70 | 0.003 ❖ | 0.006 | 0.007 | 0.008 | 0.009 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| ISO | Material | Hardness (BHN) | Carbide Grade | SFM | | | Feed Rate (IPR) by Diameter | | | | |
|-----------|---|----------------|---------------|---|---|--|-----------------------------|-----------------|-----------------|-----------------|-------------------|
| | | | |  TiN |  TiAlN |  TiCN | 3/8" - 1/2" | 33/64" - 11/16" | 45/64" - 15/16" | 31/32" - 1-3/8" | 1-13/32" - 1-7/8" |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | C5 | 75 | 115 | 100 | 0.003 ❖ | 0.006 | 0.008 | 0.010 | 0.012 |
| | | 500 | C5 | 50 | 85 | 70 | 0.002 ❖ | 0.005 | 0.006 | 0.008 | 0.010 |
| | | 600 | C5 | 35 | 75 | 55 | 0.001 ❖ | 0.004 | 0.005 | 0.006 | 0.008 |
| | Hardened Steel | 300 - 400 | C5 | 110 | 140 | 130 | 0.004 ❖ | 0.006 | 0.009 | 0.011 | 0.013 |
| 400 - 500 | | C5 | 65 | 85 | 75 | 0.003 ❖ | 0.005 | 0.008 | 0.009 | 0.011 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | C2, C3 | 320 | 460 | 415 | 0.008 | 0.012 | 0.015 | 0.019 | 0.023 |
| | | 150 - 200 | C2, C3 | 270 | 400 | 335 | 0.007 | 0.011 | 0.013 | 0.017 | 0.021 |
| | | 200 - 220 | C2, C3 | 240 | 360 | 305 | 0.006 | 0.009 | 0.012 | 0.015 | 0.018 |
| | | 220 - 260 | C2, C3 | 210 | 310 | 260 | 0.005 | 0.008 | 0.011 | 0.013 | 0.015 |
| | | 260 - 320 | C2, C3 | 180 | 270 | 225 | 0.005 | 0.007 | 0.010 | 0.011 | 0.013 |
| N | Cast Aluminum | 30 | C2 | 1200 | 1500 | 1330 | 0.010 | 0.013 | 0.018 | 0.020 | 0.022 |
| | | 180 | C2 | 800 | 1000 | 900 | 0.009 | 0.013 | 0.016 | 0.018 | 0.020 |
| | Wrought Aluminum | 30 | C2 | 1200 | 1500 | 1330 | 0.004 | 0.006 | 0.010 | 0.012 | 0.014 |
| | | 180 | C2 | 800 | 1000 | 900 | 0.008 | 0.013 | 0.014 | 0.018 | 0.020 |
| | Aluminum Bronze | 100 - 200 | C2 | 275 | 360 | 325 | 0.005 | 0.008 | 0.010 | 0.014 | 0.017 |
| | | 200 - 250 | C2 | 210 | 305 | 260 | 0.004 | 0.007 | 0.007 | 0.010 | 0.013 |
| | Brass | 100 | C2 | 425 | 600 | 520 | 0.006 | 0.009 | 0.011 | 0.015 | 0.018 |
| Copper | 60 | C2 | 260 | 390 | 325 | 0.002 ❖ | 0.003 | 0.004 | 0.006 | 0.010 | |

❖ Contact our Application Engineering department for assistance when machining these materials

Deep Hole Drilling Speed and Feed Adjustment

| | ⚠ Holder Length | | | | |
|-------|-----------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

| | |
|------------------------------------|--|
| $200 \cdot 0.75 = 150 \text{ SFM}$ | $0.008 \cdot 0.90 = 0.007 \text{ IPR}$ |
|------------------------------------|--|

Formulas

| | | |
|---|--|--|
| 1. $RPM = (3.82 \cdot SFM) / DIA$ where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch) | 2. $IPM = RPM \cdot IPR$ where: IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev) | 3. $SFM = RPM \cdot 0.262 \cdot DIA$ where: SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch) |
|---|--|--|

⚠ WARNING Tool failure can cause serious injury. To prevent:





- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

T-A® Recommended Drilling Data | Imperial (inch)

HSS Inserts | Flat Bottom Geometry

| ISO | Material | Hardness (BHN) | HSS Grade | SFM | | | |
|--|---|---|-----------|---|--|--|--|
| | | | |  TiN |  TiAlN |  TiCN |  AM200® |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | HSS | 170 | 250 | 230 | 290 |
| | | 150 - 200 | HSS | 155 | 230 | 205 | 265 |
| | | 200 - 250 | HSS | 140 | 210 | 185 | 245 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | HSS | 150 | 220 | 195 | 255 |
| | | 125 - 175 | HSS | 140 | 210 | 185 | 245 |
| | | 175 - 225 | HSS | 130 | 195 | 175 | 225 |
| | | 225 - 275 | HSS | 120 | 185 | 155 | 215 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | HSS | 140 | 210 | 185 | 245 |
| | | 175 - 225 | HSS | 130 | 195 | 175 | 225 |
| | | 225 - 275 | HSS | 120 | 185 | 155 | 215 |
| | | 275 - 325 | SC | 110 | 175 | 150 | 205 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 175 | HSS | 130 | 185 | 175 | 215 |
| 175 - 225 | | HSS | 120 | 175 | 155 | 205 | |
| 225 - 275 | | HSS | 110 | 155 | 145 | 180 | |
| 275 - 325 | | SC | 105 | 145 | 135 | 170 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 325 - 375 | SC | 95 | 135 | 125 | 155 | |
| | 225 - 300 | SC | 70 | 95 | 85 | 110 | |
| | 300 - 350 | SC | 50 | 75 | 70 | 90 | |
| Structural Steel A36, A285, A516, etc. | 350 - 400 | SC | 45 | 65 | 60 | 75 | |
| | 100 - 150 | HSS | 120 | 170 | 155 | 195 | |
| | 150 - 250 | HSS | 105 | 145 | 135 | 170 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 250 - 350 | SC | 85 | 120 | 110 | 140 | |
| | 150 - 200 | SC | 70 | 95 | 90 | 110 | |
| | 200 - 250 | SC | 50 | 80 | 75 | 95 | |
| | S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | SC | 25 | 35 | 30 |
| | | 220 - 310 | SC | 20 | 30 | 25 | 35 |
| Titanium Alloy | | 140 - 220 | SC | 35 | 45 | 40 | 50 |
| | | 220 - 310 | SC | 26 | 40 | 35 | 45 |
| Aerospace Alloy S82 | | 185 - 275 | SC | 65 | 90 | 85 | 110 |
| | 275 - 350 | SC | 50 | 80 | 70 | 90 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 140 - 220 | SC | 65 | 90 | 85 | 110 |
| | | 275 - 350 | SC | 50 | 80 | 70 | 90 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | SC | 65 | 90 | 85 | 110 |
| | | 185 - 275 | SC | 50 | 80 | 70 | 90 |
| | Super Duplex Stainless Steel | 135 - 185 | SC | 65 | 90 | 85 | 110 |
| | 185 - 275 | SC | 50 | 80 | 70 | 90 | |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | SC | - | - | - | - |
| | | 500 | SC | - | - | - | - |
| | | 600 | N/A | - | - | - | - |
| | Hardened Steel | 300 - 400 | SC | 45 | 65 | 60 | 80 |
| 400 - 500 | | SC | 25 | 40 | 35 | 45 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | HSS | 150 | 220 | 195 | 255 |
| | | 150 - 200 | HSS | 130 | 195 | 175 | 225 |
| | | 200 - 220 | HSS | 110 | 175 | 150 | 205 |
| | | 220 - 260 | SC | 95 | 150 | 125 | 175 |
| | | 260 - 320 | SC | 80 | 120 | 105 | 140 |
| N | Cast Aluminum | 30 | HSS | 520 | 750 | 650 | - |
| | | 180 | HSS | 260 | 400 | 350 | - |
| | Wrought Aluminum | 30 | HSS | 520 | 750 | 650 | 850 |
| | | 180 | HSS | 260 | 400 | 350 | 450 |
| | Aluminum Bronze | 100 - 200 | SC | 130 | 190 | 175 | 230 |
| | | 200 - 250 | SC | 95 | 150 | 125 | 165 |
| Brass | 100 | HSS | 150 | 220 | 190 | 250 | |
| Copper | 60 | SC | 115 | 150 | 130 | 170 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| Feed Rate (IPR) by Diameter | | | | | |
|-----------------------------|-----------------|-----------------|-----------------|-------------------|--------------------|
| 3/8" - 1/2" | 33/64" - 11/16" | 45/64" - 15/16" | 31/32" - 1-3/8" | 1-13/32" - 1-7/8" | 1-29/32" - 2-9/16" |
| 0.006 | 0.009 | 0.011 | 0.014 | 0.016 | 0.018 |
| 0.006 | 0.009 | 0.011 | 0.014 | 0.016 | 0.018 |
| 0.005 | 0.009 | 0.011 | 0.014 | 0.015 | 0.017 |
| 0.005 ❖ | 0.008 | 0.010 | 0.013 | 0.015 | 0.017 |
| 0.005 ❖ | 0.008 | 0.010 | 0.013 | 0.015 | 0.016 |
| 0.004 ❖ | 0.007 | 0.009 | 0.012 | 0.014 | 0.016 |
| 0.004 ❖ | 0.007 | 0.009 | 0.012 | 0.014 | 0.015 |
| 0.005 | 0.008 | 0.010 | 0.013 | 0.015 | 0.018 |
| 0.004 | 0.007 | 0.009 | 0.012 | 0.014 | 0.017 |
| 0.004 | 0.007 | 0.009 | 0.012 | 0.014 | 0.017 |
| 0.004 | 0.006 | 0.008 | 0.010 | 0.013 | 0.015 |
| 0.005 | 0.007 | 0.009 | 0.012 | 0.013 | 0.016 |
| 0.004 | 0.007 | 0.009 | 0.012 | 0.013 | 0.016 |
| 0.004 | 0.006 | 0.009 | 0.012 | 0.013 | 0.016 |
| 0.004 | 0.005 | 0.008 | 0.010 | 0.012 | 0.015 |
| 0.003 | 0.005 | 0.008 | 0.010 | 0.012 | 0.014 |
| 0.004 ❖ | 0.006 | 0.008 | 0.009 | 0.010 | 0.012 |
| 0.003 ❖ | 0.006 | 0.008 | 0.009 | 0.010 | 0.012 |
| 0.003 ❖ | 0.005 | 0.007 | 0.008 | 0.009 | 0.011 |
| 0.005 ❖ | 0.009 | 0.010 | 0.012 | 0.015 | 0.017 |
| 0.004 ❖ | 0.008 | 0.009 | 0.010 | 0.013 | 0.016 |
| 0.004 ❖ | 0.007 | 0.008 | 0.009 | 0.012 | 0.015 |
| 0.004 | 0.005 | 0.007 | 0.009 | 0.010 | 0.012 |
| 0.004 | 0.005 | 0.007 | 0.009 | 0.009 | 0.011 |
| 0.003 ❖ | 0.006 | 0.007 | 0.009 | 0.010 | 0.012 |
| 0.003 ❖ | 0.005 | 0.006 | 0.007 | 0.008 | 0.010 |
| 0.003 ❖ | 0.006 | 0.007 | 0.009 | 0.010 | 0.012 |
| 0.003 ❖ | 0.005 | 0.006 | 0.007 | 0.008 | 0.010 |
| 0.005 ❖ | 0.007 | 0.008 | 0.010 | 0.012 | 0.015 |
| 0.004 ❖ | 0.006 | 0.007 | 0.009 | 0.010 | 0.012 |
| 0.005 ❖ | 0.007 | 0.008 | 0.010 | 0.012 | 0.014 |
| 0.004 ❖ | 0.006 | 0.007 | 0.009 | 0.010 | 0.011 |
| 0.005 ❖ | 0.007 | 0.008 | 0.010 | 0.012 | 0.014 |
| 0.004 ❖ | 0.006 | 0.007 | 0.009 | 0.010 | 0.011 |
| - | - | - | - | - | - |
| - | - | - | - | - | - |
| - | - | - | - | - | - |
| 0.003 ❖ | 0.005 | 0.007 | 0.008 | 0.011 | 0.015 |
| 0.002 ❖ | 0.004 | 0.006 | 0.007 | 0.009 | 0.011 |
| 0.007 | 0.012 | 0.016 | 0.020 | 0.024 | 0.027 |
| 0.006 | 0.011 | 0.014 | 0.018 | 0.022 | 0.025 |
| 0.006 | 0.009 | 0.012 | 0.016 | 0.018 | 0.021 |
| 0.005 | 0.007 | 0.009 | 0.012 | 0.014 | 0.017 |
| 0.004 | 0.006 | 0.007 | 0.009 | 0.012 | 0.014 |
| 0.007 | 0.011 | 0.014 | 0.017 | 0.018 | 0.019 |
| 0.007 | 0.011 | 0.014 | 0.016 | 0.017 | 0.019 |
| 0.007 | 0.011 | 0.014 | 0.017 | 0.018 | 0.019 |
| 0.007 | 0.011 | 0.014 | 0.016 | 0.017 | 0.019 |
| 0.005 | 0.009 | 0.012 | 0.016 | 0.020 | 0.024 |
| 0.004 | 0.006 | 0.008 | 0.010 | 0.012 | 0.015 |
| 0.006 | 0.010 | 0.014 | 0.017 | 0.021 | 0.025 |
| 0.002 ❖ | 0.003 | 0.006 | 0.008 | 0.010 | 0.014 |

Deep Hole Drilling Speed and Feed Adjustment

| | Holder Length | | | | |
|-------|---------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

$200 \cdot 0.75 = 150 \text{ SFM}$

$0.008 \cdot 0.90 = 0.007 \text{ IPR}$

Formulas

- RPM = (3.82 • SFM) / DIA**

where:

 - RPM = revolutions per minute (rev/min)
 - SFM = speed (ft/min)
 - DIA = diameter of drill (inch)
- IPM = RPM • IPR**

where:

 - IPM = inches per minute (in/min)
 - RPM = revolutions per minute (rev/min)
 - IPR = feed rate (in/rev)
- SFM = RPM • 0.262 • DIA**

where:

 - SFM = speed (ft/min)
 - RPM = revolutions per minute (rev/min)
 - DIA = diameter of drill (inch)





⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.





T-A® Recommended Drilling Data | Imperial (inch)

Carbide Inserts | Flat Bottom Geometry

| ISO | Material | Hardness (BHN) | Carbide Grade | SFM | | | | Feed Rate (IPR) by Diameter | | | |
|---|--|--|---------------|---|---|--|---|-----------------------------|-----------------|-----------------|-----------------|
| | | | |  TiN |  TiAlN |  TiCN |  AM200® | 3/8" - 1/2" | 33/64" - 11/16" | 45/64" - 15/16" | 31/32" - 1-7/8" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | C2 | 270 | 380 | 325 | 425 | 0.007 | 0.010 | 0.013 | 0.015 |
| | | 150 - 200 | C2 | 240 | 320 | 280 | 375 | 0.006 | 0.009 | 0.012 | 0.014 |
| | | 200 - 250 | C2 | 220 | 300 | 260 | 350 | 0.005 | 0.009 | 0.011 | 0.013 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | C2 | 260 | 345 | 315 | 410 | 0.007 ❖ | 0.009 | 0.011 | 0.014 |
| | | 125 - 175 | C2 | 220 | 300 | 260 | 350 | 0.006 ❖ | 0.009 | 0.011 | 0.014 |
| | | 175 - 225 | C2 | 200 | 280 | 235 | 320 | 0.005 ❖ | 0.008 | 0.010 | 0.013 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | C2 | 220 | 300 | 260 | 350 | 0.006 | 0.009 | 0.011 | 0.014 |
| | | 175 - 225 | C2 | 200 | 280 | 240 | 320 | 0.005 | 0.008 | 0.010 | 0.013 |
| | | 225 - 275 | C2 | 180 | 240 | 210 | 285 | 0.004 ❖ | 0.008 | 0.010 | 0.013 |
| | Alloy Steel 4140, 5140, 8640, etc. | 275 - 325 | C2 | 150 | 210 | 180 | 240 | 0.004 | 0.007 | 0.009 | 0.012 |
| | | 125 - 175 | C2 | 215 | 290 | 250 | 340 | 0.006 | 0.009 | 0.011 | 0.014 |
| | | 175 - 225 | C2 | 200 | 270 | 230 | 320 | 0.005 | 0.008 | 0.010 | 0.013 |
| 225 - 275 | | C2 | 180 | 230 | 205 | 290 | 0.005 | 0.008 | 0.010 | 0.013 | |
| 275 - 325 | | C2 | 175 | 215 | 190 | 280 | 0.004 | 0.007 | 0.009 | 0.012 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 325 - 375 | C2 | 145 | 190 | 170 | 230 | 0.003 | 0.006 | 0.009 | 0.011 | |
| | 225 - 300 | C2 | 140 | 170 | 160 | 220 | 0.005 ❖ | 0.008 | 0.009 | 0.010 | |
| | 300 - 350 | C2 | 120 | 160 | 140 | 190 | 0.004 ❖ | 0.007 | 0.008 | 0.009 | |
| Structural Steel A36, A285, A516, etc. | 350 - 400 | C2 | 100 | 145 | 120 | 160 | 0.003 ❖ | 0.006 | 0.007 | 0.009 | |
| | 100 - 150 | C2 | 205 | 265 | 240 | 325 | 0.007 ❖ | 0.009 | 0.012 | 0.014 | |
| | 150 - 250 | C2 | 170 | 215 | 200 | 270 | 0.005 ❖ | 0.009 | 0.010 | 0.012 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 250 - 350 | C2 | 155 | 200 | 180 | 240 | 0.004 ❖ | 0.008 | 0.009 | 0.010 | |
| | 150 - 200 | C2 | 140 | 190 | 160 | 220 | 0.003 | 0.006 | 0.008 | 0.009 | |
| | 200 - 250 | C2 | 100 | 150 | 120 | 160 | 0.003 | 0.006 | 0.008 | 0.009 | |
| | S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | C2 | 70 | 90 | 80 | 110 | 0.003 ❖ | 0.006 | 0.008 |
| 220 - 310 | | | C2 | 50 | 70 | 60 | 80 | 0.003 ❖ | 0.005 | 0.007 | 0.009 |
| Titanium Alloy | | 140 - 220 | C2 | 85 | 110 | 90 | 130 | 0.003 ❖ | 0.005 | 0.006 | 0.008 |
| | | 220 - 310 | C2 | 70 | 95 | 80 | 100 | 0.003 ❖ | 0.004 | 0.005 | 0.007 |
| Aerospace Alloy S82 | | 185 - 275 | C2 | 140 | 120 | 165 | 130 | 0.006 ❖ | 0.006 | 0.010 | 0.012 |
| | 275 - 350 | C2 | 110 | 90 | 125 | 105 | 0.005 ❖ | 0.005 | 0.009 | 0.010 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | C2 | 140 | 180 | 165 | 210 | 0.006 ❖ | 0.008 | 0.010 | 0.012 |
| | | 275 - 350 | C2 | 110 | 140 | 125 | 160 | 0.005 ❖ | 0.007 | 0.009 | 0.010 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | C2 | 90 | 120 | 110 | 130 | 0.005 ❖ | 0.007 | 0.008 | 0.010 |
| | | 185 - 275 | C2 | 70 | 90 | 80 | 105 | 0.004 ❖ | 0.006 | 0.007 | 0.009 |
| | Super Duplex Stainless Steel | 135 - 185 | C2 | 70 | 95 | 85 | 110 | 0.004 ❖ | 0.006 | 0.007 | 0.008 |
| 185 - 275 | | C2 | 55 | 70 | 60 | 85 | 0.003 ❖ | 0.005 | 0.006 | 0.007 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| ISO | Material | Hardness (BHN) | Carbide Grade | SFM | | | | Feed Rate (IPR) by Diameter | | | |
|-----------|---|----------------|---------------|---|---|--|---|-----------------------------|-----------------|-----------------|-----------------|
| | | | |  TiN |  TiAlN |  TiCN |  AM200® | 3/8" - 1/2" | 33/64" - 11/16" | 45/64" - 15/16" | 31/32" - 1-7/8" |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | C2 | 65 | 100 | 85 | 130 | 0.003 ❖ | 0.004 | 0.006 | 0.008 |
| | | 500 | C2 | 45 | 75 | 60 | 100 | 0.002 ❖ | 0.003 | 0.005 | 0.006 |
| | | 600 | C2 | 35 | 65 | 45 | 80 | 0.001 ❖ | 0.002 | 0.004 | 0.005 |
| | Hardened Steel | 300 - 400 | C2 | 100 | 125 | 110 | 135 | 0.004 ❖ | 0.006 | 0.007 | 0.009 |
| 400 - 500 | | C2 | 60 | 75 | 65 | 110 | 0.003 ❖ | 0.005 | 0.006 | 0.007 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | C2 | 270 | 405 | 360 | 450 | 0.007 | 0.010 | 0.013 | 0.016 |
| | | 150 - 200 | C2 | 230 | 350 | 290 | 390 | 0.006 | 0.009 | 0.011 | 0.014 |
| | | 200 - 220 | C2 | 200 | 320 | 260 | 350 | 0.005 | 0.008 | 0.010 | 0.013 |
| | | 220 - 260 | C2 | 180 | 270 | 220 | 300 | 0.004 | 0.007 | 0.009 | 0.011 |
| | | 260 - 320 | C2 | 160 | 240 | 200 | 265 | 0.004 | 0.006 | 0.009 | 0.009 |
| N | Cast Aluminum | 30 | C2 | 520 | 750 | 650 | - | 0.009 | 0.013 | 0.016 | 0.017 |
| | | 180 | C2 | 260 | 400 | 350 | - | 0.008 | 0.012 | 0.014 | 0.015 |
| | Wrought Aluminum | 30 | C2 | 950 | 1200 | 1070 | 1270 | 0.005 | 0.007 | 0.009 | 0.010 |
| | | 180 | C2 | 630 | 800 | 715 | 850 | 0.004 | 0.006 | 0.008 | 0.009 |
| | Aluminum Bronze | 100 - 200 | C2 | 240 | 310 | 280 | 340 | 0.004 | 0.006 | 0.008 | 0.011 |
| | | 200 - 250 | C2 | 180 | 265 | 220 | 285 | 0.003 | 0.005 | 0.006 | 0.008 |
| | Brass | 100 | C2 | 370 | 520 | 450 | 600 | 0.005 | 0.006 | 0.008 | 0.012 |
| Copper | 60 | C2 | 220 | 345 | 280 | 380 | 0.002 ❖ | 0.002 | 0.003 | 0.005 | |

❖ Contact our Application Engineering department for assistance when machining these materials

Deep Hole Drilling Speed and Feed Adjustment

| | ⚠ Holder Length | | | | |
|-------|-----------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

| | |
|------------------------------------|--|
| $200 \cdot 0.75 = 150 \text{ SFM}$ | $0.008 \cdot 0.90 = 0.007 \text{ IPR}$ |
|------------------------------------|--|

Formulas

| | | |
|--|---|---|
| <p>1. $RPM = (3.82 \cdot SFM) / DIA$</p> <p>where:</p> <ul style="list-style-type: none"> RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch) | <p>2. $IPM = RPM \cdot IPR$</p> <p>where:</p> <ul style="list-style-type: none"> IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev) | <p>3. $SFM = RPM \cdot 0.262 \cdot DIA$</p> <p>where:</p> <ul style="list-style-type: none"> SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch) |
|--|---|---|

⚠ WARNING Tool failure can cause serious injury. To prevent:


- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Recommended Drilling Data | Imperial (inch)

Carbide Inserts | Diamond Coating

| Material | Carbide Grade | SFM  Diamond Coating | Feed Rate (IPR) by Diameter | | | | |
|---------------------------|------------------------|---|-----------------------------|-----------------|-----------------|-----------------|---------------|
| | | | 3/8" - 1/2" | 33/64" - 11/16" | 45/64" - 15/16" | 31/32" - 1-3/8" | |
| Polymer Matrix Composites | Carbon (hard) | N2 | 1000 - 1500 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Carbon Fiber | N2 | 1000 - 1500 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Carbon / Glass Fiber | N2 | 1000 - 1500 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Fiberglass | N2 | 1000 - 1500 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Graphite | N2 | 1000 - 1500 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Plastics | N2 | 250 - 1000 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Epoxy Resin | N2 | 250 - 1000 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Bismaleimide Resin | N2 | 250 - 1000 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Polyester Resin | N2 | 250 - 1000 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Phenolic Resin | N2 | 250 - 1000 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| Rubber | N2 | 250 - 1000 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 | |
| Metal Matrix Composites | Aluminum | N2 | 1000 | 0.008 | 0.013 | 0.016 | 0.020 |
| | Si < 10% | N2 | 1000 | 0.008 | 0.013 | 0.016 | 0.020 |
| | 10% < Si < 15% | N2 | 850 - 1000 | 0.008 | 0.013 | 0.016 | 0.020 |
| | 15% < Si < 20% | N2 | 650 - 850 | 0.008 | 0.013 | 0.016 | 0.020 |
| | 20% < Si < 25% | N2 | 500 - 650 | 0.008 | 0.013 | 0.016 | 0.020 |
| | 25% < Si | N2 | 200 - 500 | 0.008 | 0.013 | 0.016 | 0.020 |
| | Brass | N2 | 250 - 500 | 0.008 | 0.013 | 0.016 | 0.020 |
| | Bronze | N2 | 250 - 500 | 0.008 | 0.013 | 0.016 | 0.020 |
| | Copper | N2 | 100 - 250 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Copper Alloys | N2 | 100 - 250 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Lead Alloys | N2 | 100 - 250 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Magnesium Alloys | N2 | 100 - 250 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| Precious Metals | N2 | 100 - 250 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 | |
| Ceramic Matrix Composites | Carbide (green) | N2 | 50 - 250 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Ceramic (green) | N2 | 50 - 250 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |
| | Ceramic (pre-sintered) | N2 | 50 - 250 | 0.004 - 0.006 | 0.008 - 0.010 | 0.010 - 0.012 | 0.012 - 0.014 |

Deep Hole Drilling Speed and Feed Adjustment

| | Holder Length | | | | |
|-------|---------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

$$200 \cdot 0.75 = 150 \text{ SFM}$$

$$0.008 \cdot 0.90 = 0.007 \text{ IPR}$$

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

Tap Drill Information and Formulas | Imperial (inch)

American - Unified Inch Screw Thread

| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
|------------|----------------|--------------------|-----------------|------------------------|--------------------|----------------------|
| 7/16 - 20 | W | 0.3860 | 79% | 0.003" | 0.3890" | 75% |
| 7/16 - 20 | 25/64" | 0.3906 | 72% | 0.003" | 0.3936" | 68% |
| 1/2 - 13 | 10.5 mm | 0.4134 | 87% | 0.003" | 0.4164" | 84% |
| 1/2 - 13 | 27/64" | 0.4219 | 78% | 0.003" | 0.4249" | 75% |
| 1/2 - 13 | 7/16" | 0.4375 | 63% | 0.003" | 0.4405" | 60% |
| 1/2 - 20 | 29/64" | 0.4531 | 72% | 0.003" | 0.4561" | 68% |
| 9/16 - 12 | 15/32" | 0.4688 | 87% | 0.003" | 0.4718" | 84% |
| 9/16 - 12 | 12.0 mm | 0.4724 | 72% | 0.003" | 0.4874" | 69% |
| 9/16 - 12 | 31/64" | 0.4844 | 83% | 0.003" | 0.4754" | 80% |
| 9/16 - 18 | 1/2" | 0.5000" | 87% | 0.003" | 0.5030" | 82% |
| 9/16 - 18 | 13.0 mm | 0.5118" | 70% | 0.003" | 0.5148" | 66% |
| 9/16 - 18 | 31/64" | 0.5156" | 65% | 0.003" | 0.5186" | 61% |
| 5/8 - 11 | 17/32" | 0.5313" | 79% | 0.003" | 0.5343" | 77% |
| 5/8 - 12 | 35/64" | 0.5469" | 72% | 0.003" | 0.5499" | 69% |
| 5/8 - 18 | 9/16" | 0.5625" | 87% | 0.003" | 0.5655" | 82% |
| 5/8 - 18 | 14.5 mm | 0.5709" | 75% | 0.003" | 0.5739" | 75% |
| 5/8 - 18 | 37/64" | 0.5781" | 65% | 0.003" | 0.5811" | 70% |
| 11/16 - 12 | 39/64" | 0.6094" | 72% | 0.003" | 0.6124" | 69% |
| 3/4 - 10 | 41/64" | 0.6406" | 84% | 0.003" | 0.6436" | 82% |
| 3/4 - 10 | 16.5 mm | 0.6496" | 77% | 0.003" | 0.6526" | 75% |
| 3/4 - 10 | 21/32" | 0.6563" | 72% | 0.003" | 0.6593" | 70% |
| 3/4 - 12 | 43/64" | 0.6719" | 72% | 0.003" | 0.6749" | 69% |
| 3/4 - 16 | 11/16" | 0.6875" | 77% | 0.003" | 0.6905" | 73% |
| 3/4 - 16 | 17.5 mm | 0.6890" | 75% | 0.003" | 0.6920" | 71% |
| 7/8 - 9 | 49/64" | 0.7656" | 76% | 0.003" | 0.7686" | 74% |
| 7/8 - 9 | 25/32" | 0.7813" | 65% | 0.003" | 0.7843" | 63% |
| 7/8 - 14 | 51/64" | 0.7969" | 84% | 0.003" | 0.7999" | 81% |
| 7/8 - 14 | 13/16" | 0.8125" | 67% | 0.003" | 0.8155" | 64% |
| 15/16 - 12 | 55/64" | 0.8594" | 72% | 0.003" | 0.8624" | 69% |
| 15/16 - 20 | 57/64" | 0.8906" | 72% | 0.003" | 0.8936" | 68% |
| 1 - 8 | 22.0 mm | 0.8661" | 82% | 0.003" | 0.8691" | 81% |
| 1 - 8 | 7/8" | 0.8750" | 77% | 0.003" | 0.8780" | 75% |
| 1 - 8 | 57/64" | 0.8906" | 67% | 0.003" | 0.8936" | 65% |
| 1 - 12 | 29/32" | 0.9063" | 87% | 0.003" | 0.9093" | 84% |
| 1 - 12 | 59/64" | 0.9219" | 72% | 0.003" | 0.9249" | 69% |
| 1 - 14 | 15/16" | 0.9375" | 67% | 0.003" | 0.9405" | 64% |
| 1-1/8 - 12 | 1-1/32" | 1.0313" | 87% | 0.003" | 1.0343" | 84% |
| 1-1/8 - 12 | 1-3/64" | 1.0469" | 72% | 0.003" | 1.0499" | 69% |
| 1-1/4 - 7 | 1-7/64" | 1.1094" | 76% | 0.003" | 1.1124" | 74% |
| 24 x 2 | 7/8" | 0.8750" | 68% | 0.003" | 0.8780" | 65% |
| 27 x 3 | 24.0 mm | 0.9449" | 77% | 0.003" | 0.9403" | 75% |

Taper Pipe Thread (NPT)

| Tap Size | Tap Drill Size | Decimal Equivalent | Theo % Thread* | Probable Mean Oversize | Probable Hole Size | Probable % Thread** |
|----------|----------------|--------------------|----------------|------------------------|--------------------|---------------------|
| 1/4 - 18 | 7/16 | 0.4375 | - | 0.003 | 0.4405 | - |
| 3/8 - 18 | 9/16 | 0.5625 | - | 0.003 | 0.5655 | - |
| 1/2 - 14 | 45/64 | 0.7031 | - | 0.003 | 0.7061 | - |
| 3/4 - 14 | 29/32 | 0.9063 | - | 0.003 | 0.9093 | - |

* Based on nominal tap drill diameter

** Based on 0.003" probable mean oversize

To calculate the percent of full thread for a given hole diameter:

$$\% \text{ Thread} = \# \text{ of Thread per Inch} \left[\frac{\text{Basic Major Diameter of Thread} - \text{Drill Hole Size}}{0.0130} \right]$$

Notes

- The above tap drill information represents probable thread percentages for the standard tap drills stocked at Allied Machine. Special insert diameters may be required in order to meet a user specific percentage of thread requirements.
- The 0.003" probable mean oversize hole condition is based on optimum cutting conditions. Probable percent of full thread may vary based on less ideal cutting conditions.
- The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the editor of the *Machinery's Handbook*.

Formulas

| | | |
|----|-------------------|---|
| 1. | RPM | = (3.82 • SFM) / DIA |
| | where: | |
| | RPM | = revolutions per minute (rev/min) |
| | SFM | = speed (ft/min) |
| | DIA | = diameter of drill (inch) |
| 2. | IPM | = RPM • IPR |
| | where: | |
| | IPM | = inches per minute (in/min) |
| | RPM | = revolutions per minute (rev/min) |
| | IPR | = feed rate (in/rev) |
| 3. | SFM | = RPM • 0.262 • DIA |
| | where: | |
| | SFM | = speed (ft/min) |
| | RPM | = revolutions per minute (rev/min) |
| | DIA | = diameter of drill (inch) |
| 4. | Thrust | = 153,700 • IPR • DIA • K _m |
| | where: | |
| | Thrust | = axial thrust (lbs) |
| | IPR | = feed rate (in/rev) |
| | DIA | = diameter of drill (inch) |
| | K _m | = specific cutting energy (lbs/in ²) |
| 5. | Tool Power | = .6283 • IPR • RPM • K _m • DIA ² |
| | where: | |
| | Tool Power | = tool power (HP) |
| | IPR | = feed rate (in/rev) |
| | RPM | = revolutions per minute (rev/min) |
| | K _m | = specific cutting energy (lbs/in ²) |
| | DIA | = diameter of drill (inch) |

Material Constants

| Type of Material | Hardness | K _m (lbs/in ²) |
|------------------------------|---------------|---------------------------------------|
| Plain Carbon and Alloy Steel | 85 - 200 BHN | 0.79 |
| | 200 - 275 BHN | 0.94 |
| | 275 - 375 BHN | 1.00 |
| | 375 - 425 BHN | 1.15 |
| High-Temperature Alloys | - | 1.44 |
| Stainless Steels | 135 - 275 BHN | 0.94 |
| | 30 - 45 RC | 1.08 |
| Cast Iron | 100 - 200 BHN | 0.50 |
| | 200 - 300 BHN | 1.08 |
| Copper Alloy | 20 - 80 RB | 0.43 |
| | 80 - 100 RB | 0.72 |
| Titanium Alloy | - | 0.72 |
| Aluminum Alloy | - | 0.22 |
| Magnesium Alloy | - | 0.16 |

Coolant Recommendations | Imperial (inch)

HSS Drill Inserts

| ISO | Material | Pressure or Flow Rate | 3/8" - 1/2" | 33/64" - 11/16" | 23/32" - 1" | 1" - 1-1/4" | 1-1/4" - 2" | 2" - 3" | 3" - 4" |
|---|---|-----------------------|-------------|-----------------|-------------|-------------|-------------|---------|---------|
| | | | | | | | | | |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | PSI | 175 - 185 | 100 - 120 | 105 - 140 | 80 - 115 | 75 - 100 | 40 - 50 | 65 - 90 |
| | | GPM | 2.5 - 2.6 | 2.8 - 3.0 | 4.4 - 5.2 | 7 - 8 | 12 - 14 | 30 - 33 | 38 - 44 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | PSI | 165 - 170 | 75 - 90 | 75 - 95 | 60 - 80 | 55 - 75 | 30 - 40 | 50 - 65 |
| | | GPM | 2.4 - 2.5 | 2.4 - 2.6 | 3.7 - 4.2 | 6 - 7 | 11 - 12 | 26 - 30 | 33 - 38 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | PSI | 160 - 165 | 70 - 85 | 70 - 90 | 55 - 75 | 50 - 70 | 30 - 40 | 50 - 65 |
| | | GPM | 2.3 - 2.4 | 2.3 - 2.6 | 3.7 - 4.2 | 5 - 6 | 10 - 12 | 26 - 30 | 33 - 38 |
| | Alloy Steel 4140, 5140, 8640, etc. | PSI | 160 - 165 | 65 - 75 | 65 - 80 | 50 - 70 | 45 - 60 | 30 - 35 | 40 - 50 |
| | | GPM | 2.3 - 2.4 | 2.2 - 2.4 | 3.5 - 3.9 | 5 - 6 | 10 - 11 | 26 - 28 | 30 - 33 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | PSI | 150 - 155 | 55 - 60 | 45 - 50 | 25 - 30 | 25 - 30 | 20 - 25 | 40 - 50 |
| | | GPM | 2.3 - 2.4 | 2.1 - 2.2 | 2.9 - 3.1 | 4 - 5 | 7 - 8 | 21 - 23 | 23 - 26 |
| | Structural Steel A36, A285, A516, etc. | PSI | 160 - 165 | 75 - 85 | 65 - 80 | 40 - 55 | 40 - 50 | 25 - 30 | 40 - 50 |
| | | GPM | 2.3 - 2.4 | 2.4 - 2.6 | 3.5 - 3.9 | 5 - 6 | 9 - 10 | 23 - 26 | 30 - 33 |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | PSI | 150 - 155 | 55 - 60 | 45 - 50 | 25 - 30 | 25 - 30 | 20 - 25 | 25 - 30 | |
| | GPM | 2.3 - 2.4 | 2.1 - 2.2 | 2.9 - 3.1 | 4 - 5 | 7 - 8 | 21 - 23 | 23 - 26 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | PSI | 150 - 155 | 60 - 65 | 50 - 55 | 30 - 35 | 25 - 30 | 25 - 30 | 44 |
| | | GPM | 2.3 - 2.4 | 2.2 - 2.3 | 3.1 - 3.2 | 4 - 5 | 7 - 8 | 23 - 26 | 33 |
| | Titanium Alloy | PSI | 150 - 155 | 60 - 65 | 50 - 55 | 30 - 35 | 25 - 30 | 25 - 30 | 44 |
| | | GPM | 2.3 - 2.4 | 2.2 - 2.3 | 3.1 - 3.2 | 4 - 5 | 7 - 8 | 23 - 26 | 33 |
| Aerospace Alloy S82 | PSI | 150 - 155 | 60 - 65 | 50 - 55 | 30 - 35 | 25 - 30 | 25 - 30 | 44 | |
| | GPM | 2.3 - 2.4 | 2.2 - 2.3 | 3.1 - 3.2 | 4 - 5 | 7 - 8 | 23 - 26 | 33 | |
| M | Stainless Steel 400 Series 416, 420, etc. | PSI | 171 | 86 | 75 | 55 | 51 | 29 | 45 |
| | | GPM | 3 | 3 | 4 | 6 | 10 | 26 | 31 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | PSI | 171 | 86 | 75 | 55 | 51 | 29 | 45 |
| | | GPM | 3 | 3 | 4 | 6 | 10 | 26 | 31 |
| Super Duplex Stainless Steel | PSI | 171 | 86 | 75 | 55 | 51 | 29 | 45 | |
| | GPM | 3 | 3 | 4 | 6 | 10 | 26 | 31 | |
| H | Wear Plate Hardox®, AR400, T-1, etc. | PSI | 155 | 61 | 51 | 29 | 29 | 25 | 29 |
| | | GPM | 2 | 2 | 3 | 5 | 8 | 23 | 26 |
| | Hardened Steel | PSI | 155 | 61 | 51 | 29 | 29 | 25 | 29 |
| | | GPM | 2 | 2 | 3 | 5 | 8 | 23 | 26 |
| K | SG / Nodular Cast Iron | PSI | 160 | 65 | 61 | 41 | 35 | 29 | 35 |
| | | GPM | 2 | 2 | 3 | 5 | 9 | 26 | 28 |
| | Grey / White Iron | PSI | 160 | 65 | 61 | 41 | 35 | 29 | 35 |
| | | GPM | 2 | 2 | 3 | 5 | 9 | 26 | 28 |
| N | Cast Aluminum | PSI | 210 | 180 | 230 | 159 | 125 | 51 | 80 |
| | | GPM | 3 | 4 | 6 | 9 | 16 | 33 | 42 |
| | Wrought Aluminum | PSI | 210 | 180 | 230 | 159 | 125 | 51 | 80 |
| | | GPM | 3 | 4 | 6 | 9 | 16 | 33 | 42 |
| | Aluminum Bronze | PSI | 186 | 120 | 140 | 115 | 100 | 51 | 90 |
| | | GPM | 2.5 | 3 | 5 | 8 | 14 | 33 | 44 |
| | Brass | PSI | 159 | 65 | 61 | 41 | 35 | 29 | 35 |
| | | GPM | 2 | 2 | 3 | 5 | 9 | 26 | 28 |
| Copper | PSI | 186 | 120 | 140 | 115 | 100 | 51 | 90 | |
| | GPM | 2.5 | 3 | 5 | 8 | 14 | 33 | 44 | |

Deep Hole Drilling Coolant Adjustment

| | Holder Length | | | | |
|-------------------|---------------|------|-----------|----|-----|
| | Extended | Long | Long Plus | XL | 3XL |
| Pressure and Flow | 1.3 | 1.5 | 2 | 2 | 3 |

Recommended Coolant Example

If the recommended pressure and flow is 150 PSI and 2.4 GPM for a standard length holder, then the adjusted pressure and flow for a 3XL holder would be 450 PSI and 7.2 GPM.

$$150 \cdot 3 = 450 \text{ PSI} \qquad 2.4 \cdot 3 = 7.2 \text{ GPM}$$

⚠️ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied Machine recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the T-A® drilling system will still function at reduced penetration rates. Contact our Application Engineering department for a more specific recommendation of coolant requirements and/or speeds and feeds.

Coolant Recommendations | Imperial (inch)

Carbide Drill Inserts

| ISO | Material | Pressure or Flow Rate | 3/8" - 1/2" | 33/64" - 11/16" | 23/32" - 1" | 1" - 1-3/8" | 1-13/32" - 1-7/8" |
|---|---|-----------------------|-------------|-----------------|-------------|-------------|-------------------|
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | PSI | 195 | 140 | 160 | 140 | 155 |
| | | GPM | 2.6 | 3.3 | 5.5 | 9 | 18 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | PSI | 180 | 105 | 105 | 110 | 115 |
| | | GPM | 2.5 | 2.9 | 4.4 | 8 | 15 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | PSI | 175 | 100 | 90 | 70 | 75 |
| | | GPM | 2.5 | 2.8 | 4.1 | 7 | 13 |
| | Alloy Steel 4140, 5140, 8640, etc. | PSI | 165 | 85 | 100 | 75 | 70 |
| | | GPM | 2.4 | 2.6 | 4.3 | 6 | 12 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | PSI | 175 | 115 | 105 | 75 | 70 |
| | | GPM | 2.4 | 2.3 | 3.2 | 5 | 8 |
| Structural Steel A36, A285, A516, etc. | PSI | 175 | 115 | 105 | 75 | 70 | |
| | GPM | 2.5 | 3.0 | 4.4 | 6 | 12 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | PSI | 155 | 60 | 55 | 40 | 35 | |
| | GPM | 2.4 | 2.2 | 3.2 | 5 | 8 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | PSI | 247 | 160 | 174 | 160 | 130 |
| | | GPM | 3 | 4 | 6 | 9 | 16 |
| | Titanium Alloy | PSI | 247 | 160 | 174 | 160 | 130 |
| | | GPM | 3 | 4 | 6 | 9 | 16 |
| Aerospace Alloy S82 | PSI | 247 | 160 | 174 | 160 | 130 | |
| | GPM | 3 | 4 | 6 | 9 | 16 | |
| M | Stainless Steel 400 Series 416, 420, etc. | PSI | 329 | 239 | 260 | 250 | 190 |
| | | GPM | 3 | 4 | 7 | 12 | 20 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | PSI | 329 | 239 | 260 | 250 | 190 |
| | | GPM | 3 | 4 | 7 | 12 | 20 |
| Super Duplex Stainless Steel | PSI | 329 | 239 | 260 | 250 | 190 | |
| | GPM | 3 | 4 | 7 | 12 | 20 | |
| H | Wear Plate Hardox®, AR400, T-1, etc. | PSI | 210 | 75 | 70 | 49 | 45 |
| | | GPM | 3 | 2 | 4 | 5 | 10 |
| | Hardened Steel | PSI | 210 | 75 | 70 | 49 | 45 |
| | | GPM | 3 | 2 | 4 | 5 | 10 |
| K | SG / Nodular Cast Iron | PSI | 225 | 104 | 90 | 90 | 80 |
| | | GPM | 3 | 3 | 4 | 7 | 13 |
| | Grey / White Iron | PSI | 225 | 104 | 90 | 90 | 80 |
| | | GPM | 3 | 3 | 4 | 7 | 13 |
| N | Cast Aluminum | PSI | 350 | 319 | 315 | 284 | 200 |
| | | GPM | 4 | 5 | 8 | 12 | 20 |
| | Wrought Aluminum | PSI | 350 | 319 | 315 | 284 | 200 |
| | | GPM | 4 | 5 | 8 | 12 | 20 |
| | Aluminum Bronze | PSI | 290 | 239 | 239 | 220 | 174 |
| | | GPM | 3 | 4 | 7 | 11 | 19 |
| | Brass | PSI | 350 | 319 | 315 | 284 | 200 |
| | | GPM | 4 | 5 | 7 | 12 | 20 |
| | Copper | PSI | 290 | 239 | 239 | 220 | 174 |
| | | GPM | 3 | 4 | 7 | 11 | 19 |

Deep Hole Drilling Coolant Adjustment

| | Holder Length | | | | |
|-------------------|---------------|------|-----------|----|-----|
| | Extended | Long | Long Plus | XL | 3XL |
| Pressure and Flow | 1.3 | 1.5 | 2 | 2 | 3 |

Recommended Coolant Example

If the recommended pressure and flow is 150 PSI and 2.4 GPM for a standard length holder, then the adjusted pressure and flow for a 3XL holder would be 450 PSI and 7.2 GPM.

$$150 \cdot 3 = 450 \text{ PSI}$$

$$2.4 \cdot 3 = 7.2 \text{ GPM}$$

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

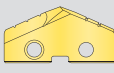
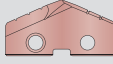
Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied Machine recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the T-A® drilling system will still function at reduced penetration rates. Contact our Application Engineering department for a more specific recommendation of coolant requirements and/or speeds and feeds.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

GEN2 T-A® Recommended Drilling Data | Metric (mm)

HSS Inserts

| ISO | Material | Hardness (BHN) | HSS Grade | M/min | | Feed Rate (mm/rev) by Diameter | |
|--|---|---|-----------|---|--|--------------------------------|---------------------|
| | | | |  TiN |  AM200® | 9.50 mm - 12.95 mm | 12.98 mm - 17.52 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | HSS | 61 | 99 | 0.20 | 0.30 |
| | | 150 - 200 | HSS | 55 | 91 | 0.18 | 0.28 |
| | | 200 - 250 | HSS | 49 | 85 | 0.15 | 0.25 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | HSS | 52 | 88 | 0.20 ❖ | 0.25 |
| | | 125 - 175 | HSS | 49 | 83 | 0.18 ❖ | 0.25 |
| | | 175 - 225 | HSS | 46 | 79 | 0.15 ❖ | 0.23 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | HSS | 43 | 73 | 0.13 ❖ | 0.23 |
| | | 125 - 175 | HSS | 49 | 83 | 0.18 | 0.25 |
| | | 175 - 225 | HSS | 46 | 79 | 0.15 | 0.23 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | HSS | 43 | 73 | 0.15 | 0.23 |
| | | 275 - 325 | SC, PC | 40 | 68 | 0.13 | 0.20 |
| | | 325 - 375 | SC, PC | 34 | 54 | 0.10 | 0.18 |
| 275 - 325 | | SC, PC | 37 | 59 | 0.13 | 0.20 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 350 - 400 | PC | 15 | 24 | 0.10 ❖ | 0.18 | |
| | 225 - 300 | SC, PC | 24 | 38 | 0.15 ❖ | 0.23 | |
| | 300 - 350 | SC, PC | 18 | 30 | 0.13 ❖ | 0.20 | |
| Structural Steel A36, A285, A516, etc. | 250 - 350 | SC, PC | 30 | 48 | 0.13 ❖ | 0.23 | |
| | 100 - 150 | HSS | 43 | 71 | 0.20 ❖ | 0.28 | |
| | 150 - 250 | HSS | 37 | 57 | 0.15 ❖ | 0.25 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 250 - 350 | SC, PC | 30 | 48 | 0.13 ❖ | 0.23 | |
| | 150 - 200 | SC | 24 | 38 | 0.10 | 0.18 | |
| | 200 - 250 | SC, PC | 18 | 32 | 0.10 | 0.18 | |
| | S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | SC, PC | 9 | 13 | 0.10 ❖ |
| 220 - 310 | | | PC | 8 | 12 | 0.10 ❖ | 0.15 |
| Titanium Alloy | | 140 - 220 | SC, PC | 11 | 16 | 0.10 ❖ | 0.18 |
| | | 220 - 310 | PC | 10 | 15 | 0.08 ❖ | 0.15 |
| Aerospace Alloy S82 | 185 - 275 | SC, PC | 23 | 35 | 0.15 ❖ | 0.20 | |
| | 275 - 350 | SC, PC | 18 | 31 | 0.13 ❖ | 0.18 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | SC, PC | 23 | 35 | 0.15 ❖ | 0.20 |
| | | 275 - 350 | SC, PC | 18 | 31 | 0.13 ❖ | 0.18 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | SC, PC | 23 | 35 | 0.08 ❖ | 0.18 |
| | | 185 - 275 | SC, PC | 18 | 31 | 0.08 ❖ | 0.15 |
| | Super Duplex Stainless Steel | 135 - 185 | SC, PC | 18 | 26 | 0.08 ❖ | 0.18 |
| 185 - 275 | | SC, PC | 15 | 22 | 0.08 ❖ | 0.15 | |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | SC, PC | 14 | 21 | 0.08 ❖ | 0.15 |
| | | 500 | PC | 10 | 14 | 0.05 ❖ | 0.12 |
| | | 600 | N/A | - | - | - | - |
| | Hardened Steel | 300 - 400 | PC | 15 | 29 | 0.10 ❖ | 0.15 |
| 400 - 500 | | PC | 10 | 14 | 0.06 ❖ | 0.12 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | HSS | 52 | 84 | 0.20 | 0.30 |
| | | 150 - 200 | HSS | 46 | 79 | 0.18 | 0.28 |
| | | 200 - 220 | HSS | 40 | 68 | 0.15 | 0.23 |
| | | 220 - 260 | SC, PC | 34 | 57 | 0.13 | 0.20 |
| | | 260 - 320 | SC, PC | 27 | 47 | 0.13 | 0.18 |
| N | Cast Aluminum | 30 | HSS | 183 | - | 0.23 | 0.38 |
| | | 180 | HSS | 91 | - | 0.20 | 0.33 |
| | Wrought Aluminum | 30 | HSS | 183 | 280 | 0.12 | 0.33 |
| | | 180 | HSS | 91 | 200 | 0.12 | 0.18 |
| | Aluminum Bronze | 100 - 200 | SC | 52 | 82 | 0.15 | 0.24 |
| | | 200 - 250 | SC | 40 | 65 | 0.12 | 0.18 |
| | Brass | 100 | HSS | 91 | 144 | 0.18 | 0.27 |
| Copper | 60 | SC | 40 | 58 | 0.07 ❖ | 0.10 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| Feed Rate (mm/rev) by Diameter | | | | |
|--------------------------------|---------------------|---------------------|---------------------|----------------------|
| 17.53 mm - 24.38 mm | 24.41 mm - 35.00 mm | 35.01 mm - 47.80 mm | 47.85 mm - 65.99 mm | 66.00 mm - 114.48 mm |
| 0.41 | 0.48 | 0.51 | 0.58 | 0.71 |
| 0.38 | 0.43 | 0.51 | 0.58 | 0.71 |
| 0.36 | 0.41 | 0.51 | 0.58 | 0.71 |
| 0.36 | 0.46 | 0.48 | 0.58 | 0.69 |
| 0.36 | 0.43 | 0.48 | 0.58 | 0.69 |
| 0.33 | 0.41 | 0.46 | 0.53 | 0.61 |
| 0.33 | 0.41 | 0.46 | 0.53 | 0.61 |
| 0.36 | 0.43 | 0.48 | 0.58 | 0.69 |
| 0.33 | 0.41 | 0.46 | 0.53 | 0.61 |
| 0.33 | 0.41 | 0.46 | 0.53 | 0.61 |
| 0.30 | 0.38 | 0.41 | 0.48 | 0.56 |
| 0.36 | 0.43 | 0.43 | 0.48 | 0.56 |
| 0.33 | 0.41 | 0.43 | 0.48 | 0.56 |
| 0.33 | 0.41 | 0.43 | 0.48 | 0.56 |
| 0.30 | 0.38 | 0.38 | 0.43 | 0.51 |
| 0.28 | 0.36 | 0.38 | 0.43 | 0.51 |
| 0.28 | 0.33 | 0.36 | 0.43 | 0.51 |
| 0.25 | 0.30 | 0.36 | 0.43 | 0.51 |
| 0.23 | 0.28 | 0.30 | 0.41 | 0.46 |
| 0.38 | 0.43 | 0.46 | 0.53 | 0.66 |
| 0.33 | 0.38 | 0.41 | 0.48 | 0.61 |
| 0.30 | 0.33 | 0.36 | 0.43 | 0.51 |
| 0.25 | 0.30 | 0.30 | 0.38 | 0.43 |
| 0.25 | 0.30 | 0.30 | 0.38 | 0.43 |
| 0.23 | 0.28 | 0.30 | 0.38 | - |
| 0.20 | 0.25 | 0.25 | 0.30 | - |
| 0.21 | 0.27 | 0.30 | 0.38 | - |
| 0.18 | 0.23 | 0.25 | 0.30 | - |
| 0.23 | 0.28 | 0.36 | 0.41 | 0.51 |
| 0.20 | 0.25 | 0.30 | 0.36 | 0.46 |
| 0.23 | 0.28 | 0.36 | 0.41 | 0.51 |
| 0.20 | 0.25 | 0.30 | 0.36 | 0.46 |
| 0.20 | 0.23 | 0.30 | 0.41 | 0.46 |
| 0.18 | 0.20 | 0.25 | 0.30 | 0.40 |
| - | - | - | - | - |
| 0.23 | 0.27 | 0.30 | 0.41 | 0.46 |
| 0.18 | 0.24 | 0.25 | 0.30 | 0.40 |
| 0.41 | 0.51 | 0.61 | 0.69 | 0.76 |
| 0.38 | 0.48 | 0.56 | 0.64 | 0.71 |
| 0.33 | 0.43 | 0.46 | 0.53 | 0.61 |
| 0.28 | 0.36 | 0.36 | 0.43 | 0.51 |
| 0.25 | 0.28 | 0.28 | 0.36 | 0.41 |
| 0.46 | 0.58 | 0.56 | 0.64 | 0.64 |
| 0.40 | 0.50 | 0.56 | 0.64 | 0.64 |
| 0.40 | 0.50 | 0.56 | 0.64 | 0.64 |
| 0.30 | 0.35 | 0.56 | 0.64 | 0.64 |
| 0.30 | 0.38 | 0.43 | 0.48 | 0.53 |
| 0.23 | 0.28 | 0.36 | 0.40 | 0.46 |
| 0.33 | 0.45 | 0.47 | 0.53 | 0.58 |
| 0.18 | 0.26 | 0.23 | 0.27 | 0.31 |

Deep Hole Drilling Speed and Feed Adjustment

| | Holder Length | | | | |
|-------|---------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

$50 \cdot 0.75 = 37.5 \text{ M/min}$ $0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$

Formulas

- RPM = (318.47 • M/min) / DIA**

where:
 RPM = revolutions per minute (rev/min)
 M/min = speed (M/min)
 DIA = diameter of drill (mm)
- mm/min = RPM • mm/rev**


where:
 mm/min = mm per minute (mm/min)
 RPM = revolutions per minute (rev/min)
 mm/rev = feed rate (mm/rev)
- M/min = RPM • 0.003 • DIA**

where:
 M/min = speed (M/min)
 RPM = revolutions per minute (rev/min)
 DIA = diameter of drill (mm)

⚠ WARNING Tool failure can cause serious injury. To prevent:
 - When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
 - Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.
 Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.


GEN2 T-A® Recommended Drilling Data | Metric (mm)

Carbide Inserts

| ISO | Material | Hardness (BHN) | Carbide Grade | M/min  AM300® | Feed Rate (mm/rev) by Diameter | | | |
|--|---|----------------|---------------|--|--------------------------------|---------------------|---------------------|---------------------|
| | | | | | 9.50 mm - 12.95 mm | 12.98 mm - 17.53 mm | 17.54 mm - 24.38 mm | 24.41 mm - 35.00 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | C1 | 146 | 0.20 | 0.30 | 0.41 | 0.48 |
| | | 150 - 200 | C1 | 126 | 0.18 | 0.28 | 0.38 | 0.43 |
| | | 200 - 250 | C1 | 119 | 0.15 | 0.25 | 0.36 | 0.41 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | C1 | 137 | 0.20 ❖ | 0.25 | 0.36 | 0.46 |
| | | 125 - 175 | C1 | 119 | 0.18 ❖ | 0.25 | 0.36 | 0.43 |
| | | 175 - 225 | C1 | 108 | 0.15 ❖ | 0.23 | 0.33 | 0.41 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | C1 | 95 | 0.13 ❖ | 0.23 | 0.33 | 0.41 |
| | | 125 - 175 | C1 | 119 | 0.18 | 0.25 | 0.36 | 0.43 |
| | | 175 - 225 | C1 | 108 | 0.15 | 0.23 | 0.33 | 0.41 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | C1 | 95 | 0.15 | 0.23 | 0.33 | 0.41 |
| | | 275 - 325 | C1 | 80 | 0.13 | 0.20 | 0.30 | 0.38 |
| | | 125 - 175 | C1 | 115 | 0.18 | 0.25 | 0.36 | 0.43 |
| 175 - 225 | | C1 | 105 | 0.15 | 0.23 | 0.33 | 0.43 | |
| 225 - 275 | | C1 | 95 | 0.15 | 0.23 | 0.33 | 0.41 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 275 - 325 | C1 | 87 | 0.13 | 0.20 | 0.30 | 0.38 | |
| | 325 - 375 | C1 | 78 | 0.10 | 0.18 | 0.28 | 0.36 | |
| | 225 - 300 | C1 | 70 | 0.15 ❖ | 0.23 | 0.28 | 0.33 | |
| Structural Steel A36, A285, A516, etc. | 300 - 350 | C1 | 63 | 0.13 ❖ | 0.20 | 0.25 | 0.30 | |
| | 350 - 400 | C1 | 56 | 0.10 ❖ | 0.18 | 0.23 | 0.28 | |
| | 100 - 150 | C1 | 108 | 0.20 ❖ | 0.28 | 0.38 | 0.43 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | C1 | 87 | 0.15 ❖ | 0.25 | 0.33 | 0.38 | |
| | 250 - 350 | C1 | 80 | 0.13 ❖ | 0.23 | 0.30 | 0.33 | |
| | 150 - 200 | C1 | 78 | 0.10 | 0.18 | 0.25 | 0.30 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 200 - 250 | C1 | 59 | 0.10 | 0.18 | 0.25 | 0.30 |
| | | 140 - 220 | C2 | 37 | 0.10 ❖ | 0.18 | 0.23 | 0.28 |
| | 220 - 310 | C2 | 29 | 0.10 ❖ | 0.15 | 0.20 | 0.25 | |
| | Titanium Alloy | 140 - 220 | C2 | 42 | 0.10 ❖ | 0.18 | 0.21 | 0.27 |
| | | 220 - 310 | C2 | 33 | 0.08 ❖ | 0.15 | 0.18 | 0.23 |
| Aerospace Alloy S82 | 185 - 275 | C2 | 73 | 0.12 ❖ | 0.16 | 0.18 | 0.22 | |
| | 275 - 350 | C2 | 56 | 0.10 ❖ | 0.14 | 0.16 | 0.19 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | C2 | 73 | 0.18 ❖ | 0.23 | 0.30 | 0.36 |
| | | 275 - 350 | C2 | 56 | 0.15 ❖ | 0.20 | 0.28 | 0.30 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | C2 | 73 | 0.14 ❖ | 0.18 | 0.24 | 0.29 |
| | | 185 - 275 | C2 | 56 | 0.12 ❖ | 0.16 | 0.22 | 0.24 |
| | Super Duplex Stainless Steel | 135 - 185 | C2 | 38 | 0.12 ❖ | 0.17 | 0.22 | 0.26 |
| 185 - 275 | | C2 | 30 | 0.10 ❖ | 0.15 | 0.18 | 0.22 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| ISO | Material | Hardness (BHN) | Carbide Grade | M/min  AM300® | Feed Rate (mm/rev) by Diameter | | | |
|--------|---|----------------|---------------|--|--------------------------------|---------------------|---------------------|---------------------|
| | | | | | 9.50 mm - 12.95 mm | 12.98 mm - 17.53 mm | 17.54 mm - 24.38 mm | 24.41 mm - 35.00 mm |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | C2 | 45 | 0.07 ❖ | 0.12 | 0.20 | 0.25 |
| | | 500 | C2 | 37 | 0.05 ❖ | 0.10 | 0.15 | 0.20 |
| | | 600 | C2 | 30 | 0.04 ❖ | 0.08 | 0.12 | 0.16 |
| | Hardened Steel | 300 - 400 | C1 | 47 | 0.10 ❖ | 0.18 | 0.23 | 0.27 |
| | | 400 - 500 | C1 | 37 | 0.06 ❖ | 0.12 | 0.18 | 0.24 |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | C2 | 152 | 0.20 | 0.30 | 0.38 | 0.48 |
| | | 150 - 200 | C2 | 146 | 0.18 | 0.28 | 0.33 | 0.43 |
| | | 200 - 220 | C2 | 131 | 0.15 | 0.23 | 0.30 | 0.38 |
| | | 220 - 260 | C2 | 113 | 0.13 | 0.20 | 0.28 | 0.33 |
| | | 260 - 320 | C2 | 102 | 0.13 | 0.18 | 0.25 | 0.28 |
| N | Cast Aluminum | 30 | C2 | 300 | 0.23 | 0.38 | 0.46 | 0.58 |
| | | 180 | C2 | 225 | 0.20 | 0.33 | 0.40 | 0.50 |
| | Wrought Aluminum | 30 | C2 | 426 | 0.12 | 0.33 | 0.40 | 0.50 |
| | | 180 | C2 | 300 | 0.12 | 0.18 | 0.30 | 0.35 |
| | Aluminum Bronze | 100 - 200 | C2 | 110 | 0.15 | 0.24 | 0.30 | 0.38 |
| | | 200 - 250 | C2 | 90 | 0.12 | 0.18 | 0.23 | 0.28 |
| | Brass | 100 | C2 | 200 | 0.18 | 0.27 | 0.33 | 0.45 |
| Copper | 60 | C2 | 130 | 0.07 ❖ | 0.10 | 0.18 | 0.26 | |

❖ Contact our Application Engineering department for assistance when machining these materials

Deep Hole Drilling Speed and Feed Adjustment

| | ⚠ Holder Length | | | | |
|-------|-----------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

| | |
|--------------------------------------|---|
| $50 \cdot 0.75 = 37.5 \text{ M/min}$ | $0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$ |
|--------------------------------------|---|

Formulas

| | | |
|--|--|---|
| 1. $RPM = (318.47 \cdot M/min) / DIA$ where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm) | 2. $mm/min = RPM \cdot mm/rev$ where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev) | 3. $M/min = RPM \cdot 0.003 \cdot DIA$ where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm) |
|--|--|---|




⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Recommended Drilling Data | Metric (mm)

HSS Inserts




| ISO | Material | Hardness (BHN) | HSS Grade | M/min | | | Feed Rate (mm/rev) by Diameter | |
|--|---|----------------|-----------|---|--|--|--------------------------------|---------------------|
| | | | |  TiN |  TiAlN |  TiCN | 9.50 mm - 12.95 mm | 12.98 mm - 17.52 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | HSS | 61 | 85 | 79 | 0.18 | 0.25 |
| | | 150 - 200 | HSS | 55 | 79 | 72 | 0.18 | 0.25 |
| | | 200 - 250 | HSS | 49 | 73 | 64 | 0.15 | 0.25 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | HSS | 52 | 76 | 67 | 0.15 ❖ | 0.23 |
| | | 125 - 175 | HSS | 49 | 73 | 64 | 0.15 ❖ | 0.23 |
| | | 175 - 225 | HSS | 46 | 69 | 59 | 0.13 ❖ | 0.20 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | HSS | 43 | 64 | 55 | 0.13 ❖ | 0.20 |
| | | 125 - 175 | HSS | 49 | 73 | 64 | 0.15 | 0.23 |
| | | 175 - 225 | HSS | 46 | 69 | 59 | 0.13 | 0.20 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | HSS | 43 | 64 | 55 | 0.13 | 0.20 |
| | | 275 - 325 | SC, PC | 40 | 59 | 52 | 0.10 | 0.18 |
| | | 275 - 325 | SC, PC | 37 | 52 | 47 | 0.10 | 0.15 |
| 325 - 375 | | SC, PC | 34 | 47 | 44 | 0.08 | 0.15 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 300 | SC, PC | 24 | 34 | 30 | 0.13 ❖ | 0.18 | |
| | 300 - 350 | SC, PC | 18 | 26 | 24 | 0.10 ❖ | 0.18 | |
| | 350 - 400 | PC | 15 | 21 | 20 | 0.08 ❖ | 0.15 | |
| Structural Steel A36, A285, A516, etc. | 100 - 150 | HSS | 43 | 61 | 55 | 0.15 ❖ | 0.25 | |
| | 150 - 250 | HSS | 37 | 52 | 47 | 0.13 ❖ | 0.23 | |
| | 250 - 350 | SC, PC | 30 | 43 | 40 | 0.10 ❖ | 0.20 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | SC | 24 | 34 | 32 | 0.10 | 0.15 | |
| | 200 - 250 | SC, PC | 18 | 27 | 26 | 0.10 | 0.15 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | SC, PC | 9 | 12 | 11 | 0.08 ❖ | 0.18 |
| | | 220 - 310 | PC | 8 | 11 | 9 | 0.08 ❖ | 0.15 |
| | Titanium Alloy | 140 - 220 | SC, PC | 11 | 15 | 14 | 0.08 ❖ | 0.18 |
| | | 220 - 310 | PC | 9 | 14 | 11 | 0.08 ❖ | 0.15 |
| Aerospace Alloy S82 | 185 - 275 | SC, PC | 23 | 32 | 29 | 0.15 ❖ | 0.20 | |
| | 275 - 350 | SC, PC | 18 | 27 | 24 | 0.13 ❖ | 0.18 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | SC, PC | 23 | 32 | 29 | 0.15 ❖ | 0.20 |
| | | 275 - 350 | SC, PC | 18 | 27 | 24 | 0.13 ❖ | 0.18 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | SC, PC | 23 | 32 | 29 | 0.08 ❖ | 0.18 |
| | | 185 - 275 | SC, PC | 18 | 27 | 24 | 0.08 ❖ | 0.15 |
| | Super Duplex Stainless Steel | 135 - 185 | SC, PC | 18 | 24 | 21 | 0.08 ❖ | 0.18 |
| 185 - 275 | | SC, PC | 15 | 20 | 18 | 0.08 ❖ | 0.15 | |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | SC, PC | 14 | 21 | 17 | 0.08 ❖ | 0.15 |
| | | 500 | PC | 11 | 14 | 12 | 0.05 ❖ | 0.13 |
| | | 600 | N/A | - | - | - | - | - |
| | Hardened Steel | 300 - 400 | PC | 15 | 29 | 21 | 0.08 ❖ | 0.15 |
| 400 - 500 | | PC | 11 | 14 | 12 | 0.05 ❖ | 0.13 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | HSS | 52 | 76 | 67 | 0.18 | 0.30 |
| | | 150 - 200 | HSS | 46 | 69 | 59 | 0.15 | 0.28 |
| | | 200 - 220 | HSS | 40 | 59 | 52 | 0.15 | 0.23 |
| | | 220 - 260 | SC, PC | 34 | 50 | 44 | 0.13 | 0.18 |
| | | 260 - 320 | SC, PC | 27 | 41 | 37 | 0.10 | 0.15 |
| N | Cast Aluminum | 30 | HSS | 183 | 259 | 229 | 0.20 | 0.33 |
| | | 180 | HSS | 91 | 137 | 122 | 0.20 | 0.33 |
| | Wrought Aluminum | 30 | HSS | 183 | 259 | 229 | 0.10 | 0.15 |
| | | 180 | HSS | 91 | 137 | 122 | 0.20 | 0.33 |
| | Aluminum Bronze | 100 - 200 | SC | 52 | 76 | 67 | 0.15 | 0.28 |
| | | 200 - 250 | SC | 40 | 58 | 52 | 0.13 | 0.18 |
| | Brass | 100 | HSS | 91 | 136 | 122 | 0.18 | 0.30 |
| Copper | 60 | SC | 40 | 50 | 46 | 0.05 ❖ | 0.08 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.




T-A® Recommended Drilling Data | Metric (mm)

Carbide Inserts

| ISO | Material | Hardness (BHN) | Carbide Grade | M/min | | | Feed Rate (mm/rev) by Diameter | | | | |
|--|--|--|---------------|---|---|--|--------------------------------|---------------------|---------------------|---------------------|---------------------|
| | | | |  TiN |  TiAlN |  TiCN | 9.50 mm - 12.95 mm | 12.98 mm - 17.52 mm | 17.53 mm - 24.38 mm | 24.41 mm - 35.00 mm | 35.01 mm - 47.80 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | C5 | 96 | 128 | 115 | 0.20 | 0.30 | 0.38 | 0.45 | 0.53 |
| | | 150 - 200 | C5 | 85 | 110 | 100 | 0.18 | 0.28 | 0.35 | 0.40 | 0.48 |
| | | 200 - 250 | C5 | 79 | 104 | 90 | 0.15 | 0.25 | 0.33 | 0.38 | 0.43 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | C5 | 91 | 119 | 110 | 0.20 ❖ | 0.25 | 0.33 | 0.43 | 0.48 |
| | | 125 - 175 | C5 | 79 | 104 | 90 | 0.18 ❖ | 0.25 | 0.33 | 0.40 | 0.45 |
| | | 175 - 225 | C5 | 73 | 95 | 82 | 0.15 ❖ | 0.23 | 0.30 | 0.38 | 0.43 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | C5 | 79 | 104 | 90 | 0.18 | 0.25 | 0.33 | 0.40 | 0.45 |
| | | 175 - 225 | C5 | 73 | 95 | 84 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | | 225 - 275 | C5 | 64 | 83 | 75 | 0.13 ❖ | 0.23 | 0.30 | 0.38 | 0.43 |
| | Alloy Steel 4140, 5140, 8640, etc. | 275 - 325 | C5 | 55 | 70 | 62 | 0.13 | 0.20 | 0.28 | 0.35 | 0.40 |
| | | 125 - 175 | C5 | 76 | 99 | 87 | 0.18 | 0.25 | 0.33 | 0.40 | 0.45 |
| | | 175 - 225 | C5 | 70 | 92 | 80 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | | 225 - 275 | C5 | 64 | 83 | 72 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | | 275 - 325 | C5 | 61 | 76 | 68 | 0.13 | 0.20 | 0.28 | 0.35 | 0.40 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 325 - 375 | C5 | 52 | 67 | 60 | 0.10 | 0.18 | 0.25 | 0.33 | 0.38 |
| | | 225 - 300 | C5 | 49 | 61 | 55 | 0.15 ❖ | 0.23 | 0.25 | 0.30 | 0.38 |
| | | 300 - 350 | C5 | 43 | 55 | 49 | 0.13 ❖ | 0.20 | 0.23 | 0.28 | 0.35 |
| | Structural Steel A36, A285, A516, etc. | 350 - 400 | C5 | 37 | 49 | 43 | 0.10 ❖ | 0.18 | 0.20 | 0.25 | 0.30 |
| 100 - 150 | | C5 | 73 | 95 | 84 | 0.20 ❖ | 0.28 | 0.35 | 0.40 | 0.45 | |
| 150 - 250 | | C5 | 61 | 76 | 68 | 0.15 ❖ | 0.25 | 0.30 | 0.35 | 0.40 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 250 - 350 | C5 | 55 | 70 | 62 | 0.13 ❖ | 0.23 | 0.28 | 0.30 | 0.35 | |
| | 150 - 200 | C5 | 49 | 67 | 58 | 0.10 | 0.18 | 0.23 | 0.28 | 0.33 | |
| | 200 - 250 | C5 | 37 | 52 | 45 | 0.10 | 0.18 | 0.23 | 0.28 | 0.33 | |
| | S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | C2 | 24 | 32 | 28 | 0.10 ❖ | 0.18 | 0.23 | 0.28 |
| 220 - 310 | | | C2 | 18 | 26 | 22 | 0.10 ❖ | 0.15 | 0.20 | 0.25 | 0.30 |
| Titanium Alloy | | 140 - 220 | C2 | 30 | 38 | 32 | 0.10 ❖ | 0.18 | 0.23 | 0.28 | 0.33 |
| | | 220 - 310 | C2 | 24 | 33 | 28 | 0.10 ❖ | 0.15 | 0.20 | 0.25 | 0.30 |
| Aerospace Alloy S82 | | 185 - 275 | C2 | 49 | 64 | 57 | 0.17 ❖ | 0.22 | 0.29 | 0.35 | 0.40 |
| | 275 - 350 | C2 | 37 | 49 | 43 | 0.14 ❖ | 0.19 | 0.27 | 0.30 | 0.35 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | C2 | 49 | 64 | 57 | 0.17 ❖ | 0.22 | 0.29 | 0.35 | 0.40 |
| | | 275 - 350 | C2 | 37 | 49 | 43 | 0.14 ❖ | 0.19 | 0.27 | 0.30 | 0.35 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | C2 | 49 | 64 | 57 | 0.13 ❖ | 0.17 | 0.22 | 0.26 | 0.30 |
| | | 185 - 275 | C2 | 37 | 49 | 43 | 0.11 ❖ | 0.14 | 0.20 | 0.22 | 0.25 |
| | Super Duplex Stainless Steel | 135 - 185 | C2 | 25 | 33 | 29 | 0.11 ❖ | 0.15 | 0.19 | 0.23 | 0.27 |
| 185 - 275 | | C2 | 19 | 25 | 22 | 0.09 ❖ | 0.13 | 0.18 | 0.20 | 0.23 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| ISO | Material | Hardness (BHN) | Carbide Grade | M/min | | | Feed Rate (mm/rev) by Diameter | | | | |
|-----------|---|----------------|---------------|---|---|--|--------------------------------|---------------------|---------------------|---------------------|---------------------|
| | | | |  TiN |  TiAlN |  TiCN | 9.50 mm - 12.95 mm | 12.98 mm - 17.52 mm | 17.53 mm - 24.38 mm | 24.41 mm - 35.00 mm | 35.01 mm - 47.80 mm |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | C5 | 23 | 35 | 30 | 0.07 | 0.12 | 0.20 | 0.25 | 0.30 |
| | | 500 | C5 | 15 | 26 | 21 | 0.05 | 0.10 | 0.15 | 0.20 | 0.25 |
| | | 600 | C5 | 11 | 22 | 16 | 0.04 | 0.08 | 0.12 | 0.16 | 0.20 |
| | Hardened Steel | 300 - 400 | C5 | 34 | 43 | 39 | 0.10 ❖ | 0.18 | 0.23 | 0.28 | 0.33 |
| 400 - 500 | | C5 | 20 | 25 | 23 | 0.08 ❖ | 0.15 | 0.20 | 0.23 | 0.28 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | C2, C3 | 98 | 141 | 127 | 0.20 | 0.30 | 0.38 | 0.48 | 0.58 |
| | | 150 - 200 | C2, C3 | 82 | 122 | 102 | 0.18 | 0.28 | 0.33 | 0.43 | 0.53 |
| | | 200 - 220 | C2, C3 | 73 | 110 | 93 | 0.15 | 0.23 | 0.30 | 0.38 | 0.45 |
| | | 220 - 260 | C2, C3 | 64 | 95 | 79 | 0.13 | 0.20 | 0.28 | 0.33 | 0.38 |
| | | 260 - 320 | C2, C3 | 55 | 83 | 69 | 0.13 | 0.18 | 0.25 | 0.28 | 0.33 |
| N | Cast Aluminum | 30 | C2 | 366 | 460 | 410 | 0.25 | 0.38 | 0.45 | 0.50 | 0.55 |
| | | 180 | C2 | 244 | 306 | 275 | 0.23 | 0.33 | 0.40 | 0.45 | 0.50 |
| | Wrought Aluminum | 30 | C2 | 366 | 460 | 410 | 0.10 | 0.15 | 0.25 | 0.30 | 0.36 |
| | | 180 | C2 | 244 | 306 | 275 | 0.20 | 0.28 | 0.36 | 0.45 | 0.50 |
| | Aluminum Bronze | 100 - 200 | C2 | 85 | 110 | 100 | 0.13 | 0.20 | 0.25 | 0.36 | 0.42 |
| | | 200 - 250 | C2 | 64 | 94 | 79 | 0.10 | 0.15 | 0.18 | 0.25 | 0.33 |
| | Brass | 100 | C2 | 130 | 184 | 160 | 0.15 | 0.23 | 0.28 | 0.38 | 0.45 |
| Copper | 60 | C2 | 80 | 120 | 100 | 0.05 ❖ | 0.08 | 0.10 | 0.15 | 0.25 | |

❖ Contact our Application Engineering department for assistance when machining these materials

Deep Hole Drilling Speed and Feed Adjustment

| | ⚠ Holder Length | | | | |
|-------|-----------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

| | |
|--------------------------------------|---|
| $50 \cdot 0.75 = 37.5 \text{ M/min}$ | $0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$ |
|--------------------------------------|---|

Formulas

| | | |
|--|--|---|
| 1. $RPM = (318.47 \cdot M/min) / DIA$ where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm) | 2. $mm/min = RPM \cdot mm/rev$ where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev) | 3. $M/min = RPM \cdot 0.003 \cdot DIA$ where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm) |
|--|--|---|





⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Recommended Drilling Data | Metric (mm)

HSS Inserts | Flat Bottom Geometry

| ISO | Material | Hardness (BHN) | HSS Grade | M/min | | | |
|--|---|----------------|-----------|---|--|--|--|
| | | | |  TiN |  TiAlN |  TiCN |  AM200® |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | HSS | 52 | 76 | 70 | 88 |
| | | 150 - 200 | HSS | 47 | 70 | 62 | 81 |
| | | 200 - 250 | HSS | 43 | 64 | 56 | 74 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | HSS | 46 | 67 | 59 | 77 |
| | | 125 - 175 | HSS | 43 | 64 | 56 | 74 |
| | | 175 - 225 | HSS | 40 | 59 | 53 | 68 |
| | | 225 - 275 | HSS | 37 | 56 | 47 | 65 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | HSS | 43 | 64 | 56 | 74 |
| | | 175 - 225 | HSS | 40 | 59 | 53 | 68 |
| | | 225 - 275 | HSS | 37 | 56 | 47 | 65 |
| | | 275 - 325 | SC | 34 | 53 | 46 | 61 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 175 | HSS | 40 | 56 | 53 | 65 |
| 175 - 225 | | HSS | 37 | 53 | 47 | 61 | |
| 225 - 275 | | HSS | 34 | 47 | 44 | 54 | |
| 275 - 325 | | SC | 32 | 44 | 41 | 51 | |
| 325 - 375 | | SC | 29 | 41 | 38 | 47 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 300 | SC | 21 | 29 | 26 | 33 | |
| | 300 - 350 | SC | 15 | 23 | 21 | 27 | |
| | 350 - 400 | SC | 13 | 20 | 18 | 23 | |
| Structural Steel A36, A285, A516, etc. | 100 - 150 | HSS | 36 | 52 | 47 | 60 | |
| | 150 - 250 | HSS | 32 | 44 | 41 | 51 | |
| | 250 - 350 | SC | 26 | 37 | 34 | 43 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | SC | 21 | 29 | 27 | 33 | |
| | 200 - 250 | SC | 15 | 24 | 23 | 28 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | SC | 7 | 10 | 9 | 13 |
| | | 220 - 310 | SC | 6 | 9 | 7 | 10 |
| | Titanium Alloy | 140 - 220 | SC | 10 | 14 | 12 | 16 |
| | | 220 - 310 | SC | 8 | 12 | 11 | 14 |
| | Aerospace Alloy S82 | 185 - 275 | SC | 20 | 27 | 26 | 34 |
| 275 - 350 | SC | 15 | 24 | 21 | 28 | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | SC | 20 | 27 | 26 | 34 |
| | | 275 - 350 | SC | 15 | 24 | 21 | 28 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | SC | 20 | 27 | 26 | 34 |
| | | 185 - 275 | SC | 15 | 24 | 21 | 28 |
| | Super Duplex Stainless Steel | 135 - 185 | SC | 20 | 27 | 26 | 34 |
| 185 - 275 | SC | 15 | 24 | 21 | 28 | | |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | SC | - | - | - | - |
| | | 500 | SC | - | - | - | - |
| | | 600 | N/A | - | - | - | - |
| | Hardened Steel | 300 - 400 | SC | 13 | 20 | 18 | 24 |
| 400 - 500 | | SC | 8 | 12 | 10 | 13 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | HSS | 46 | 67 | 59 | 77 |
| | | 150 - 200 | HSS | 40 | 59 | 53 | 68 |
| | | 200 - 220 | HSS | 34 | 53 | 46 | 61 |
| | | 220 - 260 | SC | 29 | 46 | 38 | 53 |
| | | 260 - 320 | SC | 24 | 37 | 32 | 43 |
| N | Cast Aluminum | 30 | HSS | 160 | 228 | 198 | - |
| | | 180 | HSS | 79 | 122 | 107 | - |
| | Wrought Aluminum | 30 | HSS | 160 | 228 | 198 | 261 |
| | | 180 | HSS | 79 | 122 | 107 | 141 |
| | Aluminum Bronze | 100 - 200 | SC | 40 | 59 | 53 | 70 |
| | | 200 - 250 | SC | 29 | 46 | 38 | 50 |
| Brass | 100 | HSS | 46 | 67 | 59 | 78 | |
| Copper | 60 | SC | 35 | 45 | 40 | 53 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| Feed Rate (mm/rev) by Diameter | | | | | |
|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| 9.50 mm - 12.95 mm | 12.98 mm - 17.53 mm | 17.53 mm - 24.38 mm | 24.21 mm - 35.00 mm | 35.01 mm - 47.80 mm | 47.85 mm - 65.99 mm |
| 0.15 | 0.23 | 0.28 | 0.35 | 0.41 | 0.46 |
| 0.15 | 0.23 | 0.28 | 0.35 | 0.41 | 0.46 |
| 0.13 | 0.23 | 0.28 | 0.35 | 0.38 | 0.43 |
| 0.13 ❖ | 0.20 | 0.25 | 0.33 | 0.38 | 0.43 |
| 0.13 ❖ | 0.20 | 0.25 | 0.33 | 0.38 | 0.41 |
| 0.10 ❖ | 0.18 | 0.23 | 0.30 | 0.36 | 0.41 |
| 0.10 ❖ | 0.18 | 0.23 | 0.30 | 0.36 | 0.38 |
| 0.13 | 0.20 | 0.25 | 0.33 | 0.38 | 0.46 |
| 0.10 | 0.18 | 0.23 | 0.30 | 0.36 | 0.43 |
| 0.10 | 0.18 | 0.23 | 0.30 | 0.36 | 0.43 |
| 0.10 | 0.15 | 0.20 | 0.25 | 0.33 | 0.38 |
| 0.13 | 0.18 | 0.23 | 0.30 | 0.33 | 0.41 |
| 0.10 | 0.18 | 0.23 | 0.30 | 0.33 | 0.41 |
| 0.10 | 0.15 | 0.23 | 0.30 | 0.33 | 0.41 |
| 0.10 | 0.13 | 0.20 | 0.25 | 0.30 | 0.38 |
| 0.08 | 0.13 | 0.20 | 0.25 | 0.30 | 0.36 |
| 0.10 ❖ | 0.15 | 0.20 | 0.23 | 0.25 | 0.30 |
| 0.08 ❖ | 0.15 | 0.20 | 0.23 | 0.25 | 0.30 |
| 0.08 ❖ | 0.13 | 0.18 | 0.20 | 0.23 | 0.28 |
| 0.13 ❖ | 0.23 | 0.25 | 0.30 | 0.38 | 0.43 |
| 0.10 ❖ | 0.20 | 0.23 | 0.25 | 0.33 | 0.41 |
| 0.10 ❖ | 0.18 | 0.20 | 0.23 | 0.30 | 0.38 |
| 0.10 | 0.13 | 0.18 | 0.23 | 0.25 | 0.30 |
| 0.10 | 0.13 | 0.18 | 0.23 | 0.23 | 0.28 |
| 0.08 ❖ | 0.15 | 0.18 | 0.23 | 0.25 | 0.30 |
| 0.08 ❖ | 0.13 | 0.15 | 0.18 | 0.20 | 0.25 |
| 0.08 ❖ | 0.15 | 0.18 | 0.23 | 0.25 | 0.30 |
| 0.08 ❖ | 0.13 | 0.15 | 0.18 | 0.20 | 0.25 |
| 0.13 ❖ | 0.18 | 0.20 | 0.25 | 0.30 | 0.38 |
| 0.10 ❖ | 0.15 | 0.18 | 0.23 | 0.25 | 0.30 |
| 0.13 ❖ | 0.18 | 0.20 | 0.25 | 0.30 | 0.36 |
| 0.10 ❖ | 0.15 | 0.18 | 0.23 | 0.25 | 0.28 |
| 0.13 ❖ | 0.18 | 0.20 | 0.25 | 0.30 | 0.36 |
| 0.10 ❖ | 0.15 | 0.18 | 0.23 | 0.25 | 0.28 |
| - | - | - | - | - | - |
| - | - | - | - | - | - |
| - | - | - | - | - | - |
| 0.08 ❖ | 0.13 | 0.18 | 0.20 | 0.27 | 0.38 |
| 0.06 ❖ | 0.10 | 0.15 | 0.18 | 0.23 | 0.28 |
| 0.15 | 0.25 | 0.36 | 0.43 | 0.48 | 0.51 |
| 0.13 | 0.23 | 0.30 | 0.41 | 0.46 | 0.48 |
| 0.13 | 0.20 | 0.25 | 0.36 | 0.41 | 0.43 |
| 0.10 | 0.15 | 0.20 | 0.25 | 0.33 | 0.33 |
| 0.10 | 0.13 | 0.15 | 0.20 | 0.25 | 0.25 |
| 0.18 | 0.28 | 0.36 | 0.43 | 0.46 | 0.48 |
| 0.18 | 0.28 | 0.36 | 0.41 | 0.43 | 0.48 |
| 0.18 | 0.28 | 0.36 | 0.43 | 0.46 | 0.48 |
| 0.18 | 0.28 | 0.36 | 0.41 | 0.43 | 0.48 |
| 0.13 | 0.23 | 0.30 | 0.41 | 0.51 | 0.61 |
| 0.10 | 0.15 | 0.20 | 0.25 | 0.31 | 0.38 |
| 0.15 | 0.25 | 0.36 | 0.43 | 0.53 | 0.63 |
| 0.05 ❖ | 0.08 | 0.15 | 0.20 | 0.25 | 0.35 |

Deep Hole Drilling Speed and Feed Adjustment

| | Holder Length | | | | |
|-------|---------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

$50 \cdot 0.75 = 37.5 \text{ M/min}$ $0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$

Formulas

| | | |
|----|---------------|------------------------------------|
| 1. | RPM | = (318.47 • M/min) / DIA |
| | where: | |
| | RPM | = revolutions per minute (rev/min) |
| | M/min | = speed (M/min) |
| | DIA | = diameter of drill (mm) |
| 2. | mm/min | = RPM • mm/rev |
| | where: | |
| | mm/min | = mm per minute (mm/min) |
| | RPM | = revolutions per minute (rev/min) |
| | mm/rev | = feed rate (mm/rev) |
| 3. | M/min | = RPM • 0.003 • DIA |
| | where: | |
| | M/min | = speed (M/min) |
| | RPM | = revolutions per minute (rev/min) |
| | DIA | = diameter of drill (mm) |





⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.





T-A® Recommended Drilling Data | Metric (mm)

Carbide Inserts | Flat Bottom Geometry

| ISO | Material | Hardness (BHN) | Carbide Grade | M/min | | | | Feed Rate (mm/rev) by Diameter | | | |
|--|---|----------------|---------------|---|---|--|---|--------------------------------|---------------------|---------------------|---------------------|
| | | | |  TiN |  TiAlN |  TiCN |  AM200® | 9.50 mm - 12.95 mm | 12.98 mm - 17.53 mm | 17.54 mm - 24.38 mm | 24.41 mm - 35.00 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | C2 | 82 | 110 | 98 | 126 | 0.17 | 0.26 | 0.32 | 0.39 |
| | | 150 - 200 | C2 | 73 | 94 | 85 | 110 | 0.15 | 0.24 | 0.30 | 0.35 |
| | | 200 - 250 | C2 | 67 | 88 | 76 | 102 | 0.13 | 0.22 | 0.28 | 0.32 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | C2 | 79 | 102 | 94 | 117 | 0.17 ❖ | 0.22 | 0.28 | 0.37 |
| | | 125 - 175 | C2 | 67 | 88 | 76 | 102 | 0.15 ❖ | 0.22 | 0.28 | 0.35 |
| | | 175 - 225 | C2 | 61 | 81 | 70 | 93 | 0.13 ❖ | 0.19 | 0.26 | 0.32 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | C2 | 55 | 70 | 64 | 81 | 0.11 ❖ | 0.19 | 0.26 | 0.32 |
| | | 125 - 175 | C2 | 67 | 88 | 76 | 102 | 0.15 | 0.22 | 0.28 | 0.35 |
| | | 175 - 225 | C2 | 61 | 81 | 72 | 93 | 0.13 | 0.19 | 0.26 | 0.32 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | C2 | 55 | 70 | 61 | 81 | 0.13 | 0.19 | 0.26 | 0.32 |
| | | 275 - 325 | C2 | 46 | 61 | 53 | 70 | 0.11 | 0.17 | 0.24 | 0.30 |
| | | 275 - 325 | C2 | 52 | 66 | 58 | 76 | 0.11 | 0.17 | 0.24 | 0.30 |
| 325 - 375 | | C2 | 44 | 58 | 50 | 67 | 0.09 | 0.15 | 0.22 | 0.28 | |
| 325 - 375 | | C2 | 44 | 58 | 50 | 67 | 0.09 | 0.15 | 0.22 | 0.28 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 300 | C2 | 41 | 52 | 47 | 59 | 0.13 ❖ | 0.19 | 0.22 | 0.26 | |
| | 300 - 350 | C2 | 37 | 47 | 41 | 55 | 0.11 ❖ | 0.17 | 0.19 | 0.24 | |
| | 350 - 400 | C2 | 30 | 41 | 37 | 47 | 0.09 ❖ | 0.15 | 0.17 | 0.22 | |
| Structural Steel A36, A285, A516, etc. | 100 - 150 | C2 | 62 | 81 | 72 | 93 | 0.17 ❖ | 0.24 | 0.30 | 0.35 | |
| | 150 - 250 | C2 | 52 | 66 | 58 | 76 | 0.13 ❖ | 0.22 | 0.28 | 0.30 | |
| | 250 - 350 | C2 | 47 | 61 | 53 | 70 | 0.11 ❖ | 0.19 | 0.25 | 0.26 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | C2 | 41 | 58 | 49 | 67 | 0.09 | 0.15 | 0.19 | 0.24 | |
| | 200 - 250 | C2 | 30 | 44 | 37 | 50 | 0.09 | 0.15 | 0.19 | 0.24 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | C2 | 21 | 27 | 23 | 32 | 0.09 ❖ | 0.15 | 0.19 | 0.24 |
| | | 220 - 310 | C2 | 15 | 21 | 18 | 24 | 0.09 ❖ | 0.13 | 0.17 | 0.22 |
| | Titanium Alloy | 140 - 220 | C2 | 26 | 33 | 28 | 40 | 0.08 ❖ | 0.14 | 0.17 | 0.20 |
| | | 220 - 310 | C2 | 21 | 29 | 25 | 30 | 0.08 ❖ | 0.12 | 0.15 | 0.18 |
| | Aerospace Alloy S82 | 185 - 275 | C2 | 43 | 37 | 50 | 40 | 0.15 ❖ | 0.17 | 0.25 | 0.30 |
| 275 - 350 | | C2 | 33 | 28 | 38 | 32 | 0.13 ❖ | 0.15 | 0.23 | 0.25 | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | C2 | 43 | 56 | 50 | 64 | 0.15 ❖ | 0.20 | 0.25 | 0.30 |
| | | 275 - 350 | C2 | 33 | 43 | 38 | 49 | 0.13 ❖ | 0.18 | 0.23 | 0.25 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | C2 | 28 | 37 | 33 | 40 | 0.13 ❖ | 0.17 | 0.21 | 0.25 |
| | | 185 - 275 | C2 | 21 | 28 | 25 | 32 | 0.11 ❖ | 0.15 | 0.19 | 0.21 |
| | Super Duplex Stainless Steel | 135 - 185 | C2 | 22 | 29 | 26 | 33 | 0.10 ❖ | 0.14 | 0.17 | 0.20 |
| 185 - 275 | | C2 | 17 | 22 | 19 | 26 | 0.08 ❖ | 0.12 | 0.15 | 0.17 | |

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

| ISO | Material | Hardness (BHN) | Carbide Grade | M/min | | | | Feed Rate (mm/rev) by Diameter | | | |
|-----------|---|----------------|---------------|---|---|--|---|--------------------------------|---------------------|---------------------|---------------------|
| | | | |  TiN |  TiAlN |  TiCN |  AM200® | 9.50 mm - 12.95 mm | 12.98 mm - 17.53 mm | 17.54 mm - 24.38 mm | 24.41 mm - 35.00 mm |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 | C2 | 20 | 31 | 26 | 39 | 0.06 ❖ | 0.10 | 0.16 | 0.20 |
| | | 500 | C2 | 13 | 23 | 18 | 31 | 0.04 ❖ | 0.08 | 0.12 | 0.16 |
| | | 600 | C2 | 10 | 19 | 14 | 25 | 0.03 ❖ | 0.06 | 0.10 | 0.13 |
| | Hardened Steel | 300 - 400 | C2 | 30 | 38 | 34 | 41 | 0.08 ❖ | 0.14 | 0.18 | 0.22 |
| 400 - 500 | | C2 | 18 | 22 | 20 | 33 | 0.06 ❖ | 0.12 | 0.16 | 0.18 | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | C2 | 82 | 120 | 108 | 137 | 0.17 | 0.26 | 0.32 | 0.41 |
| | | 150 - 200 | C2 | 70 | 104 | 87 | 119 | 0.15 | 0.24 | 0.28 | 0.38 |
| | | 200 - 220 | C2 | 61 | 94 | 79 | 108 | 0.13 | 0.19 | 0.26 | 0.32 |
| | | 220 - 260 | C2 | 55 | 81 | 67 | 93 | 0.11 | 0.17 | 0.24 | 0.28 |
| | | 260 - 320 | C2 | 47 | 70 | 58 | 81 | 0.11 | 0.15 | 0.22 | 0.24 |
| N | Cast Aluminum | 30 | C2 | 160 | 228 | 198 | - | 0.22 | 0.32 | 0.41 | 0.43 |
| | | 180 | C2 | 79 | 122 | 107 | - | 0.19 | 0.28 | 0.35 | 0.39 |
| | Wrought Aluminum | 30 | C2 | 292 | 368 | 328 | 390 | 0.12 | 0.18 | 0.23 | 0.25 |
| | | 180 | C2 | 195 | 245 | 220 | 260 | 0.10 | 0.16 | 0.20 | 0.22 |
| | Aluminum Bronze | 100 - 200 | C2 | 73 | 95 | 85 | 105 | 0.10 | 0.16 | 0.20 | 0.29 |
| | | 200 - 250 | C2 | 55 | 81 | 68 | 87 | 0.08 | 0.12 | 0.14 | 0.20 |
| | Brass | 100 | C2 | 112 | 160 | 138 | 185 | 0.12 | 0.18 | 0.22 | 0.30 |
| Copper | 60 | C2 | 68 | 105 | 85 | 117 | 0.04 ❖ | 0.06 | 0.08 | 0.12 | |

❖ Contact our Application Engineering department for assistance when machining these materials

Deep Hole Drilling Speed and Feed Adjustment

| | ⚠ Holder Length | | | | |
|-------|-----------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

| | |
|--------------------------------------|---|
| $50 \cdot 0.75 = 37.5 \text{ M/min}$ | $0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$ |
|--------------------------------------|---|

Formulas

| | | |
|---|---|--|
| <p>1. $RPM = (318.47 \cdot M/min) / DIA$</p> <p>where:</p> <ul style="list-style-type: none"> RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm) | <p>2. $mm/min = RPM \cdot mm/rev$</p> <p>where:</p> <ul style="list-style-type: none"> mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev) | <p>3. $M/min = RPM \cdot 0.003 \cdot DIA$</p> <p>where:</p> <ul style="list-style-type: none"> M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm) |
|---|---|--|


⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Recommended Drilling Data | Metric (mm)

Carbide Inserts | Diamond Coating

| Material | Carbide Grade | M/min  Diamond Coating | Feed Rate (mm/rev) by Diameter | | | | |
|---------------------------|------------------------|---|--------------------------------|-----------------|---------------|---------------|-------------|
| | | | 9.5 mm - 12.5 mm | 13 mm - 17.5 mm | 18 mm - 24 mm | 25 mm - 35 mm | |
| Polymer Matrix Composites | Carbon (hard) | N2 | 305 - 450 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Carbon Fiber | N2 | 305 - 450 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Carbon / Glass Fiber | N2 | 305 - 450 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Fiberglass | N2 | 305 - 450 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Graphite | N2 | 305 - 450 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Plastics | N2 | 76 - 305 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Epoxy Resin | N2 | 76 - 305 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Bismaleimide Resin | N2 | 76 - 305 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Polyester Resin | N2 | 76 - 305 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Phenolic Resin | N2 | 76 - 305 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| Rubber | N2 | 76 - 305 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 | |
| Metal Matrix Composites | Aluminum | N2 | 305 | 0.20 | 0.33 | 0.41 | 0.51 |
| | Si < 10% | N2 | 305 | 0.20 | 0.33 | 0.41 | 0.51 |
| | 10% < Si < 15% | N2 | 259 - 305 | 0.20 | 0.33 | 0.41 | 0.51 |
| | 15% < Si < 20% | N2 | 198 - 259 | 0.20 | 0.33 | 0.41 | 0.51 |
| | 20% < Si < 25% | N2 | 152 - 198 | 0.20 | 0.33 | 0.41 | 0.51 |
| | 25% < Si | N2 | 61 - 152 | 0.20 | 0.33 | 0.41 | 0.51 |
| | Brass | N2 | 76 - 152 | 0.20 | 0.33 | 0.41 | 0.51 |
| | Bronze | N2 | 76 - 152 | 0.20 | 0.33 | 0.41 | 0.51 |
| | Copper | N2 | 30 - 76 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Copper Alloys | N2 | 30 - 76 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Lead Alloys | N2 | 30 - 76 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Magnesium Alloys | N2 | 30 - 76 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Precious Metals | N2 | 30 - 76 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| Ceramic Matrix Composites | Carbide (green) | N2 | 15 - 76 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Ceramic (green) | N2 | 15 - 76 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |
| | Ceramic (pre-sintered) | N2 | 15 - 76 | 0.10 - 0.15 | 0.20 - 0.25 | 0.25 - 0.30 | 0.30 - 0.36 |

Deep Hole Drilling Speed and Feed Adjustment

| | Holder Length | | | | |
|-------|---------------|------|-----------|------|------|
| | Extended | Long | Long Plus | XL | 3XL |
| Speed | 0.90 | 0.85 | 0.80 | 0.80 | 0.75 |
| Feed | - | 0.95 | 0.90 | 0.90 | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

$$50 \cdot 0.75 = 37.5 \text{ M/min}$$

$$0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$$

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

Tap Drill Information and Formulas | Metric (mm)

Metric Profile Screw Thread

| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
|-----------|----------------|--------------------|-----------------|------------------------|--------------------|----------------------|
| 12 x 1.75 | 10.2 mm | 0.4016" | 79% | 0.075 mm | 10.28 mm | 76% |
| 12 x 1.75 | 13/32" | 0.4063" | 74% | 0.075 mm | 10.40 mm | 71% |
| 12 x 1.25 | 27/64" | 0.4219" | 79% | 0.075 mm | 10.79 mm | 74% |
| 12 x 1.25 | 10.8 mm | 0.4252" | 74% | 0.075 mm | 10.88 mm | 69% |
| 14 x 20 | 15/32" | 0.4688" | 81% | 0.075 mm | 11.98 mm | 78% |
| 14 x 20 | 12.0 mm | 0.4724" | 77% | 0.075 mm | 12.08 mm | 74% |
| 14 x 1.5 | 12.5 mm | 0.4921" | 77% | 0.075 mm | 12.58 mm | 73% |
| 16 x 2.0 | 14.0 mm | 0.5512" | 77% | 0.075 mm | 14.08 mm | 74% |
| 16 x 1.5 | 14.5 mm | 0.5709" | 77% | 0.075 mm | 14.58 mm | 73% |
| 16 x 1.5 | 37/64" | 0.5781" | 68% | 0.075 mm | 14.76 mm | 64% |
| 18 x 2.5 | 15.5 mm | 0.6102" | 77% | 0.075 mm | 15.58 mm | 75% |
| 18 x 1.5 | 16.5 mm | 0.6496" | 77% | 0.075 mm | 16.58 mm | 73% |
| 18 x 1.5 | 21/32" | 0.6563" | 68% | 0.075 mm | 16.75 mm | 64% |
| 20 x 2.5 | 11/16" | 0.6875" | 78% | 0.075 mm | 17.54 mm | 76% |
| 20 x 2.5 | 17.5 mm | 0.6890" | 77% | 0.075 mm | 17.58 mm | 74% |
| 20 x 1.5 | 18.5 mm | 0.7283" | 77% | 0.075 mm | 18.58 mm | 73% |
| 20 x 1.5 | 47/64" | 0.7344" | 69% | 0.075 mm | 18.66 mm | 65% |
| 22 x 2.5 | 49/64" | 0.7656" | 79% | 0.075 mm | 19.52 mm | 76% |
| 22 x 2.5 | 19.5 mm | 0.7677" | 77% | 0.075 mm | 19.58 mm | 75% |
| 22 x 1.5 | 20.5 mm | 0.8071" | 77% | 0.075 mm | 20.58 mm | 73% |
| 22 x 1.5 | 13/16" | 0.8125" | 70% | 0.075 mm | 20.71 mm | 66% |
| 24 x 3 | 13/16" | 0.8125" | 86% | 0.075 mm | 20.71 mm | 84% |
| 24 x 3 | 21.0 mm | 0.8268" | 76% | 0.075 mm | 21.08 mm | 75% |
| 24 x 2 | 22.0 mm | 0.8661" | 77% | 0.075 mm | 22.08 mm | 74% |
| 24 x 2 | 7/8" | 0.8750" | 68% | 0.075 mm | 22.30 mm | 65% |
| 27 x 3 | 24.0 mm | 0.9449" | 77% | 0.075 mm | 24.08 mm | 75% |

Taper Pipe Thread (NPT)

| Tap Size | Tap Drill Size | Decimal Equivalent | Theo % Thread* | Probable Mean Oversize | Probable Hole Size | Probable % Thread** |
|----------|----------------|--------------------|----------------|------------------------|--------------------|---------------------|
| 1/4 - 18 | 7/16 | 0.4375 | - | 0.075 mm | 11.19 mm | - |
| 3/8 - 18 | 9/16 | 0.5625 | - | 0.075 mm | 14.76 mm | - |
| 1/2 - 14 | 45/64 | 0.7031 | - | 0.075 mm | 18.33 mm | - |
| 3/4 - 14 | 29/32 | 0.9063 | - | 0.075 mm | 23.89 mm | - |

* Based on nominal tap drill diameter

** Based on 0.075 mm probable mean oversize

To calculate the percent of full thread for a given hole diameter:

$$\% \text{ Thread} = \left[\frac{76.93}{\text{Pitch (mm)}} \right] \left[\text{Basic Major Diameter of Thread (mm)} - \text{Drill Hole Size (mm)} \right]$$

Notes

- The above tap drill information represents probable thread percentages for the standard tap drills stocked at Allied Machine. Special insert diameters may be required in order to meet a user specific percentage of thread requirements.
- The 0.075 mm probable mean oversize hole condition is based on optimum cutting conditions. Probable percent of full thread may vary based on less ideal cutting conditions.
- The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the editor of the *Machinery's Handbook*.

Formulas

| | |
|----|---|
| 1. | RPM = (318.47 • M/min) / DIA |
| | where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm) |
| 2. | mm/min = RPM • mm/rev |
| | where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev) |
| 3. | M/min = RPM • 0.003 • DIA |
| | where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm) |
| 4. | Thrust = 154 • (mm/rev) • DIA • K _m |
| | where: Thrust = axial thrust (N) mm/rev = feed rate (mm/rev) DIA = diameter of drill (mm) K _m = specific cutting energy (kPa) |
| 5. | Tool Power = ((mm/rev) • RPM • K _m • DIA ²) / 210604.8 |
| | where: Tool Power = tool power (HP) mm/rev = feed rate (mm/rev) RPM = revolutions per minute (rev/min) K _m = specific cutting energy (kPa) DIA = diameter of drill (mm) |

Material Constants

| Type of Material | Hardness | K _m (kPa) |
|------------------------------|---------------|----------------------|
| Plain Carbon and Alloy Steel | 85 - 200 BHN | 5.45 |
| | 200 - 275 BHN | 6.48 |
| | 275 - 375 BHN | 6.89 |
| | 375 - 425 BHN | 7.93 |
| High-Temperature Alloys | - | 9.93 |
| Stainless Steels | 135 - 275 BHN | 6.48 |
| | 30 - 45 RC | 7.45 |
| Cast Iron | 100 - 200 BHN | 3.45 |
| | 200 - 300 BHN | 7.45 |
| Copper Alloy | 20 - 80 RB | 2.96 |
| | 80 - 100 RB | 4.96 |
| Titanium Alloy | - | 4.96 |
| Aluminum Alloy | - | 1.52 |
| Magnesium Alloy | - | 1.10 |

Coolant Recommendations | Metric (mm)

HSS Drill Inserts

| ISO | Material | Pressure or Flow Rate | 9.5 mm - 12.5 mm | 13 mm - 17 mm | 18 mm - 24 mm | 25 mm - 35 mm | 36mm - 50 mm | 51 mm - 76 mm | 76 mm - 102 mm |
|---|---|-----------------------|------------------|---------------|---------------|---------------|--------------|---------------|----------------|
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | BAR | 12 - 13 | 7 - 8 | 7 - 10 | 6 - 8 | 5 - 7 | 4 | 5 - 6 |
| | | LPM | 9.5 - 9.8 | 10.6 - 11.4 | 16.7 - 19.7 | 26.5 - 30.3 | 45.4 - 53.0 | 114 - 125 | 144 - 167 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | BAR | 11 - 12 | 5 - 6 | 5 - 7 | 4 - 6 | 4 - 5 | 2 - 3 | 3 - 5 |
| | | LPM | 9.1 - 9.5 | 9.1 - 9.8 | 14.0 - 15.9 | 22.7 - 26.5 | 41.6 - 45.4 | 98 - 114 | 125 - 144 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | BAR | 11 | 5 - 6 | 5 - 6 | 4 - 5 | 3 - 5 | 2 - 3 | 3 - 5 |
| | | LPM | 8.7 - 9.1 | 8.7 - 9.8 | 13.6 - 15.5 | 18.9 - 22.7 | 37.9 - 45.4 | 98 - 114 | 125 - 144 |
| | Alloy Steel 4140, 5140, 8640, etc. | BAR | 11 | 5 | 5 - 6 | 3 - 5 | 3 - 4 | 2 | 3 |
| | | LPM | 8.7 - 9.1 | 8.3 - 9.1 | 13.2 - 14.8 | 18.9 - 22.7 | 31.9 - 41.6 | 98 - 106 | 114 - 125 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | BAR | 10 - 11 | 4 | 3 | 2 | 2 | 1 - 2 | 2 |
| | | LPM | 8.7 - 9.1 | 7.9 - 8.3 | 11.0 - 11.7 | 15.1 - 18.9 | 26.5 - 30.3 | 79 - 87 | 87 - 98 |
| | Structural Steel A36, A285, A516, etc. | BAR | 11 | 5 - 6 | 5 - 6 | 3 - 4 | 3 | 2 | 3 |
| | | LPM | 8.7 - 9.1 | 9.1 - 9.8 | 13.2 - 14.8 | 18.9 - 22.7 | 34.1 - 37.9 | 87 - 98 | 114 - 125 |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | BAR | 10 - 11 | 4 | 3 | 2 | 2 | 1 - 2 | 2 | |
| | LPM | 8.7 - 9.1 | 7.9 - 8.3 | 11.0 - 11.7 | 15.1 - 18.9 | 26.5 - 30.3 | 79 - 87 | 87 - 98 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | BAR | 10 - 11 | 4 - 5 | 3 - 4 | 2 | 2 | 2 | 3 |
| | | LPM | 8.7 - 9.1 | 8.3 - 8.7 | 11.7 - 12.1 | 15.1 - 18.9 | 26.5 - 30.3 | 87 - 98 | 125 |
| | Titanium Alloy | BAR | 10 - 11 | 4 - 5 | 3 - 4 | 2 | 2 | 2 | 3 |
| | | LPM | 8.7 - 9.1 | 8.3 - 8.7 | 11.7 - 12.1 | 15.1 - 18.9 | 26.5 - 30.3 | 87 - 98 | 125 |
| Aerospace Alloy S82 | BAR | 10 - 11 | 4 - 5 | 3 - 4 | 2 | 2 | 2 | 3 | |
| | LPM | 8.7 - 9.1 | 8.3 - 8.7 | 11.7 - 12.1 | 15.1 - 18.9 | 26.5 - 30.3 | 87 - 98 | 125 | |
| M | Stainless Steel 400 Series 416, 420, etc. | BAR | 11.8 | 5.9 | 5.2 | 3.8 | 3.5 | 2 | 3.1 |
| | | LPM | 9.5 | 9.8 | 14 | 23 | 38 | 98 | 117 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | BAR | 11.8 | 5.9 | 5.2 | 3.8 | 3.5 | 2 | 3.1 |
| | | LPM | 9.5 | 9.8 | 14 | 23 | 38 | 98 | 117 |
| | Super Duplex Stainless Steel | BAR | 11.8 | 5.9 | 5.2 | 3.8 | 3.5 | 2 | 3.1 |
| | | LPM | 9.5 | 9.8 | 14 | 23 | 38 | 98 | 117 |
| H | Wear Plate Hardox®, AR400, T-1, etc. | BAR | 10.7 | 4.2 | 3.5 | 2 | 2 | 1.7 | 2 |
| | | LPM | 9.1 | 8.3 | 11.7 | 19 | 30 | 87 | 98 |
| | Hardened Steel | BAR | 10.7 | 4.2 | 3.5 | 2 | 2 | 1.7 | 2 |
| | | LPM | 9.1 | 8.3 | 11.7 | 19 | 30 | 87 | 98 |
| K | SG / Nodular Cast Iron | BAR | 11 | 4.5 | 4.2 | 2.8 | 2.4 | 2 | 2.4 |
| | | LPM | 9.1 | 8.7 | 12.5 | 19 | 34 | 98 | 106 |
| | Grey / White Iron | BAR | 11 | 4.5 | 4.2 | 2.8 | 2.4 | 2 | 2.4 |
| | | LPM | 9.1 | 8.7 | 12.5 | 19 | 34 | 98 | 106 |
| N | Cast Aluminum | BAR | 14.5 | 12.4 | 15.8 | 11 | 8.6 | 3.5 | 5.5 |
| | | LPM | 10 | 14 | 23 | 34 | 61 | 125 | 159 |
| | Wrought Aluminum | BAR | 14.5 | 12.4 | 15.8 | 11 | 8.6 | 3.5 | 5.5 |
| | | LPM | 10 | 14 | 23 | 34 | 61 | 125 | 159 |
| | Aluminum Bronze | BAR | 12.8 | 8.3 | 9.65 | 7.95 | 6.9 | 3.5 | 6.2 |
| | | LPM | 9.6 | 11.4 | 19.7 | 30.3 | 53 | 125 | 167 |
| | Brass | BAR | 11 | 4.5 | 4.2 | 2.8 | 2.4 | 2 | 2.4 |
| | | LPM | 9.1 | 8.7 | 12.5 | 19 | 34 | 98 | 106 |
| | Copper | BAR | 12.8 | 8.3 | 9.65 | 7.95 | 6.9 | 3.5 | 6.2 |
| | | LPM | 9.6 | 11.4 | 19.7 | 30.3 | 53 | 125 | 167 |

Deep Hole Drilling Coolant Adjustment

| | Holder Length | | | | |
|-------------------|---------------|------|-----------|----|-----|
| | Extended | Long | Long Plus | XL | 3XL |
| Pressure and Flow | 1.3 | 1.5 | 2 | 2 | 3 |

Recommended Coolant Example

If the recommended pressure and flow is 12 bar and 22 LPM for a standard length holder, then the adjusted pressure and flow for a 3XL holder would be 36 bar and 66 LPM.

$$12 \cdot 3 = 36 \text{ bar} \quad 22 \cdot 3 = 66 \text{ LPM}$$

WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied Machine recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the T-A® drilling system will still function at reduced penetration rates. Contact our Application Engineering department for a more specific recommendation of coolant requirements and/or speeds and feeds.

Coolant Recommendations | Metric (mm)

Carbide Drill Inserts

| ISO | Material | Pressure or Flow Rate | 9.5 mm - 12.5 mm | 13 mm - 17 mm | 18 mm - 24 mm | 25 mm - 35 mm | 36 mm - 47 mm |
|---|---|-----------------------|------------------|---------------|---------------|---------------|---------------|
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | BAR | 17 - 20 | 17 | 15 | 15 | 20 |
| | | LPM | 12.2 | 16.3 | 25.2 | 41.5 | 71.9 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | BAR | 18 | 11 | 11 | 12 | 9 |
| | | LPM | 11.4 | 13.3 | 20.6 | 36.5 | 62.0 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | BAR | 17 | 10 | 10 | 10 | 8 |
| | | LPM | 11.3 | 12.5 | 20.0 | 33.8 | 57.0 |
| | Alloy Steel 4140, 5140, 8640, etc. | BAR | 17 | 9 | 10 | 8 | 7 |
| | | LPM | 11.1 | 12.3 | 19.3 | 30.0 | 55.8 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | BAR | 15 | 5 | 4 | 3 | 3 |
| | | LPM | 10.4 | 9.1 | 12.6 | 18.8 | 33.6 |
| Structural Steel A36, A285, A516, etc. | BAR | 16 | 9 | 8 | 7 | 5 | |
| | LPM | 10.8 | 12.0 | 17.5 | 27.8 | 47.1 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | BAR | 15 | 5 | 5 | 3 | 3 | |
| | LPM | 10.4 | 9.1 | 13.6 | 19.7 | 36.5 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | BAR | 17 | 11 | 12 | 11 | 9 |
| | | LPM | 11.1 | 13.5 | 21.9 | 35.4 | 62.0 |
| | Titanium Alloy | BAR | 17 | 11 | 12 | 11 | 9 |
| | | LPM | 11.1 | 13.5 | 21.9 | 35.4 | 62.0 |
| Aerospace Alloy S82 | BAR | 17 | 11 | 12 | 11 | 9 | |
| | LPM | 11.1 | 13.5 | 21.9 | 35.4 | 62.0 | |
| M | Stainless Steel 400 Series 416, 420, etc. | BAR | 22.7 | 16.5 | 17.9 | 17.2 | 13.1 |
| | | LPM | 13 | 16.3 | 26.3 | 44.2 | 75 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | BAR | 22.7 | 16.5 | 17.9 | 17.2 | 13.1 |
| | | LPM | 13 | 16.3 | 26.3 | 44.2 | 75 |
| Super Duplex Stainless Steel | BAR | 22.7 | 16.5 | 17.9 | 17.2 | 13.1 | |
| | LPM | 13 | 16.3 | 26.3 | 44.2 | 75 | |
| H | Wear Plate Hardox®, AR400, T-1, etc. | BAR | 14.5 | 5.2 | 4.8 | 3.4 | 3.1 |
| | | LPM | 10.4 | 9.1 | 13.6 | 19.7 | 36.5 |
| | Hardened Steel | BAR | 14.5 | 5.2 | 4.8 | 3.4 | 3.1 |
| | | LPM | 10.4 | 9.1 | 13.6 | 19.7 | 36.5 |
| K | SG / Nodular Cast Iron | BAR | 15.5 | 7.2 | 6.2 | 6.2 | 5.5 |
| | | LPM | 10.7 | 10.8 | 15.4 | 26.5 | 48.7 |
| | Grey / White Iron | BAR | 15.5 | 7.2 | 6.2 | 6.2 | 5.5 |
| | | LPM | 10.7 | 10.8 | 15.4 | 26.5 | 48.7 |
| N | Cast Aluminum | BAR | 24.1 | 22 | 21.7 | 19.6 | 13.8 |
| | | LPM | 13.4 | 18.8 | 29 | 47.2 | 77 |
| | Wrought Aluminum | BAR | 24.1 | 22 | 21.7 | 19.6 | 13.8 |
| | | LPM | 13.4 | 18.8 | 29 | 47.2 | 77 |
| | Aluminum Bronze | BAR | 20 | 16.5 | 16.5 | 15.2 | 12 |
| | | LPM | 12.2 | 16.3 | 25.2 | 41.5 | 71.9 |
| | Brass | BAR | 24.1 | 22 | 21.7 | 19.6 | 13.8 |
| | | LPM | 13.4 | 18.8 | 29 | 47.2 | 77 |
| Copper | BAR | 20 | 16.5 | 16.5 | 15.2 | 12 | |
| | LPM | 12.2 | 16.3 | 25.2 | 41.5 | 71.9 | |

Deep Hole Drilling Coolant Adjustment

| | Holder Length | | | | |
|-------------------|---------------|------|-----------|----|-----|
| | Extended | Long | Long Plus | XL | 3XL |
| Pressure and Flow | 1.3 | 1.5 | 2 | 2 | 3 |

Recommended Coolant Example

If the recommended pressure and flow is 12 bar and 22 LPM for a standard length holder, then the adjusted pressure and flow for a 3XL holder would be 36 bar and 66 LPM.

$$12 \cdot 3 = 36 \text{ bar}$$

$$22 \cdot 3 = 66 \text{ LPM}$$

⚠️ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied Machine recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the T-A® drilling system will still function at reduced penetration rates. Contact our Application Engineering department for a more specific recommendation of coolant requirements and/or speeds and feeds.

Troubleshooting Guide

| | Potential Problem | | | | | | | | | | | | | | | | | | | | | |
|---|-------------------------|-------------|-----------------|-----------------|------------|---------------------|---------|--------------|-------------------|-------------------------|-----------------------|-----------------|---------------|----------------------|-------------------|--------------------|---------------|------------------|----------------|---------------------------|-----------------------|---|
| | Accelerated corner wear | Barber pole | Bell-mouth hole | Insert chipping | Blue chips | Built-up Edge (BUE) | Chatter | Chip packing | Chipping of point | Damaged or broken tools | Excessive margin wear | High flank wear | Hole lead off | Hole out of position | Hole out of round | Notching of insert | Oversize hole | Poor hole finish | Poor tool life | Power spikes - Load meter | Step burned on insert | |
| Setup Condition | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | Possible Solutions |
| <p>⚠ Use of Standard, Standard Plus, Extended, Long, Long Plus, XL, and 3XL holders.</p> <p>See page 146 for Deep Hole Drilling guidelines.</p> | | 2 | 3 | | | | 7 | | 9 | | | | 13 | 14 | | | 17 | | | | | <ul style="list-style-type: none"> Start with short holder and drill a minimum depth equal to 2xD (see page A30: 146 for instructions). Spot hole with stub tool of same or greater included angle as T-A® drill insert. Decrease feed a minimum of 50% until establishing full diameter. Use special holder with wear pads or chrome bearing area to work with drill bushings. |
| Starting on an inclined surface. | | 2 | | | | | 7 | | 9 | 10 | 11 | | 13 | | 15 | | | | | | | <ul style="list-style-type: none"> Spot face surface to provide a flat entry surface. Spot hole with stub tool of same or greater included angle as T-A® drill insert. Decrease feed a minimum of 50% until establishing full diameter. Use special holder with wear pads or chrome bearing area to work with drill bushings. |
| Worn or misaligned spindle (lathe, screw machine, chucker). | 1 | 2 | 3 | | | | 7 | | 9 | 10 | 11 | | 13 | | | | 17 | 18 | | | | <ul style="list-style-type: none"> Align spindle and turret or tailstock. Repair spindle. Spot hole with stub tool of same or greater included angle as T-A® drill insert. |
| Use of low rigidity machine tools (radial drills, multi-spindle drill press, etc.). | | 2 | 3 | 4 | | | 7 | | 9 | 10 | | | 13 | 14 | | | | | | | | <ul style="list-style-type: none"> Spot hole with stub tool of same or greater included angle as T-A® drill insert. Reduce penetration rate to fall within the physical limits of the machine or setup (NOTICE: Do not reduce feed below threshold of good chip formation). Use special holder with wear pads or chrome bearing area to work with drill bushings. Use tougher tool steel grades with high wear-resistant coatings. |
| Poor work piece support. | | 2 | | 4 | | | 7 | | | 10 | 11 | | | | 15 | | | | | 18 | | <ul style="list-style-type: none"> Provide additional support for the work piece. Reduce penetration rate to fall within the physical limits of the machine or setup (NOTICE: Do not reduce feed below threshold of good chip formation). Use tougher tool steel grades with high wear-resistant coatings. |
| Flood coolant, low coolant pressure or low coolant volume. | 1 | | | | | 5 | 6 | | 8 | | 10 | | 12 | | | | 17 | 18 | 19 | 20 | 21 | <ul style="list-style-type: none"> Run coolant through tool holder when drilling greater than one times diameter. Increase coolant pressure and volume through the tool holder. Reduce penetration rate to fall within the coolant limitations (NOTICE: Do not reduce feed below threshold of good chip formation). Add a peck cycle to help clear chips. |

1. WARNING Tool failure can cause serious injury. To prevent:

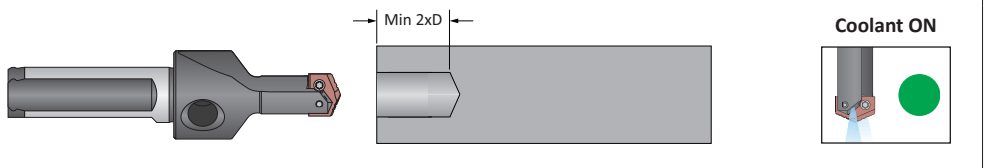
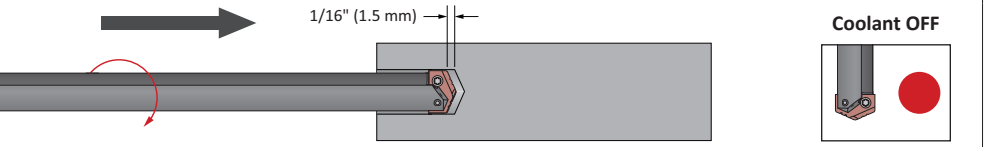
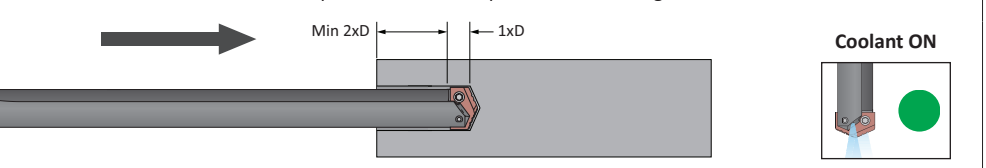
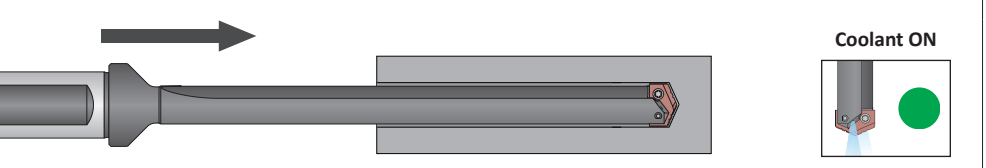

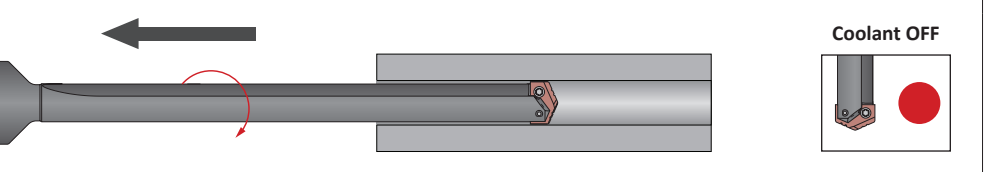
- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

| | Potential Problem | | | | | | | | | | | | | | | | | | | | | |
|--|-------------------------|-------------|-----------------|-----------------|------------|---------------------|---------|--------------|-------------------|-------------------------|-----------------------|-----------------|---------------|----------------------|-------------------|--------------------|---------------|------------------|----------------|---------------------------|-----------------------|---|
| | Accelerated corner wear | Barber pole | Bell-mouth hole | Insert chipping | Blue chips | Built-up Edge (BUE) | Chatter | Chip packing | Chipping of point | Damaged or broken tools | Excessive margin wear | High flank wear | Hole lead off | Hole out of position | Hole out of round | Notching of insert | Oversize hole | Poor hole finish | Poor tool life | Power spikes - Load meter | Step burned on insert | |
| Setup Condition | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | Possible Solutions |
| Interrupted cuts. Entry or exit surfaces that are not perpendicular to the spindle (draft angles, stepped surfaces, cross holes, and cast or forged surfaces). | | | | 4 | | | 7 | | 9 | 10 | 11 | | 13 | 14 | 15 | | | 17 | 18 | 19 | | <ul style="list-style-type: none"> • Premill (spot face) entry or exit surface to remove interruption. • Spot hole with stub tool of same or greater included angle as T-A® drill insert. • Decrease feed as much as 50% through entry or exit interruption. • Use short holders in low impact entry cuts. |
| Material harder than expected or running tools beyond recommended speeds. | 1 | | | | 5 | 6 | | | | 10 | | 12 | | | | | | | 19 | | 21 | <ul style="list-style-type: none"> • Reduce speed if a step is worn in the insert, calculate SFM at the worn diameter. Reduce this value by 10% and apply this new value to the original tool diameter. • Increase coolant pressure and volume. • Improve coolant condition by use of quality products and regular maintenance. • Select an insert grade (premium, super cobalt, or carbide) or coating (TiAlN, TiCN, or AM200®) that is more wear-and heat-resistant. |
| Poor material micro-structure or foreign particles (forgings and castings that have not been normalized or annealed, poorly prepared steel, flame cut parts and sand casting). | | | | 4 | | 6 | | | | 10 | | 12 | 13 | | | | 16 | | | 19 | | <ul style="list-style-type: none"> • Compare performance of other tools for similar wear problems, which may indicate poor micro-structure. Anneal or normalize parts to improve micro-structure for machining. • To improve tool life in materials with poor micro-structure, try carbide grades. • For hard spots or inclusions, use the tougher insert steel grade with high wear-resistant coatings (TiAlN, TiCN, AM200®). • Reduce feeds (NOTICE: Do not reduce feed below threshold of good chip formation). |
| Poor chip control. | | | | | | | | 8 | | 10 | 11 | | 13 | | | | | 17 | 18 | 19 | 20 | <ul style="list-style-type: none"> • Increase feed to recommended levels. Contact Allied's Application Engineering team for technical recommendations. • Increase coolant pressure and volume. • Improve coolant condition by use of quality products and regular maintenance. • See pages A30: 4 - 5 for special purpose geometries. |
| Spot drilled holes with included angle less than that matching T-A® or cored holes. | 1 | | | 4 | | | 7 | | | | | | 13 | | | | 16 | | | 19 | | <ul style="list-style-type: none"> • Spot hole with short tool of same or greater included angle as T-A® drill insert. • Reduce feed (NOTICE: Do not reduce feed below threshold of good chip formation) • If possible, drill from solid. |
| Use of high wear-resistant insert grades. | | | | 4 | | | | | | 10 | | | | | | | | | | | | <ul style="list-style-type: none"> • Use tougher grade of T-A® (from carbide to cobalt to HSS). See wear versus toughness chart on page A30: 9. • Increase rigidity of setup. |

Deep Hole Drilling Guidelines

For Lengths Greater Than 9xD (including Standard Plus, Extended Length, Long Length, Long Plus Length, XL, 3XL, and Special Length)

| | | | |
|-----------------|--|---|--|
| A DRILLING | <p>1. Pilot Hole 100 % RPM 100% IPR (mm/rev)</p> | <p>Establish the pilot hole using the same diameter short drill to a depth of 2xD minimum. Utilize a pilot drill with the same or larger included point angle.</p> |  |
| B BORING | <p>2. Feed-in 50 RPM max 12 IPM (300 mm/min)</p> | <p>Feed the longer drill within 1/16" (1.5 mm) short of the established pilot hole bottom at a maximum of 50 RPM and 12 IPM (300 mm/min) feed rate.</p> |  |
| C REAMING | <p>3. Deep Hole Transition Drilling 50 % RPM 75% IPR (mm/rev)</p> | <p>Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed. Minimum of 1 second dwell is required to meet full speed before feeding.</p> |  |
| D BURNISHING | <p>4. Deep Hole Drilling - Blind 100% RPM 100% IPR (mm/rev)</p> | <p>Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts. No peck cycle recommended.</p> |  |
| E THREADING | <p>5. Deep Hole Drilling - at Breakout 50% RPM 75% IPR (mm/rev)</p> | <p>For through holes only: Reduce speed by 50% and feed by 25% prior to breakout. Do not breakout more than 1/8" (3 mm) past the full diameter of the drill.</p> |  |
| X SPECIALS | <p>6. Drill Retract 50 RPM max</p> | <p>Reduce speed to a maximum of 50 RPM before retracting from the hole.</p> |  |

1. WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

SECTION

A40

High Performance / Universal

High Performance and Universal

Replaceable Spade Drill Insert Drilling System

► Diameter Range: 0.9688" - 8.5000"



Since the Beginning

The Universal spade drill is the original design that launched Allied Machine into the holemaking industry. After the T-A[®] was introduced, customers who already owned the Universal style holders wanted the same benefits offered by the T-A without having to invest in an entirely new system.

The High Performance (HP) insert was created to provide similar performance as the T-A. The HP insert (along with an adapter for larger sizes) fits into existing Universal style holders.

When the customers speak, we listen.

Applicable Industries



Aerospace



Agriculture



Automotive



Energy



Firearms



General
Machining



Oil & Gas

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

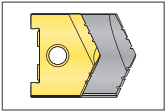
NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

High Performance / Universal Drilling System Contents

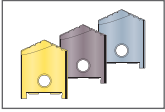
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



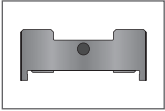
High Performance / Universal Inserts

Refers to the range of inserts that connect with the corresponding holders



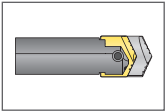
Universal Insert Coating Options

Details and overview of the different coatings available for Universal spade drill inserts



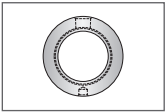
Insert Adapter Information

Detailed information regarding the corresponding adapter item



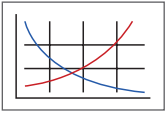
High Performance / Universal Holders

Refers to the range of holders that connect with the corresponding inserts



Rotary Coolant Adapter (RCA) Information

Detailed instructions and information regarding the corresponding RCA part



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling

| Series | Diameter Range - Imperial (in) |
|---------------------------------|--------------------------------|
| A | 0.9688 - 1.2500 |
| B | 1.2500 - 1.7500 |
| C | 1.5000 - 2.3750 |
| D | 2.0000 - 2.8750 |
| E | 2.5000 - 3.3750 |
| F | 3.0000 - 3.8750 |
| G | 3.5000 - 4.5000 |
| H ¹ - H ² | 4.0000 - 5.0000 |
| H ³ - H ⁹ | 5.1250 - 8.5000 |

Introduction Information

| | |
|--------------------------------|-------|
| System Overview | 2 - 3 |
| Product Nomenclature | 4 - 5 |

Drill Series

| | |
|--------------------|---------|
| A Series | 6 - 9 |
| B Series | 10 - 13 |
| C Series | 14 - 17 |
| D Series | 18 - 21 |
| E Series | 22 - 25 |
| F Series | 26 - 29 |
| G Series | 30 - 33 |
| H Series | 34 - 37 |

Accessories

| | |
|---|---------|
| Adapters and Blade-Loc Screws | 38 - 39 |
| Rotary Coolant Adapters (RCA) | 40 |
| Top Mounting Plate | 41 |
| Cylindrical Grinding Fixtures | 41 |

Recommended Cutting Data

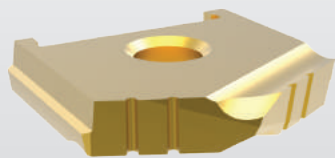
| | |
|---|---------|
| Regrind Charts | 42 - 43 |
| High Performance Inserts | 44 - 45 |
| Universal Inserts | 46 - 47 |
| Deep Hole Drilling Guidelines | 48 |



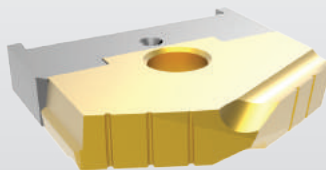
System Overview | Inserts

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

High Performance Inserts



A - C Series

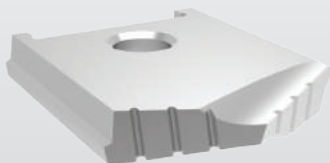


D - H Series
(adapter required)

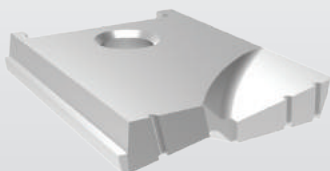
High Performance Inserts

- Increase production 100 - 500% compared to uncoated Universal spade drill inserts
- Fit into Universal style holders
- Available in TiN and TiAlN coatings
- Single-piece design (A - C series) eliminates the need for adapters, which maximizes tool performance in these smaller sizes

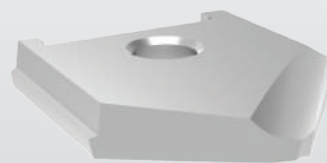
Universal Inserts



130° CPM-M4



Flat Bottom

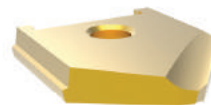
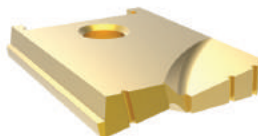
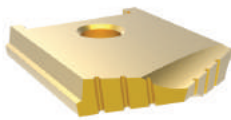


90° Spot and Chamfer

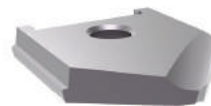
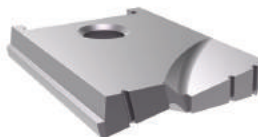
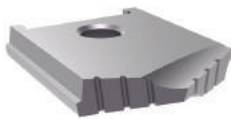
Universal Inserts

- Standard inserts stocked uncoated
- Also available in TiN, TiAlN, and TiCN coatings, which improve tool life when compared to uncoated inserts

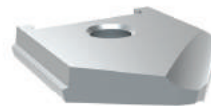
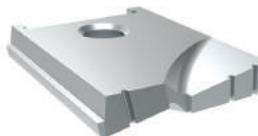
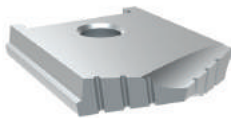
| TiN Coating | |
|------------------|------------------------------|
| Ordering Code: T | Example: 10224-0116 T |



| TiAlN Coating | |
|------------------|------------------------------|
| Ordering Code: A | Example: 10224-0116 A |



| TiCN Coating | |
|------------------|------------------------------|
| Ordering Code: N | Example: 10224-0116 N |





Straight Shank Holders

- Stub (#125)
- Short (#150)
- Short (#100)
- Standard (#200)
- Long (#250)



Taper Shank Holders

- Short (#300)
- Short (#300 TSC)
- Short (#400 SR)
- Standard (#500 SR)
- Long (#600 SR)
- XL (#700 SR)



Adapter*

for High Performance D - H series inserts only



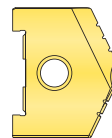
*For detailed information and setup for adapters and Blade-Loc screw assembly, see page A40: 38



Product Nomenclature

High Performance Spade Drill Inserts

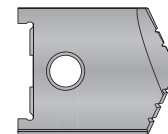
| | | | | | |
|----------|-----------|----------|----------|---|-------------|
| 1 | 02 | 8 | T | - | 0406 |
| 1 | 2 | 3 | 4 | | 5 |



| 1. Spade Drill Insert | 2. Material | 3. Series | 4. Coating | 5. Diameter (by 1/32") |
|------------------------|-----------------------|--|--|---|
| 1 = Spade drill insert | 02 = High speed steel | <ul style="list-style-type: none"> 1 = A series 2 = B series 3 = C series 4 = D series 5 = E series 6 = F series 7 = G series 8 = H series | <ul style="list-style-type: none"> T = TiN A = TiAlN N = TiCN | <ul style="list-style-type: none"> 0406 = Inch 4.3593 = Decimal |

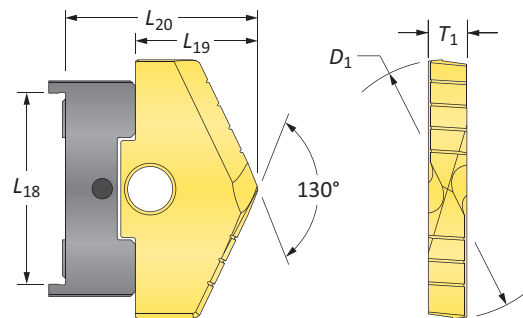
Universal Spade Drill Inserts

| | | | | | | |
|----------|-----------|----------|----------|---|-------------|----------|
| 1 | 02 | 8 | 4 | - | 0406 | T |
| 1 | 2 | 3 | 4 | | 5 | 6 |



| 1. Spade Drill Insert | 2. Insert Style | 3. Series | 4. Material |
|------------------------|--|--|--|
| 1 = Spade drill insert | <ul style="list-style-type: none"> 02 = 130° Spade 04 = Flat Bottom 12 = 90° Spot and Chamfer | <ul style="list-style-type: none"> 1 = A series 2 = B series 3 = C series 4 = D series 5 = E series 6 = F series 7 = G series 8 = H1 - H2 series 9 = H3 - H9 series J = J series | <ul style="list-style-type: none"> 2 = M-2 (J series only) 4 = High speed steel (SPM-M4 HSS) |

| 5. Diameter (by 1/32") | 6. Coating |
|---|--|
| <ul style="list-style-type: none"> 0406 = Inch 4.3593 = Decimal | <ul style="list-style-type: none"> Blank = Uncoated T = TiN A = TiAlN N = TiCN |



Reference Key

| Symbol | Attribute |
|-----------------|--|
| D ₁ | Insert diameter |
| L ₁₈ | Holder locating area |
| L ₁₉ | Reference length |
| L ₂₀ | High Performance length (with adapter) |
| T ₁ | Thickness |

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

Product Nomenclature

High Performance / Universal Spade Drill Insert Holders

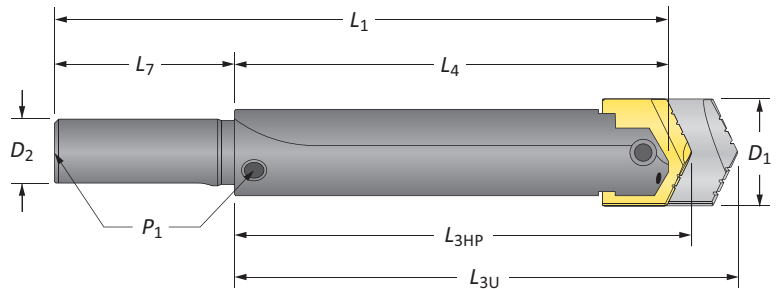
| | | | | | |
|----------|-----------|----------|----------|---|-------------|
| 2 | 22 | 8 | 1 | - | 0006 |
| 1 | 2 | 3 | 4 | | 5 |



| | | | | | | | | | | | | | | | | |
|---|--|-----------------------|-----------------------|----------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|-------------------------------------|--|
| 1. Holder 2 = Drill holder | 2. Classification <table border="0"> <tr> <td>Straight Shank</td> <td>Taper Shank</td> </tr> <tr> <td>02 = Stub #125 (NC)</td> <td>14 = Short #300 (NC)</td> </tr> <tr> <td>04 = Short #150 (NC)</td> <td>15 = Short #300 (TSC)</td> </tr> <tr> <td>06 = Short #100 (C)</td> <td>16 = Short #400 SR (RCA)</td> </tr> <tr> <td>08 = Standard #200 (C)</td> <td>18 = Standard #500 SR (RCA)</td> </tr> <tr> <td>10 = Long #250 (C)</td> <td>20 = Long #600 SR (RCA)</td> </tr> <tr> <td></td> <td>22 = XL #700 SR SR (RCA)</td> </tr> </table> <p><i>C = Coolant NC = No Coolant TSC = Through Shank Coolant RCA = Rotary Coolant Adapter</i></p> | Straight Shank | Taper Shank | 02 = Stub #125 (NC) | 14 = Short #300 (NC) | 04 = Short #150 (NC) | 15 = Short #300 (TSC) | 06 = Short #100 (C) | 16 = Short #400 SR (RCA) | 08 = Standard #200 (C) | 18 = Standard #500 SR (RCA) | 10 = Long #250 (C) | 20 = Long #600 SR (RCA) | | 22 = XL #700 SR SR (RCA) | 3. Series 1 = A series 2 = B series 3 = C series 4 = D series 5 = E series 6 = F series 7 = G series 8 = H series |
| Straight Shank | Taper Shank | | | | | | | | | | | | | | | |
| 02 = Stub #125 (NC) | 14 = Short #300 (NC) | | | | | | | | | | | | | | | |
| 04 = Short #150 (NC) | 15 = Short #300 (TSC) | | | | | | | | | | | | | | | |
| 06 = Short #100 (C) | 16 = Short #400 SR (RCA) | | | | | | | | | | | | | | | |
| 08 = Standard #200 (C) | 18 = Standard #500 SR (RCA) | | | | | | | | | | | | | | | |
| 10 = Long #250 (C) | 20 = Long #600 SR (RCA) | | | | | | | | | | | | | | | |
| | 22 = XL #700 SR SR (RCA) | | | | | | | | | | | | | | | |
| 4. Holder Style 1 = Universal | 5. Shank Size and Configuration <table border="0"> <tr> <td>Straight Shank</td> <td>Taper Shank</td> </tr> <tr> <td>0750 = 0.750" Straight Shank</td> <td>0002 = #2 Morse Taper Shank</td> </tr> <tr> <td>1000 = 1.000" Straight Shank</td> <td>0003 = #3 Morse Taper Shank</td> </tr> <tr> <td>1250 = 1.250" Straight Shank</td> <td>0004 = #4 Morse Taper Shank</td> </tr> <tr> <td>1500 = 1.500" Straight Shank</td> <td>0005 = #5 Morse Taper Shank</td> </tr> <tr> <td>2000 = 2.000" Straight Shank</td> <td>0006 = #6 Morse Taper Shank</td> </tr> <tr> <td>3000 = 3.000" Straight Shank</td> <td></td> </tr> </table> | | Straight Shank | Taper Shank | 0750 = 0.750" Straight Shank | 0002 = #2 Morse Taper Shank | 1000 = 1.000" Straight Shank | 0003 = #3 Morse Taper Shank | 1250 = 1.250" Straight Shank | 0004 = #4 Morse Taper Shank | 1500 = 1.500" Straight Shank | 0005 = #5 Morse Taper Shank | 2000 = 2.000" Straight Shank | 0006 = #6 Morse Taper Shank | 3000 = 3.000" Straight Shank | |
| Straight Shank | Taper Shank | | | | | | | | | | | | | | | |
| 0750 = 0.750" Straight Shank | 0002 = #2 Morse Taper Shank | | | | | | | | | | | | | | | |
| 1000 = 1.000" Straight Shank | 0003 = #3 Morse Taper Shank | | | | | | | | | | | | | | | |
| 1250 = 1.250" Straight Shank | 0004 = #4 Morse Taper Shank | | | | | | | | | | | | | | | |
| 1500 = 1.500" Straight Shank | 0005 = #5 Morse Taper Shank | | | | | | | | | | | | | | | |
| 2000 = 2.000" Straight Shank | 0006 = #6 Morse Taper Shank | | | | | | | | | | | | | | | |
| 3000 = 3.000" Straight Shank | | | | | | | | | | | | | | | | |

Reference Key

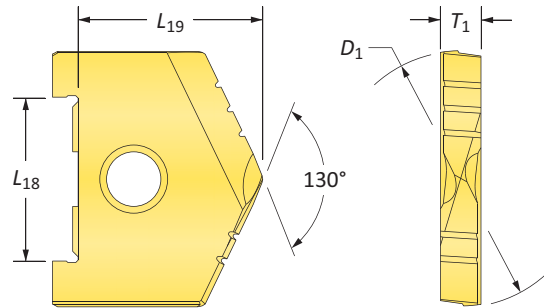
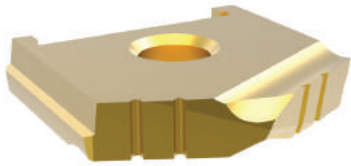
| Symbol | Attribute |
|-----------|-------------------------------------|
| D_1 | Insert diameter |
| D_2 | Shank diameter |
| L_1 | Overall length |
| L_{3HP} | Reference length (High Performance) |
| L_{3U} | Reference length (Universal) |
| L_4 | Flute length |
| L_7 | Shank length |
| P_1 | Pipe tap |








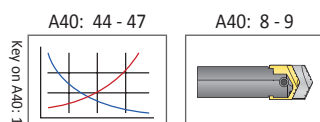
High Performance Spade Drill Inserts

A Series | Diameter Range: 0.9688" - 1.3750"



| Series | D_1 inch | | Inserts | | |  |  |  |
|---------------|------------|---------|----------|----------|-------|--|---|---|
| | Fraction | Decimal | L_{18} | L_{19} | T_1 | TiN Part No. | TiAlN Part No. | TiCN Part No. |
| A | 31/32 | 0.9688 | 3/4 | 7/8 | 3/16 | 1021T-0031 | 1021A-0031 | 1021N-0031 |
| | 1 | 1.0000 | 3/4 | 7/8 | 3/16 | 1021T-0100 | 1021A-0100 | 1021N-0100 |
| | 1-1/32 | 1.0313 | 3/4 | 7/8 | 3/16 | 1021T-0101 | 1021A-0101 | 1021N-0101 |
| | 1-1/16 | 1.0625 | 3/4 | 7/8 | 3/16 | 1021T-0102 | 1021A-0102 | 1021N-0102 |
| | 1-3/32 | 1.0938 | 3/4 | 7/8 | 3/16 | 1021T-0103 | 1021A-0103 | 1021N-0103 |
| | 1-1/8 | 1.1250 | 3/4 | 7/8 | 3/16 | 1021T-0104 | 1021A-0104 | 1021N-0104 |
| | 1-5/32 | 1.1563 | 3/4 | 7/8 | 3/16 | 1021T-0105 | 1021A-0105 | 1021N-0105 |
| | 1-3/16 | 1.1875 | 3/4 | 7/8 | 3/16 | 1021T-0106 | 1021A-0106 | 1021N-0106 |
| | 1-7/32 | 1.2188 | 3/4 | 7/8 | 3/16 | 1021T-0107 | 1021A-0107 | 1021N-0107 |
| A Oversize | 1-1/4 | 1.2500 | 3/4 | 7/8 | 3/16 | 1021T-0108 | 1021A-0108 | 1021N-0108 |
| | 1-9/32 | 1.2813 | 3/4 | 7/8 | 3/16 | 1021T-0109 | 1021A-0109 | 1021N-0109 |
| | 1-5/16 | 1.3125 | 3/4 | 7/8 | 3/16 | 1021T-0110 | 1021A-0110 | 1021N-0110 |
| | 1-11/32 | 1.3438 | 3/4 | 7/8 | 3/16 | 1021T-0111 | 1021A-0111 | 1021N-0111 |
| | 1-3/8 | 1.3750 | 3/4 | 7/8 | 3/16 | 1021T-0112 | 1021A-0112 | 1021N-0112 |

Inserts sold in multiples of 1



Sizes not shown are available upon request.

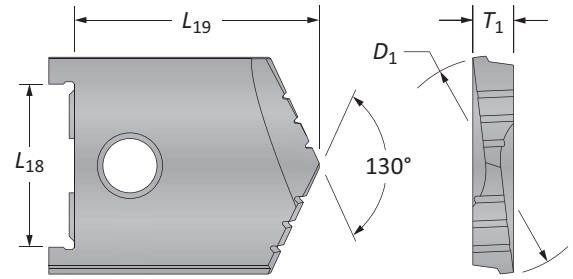
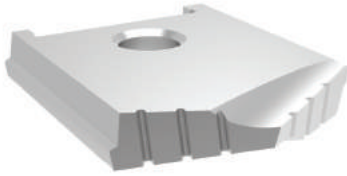
When ordering, please follow the example below:

| | |
|-----------------|--|
| Inch: | 7-63/64", 130° CPM-M4 (H8 series) = use Part No. 10294-7.9843 |
| Decimal: | 6.391", 130° CPM-M4 (H5 series) = use Part No. 10294-6.3910 |



Universal Spade Drill Inserts

A Series | Diameter Range: 0.9688" - 1.3750"

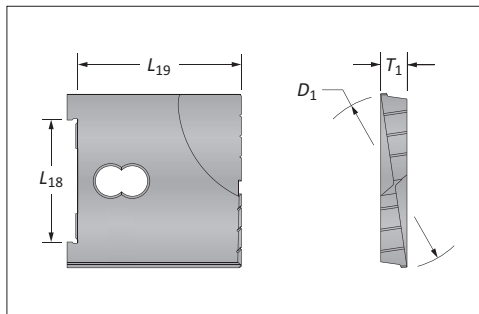


| Series | D ₁ inch | | Inserts | | | | | |
|---------------|---------------------|---------|-----------------|-----------------|--------------------|--------------------|-------------------|--------------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | T ₁ | 130° CPM-M4 | Flat Bottom | 90° Spot & Chamfer |
| A | 31/32 | 0.9688 | 3/4 | 1-5/32 | 3/16 | 10214-0031* | - | POR |
| | 1 | 1.0000 | 3/4 | 1-5/32 | 3/16 | 10214-0100* | 10414-0100 | POR |
| | 1-1/32 | 1.0313 | 3/4 | 1-5/32 | 3/16 | 10214-0101* | - | POR |
| | 1-1/16 | 1.0625 | 3/4 | 1-5/32 | 3/16 | 10214-0102* | 10414-0102 | POR |
| | 1-3/32 | 1.0938 | 3/4 | 1-5/32 | 3/16 | 10214-0103* | - | POR |
| | 1-1/8 | 1.1250 | 3/4 | 1-5/32 | 3/16 | 10214-0104* | 10414-0104 | POR |
| | 1-5/32 | 1.1563 | 3/4 | 1-5/32 | 3/16 | 10214-0105* | - | POR |
| | 1-3/16 | 1.1875 | 3/4 | 1-5/32 | 3/16 | 10214-0106* | 10414-0106 | POR |
| | 1-7/32 | 1.2188 | 3/4 | 1-5/32 | 3/16 | 10214-0107* | - | POR |
| 1-1/4 | 1.2500 | 3/4 | 1-5/32 | 3/16 | 10214-0108* | 10414-0108 | 11214-0108 | |
| A Oversize | 1-9/32 | 1.2813 | 3/4 | 1-5/32 | 3/16 | 10214-0109* | - | - |
| | 1-5/16 | 1.3125 | 3/4 | 1-5/32 | 3/16 | 10214-0110* | - | - |
| | 1-11/32 | 1.3438 | 3/4 | 1-5/32 | 3/16 | 10214-0111* | - | - |
| | 1-3/8 | 1.3750 | 3/4 | 1-5/32 | 3/16 | 10214-0112* | - | - |

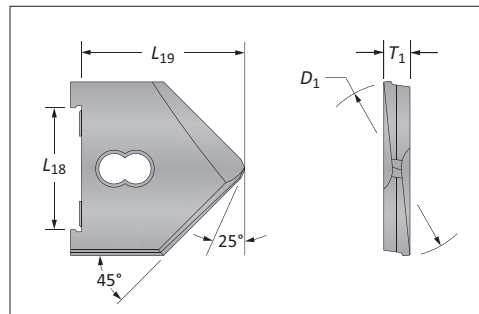
NOTE: POR = Priced on request

*All inserts are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted.

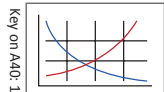
Flat Bottom



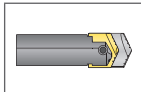
90° Spot & Chamfer



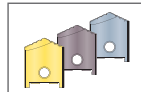
A40: 44 - 47



A40: 8 - 9



A40: 2



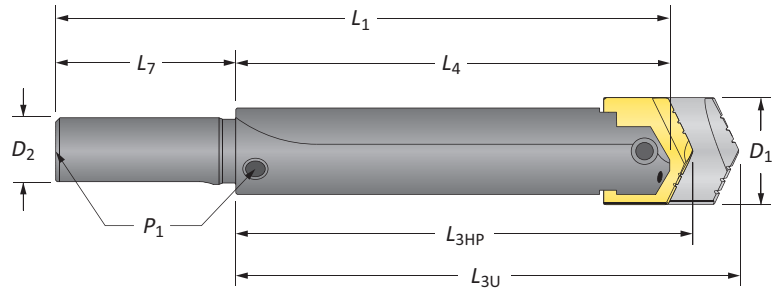
Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|-----------------|---|
| Inch: | 1-17/64", 130° CPM-M4 (B series) = use Part No. 10224-1.2656 |
| Decimal: | 1.5110", 130° Flat Bottom (C series) = use Part No. 10434-1.5110 |



High Performance / Universal Spade Drill Insert Holders

A Series



Straight Shank

| Length | D_1 | Holder | | | | Shank | | | | Style | Part No. |
|----------|---------------|-----------|----------|-------|--------|-------|-------|-------|------|------------|----------|
| | | L_{3HP} | L_{3U} | L_4 | L_1 | D_2 | L_7 | P_1 | | | |
| Short | 31/32 - 1-3/8 | 3-1/4 | 3-17/32 | 3 | 6-1/2 | 3/4 | 3-1/2 | - | #150 | 20411-0750 | |
| Short | 31/32 - 1-3/8 | 3-1/4 | 3-17/32 | 3 | 6-1/2 | 1 | 3-1/2 | - | #150 | 20411-1000 | |
| Short | 31/32 - 1-3/8 | 3-1/4 | 3-17/32 | 3 | 6-1/2 | 1 | 3-1/2 | 1/8 | #100 | 20611-1000 | |
| Short | 31/32 - 1-3/8 | 3-1/4 | 3-17/32 | 3 | 6-1/2 | 1-1/2 | 3-1/2 | 1/8 | #100 | 20611-1500 | |
| Standard | 31/32 - 1-3/8 | 8 | 8-9/32 | 7-3/4 | 11-1/4 | 3/4 | 3-1/2 | 1/8 | #200 | 20811-0750 | |
| Standard | 31/32 - 1-3/8 | 8 | 8-9/32 | 7-3/4 | 11-1/4 | 1 | 3-1/2 | 1/8 | #200 | 20811-1000 | |
| Standard | 31/32 - 1-3/8 | 8 | 8-9/32 | 7-3/4 | 11-1/4 | 1-1/2 | 3-1/2 | 1/8 | #200 | 20811-1500 | |
| Long | 31/32 - 1-3/8 | 15-1/4 | 15-17/32 | 15 | 18-1/2 | 1 | 3-1/2 | 1/8 | #250 | 21011-1000 | |

Connection Accessories



Clamping Screw

#10-24 x 5/8"



Blade-Loc Screw

-

A40: 6 - 7



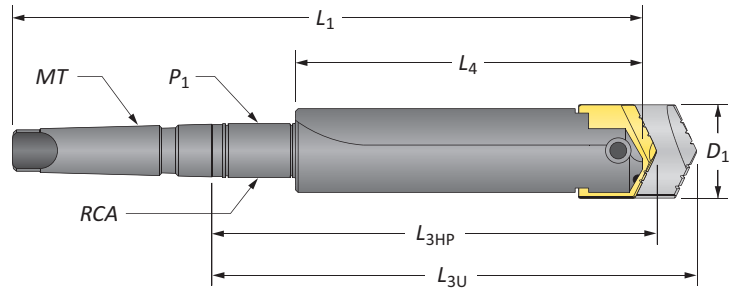
i = Imperial (in)
m = Metric (mm)

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



High Performance / Universal Spade Drill Insert Holders

A Series



Taper Shank

| Length | D ₁ | Holder | | | | Shank | | | | Part No. |
|----------|----------------|------------------|-----------------|----------------|----------------|-------|----------------|--------|----------|-------------|
| | | L _{3HP} | L _{3U} | L ₄ | L ₁ | MT | P ₁ | RCA | Style | |
| Short | 31/32 - 1-3/8 | 3-7/16 | 3-23/32 | 3 | 6-7/8 | #3 | - | - | #300 | 21411-0003 |
| Short | 31/32 - 1-3/8 | 3-1/2 | 3-13/16 | 3 | 7-7/8 | #4 | - | - | #300 | 21411-0004 |
| Short | 31/32 - 1-3/8 | 3-7/16 | 3-23/32 | 3 | 6-7/8 | #3 | - | - | #300 TSC | 21511-0003* |
| Short | 31/32 - 1-3/8 | 5-3/16 | 5-15/32 | 3 | 9-9/16 | #4 | 1/4 | 2T-4SR | #400 SR | 21611-0004 |
| Standard | 31/32 - 1-3/8 | 9-15/16 | 10-7/32 | 7-3/4 | 14-5/16 | #4 | 1/4 | 2T-4SR | #500 SR | 21811-0004 |
| Long | 31/32 - 1-3/8 | 17-3/16 | 17-15/32 | 15 | 21-9/16 | #4 | 1/4 | 2T-4SR | #600 SR | 22011-0004 |
| XL | 31/32 - 1-3/8 | 23-3/16 | 23-15/32 | 21 | 27-9/16 | #4 | 1/4 | 2T-4SR | #700 SR | 22211-0004 |

*Through shank coolant, coolant inlet diameter = 1/4"

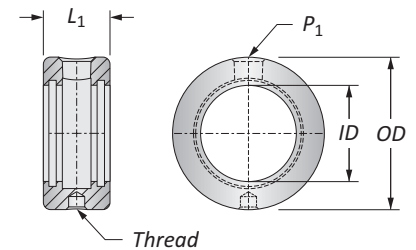
Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | RCA O-Rings | | |
|-------|-------|----------------|--------------------|----------------|-------------|----------------|--------------|
| | | | | | Part No.* | Kit Part No.** | Replacements |
| 1-1/4 | 2-1/2 | 1-3/8 | 3/8 - NC | 1/4 | 2T-4SR | 2T1-4SR | 2T1-4OR-10 |

*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

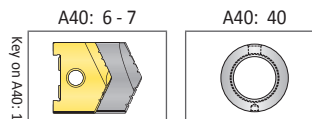
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

Refer to page A40: 40 for proper RCA assembly and safety information



Connection Accessories

| | |
|---|---|
|  |  |
| Clamping Screw | Blade-Loc Screw |
| #10-24 x 5/8" | - |



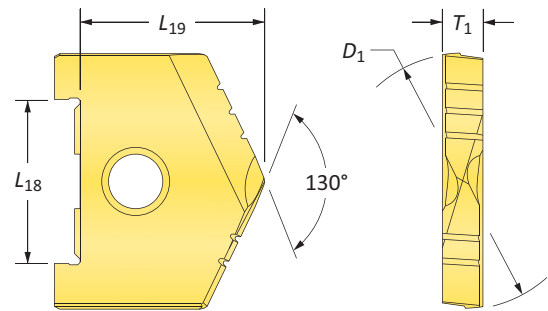
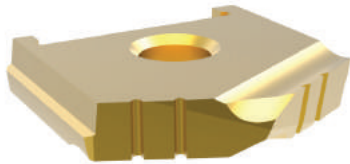
ⓘ = Imperial (in)
 ⓘ = Metric (mm)
 O-rings sold in packs of 10




WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



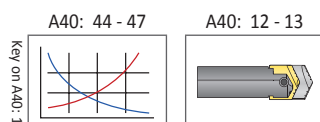
High Performance Spade Drill Inserts

B Series | Diameter Range: 1.2500" - 1.7500"



| Series | D ₁ inch | | Insert | | |  |  |  |
|---------------|---------------------|---------|-----------------|-----------------|----------------|--|---|---|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | T ₁ | TiN Part No. | TiAlN Part No. | TiCN Part No. |
| B | 1-1/4 | 1.2500 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0108 | 1022A-0108 | 1022N-0108 |
| | 1-9/32 | 1.2813 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0109 | 1022A-0109 | 1022N-0109 |
| | 1-5/16 | 1.3125 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0110 | 1022A-0110 | 1022N-0110 |
| | 1-11/32 | 1.3438 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0111 | 1022A-0111 | 1022N-0111 |
| | 1-3/8 | 1.3750 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0112 | 1022A-0112 | 1022N-0112 |
| | 1-13/32 | 1.4063 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0113 | 1022A-0113 | 1022N-0113 |
| | 1-7/16 | 1.4375 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0114 | 1022A-0114 | 1022N-0114 |
| | 1-15/32 | 1.4688 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0115 | 1022A-0115 | 1022N-0115 |
| B Oversize | 1-1/2 | 1.5000 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0116 | 1022A-0116 | 1022N-0116 |
| | 1-17/32 | 1.5313 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0117 | 1022A-0117 | 1022N-0117 |
| | 1-9/16 | 1.5625 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0118 | 1022A-0118 | 1022N-0118 |
| | 1-19/32 | 1.5938 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0119 | 1022A-0119 | 1022N-0119 |
| | 1-5/8 | 1.6250 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0120 | 1022A-0120 | 1022N-0120 |
| | 1-21/32 | 1.6563 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0121 | 1022A-0121 | 1022N-0121 |
| | 1-11/16 | 1.6875 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0122 | 1022A-0122 | 1022N-0122 |
| | 1-23/32 | 1.7188 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0123 | 1022A-0123 | 1022N-0123 |
| | 1-3/4 | 1.7500 | 1-1/16 | 1-3/32 | 9/32 | 1022T-0124 | 1022A-0124 | 1022N-0124 |

Inserts sold in multiples of 1



Sizes not shown are available upon request.

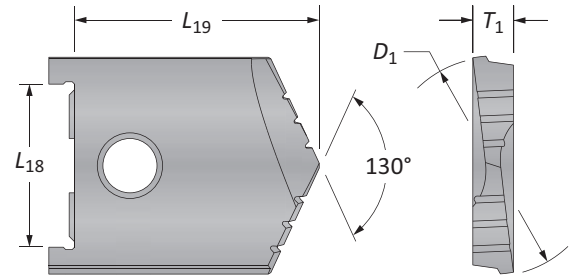
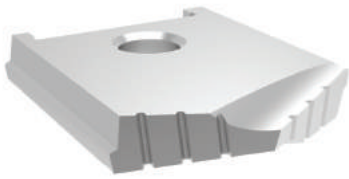
When ordering, please follow the example below:

| | |
|-----------------|--|
| Inch: | 7-63/64", 130° CPM-M4 (H8 series) = use Part No. 10294-7.9843 |
| Decimal: | 6.391", 130° CPM-M4 (H5 series) = use Part No. 10294-6.3910 |



Universal Spade Drill Inserts

B Series | Diameter Range: 1.2500" - 1.7500"

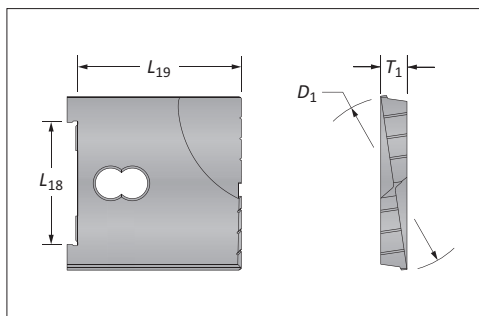


| Series | D ₁ inch | | Insert | | | | | |
|---------------|---------------------|---------|-----------------|-----------------|----------------|-------------|-------------|--------------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | T ₁ | 130° CPM-M4 | Flat Bottom | 90° Spot & Chamfer |
| B | 1-1/4 | 1.2500 | 1-1/16 | 1-13/32 | 9/32 | 10224-0108* | 10424-0108 | POR |
| | 1-9/32 | 1.2813 | 1-1/16 | 1-13/32 | 9/32 | 10224-0109* | - | POR |
| | 1-5/16 | 1.3125 | 1-1/16 | 1-13/32 | 9/32 | 10224-0110* | 10424-0110 | POR |
| | 1-11/32 | 1.3438 | 1-1/16 | 1-13/32 | 9/32 | 10224-0111* | - | POR |
| | 1-3/8 | 1.3750 | 1-1/16 | 1-13/32 | 9/32 | 10224-0112* | 10424-0112 | POR |
| | 1-13/32 | 1.4063 | 1-1/16 | 1-13/32 | 9/32 | 10224-0113* | - | POR |
| | 1-7/16 | 1.4375 | 1-1/16 | 1-13/32 | 9/32 | 10224-0114* | 10424-0114 | POR |
| | 1-15/32 | 1.4688 | 1-1/16 | 1-13/32 | 9/32 | 10224-0115* | - | POR |
| B Oversize | 1-1/2 | 1.5000 | 1-1/16 | 1-13/32 | 9/32 | 10224-0116* | 10424-0116 | 11224-0116 |
| | 1-17/32 | 1.5313 | 1-1/16 | 1-13/32 | 9/32 | 10224-0117* | - | - |
| | 1-9/16 | 1.5625 | 1-1/16 | 1-13/32 | 9/32 | 10224-0118* | - | - |
| | 1-19/32 | 1.5938 | 1-1/16 | 1-13/32 | 9/32 | 10224-0119* | - | - |
| | 1-5/8 | 1.6250 | 1-1/16 | 1-13/32 | 9/32 | 10224-0120* | - | - |
| | 1-21/32 | 1.6563 | 1-1/16 | 1-13/32 | 9/32 | 10224-0121* | - | - |
| | 1-11/16 | 1.6875 | 1-1/16 | 1-13/32 | 9/32 | 10224-0122* | - | - |
| | 1-23/32 | 1.7188 | 1-1/16 | 1-13/32 | 9/32 | 10224-0123* | - | - |
| | 1-3/4 | 1.7500 | 1-1/16 | 1-13/32 | 9/32 | 10224-0124* | - | - |

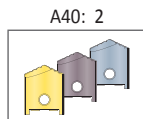
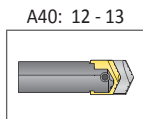
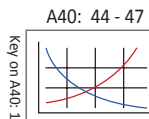
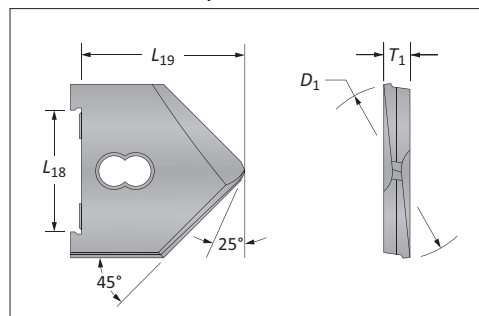
NOTE: POR = Priced on request

*All inserts are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted.

Flat Bottom



90° Spot & Chamfer



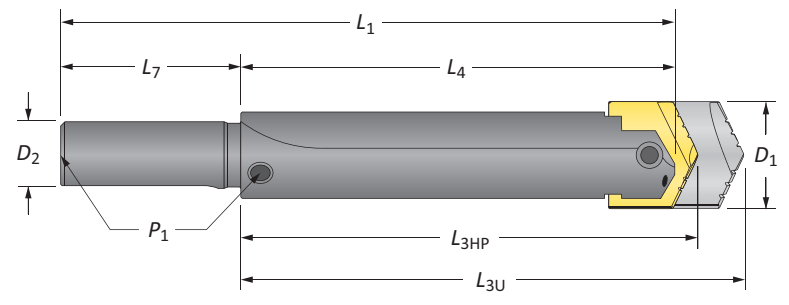
Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|----------|--|
| Inch: | 1-17/64", 130° CPM-M4 (B series) = use Part No. 10224-1.2656 |
| Decimal: | 1.5110", 130° Flat Bottom (C series) = use Part No. 10434-1.5110 |

A High Performance / Universal Spade Drill Insert Holders

DRILLING

B Series



B

Straight Shank

BORING

| Length | D ₁ Range | Holder | | | | Shank | | | | Style | Part No. |
|----------|----------------------|------------------|-----------------|----------------|----------------|----------------|----------------|----------------|------|------------|----------|
| | | L _{3HP} | L _{3U} | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | | |
| Short | 1-1/4 - 1-3/4 | 3-25/32 | 4-3/32 | 3-1/2 | 7 | 1 | 3-1/2 | - | #150 | 20421-1000 | |
| Short | 1-1/4 - 1-3/4 | 3-25/32 | 4-3/32 | 3-1/2 | 7 | 1 | 3-1/2 | 1/4 | #100 | 20621-1000 | |
| Short | 1-1/4 - 1-3/4 | 3-25/32 | 4-3/32 | 3-1/2 | 7 | 1-1/4 | 3-1/2 | 1/4 | #100 | 20621-1250 | |
| Short | 1-1/4 - 1-3/4 | 3-25/32 | 4-3/32 | 3-1/2 | 7 | 1-1/2 | 3-1/2 | 1/4 | #100 | 20621-1500 | |
| Standard | 1-1/4 - 1-3/4 | 8-13/32 | 8-23/32 | 8-1/8 | 11-5/8 | 1 | 3-1/2 | 1/4 | #200 | 20821-1000 | |
| Standard | 1-1/4 - 1-3/4 | 8-13/32 | 8-23/32 | 8-1/8 | 11-5/8 | 1-1/4 | 3-1/2 | 1/4 | #200 | 20821-1250 | |
| Standard | 1-1/4 - 1-3/4 | 8-13/32 | 8-23/32 | 8-1/8 | 11-5/8 | 1-1/2 | 3-1/2 | 1/4 | #200 | 20821-1500 | |
| Long | 1-1/4 - 1-3/4 | 15-9/32 | 15-19/32 | 15 | 18-1/2 | 1-1/4 | 3-1/2 | 1/4 | #250 | 21021-1250 | |

C

REAMING

D

BURNISHING



F

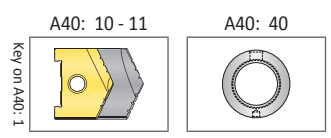
THREADING

X

SPECIALS

Connection Accessories

| | |
|---|---|
|  |  |
| Clamping Screw | Blade-Loc Screw |
| 1/4"-20 x 7/8 | - |



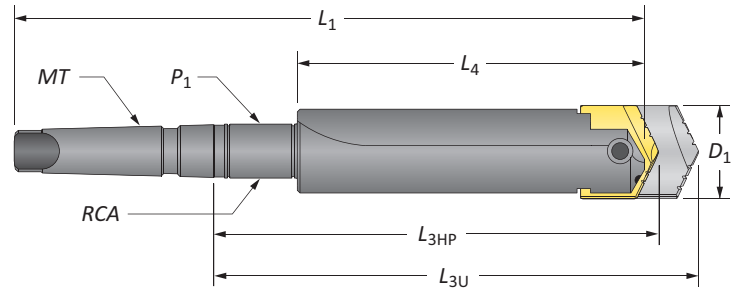
i = Imperial (in)
m = Metric (mm)

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



High Performance / Universal Spade Drill Insert Holders

B Series



Taper Shank

| Length | D ₁ Range | Holder | | | | Shank | | | | Part No. |
|----------|----------------------|------------------|-----------------|----------------|----------------|-------|----------------|--------|----------|-------------|
| | | L _{3HP} | L _{3U} | L ₄ | L ₁ | MT | P ₁ | RCA | Style | |
| Short | 1-1/4 - 1-3/4 | 3-31/32 | 4-9/32 | 3-1/2 | 7-3/8 | #3 | - | - | #300 | 21421-0003 |
| Short | 1-1/4 - 1-3/4 | 4-1/32 | 4-11/32 | 3-1/2 | 8-3/8 | #4 | - | - | #300 | 21421-0004 |
| Short | 1-1/4 - 1-3/4 | 4-1/32 | 4-11/32 | 3-1/2 | 8-3/8 | #4 | - | - | #300 TSC | 21521-0004* |
| Short | 1-1/4 - 1-3/4 | 5-23/32 | 6-1/32 | 3-1/2 | 10-1/16 | #4 | 1/4 | 2T-4SR | #400 SR | 21621-0004 |
| Standard | 1-1/4 - 1-3/4 | 10-11/32 | 10-21/32 | 8-1/8 | 14-11/16 | #4 | 1/4 | 2T-4SR | #500 SR | 21821-0004 |
| Long | 1-1/4 - 1-3/4 | 17-7/32 | 17-17/32 | 15 | 21-9/16 | #4 | 1/4 | 2T-4SR | #600 SR | 22021-0004 |
| XL | 1-1/4 - 1-3/4 | 24-7/32 | 24-17/32 | 22 | 28-9/16 | #4 | 1/4 | 2T-4SR | #700 SR | 22221-0004 |

*Through shank coolant, coolant inlet diameter = 5/16"

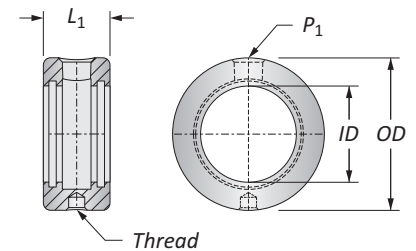
Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No.* | RCA O-Rings | |
|-------|-------|----------------|--------------------|----------------|-----------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| 1-1/4 | 2-1/2 | 1-3/8 | 3/8 - NC | 1/4 | 2T-4SR | 2T1-4SR | 2T1-4OR-10 |
| 1-3/4 | 3 | 1-3/8 | 3/8 - NC | 1/4 | 2T-5SR | 2T1-5SR | 2T1-5OR-10 |

*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

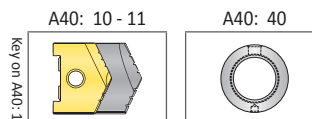
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

▲ Refer to page A40: 40 for proper RCA assembly and safety information



Connection Accessories

| | |
|----------------|-----------------|
| | |
| Clamping Screw | Blade-Loc Screw |
| 1/4"-20 x 7/8 | - |



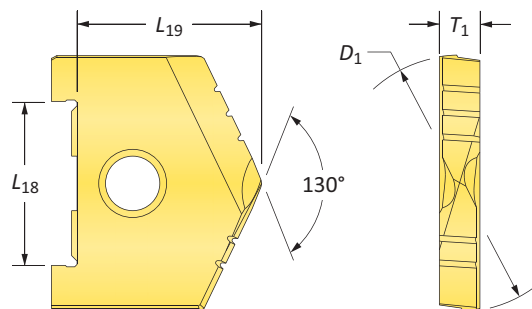
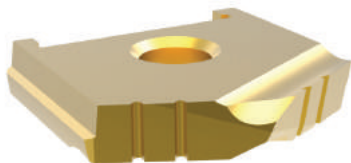
ⓘ = Imperial (in)
 ⓘ = Metric (mm)
 O-rings sold in packs of 10

WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.



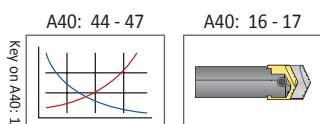
High Performance Spade Drill Inserts

C Series | Diameter Range: 1.5000" - 2.3750"



| Series | D_1 inch | | Insert | | | TiN Part No. | TiAlN Part No. | TiCN Part No. |
|---------------|------------|---------|----------|----------|-------|--------------|----------------|---------------|
| | Fraction | Decimal | L_{18} | L_{19} | T_1 | | | |
| C | 1-1/2 | 1.5000 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0116 | 1023A-0116 | 1023N-0116 |
| | 1-17/32 | 1.5313 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0117 | 1023A-0117 | 1023N-0117 |
| | 1-9/16 | 1.5625 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0118 | 1023A-0118 | 1023N-0118 |
| | 1-19/32 | 1.5938 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0119 | 1023A-0119 | 1023N-0119 |
| | 1-5/8 | 1.6250 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0120 | 1023A-0120 | 1023N-0120 |
| | 1-21/32 | 1.6563 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0121 | 1023A-0121 | 1023N-0121 |
| | 1-11/16 | 1.6875 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0122 | 1023A-0122 | 1023N-0122 |
| | 1-23/32 | 1.7188 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0123 | 1023A-0123 | 1023N-0123 |
| | 1-3/4 | 1.7500 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0124 | 1023A-0124 | 1023N-0124 |
| | 1-25/32 | 1.7813 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0125 | 1023A-0125 | 1023N-0125 |
| | 1-13/16 | 1.8125 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0126 | 1023A-0126 | 1023N-0126 |
| | 1-27/32 | 1.8438 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0127 | 1023A-0127 | 1023N-0127 |
| | 1-7/8 | 1.8750 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0128 | 1023A-0128 | 1023N-0128 |
| | 1-29/32 | 1.9063 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0129 | 1023A-0129 | 1023N-0129 |
| | 1-15/16 | 1.9375 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0130 | 1023A-0130 | 1023N-0130 |
| | 1-31/32 | 1.9688 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0131 | 1023A-0131 | 1023N-0131 |
| | 2 | 2.0000 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0200 | 1023A-0200 | 1023N-0200 |
| C Oversize | 2-1/32 | 2.0313 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0201 | 1023A-0201 | 1023N-0201 |
| | 2-1/16 | 2.0625 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0202 | 1023A-0202 | 1023N-0202 |
| | 2-3/32 | 2.0938 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0203 | 1023A-0203 | 1023N-0203 |
| | 2-1/8 | 2.1250 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0204 | 1023A-0204 | 1023N-0204 |
| | 2-5/32 | 2.1563 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0205 | 1023A-0205 | 1023N-0205 |
| | 2-3/16 | 2.1875 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0206 | 1023A-0206 | 1023N-0206 |
| | 2-7/32 | 2.2188 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0207 | 1023A-0207 | 1023N-0207 |
| | 2-1/4 | 2.2500 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0208 | 1023A-0208 | 1023N-0208 |
| | 2-9/32 | 2.2813 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0209 | 1023A-0209 | 1023N-0209 |
| | 2-5/16 | 2.3125 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0210 | 1023A-0210 | 1023N-0210 |
| | 2-11/32 | 2.3438 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0211 | 1023A-0211 | 1023N-0211 |
| | 2-3/8 | 2.3750 | 1-1/4 | 1-19/64 | 5/16 | 1023T-0212 | 1023A-0212 | 1023N-0212 |

Inserts sold in multiples of 1



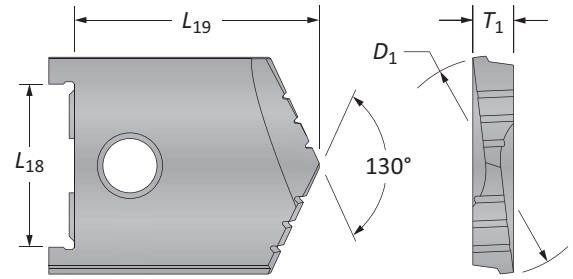
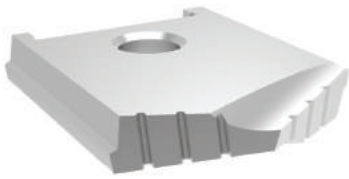
Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|-----------------|--|
| Inch: | 7-63/64", 130° CPM-M4 (H8 series) = use Part No. 10294-7.9843 |
| Decimal: | 6.391", 130° CPM-M4 (H5 series) = use Part No. 10294-6.3910 |



Universal Spade Drill Inserts

C Series | Diameter Range: 1.5000" - 2.3750"

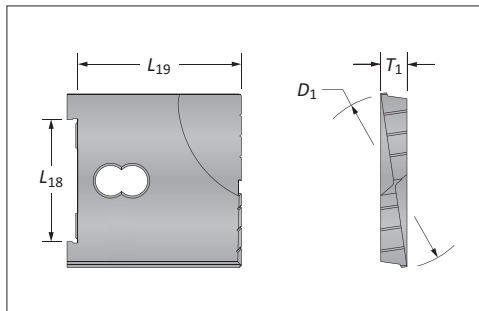


| Series | D ₁ inch | | Insert | | | | | |
|---------------|---------------------|---------|-----------------|-----------------|----------------|-------------|-------------|--------------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | T ₁ | 130° CPM-M4 | Flat Bottom | 90° Spot & Chamfer |
| C | 1-1/2 | 1.5000 | 1-1/4 | 2 | 5/16 | 10234-0116* | 10434-0116 | POR |
| | 1-17/32 | 1.5313 | 1-1/4 | 2 | 5/16 | 10234-0117* | - | POR |
| | 1-9/16 | 1.5625 | 1-1/4 | 2 | 5/16 | 10234-0118* | 10434-0118 | POR |
| | 1-19/32 | 1.5938 | 1-1/4 | 2 | 5/16 | 10234-0119* | - | POR |
| | 1-5/8 | 1.6250 | 1-1/4 | 2 | 5/16 | 10234-0120* | 10434-0120 | POR |
| | 1-21/32 | 1.6563 | 1-1/4 | 2 | 5/16 | 10234-0121* | - | POR |
| | 1-11/16 | 1.6875 | 1-1/4 | 2 | 5/16 | 10234-0122* | 10434-0122 | POR |
| | 1-23/32 | 1.7188 | 1-1/4 | 2 | 5/16 | 10234-0123* | - | POR |
| | 1-3/4 | 1.7500 | 1-1/4 | 2 | 5/16 | 10234-0124* | 10434-0124 | POR |
| | 1-25/32 | 1.7813 | 1-1/4 | 2 | 5/16 | 10234-0125* | - | POR |
| | 1-13/16 | 1.8125 | 1-1/4 | 2 | 5/16 | 10234-0126* | 10434-0126 | POR |
| | 1-27/32 | 1.8438 | 1-1/4 | 2 | 5/16 | 10234-0127* | - | POR |
| | 1-7/8 | 1.8750 | 1-1/4 | 2 | 5/16 | 10234-0128* | 10434-0128 | POR |
| | 1-29/32 | 1.9063 | 1-1/4 | 2 | 5/16 | 10234-0129* | - | POR |
| | 1-15/16 | 1.9375 | 1-1/4 | 2 | 5/16 | 10234-0130* | 10434-0130 | POR |
| | 1-31/32 | 1.9688 | 1-1/4 | 2 | 5/16 | 10234-0131* | - | POR |
| 2 | 2.0000 | 1-1/4 | 2 | 5/16 | 10234-0200* | 10434-0200 | 11234-0200 | |
| C Oversize | 2-1/32 | 2.0313 | 1-1/4 | 2 | 5/16 | 10234-0201* | - | - |
| | 2-1/16 | 2.0625 | 1-1/4 | 2 | 5/16 | 10234-0202* | - | - |
| | 2-3/32 | 2.0938 | 1-1/4 | 2 | 5/16 | 10234-0203* | - | - |
| | 2-1/8 | 2.1250 | 1-1/4 | 2 | 5/16 | 10234-0204* | - | - |
| | 2-5/32 | 2.1563 | 1-1/4 | 2 | 5/16 | 10234-0205* | - | - |
| | 2-3/16 | 2.1875 | 1-1/4 | 2 | 5/16 | 10234-0206* | - | - |
| | 2-7/32 | 2.2188 | 1-1/4 | 2 | 5/16 | 10234-0207* | - | - |
| | 2-1/4 | 2.2500 | 1-1/4 | 2 | 5/16 | 10234-0208* | - | - |
| | 2-9/32 | 2.2813 | 1-1/4 | 2 | 5/16 | 10234-0209* | - | - |
| | 2-5/16 | 2.3125 | 1-1/4 | 2 | 5/16 | 10234-0210* | - | - |
| | 2-11/32 | 2.3438 | 1-1/4 | 2 | 5/16 | 10234-0211* | - | - |
| | 2-3/8 | 2.3750 | 1-1/4 | 2 | 5/16 | 10234-0212* | - | - |

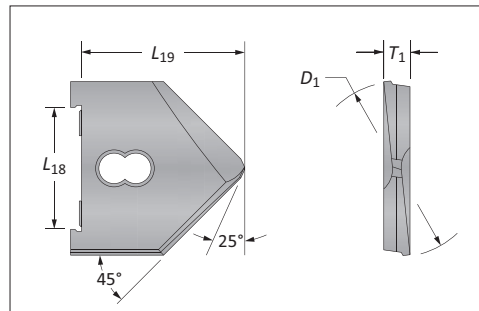
NOTE: POR = Priced on request

*All inserts are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted.

Flat Bottom



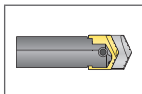
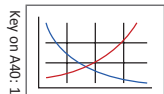
90° Spot & Chamfer



A40: 44 - 47

A40: 16 - 17

A40: 2



Sizes not shown are available upon request.

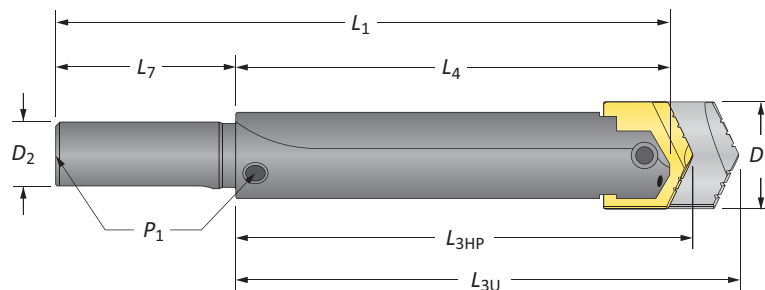
When ordering, please follow the example below:

| | |
|----------|--|
| Inch: | 1-17/64", 130° CPM-M4 (B series) = use Part No. 10224-1.2656 |
| Decimal: | 1.5110", 130° Flat Bottom (C series) = use Part No. 10434-1.5110 |



High Performance / Universal Spade Drill Insert Holders

C Series



Straight Shank

| Length | D_1 | Holder | | | | Shank | | | | Style | Part No. |
|----------------|---------------|-----------|----------|-------|--------|-------|-------|-------|------|-------------------|----------|
| | | L_{3HP} | L_{3U} | L_4 | L_1 | D_2 | L_7 | P_1 | | | |
| Stub | 1-1/2 - 2-3/8 | 2-19/64 | 3 | 2 | 6 | 1-1/2 | 4 | - | #125 | 20231-1500 | |
| Short | 1-1/2 - 2-3/8 | 4-19/64 | 5 | 4 | 8 | 1-1/4 | 4 | - | #150 | 20431-1250 | |
| Short | 1-1/2 - 2-3/8 | 4-19/64 | 5 | 4 | 8 | 1-1/4 | 4 | 1/4 | #100 | 20631-1250 | |
| i Short | 1-1/2 - 2-3/8 | 4-19/64 | 5 | 4 | 8 | 1-1/2 | 4 | 1/4 | #100 | 20631-1500 | |
| Standard | 1-1/2 - 2-3/8 | 8-51/64 | 9-1/2 | 8-1/2 | 12-1/2 | 1-1/4 | 4 | 1/4 | #200 | 20831-1250 | |
| Standard | 1-1/2 - 2-3/8 | 8-51/64 | 9-1/2 | 8-1/2 | 12-1/2 | 1-1/2 | 4 | 1/4 | #200 | 20831-1500 | |
| Long | 1-1/2 - 2-3/8 | 18-19/64 | 19 | 18 | 22 | 1-1/2 | 4 | 1/4 | #250 | 21031-1500 | |

Connection Accessories



Clamping Screw

1/4"-20 x 1



Blade-Loc Screw

-

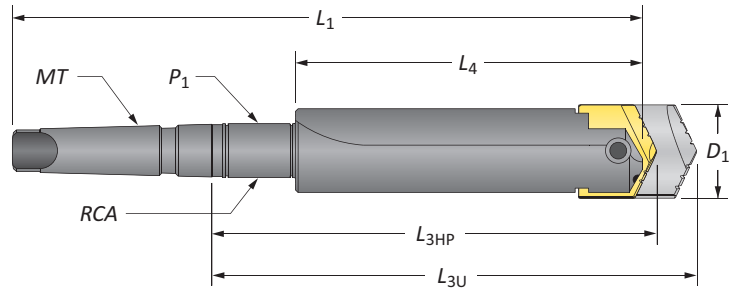
A40: 14 - 15

**i** = Imperial (in)
m = Metric (mm)

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

High Performance / Universal Spade Drill Insert Holders

C Series



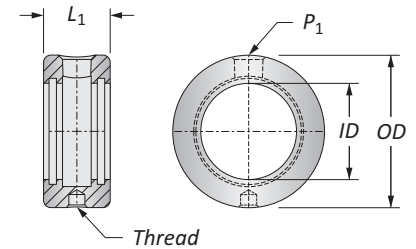
Taper Shank

| Length | D ₁ | Holder | | | | Shank | | | | Part No. |
|----------|----------------|------------------|-----------------|----------------|----------------|-------|----------------|--------|----------|-------------|
| | | L _{3HP} | L _{3U} | L ₄ | L ₁ | MT | P ₁ | RCA | Style | |
| Short | 1-1/2 - 2-3/8 | 4-35/64 | 5-1/4 | 4 | 8-7/8 | #4 | - | - | #300 | 21431-0004 |
| Short | 1-1/2 - 2-3/8 | 4-35/64 | 5-1/4 | 4 | 8-7/8 | #4 | - | - | #300 TSC | 21531-0004* |
| Short | 1-1/2 - 2-3/8 | 4-35/64 | 5-1/4 | 4 | 10-1/8 | #5 | - | - | #300 TSC | 21531-0005* |
| Short | 1-1/2 - 2-3/8 | 6-15/64 | 6-15/64 | 4 | 10-9/16 | #4 | 1/4 | 2T-4SR | #400 SR | 21631-0004 |
| Standard | 1-1/2 - 2-3/8 | 10-47/64 | 11-7/16 | 8-1/2 | 15-1/16 | #4 | 1/4 | 2T-4SR | #500 SR | 21831-0004 |
| Standard | 1-1/2 - 2-3/8 | 10-47/64 | 11-7/16 | 8-1/2 | 16-5/16 | #5 | 1/4 | 2T-5SR | #500 SR | 21831-0005 |
| Long | 1-1/2 - 2-3/8 | 20-15/64 | 20-5/16 | 18 | 24-9/16 | #4 | 1/4 | 2T-4SR | #600 SR | 22031-0004 |
| Long | 1-1/2 - 2-3/8 | 20-15/64 | 20-5/16 | 18 | 25-13/16 | #5 | 1/4 | 2T-5SR | #600 SR | 22031-0005 |
| XL | 1-1/2 - 2-3/8 | 28-15/64 | 28-15/16 | 26 | 32-9/16 | #4 | 1/4 | 2T-4SR | #700 SR | 22231-0004 |
| XL | 1-1/2 - 2-3/8 | 28-15/64 | 28-15/16 | 26 | 33-13/16 | #5 | 1/4 | 2T-5SR | #700 SR | 22231-0005 |

*Through shank coolant, coolant inlet diameter = 5/16"

Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No.* | RCA O-Rings | |
|-------|-------|----------------|--------------------|----------------|-----------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| 1-1/4 | 2-1/2 | 1-3/8 | 3/8 - NC | 1/4 | 2T-4SR | 2T1-4SR | 2T1-4OR-10 |
| 1-3/4 | 3 | 1-3/8 | 3/8 - NC | 1/4 | 2T-5SR | 2T1-5SR | 2T1-5OR-10 |





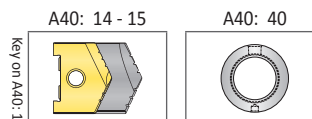
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

| | |
|---|---|
|  |  |
| Clamping Screw | Blade-Loc Screw |
| 1/4"-20 x 1 | - |



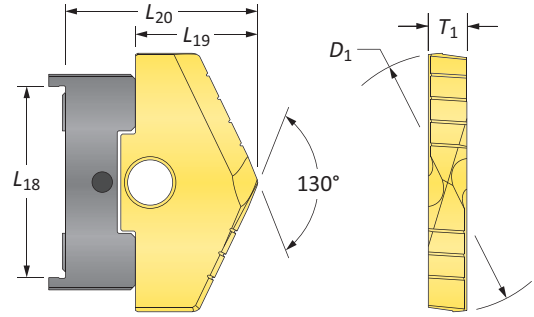
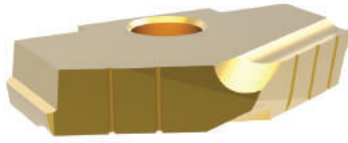
ⓘ = Imperial (in)
 ⓘ = Metric (mm)
 O-rings sold in packs of 10

WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.



High Performance Spade Drill Inserts

D Series | Diameter Range: 2.0000" - 2.8750"



| Series | D ₁ inch | | Insert | | | | Adapter | | | |
|---------------|---------------------|---------|-----------------|-----------------|-----------------|----------------|--------------|----------------|---------------|---------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | L ₂₀ | T ₁ | TiN Part No. | TiAlN Part No. | TiCN Part No. | Adapter |
| D | 2 | 2.0000 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0200* | 1024A-0200* | 1024N-0200* | 1024U-Adapter |
| | 2-1/32 | 2.0313 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0201* | 1024A-0201* | 1024N-0201* | 1024U-Adapter |
| | 2-1/16 | 2.0625 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0202* | 1024A-0202* | 1024N-0202* | 1024U-Adapter |
| | 2-3/32 | 2.0938 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0203* | 1024A-0203* | 1024N-0203* | 1024U-Adapter |
| | 2-1/8 | 2.1250 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0204* | 1024A-0204* | 1024N-0204* | 1024U-Adapter |
| | 2-5/32 | 2.1563 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0205* | 1024A-0205* | 1024N-0205* | 1024U-Adapter |
| | 2-3/16 | 2.1875 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0206* | 1024A-0206* | 1024N-0206* | 1024U-Adapter |
| | 2-7/32 | 2.2188 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0207* | 1024A-0207* | 1024N-0207* | 1024U-Adapter |
| | 2-1/4 | 2.2500 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0208* | 1024A-0208* | 1024N-0208* | 1024U-Adapter |
| | 2-9/32 | 2.2813 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0209* | 1024A-0209* | 1024N-0209* | 1024U-Adapter |
| | 2-5/16 | 2.3125 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0210* | 1024A-0210* | 1024N-0210* | 1024U-Adapter |
| | 2-11/32 | 2.3438 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0211* | 1024A-0211* | 1024N-0211* | 1024U-Adapter |
| | 2-3/8 | 2.3750 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0212* | 1024A-0212* | 1024N-0212* | 1024U-Adapter |
| | 2-13/32 | 2.4063 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0213* | 1024A-0213* | 1024N-0213* | 1024U-Adapter |
| | 2-7/16 | 2.4375 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0214* | 1024A-0214* | 1024N-0214* | 1024U-Adapter |
| | 2-15/32 | 2.4688 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0215* | 1024A-0215* | 1024N-0215* | 1024U-Adapter |
| 2-1/2 | 2.5000 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0216* | 1024A-0216* | 1024N-0216* | 1024U-Adapter | |
| D Oversize | 2-17/32 | 2.5313 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0217* | 1024A-0217* | 1024N-0217* | 1024U-Adapter |
| | 2-9/16 | 2.5625 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0218* | 1024A-0218* | 1024N-0218* | 1024U-Adapter |
| | 2-19/32 | 2.5938 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0219* | 1024A-0219* | 1024N-0219* | 1024U-Adapter |
| | 2-5/8 | 2.6250 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0220* | 1024A-0220* | 1024N-0220* | 1024U-Adapter |
| | 2-21/32 | 2.6563 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0221* | 1024A-0221* | 1024N-0221* | 1024U-Adapter |
| | 2-11/16 | 2.6875 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0222* | 1024A-0222* | 1024N-0222* | 1024U-Adapter |
| | 2-23/32 | 6.7188 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0223* | 1024A-0223* | 1024N-0223* | 1024U-Adapter |
| | 2-3/4 | 6.7500 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0224* | 1024A-0224* | 1024N-0224* | 1024U-Adapter |
| | 2-25/35 | 6.7813 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0225* | 1024A-0225* | 1024N-0225* | 1024U-Adapter |
| | 2-13/16 | 2.8125 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0226* | 1024A-0226* | 1024N-0226* | 1024U-Adapter |
| | 2-27/32 | 2.8438 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0227* | 1024A-0227* | 1024N-0227* | 1024U-Adapter |
| 2-7/8 | 2.8750 | 1-3/4 | 1-3/16 | 1-55/64 | 3/8 | 1024T-0228* | 1024A-0228* | 1024N-0228* | 1024U-Adapter | |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Inserts sold in multiples of 1

*All inserts are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted.

A40: 44 - 47

A40: 20 - 21

A40: 38

Key on A40: 1

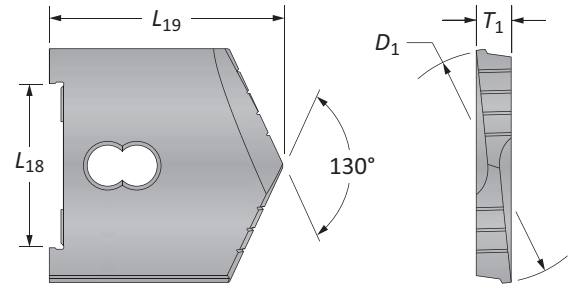
Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|-----------------|--|
| Inch: | 7-63/64", 130° CPM-M4 (H8 series) = use Part No. 10294-7.9843 |
| Decimal: | 6.391", 130° CPM-M4 (H5 series) = use Part No. 10294-6.3910 |



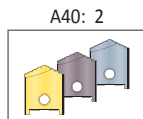
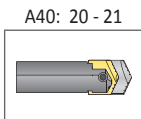
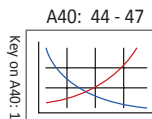
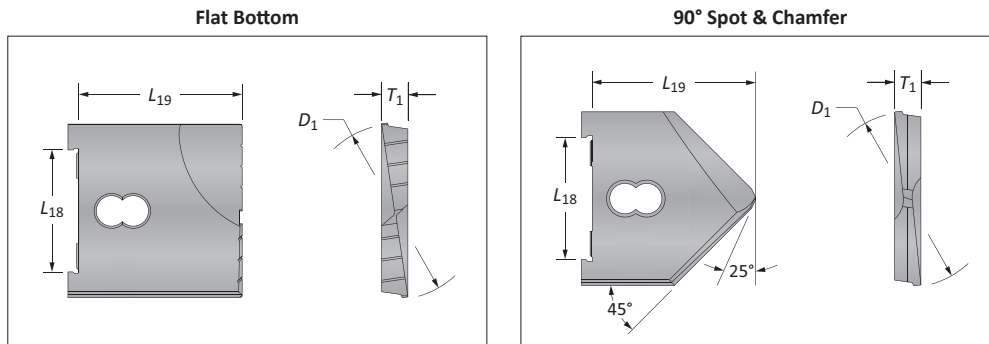
Universal Spade Drill Inserts

D Series | Diameter Range: 2.0000" - 2.8750"



| Series | D ₁ inch | | Insert | | | | | |
|---------------|---------------------|---------|-----------------|-----------------|----------------|-------------|-------------|--------------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | T ₁ | 130° CPM-M4 | Flat Bottom | 90° Spot & Chamfer |
| D | 2 | 2.0000 | 1-3/4 | 2-3/8 | 3/8 | 10244-0200 | 10444-0200 | POR |
| | 2-1/32 | 2.0313 | 1-3/4 | 2-3/8 | 3/8 | 10244-0201 | - | POR |
| | 2-1/16 | 2.0625 | 1-3/4 | 2-3/8 | 3/8 | 10244-0202 | 10444-0202 | POR |
| | 2-3/32 | 2.0938 | 1-3/4 | 2-3/8 | 3/8 | 10244-0203 | - | POR |
| | 2-1/8 | 2.1250 | 1-3/4 | 2-3/8 | 3/8 | 10244-0204 | 10444-0204 | POR |
| | 2-5/32 | 2.1563 | 1-3/4 | 2-3/8 | 3/8 | 10244-0205 | - | POR |
| | 2-3/16 | 2.1875 | 1-3/4 | 2-3/8 | 3/8 | 10244-0206 | 10444-0206 | POR |
| | 2-7/32 | 2.2188 | 1-3/4 | 2-3/8 | 3/8 | 10244-0207 | - | POR |
| | 2-1/4 | 2.2500 | 1-3/4 | 2-3/8 | 3/8 | 10244-0208 | 10444-0208 | POR |
| | 2-9/32 | 2.2813 | 1-3/4 | 2-3/8 | 3/8 | 10244-0209 | - | POR |
| | 2-5/16 | 2.3125 | 1-3/4 | 2-3/8 | 3/8 | 10244-0210 | 10444-0210 | POR |
| | 2-11/32 | 2.3438 | 1-3/4 | 2-3/8 | 3/8 | 10244-0211 | - | POR |
| | 2-3/8 | 2.3750 | 1-3/4 | 2-3/8 | 3/8 | 10244-0212 | 10444-0212 | POR |
| | 2-13/32 | 2.4063 | 1-3/4 | 2-3/8 | 3/8 | 10244-0213 | - | POR |
| | 2-7/16 | 2.4375 | 1-3/4 | 2-3/8 | 3/8 | 10244-0214 | 10444-0214 | POR |
| | 2-15/32 | 2.4688 | 1-3/4 | 2-3/8 | 3/8 | 10244-0215 | - | POR |
| 2-1/2 | 2.5000 | 1-3/4 | 2-3/8 | 3/8 | 10244-0216 | 10444-0216 | 11244-0216 | |
| D Oversize | 2-17/32 | 2.5313 | 1-3/4 | 2-3/8 | 3/8 | 10244-0217 | - | - |
| | 2-9/16 | 2.5625 | 1-3/4 | 2-3/8 | 3/8 | 10244-0218 | - | - |
| | 2-19/32 | 2.5938 | 1-3/4 | 2-3/8 | 3/8 | 10244-0219 | - | - |
| | 2-5/8 | 2.6250 | 1-3/4 | 2-3/8 | 3/8 | 10244-0220 | - | - |
| | 2-21/32 | 2.6563 | 1-3/4 | 2-3/8 | 3/8 | 10244-0221 | - | - |
| | 2-11/16 | 2.6875 | 1-3/4 | 2-3/8 | 3/8 | 10244-0222 | - | - |
| | 2-23/32 | 2.7188 | 1-3/4 | 2-3/8 | 3/8 | 10244-0223 | - | - |
| | 2-3/4 | 2.7500 | 1-3/4 | 2-3/8 | 3/8 | 10244-0224 | - | - |
| | 2-25/32 | 2.7813 | 1-3/4 | 2-3/8 | 3/8 | 10244-0225 | - | - |
| | 2-13/16 | 2.8125 | 1-3/4 | 2-3/8 | 3/8 | 10244-0226 | - | - |
| | 2-27/32 | 2.8438 | 1-3/4 | 2-3/8 | 3/8 | 10244-0227 | - | - |
| | 2-7/8 | 2.8750 | 1-3/4 | 2-3/8 | 3/8 | 10244-0228 | - | - |

NOTE: POR = Priced on request



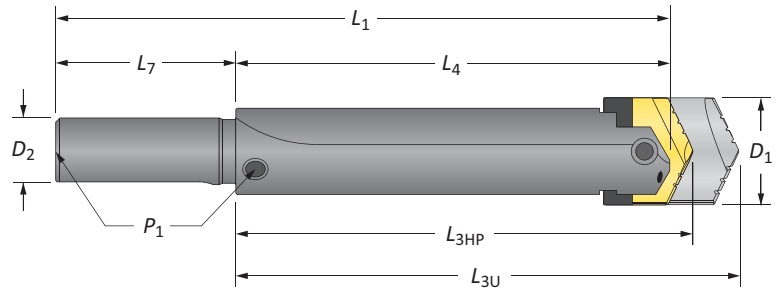
Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|----------|--|
| Inch: | 1-17/64", 130° CPM-M4 (B series) = use Part No. 10224-1.2656 |
| Decimal: | 1.5110", 130° Flat Bottom (C series) = use Part No. 10434-1.5110 |



High Performance / Universal Spade Drill Insert Holders

D Series





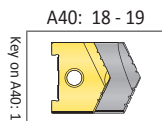
Straight Shank

| Length | D_1 | Holder | | | | Shank | | | | Part No. |
|----------------|-----------|-----------|----------|-------|-------|-------|-------|-------|-------|-------------------|
| | | L_{3HP} | L_{3U} | L_4 | L_1 | D_2 | L_7 | P_1 | Style | |
| Stub | 2 - 2-7/8 | 2-19/64 | 3 | 2 | 6 | 1-1/2 | 4 | - | #125 | 20241-1500 |
| Short | 2 - 2-7/8 | 4-63/64 | 5-1/2 | 4-1/2 | 8-1/2 | 1-1/2 | 4 | - | #150 | 20441-1500 |
| i Short | 2 - 2-7/8 | 4-63/64 | 5-1/2 | 4-1/2 | 8-1/2 | 1-1/2 | 4 | 1/4 | #100 | 20641-1500 |
| Standard | 2 - 2-7/8 | 9-31/64 | 10 | 9 | 13 | 1-1/2 | 4 | 1/4 | #200 | 20841-1500 |
| Long | 2 - 2-7/8 | 18-31/64 | 19 | 18 | 22 | 1-1/2 | 4 | 1/4 | #250 | 21041-1500 |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Connection Accessories

| | |
|---|---|
|  |  |
| Clamping Screw | Blade-Loc Screw |
| 3/8"-16 x 1-1/4" | 5/16"-18 x 1/2" |

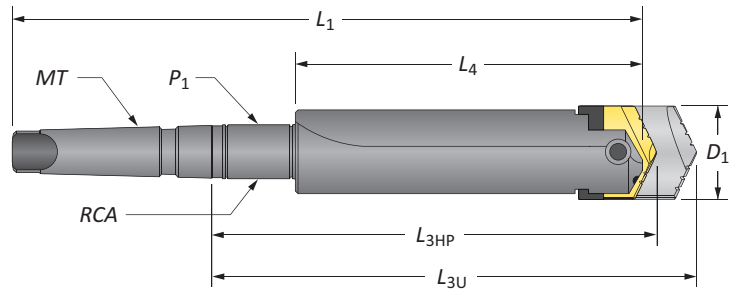


i = Imperial (in)
m = Metric (mm)

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

High Performance / Universal Spade Drill Insert Holders

D Series



Taper Shank

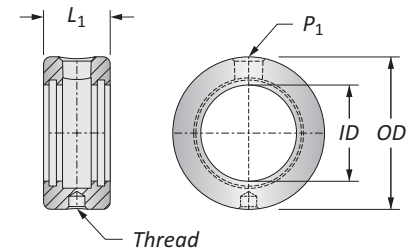
| Length | D ₁ | Holder | | | | Shank | | | | Part No. |
|----------|----------------|------------------|-----------------|----------------|----------------|-------|----------------|--------|----------|-------------|
| | | L _{3HP} | L _{3U} | L ₄ | L ₁ | MT | P ₁ | RCA | Style | |
| Short | 2 - 2-7/8 | 5-15/64 | 5-3/4 | 4-1/2 | 9-3/8 | #4 | - | - | #300 | 21441-0004 |
| Short | 2 - 2-7/8 | 5-15/64 | 5-3/4 | 4-1/2 | 10-5/8 | #5 | - | - | #300 | 21441-0005 |
| Short | 2 - 2-7/8 | 5-15/64 | 5-3/4 | 4-1/2 | 9-3/8 | #4 | - | - | #300 TSC | 21541-0004* |
| Short | 2 - 2-7/8 | 6-59/64 | 7-7/16 | 4-1/2 | 11-1/16 | #4 | 1/4 | 2T-4SR | #400 SR | 21641-0004 |
| Standard | 2 - 2-7/8 | 11-27/64 | 11-15/16 | 9 | 15-9/16 | #4 | 1/4 | 2T-4SR | #500 SR | 21841-0004 |
| Standard | 2 - 2-7/8 | 11-27/64 | 11-15/16 | 9 | 16-13/16 | #5 | 1/4 | 2T-5SR | #500 SR | 21841-0005 |
| Long | 2 - 2-7/8 | 20-27/64 | 20-15/16 | 18 | 24-9/16 | #4 | 1/4 | 2T-4SR | #600 SR | 22041-0004 |
| Long | 2 - 2-7/8 | 20-27/64 | 20-15/16 | 18 | 25-13/16 | #5 | 1/4 | 2T-5SR | #600 SR | 22041-0005 |
| XL | 2 - 2-7/8 | 30-27/64 | 30-15/16 | 28 | 34-9/16 | #4 | 1/4 | 2T-4SR | #700 SR | 22241-0004 |
| XL | 2 - 2-7/8 | 30-27/64 | 30-15/16 | 28 | 35-13/16 | #5 | 1/4 | 2T-5SR | #700 SR | 22241-0005 |

*Through shank coolant, coolant inlet diameter = 5/16"

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No.* | RCA O-Rings | |
|-------|-------|----------------|--------------------|----------------|-----------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| 1-1/4 | 2-1/2 | 1-3/8 | 3/8 - NC | 1/4 | 2T-4SR | 2T1-4SR | 2T1-4OR-10 |
| 1-3/4 | 3 | 1-3/8 | 3/8 - NC | 1/4 | 2T-5SR | 2T1-5SR | 2T1-5OR-10 |
| 2-1/2 | 4 | 1-3/4 | 1/2 - NC | 1/2 | 2T-55SR | 2T1-55SR | 2T1-55OR-10 |





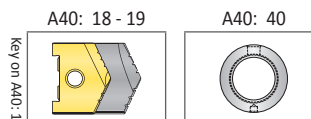
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

| | |
|---|---|
|  |  |
| Clamping Screw | Blade-Loc Screw |
| 3/8"-16 x 1-1/4" | 5/16"-18 x 1/2" |

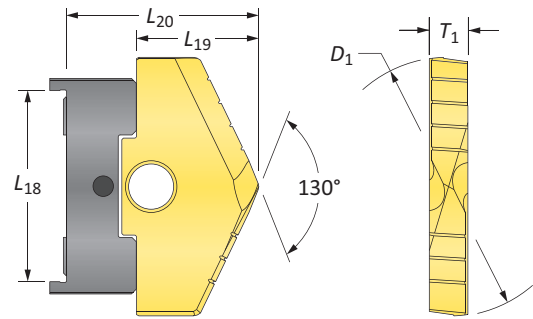
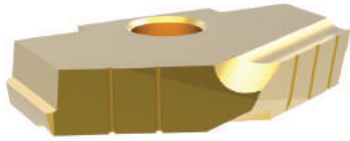


ⓘ = Imperial (in)
Ⓜ = Metric (mm)
O-rings sold in packs of 10

WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.

High Performance Spade Drill Inserts

E Series | Diameter Range: 2.5000" - 3.3750"



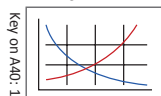
| Series | D ₁ inch | | Inserts | | | | TiN Part No. | TiAlN Part No. | TiCN Part No. | Adapter |
|---------------|---------------------|---------|-----------------|-----------------|-----------------|----------------|--------------|----------------|---------------|---------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | L ₂₀ | T ₁ | | | | |
| E | 2-1/2 | 2.5000 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0216* | 1025A-0216* | 1025N-0216* | 1025U-Adapter |
| | 2-17/32 | 2.5313 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0217* | 1025A-0217* | 1025N-0217* | 1025U-Adapter |
| | 2-9/16 | 2.5625 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0218* | 1025A-0218* | 1025N-0218* | 1025U-Adapter |
| | 2-19/32 | 2.5938 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0219* | 1025A-0219* | 1025N-0219* | 1025U-Adapter |
| | 2-5/8 | 2.6250 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0220* | 1025A-0220* | 1025N-0220* | 1025U-Adapter |
| | 2-21/32 | 2.6563 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0221* | 1025A-0221* | 1025N-0221* | 1025U-Adapter |
| | 2-11/16 | 2.6875 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0222* | 1025A-0222* | 1025N-0222* | 1025U-Adapter |
| | 2-23/32 | 2.7188 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0223* | 1025A-0223* | 1025N-0223* | 1025U-Adapter |
| | 2-3/4 | 2.7500 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0224* | 1025A-0224* | 1025N-0224* | 1025U-Adapter |
| | 2-25/32 | 2.7813 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0225* | 1025A-0225* | 1025N-0225* | 1025U-Adapter |
| | 2-13/16 | 2.8125 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0226* | 1025A-0226* | 1025N-0226* | 1025U-Adapter |
| | 2-27/32 | 2.8438 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0227* | 1025A-0227* | 1025N-0227* | 1025U-Adapter |
| | 2-7/8 | 2.8750 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0228* | 1025A-0228* | 1025N-0228* | 1025U-Adapter |
| | 2-29/32 | 2.9063 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0229* | 1025A-0229* | 1025N-0229* | 1025U-Adapter |
| | 2-15/16 | 2.9375 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0230* | 1025A-0230* | 1025N-0230* | 1025U-Adapter |
| 2-31/32 | 2.9688 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0231* | 1025A-0231* | 1025N-0231* | 1025U-Adapter | |
| 3 | 3.0000 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0300* | 1025A-0300* | 1025N-0300* | 1025U-Adapter | |
| E Oversize | 3-1/32 | 3.0313 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0301* | 1025A-0301* | 1025N-0301* | 1025U-Adapter |
| | 3-1/16 | 3.0625 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0302* | 1025A-0302* | 1025N-0302* | 1025U-Adapter |
| | 3-3/32 | 3.0938 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0303* | 1025A-0303* | 1025N-0303* | 1025U-Adapter |
| | 3-1/8 | 3.1250 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0304* | 1025A-0304* | 1025N-0304* | 1025U-Adapter |
| | 3-5/32 | 3.1563 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0305* | 1025A-0305* | 1025N-0305* | 1025U-Adapter |
| | 3-3/16 | 3.1875 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0306* | 1025A-0306* | 1025N-0306* | 1025U-Adapter |
| | 3-7/32 | 3.2188 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0307* | 1025A-0307* | 1025N-0307* | 1025U-Adapter |
| | 3-1/4 | 3.2500 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0308* | 1025A-0308* | 1025N-0308* | 1025U-Adapter |
| | 3-9/32 | 3.2813 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0309* | 1025A-0309* | 1025N-0309* | 1025U-Adapter |
| | 3-5/16 | 3.3125 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0310* | 1025A-0310* | 1025N-0310* | 1025U-Adapter |
| | 3-11/32 | 3.3438 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0311* | 1025A-0311* | 1025N-0311* | 1025U-Adapter |
| 3-3/8 | 3.3750 | 2-1/16 | 1-7/16 | 2-3/32 | 7/16 | 1025T-0312* | 1025A-0312* | 1025N-0312* | 1025U-Adapter | |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

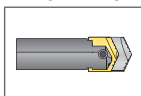
Inserts sold in multiples of 1

*All inserts are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted.

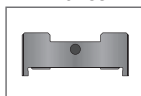
A40: 44 - 47



A40: 24 - 25



A40: 38



Key on A40: 1

Sizes not shown are available upon request.

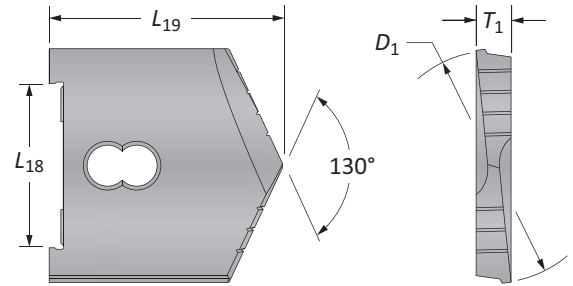
When ordering, please follow the example below:

| | |
|-----------------|--|
| Inch: | 7-63/64", 130° CPM-M4 (H8 series) = use Part No. 10294-7.9843 |
| Decimal: | 6.391", 130° CPM-M4 (H5 series) = use Part No. 10294-6.3910 |



Universal Spade Drill Inserts

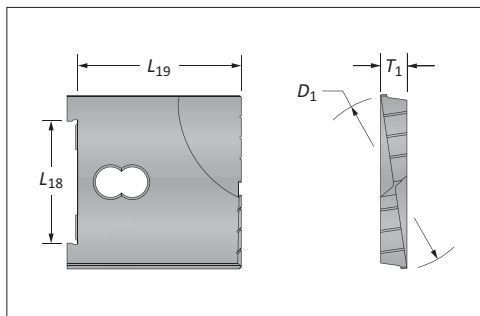
E Series | Diameter Range: 2.5000" - 3.3750"



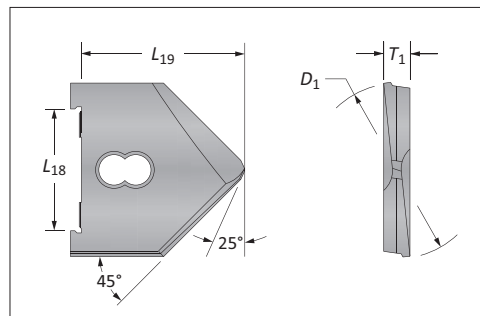
| Series | D ₁ inch | | Inserts | | | | | |
|---------------|---------------------|---------|-----------------|-----------------|----------------|-------------|-------------|--------------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | T ₁ | 130° CPM-M4 | Flat Bottom | 90° Spot & Chamfer |
| E | 2-1/2 | 2.5000 | 2-1/16 | 2-5/8 | 7/16 | 10254-0216 | 10454-0216 | POR |
| | 2-17/32 | 2.5313 | 2-1/16 | 2-5/8 | 7/16 | 10254-0217 | - | POR |
| | 2-9/16 | 2.5625 | 2-1/16 | 2-5/8 | 7/16 | 10254-0218 | 10454-0218 | POR |
| | 2-19/32 | 2.5938 | 2-1/16 | 2-5/8 | 7/16 | 10254-0219 | - | POR |
| | 2-5/8 | 2.6250 | 2-1/16 | 2-5/8 | 7/16 | 10254-0220 | 10454-0220 | POR |
| | 2-21/32 | 2.6563 | 2-1/16 | 2-5/8 | 7/16 | 10254-0221 | - | POR |
| | 2-11/16 | 2.6875 | 2-1/16 | 2-5/8 | 7/16 | 10254-0222 | 10454-0222 | POR |
| | 2-23/32 | 2.7188 | 2-1/16 | 2-5/8 | 7/16 | 10254-0223 | - | POR |
| | 2-3/4 | 2.7500 | 2-1/16 | 2-5/8 | 7/16 | 10254-0224 | 10454-0224 | POR |
| | 2-25/32 | 2.7813 | 2-1/16 | 2-5/8 | 7/16 | 10254-0225 | - | POR |
| | 2-13/16 | 2.8125 | 2-1/16 | 2-5/8 | 7/16 | 10254-0226 | 10454-0226 | POR |
| | 2-27/32 | 2.8438 | 2-1/16 | 2-5/8 | 7/16 | 10254-0227 | - | POR |
| | 2-7/8 | 2.8750 | 2-1/16 | 2-5/8 | 7/16 | 10254-0228 | 10454-0228 | POR |
| | 2-29/32 | 2.9063 | 2-1/16 | 2-5/8 | 7/16 | 10254-0229 | - | POR |
| | 2-15/16 | 2.9375 | 2-1/16 | 2-5/8 | 7/16 | 10254-0230 | 10454-0230 | POR |
| 2-31/32 | 2.9688 | 2-1/16 | 2-5/8 | 7/16 | 10254-0231 | - | POR | |
| 3 | 3.0000 | 2-1/16 | 2-5/8 | 7/16 | 10254-0300 | 10454-0300 | 11254-0300 | |
| E Oversize | 3-1/32 | 3.0313 | 2-1/16 | 2-5/8 | 7/16 | 10254-0301 | - | - |
| | 3-1/16 | 3.0625 | 2-1/16 | 2-5/8 | 7/16 | 10254-0302 | - | - |
| | 3-3/32 | 3.0938 | 2-1/16 | 2-5/8 | 7/16 | 10254-0303 | - | - |
| | 3-1/8 | 3.1250 | 2-1/16 | 2-5/8 | 7/16 | 10254-0304 | - | - |
| | 3-5/32 | 3.1563 | 2-1/16 | 2-5/8 | 7/16 | 10254-0305 | - | - |
| | 3-3/16 | 3.1875 | 2-1/16 | 2-5/8 | 7/16 | 10254-0306 | - | - |
| | 3-7/32 | 3.2188 | 2-1/16 | 2-5/8 | 7/16 | 10254-0307 | - | - |
| | 3-1/4 | 3.2500 | 2-1/16 | 2-5/8 | 7/16 | 10254-0308 | - | - |
| | 3-9/32 | 3.2813 | 2-1/16 | 2-5/8 | 7/16 | 10254-0309 | - | - |
| | 3-5/16 | 3.3125 | 2-1/16 | 2-5/8 | 7/16 | 10254-0310 | - | - |
| | 3-11/32 | 3.3438 | 2-1/16 | 2-5/8 | 7/16 | 10254-0311 | - | - |
| | 3-3/8 | 3.3750 | 2-1/16 | 2-5/8 | 7/16 | 10254-0312 | - | - |

NOTE: POR = Priced on request

Flat Bottom



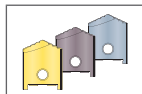
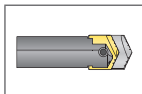
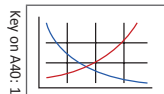
90° Spot & Chamfer



A40: 44 - 47

A40: 24 - 25

A40: 2



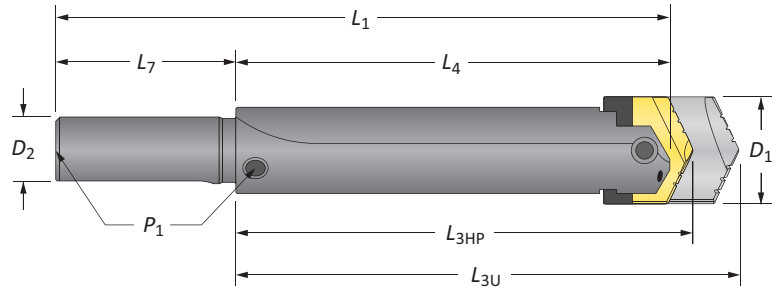
Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|-----------------|---|
| Inch: | 1-17/64", 130° CPM-M4 (B series) = use Part No. 10224-1.2656 |
| Decimal: | 1.5110", 130° Flat Bottom (C series) = use Part No. 10434-1.5110 |



High Performance / Universal Spade Drill Insert Holders

E Series





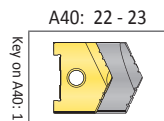
Straight Shank

| Length | D_1 | Insert | | | | Shank | | | | Part No. |
|----------------|---------------|-----------|----------|-------|-------|-------|-------|-------|-------|-------------------|
| | | L_{3HP} | L_{3U} | L_4 | L_1 | D_2 | L_7 | P_1 | Style | |
| Stub | 2-1/2 - 3-3/8 | 3-1/32 | 3-9/16 | 2-1/2 | 6-1/2 | 2 | 4 | - | #125 | 20251-2000 |
| Short | 2-1/2 - 3-3/8 | 5-17/32 | 6-1/16 | 5 | 9 | 1-3/4 | 4 | - | #150 | 20451-1750 |
| i Short | 2-1/2 - 3-3/8 | 5-17/32 | 6-1/16 | 5 | 9 | 1-3/4 | 4 | 1/2 | #100 | 20651-1750 |
| Standard | 2-1/2 - 3-3/8 | 10-17/32 | 11-1/16 | 10 | 14 | 2 | 4 | 1/2 | #200 | 20851-2000 |
| Long | 2-1/2 - 3-3/8 | 20-17/32 | 21-1/16 | 20 | 24 | 2 | 4 | 1/2 | #250 | 21051-2000 |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Connection Accessories

| | |
|---|---|
|  |  |
| Clamping Screw | Blade-Loc Screw |
| 1/2"-13 x 1-3/4" | 5/16"-18 x 1/2" |

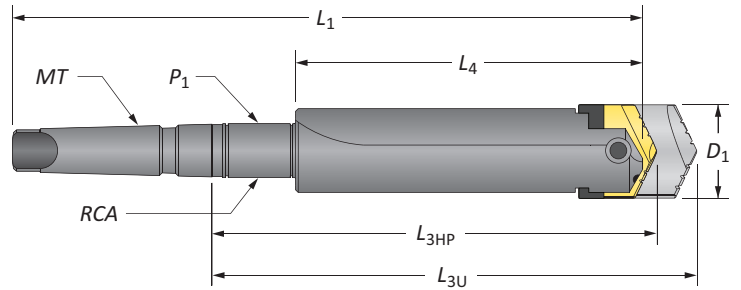


i = Imperial (in)
m = Metric (mm)

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

High Performance / Universal Spade Drill Insert Holders

E Series



Taper Shank

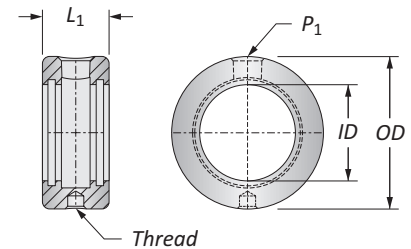
| Length | D ₁ | Holder | | | | Shank | | | | Part No. |
|----------|----------------|------------------|-----------------|----------------|----------------|-------|----------------|--------|----------|-------------|
| | | L _{3HP} | L _{3U} | L ₄ | L ₁ | MT | P ₁ | RCA | Style | |
| Short | 2-1/2 - 3-3/8 | 5-25/32 | 6-5/16 | 5 | 9-7/8 | #4 | - | - | #300 | 21451-0004 |
| Short | 2-1/2 - 3-3/8 | 5-25/32 | 6-5/16 | 5 | 11-1/8 | #5 | - | - | #300 | 21451-0005 |
| Short | 2-1/2 - 3-3/8 | 5-25/32 | 6-5/16 | 5 | 11-1/8 | #5 | - | - | #300 TSC | 21551-0005* |
| Short | 2-1/2 - 3-3/8 | 8-3/32 | 8-5/8 | 5 | 13-7/16 | #5 | 1/2 | 2T-6SR | #400 SR | 21651-0005 |
| Standard | 2-1/2 - 3-3/8 | 13-3/32 | 13-5/8 | 10 | 18-7/16 | #5 | 1/2 | 2T-6SR | #500 SR | 21851-0005 |
| Long | 2-1/2 - 3-3/8 | 23-3/32 | 23-5/8 | 20 | 28-7/16 | #5 | 1/2 | 2T-6SR | #600 SR | 22051-0005 |
| XL | 2-1/2 - 3-3/8 | 33-3/32 | 33-5/8 | 30 | 38-7/16 | #5 | 1/2 | 2T-6SR | #700 SR | 22251-0005 |

*Through shank coolant, coolant inlet diameter = 3/8"

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | RCA O-Rings | | |
|-------|-------|----------------|--------------------|----------------|-------------|----------------|--------------|
| | | | | | Part No.* | Kit Part No.** | Replacements |
| 2-1/4 | 3-3/4 | 1-3/4 | 1/2 - NC | 1/2 | 2T-6SR | 2T1-6SR | 2T1-6OR-10 |
| 2-1/2 | 4 | 1-3/4 | 1/2 - NC | 1/2 | 2T-55SR | 2T1-55SR | 2T1-55OR-10 |





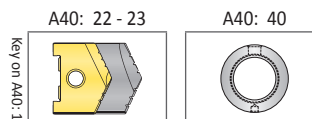
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

| | |
|---|---|
|  |  |
| Clamping Screw | Blade-Loc Screw |
| 1/2"-13 x 1-3/4" | 5/16"-18 x 1/2" |



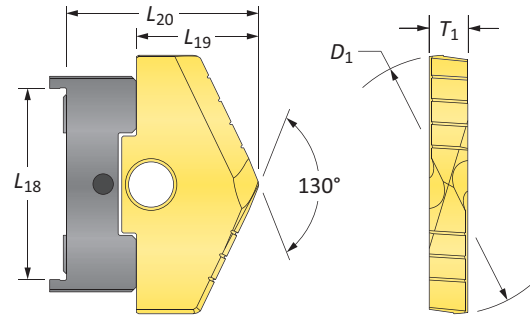
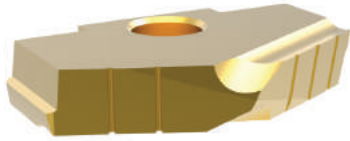
ⓘ = Imperial (in)
 ⓘ = Metric (mm)
 O-rings sold in packs of 10

WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.



High Performance Spade Drill Inserts

F Series | Diameter Range: 3.0000" - 3.8750"

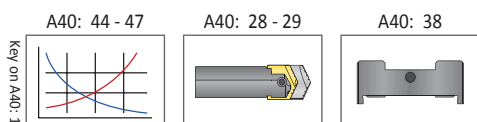


| Series | D ₁ inch | | Insert | | | | TiN Part No. | TiAlN Part No. | TiCN Part No. | Adapter |
|---------------|---------------------|---------|-----------------|-----------------|-----------------|----------------|--------------|----------------|---------------|---------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | L ₂₀ | T ₁ | | | | |
| F | 3 | 3.0000 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0300* | 1026A-0300* | 1026N-0300* | 1026U-Adapter |
| | 3-1/32 | 3.0313 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0301* | 1026A-0301* | 1026N-0301* | 1026U-Adapter |
| | 3-1/16 | 3.0625 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0302* | 1026A-0302* | 1026N-0302* | 1026U-Adapter |
| | 3-3/32 | 3.0938 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0303* | 1026A-0303* | 1026N-0303* | 1026U-Adapter |
| | 3-1/8 | 3.1250 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0304* | 1026A-0304* | 1026N-0304* | 1026U-Adapter |
| | 3-5/32 | 3.1563 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0305* | 1026A-0305* | 1026N-0305* | 1026U-Adapter |
| | 3-3/16 | 3.1875 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0306* | 1026A-0306* | 1026N-0306* | 1026U-Adapter |
| | 3-7/32 | 3.2188 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0307* | 1026A-0307* | 1026N-0307* | 1026U-Adapter |
| | 3-1/4 | 3.2500 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0308* | 1026A-0308* | 1026N-0308* | 1026U-Adapter |
| | 3-9/32 | 3.2813 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0309* | 1026A-0309* | 1026N-0309* | 1026U-Adapter |
| | 3-5/16 | 3.3125 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0310* | 1026A-0310* | 1026N-0310* | 1026U-Adapter |
| | 3-11/32 | 3.3438 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0311* | 1026A-0311* | 1026N-0311* | 1026U-Adapter |
| | 3-3/8 | 3.3750 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0312* | 1026A-0312* | 1026N-0312* | 1026U-Adapter |
| | 3-13/32 | 3.4063 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0313* | 1026A-0313* | 1026N-0313* | 1026U-Adapter |
| | 3-7/16 | 3.4375 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0314* | 1026A-0314* | 1026N-0314* | 1026U-Adapter |
| | 3-15/32 | 3.4688 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0315* | 1026A-0315* | 1026N-0315* | 1026U-Adapter |
| 3-1/2 | 3.5000 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0316* | 1026A-0316* | 1026N-0316* | 1026U-Adapter | |
| F Oversize | 3-17/32 | 3.5313 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0317* | 1026A-0317* | 1026N-0317* | 1026U-Adapter |
| | 3-9/16 | 3.5625 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0318* | 1026A-0318* | 1026N-0318* | 1026U-Adapter |
| | 3-19/32 | 3.5938 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0319* | 1026A-0319* | 1026N-0319* | 1026U-Adapter |
| | 3-5/8 | 3.6250 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0320* | 1026A-0320* | 1026N-0320* | 1026U-Adapter |
| | 3-21/32 | 3.6563 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0321* | 1026A-0321* | 1026N-0321* | 1026U-Adapter |
| | 3-11/16 | 3.6875 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0322* | 1026A-0322* | 1026N-0322* | 1026U-Adapter |
| | 3-23/32 | 3.7188 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0323* | 1026A-0323* | 1026N-0323* | 1026U-Adapter |
| | 3-3/4 | 3.7500 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0324* | 1026A-0324* | 1026N-0324* | 1026U-Adapter |
| | 3-25/32 | 3.7813 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0325* | 1026A-0325* | 1026N-0325* | 1026U-Adapter |
| | 3-13/16 | 3.8125 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0326* | 1026A-0326* | 1026N-0326* | 1026U-Adapter |
| 3-27/32 | 3.8438 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0327* | 1026A-0327* | 1026N-0327* | 1026U-Adapter | |
| 3-7/8 | 3.8750 | 2-5/8 | 1-13/16 | 2-17/32 | 1/2 | 1026T-0328* | 1026A-0328* | 1026N-0328* | 1026U-Adapter | |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Inserts sold in multiples of 1

*All inserts are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted.



Sizes not shown are available upon request.

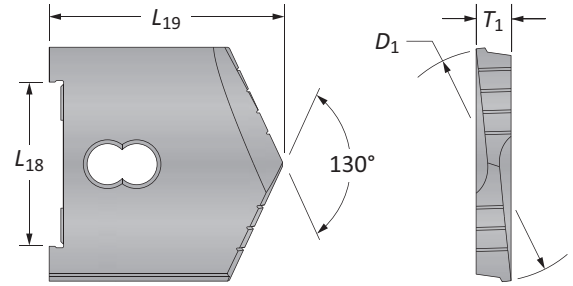
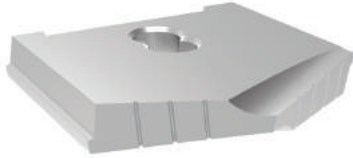
When ordering, please follow the example below:

| | |
|----------|--|
| Inch: | 7-63/64", 130° CPM-M4 (H8 series) = use Part No. 10294-7.9843 |
| Decimal: | 6.391", 130° CPM-M4 (H5 series) = use Part No. 10294-6.3910 |



Universal Spade Drill Inserts

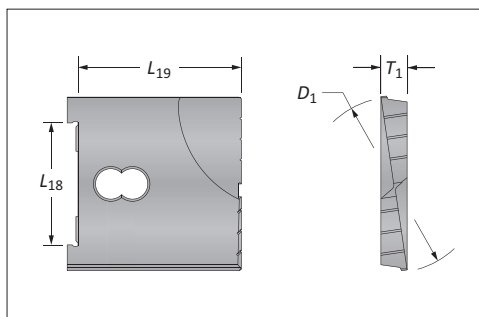
F Series | Diameter Range: 3.0000" - 3.8750"



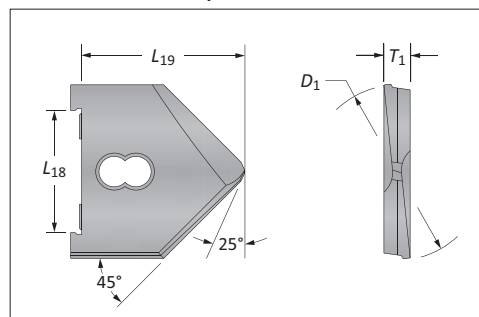
| Series | D ₁ inch | | Insert | | | | | |
|---------------|---------------------|---------|-----------------|-----------------|----------------|-------------|-------------|--------------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | T ₁ | 130° CPM-M4 | Flat Bottom | 90° Spot & Chamfer |
| F | 3 | 3.0000 | 2-5/8 | 3-1/8 | 1/2 | 10264-0300 | 10464-0300 | POR |
| | 3-1/32 | 3.0313 | 2-5/8 | 3-1/8 | 1/2 | 10264-0301 | - | POR |
| | 3-1/16 | 3.0625 | 2-5/8 | 3-1/8 | 1/2 | 10264-0302 | 10464-0302 | POR |
| | 3-3/32 | 3.0938 | 2-5/8 | 3-1/8 | 1/2 | 10264-0303 | - | POR |
| | 3-1/8 | 3.1250 | 2-5/8 | 3-1/8 | 1/2 | 10264-0304 | 10464-0304 | POR |
| | 3-5/32 | 3.1563 | 2-5/8 | 3-1/8 | 1/2 | 10264-0305 | - | POR |
| | 3-3/16 | 3.1875 | 2-5/8 | 3-1/8 | 1/2 | 10264-0306 | 10464-0306 | POR |
| | 3-7/32 | 3.2188 | 2-5/8 | 3-1/8 | 1/2 | 10264-0307 | - | POR |
| | 3-1/4 | 3.2500 | 2-5/8 | 3-1/8 | 1/2 | 10264-0308 | - | POR |
| | 3-9/32 | 3.2813 | 2-5/8 | 3-1/8 | 1/2 | 10264-0309 | - | POR |
| | 3-5/16 | 3.3125 | 2-5/8 | 3-1/8 | 1/2 | 10264-0310 | 10464-0310 | POR |
| | 3-11/32 | 3.3438 | 2-5/8 | 3-1/8 | 1/2 | 10264-0311 | - | POR |
| | 3-3/8 | 3.3750 | 2-5/8 | 3-1/8 | 1/2 | 10264-0312 | - | POR |
| | 3-13/32 | 3.4063 | 2-5/8 | 3-1/8 | 1/2 | 10264-0313 | - | POR |
| | 3-7/16 | 3.4375 | 2-5/8 | 3-1/8 | 1/2 | 10264-0314 | 10464-0314 | POR |
| | 3-15/32 | 3.4688 | 2-5/8 | 3-1/8 | 1/2 | 10264-0315 | - | POR |
| 3-1/2 | 3.5000 | 2-5/8 | 3-1/8 | 1/2 | 10264-0316 | 10464-0316 | 11264-0316 | |
| F Oversize | 3-17/32 | 3.5313 | 2-5/8 | 3-1/8 | 1/2 | 10264-0317 | - | - |
| | 3-9/16 | 3.5625 | 2-5/8 | 3-1/8 | 1/2 | 10264-0318 | - | - |
| | 3-19/32 | 3.5938 | 2-5/8 | 3-1/8 | 1/2 | 10264-0319 | - | - |
| | 3-5/8 | 3.6250 | 2-5/8 | 3-1/8 | 1/2 | 10264-0320 | - | - |
| | 3-21/32 | 3.6563 | 2-5/8 | 3-1/8 | 1/2 | 10264-0321 | - | - |
| | 3-11/16 | 3.6875 | 2-5/8 | 3-1/8 | 1/2 | 10264-0322 | - | - |
| | 3-23/32 | 3.7188 | 2-5/8 | 3-1/8 | 1/2 | 10264-0323 | - | - |
| | 3-3/4 | 3.7500 | 2-5/8 | 3-1/8 | 1/2 | 10264-0324 | - | - |
| | 3-25/32 | 3.7813 | 2-5/8 | 3-1/8 | 1/2 | 10264-0325 | - | - |
| | 3-13/16 | 3.8125 | 2-5/8 | 3-1/8 | 1/2 | 10264-0326 | - | - |
| 3-27/32 | 3.8438 | 2-5/8 | 3-1/8 | 1/2 | 10264-0327 | - | - | |
| 3-7/8 | 3.8750 | 2-5/8 | 3-1/8 | 1/2 | 10264-0328 | - | - | |

NOTE: POR = Priced on request

Flat Bottom



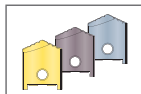
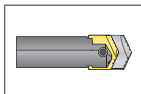
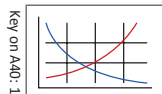
90° Spot & Chamfer



A40: 44 - 47

A40: 28 - 29

A40: 2

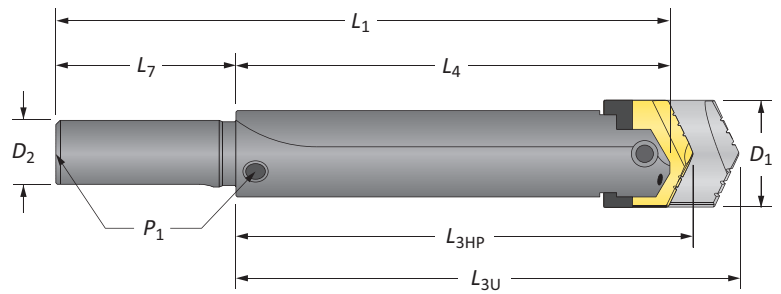


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|-----------------|---|
| Inch: | 1-17/64", 130° CPM-M4 (B series) = use Part No. 10224-1.2656 |
| Decimal: | 1.5110", 130° Flat Bottom (C series) = use Part No. 10434-1.5110 |

High Performance / Universal Spade Drill Insert Holders

F Series





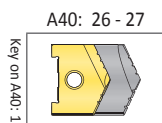
Straight Shank

| Length | D_1 | Holder | | | | Shank | | | | Part No. |
|----------------|-----------|-----------|----------|--------|--------|-------|-------|-------|-------|-------------------|
| | | L_{3HP} | L_{3U} | L_4 | L_1 | D_2 | L_7 | P_1 | Style | |
| Stub | 3 - 3-7/8 | 3-13/32 | 4 | 2-3/4 | 6-3/4 | 2-1/2 | 4 | - | #125 | 20261-2500 |
| Short | 3 - 3-7/8 | 6-5/32 | 6-3/4 | 5-1/2 | 9-1/2 | 2 | 4 | - | #150 | 20461-2000 |
| i Short | 3 - 3-7/8 | 6-5/32 | 6-3/4 | 5-1/2 | 9-1/2 | 2 | 4 | 1/2 | #100 | 20661-2000 |
| Short | 3 - 3-7/8 | 6-5/32 | 6-3/4 | 5-1/2 | 9-1/2 | 2-1/2 | 4 | 1/2 | #100 | 20661-2500 |
| Standard | 3 - 3-7/8 | 12-5/32 | 12-3/4 | 11-1/2 | 15-1/2 | 2 | 4 | 1/2 | #200 | 20861-2000 |
| Long | 3 - 3-7/8 | 20-21/32 | 21-1/4 | 20 | 24 | 2-1/2 | 4 | 1/2 | #250 | 21061-2500 |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Connection Accessories

| | |
|--|--|
|  Clamping Screw 1/2"-13 x 1-3/4" |  Blade-Loc Screw 5/16"-18 x 1/2" |
|--|--|



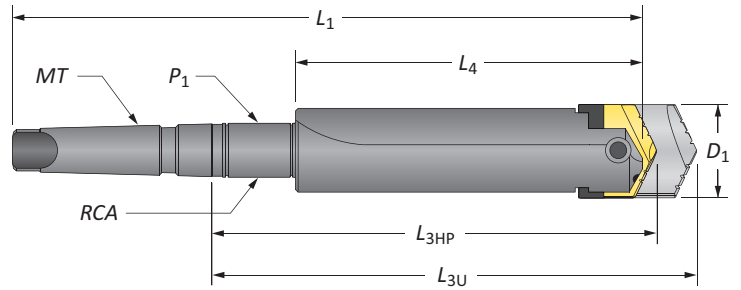
i = Imperial (in)
m = Metric (mm)

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



High Performance / Universal Spade Drill Insert Holders

F Series



Taper Shank

| Length | D ₁ | Holder | | | | Shank | | | | Part No. |
|----------|----------------|------------------|-----------------|----------------|----------------|-------|----------------|--------|----------|-------------|
| | | L _{3HP} | L _{3U} | L ₄ | L ₁ | MT | P ₁ | RCA | Style | |
| Short | 3 - 3-7/8 | 6-13/32 | 7 | 5-1/2 | 11-5/8 | #5 | - | - | #300 | 21461-0005 |
| Short | 3 - 3-7/8 | 6-13/32 | 7 | 5-1/2 | 11-5/8 | #5 | - | - | #300 TSC | 21561-0005* |
| Short | 3 - 3-7/8 | 8-23/32 | 9-5/16 | 5-1/2 | 13-15/16 | #5 | 1/2 | 2T-6SR | #400 SR | 21661-0005 |
| Standard | 3 - 3-7/8 | 14-23/32 | 15-5/16 | 11-1/2 | 19-15/16 | #5 | 1/2 | 2T-6SR | #500 SR | 21861-0005 |
| Long | 3 - 3-7/8 | 23-7/32 | 23-13/16 | 20 | 28-7/16 | #5 | 1/2 | 2T-6SR | #600 SR | 22061-0005 |
| XL | 3 - 3-7/8 | 36-7/32 | 36-13/16 | 33 | 41-7/16 | #5 | 1/2 | 2T-6SR | #700 SR | 22261-0005 |

*Through shank coolant, coolant inlet diameter = 3/8"

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

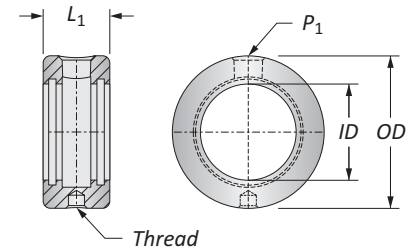
Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No.* | RCA O-Rings | |
|-------|-------|----------------|--------------------|----------------|-----------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| 2-1/4 | 3-3/4 | 1-3/4 | 1/2 - NC | 1/2 | 2T-6SR | 2T1-6SR | 2T1-6OR-10 |
| 3 | 4-1/2 | 1-3/4 | 1/2 - NC | 1/2 | 2T-6OSR | 2T1-6OSR | 2T1-6OOR-10 |

*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

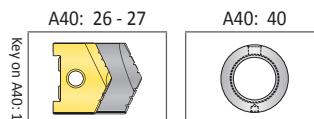
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

Refer to page A40: 40 for proper RCA assembly and safety information



Connection Accessories

| | |
|-----------------------|------------------------|
| | |
| Clamping Screw | Blade-Loc Screw |
| 1/2"-13 x 1-3/4" | 5/16"-18 x 1/2" |



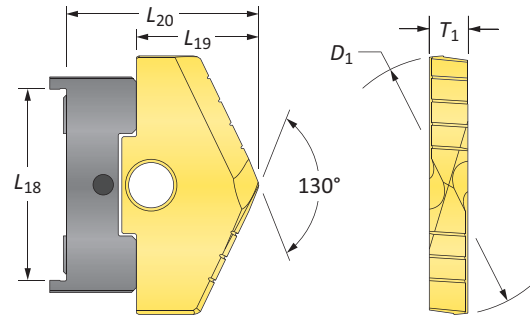
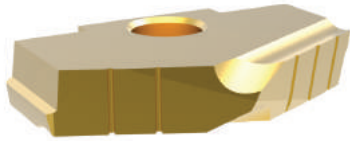
① = Imperial (in)
 Ⓜ = Metric (mm)
 O-rings sold in packs of 10

WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.



High Performance Spade Drill Inserts

G Series | Diameter Range: 3.5000" - 4.5000"

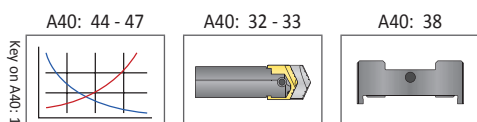


| Series | D ₁ inch | | Insert | | | | TiN Part No. | TiAlN Part No. | TiCN Part No. | Adapter |
|---------------|---------------------|---------|-----------------|-----------------|-----------------|----------------|--------------|----------------|---------------|---------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | L ₂₀ | T ₁ | | | | |
| G | 3-1/2 | 3.5000 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0316* | 1027A-0316* | 1027N-0316* | 1027U-Adapter |
| | 3-17/32 | 3.5313 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0317* | 1027A-0317* | 1027N-0317* | 1027U-Adapter |
| | 3-9/16 | 3.5625 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0318* | 1027A-0318* | 1027N-0318* | 1027U-Adapter |
| | 3-19/32 | 3.5938 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0319* | 1027A-0319* | 1027N-0319* | 1027U-Adapter |
| | 3-5/8 | 3.6250 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0320* | 1027A-0320* | 1027N-0320* | 1027U-Adapter |
| | 3-21/32 | 3.6563 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0321* | 1027A-0321* | 1027N-0321* | 1027U-Adapter |
| | 3-11/16 | 3.6875 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0322* | 1027A-0322* | 1027N-0322* | 1027U-Adapter |
| | 3-23/32 | 3.7188 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0323* | 1027A-0323* | 1027N-0323* | 1027U-Adapter |
| | 3-3/4 | 3.7500 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0324* | 1027A-0324* | 1027N-0324* | 1027U-Adapter |
| | 3-25/32 | 3.7813 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0325* | 1027A-0325* | 1027N-0325* | 1027U-Adapter |
| | 3-13/16 | 3.8125 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0326* | 1027A-0326* | 1027N-0326* | 1027U-Adapter |
| | 3-27/32 | 3.8438 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0327* | 1027A-0327* | 1027N-0327* | 1027U-Adapter |
| | 3-7/8 | 3.8750 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0328* | 1027A-0328* | 1027N-0328* | 1027U-Adapter |
| | 3-29/32 | 3.9063 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0329* | 1027A-0329* | 1027N-0329* | 1027U-Adapter |
| 3-15/16 | 3.9375 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0330* | 1027A-0330* | 1027N-0330* | 1027U-Adapter | |
| 3-31/32 | 3.9688 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0331* | 1027A-0331* | 1027N-0331* | 1027U-Adapter | |
| 4 | 4.0000 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0400* | 1027A-0400* | 1027N-0400* | 1027U-Adapter | |
| G Oversize | 4-1/16 | 4.0625 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0402* | 1027A-0402* | 1027N-0402* | 1027U-Adapter |
| | 4-1/8 | 4.1250 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0404* | 1027A-0404* | 1027N-0404* | 1027U-Adapter |
| | 4-3/16 | 4.1875 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0406* | 1027A-0406* | 1027N-0406* | 1027U-Adapter |
| | 4-1/4 | 4.2500 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0408* | 1027A-0408* | 1027N-0408* | 1027U-Adapter |
| | 4-5/16 | 4.3125 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0410* | 1027A-0410* | 1027N-0410* | 1027U-Adapter |
| | 4-3/8 | 4.3750 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0412* | 1027A-0412* | 1027N-0412* | 1027U-Adapter |
| | 4-7/16 | 4.4375 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0414* | 1027A-0414* | 1027N-0414* | 1027U-Adapter |
| 4-1/2 | 4.5000 | 3-1/16 | 1-15/16 | 2-23/32 | 5/8 | 1027T-0416* | 1027A-0416* | 1027N-0416* | 1027U-Adapter | |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Inserts sold in multiples of 1

*All inserts are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted.



Sizes not shown are available upon request.

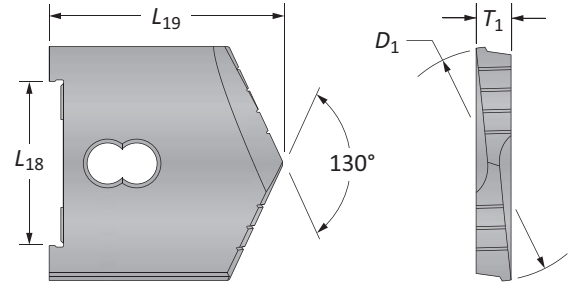
When ordering, please follow the example below:

| | |
|-----------------|--|
| Inch: | 7-63/64", 130° CPM-M4 (H8 series) = use Part No. 10294-7.9843 |
| Decimal: | 6.391", 130° CPM-M4 (H5 series) = use Part No. 10294-6.3910 |



Universal Spade Drill Inserts

G Series | Diameter Range: 3.5000" - 4.5000"

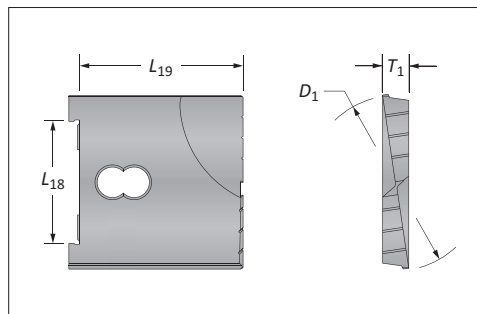


| Series | D ₁ inch | | Insert | | | | |
|---------------|---------------------|---------|-----------------|-----------------|----------------|-------------|-------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | T ₁ | 130° CPM-M4 | Flat Bottom |
| G | 3-1/2 | 3.5000 | 3-1/16 | 3-3/8 | 5/8 | 10274-0316 | 10474-0316 |
| | 3-17/32 | 3.5313 | 3-1/16 | 3-3/8 | 5/8 | 10274-0317 | - |
| | 3-9/16 | 3.5625 | 3-1/16 | 3-3/8 | 5/8 | 10274-0318 | 10474-0318 |
| | 3-19/32 | 3.5938 | 3-1/16 | 3-3/8 | 5/8 | 10274-0319 | - |
| | 3-5/8 | 3.6250 | 3-1/16 | 3-3/8 | 5/8 | 10274-0320 | 10474-0320 |
| | 3-21/32 | 3.6563 | 3-1/16 | 3-3/8 | 5/8 | 10274-0321 | - |
| | 3-11/16 | 3.6875 | 3-1/16 | 3-3/8 | 5/8 | 10274-0322 | 10474-0322 |
| | 3-23/32 | 3.7188 | 3-1/16 | 3-3/8 | 5/8 | 10274-0323 | - |
| | 3-3/4 | 3.7500 | 3-1/16 | 3-3/8 | 5/8 | 10274-0324 | 10474-0324 |
| | 3-25/32 | 3.7813 | 3-1/16 | 3-3/8 | 5/8 | 10274-0325 | - |
| | 3-13/16 | 3.8125 | 3-1/16 | 3-3/8 | 5/8 | 10274-0326 | 10474-0326 |
| | 3-27/32 | 3.8438 | 3-1/16 | 3-3/8 | 5/8 | 10274-0327 | - |
| | 3-7/8 | 3.8750 | 3-1/16 | 3-3/8 | 5/8 | 10274-0328 | 10474-0328 |
| | 3-29/32 | 3.9063 | 3-1/16 | 3-3/8 | 5/8 | 10274-0329 | - |
| | 3-15/16 | 3.9375 | 3-1/16 | 3-3/8 | 5/8 | 10274-0330 | 10474-0330 |
| 3-31/32 | 3.9688 | 3-1/16 | 3-3/8 | 5/8 | 10274-0331 | - | |
| 4 | 4.0000 | 3-1/16 | 3-3/8 | 5/8 | 10274-0400 | 10474-0400 | |
| G Oversize | 4-1/16 | 4.0625 | 3-1/16 | 3-3/8 | 5/8 | 10274-0402 | - |
| | 4-1/8 | 4.1250 | 3-1/16 | 3-3/8 | 5/8 | 10274-0404 | - |
| | 4-3/16 | 4.1875 | 3-1/16 | 3-3/8 | 5/8 | 10274-0406 | - |
| | 4-1/4 | 4.2500 | 3-1/16 | 3-3/8 | 5/8 | 10274-0408 | - |
| | 4-5/16 | 4.3125 | 3-1/16 | 3-3/8 | 5/8 | 10274-0410 | - |
| | 4-3/8 | 4.3750 | 3-1/16 | 3-3/8 | 5/8 | 10274-0412 | - |
| | 4-7/16 | 4.4375 | 3-1/16 | 3-3/8 | 5/8 | 10274-0414 | - |
| 4-1/2 | 4.5000 | 3-1/16 | 3-3/8 | 5/8 | 10274-0416 | - | |

NOTE: POR = Priced on request

Inserts sold in multiples of 1

Flat Bottom



A40: 44 - 47

A40: 32 - 33

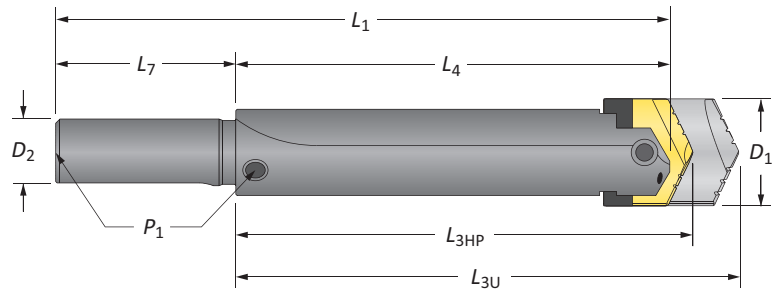
A40: 2

Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|-----------------|---|
| Inch: | 1-17/64", 130° CPM-M4 (B series) = use Part No. 10224-1.2656 |
| Decimal: | 1.5110", 130° Flat Bottom (C series) = use Part No. 10434-1.5110 |

High Performance / Universal Spade Drill Insert Holders

G Series





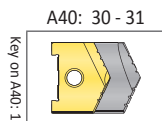
Straight Shank

| Length | D_1 | Holder | | | | Shank | | | | Part No. |
|----------|---------------|-----------|----------|-------|-------|-------|-------|-------|-------|-------------------|
| | | L_{3HP} | L_{3U} | L_4 | L_1 | D_2 | L_7 | P_1 | Style | |
| Short | 3-1/2 - 4-1/2 | 6-25/32 | 7-7/16 | 6 | 11 | 2-1/2 | 5 | 1/2 | #100 | 20671-2500 |
| Standard | 3-1/2 - 4-1/2 | 13-25/32 | 14-7/16 | 13 | 18 | 2-1/2 | 5 | 1/2 | #200 | 20871-2500 |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Connection Accessories

| | |
|---|---|
|  <p>Clamping Screw 3/4"-10 x 2-1/2"</p> |  <p>Blade-Loc Screw 5/16"-18 x 1/2"</p> |
|---|---|



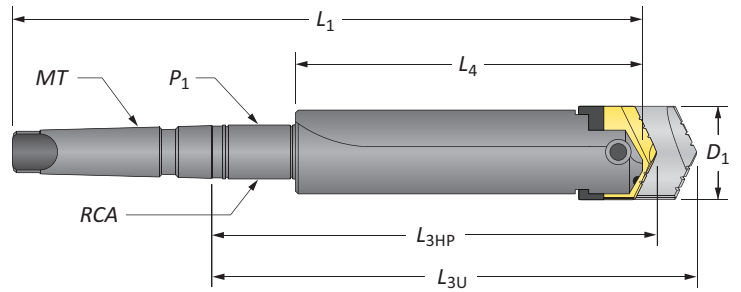
i = Imperial (in)
m = Metric (mm)

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



High Performance / Universal Spade Drill Insert Holders

G Series



Taper Shank

| | Length | D ₁ | Holder | | | | Shank | | | | Part No. |
|---|----------|----------------|------------------|-----------------|----------------|----------------|-------|----------------|--------|----------|-------------|
| | | | L _{3HP} | L _{3U} | L ₄ | L ₁ | MT | P ₁ | RCA | Style | |
| i | Short | 3-1/2 - 4-1/2 | 7-1/32 | 7-11/16 | 6 | 12-1/8 | #5 | - | - | #300 | 21471-0005 |
| | Short | 3-1/2 - 4-1/2 | 7-1/32 | 7-11/16 | 6 | 12-1/8 | #5 | - | - | #300 TSC | 21571-0005* |
| | Short | 3-1/2 - 4-1/2 | 9-11/32 | 10 | 6 | 14-7/16 | #5 | 1/2 | 2T-6SR | #400 SR | 21671-0005 |
| | Standard | 3-1/2 - 4-1/2 | 16-11/32 | 17 | 13 | 21-7/16 | #5 | 1/2 | 2T-6SR | #500 SR | 21871-0005 |
| | Long | 3-1/2 - 4-1/2 | 27-11/32 | 28 | 24 | 32-7/16 | #5 | 1/2 | 2T-6SR | #600 SR | 22071-0005 |
| | XL | 3-1/2 - 4-1/2 | 40-11/32 | 41 | 37 | 45-7/16 | #5 | 1/2 | 2T-6SR | #700 SR | 22271-0005 |

*Through shank coolant, coolant inlet diameter = 3/8"

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

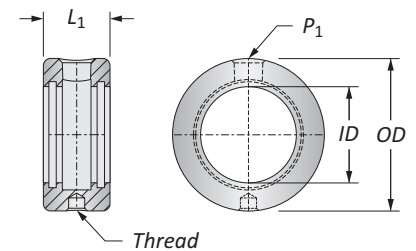
Rotary Coolant Adapter (RCA) and Accessories

| i | ID | OD | L ₁ | Driving Rod Thread | P ₁ | RCA O-Rings | | |
|---|-------|-------|----------------|--------------------|----------------|-------------|----------------|--------------|
| | | | | | | Part No.* | Kit Part No.** | Replacements |
| | 2-1/4 | 3-3/4 | 1-3/4 | 1/2 - NC | 1/2 | 2T-6SR | 2T1-6SR | 2T1-6OR-10 |
| | 3-3/4 | 5-1/2 | 1-3/4 | 1/2 - NC | 1/2 | 2T-6SSR | 2T1-6SSR | 2T1-65OR-10 |

*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

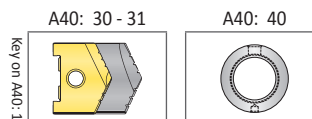
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

▲ Refer to page A40: 40 for proper RCA assembly and safety information



Connection Accessories

| | |
|-----------------------|------------------------|
| | |
| Clamping Screw | Blade-Loc Screw |
| 3/4"-10 x 2-1/2" | 5/16"-18 x 1/2" |

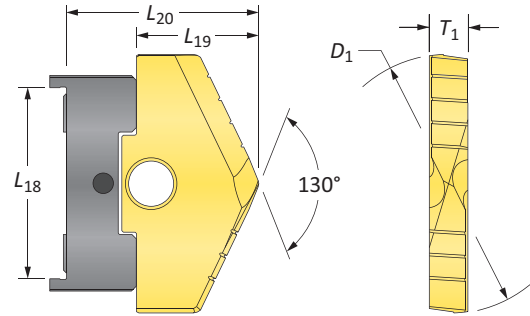
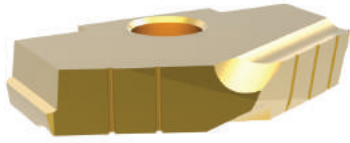


i = Imperial (in)
m = Metric (mm)
O-rings sold in packs of 10

WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.

High Performance Spade Drill Inserts

H Series | Diameter Range: 4.0000" - 5.0000"



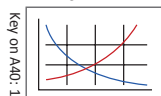
| Series | D ₁ inch | | Insert | | | | TiN Part No. | TiAlN Part No. | TiCN Part No. | Adapter |
|----------------|---------------------|---------|-----------------|-----------------|-----------------|----------------|--------------|----------------|---------------|---------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | L ₂₀ | T ₁ | | | | |
| H ¹ | 4 | 4.0000 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0400* | 1028A-0400* | 1028N-0400* | 1028U-Adapter |
| | 4-1/16 | 4.0625 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0402* | 1028A-0402* | 1028N-0402* | 1028U-Adapter |
| | 4-1/8 | 4.1250 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0404* | 1028A-0404* | 1028N-0404* | 1028U-Adapter |
| | 4-3/16 | 4.1875 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0406* | 1028A-0406* | 1028N-0406* | 1028U-Adapter |
| | 4-1/4 | 4.2500 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0408* | 1028A-0408* | 1028N-0408* | 1028U-Adapter |
| | 4-5/16 | 4.3125 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0410* | 1028A-0410* | 1028N-0410* | 1028U-Adapter |
| | 4-3/8 | 4.3750 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0412* | 1028A-0412* | 1028N-0412* | 1028U-Adapter |
| | 4-7/16 | 4.4375 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0414* | 1028A-0414* | 1028N-0414* | 1028U-Adapter |
| | 4-1/2 | 4.5000 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0416* | 1028A-0416* | 1028N-0416* | 1028U-Adapter |
| H ² | 4-9/16 | 4.5625 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0418* | 1028A-0418* | 1028N-0418* | 1028U-Adapter |
| | 4-5/8 | 4.6250 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0420* | 1028A-0420* | 1028N-0420* | 1028U-Adapter |
| | 4-11/16 | 4.6875 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0422* | 1028A-0422* | 1028N-0422* | 1028U-Adapter |
| | 4-3/4 | 4.7500 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0424* | 1028A-0424* | 1028N-0424* | 1028U-Adapter |
| | 4-13/16 | 4.8125 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0426* | 1028A-0426* | 1028N-0426* | 1028U-Adapter |
| | 4-7/8 | 4.8750 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0428* | 1028A-0428* | 1028N-0428* | 1028U-Adapter |
| | 4-15/16 | 4.9375 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0430* | 1028A-0430* | 1028N-0430* | 1028U-Adapter |
| 5 | 5.0000 | 3-1/2 | 2-3/16 | 3-3/32 | 11/16 | 1028T-0500* | 1028A-0500* | 1028N-0500* | 1028U-Adapter | |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

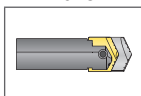
Inserts sold in multiples of 1

*All inserts are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted.

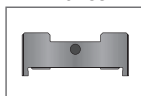
A40: 44 - 47



A40: 37



A40: 38



Sizes not shown are available upon request.

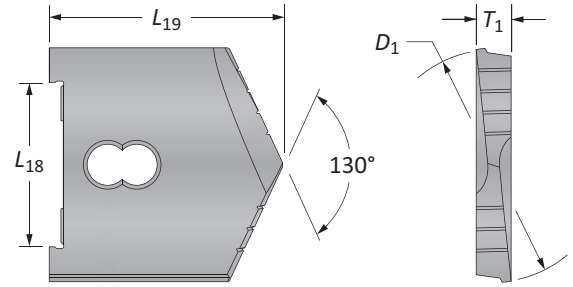
When ordering, please follow the example below:



| | |
|-----------------|--|
| Inch: | 7-63/64", 130° CPM-M4 (H8 series) = use Part No. 10294-7.9843 |
| Decimal: | 6.391", 130° CPM-M4 (H5 series) = use Part No. 10294-6.3910 |



Universal Spade Drill Inserts

H¹ - H² Series | Diameter Range: 4.0000" - 8.5000"

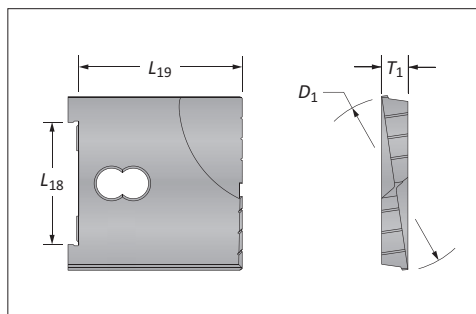


| Series | D ₁ inch | | Insert | | |  |  |
|----------------|---------------------|---------|-----------------|-----------------|----------------|---|---|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | T ₁ | 130° CPM-M4 | Flat Bottom |
| H ¹ | 4 | 4.0000 | 3-1/2 | 3-11/16 | 11/16 | 10284-0400 | 10484-0400 |
| | 4-1/16 | 4.0625 | 3-1/2 | 3-11/16 | 11/16 | 10284-0402 | - |
| | 4-1/8 | 4.1250 | 3-1/2 | 3-11/16 | 11/16 | 10284-0404 | 10484-0404 |
| | 4-3/16 | 4.1875 | 3-1/2 | 3-11/16 | 11/16 | 10284-0406 | - |
| | 4-1/4 | 4.2500 | 3-1/2 | 3-11/16 | 11/16 | 10284-0408 | 10484-0408 |
| | 4-5/16 | 4.3125 | 3-1/2 | 3-11/16 | 11/16 | 10284-0410 | - |
| | 4-3/8 | 4.3750 | 3-1/2 | 3-11/16 | 11/16 | 10284-0412 | 10484-0412 |
| | 4-7/16 | 4.4375 | 3-1/2 | 3-11/16 | 11/16 | 10284-0414 | - |
| H ² | 4-1/2 | 4.5000 | 3-1/2 | 3-11/16 | 11/16 | 10284-0416 | 10484-0416 |
| | 4-9/16 | 4.5625 | 3-1/2 | 3-11/16 | 11/16 | 10284-0418 | - |
| | 4-5/8 | 4.6250 | 3-1/2 | 3-11/16 | 11/16 | 10284-0420 | 10484-0420 |
| | 4-11/16 | 4.6875 | 3-1/2 | 3-11/16 | 11/16 | 10284-0422 | - |
| | 4-3/4 | 4.7500 | 3-1/2 | 3-11/16 | 11/16 | 10284-0424 | 10484-0424 |
| | 4-13/16 | 4.8125 | 3-1/2 | 3-11/16 | 11/16 | 10284-0426 | - |
| | 4-7/8 | 4.8750 | 3-1/2 | 3-11/16 | 11/16 | 10284-0428 | 10484-0428 |
| | 4-15/16 | 4.9375 | 3-1/2 | 3-11/16 | 11/16 | 10284-0430 | - |
| | 5 | 5.0000 | 3-1/2 | 3-11/16 | 11/16 | 10284-0500 | 10484-0500 |

NOTE: POR = Priced on request

Inserts sold in multiples of 1

Flat Bottom



Key on A40-1

A40: 44 - 47

A40: 37

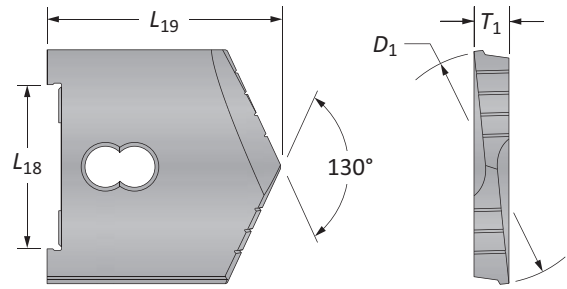
A40: 2

Sizes not shown are available upon request.
When ordering, please follow the example below:

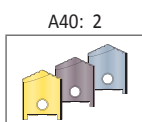
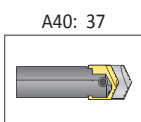
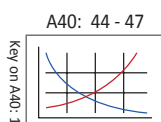
| | |
|-----------------|---|
| Inch: | 1-17/64", 130° CPM-M4 (B series) = use Part No. 10224-1.2656 |
| Decimal: | 1.5110", 130° Flat Bottom (C series) = use Part No. 10434-1.5110 |

Universal Spade Drill Inserts

H³ - H⁹ Series | Diameter Range: 5.1250" - 8.5000"



| Series | D ₁ inch | | Insert | | | 130° CPM-M4 |
|----------------|---------------------|---------|-----------------|-----------------|----------------|-----------------|
| | Fraction | Decimal | L ₁₈ | L ₁₉ | T ₁ | |
| H ³ | 5-1/8 | 5.1250 | 3-1/2 | 3-11/16 | 11/16 | 10294-0504 |
| | 5-1/4 | 5.2500 | 3-1/2 | 3-11/16 | 11/16 | 10294-0508 |
| | 5-3/8 | 5.3750 | 3-1/2 | 3-11/16 | 11/16 | 10294-0512 |
| | 5-1/2 | 5.5000 | 3-1/2 | 3-11/16 | 11/16 | 10294-0516 |
| H ⁴ | 5-5/8 | 5.6250 | 3-1/2 | 3-11/16 | 11/16 | 10294-0520 |
| | 5-3/4 | 5.7500 | 3-1/2 | 3-11/16 | 11/16 | 10294-0524 |
| | 5-7/8 | 5.8750 | 3-1/2 | 3-11/16 | 11/16 | 10294-0528 |
| | 6 | 6.0000 | 3-1/2 | 3-11/16 | 11/16 | 10294-0600 |
| H ⁵ | 6-1/8 | 6.1250 | 3-1/2 | 3-11/16 | 11/16 | 10294-0604 |
| | 6-1/4 | 6.2500 | 3-1/2 | 3-11/16 | 11/16 | 10294-0608 |
| | 6-3/8 | 6.3750 | 3-1/2 | 3-11/16 | 11/16 | 10294-0612 |
| | 6-1/2 | 6.5000 | 3-1/2 | 3-11/16 | 11/16 | 10294-0616 |
| H ⁶ | 6-5/8 | 6.6250 | 3-1/2 | 3-11/16 | 11/16 | 10294-0620 |
| | 6-3/4 | 6.7500 | 3-1/2 | 3-11/16 | 11/16 | 10294-0624 |
| | 6-7/8 | 6.8750 | 3-1/2 | 3-11/16 | 11/16 | 10294-0628 |
| | 7 | 7.0000 | 3-1/2 | 3-11/16 | 11/16 | 10294-0700 |
| H ⁷ | 7-1/8 | 7.1250 | 3-1/2 | 3-11/16 | 11/16 | 10294-0704 |
| | 7-1/4 | 7.2500 | 3-1/2 | 3-11/16 | 11/16 | 10294-0708 |
| | 7-3/8 | 7.3750 | 3-1/2 | 3-11/16 | 11/16 | 10294-0712 |
| | 7-1/2 | 7.5000 | 3-1/2 | 3-11/16 | 11/16 | 10294-0716 |
| H ⁸ | 7-5/8 | 7.6250 | 3-1/2 | 3-11/16 | 11/16 | 10294-0720 |
| | 7-3/4 | 7.7500 | 3-1/2 | 3-11/16 | 11/16 | 10294-0724 |
| | 7-7/8 | 7.8750 | 3-1/2 | 3-11/16 | 11/16 | 10294-0728 |
| | 8 | 8.0000 | 3-1/2 | 3-11/16 | 11/16 | 10294-0800 |
| H ⁹ | 8-1/8 | 8.1250 | 3-1/2 | 3-11/16 | 11/16 | 10294-0804 |
| | 8-1/4 | 8.2500 | 3-1/2 | 3-11/16 | 11/16 | 10294-0808 |
| | 8-3/8 | 8.3750 | 3-1/2 | 3-11/16 | 11/16 | 10294-0812 |
| | 8-1/2 | 8.5000 | 3-1/2 | 3-11/16 | 11/16 | 10294-0816 |



Sizes not shown are available upon request.

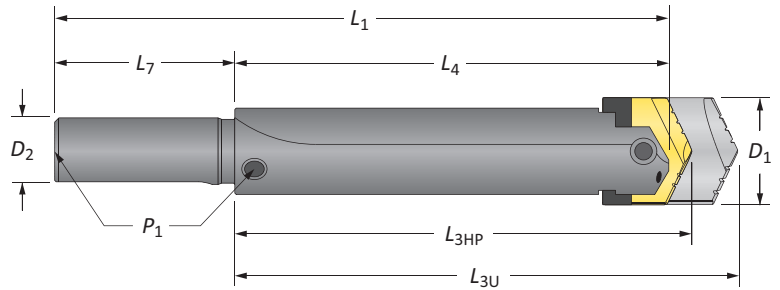
When ordering, please follow the example below:

| | |
|-----------------|---|
| Inch: | 1-17/64", 130° CPM-M4 (B series) = use Part No. 10224-1.2656 |
| Decimal: | 1.5110", 130° Flat Bottom (C series) = use Part No. 10434-1.5110 |



High Performance / Universal Spade Drill Insert Holders

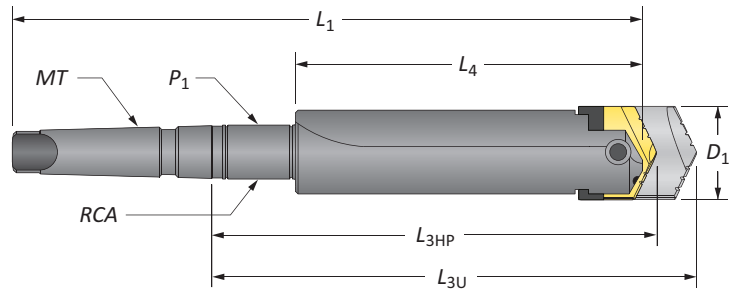
H Series



Straight Shank

| Length | D ₁ | Holder | | | | Shank | | | | Style | Part No. |
|----------|----------------|------------------|-----------------|----------------|----------------|----------------|----------------|----------------|------|------------|----------|
| | | L _{3HP} | L _{3U} | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | | |
| Short | 4 - 8-1/2 | 7-31/32 | 8-9/16 | 7 | 13 | 2-1/2 | 6 | 1/2 | #100 | 20681-2500 | |
| Standard | 4 - 8-1/2 | 15-31/32 | 16-9/16 | 15 | 21 | 2-1/2 | 6 | 1/2 | #200 | 20881-2500 | |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.



Taper Shank

| Length | D ₁ | Holder | | | | MT | P ₁ | RCA | Style | Part No. |
|----------|----------------|------------------|-----------------|----------------|----------------|----|----------------|---------|---------|------------|
| | | L _{3HP} | L _{3U} | L ₄ | L ₁ | | | | | |
| Short | 4 - 8-1/2 | 8-7/32 | 8-13/16 | 7 | 13-1/8 | #5 | - | - | #300 | 21481-0005 |
| Short | 4 - 8-1/2 | 10-17/32 | 11-1/8 | 7 | 15-7/16 | #5 | 1/2 | 2T-6SR | #400 SR | 21681-0005 |
| Standard | 4 - 8-1/2 | 18-17/32 | 19-1/8 | 15 | 23-7/16 | #5 | 1/2 | 2T-6SR | #500 SR | 21881-0005 |
| Standard | 4 - 8-1/2 | 18-17/32 | 19-1/8 | 15 | 25-7/8 | #6 | 1/2 | 2T-55SR | #500 SR | 21881-0006 |
| Long | 4 - 8-1/2 | 27-19/32 | 28-3/16 | 24 | 34-7/8 | #6 | 1/2 | 2T-55SR | #600 SR | 22081-0006 |
| XL | 4 - 8-1/2 | 43-19/32 | 44-3/16 | 40 | 50-7/8 | #6 | 1/2 | 2T-55SR | #700 SR | 22281-0006 |

NOTE: Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

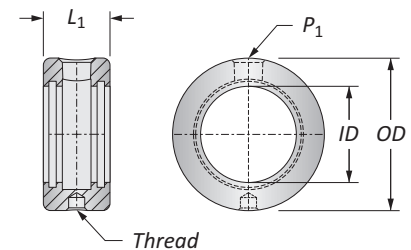
Rotary Coolant Adapter (RCA) and Accessories

| ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No.* | RCA O-Rings | |
|-------|-------|----------------|--------------------|----------------|-----------|----------------|--------------|
| | | | | | | Kit Part No.** | Replacements |
| 2-1/4 | 3-3/4 | 1-3/4 | 1/2 - NC | 1/2 | 2T-6SR | 2T1-6SR | 2T1-6OR-10 |
| 2-1/2 | 4 | 1-3/4 | 1/2 - NC | 1/2 | 2T-55SR | 2T1-55SR | 2T1-55OR-10 |



*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

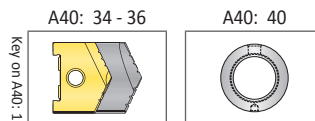
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

▲ Refer to page A40: 40 for proper RCA assembly and safety information



Connection Accessories

| | |
|---|---|
|  |  |
| Clamping Screw | Blade-Loc Screw |
| 3/4"-10 x 2-1/2" | 3/8"-16 x 3/4" |



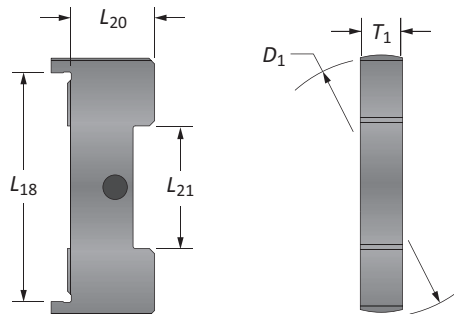
ⓘ = Imperial (in)
 ⓘ = Metric (mm)
 O-rings sold in packs of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

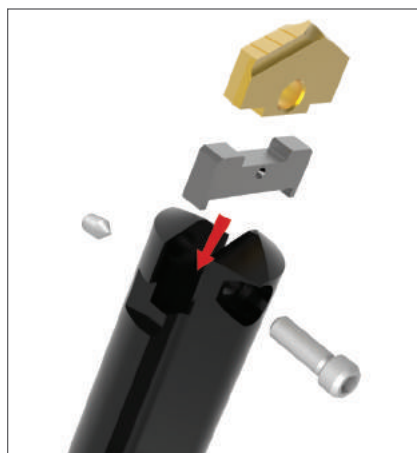


High Performance Spade Drill Insert Adapters

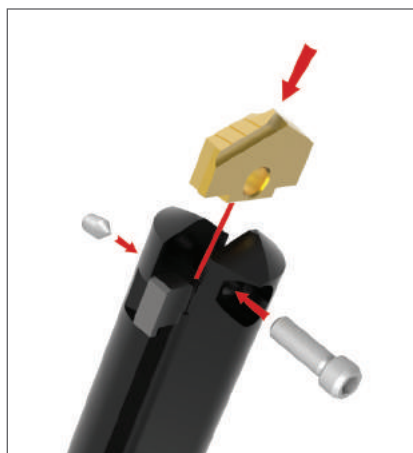
D - H Series



| Series | D ₁ | Adapter | | | | Part No. |
|--------|----------------|-----------------|-----------------|-----------------|----------------|---------------|
| | | L ₁₈ | L ₂₀ | L ₂₁ | T ₁ | |
| D | 1.995 | 1-3/4 | 43/64 | 15/16 | 3/8 | 1024U-Adapter |
| E | 2.495 | 2-1/16 | 21/32 | 1-3/16 | 7/16 | 1025U-Adapter |
| F | 2.995 | 2-5/8 | 23/32 | 1-1/4 | 1/2 | 1026U-Adapter |
| G | 3.495 | 3-1/16 | 25/32 | 1-13/16 | 5/8 | 1027U-Adapter |
| H | 3.995 | 3-1/2 | 29/32 | 2-1/4 | 11/16 | 1028U-Adapter |



Step 1:
Position the adapter into the holder.



Step 2:
Slide the insert into the adapter inside the holder.



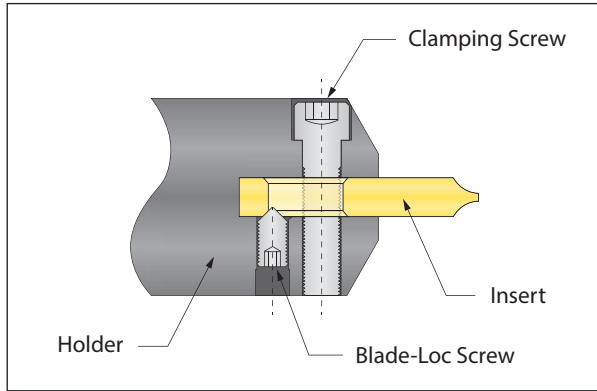
Step 3:
Insert and tighten both the clamping screw and Blade-Loc screw to secure the insert and adapter into position.

Adapter Interchangeability

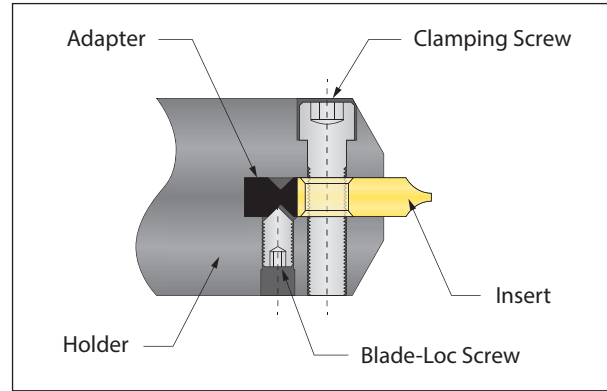
- Adapters allow the use of complete spade drill insert range
- Needed for D - H series (not required for A - C series)
- Adapter + High Performance insert combination can be interchanged with Universal insert and/or other holders
- Manufactured to ANSI B94.49-1975 TYPE I specifications

Blade-Loc Drill Insert Holders

D - H Series



Universal Spade Drill Insert





High Performance Spade Drill Insert

Blade-Loc Drill Holders - Universal

- Helps align the spade drill while locking it in place
- Protects against tool movement during the drilling cycle and when the tool is being retracted from the hole
- Standard feature in D - H series holders

Blade-Loc Drill Holders - High Performance

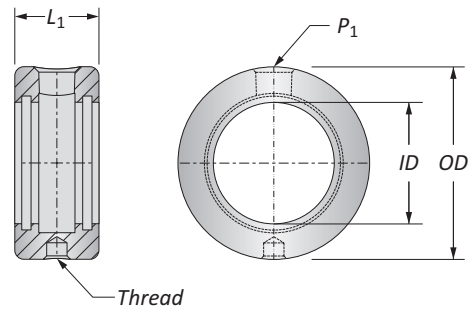
- Secures the adapter to the holder
- Allows inserts to be exchanged without any need to remove, clean, and reinsert the adapter

| Series |  Clamping Screw |  Blade-Loc Screw |
|--------|---|--|
| A | #10-24 x 5/8 | - |
| B | 1/4"-20 x 7/8 | - |
| C | 1/4"-20 x 1 | - |
| D | 3/8"-16 x 1-1/4" | 5/16"-18 x 1/2" |
| E | 1/2"-13 x 1-3/4" | 5/16"-18 x 1/2" |
| F | 5/8"-10 x 2 | 5/16"-18 x 1/2" |
| G | 3/4"-10 x 2-1/2 | 5/16"-18 x 1/2" |
| H | 3/4"-10 x 2-1/2 | 3/8"-16 x 3/4" |



Rotary Coolant Adapters (RCA)

Morse Taper Shanks



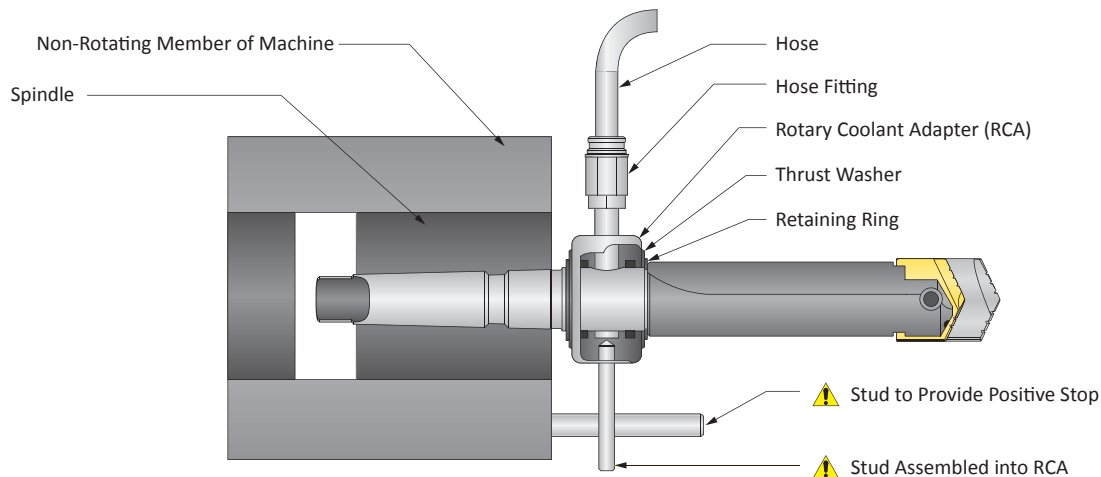
| Holder Series | ID | OD | L ₁ | Driving Rod Thread | P ₁ | Part No.* | Max Recommended RPM | RCA O-Rings | |
|---------------|-------|-------|----------------|--------------------|----------------|------------------|---------------------|----------------|--------------|
| | | | | | | | | Kit Part No.** | Replacements |
| A, B, C, D | 1-1/4 | 2-1/2 | 1-3/8 | 3/8 - NC | 1/4 | ⚠ 2T-4SR | 2000 | 2T1-4SR | 2T1-4OR-10 |
| B, C, D | 1-3/4 | 3 | 1-3/8 | 3/8 - NC | 1/4 | ⚠ 2T-5SR | 1500 | 2T1-5SR | 2T1-5OR-10 |
| E, F, G, H | 2-1/4 | 3-3/4 | 1-3/4 | 1/2 - NC | 1/2 | ⚠ 2T-6SR | 1100 | 2T1-6SR | 2T1-6OR-10 |
| D, E, H | 2-1/2 | 4 | 1-3/4 | 1/2 - NC | 1/2 | ⚠ 2T-55SR | 1100 | 2T1-55SR | 2T1-55OR-10 |
| F | 3 | 4-1/2 | 1-3/4 | 1/2 - NC | 1/2 | ⚠ 2T-60SR | 900 | 2T1-60SR | 2T1-60OR-10 |
| G | 3-3/4 | 5-1/2 | 1-3/4 | 1/2 - NC | 1/2 | ⚠ 2T-65SR | 700 | 2T1-65SR | 2T1-65OR-10 |

*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

NOTE: Max recommended pressure is 600 PSI (42 bar)

NOTE: Recommendations above are based on water and oil based coolants



i = Imperial (in)

m = Metric (mm)

O-rings sold in packs of 10

⚠ WARNING RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.

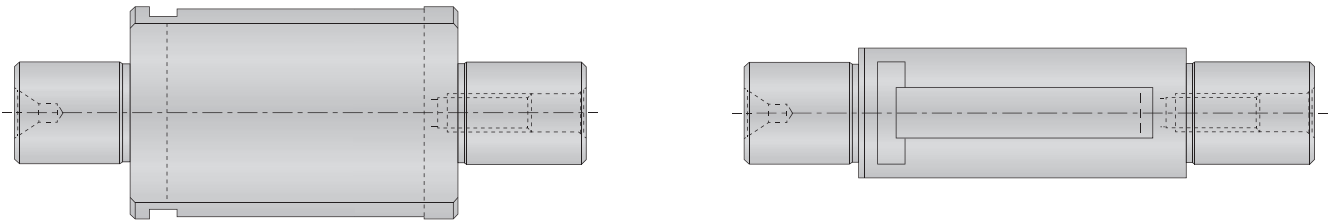
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Accessories



Top Mounting Plate

| Part No. | Description |
|------------|---|
| 25000-2505 | Top mounting plate only. It is available for those who already have a Universal grinding fixture or may wish to adapt it to some other device. The plate comes complete with all the hardware required to locate and clamp any series Universal style spade drill to the plate. |



Cylindrical Grinding Fixture

| Series | Diameter Range | Part No. |
|--------|----------------|------------|
| A | 15/16 - 1-3/8 | 24410-2560 |
| B | 1-1/4 - 1-3/4 | 24420-2565 |
| C | 1-1/2 - 2-3/8 | 24430-2570 |
| D | 2 - 2-7/8 | 24440-2575 |
| E | 2-1/2 - 3-3/8 | 24450-2580 |
| F | 3 - 3-7/8 | 24460-2585 |
| G | 3-1/2 - 4-1/2 | 24470-2590 |
| H* | 4 - 8-1/2 | 24480-2595 |

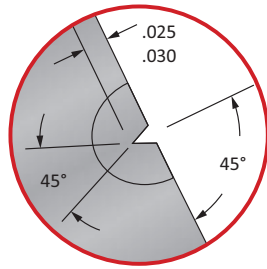
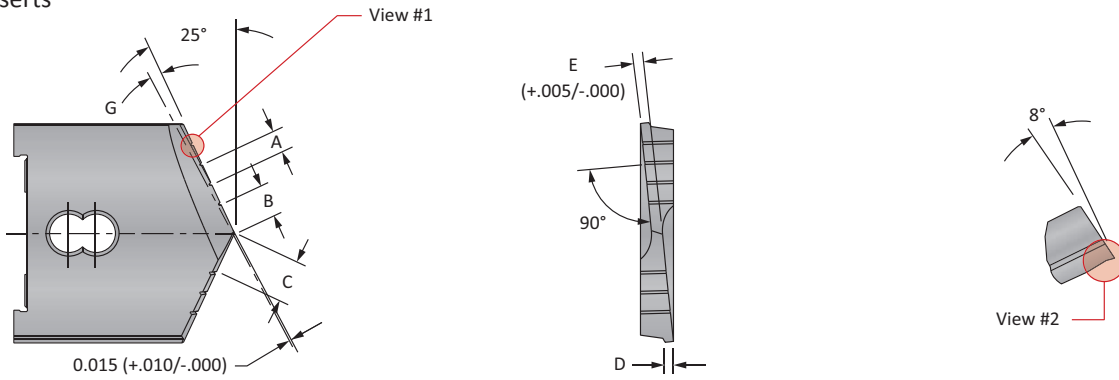
Items included with the cylindrical grinding fixture: (1) set screw, (1) slip pin

*Applies to drills with a reference length of 3-11/16". Cylindrical grinding fixtures for drills with a 4-11/16" reference length will be quoted upon request

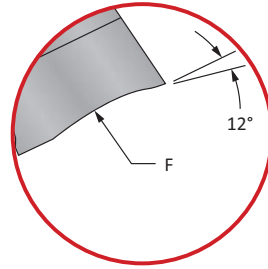


Regrind Charts

Universal Inserts



View #1



View #2

Universal (130°) Spade Drill Inserts

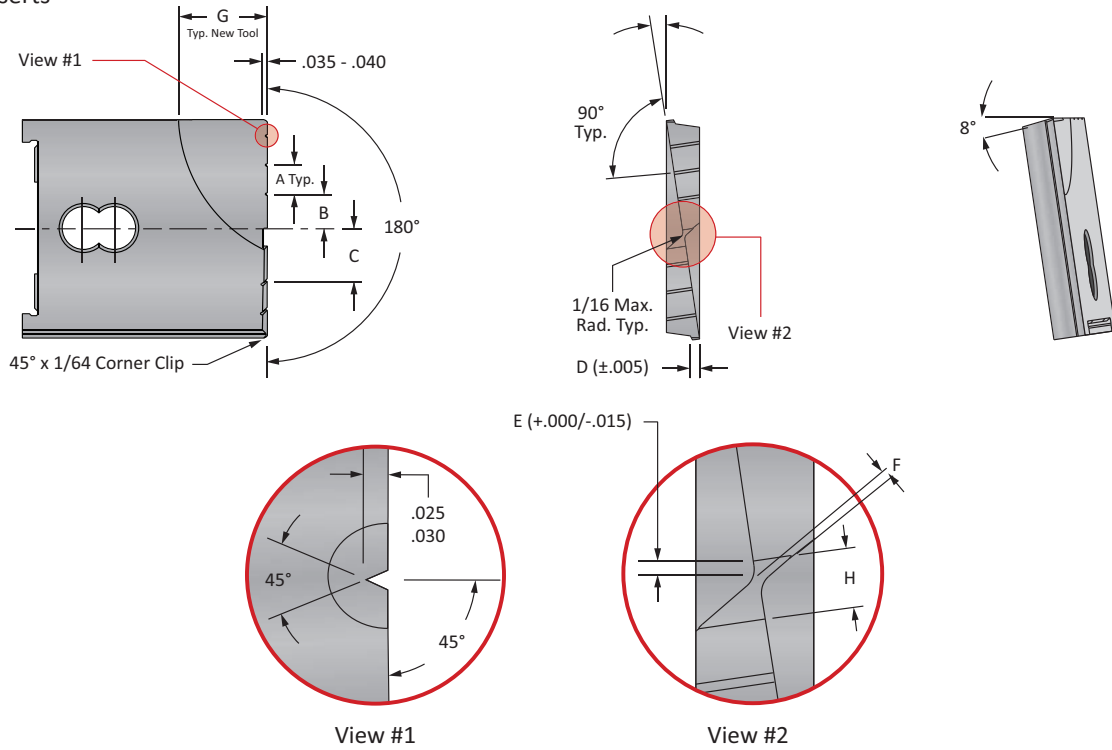
| Series | Insert Thickness | Size Range | A | B | C | D | E | F | G |
|---------------------------------|------------------|---------------|-------|-------|-------|-------|-------|------|----|
| AA | 1/4 | 1 - 1-3/8 | 0.125 | 0.156 | 0.218 | 0.065 | 0.070 | 1/4 | 3° |
| A | 3/16 | 31/32 - 1-3/8 | 0.125 | 0.156 | 0.218 | 0.065 | 0.065 | 1/4 | 3° |
| B | 9/32 | 1-1/4 - 1-3/4 | 0.150 | 0.250 | 0.325 | 0.070 | 0.090 | 5/16 | 3° |
| C | 5/16 | 1-1/2 - 2-3/8 | 0.200 | 0.250 | 0.350 | 0.080 | 0.100 | 5/16 | 3° |
| D | 3/8 | 2 - 2-7/8 | 0.250 | 0.375 | 0.500 | 0.100 | 0.120 | 3/8 | 3° |
| E | 7/16 | 2-1/2 - 3-3/8 | 0.300 | 0.437 | 0.587 | 0.100 | 0.140 | 3/8 | 3° |
| F | 1/2 | 3 - 3-7/8 | 0.350 | 0.437 | 0.612 | 0.125 | 0.170 | 3/8 | 3° |
| G | 5/8 | 3-1/2 - 4-1/2 | 0.350 | 0.500 | 0.675 | 0.140 | 0.200 | 3/8 | 3° |
| H ¹ - H ² | 11/16 | 4 - 5 | 0.400 | 0.500 | 0.700 | 0.165 | 0.225 | 1/2 | 3° |
| H ³ | 11/16 | 5-1/8 - 5-1/2 | 0.500 | 0.500 | 0.750 | 0.185 | 0.250 | 1/2 | 3° |
| H ⁴ - H ⁹ | 11/16 | 5-5/8 - 8-1/2 | 0.500 | 0.500 | 0.750 | 0.185 | 0.250 | 1/2 | 2° |

NOTE: Maintain cutting edges of the tool within 0.001" T.I.R.

High Performance Regrinds: High Performance inserts should be reground and coated by Allied Machine before returning them to production. The real economy of High Performance spade inserts is their improved production rates (100% and 500%) and increased tool life (3 to 20 times). Factory regrounding and coating provides like-new tool performance. Our factory service reduces your total cost-per-hole.

Regrind Charts

Universal Inserts



Flat Bottom Spade Drill Inserts

| Series | Insert Thickness | Size Range | A | B | C | D | E | F | G | H |
|---------------------------------|------------------|---------------|-------|-------|-------|-------|-------------|-------|-------|------|
| AA | 1/4 | 1 - 1-3/8 | 0.150 | 0.250 | 0.325 | 0.065 | 1/64 - 1/32 | 0.075 | 7/16 | 1/8 |
| A | 3/16 | 31/32 - 1-3/8 | 0.150 | 0.250 | 0.325 | 0.065 | 1/64 - 1/32 | 0.075 | 7/16 | 1/8 |
| B | 9/32 | 1-1/4 - 1-3/4 | 0.200 | 0.250 | 0.350 | 0.070 | 1/64 - 1/32 | 0.075 | 1/2 | 1/8 |
| C | 5/16 | 1-1/2 - 2-3/8 | 0.200 | 0.250 | 0.350 | 0.080 | 1/32 - 3/64 | 0.075 | 5/8 | 1/8 |
| D | 3/8 | 2 - 2-7/8 | 0.300 | 0.375 | 0.525 | 0.100 | 1/32 - 3/64 | 0.129 | 7/8 | 3/16 |
| E | 7/16 | 2-1/2 - 3-3/8 | 0.300 | 0.375 | 0.525 | 0.100 | 1/32 - 1/16 | 0.129 | 1-1/8 | 3/16 |
| F | 1/2 | 3 - 3-7/8 | 0.300 | 0.500 | 0.650 | 0.125 | 1/32 - 1/16 | 0.156 | 1-1/4 | 1/4 |
| G | 5/8 | 3-1/2 - 4-1/2 | 0.400 | 0.500 | 0.700 | 0.140 | 1/32 - 1/16 | 0.156 | 1-1/2 | 1/4 |
| H ¹ - H ² | 11/16 | 4 - 5 | 0.500 | 0.500 | 0.750 | 0.165 | 1/32 - 1/16 | 0.156 | 1-1/2 | 1/4 |




NOTE: Grind cutting edge 0.005" above center line at the center of the new tool

NOTE: Maintain flatness and height across the cutting edges of the tool within 0.001" T.I.R.



Recommended Cutting Data | Imperial (inch)

High Performance Spade Inserts

| ISO | Material | Hardness (BHN) |  TiN SFM |  TiAlN SFM |  TiCN SFM | Feed Rate (IPR) by Diameter | | | |
|-----|---|----------------|---|---|--|-----------------------------|-------------|---------|---------|
| | | | | | | 1" - 1-1/4" | 1-1/4" - 2" | 2" - 3" | 3" - 5" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | 200 | 280 | 260 | 0.016 | 0.020 | 0.023 | 0.028 |
| | | 150 - 200 | 180 | 260 | 235 | 0.016 | 0.020 | 0.023 | 0.028 |
| | | 200 - 250 | 160 | 240 | 210 | 0.016 | 0.020 | 0.023 | 0.028 |
| P | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | 170 | 250 | 220 | 0.015 | 0.019 | 0.023 | 0.027 |
| | | 125 - 175 | 160 | 240 | 210 | 0.015 | 0.019 | 0.023 | 0.027 |
| | | 175 - 225 | 150 | 225 | 195 | 0.014 | 0.018 | 0.021 | 0.024 |
| | | 225 - 275 | 140 | 210 | 180 | 0.014 | 0.018 | 0.021 | 0.024 |
| P | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | 160 | 240 | 210 | 0.015 | 0.019 | 0.023 | 0.027 |
| | | 175 - 225 | 150 | 225 | 195 | 0.014 | 0.018 | 0.021 | 0.024 |
| | | 225 - 275 | 140 | 210 | 180 | 0.014 | 0.018 | 0.021 | 0.024 |
| | | 275 - 325 | 130 | 195 | 170 | 0.012 | 0.016 | 0.019 | 0.022 |
| P | Alloy Steel 4140, 5140, 8640, etc. | 125 - 175 | 150 | 210 | 195 | 0.014 | 0.017 | 0.019 | 0.022 |
| | | 175 - 225 | 140 | 195 | 180 | 0.014 | 0.017 | 0.019 | 0.022 |
| | | 225 - 275 | 130 | 180 | 170 | 0.014 | 0.017 | 0.019 | 0.022 |
| | | 275 - 325 | 120 | 170 | 155 | 0.012 | 0.015 | 0.017 | 0.020 |
| | | 325 - 375 | 110 | 155 | 145 | 0.012 | 0.015 | 0.017 | 0.020 |
| P | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 300 | 80 | 110 | 100 | 0.010 | 0.014 | 0.017 | 0.020 |
| | | 300 - 350 | 60 | 85 | 80 | 0.010 | 0.014 | 0.017 | 0.020 |
| | | 350 - 400 | 50 | 70 | 65 | 0.009 | 0.012 | 0.015 | 0.018 |
| P | Structural Steel A36, A285, A516, etc. | 100 - 150 | 140 | 200 | 180 | 0.014 | 0.018 | 0.021 | 0.026 |
| | | 150 - 250 | 120 | 170 | 155 | 0.012 | 0.016 | 0.019 | 0.024 |
| | | 250 - 350 | 100 | 140 | 130 | 0.010 | 0.014 | 0.017 | 0.020 |
| P | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | 80 | 110 | 105 | 0.010 | 0.012 | 0.015 | 0.017 |
| | | 200 - 250 | 60 | 90 | 85 | 0.010 | 0.012 | 0.015 | 0.017 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | 30 | 40 | 35 | 0.010 | 0.012 | 0.015 | - |
| | | 220 - 310 | 25 | 35 | 30 | 0.008 | 0.010 | 0.012 | - |
| M | Stainless Steel 303, 416, 420, 17-4 PH, etc. | 135 - 185 | 75 | 105 | 95 | 0.011 | 0.014 | 0.016 | 0.020 |
| | | 185 - 275 | 60 | 90 | 80 | 0.010 | 0.012 | 0.014 | 0.018 |
| K | Cast Iron | 120 - 150 | 170 | 250 | 220 | 0.020 | 0.024 | 0.027 | 0.030 |
| | | 150 - 200 | 150 | 225 | 195 | 0.018 | 0.022 | 0.025 | 0.028 |
| | | 200 - 220 | 130 | 195 | 170 | 0.016 | 0.018 | 0.021 | 0.024 |
| | | 220 - 260 | 110 | 165 | 145 | 0.012 | 0.014 | 0.017 | 0.020 |
| | | 260 - 320 | 90 | 135 | 120 | 0.009 | 0.012 | 0.014 | 0.016 |
| N | Aluminum | 30 | 600 | 850 | 750 | 0.020 | 0.022 | 0.025 | 0.025 |
| | | 180 | 300 | 450 | 400 | 0.018 | 0.022 | 0.025 | 0.025 |

Deep Hole Drilling Speed and Feed Adjustment

| | Holder Length | |
|-------|---------------|------|
| | Long | XL |
| Speed | 0.90 | 0.80 |
| Feed | - | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.016 IPR for a standard length holder, then the speed and feed using an XL holder in the same application would be 160 SFM and 0.014 IPR.

| | |
|------------------------------------|--|
| $200 \cdot 0.80 = 160 \text{ SFM}$ | $0.016 \cdot 0.90 = 0.014 \text{ IPR}$ |
|------------------------------------|--|

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short length holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Refer to page A40: 48 for Deep Hole Drilling Guidelines. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation chart for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

Coolant Recommendations | Imperial (inch)

High Performance Spade Inserts

| ISO | Material | Data Metrics | Data by Diameter | | | |
|---|---|------------------------------------|------------------|-------------|-----------|-----------|
| | | | 1" - 1-1/4" | 1-1/4" - 2" | 2" - 3" | 3" - 5" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | Hardness (BHN) | 100 - 250 | 100 - 250 | 100 - 250 | 100 - 250 |
| | | Coolant Pressure (PSI) | 105 - 150 | 55 - 75 | 45 - 60 | 35 - 45 |
| | | Coolant Volumetric Flow Rate (GPM) | 6.3 - 7.6 | 15 - 18 | 31 - 36 | 47 - 53 |
| | Low-Carbon Steel | Hardness (BHN) | 85 - 275 | 85 - 275 | 85 - 275 | 85 - 275 |
| | | Coolant Pressure (PSI) | 80 - 115 | 45 - 55 | 35 - 45 | 30 - 35 |
| | | Coolant Volumetric Flow Rate (GPM) | 5.5 - 6.6 | 14 - 15 | 28 - 31 | 43 - 46 |
| | Medium-Carbon Steel | Hardness (BHN) | 125 - 325 | 125 - 325 | 125 - 325 | 125 - 325 |
| | | Coolant Pressure (PSI) | 70 - 100 | 40 - 50 | 35 - 40 | 30 - 35 |
| | | Coolant Volumetric Flow Rate (GPM) | 5.2 - 6.2 | 13 - 15 | 28 - 30 | 43 - 46 |
| | Alloy Steel | Hardness (BHN) | 125 - 375 | 125 - 375 | 125 - 375 | 125 - 375 |
| | | Coolant Pressure (PSI) | 60 - 85 | 30 - 40 | 30 - 35 | 25 - 30 |
| | | Coolant Volumetric Flow Rate (GPM) | 4.8 - 5.7 | 11 - 13 | 26 - 28 | 39 - 43 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | Hardness (BHN) | 225 - 400 | 225 - 400 | 225 - 400 | 225 - 400 |
| | | Coolant Pressure (PSI) | 25 - 30 | 20 - 25 | 20 - 25 | 20 - 25 |
| | | Coolant Volumetric Flow Rate (GPM) | 3.1 - 3.4 | 9 - 10 | 21 - 23 | 35 - 39 |
| | Structural Steel A36, A285, A516, etc. | Hardness (BHN) | 100 - 350 | 100 - 350 | 100 - 350 | 100 - 350 |
| | | Coolant Pressure (PSI) | 50 - 70 | 30 - 35 | 25 - 30 | 25 - 30 |
| | | Coolant Volumetric Flow Rate (GPM) | 4.4 - 5.2 | 11 - 12 | 23 - 26 | 39 - 43 |
| Tool-Steel H-13, H-21, A-4, O-2, S-3, etc. | Hardness (BHN) | 150 - 250 | 150 - 250 | 150 - 250 | 150 - 250 | |
| | Coolant Pressure (PSI) | 25 - 30 | 20 - 25 | 20 - 25 | 20 - 25 | |
| | Coolant Volumetric Flow Rate (GPM) | 3.1 - 3.4 | 9 - 10 | 21 - 23 | 35 - 43 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | Hardness (BHN) | 140 - 310 | 140 - 310 | 140 - 310 | 140 - 310 |
| | | Coolant Pressure (PSI) | 35 - 40 | 25 - 30 | 25 - 30 | - |
| | | Coolant Volumetric Flow Rate (GPM) | 3.6 - 3.9 | 10 - 11 | 23 - 26 | - |
| M | Stainless Steel 303, 416, 420, 17-4 PH, etc. | Hardness (BHN) | 135 - 275 | 135 - 275 | 135 - 275 | 135 - 275 |
| | | Coolant Pressure (PSI) | 50 - 65 | 30 - 35 | 25 - 30 | 25 - 30 |
| | | Coolant Volumetric Flow Rate (GPM) | 4.4 - 5.0 | 11 - 12 | 23 - 26 | 39 - 43 |
| K | Cast Iron | Hardness (BHN) | 120 - 320 | 120 - 320 | 120 - 320 | 120 - 320 |
| | | Coolant Pressure (PSI) | 40 - 50 | 25 - 30 | 25 - 30 | 20 - 25 |
| | | Coolant Volumetric Flow Rate (GPM) | 3.9 - 4.4 | 10 - 11 | 23 - 26 | 35 - 43 |
| N | Aluminum | Hardness (BHN) | 30 - 180 | 30 - 180 | 30 - 180 | 30 - 180 |
| | | Coolant Pressure (PSI) | 150 - 220 | 80 - 115 | 60 - 80 | 55 - 70 |
| | | Coolant Volumetric Flow Rate (GPM) | 7.6 - 9.1 | 19 - 22 | 36 - 42 | 59 - 66 |

Deep Hole Drilling Speed and Feed Adjustment

| Pressure and Flow | Holder Length | |
|-------------------|---------------|----|
| | Long | XL |
| | 1.3 | 2 |

Recommended Speed and Feed Example

If the recommended pressure and flow is 150 PSI and 6.3 GPM for a standard length holder, then the adjusted pressure and flow using an XL holder in the same application would be 300 PSI and 12.6 GPM.

| | |
|---------------------------------|----------------------------------|
| $150 \cdot 2 = 300 \text{ PSI}$ | $6.3 \cdot 2 = 12.6 \text{ GPM}$ |
|---------------------------------|----------------------------------|

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short length holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Refer to page A40: 48 for Deep Hole Drilling Guidelines. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The coolant pressure and flow rate recommendation below represents a good approximation to obtain optimum tool life and chip evacuation at the recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the HP/Universal drilling system will still function at reduced penetration rates. Contact our Application Engineering department for more specific recommendations of coolant requirements and/or speeds and feeds.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS



Recommended Cutting Data | Imperial (inch)

Universal Spade Inserts

| ISO | Material | Hardness (BHN) | SFM | Feed Rate (IPR) by Diameter | | | |
|--|---|----------------|-------|-----------------------------|-------------|---------|---------|
| | | | | 1" - 1-1/4" | 1-1/4" - 2" | 2" - 3" | 3" - 5" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | 100 | 0.014 | 0.016 | 0.020 | 0.024 |
| | | 150 - 200 | 90 | 0.013 | 0.015 | 0.019 | 0.022 |
| | | 200 - 250 | 80 | 0.012 | 0.014 | 0.018 | 0.020 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | 80 | 0.012 | 0.015 | 0.018 | 0.020 |
| | | 125 - 175 | 75 | 0.012 | 0.014 | 0.017 | 0.020 |
| | | 175 - 225 | 60 | 0.010 | 0.014 | 0.016 | 0.018 |
| | | 225 - 275 | 55 | 0.010 | 0.013 | 0.016 | 0.018 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | 65 | 0.010 | 0.014 | 0.018 | 0.020 |
| | | 175 - 225 | 60 | 0.010 | 0.014 | 0.016 | 0.020 |
| | | 225 - 275 | 50 | 0.008 | 0.013 | 0.016 | 0.018 |
| | | 275 - 325 | 45 | 0.008 | 0.012 | 0.014 | 0.016 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 175 | 60 | 0.010 | 0.014 | 0.018 | 0.020 |
| 175 - 225 | | 55 | 0.010 | 0.014 | 0.016 | 0.020 | |
| 225 - 275 | | 45 | 0.008 | 0.013 | 0.016 | 0.018 | |
| 275 - 325 | | 35 | 0.008 | 0.012 | 0.014 | 0.016 | |
| 325 - 375 | | 30 | 0.008 | 0.012 | 0.014 | 0.016 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 300 | 40 | 0.008 | 0.012 | 0.014 | 0.016 | |
| | 300 - 350 | 30 | 0.006 | 0.010 | 0.014 | 0.016 | |
| | 350 - 400 | 25 | 0.006 | 0.008 | 0.014 | 0.016 | |
| Structural Steel A36, A285, A516, etc. | 100 - 150 | 70 | 0.012 | 0.016 | 0.018 | 0.020 | |
| | 150 - 250 | 60 | 0.010 | 0.014 | 0.016 | 0.018 | |
| | 250 - 350 | 50 | 0.008 | 0.012 | 0.014 | 0.016 | |
| Tool-Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | 50 | 0.009 | 0.011 | 0.014 | 0.016 | |
| | 200 - 250 | 40 | 0.008 | 0.010 | 0.013 | 0.015 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | 20 | 0.008 | 0.010 | 0.012 | - |
| | | 220 - 310 | 15 | 0.007 | 0.009 | 0.011 | - |
| M | Stainless Steel 303, 416, 420, 17-4 PH, etc. | 135 - 185 | 45 | 0.008 | 0.012 | 0.015 | 0.018 |
| | | 185 - 275 | 35 | 0.007 | 0.010 | 0.013 | 0.016 |
| K | Cast Iron | 120 - 150 | 100 | 0.016 | 0.020 | 0.022 | 0.025 |
| | | 150 - 200 | 80 | 0.015 | 0.018 | 0.020 | 0.022 |
| | | 200 - 220 | 70 | 0.011 | 0.014 | 0.018 | 0.020 |
| | | 220 - 260 | 60 | 0.008 | 0.012 | 0.015 | 0.017 |
| | | 260 - 320 | 45 | 0.008 | 0.010 | 0.012 | 0.014 |
| N | Aluminum | 30 | 275 | 0.018 | 0.026 | 0.032 | 0.042 |
| | | 180 | 200 | 0.018 | 0.026 | 0.032 | 0.042 |

Deep Hole Drilling Speed and Feed Adjustment

| | Holder Length | |
|-------|---------------|------|
| | Long | XL |
| Speed | 0.90 | 0.80 |
| Feed | - | 0.90 |

Recommended Speed and Feed Example

If the recommended speed and feed is 100 SFM and 0.016 IPR for a standard length holder, then the speed and feed using an XL holder in the same application would be 80 SFM and 0.014 IPR.

| | |
|-----------------------------------|--|
| $100 \cdot 0.80 = 80 \text{ SFM}$ | $0.016 \cdot 0.90 = 0.014 \text{ IPR}$ |
|-----------------------------------|--|

⚠️ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short length holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Refer to page A40: 48 for Deep Hole Drilling Guidelines. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation chart for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

Coolant Recommendations | Imperial (inch)

Universal Spade Inserts

| ISO | Material | Data Metrics | Data by Diameter | | | |
|---|---|------------------------------------|------------------|-------------|-----------|-----------|
| | | | 1" - 1-1/4" | 1-1/4" - 2" | 2" - 3" | 3" - 5" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | Hardness (BHN) | 100 - 250 | 100 - 250 | 100 - 250 | 100 - 250 |
| | | Coolant Pressure (PSI) | 40 | 25 | 25 | 20 |
| | | Coolant Volumetric Flow Rate (GPM) | 3.9 | 10 | 23 | 35 |
| | Low-Carbon Steel | Hardness (BHN) | 85 - 275 | 85 - 275 | 85 - 275 | 85 - 275 |
| | | Coolant Pressure (PSI) | 30 | 20 | 20 | 20 |
| | | Coolant Volumetric Flow Rate (GPM) | 3.4 | 9 | 21 | 35 |
| | Medium-Carbon Steel | Hardness (BHN) | 125 - 325 | 125 - 325 | 125 - 325 | 125 - 325 |
| | | Coolant Pressure (PSI) | 25 | 20 | 20 | 20 |
| | | Coolant Volumetric Flow Rate (GPM) | 3.1 | 9 | 21 | 35 |
| | Alloy Steel | Hardness (BHN) | 125 - 375 | 125 - 375 | 125 - 375 | 125 - 375 |
| | | Coolant Pressure (PSI) | 20 | 20 | 20 | 20 |
| | | Coolant Volumetric Flow Rate (GPM) | 2.8 | 9 | 21 | 35 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | Hardness (BHN) | 225 - 400 | 225 - 400 | 225 - 400 | 225 - 400 |
| | | Coolant Pressure (PSI) | 25 | 20 | 20 | 20 |
| | | Coolant Volumetric Flow Rate (GPM) | 3.1 | 9 | 21 | 35 |
| | Structural Steel A36, A285, A516, etc. | Hardness (BHN) | 100 - 350 | 100 - 350 | 100 - 350 | 100 - 350 |
| | | Coolant Pressure (PSI) | 25 | 20 | 20 | 20 |
| | | Coolant Volumetric Flow Rate (GPM) | 3.1 | 9 | 21 | 35 |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | Hardness (BHN) | 150 - 250 | 150 - 250 | 150 - 250 | 150 - 250 | |
| | Coolant Pressure (PSI) | 25 | 20 | 20 | 20 | |
| | Coolant Volumetric Flow Rate (GPM) | 3.1 | 9 | 21 | 35 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | Hardness (BHN) | 140 - 310 | 140 - 310 | 140 - 310 | 140 - 310 |
| | | Coolant Pressure (PSI) | 25 | 20 | 20 | 20 |
| | | Coolant Volumetric Flow Rate (GPM) | 3.1 | 9 | 21 | 35 |
| M | Stainless Steel 303, 416, 420, 17-4 PH, etc. | Hardness (BHN) | 135 - 275 | 135 - 275 | 135 - 275 | 135 - 275 |
| | | Coolant Pressure (PSI) | 25 | 25 | 20 | 20 |
| | | Coolant Volumetric Flow Rate (GPM) | 3.1 | 10 | 21 | 35 |
| K | Cast Iron | Hardness (BHN) | 120 - 320 | 120 - 320 | 120 - 320 | 120 - 320 |
| | | Coolant Pressure (PSI) | 25 | 20 | 20 | 20 |
| | | Coolant Volumetric Flow Rate (GPM) | 3.1 | 9 | 21 | 35 |
| N | Aluminum | Hardness (BHN) | 30 - 180 | 30 - 180 | 30 - 180 | 30 - 180 |
| | | Coolant Pressure (PSI) | 55 | 35 | 30 | 30 |
| | | Coolant Volumetric Flow Rate (GPM) | 4.6 | 12 | 26 | 40 |

Deep Hole Drilling Speed and Feed Adjustment

| | Holder Length | |
|-------------------|---------------|----|
| | Long | XL |
| Pressure and Flow | 1.3 | 2 |

Recommended Speed and Feed Example

If the recommended pressure and flow is 150 PSI and 6.3 GPM for a standard length holder, then the adjusted pressure and flow using an XL holder in the same application would be 300 PSI and 12.6 GPM.

| | |
|---------------------------------|----------------------------------|
| $150 \cdot 2 = 300 \text{ PSI}$ | $6.3 \cdot 2 = 12.6 \text{ GPM}$ |
|---------------------------------|----------------------------------|

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short length holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Refer to page A40: 48 for Deep Hole Drilling Guidelines. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The coolant pressure and flow rate recommendation below represents a good approximation to obtain optimum tool life and chip evacuation at the recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the HP/Universal drilling system will still function at reduced penetration rates. Contact our Application Engineering department for more specific recommendations of coolant requirements and/or speeds and feeds.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS



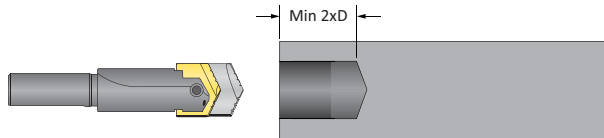
Deep Hole Drilling Guidelines

A

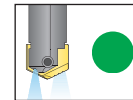
DRILLING

- 1. Pilot Hole**
100% RPM
100% IPR (mm/rev)

Establish the pilot hole using the same diameter short drill to a depth of 2xD minimum. Utilize a pilot drill with the same or larger included point angle.



Coolant ON

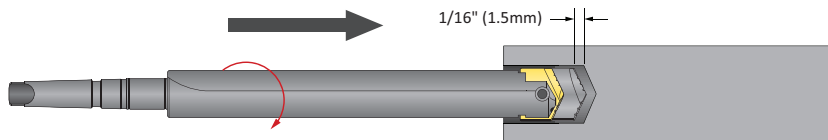


B

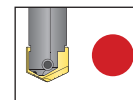
BORING

- 2. Feed-in**
50 RPM max
12 IPM (300 mm/min)

Feed the longer drill within 1/16" (1.5mm) short of the established pilot hole bottom at a **maximum of 50 RPM** and 12 IPM (300 mm/min) feed rate.



Coolant OFF

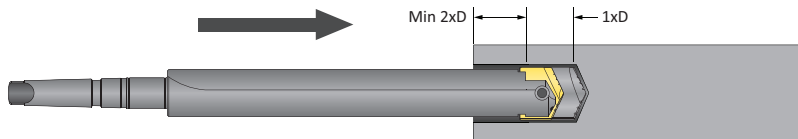


C

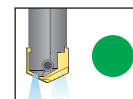
REAMING

- 3. Deep Hole Transition Drilling**
50% RPM
75% IPR (mm/rev)

Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed. Minimum of 1 second dwell is required to meet full speed before feeding.



Coolant ON

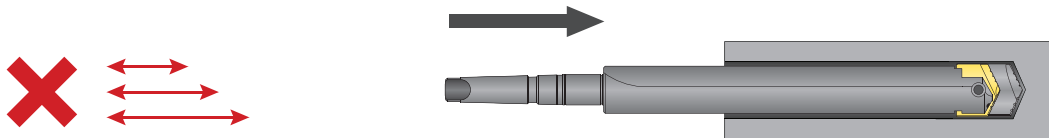


D

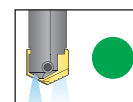
BURNISHING

- 4. Deep Hole Drilling - Blind**
100% RPM
100% IPR (mm/rev)

Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts. **No peck cycle recommended.**



Coolant ON

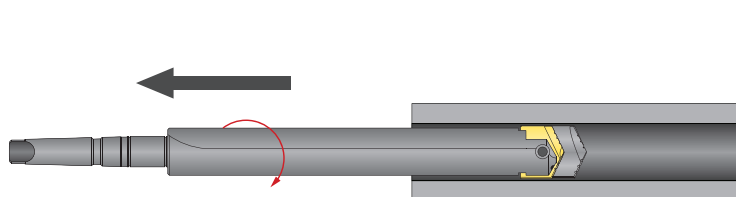


E

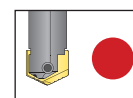
THREADING

- 6. Drill Retract**
50 RPM max

Reduce speed to a **maximum of 50 RPM** before retracting from the hole.



Coolant OFF



X

SPECIALS

1. WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short length holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

SECTION

A50

APX™ Drill

APX™ Drill

Deep Hole / Large Diameter Drilling System

▶ Diameter Range: 1.299" - 4.000" (33.00 mm - 101.60 mm)

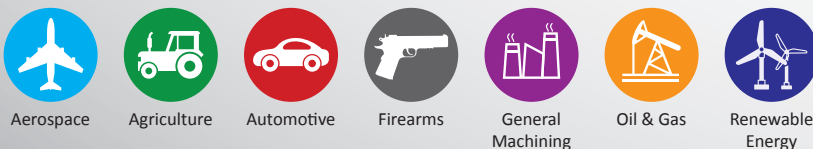


Don't Let Your Machine Slow You Down

The APX deep hole/large diameter drilling system delivers the strength and versatility needed for any deep hole drilling application. The breakthrough geometry is designed to increase penetration rates and tool life. By allowing for higher spindle speeds, the APX lets you take advantage of the power curve on modern CNC machines.

| | | |
|------------------------|--|---|
| Excellent chip control | Improves hole quality and surface finish | Provides maximum durability and stability |
|------------------------|--|---|

Applicable Industries



Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

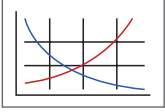
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



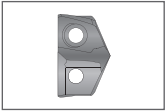
Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



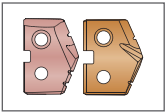
Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling



GEN3SYS® Pilot Inserts

Lists the GEN3SYS XT Pro pilot ISO insert options for each APX drill series



T-A® Pilot Inserts

Lists the T-A® and GEN2 T-A® pilot insert options for each APX Drill series



Coolant-Through Option

Indicates that the product is coolant through

| Series | Diameter Range | |
|--------|-----------------|----------------|
| | Imperial (inch) | Metric (mm) |
| 33 | 1.299 - 1.496 | 33.00 - 37.99 |
| 38 | 1.496 - 1.732 | 38.00 - 43.99 |
| 44 | 1.732 - 2.008 | 44.00 - 50.99 |
| 51 | 2.008 - 2.244 | 51.00 - 56.99 |
| 57 | 2.244 - 2.480 | 57.00 - 62.99 |
| 63 | 2.480 - 2.756 | 63.00 - 69.99 |
| 70 | 2.756 - 2.992 | 70.00 - 75.99 |
| 76 | 2.992 - 3.268 | 76.00 - 82.99 |
| 83 | 3.268 - 3.504 | 83.00 - 88.99 |
| 89 | 3.504 - 3.740 | 89.00 - 94.99 |
| 95 | 3.740 - 4.000 | 95.00 - 101.60 |

Introduction Information

Drill Selection Guide / Assembly Details 2 - 3
 Pilot Insert Options / Details 4
 Product Nomenclature 5
















Drill Series

33 Series 6 - 7
 38 Series 8 - 9
 44 Series 10 - 11
 51 Series 12 - 13
 57 Series 14 - 15
 63 Series 16 - 17
 70 Series 18 - 19
 76 Series 20 - 21
 83 Series 22 - 23
 89 Series 24 - 25
 95 Series 26 - 27

Recommended Cutting Data

Imperial (inch) 28
 Metric (mm) 29
 Deep Hole Drilling Guidelines 30

Drill Selection Guide

| Series | 33 | 38 | 44 | 51 | 57 |
|-----------------------|---|---|---|---|---|
| |  |  |  |  |  |
| Page | 6 - 7 | 8 - 9 | 10 - 11 | 12 - 13 | 14 - 15 |
| D ₅ inch | 1.299 - 1.496 | 1.496 - 1.732 | 1.732 - 2.008 | 2.008 - 2.244 | 2.244 - 2.480 |
| D ₅ mm | 33.00 - 37.99 | 38.00 - 43.99 | 44.00 - 50.99 | 51.00 - 56.99 | 57.00 - 62.99 |
| ISO Material |  |  |  |  |  |
| IC Insert Shape |  |  |  |  |  |
| IC Insert Size (inch) | 5/16" | 3/8" | 3/8", 1/2" | 1/2", 9/16" | 9/16" |
| IC Insert Size (mm) | 7.94 | 9.53 | 9.53, 12.70 | 12.70, 14.29 | 14.29 |
| Wear Pads | NO | NO | NO | NO | NO |
| Holders | | | | | |
| Drill Depth (inch) | 4-7/16 - 14-29/32 | 5-1/8 - 17-1/4 | 6 - 20-1/8 | 6-3/8 - 22-3/8 | 7-1/8 - 24-3/4 |
| Drill Depth (mm) | 112.6 - 378.6 | 130.5 - 439.9 | 151.5 - 510.0 | 161.8 - 570.0 | 179.9 - 626.9 |
| Pilot Insert | | | | | |
| T-A Series | 0, 1 | 0, 1 | 1 | 1 | 1, 2 |
| GEN3SYS XT Pro Series | - | 15, 17, 18, 20 | 17, 18, 22 | 18, 20, 22 | 22, 24, 26 |



T-A® Style Pilot Insert Head

- Utilizes both T-A Pro and T-A inserts (0 - 2 series)
- Multiple geometry options are available to achieve optimal results in different types of applications



GEN3SYS® XT Style Pilot Insert Head

- Utilizes GEN3SYS XT Pro inserts (15 - 32 series)
- ISO geometry options are available to achieve optimal results in different types of applications



IC Insert AM300®

- The design allows for excellent chip control and aggressive penetration rates
- The proprietary AM300 coatings increase tool life above competitors' premium coatings

Insert Application Recommendations

Carbide Grade Options

| | |
|----------|--|
| C5 (P35) | General purpose carbide grade suitable for most applications. ▶ <i>Common application in steels and stainless steels.</i> |
| C1 (K35) | Toughest carbide grade. Provides the best combination of edge strength and tool life. ▶ <i>Recommended for less rigid applications.</i> |
| C2 (K25) | Higher wear-resistant carbide suitable for abrasive material applications. ▶ <i>Recommended for grey, ductile, and nodular irons.</i> |

Additional Geometry Option

| | |
|----------------|--|
| High Rake (HR) | Provides superior chip control and tool life in long-chipping carbon and alloy steels below 200 Bhn. |
|----------------|--|



Flanged Straight Shank



CAT40 / CAT50 Integral Shank

| 63 | 70 | 76 | 83 | 89 | 95 |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| 16 - 17 | 18 - 19 | 20 - 21 | 22 - 23 | 24 - 25 | 26 - 27 |
| 2.480 - 2.756 | 2.756 - 2.992 | 2.992 - 3.268 | 3.268 - 3.504 | 3.504 - 3.740 | 3.740 - 4.000 |
| 63.00 - 69.99 | 70.00 - 75.99 | 76.00 - 82.99 | 83.00 - 88.99 | 89.00 - 94.99 | 95.00 - 101.60 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 9/16" | 3/8" | 1/2" | 1/2" | 9/16" | 9/16" |
| 14.29 | 9.53 | 12.70 | 12.70 | 14.29 | 14.29 |
| NO | YES | YES | YES | YES | YES |
| 7-7/8 - 27-1/8 | 8-3/4 - 27-7/8 | 9-1/2 - 26-1/8 | 10-1/8 - 27-3/4 | 10-7/8 - 27-5/8 | 11-7/8 - 27-1/2 |
| 200.8 - 688.3 | 218.8 - 709.4 | 239.9 - 664.0 | 257.8 - 704.9 | 275.8 - 701.8 | 302.0 - 698.5 |
| 2 | 2 | 2 | 2 | 2 | 2 |
| 26, 29, 32 | 29 | 29 | 32 | 29 | 32 |



Step 1:

Lower the APX head assembly onto the APX holder.

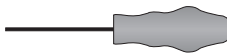

Step 2:

Insert the head mounting screws into points A and B. Tighten until the head is properly secured to the holder.

Step 3:

Tighten with the head mounting driver using the torque setting chart below.

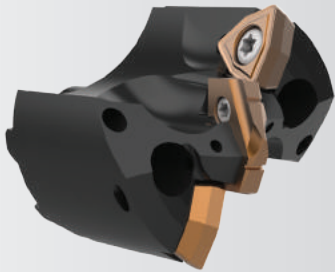
Torque Setting Chart

| Series | Screw | Driver | Torque |
|---------|--------------|--|-----------------------|
| 33 - 63 | 75020-IP20-1 |  8IP-20 | 60 in-lb (678 N-cm) |
| 70 - 95 | 78027-IP30-1 |  8IP-30B | 250 in-lb (2825 N-cm) |

Pilot Insert Options

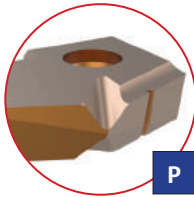
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Pilot Inserts



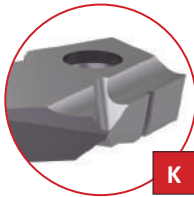
T-A Pro P - Steels

- Designed to provide increased penetration rates and tool life in steel applications
- Superior geometry and edge provides excellent chip control
- Allied's multilayer AM300® coating increases heat resistance and improves tool life



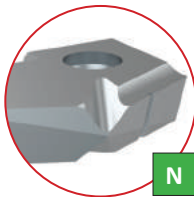
T-A Pro K - Cast Irons

- Uniquely designed for cast/ductile iron applications
- Geometry developed for maximum tool life, reduced exit burr, and improved hole finish
- Allied's multilayer TiAlN coating provides increased abrasion resistance and tool life



T-A Pro N - Nonferrous Materials

- Designed for applications in aluminum, brass, and copper
- The geometry yields excellent chip control in these softer materials
- TiCN coating gives the versatility to run in a variety of materials while reducing buildup



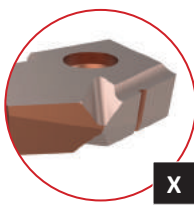
T-A Pro M - Stainless Steel

- Designed for all stainless steels and heat-resistant super alloys
- Geometry optimized for improved chip formation while minimizing exit burr
- Allied's new AM460 coating provides industry leading tool life in stainless and HRSA materials



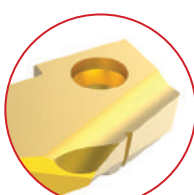
T-A Pro X - High-Speed Steel Materials

- Improved chip geometry for excellent chip control in all materials
- Long tool life and high-process security for the most challenging applications
- Allied's multilayer AM200® coating combines excellent heat resistance and high lubricity for wide application use



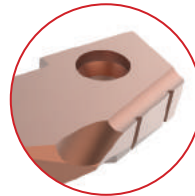
T-A Standard

- Excellent choice for general purpose use
- Provides fast penetration rates that produce good hole size and finish
- Combines highly efficient, stable cutting action to minimize power consumption



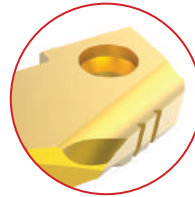
T-A Tiny Chip (-TC)

- Unique lip and point design for excellent chip control
- Improved capabilities in long-chipping materials such as low-carbon steels and soft alloy steels
- Enhanced performance in lower-powered machines for better chip formation at lower feed rates

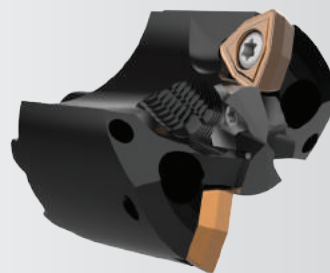


T-A High Impact (-HI)

- Designed to enhance chip formation in materials with high elasticity/ductility and poor chip forming characteristics
- SK2 corner preparation for increased tool life
- Improves chip formation in structural, cast, and forged steels

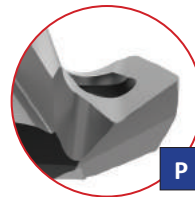


GEN3SYS® XT Pro Pilot Inserts



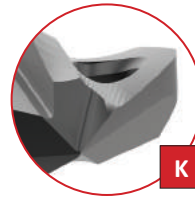
P - Steels

- Designed to provide increased penetration rates and tool life in steel applications
- Superior geometry and edge provides excellent chip control
- Allied's multilayer AM420 coating increases heat resistance and improves tool life



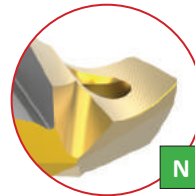
K - Cast Irons

- Uniquely designed for cast/nodular iron applications
- Geometry includes a corner radius for improved hole finish and heat dispersion
- Allied's multilayer AM440 coating provides increased abrasion resistance and tool life



N - Nonferrous Materials

- Designed for applications in aluminum, brass, and copper
- The geometry yields excellent chip control in these softer materials
- TiN coating gives the versatility to run in a variety of materials while reducing buildup

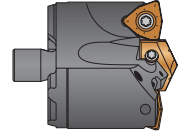


NOTE: For a complete offering of pilot inserts, see sections **A20** (GEN3SYS Drilling Systems), **A25** (T-A Pro Drilling Systems) and **A30** (T-A Drilling Systems) of our catalog.

Product Nomenclature

APX Drill Heads

| | | | | | |
|----------|-----------|-----------|----------|---|-------------|
| V | 38 | 15 | D | - | 0116 |
| 1 | 2 | 3 | 4 | | 5 |



| 1. APX Head | 2. Series | 3. Pilot Series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|---|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--|---|-------------------|------------------------------|--|---------------|----------------|----------------|---------------|----------------|----------------|---------------|----------------|----------------|--|----------------|----------------|--|----------------|--|
| V = Head | <table border="0"> <tr> <td>33 = 33 series</td> <td>70 = 70 series</td> </tr> <tr> <td>38 = 38 series</td> <td>76 = 76 series</td> </tr> <tr> <td>44 = 44 series</td> <td>83 = 83 series</td> </tr> <tr> <td>51 = 51 series</td> <td>89 = 89 series</td> </tr> <tr> <td>57 = 57 series</td> <td>95 = 95 series</td> </tr> <tr> <td>63 = 63 series</td> <td></td> </tr> </table> | 33 = 33 series | 70 = 70 series | 38 = 38 series | 76 = 76 series | 44 = 44 series | 83 = 83 series | 51 = 51 series | 89 = 89 series | 57 = 57 series | 95 = 95 series | 63 = 63 series | | <table border="0"> <tr> <th>T-A® Pilot Insert</th> <th colspan="2">GEN3SYS® XT Pro Pilot Insert</th> </tr> <tr> <td>00 = 0 series</td> <td>15 = 15 series</td> <td>24 = 24 series</td> </tr> <tr> <td>01 = 1 series</td> <td>17 = 17 series</td> <td>26 = 26 series</td> </tr> <tr> <td>02 = 2 series</td> <td>18 = 18 series</td> <td>29 = 29 series</td> </tr> <tr> <td></td> <td>20 = 20 series</td> <td>32 = 32 series</td> </tr> <tr> <td></td> <td>22 = 22 series</td> <td></td> </tr> </table> | T-A® Pilot Insert | GEN3SYS® XT Pro Pilot Insert | | 00 = 0 series | 15 = 15 series | 24 = 24 series | 01 = 1 series | 17 = 17 series | 26 = 26 series | 02 = 2 series | 18 = 18 series | 29 = 29 series | | 20 = 20 series | 32 = 32 series | | 22 = 22 series | |
| 33 = 33 series | 70 = 70 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 = 38 series | 76 = 76 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 44 = 44 series | 83 = 83 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 = 51 series | 89 = 89 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 = 57 series | 95 = 95 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 = 63 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T-A® Pilot Insert | GEN3SYS® XT Pro Pilot Insert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00 = 0 series | 15 = 15 series | 24 = 24 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01 = 1 series | 17 = 17 series | 26 = 26 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02 = 2 series | 18 = 18 series | 29 = 29 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 20 = 20 series | 32 = 32 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 22 = 22 series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 4. Effective Cutting | 5. Major Diameter |
|--|--|
| D = Double effective S = Single effective | 0116 = Inch 1.5153 = Decimal 68 = Metric |

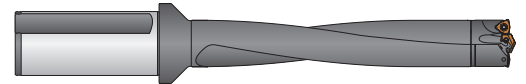
Ordering Nonstocked Diameters:

Non-stocked diameters are also available. Please refer to the price list for applicable process fees. Follow the ordering examples below:

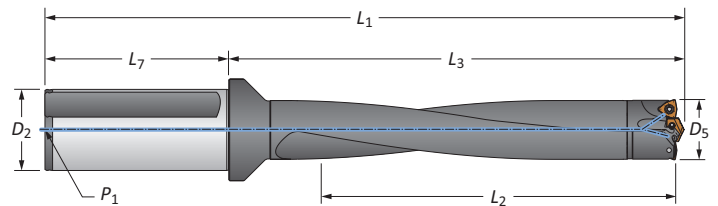
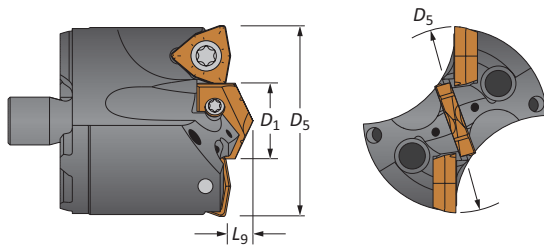
- Inch: 38 series, T-A (1 series), 1.6790" = **V3801D-1.6790**
- Metric: 38 series, T-A (1 series), 42.15 mm = **V3801D-42.15**

APX Drill Holders

| | | | | | |
|----------|-----------|-----------|----------|---|-------------|
| W | 38 | 05 | H | - | 200F |
| 1 | 2 | 3 | 4 | | 5 |



| 1. APX Holder | 2. Series | 3. Drill Length | 4. Flute Style | 5. Shank | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|---|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--|--|----------|----------|----------|-----------|-------------|---|--------------------------------------|----------------------------------|------------------------------------|------------------------------------|-----------------------------|-----------------------------|
| W = Holder | <table border="0"> <tr> <td>33 = 33 series</td> <td>70 = 70 series</td> </tr> <tr> <td>38 = 38 series</td> <td>76 = 76 series</td> </tr> <tr> <td>44 = 44 series</td> <td>83 = 83 series</td> </tr> <tr> <td>51 = 51 series</td> <td>89 = 89 series</td> </tr> <tr> <td>57 = 57 series</td> <td>95 = 95 series</td> </tr> <tr> <td>63 = 63 series</td> <td></td> </tr> </table> | 33 = 33 series | 70 = 70 series | 38 = 38 series | 76 = 76 series | 44 = 44 series | 83 = 83 series | 51 = 51 series | 89 = 89 series | 57 = 57 series | 95 = 95 series | 63 = 63 series | | <table border="0"> <tr> <td>03 = 3xD</td> </tr> <tr> <td>05 = 5xD</td> </tr> <tr> <td>08 = 8xD</td> </tr> <tr> <td>10 = 10xD</td> </tr> </table> | 03 = 3xD | 05 = 5xD | 08 = 8xD | 10 = 10xD | H = Helical | <table border="0"> <tr> <td>150F = 1-1/2" flanged straight shank</td> </tr> <tr> <td>200F = 2" flanged straight shank</td> </tr> <tr> <td>40FM = 40mm flanged straight shank</td> </tr> <tr> <td>50FM = 50mm flanged straight shank</td> </tr> <tr> <td>CV40 = CAT40 integral shank</td> </tr> <tr> <td>CV50 = CAT50 integral shank</td> </tr> </table> | 150F = 1-1/2" flanged straight shank | 200F = 2" flanged straight shank | 40FM = 40mm flanged straight shank | 50FM = 50mm flanged straight shank | CV40 = CAT40 integral shank | CV50 = CAT50 integral shank |
| 33 = 33 series | 70 = 70 series | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 = 38 series | 76 = 76 series | | | | | | | | | | | | | | | | | | | | | | | | | |
| 44 = 44 series | 83 = 83 series | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 = 51 series | 89 = 89 series | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 = 57 series | 95 = 95 series | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 = 63 series | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03 = 3xD | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05 = 5xD | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 08 = 8xD | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 = 10xD | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 150F = 1-1/2" flanged straight shank | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200F = 2" flanged straight shank | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40FM = 40mm flanged straight shank | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50FM = 50mm flanged straight shank | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CV40 = CAT40 integral shank | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CV50 = CAT50 integral shank | | | | | | | | | | | | | | | | | | | | | | | | | | |



Reference Key

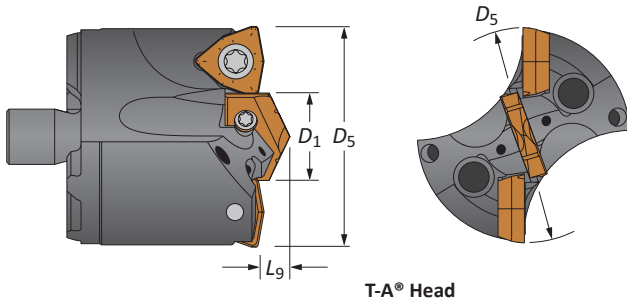
| Symbol | Attribute |
|----------------|------------------------|
| D ₁ | Pilot insert diameter |
| D ₅ | Major cutting diameter |
| L ₉ | Pilot insert length |

Reference Key



| Symbol | Attribute | Symbol | Attribute |
|----------------|----------------------|----------------|-------------------------|
| D ₂ | Shank diameter | L ₃ | Holder reference length |
| D ₅ | Drill diameter range | L ₇ | Shank length |
| L ₁ | Overall length | P ₁ | Rear pipe tap |
| L ₂ | Drill depth | | |

APX Drill Heads

33 Series | Diameter Range: 1.299" - 1.496" (33.00 mm - 37.99 mm)



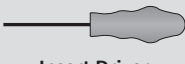


Heads

| Head | | | | | T-A Head | | | | IC Insert Size | |
|---------------------|---------------|-----------------|-------|-------|--------------------|--------------|--|---|----------------|--------|
| D_5 fractional | D_5 inch | D_5 metric | D_1 | L_9 | Part No. | Pilot Series |  |  | inch | metric |
| - | 1.299 | 33.00 | 16 | 1/4 | V3300D-33 | 0 | TA#0-16.00 | 1C10H-16-TC | 5/16 | 7.94 |
| 1-5/16 | 1.313 | 33.34 | 16 | 1/4 | V3300D-0110 | 0 | TA#0-16.00 | 1C10H-16-TC | 5/16 | 7.94 |
| - | 1.339 | 34.00 | 18 | 1/4 | V3301D-34 | 1 | TA#1-18.00 | 1C11H-18-TC | 5/16 | 7.94 |
| 1-11/32 | 1.344 | 34.13 | 18 | 1/4 | V3301D-0111 | 1 | TA#1-18.00 | 1C11H-18-TC | 5/16 | 7.94 |
| 1-3/8 | 1.375 | 34.93 | 18 | 1/4 | V3301D-0112 | 1 | TA#1-18.00 | 1C11H-18-TC | 5/16 | 7.94 |
| - | 1.378 | 35.00 | 18 | 1/4 | V3301D-35 | 1 | TA#1-18.00 | 1C11H-18-TC | 5/16 | 7.94 |
| 1-13/32 | 1.406 | 35.72 | 18 | 1/4 | V3301D-0113 | 1 | TA#1-18.00 | 1C11H-18-TC | 5/16 | 7.94 |
| - | 1.417 | 36.00 | 20 | 1/4 | V3301D-36 | 1 | TA#1-20.00 | 1C11H-20-TC | 5/16 | 7.94 |
| 1-7/16 | 1.438 | 36.51 | 20 | 1/4 | V3301D-0114 | 1 | TA#1-20.00 | 1C11H-20-TC | 5/16 | 7.94 |
| - | 1.457 | 37.00 | 20 | 1/4 | V3301D-37 | 1 | TA#1-20.00 | 1C11H-20-TC | 5/16 | 7.94 |
| 1-15/32 | 1.469 | 37.31 | 20 | 1/4 | V3301D-0115 | 1 | TA#1-20.00 | 1C11H-20-TC | 5/16 | 7.94 |



#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

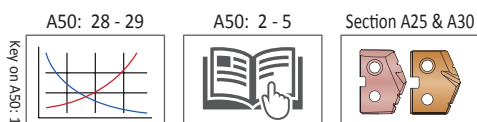
| Coating | Size | | Grade | Geometry |  Part No. |  Insert Screw |  Insert Driver | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|---|---|--|----------------------------------|
| | inch | metric | | | | | | |
| AM300® | 5/16 | 7.94 | C5 (P35) | Standard | OP-05T308-PW | IS-10-1 | 8IP-10 | 27.0 in-lbs (305 N-cm) |
| AM300® | 5/16 | 7.94 | C1 (K35) | Standard | OP-05T308-1PW | IS-10-1 | 8IP-10 | 27.0 in-lbs (305 N-cm) |
| AM300® | 5/16 | 7.94 | C2 (K25) | Standard | OP-05T308-2PW | IS-10-1 | 8IP-10 | 27.0 in-lbs (305 N-cm) |
| AM300® | 5/16 | 7.94 | C5 (P35) | High Rake | OP-05T308-PWHR | IS-10-1 | 8IP-10 | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories

| Pilot Style | Series |  Insert Screws |  Insert Driver | Admissible Tightening Torque* |
|-------------|--------|--|---|----------------------------------|
| T-A | 0 | 72567-IP8-1 | 8IP-8 | 15.5 in-lbs (175 N-cm) |
| T-A | 1 | 7375-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



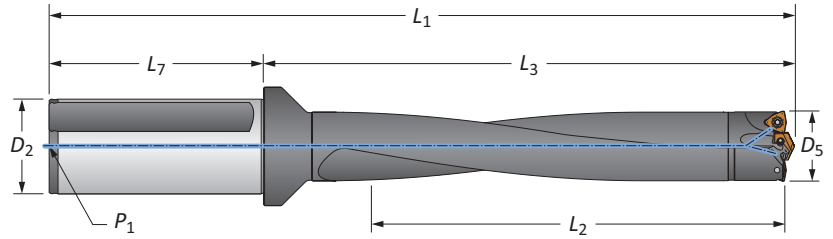
Nonstocked diameters are also available. Follow the examples shown below.

| | | |
|---------------|-------------------------------------|---------------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

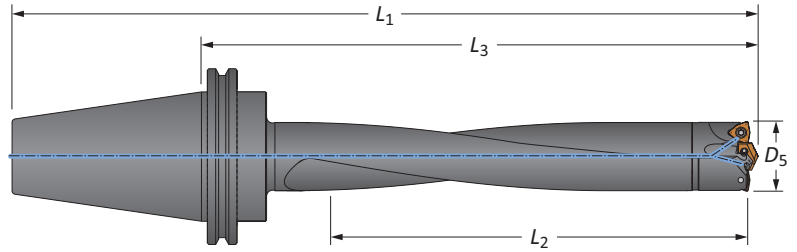
APX Drill Holders

33 Series | Diameter Range: 1.299" - 1.496" (33.00 mm - 37.99 mm)



Straight Shank



| | Length | D ₅ | Body | | | Shank | | | Part No. |
|---|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|
| | | | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | |
| i | 3xD | 1.299 - 1.496 | 4-7/16 | 6-19/32 | 9-9/32 | 2-11/16 | 1-1/2 | 1/4 NPT | W3303H-150F |
| | 5xD | 1.299 - 1.496 | 7-27/64 | 9-37/64 | 12-9/32 | 2-11/16 | 1-1/2 | 1/4 NPT | W3305H-150F |
| | 8xD | 1.299 - 1.496 | 11-59/64 | 14-5/64 | 16-3/4 | 2-11/16 | 1-1/2 | 1/4 NPT | ⚠ W3308H-150F |
| | 10xD | 1.299 - 1.496 | 14-29/32 | 17-1/16 | 19-3/4 | 2-11/16 | 1-1/2 | 1/4 NPT | ⚠ W3310H-150F |
| m | 3xD | 33.00 - 37.99 | 112.60 | 167.49 | 237.49 | 70.00 | 40.00 | 1/4 BSPT | W3303H-40FM |
| | 5xD | 33.00 - 37.99 | 188.60 | 243.41 | 313.41 | 70.00 | 40.00 | 1/4 BSPT | W3305H-40FM |
| | 8xD | 33.00 - 37.99 | 302.60 | 357.40 | 427.40 | 70.00 | 40.00 | 1/4 BSPT | ⚠ W3308H-40FM |
| | 10xD | 33.00 - 37.99 | 378.61 | 433.40 | 503.40 | 70.00 | 40.00 | 1/4 BSPT | ⚠ W3310H-40FM |



CAT Integral Shank

| | Length | D ₅ | | Body | | | Shank | Part No. |
|---|--------|----------------|---------------|----------------|----------------|----------------|-------|---------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | | |
| i | 3xD | 1.299 - 1.496 | 33.00 - 37.99 | 4-7/16 | 7-3/8 | 10-3/16 | CV40 | W3303H-CV40 |
| | 5xD | 1.299 - 1.496 | 33.00 - 37.99 | 7-27/64 | 10-23/64 | 13-11/64 | CV40 | W3305H-CV40 |
| | 8xD | 1.299 - 1.496 | 33.00 - 37.99 | 11-59/64 | 14-55/64 | 17-21/32 | CV40 | ⚠ W3308H-CV40 |
| | 10xD | 1.299 - 1.496 | 33.00 - 37.99 | 14-29/32 | 17-27/32 | 20-21/32 | CV40 | ⚠ W3310H-CV40 |
| | 3xD | 1.299 - 1.496 | 33.00 - 37.99 | 4-7/16 | 7-3/8 | 11-1/2 | CV50 | W3303H-CV50 |
| | 5xD | 1.299 - 1.496 | 33.00 - 37.99 | 7-27/64 | 10-23/64 | 14-31/64 | CV50 | W3305H-CV50 |
| | 8xD | 1.299 - 1.496 | 33.00 - 37.99 | 11-59/64 | 14-55/64 | 18-31/32 | CV50 | ⚠ W3308H-CV50 |
| | 10xD | 1.299 - 1.496 | 33.00 - 37.99 | 14-29/32 | 17-27/32 | 21-31/32 | CV50 | ⚠ W3310H-CV50 |

Connection Accessories

| | | |
|---|---|-------------------------------|
|  |  | Admissible Tightening Torque* |
| 75020-IP20-1 | 8IP-20 | 60 in-lb (678 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

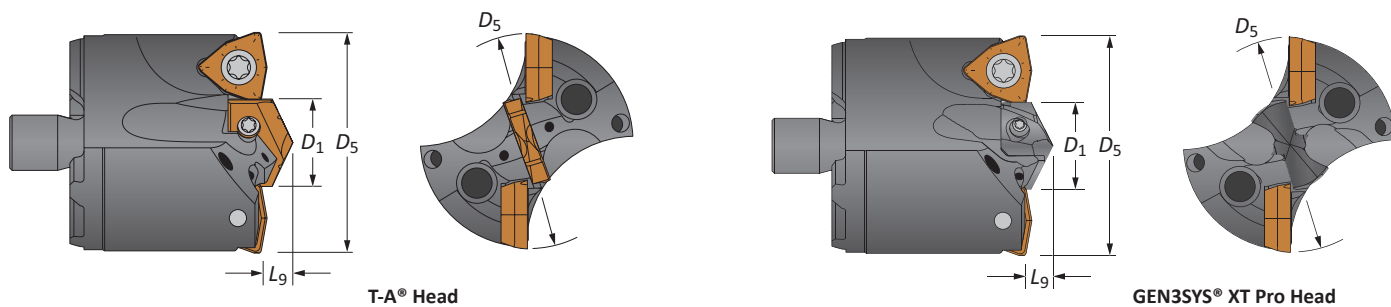
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)




Mounting screws sold in multiples of 4

APX Drill Heads

38 Series | Diameter Range: 1.496" - 1.732" (38.00 mm - 43.99 mm)






Heads

| Head | | | | | T-A Head | | | | GEN3SYS XT Pro Head | | | IC Insert Size | |
|------------------|------------|--------------|-------|-------|--------------------|--------------|--|--|---------------------|--------------|--|----------------|--------|
| D_5 fractional | D_5 inch | D_5 metric | D_1 | L_9 | Part No. | Pilot Series |  T-A Pro Insert |  T-A (-TC) Insert | Part No. | Pilot Series |  Pilot Insert | inch | metric |
| - | 1.496 | 38.00 | 5/8 | 19/64 | V3800D-38 | 0 | TA#0-15.88 | 1C10H-0020-TC | V3815D-38 | 15 | XT#15-15.88 | 3/8 | 9.53 |
| 1-1/2 | 1.500 | 38.10 | 5/8 | 19/64 | V3800D-0116 | 0 | TA#0-15.88 | 1C10H-0020-TC | V3815D-0116 | 15 | XT#15-15.88 | 3/8 | 9.53 |
| 1-17/32 | 1.531 | 38.90 | 5/8 | 19/64 | V3800D-0117 | 0 | TA#0-15.88 | 1C10H-0020-TC | V3815D-0117 | 15 | XT#15-15.88 | 3/8 | 9.53 |
| - | 1.535 | 39.00 | 5/8 | 19/64 | V3800D-39 | 0 | TA#0-15.88 | 1C10H-0020-TC | V3815D-39 | 15 | XT#15-15.88 | 3/8 | 9.53 |
| 1-9/16 | 1.563 | 39.69 | 5/8 | 19/64 | V3800D-0118 | 0 | TA#0-15.88 | 1C10H-0020-TC | V3815D-0118 | 15 | XT#15-15.88 | 3/8 | 9.53 |
| - | 1.575 | 40.00 | 11/16 | 19/64 | V3800D-40 | 0 | TA#0-17.46 | 1C10H-0022-TC | V3817D-40 | 17 | XT#17-17.46 | 3/8 | 9.53 |
| 1-19/32 | 1.594 | 40.48 | 11/16 | 19/64 | V3800D-0119 | 0 | TA#0-17.46 | 1C10H-0022-TC | V3817D-0119 | 17 | XT#17-17.46 | 3/8 | 9.53 |
| - | 1.614 | 41.00 | 11/16 | 19/64 | V3800D-41 | 0 | TA#0-17.46 | 1C10H-0022-TC | V3817D-41 | 17 | XT#17-17.46 | 3/8 | 9.53 |
| 1-5/8 | 1.625 | 41.28 | 11/16 | 19/64 | V3800D-0120 | 0 | TA#0-17.46 | 1C10H-0022-TC | V3817D-0120 | 17 | XT#17-17.46 | 3/8 | 9.53 |
| - | 1.654 | 42.00 | 3/4 | 19/64 | V3801D-42 | 1 | TA#1-19.05 | 1C11H-0024-TC | V3818D-42 | 18 | XT#18-19.05 | 3/8 | 9.53 |
| 1-21/32 | 1.656 | 42.07 | 3/4 | 19/64 | V3801D-0121 | 1 | TA#1-19.05 | 1C11H-0024-TC | V3818D-0121 | 18 | XT#18-19.05 | 3/8 | 9.53 |
| 1-11/16 | 1.688 | 42.86 | 3/4 | 19/64 | V3801D-0122 | 1 | TA#1-19.05 | 1C11H-0024-TC | V3818D-0122 | 18 | XT#18-19.05 | 3/8 | 9.53 |
| - | 1.693 | 43.00 | 13/16 | 19/64 | V3801D-43 | 1 | TA#1-20.64 | 1C11H-0026-TC | V3820D-43 | 20 | XT#20-20.64 | 3/8 | 9.53 |
| 1-23/32 | 1.719 | 43.66 | 13/16 | 19/64 | V3801D-0123 | 1 | TA#1-20.64 | 1C11H-0026-TC | V3820D-0123 | 20 | XT#20-20.64 | 3/8 | 9.53 |



#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

| Coating | Size | | Grade | Geometry |  Part No. |  Insert Screw |  Insert Driver | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|--|--|---|-------------------------------|
| | inch | metric | | | | | | |
| AM300® | 3/8 | 9.53 | C5 (P35) | Standard | OP-060408-PW | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |
| AM300® | 3/8 | 9.53 | C1 (K35) | Standard | OP-060408-1PW | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |
| AM300® | 3/8 | 9.53 | C2 (K25) | Standard | OP-060408-2PW | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |
| AM300® | 3/8 | 9.53 | C5 (P35) | High Rake | OP-060408-PWHR | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |

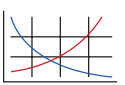
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories


| Pilot Style | Series |  Insert Screws |  Insert Driver | Admissible Tightening Torque* |
|-------------|--------|---|--|-------------------------------|
| T-A | 0 | 72567-IP8-1 | 8IP-8 | 15.5 in-lbs (175 N-cm) |
| T-A | 1 | 7375-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| GEN3SYS | 15 | 7247-IP7-1 | 8IP-7 | 7.4 in-lbs (84 N-cm) |
| GEN3SYS | 17 | 72567-IP8-1 | 8IP-8 | 15.5 in-lbs (175 N-cm) |
| GEN3SYS | 18 | 7375-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| GEN3SYS | 20 | 7375-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength


A50: 28 - 29



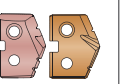
A50: 2 - 5



Section A20



Section A25 & A30



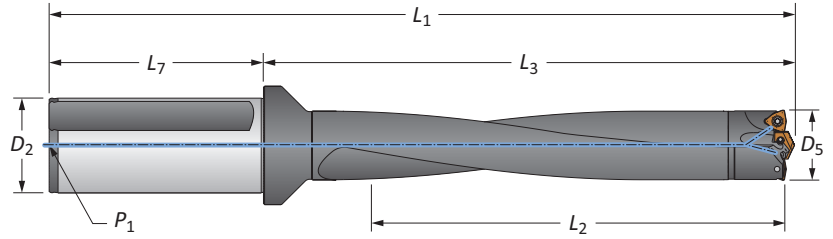
Nonstocked diameters are also available. Follow the examples shown below.

| | | |
|--------|-------------------------------------|---------------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

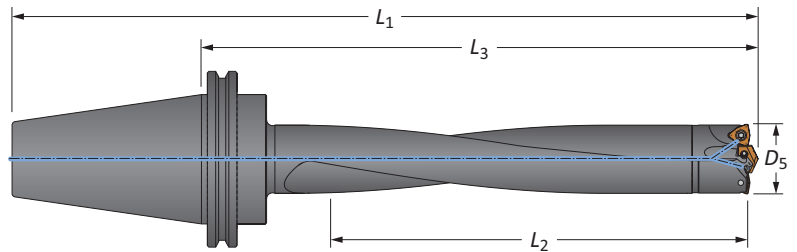
APX Drill Holders

38 Series | Diameter Range: 1.496" - 1.732" (38.00 mm - 43.99 mm)



Straight Shank

| Length | D ₅ | Body | | | Shank | | | Part No. | | |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|-------------|-------------|
| | | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| i | 3xD | 1.496 - 1.732 | 5-1/8 | 7-47/64 | 10-25/64 | 2-11/16 | 1-1/2 | 1/4 NPT | W3803H-150F | |
| | 5xD | 1.496 - 1.732 | 8-5/8 | 11-13/64 | 13-55/64 | 2-11/16 | 1-1/2 | 1/4 NPT | W3805H-150F | |
| | 8xD | 1.496 - 1.732 | 13-7/8 | 16-25/64 | 19-3/64 | 2-11/16 | 1-1/2 | 1/4 NPT | W3808H-150F | |
| | 10xD | 1.496 - 1.732 | 17-1/4 | 19-27/32 | 22-33/64 | 2-11/16 | 1-1/2 | 1/4 NPT | W3810H-150F | |
| | 3xD | 1.496 - 1.732 | 5-1/8 | 7-47/64 | 12-15/64 | 4-1/2 | 2 | 1/4 NPT | W3803H-200F | |
| | 5xD | 1.496 - 1.732 | 8-5/8 | 11-13/64 | 15-45/64 | 4-1/2 | 2 | 1/4 NPT | W3805H-200F | |
| | 8xD | 1.496 - 1.732 | 13-7/8 | 16-25/64 | 20-57/64 | 4-1/2 | 2 | 1/4 NPT | W3808H-200F | |
| | 10xD | 1.496 - 1.732 | 17-1/4 | 19-27/32 | 24-59/64 | 4-1/2 | 2 | 1/4 NPT | W3810H-200F | |
| | m | 3xD | 38.00 - 43.99 | 130.51 | 196.49 | 265.71 | 70.00 | 40.00 | 1/4 BSPT | W3803H-40FM |
| | | 5xD | 38.00 - 43.99 | 219.99 | 284.51 | 353.70 | 70.00 | 40.00 | 1/4 BSPT | W3805H-40FM |
| 8xD | | 38.00 - 43.99 | 351.99 | 416.51 | 485.70 | 70.00 | 40.00 | 1/4 BSPT | W3808H-40FM | |
| 10xD | | 38.00 - 43.99 | 439.90 | 503.91 | 573.71 | 70.00 | 40.00 | 1/4 BSPT | W3810H-40FM | |
| 3xD | | 38.00 - 43.99 | 130.51 | 196.49 | 276.50 | 80.00 | 50.00 | 1/4 BSPT | W3803H-50FM | |
| 5xD | | 38.00 - 43.99 | 219.99 | 284.51 | 364.49 | 80.00 | 50.00 | 1/4 BSPT | W3805H-50FM | |
| 8xD | | 38.00 - 43.99 | 351.99 | 416.51 | 496.99 | 80.00 | 50.00 | 1/4 BSPT | W3808H-50FM | |
| 10xD | | 38.00 - 43.99 | 439.90 | 503.90 | 583.91 | 80.00 | 50.00 | 1/4 BSPT | W3810H-50FM | |



CAT Integral Shank

| Length | D ₅ | | Body | | | Shank | Part No. | |
|--------|----------------|---------------|----------------|----------------|----------------|----------|----------|-------------|
| | inch | mm | L ₂ | L ₃ | L ₁ | | | |
| i | 3xD | 1.496 - 1.732 | 38.00 - 43.99 | 5-1/8 | 8-5/16 | 11 | CV40 | W3803H-CV40 |
| | 5xD | 1.496 - 1.732 | 38.00 - 43.99 | 8-5/8 | 11-49/64 | 14-29/64 | CV40 | W3805H-CV40 |
| | 8xD | 1.496 - 1.732 | 38.00 - 43.99 | 13-7/8 | 16-31/32 | 19-21/32 | CV40 | W3808H-CV40 |
| | 10xD | 1.496 - 1.732 | 38.00 - 43.99 | 17-1/4 | 20-7/16 | 23-1/8 | CV40 | W3810H-CV40 |
| | 3xD | 1.496 - 1.732 | 38.00 - 43.99 | 5-1/8 | 8-5/16 | 12-5/16 | CV50 | W3803H-CV50 |
| | 5xD | 1.496 - 1.732 | 38.00 - 43.99 | 8-5/8 | 11-49/64 | 15-49/64 | CV50 | W3805H-CV50 |
| | 8xD | 1.496 - 1.732 | 38.00 - 43.99 | 13-7/8 | 16-31/32 | 20-31/32 | CV50 | W3808H-CV50 |
| | 10xD | 1.496 - 1.732 | 38.00 - 43.99 | 17-1/4 | 20-7/16 | 24-7/16 | CV50 | W3810H-CV50 |

Connection Accessories

| | | |
|--------------|--------|-------------------------------|
| | | Admissible Tightening Torque* |
| 75020-IP20-1 | 8IP-20 | 60 in-lb (678 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

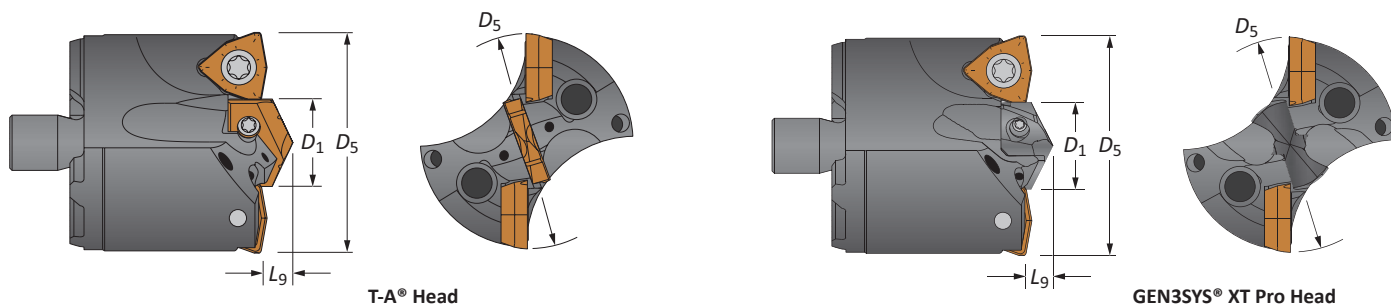
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)




Mounting screws sold in multiples of 4

APX Drill Heads

44 Series | Diameter Range: 1.732" - 2.008" (44.00 mm - 50.99 mm)






Heads

| Head | | | | | T-A Head | | | | GEN3SYS XT Pro Head | | | | IC Insert Size | |
|---------------------------|---------------------|-----------------------|----------------|----------------|-------------|--------------|---|---|---------------------|--------------|---|------|----------------|--|
| D ₅ fractional | D ₅ inch | D ₅ metric | D ₁ | L ₉ | Part No. | Pilot Series |  |  | Part No. | Pilot Series |  | inch | metric | |
| - | 1.732 | 44.00 | 7/8 | 21/64 | V4401D-44 | 1 | TA#1-22.23 | 1C11H-0028-TC | V4422D-44 | 22 | XT#22-22.23 | 3/8 | 9.53 | |
| 1-3/4 | 1.750 | 44.45 | 7/8 | 21/64 | V4401D-0124 | 1 | TA#1-22.23 | 1C11H-0028-TC | V4422D-0124 | 22 | XT#22-22.23 | 3/8 | 9.53 | |
| - | 1.772 | 45.00 | 7/8 | 21/64 | V4401D-45 | 1 | TA#1-22.23 | 1C11H-0028-TC | V4422D-45 | 22 | XT#22-22.23 | 3/8 | 9.53 | |
| 1-25/32 | 1.781 | 45.25 | 7/8 | 21/64 | V4401D-0125 | 1 | TA#1-22.23 | 1C11H-0028-TC | V4422D-0125 | 22 | XT#22-22.23 | 3/8 | 9.53 | |
| - | 1.811 | 46.00 | 15/16 | 21/64 | V4401D-46 | 1 | TA#1-23.81 | 1C11H-0030-TC | V4422D-46 | 22 | XT#22-23.81 | 3/8 | 9.53 | |
| 1-13/16 | 1.813 | 46.04 | 15/16 | 21/64 | V4401D-0126 | 1 | TA#1-23.81 | 1C11H-0030-TC | V4422D-0126 | 22 | XT#22-23.81 | 3/8 | 9.53 | |
| 1-27/32 | 1.844 | 46.83 | 15/16 | 21/64 | V4401D-0127 | 1 | TA#1-23.81 | 1C11H-0030-TC | V4422D-0127 | 22 | XT#22-23.81 | 3/8 | 9.53 | |
| - | 1.850 | 47.00 | 15/16 | 21/64 | V4401D-47 | 1 | TA#1-23.81 | 1C11H-0030-TC | V4422D-47 | 22 | XT#22-23.81 | 3/8 | 9.53 | |
| 1-7/8 | 1.875 | 47.63 | 15/16 | 21/64 | V4401D-0128 | 1 | TA#1-23.81 | 1C11H-0030-TC | V4422D-0128 | 22 | XT#22-23.81 | 3/8 | 9.53 | |
| - | 1.890 | 48.00 | 45/64 | 21/64 | V4401D-48 | 1** | TA#1-17.86 | 1C11H-703-TC | V4417D-48 | 17 | XT#17-17.86 | 1/2 | 12.70 | |
| 1-29/32 | 1.906 | 48.42 | 45/64 | 21/64 | V4401D-0129 | 1** | TA#1-17.86 | 1C11H-703-TC | V4417D-0129 | 17 | XT#17-17.86 | 1/2 | 12.70 | |
| - | 1.929 | 49.00 | 45/64 | 21/64 | V4401D-49 | 1** | TA#1-17.86 | 1C11H-703-TC | V4417D-49 | 17 | XT#17-17.86 | 1/2 | 12.70 | |
| 1-15/16 | 1.938 | 49.21 | 45/64 | 21/64 | V4401D-0130 | 1** | TA#1-17.86 | 1C11H-703-TC | V4417D-0130 | 17 | XT#17-17.86 | 1/2 | 12.70 | |
| - | 1.969 | 50.00 | 47/64 | 21/64 | V4401D-50 | 1** | TA#1-18.65 | 1C11H-734-TC | V4418D-50 | 18 | XT#18-18.65 | 1/2 | 12.70 | |
| 1-31/32 | 1.969 | 50.01 | 47/64 | 21/64 | V4401D-0131 | 1** | TA#1-18.65 | 1C11H-734-TC | V4418D-0131 | 18 | XT#18-18.65 | 1/2 | 12.70 | |
| 2 | 2.000 | 50.80 | 47/64 | 21/64 | V4401D-0200 | 1** | TA#1-18.65 | 1C11H-734-TC | V4418D-0200 | 18 | XT#18-18.65 | 1/2 | 12.70 | |



#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

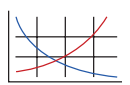


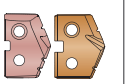
| Coating | Size | | Grade | Geometry |  Part No. |  Insert Screw |  Insert Driver | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|--|--|---|-------------------------------|
| | inch | metric | | | | | | |
| AM300® | 3/8 | 9.53 | C5 (P35) | Standard | OP-060408-PW | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |
| AM300® | 3/8 | 9.53 | C1 (K35) | Standard | OP-060408-1PW | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |
| AM300® | 3/8 | 9.53 | C2 (K25) | Standard | OP-060408-2PW | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |
| AM300® | 3/8 | 9.53 | C5 (P35) | High Rake | OP-060408-PWHR | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |
| AM300® | 1/2 | 12.70 | C5 (P35) | Standard | OP-080508-PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C1 (K35) | Standard | OP-080508-1PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C2 (K25) | Standard | OP-080508-2PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C5 (P35) | High Rake | OP-080508-PWHR | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories

| Pilot Style | Series |  Insert Screws |  Insert Driver | Admissible Tightening Torque* |
|-------------|--------|---|--|-------------------------------|
| T-A | 1 | 739-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| T-A | 1** | 7375-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| GEN3SYS | 17 | 72567-IP8-1 | 8IP-8 | 15.5 in-lbs (175 N-cm) |
| GEN3SYS | 18 | 7375-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| GEN3SYS | 22 | 739-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A50: 28 - 29  A50: 2 - 5  Section A20  Section A25 & A30 

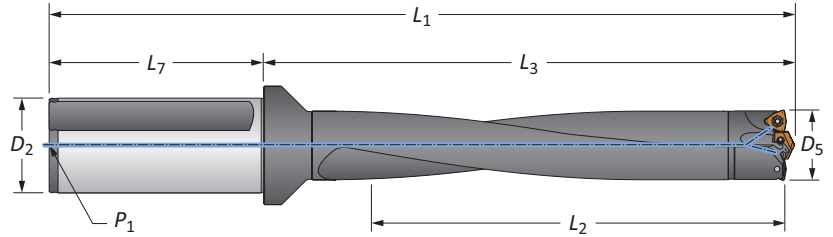
Nonstocked diameters are also available. Follow the examples shown below.

| | | |
|--------|-------------------------------------|--------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

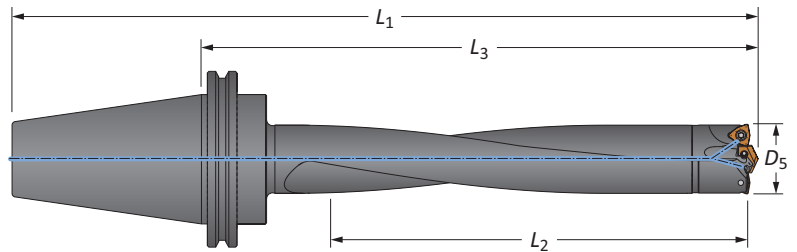
APX Drill Holders

44 Series | Diameter Range: 1.732" - 2.008" (44.00 mm - 50.99 mm)



Straight Shank

| Length | D ₅ | Body | | | Shank | | | Part No. | |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|-------------|
| | | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | |
| i | 3xD | 1.732 - 2.008 | 6 | 8-17/32 | 11-15/64 | 2-11/16 | 1-1/2 | 1/4 NPT | W4403H-150F |
| | 5xD | 1.732 - 2.008 | 10 | 12-35/64 | 15-1/4 | 2-11/16 | 1-1/2 | 1/4 NPT | W4405H-150F |
| | 8xD | 1.732 - 2.008 | 16 | 18-37/64 | 21-17/64 | 2-11/16 | 1-1/2 | 1/4 NPT | W4408H-150F |
| | 10xD | 1.732 - 2.008 | 20-1/8 | 22-19/32 | 25-9/32 | 2-11/16 | 1-1/2 | 1/4 NPT | W4410H-150F |
| | 3xD | 1.732 - 2.008 | 6 | 8-33/64 | 13-1/32 | 4-1/2 | 2 | 1/4 NPT | W4403H-200F |
| | 5xD | 1.732 - 2.008 | 10 | 12-35/64 | 17-3/64 | 4-1/2 | 2 | 1/4 NPT | W4405H-200F |
| | 8xD | 1.732 - 2.008 | 16 | 18-37/64 | 23-5/64 | 4-1/2 | 2 | 1/4 NPT | W4408H-200F |
| | 10xD | 1.732 - 2.008 | 20-1/8 | 22-19/32 | 27-3/32 | 4-1/2 | 2 | 1/4 NPT | W4410H-200F |
| m | 3xD | 44.00 - 50.99 | 152.00 | 216.79 | 286.89 | 70.00 | 40.00 | 1/4 BSPT | W4403H-40FM |
| | 5xD | 44.00 - 50.99 | 255.00 | 318.80 | 388.90 | 70.00 | 40.00 | 1/4 BSPT | W4405H-40FM |
| | 8xD | 44.00 - 50.99 | 408.00 | 471.81 | 541.81 | 70.00 | 40.00 | 1/4 BSPT | W4408H-40FM |
| | 10xD | 44.00 - 50.99 | 510.01 | 573.81 | 643.79 | 70.00 | 40.00 | 1/4 BSPT | W4410H-40FM |
| | 3xD | 44.00 - 50.99 | 152.00 | 216.79 | 296.90 | 80.00 | 50.00 | 1/4 BSPT | W4403H-50FM |
| | 5xD | 44.00 - 50.99 | 255.00 | 318.80 | 398.80 | 80.00 | 50.00 | 1/4 BSPT | W4405H-50FM |
| | 8xD | 44.00 - 50.99 | 409.00 | 471.70 | 551.69 | 80.00 | 50.00 | 1/4 BSPT | W4408H-50FM |
| | 10xD | 44.00 - 50.99 | 510.01 | 573.81 | 653.80 | 80.00 | 50.00 | 1/4 BSPT | W4410H-50FM |



CAT Integral Shank

| Length | D ₅ | | Body | | | Shank | Part No. | |
|--------|----------------|---------------|----------------|----------------|----------------|----------|----------|-------------|
| | inch | mm | L ₂ | L ₃ | L ₁ | | | |
| i | 3xD | 1.732 - 2.008 | 44.00 - 50.99 | 6 | 9-1/4 | 11-15/16 | CV40 | W4403H-CV40 |
| | 5xD | 1.732 - 2.008 | 44.00 - 50.99 | 10 | 13-17/64 | 15-61/64 | CV40 | W4405H-CV40 |
| | 8xD | 1.732 - 2.008 | 44.00 - 50.99 | 16 | 19-19/64 | 21-63/64 | CV40 | W4408H-CV40 |
| | 10xD | 1.732 - 2.008 | 44.00 - 50.99 | 20-1/8 | 23-5/16 | 26 | CV40 | W4410H-CV40 |
| | 3xD | 1.732 - 2.008 | 44.00 - 50.99 | 6 | 9-1/4 | 13-1/4 | CV50 | W4403H-CV50 |
| | 5xD | 1.732 - 2.008 | 44.00 - 50.99 | 10 | 13-17/64 | 17-17/64 | CV50 | W4405H-CV50 |
| | 8xD | 1.732 - 2.008 | 44.00 - 50.99 | 16 | 19-19/64 | 23-19/64 | CV50 | W4408H-CV50 |
| | 10xD | 1.732 - 2.008 | 44.00 - 50.99 | 20 | 23-5/16 | 27-5/16 | CV50 | W4410H-CV50 |

Connection Accessories

| | | |
|--------------------------------|---------------------------------|-------------------------------|
| | | Admissible Tightening Torque* |
| Mounting Screw 75020-IP20-1 | Mounting Screw Driver 8IP-20 | |
| | | 60 in-lb (678 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

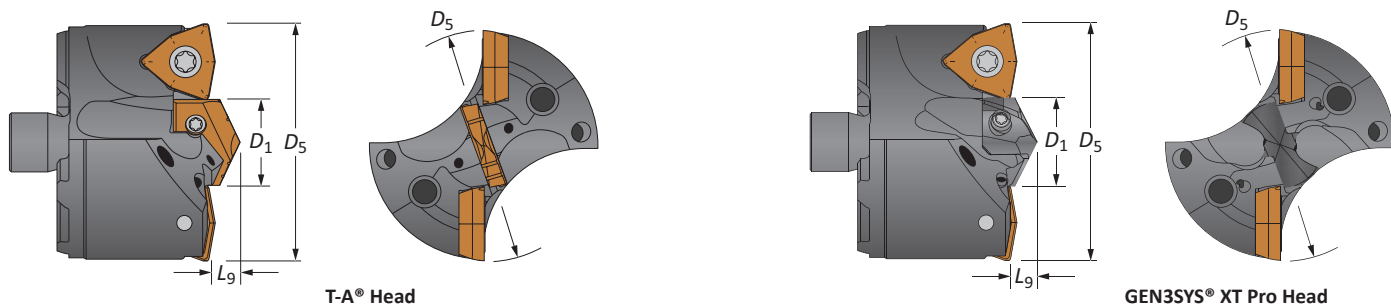
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

Mounting screws sold in multiples of 4

APX Drill Heads

51 Series | Diameter Range: 2.008" - 2.244" (51.00 mm - 56.99 mm)



Heads

| Head | | | | | T-A Head | | | | GEN3SYS XT Pro Head | | | IC Insert Size | |
|------------------|------------|--------------|-------|-------|-------------|--------------|------------|---------------|---------------------|--------------|-------------|----------------|--------|
| D_5 fractional | D_5 inch | D_5 metric | D_1 | L_9 | Part No. | Pilot Series | | | Part No. | Pilot Series | | inch | metric |
| - | 2.008 | 51.00 | 25/32 | 11/32 | V5101D-51 | 1** | TA#1-19.84 | 1C11H-0025-TC | V5118D-51 | 18 | XT#18-19.84 | 1/2 | 12.70 |
| 2-1/32 | 2.031 | 51.59 | 25/32 | 11/32 | V5101D-0201 | 1** | TA#1-19.84 | 1C11H-0025-TC | V5118D-0201 | 18 | XT#18-19.84 | 1/2 | 12.70 |
| - | 2.047 | 52.00 | 25/32 | 11/32 | V5101D-52 | 1** | TA#1-19.84 | 1C11H-0025-TC | V5118D-52 | 18 | XT#18-19.84 | 1/2 | 12.70 |
| 2-1/16 | 2.063 | 52.39 | 25/32 | 11/32 | V5101D-0202 | 1** | TA#1-19.84 | 1C11H-0025-TC | V5118D-0202 | 18 | XT#18-19.84 | 1/2 | 12.70 |
| - | 2.087 | 53.00 | 27/32 | 11/32 | V5101D-53 | 1** | TA#1-21.43 | 1C11H-0027-TC | V5120D-53 | 20 | XT#20-21.43 | 1/2 | 12.70 |
| 2-3/32 | 2.094 | 53.18 | 27/32 | 11/32 | V5101D-0203 | 1** | TA#1-21.43 | 1C11H-0027-TC | V5120D-0203 | 20 | XT#20-21.43 | 1/2 | 12.70 |
| 2-1/8 | 2.125 | 53.98 | 27/32 | 11/32 | V5101D-0204 | 1** | TA#1-21.43 | 1C11H-0027-TC | V5120D-0204 | 20 | XT#20-21.43 | 1/2 | 12.70 |
| - | 2.126 | 54.00 | 15/16 | 11/32 | V5101D-54 | 1 | TA#1-23.81 | 1C11H-0030-TC | V5122D-54 | 22 | XT#22-23.81 | 1/2 | 12.70 |
| 2-5/32 | 2.156 | 54.77 | 15/16 | 11/32 | V5101D-0205 | 1 | TA#1-23.81 | 1C11H-0030-TC | V5122D-0205 | 22 | XT#22-23.81 | 1/2 | 12.70 |
| - | 2.165 | 55.00 | 15/16 | 11/32 | V5101D-55 | 1 | TA#1-23.81 | 1C11H-0030-TC | V5122D-55 | 22 | XT#22-23.81 | 1/2 | 12.70 |
| 2-3/16 | 2.188 | 55.56 | 15/16 | 11/32 | V5101D-0206 | 1 | TA#1-23.81 | 1C11H-0030-TC | V5122D-0206 | 22 | XT#22-23.81 | 1/2 | 12.70 |
| - | 2.205 | 56.00 | 15/16 | 11/32 | V5101D-56 | 1 | TA#1-23.81 | 1C11H-0030-TC | V5122D-56 | 22 | XT#22-23.81 | 1/2 | 12.70 |
| 2-7/32 | 2.219 | 56.36 | 13/16 | 11/32 | V5101D-0207 | 1** | TA#1-20.64 | 1C11H-0026-TC | V5120D-0207 | 20 | XT#20-20.64 | 9/16 | 14.29 |

#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

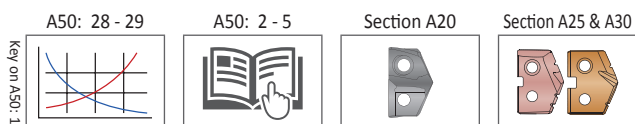
| Coating | Size | | Grade | Geometry | | Insert Screw | Insert Driver | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|----------------|--------------|---------------|-------------------------------|
| | inch | metric | | | | | | |
| AM300® | 1/2 | 12.70 | C5 (P35) | Standard | OP-080508-PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C1 (K35) | Standard | OP-080508-1PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C2 (K25) | Standard | OP-080508-2PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C5 (P35) | High Rake | OP-080508-PWHR | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 9/16 | 14.29 | C5 (P35) | Standard | OP-090608-PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C1 (K35) | Standard | OP-090608-1PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C2 (K25) | Standard | OP-090608-2PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C5 (P35) | High Rake | OP-090608-PWHR | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories

| Pilot Style | Series | Insert Screws | Insert Driver | Admissible Tightening Torque* |
|-------------|--------|---------------|---------------|-------------------------------|
| T-A | 1 | 739-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| T-A | 1** | 7375-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| GEN3SYS | 18 | 7375-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| GEN3SYS | 20 | 7375-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| GEN3SYS | 22 | 739-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



Nonstocked diameters are also available. Follow the examples shown below.

| | | |
|--------|-------------------------------------|--------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

A DRILLING

B BORING

C REAMING

D BURNISHING

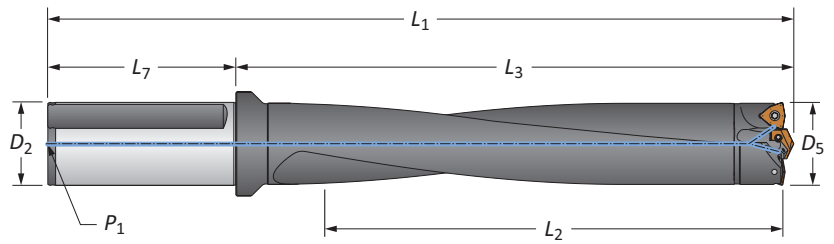
E THREADING

X SPECIALS



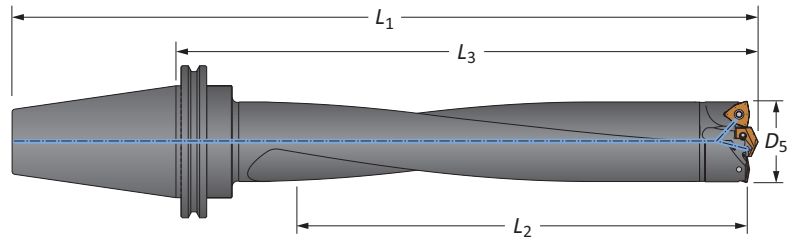
APX Drill Holders

51 Series | Diameter Range: 2.008" - 2.244" (51.00 mm - 56.99 mm)



Straight Shank

| | Length | Body | | | | Shank | | | Part No. |
|---|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|
| | | D ₅ | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | |
| i | 3xD | 2.008 - 2.244 | 6-3/8 | 8-7/8 | 13-3/8 | 4-1/2 | 2 | 1/4 NPT | W5103H-200F |
| | 5xD | 2.008 - 2.244 | 11-1/8 | 13-3/8 | 17-7/8 | 4-1/2 | 2 | 1/4 NPT | W5105H-200F |
| | 8xD | 2.008 - 2.244 | 17-7/8 | 20-3/32 | 24-19/32 | 4-1/2 | 2 | 1/4 NPT | ⚠ W5108H-200F |
| | 10xD | 2.008 - 2.244 | 22-3/8 | 24-19/32 | 29-3/32 | 4-1/2 | 2 | 1/4 NPT | ⚠ W5110H-200F |
| m | 3xD | 51.00 - 56.99 | 161.80 | 225.50 | 305.51 | 80.00 | 50.00 | 1/4 BSPT | W5103H-50FM |
| | 5xD | 51.00 - 56.99 | 284.99 | 339.60 | 419.61 | 80.00 | 50.00 | 1/4 BSPT | W5105H-50FM |
| | 8xD | 51.00 - 56.99 | 455.90 | 510.49 | 590.50 | 80.00 | 50.00 | 1/4 BSPT | ⚠ W5108H-50FM |
| | 10xD | 51.00 - 56.99 | 570.00 | 624.61 | 704.60 | 80.00 | 50.00 | 1/4 BSPT | ⚠ W5110H-50FM |



CV50 Shank

| | Length | D ₅ | | Body | | | Shank | Part No. |
|---|--------|----------------|---------------|----------------|----------------|----------------|-------|---------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | | |
| i | 3xD | 2.008 - 2.244 | 51.00 - 56.99 | 6-3/8 | 9-47/64 | 13-47/64 | CV50 | W5103H-CV50 |
| | 5xD | 2.008 - 2.244 | 51.00 - 56.99 | 11-1/4 | 14-7/32 | 18-7/32 | CV50 | W5105H-CV50 |
| | 8xD | 2.008 - 2.244 | 51.00 - 56.99 | 17-7/8 | 20-61/64 | 24-61/64 | CV50 | ⚠ W5108H-CV50 |
| | 10xD | 2.008 - 2.244 | 51.00 - 56.99 | 22-3/8 | 25-7/16 | 29-7/16 | CV50 | ⚠ W5110H-CV50 |

Connection Accessories

| Mounting Screw | Mounting Screw Driver | Admissible Tightening Torque* |
|----------------|-----------------------|-------------------------------|
| 75020-IP20-1 | 8IP-20 | 60 in-lb (678 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

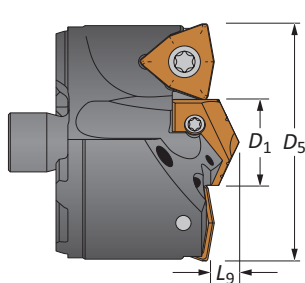
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

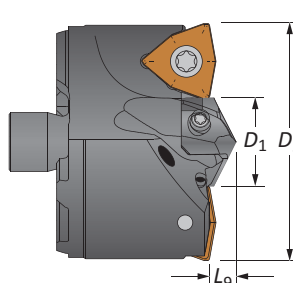
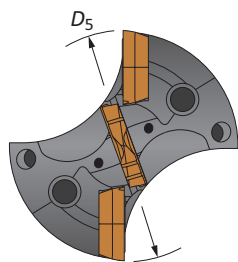
Mounting screws sold in multiples of 4

APX Drill Heads

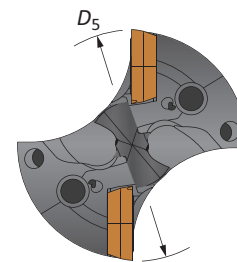
57 Series | Diameter Range: 2.244" - 2.480" (57.00 mm - 62.99 mm)






T-A® Head



GEN3SYS® XT Pro Head



Heads

| Head | | | | | T-A Head | | | | GEN3SYS XT Pro Head | | | | |
|------------------------------|------------------------|--------------------------|----------------|----------------|-------------|--------------|---|---|---------------------|--------------|---|----------------|--------|
| D ₅ fractional | D ₅ inch | D ₅ metric | D ₁ | L ₉ | Part No. | Pilot Series |  |  | Part No. | Pilot Series |  | IC Insert Size | |
| | | | | | | | T-A Pro Insert | T-A (-TC) Insert | | | Pilot Insert | inch | metric |
| - | 2.244 | 57.00 | 29/32 | 25/64 | V5701D-57 | 1 | TA#1-23.02 | 1C11H-0029-TC | V5722D-57 | 22 | XT#22-23.02 | 9/16 | 14.29 |
| 2-1/4 | 2.250 | 57.15 | 29/32 | 25/64 | V5701D-0208 | 1 | TA#1-23.02 | 1C11H-0029-TC | V5722D-0208 | 22 | XT#22-23.02 | 9/16 | 14.29 |
| 2-9/32 | 2.281 | 57.94 | 29/32 | 25/64 | V5701D-0209 | 1 | TA#1-23.02 | 1C11H-0029-TC | V5722D-0209 | 22 | XT#22-23.02 | 9/16 | 14.29 |
| - | 2.284 | 58.00 | 29/32 | 25/64 | V5701D-58 | 1 | TA#1-23.02 | 1C11H-0029-TC | V5722D-58 | 22 | XT#22-23.02 | 9/16 | 14.29 |
| 2-5/16 | 2.313 | 58.74 | 29/32 | 25/64 | V5701D-0210 | 1 | TA#1-23.02 | 1C11H-0029-TC | V5722D-0210 | 22 | XT#22-23.02 | 9/16 | 14.29 |
| - | 2.323 | 59.00 | 15/16 | 25/64 | V5701D-59 | 1 | TA#1-23.81 | 1C11H-0030-TC | V5722D-59 | 22 | XT#22-23.81 | 9/16 | 14.29 |
| 2-11/32 | 2.344 | 59.53 | 15/16 | 25/64 | V5701D-0211 | 1 | TA#1-23.81 | 1C11H-0030-TC | V5722D-0211 | 22 | XT#22-23.81 | 9/16 | 14.29 |
| - | 2.362 | 60.00 | 15/16 | 25/64 | V5701D-60 | 1 | TA#1-23.81 | 1C11H-0030-TC | V5722D-60 | 22 | XT#22-23.81 | 9/16 | 14.29 |
| 2-3/8 | 2.375 | 60.33 | 15/16 | 25/64 | V5701D-0212 | 1 | TA#1-23.81 | 1C11H-0030-TC | V5722D-0212 | 22 | XT#22-23.81 | 9/16 | 14.29 |
| - | 2.402 | 61.00 | 1 | 25/64 | V5702D-61 | 2 | TA#2-25.40 | 1C12H-0100-TC | V5724D-61 | 24 | XT#24-25.40 | 9/16 | 14.29 |
| 2-13/32 | 2.406 | 61.12 | 1 | 25/64 | V5702D-0213 | 2 | TA#2-25.40 | 1C12H-0100-TC | V5724D-0213 | 24 | XT#24-25.40 | 9/16 | 14.29 |
| 2-7/16 | 2.438 | 61.91 | 1 | 25/64 | V5702D-0214 | 2 | TA#2-25.40 | 1C12H-0100-TC | V5724D-0214 | 24 | XT#24-25.40 | 9/16 | 14.29 |
| - | 2.441 | 62.00 | 1-1/16 | 25/64 | V5702D-62 | 2 | TA#2-26.99 | 1C12H-0102-TC | V5726D-62 | 26 | XT#26-26.99 | 9/16 | 14.29 |
| 2-15/32 | 2.469 | 62.71 | 1-1/16 | 25/64 | V5702D-0215 | 2 | TA#2-26.99 | 1C12H-0102-TC | V5726D-0215 | 26 | XT#26-26.99 | 9/16 | 14.29 |

#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

| Coating | Size | | Grade | Geometry | Part No. | Insert Screw | Insert Driver | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|----------------|--------------|---------------|-------------------------------|
| | inch | metric | | | | | | |
| AM300® | 9/16 | 14.29 | C5 (P35) | Standard | OP-090608-PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C1 (K35) | Standard | OP-090608-1PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C2 (K25) | Standard | OP-090608-2PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C5 (P35) | High Rake | OP-090608-PWHR | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |

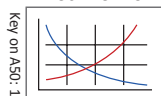
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories

| Pilot Style | Series | Insert Screws | Insert Driver | Admissible Tightening Torque* |
|-------------|--------|---------------|---------------|-------------------------------|
| T-A | 1 | 739-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| T-A | 2 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| GEN3SYS | 22 | 739-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| GEN3SYS | 24 | 739-IP9-1 | 8IP-9 | 27.0 in-lbs (305 N-cm) |
| GEN3SYS | 26 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A50: 28 - 29



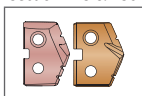
A50: 2 - 5



Section A20



Section A25 & A30



Nonstocked diameters are also available. Follow the examples shown below.

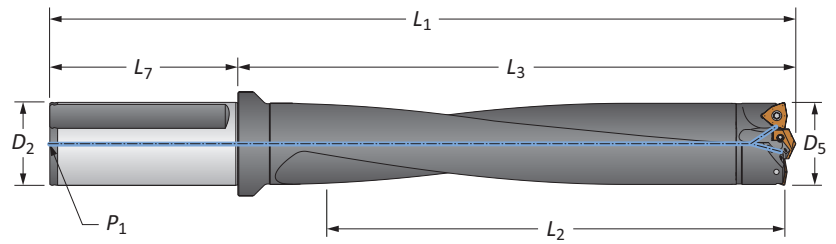
| | | |
|--------|-------------------------------------|--------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



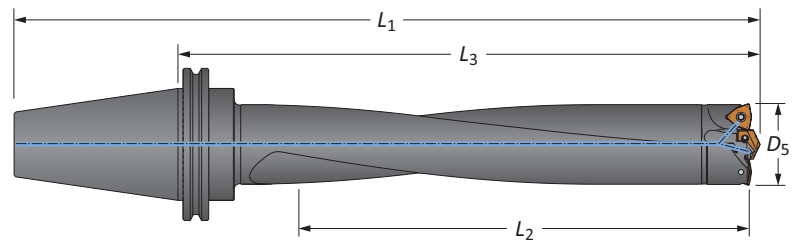
APX Drill Holders

57 Series | Diameter Range: 2.244" - 2.480" (57.00 mm - 62.99 mm)



Straight Shank

| | Length | D ₅ | Body | | | Shank | | | Part No. |
|---|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | | | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | |
| i | 3xD | 2.244 - 2.480 | 7-1/8 | 9-35/64 | 14-1/16 | 4-1/2 | 2 | 1/4 NPT | W5703H-200F |
| | 5xD | 2.244 - 2.480 | 12-3/8 | 14-33/64 | 19-1/64 | 4-1/2 | 2 | 1/4 NPT | W5705H-200F |
| | 8xD | 2.244 - 2.480 | 19-3/4 | 21-31/32 | 26-15/32 | 4-1/2 | 2 | 1/4 NPT | W5708H-200F |
| | 10xD | 2.244 - 2.480 | 24-3/4 | 26-59/64 | 31-27/64 | 4-1/2 | 2 | 1/4 NPT | W5710H-200F |
| m | 3xD | 57.00 - 62.99 | 179.91 | 242.70 | 322.71 | 80.00 | 50.00 | 1/4 BSPT | W5703H-50FM |
| | 5xD | 57.00 - 62.99 | 315.01 | 368.60 | 448.59 | 80.00 | 50.00 | 1/4 BSPT | W5705H-50FM |
| | 8xD | 57.00 - 62.99 | 503.90 | 557.81 | 637.81 | 80.00 | 50.00 | 1/4 BSPT | W5708H-50FM |
| | 10xD | 57.00 - 62.99 | 626.90 | 683.79 | 763.80 | 80.00 | 50.00 | 1/4 BSPT | W5710H-50FM |



CV50 Shank

| | Length | D ₅ | | Body | | | Shank | Part No. |
|---|--------|----------------|---------------|----------------|----------------|----------------|-------|-------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | | |
| i | 3xD | 2.244 - 2.480 | 57.00 - 62.99 | 7-1/8 | 10-17/32 | 14-17/32 | CV50 | W5703H-CV50 |
| | 5xD | 2.244 - 2.480 | 57.00 - 62.99 | 12-3/8 | 15-31/64 | 19-31/64 | CV50 | W5705H-CV50 |
| | 8xD | 2.244 - 2.480 | 57.00 - 62.99 | 19-7/8 | 22-15/16 | 26-15/16 | CV50 | W5708H-CV50 |
| | 10xD | 2.244 - 2.480 | 57.00 - 62.99 | 24-3/4 | 27-57/64 | 31-57/64 | CV50 | W5710H-CV50 |

Connection Accessories

| Mounting Screw | Mounting Screw Driver | Admissible Tightening Torque* |
|----------------|-----------------------|-------------------------------|
| 75020-IP20-1 | 8IP-20 | 60 in-lb (678 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

Mounting screws sold in multiples of 4

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

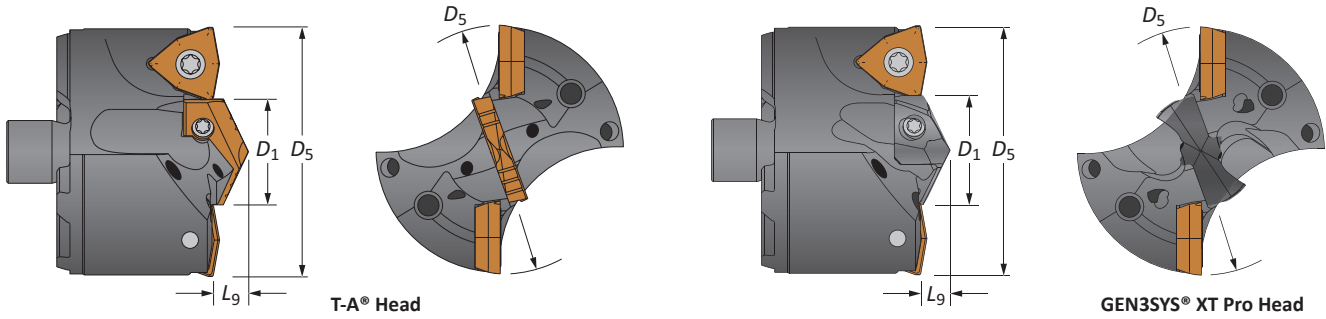
THREADING

X




SPECIALS

APX Drill Heads

63 Series | Diameter Range: 2.480" - 2.756" (63.00 mm - 69.99 mm)






Heads

| Head | | | | | T-A Head | | | | GEN3SYS XT Pro Head | | | IC Insert Size | |
|------------------|------------|--------------|--------|-------|-------------|--------------|---|---|---------------------|--------------|---|----------------|--------|
| D_5 fractional | D_5 inch | D_5 metric | D_1 | L_9 | Part No. | Pilot Series |  |  | Part No. | Pilot Series |  | inch | metric |
| - | 2.480 | 63.00 | 1-1/8 | 7/16 | V6302D-63 | 2 | TA#2-28.58 | 1C12H-0104-TC | V6326D-63 | 26 | XT#26-28.58 | 9/16 | 14.29 |
| 2-1/2 | 2.500 | 63.50 | 1-1/8 | 7/16 | V6302D-0216 | 2 | TA#2-28.58 | 1C12H-0104-TC | V6326D-0216 | 26 | XT#26-28.58 | 9/16 | 14.29 |
| - | 2.520 | 64.00 | 1-1/8 | 7/16 | V6302D-64 | 2 | TA#2-28.58 | 1C12H-0104-TC | V6326D-64 | 26 | XT#26-28.58 | 9/16 | 14.29 |
| 2-17/32 | 2.531 | 64.29 | 1-1/8 | 7/16 | V6302D-0217 | 2 | TA#2-28.58 | 1C12H-0104-TC | V6326D-0217 | 26 | XT#26-28.58 | 9/16 | 14.29 |
| - | 2.559 | 65.00 | 1-1/8 | 7/16 | V6302D-65 | 2 | TA#2-28.58 | 1C12H-0104-TC | V6326D-65 | 26 | XT#26-28.58 | 9/16 | 14.29 |
| 2-9/16 | 2.563 | 65.09 | 1-3/16 | 7/16 | V6302D-0218 | 2 | TA#2-30.16 | 1C12H-0106-TC | V6329D-0218 | 29 | XT#29-30.16 | 9/16 | 14.29 |
| 2-19/32 | 2.594 | 65.88 | 1-3/16 | 7/16 | V6302D-0219 | 2 | TA#2-30.16 | 1C12H-0106-TC | V6329D-0219 | 29 | XT#29-30.16 | 9/16 | 14.29 |
| - | 2.598 | 66.00 | 1-3/16 | 7/16 | V6302D-66 | 2 | TA#2-30.16 | 1C12H-0106-TC | V6329D-66 | 29 | XT#29-30.16 | 9/16 | 14.29 |
| 2-5/8 | 2.625 | 66.68 | 1-3/16 | 7/16 | V6302D-0220 | 2 | TA#2-30.16 | 1C12H-0106-TC | V6329D-0220 | 29 | XT#29-30.16 | 9/16 | 14.29 |
| - | 2.638 | 67.00 | 1-1/4 | 7/16 | V6302D-67 | 2 | TA#2-31.75 | 1C12H-0108-TC | V6329D-67 | 29 | XT#29-31.75 | 9/16 | 14.29 |
| 2-21/32 | 2.656 | 67.47 | 1-1/4 | 7/16 | V6302D-0221 | 2 | TA#2-31.75 | 1C12H-0108-TC | V6329D-0221 | 29 | XT#29-31.75 | 9/16 | 14.29 |
| - | 2.677 | 68.00 | 1-1/4 | 7/16 | V6302D-68 | 2 | TA#2-31.75 | 1C12H-0108-TC | V6329D-68 | 29 | XT#29-31.75 | 9/16 | 14.29 |
| 2-11/16 | 2.688 | 68.26 | 1-1/4 | 7/16 | V6302D-0222 | 2 | TA#2-31.75 | 1C12H-0108-TC | V6329D-0222 | 29 | XT#29-31.75 | 9/16 | 14.29 |
| - | 2.717 | 69.00 | 1-5/16 | 7/16 | V6302D-69 | 2 | TA#2-33.34 | 1C12H-0110-TC | V6332D-69 | 32 | XT#32-33.34 | 9/16 | 14.29 |
| 2-23/32 | 2.719 | 69.06 | 1-5/16 | 7/16 | V6302D-0223 | 2 | TA#2-33.34 | 1C12H-0110-TC | V6332D-0223 | 32 | XT#32-33.34 | 9/16 | 14.29 |
| 2-3/4 | 2.750 | 69.85 | 1-5/16 | 7/16 | V6302D-0224 | 2 | TA#2-33.34 | 1C12H-0110-TC | V6332D-0224 | 32 | XT#32-33.34 | 9/16 | 14.29 |


#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

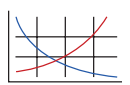


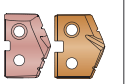
| Coating | Size | | Grade | Geometry |  Part No. |  Insert Screw |  Insert Driver | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|--|--|---|-------------------------------|
| | inch | metric | | | | | | |
| AM300® | 9/16 | 14.29 | C5 (P35) | Standard | OP-090608-PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C1 (K35) | Standard | OP-090608-1PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C2 (K25) | Standard | OP-090608-2PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C5 (P35) | High Rake | OP-090608-PWHR | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories

| Pilot Style | Series |  Insert Screws |  Insert Driver | Admissible Tightening Torque* |
|-------------|--------|---|--|-------------------------------|
| T-A | 2 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| GEN3SYS | 26 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| GEN3SYS | 29 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| GEN3SYS | 32 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A50: 28 - 29  A50: 2 - 5  Section A20  Section A25 & A30 

Nonstocked diameters are also available. Follow the examples shown below.

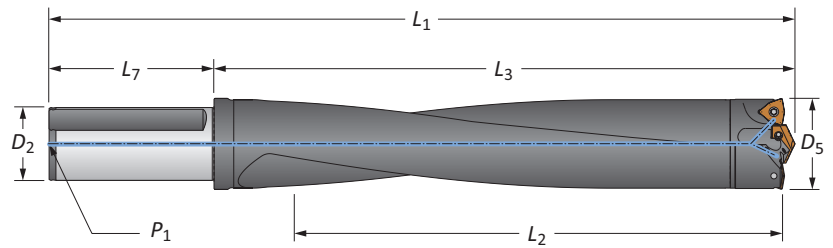
| | | |
|--------|-------------------------------------|--------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



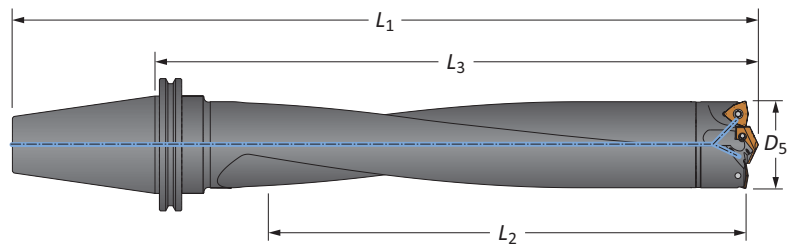
APX Drill Holders

63 Series | Diameter Range: 2.480" - 2.756" (63.00 mm - 69.99 mm)



Straight Shank

| | Length | Body | | | | Shank | | | Part No. |
|---|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|
| | | D ₅ | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | |
| i | 3xD | 2.480 - 2.756 | 7-7/8 | 10-11/32 | 14-27/32 | 4-1/2 | 2 | 1/4 NPT | W6303H-200F |
| | 5xD | 2.480 - 2.756 | 13-3/4 | 15-27/32 | 20-11/32 | 4-1/2 | 2 | 1/4 NPT | W6305H-200F |
| | 8xD | 2.480 - 2.756 | 22-1/8 | 24-1/8 | 28-5/8 | 4-1/2 | 2 | 1/4 NPT | ⚠ W6308H-200F |
| | 10xD | 2.480 - 2.756 | 27-1/8 | 29-11/64 | 33-43/64 | 4-1/2 | 2 | 1/4 NPT | ⚠ W6310H-200F |
| m | 3xD | 63.00 - 69.99 | 200.81 | 262.61 | 342.60 | 80.00 | 50.00 | 1/4 BSPT | W6303H-50FM |
| | 5xD | 63.00 - 69.99 | 350.00 | 402.59 | 482.60 | 80.00 | 50.00 | 1/4 BSPT | W6305H-50FM |
| | 8xD | 63.00 - 69.99 | 559.99 | 612.60 | 692.61 | 80.00 | 50.00 | 1/4 BSPT | ⚠ W6308H-50FM |
| | 10xD | 63.00 - 69.99 | 688.29 | 740.89 | 820.90 | 80.00 | 50.00 | 1/4 BSPT | ⚠ W6310H-50FM |



CV50 Shank

| | Length | D ₅ | | Body | | | Shank | Part No. |
|---|--------|----------------|---------------|----------------|----------------|----------------|-------|---------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | | |
| i | 3xD | 2.480 - 2.756 | 63.00 - 69.99 | 7-7/8 | 11-7/16 | 15-7/16 | CV50 | W6303H-CV50 |
| | 5xD | 2.480 - 2.756 | 63.00 - 69.99 | 13-3/4 | 16-15/16 | 20-15/16 | CV50 | W6305H-CV50 |
| | 8xD | 2.480 - 2.756 | 63.00 - 69.99 | 22 | 25-13/64 | 29-13/64 | CV50 | ⚠ W6308H-CV50 |
| | 10xD | 2.480 - 2.756 | 63.00 - 69.99 | 26-1/2 | 29-43/64 | 33-43/64 | CV50 | ⚠ W6310H-CV50 |

Connection Accessories

| Mounting Screw | Mounting Screw Driver | Admissible Tightening Torque* |
|----------------|-----------------------|-------------------------------|
| 75020-IP20-1 | 8IP-20 | 60 in-lb (678 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

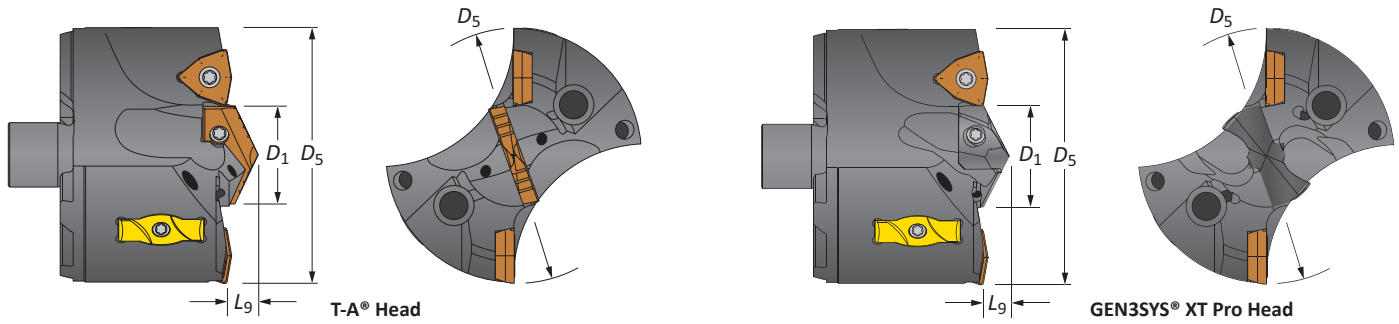
i = Imperial (in)
m = Metric (mm)

Mounting screws sold in multiples of 4




A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

APX Drill Heads

70 Series | Diameter Range: 2.756" - 2.992" (70.00 mm - 75.99 mm)






Heads

| Head | | | | | T-A Head | | | | GEN3SYS XT Pro Head | | | | |
|------------------|------------|--------------|--------|-------|--------------------|--------------|--|--|---------------------|--------------|--|----------------|--------|
| D_5 fractional | D_5 inch | D_5 metric | D_1 | L_9 | Part No. | Pilot Series |  T-A Pro Insert |  T-A (-TC) Insert | Part No. | Pilot Series |  Pilot Insert | IC Insert Size | |
| | | | | | | | | | | | | inch | metric |
| - | 2.756 | 70.00 | 1-7/32 | 25/64 | V7002S-70 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7029S-70 | 29 | XT#29-30.96 | 3/8 | 9.53 |
| 2-13/16 | 2.813 | 71.44 | 1-7/32 | 25/64 | V7002S-0226 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7029S-0226 | 29 | XT#29-30.96 | 3/8 | 9.53 |
| - | 2.835 | 72.00 | 1-7/32 | 25/64 | V7002S-72 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7029S-72 | 29 | XT#29-30.96 | 3/8 | 9.53 |
| 2-7/8 | 2.875 | 73.03 | 1-7/32 | 25/64 | V7002S-0228 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7029S-0228 | 29 | XT#29-30.96 | 3/8 | 9.53 |
| - | 2.913 | 74.00 | 1-7/32 | 25/64 | V7002S-74 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7029S-74 | 29 | XT#29-30.96 | 3/8 | 9.53 |
| 2-15/16 | 2.938 | 74.61 | 1-7/32 | 25/64 | V7002S-0230 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7029S-0230 | 29 | XT#29-30.96 | 3/8 | 9.53 |

#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

| Coating | Size | | Grade | Geometry |  Part No. |  Insert Screw |  Insert Driver | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|--|--|---|-------------------------------|
| | inch | metric | | | | | | |
| AM300® | 3/8 | 9.53 | C5 (P35) | Standard | OP-060408-PW | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |
| AM300® | 3/8 | 9.53 | C1 (K35) | Standard | OP-060408-1PW | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |
| AM300® | 3/8 | 9.53 | C2 (K25) | Standard | OP-060408-2PW | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |
| AM300® | 3/8 | 9.53 | C5 (P35) | High Rake | OP-060408-PWHR | 73595-IP15-1 | 8IP-15 | 41.0 in-lbs (465 N-cm) |



*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Wear Pads

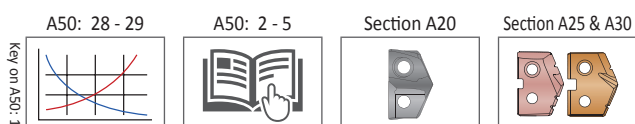
|  Part No. |  Wear Pad Screw |  Wear Pad Driver | Admissible Tightening Torque* |
|--|--|--|-------------------------------|
| WP7095 | 7358-IP10-1 | 8IP-10 | 27.0 in-lbs (300 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories

| Pilot Style | Series |  Insert Screws |  Insert Driver | Admissible Tightening Torque* |
|-------------|--------|---|--|-------------------------------|
| T-A | 2 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| GEN3SYS | 29 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



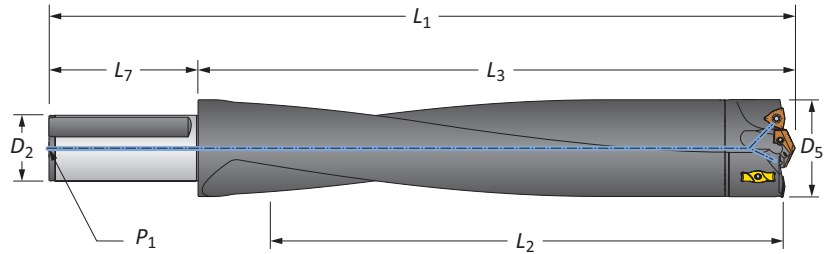
Nonstocked diameters are also available. Follow the examples shown below.

| | | |
|---------------|-------------------------------------|---------------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

Wear pads sold in multiples of 2 | Wear pad screws sold in multiples of 4
IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

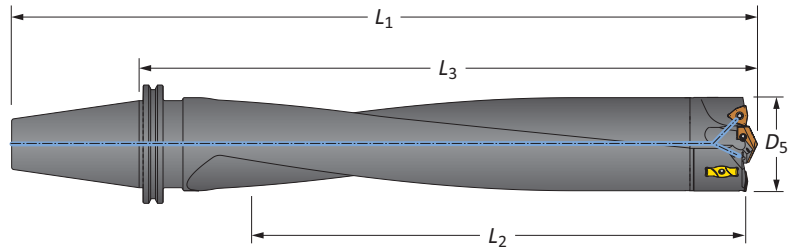
APX Drill Holders

70 Series | Diameter Range: 2.756" - 2.992" (70.00 mm - 75.99 mm)



Straight Shank

| | Length | Body | | | | Shank | | | Part No. |
|---|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | | D ₅ | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | |
| i | 3xD | 2.756 - 2.992 | 8-3/4 | 10-19/32 | 15-3/32 | 4-1/2 | 2 | 1/4 NPT | W7003H-200F |
| | 5xD | 2.756 - 2.992 | 14-7/8 | 16-37/64 | 21-5/64 | 4-1/2 | 2 | 1/4 NPT | W7005H-200F |
| | 8xD | 2.756 - 2.992 | 23-7/8 | 25-35/64 | 30-3/64 | 4-1/2 | 2 | 1/4 NPT | W7008H-200F |
| | 10xD | 2.756 - 2.992 | 27-7/8 | 29-35/64 | 34-3/64 | 4-1/2 | 2 | 1/4 NPT | W7010H-200F |
| m | 3xD | 70.00 - 75.99 | 218.80 | 269.01 | 349.00 | 80.00 | 50.00 | 1/4 BSPT | W7003H-50FM |
| | 5xD | 70.00 - 75.99 | 380.01 | 421.11 | 501.09 | 80.00 | 50.00 | 1/4 BSPT | W7005H-50FM |
| | 8xD | 70.00 - 75.99 | 608.00 | 649.00 | 729.01 | 80.00 | 50.00 | 1/4 BSPT | W7008H-50FM |
| | 10xD | 70.00 - 75.99 | 709.40 | 750.29 | 830.30 | 80.00 | 50.00 | 1/4 BSPT | W7010H-50FM |



CV50 Shank

| | Length | D ₅ | | Body | | | Shank | Part No. |
|---|--------|----------------|---------------|----------------|----------------|----------------|-------|-------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | | |
| i | 3xD | 2.756 - 2.992 | 70.00 - 75.99 | 8-3/4 | 12-7/32 | 16-7/32 | CV50 | W7003H-CV50 |
| | 5xD | 2.756 - 2.992 | 70.00 - 75.99 | 14-7/8 | 18-13/64 | 22-13/64 | CV50 | W7005H-CV50 |
| | 8xD | 2.756 - 2.992 | 70.00 - 75.99 | 23-7/8 | 27-5/32 | 31-5/32 | CV50 | W7008H-CV50 |
| | 10xD | 2.756 - 2.992 | 70.00 - 75.99 | 26-3/4 | 29-61/64 | 33-61/64 | CV50 | W7010H-CV50 |

Connection Accessories

| Mounting Screw | Mounting Screw Bit | Admissible Tightening Torque* |
|----------------|--------------------|-------------------------------|
| 78027-IP30-1 | 8IP-30B | 250 in-lb (2825 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

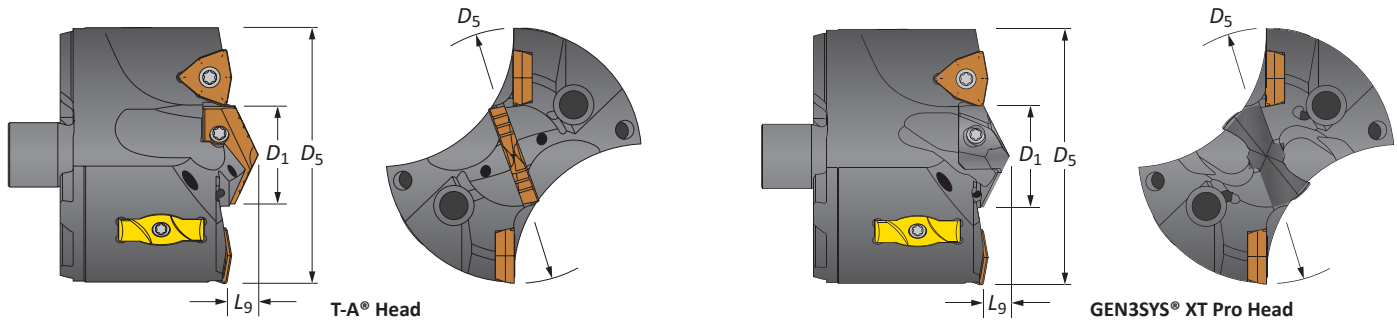
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)




Mounting screws sold in multiples of 4

APX Drill Heads

76 Series | Diameter Range: 2.992" - 3.268" (76.00 mm - 82.99 mm)



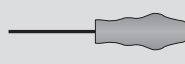


Heads

| Head | | | | | T-A Head | | | | GEN3SYS XT Pro Head | | | IC Insert Size | |
|---------------------|---------------|-----------------|--------|-------|--------------------|--------------|---|---|---------------------|--------------|---|----------------|--------|
| D_5 fractional | D_5 inch | D_5 metric | D_1 | L_9 | Part No. | Pilot Series |  |  | Part No. | Pilot Series |  | inch | metric |
| - | 2.992 | 76.00 | 1-7/32 | 13/32 | V7602S-76 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7629S-76 | 29 | XT#29-30.96 | 1/2 | 12.70 |
| 3 | 3.000 | 76.20 | 1-7/32 | 13/32 | V7602S-0300 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7629S-0300 | 29 | XT#29-30.96 | 1/2 | 12.70 |
| 3-1/16 | 3.063 | 77.79 | 1-7/32 | 13/32 | V7602S-0302 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7629S-0302 | 29 | XT#29-30.96 | 1/2 | 12.70 |
| - | 3.071 | 78.00 | 1-7/32 | 13/32 | V7602S-78 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7629S-78 | 29 | XT#29-30.96 | 1/2 | 12.70 |
| 3-1/8 | 3.125 | 79.38 | 1-7/32 | 13/32 | V7602S-0304 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7629S-0304 | 29 | XT#29-30.96 | 1/2 | 12.70 |
| - | 3.150 | 80.00 | 1-7/32 | 13/32 | V7602S-80 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7629S-80 | 29 | XT#29-30.96 | 1/2 | 12.70 |
| 3-3/16 | 3.188 | 80.96 | 1-7/32 | 13/32 | V7602S-0306 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7629S-0306 | 29 | XT#29-30.96 | 1/2 | 12.70 |
| - | 3.228 | 82.00 | 1-7/32 | 13/32 | V7602S-82 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7629S-82 | 29 | XT#29-30.96 | 1/2 | 12.70 |
| 3-1/4 | 3.250 | 82.55 | 1-7/32 | 13/32 | V7602S-0308 | 2 | TA#2-30.96 | 1C12H-0107-TC | V7629S-0308 | 29 | XT#29-30.96 | 1/2 | 12.70 |

#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

| Coating | Size | | Grade | Geometry |  |  |  | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|---|---|---|-------------------------------|
| | inch | metric | | | | | | |
| AM300® | 1/2 | 12.70 | C5 (P35) | Standard | OP-080508-PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C1 (K35) | Standard | OP-080508-1PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C2 (K25) | Standard | OP-080508-2PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C5 (P35) | High Rake | OP-080508-PWHR | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |



*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Wear Pads

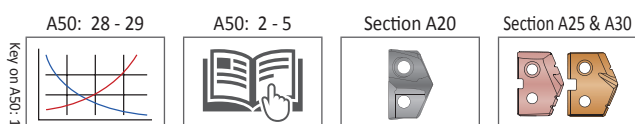
|  |  |  | Admissible Tightening Torque* |
|---|---|--|-------------------------------|
| Part No. | Wear Pad Screw | Wear Pad Driver | |
| WP7095 | 7358-IP10-1 | 8IP-10 | 27.0 in-lbs (300 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories

| Pilot Style | Series |  |  | Admissible Tightening Torque* |
|-------------|--------|---|--|-------------------------------|
| T-A | 2 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| GEN3SYS | 29 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



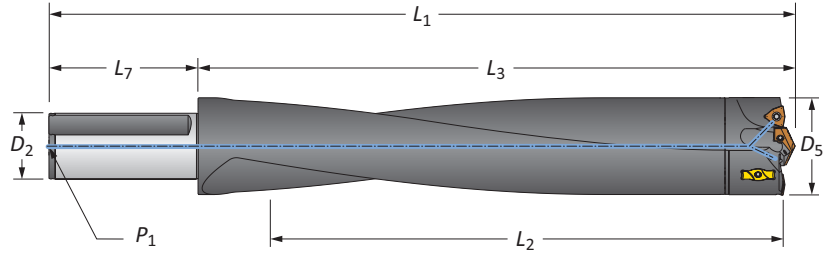
Non-tocked diameters are also available. Follow the examples shown below.

| | | |
|---------------|-------------------------------------|---------------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

Wear pads sold in multiples of 2 | Wear pad screws sold in multiples of 4
IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

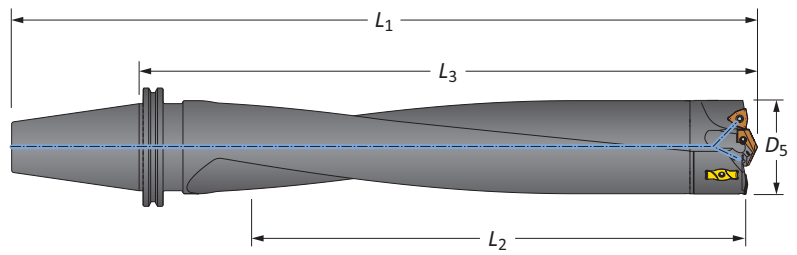
APX Drill Holders

76 Series | Diameter Range: 2.992" - 3.268" (76.00 mm - 82.99 mm)



Straight Shank

| | Length | D ₅ | | Body | | | Shank | | Part No. | |
|---|--------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|----------|----------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | | P ₁ |
| i | 3xD | 2.992 - 3.268 | 76.00 - 82.99 | 9-1/2 | 11-33/64 | 16-1/64 | 4-1/2 | 2 | 1/4 NPT | W7603H-200F |
| | 5xD | 2.992 - 3.268 | 76.00 - 82.99 | 16-3/8 | 18-3/64 | 22-35/64 | 4-1/2 | 2 | 1/4 NPT | W7605H-200F |
| | 8xD | 2.992 - 3.268 | 76.00 - 82.99 | 26-1/8 | 27-27/32 | 32-11/32 | 4-1/2 | 2 | 1/4 NPT | W7608H-200F |
| m | 3xD | 2.992 - 3.268 | 76.00 - 82.99 | 240.00 | 292.40 | 372.39 | 80.00 | 50.00 | 1/4 BSPT | W7603H-50FM |
| | 5xD | 2.992 - 3.268 | 76.00 - 82.99 | 415.01 | 421.11 | 501.09 | 80.00 | 50.00 | 1/4 BSPT | W7605H-50FM |
| | 8xD | 2.992 - 3.268 | 76.00 - 82.99 | 664.01 | 648.69 | 728.70 | 80.00 | 50.00 | 1/4 BSPT | W7608H-50FM |



CV50 Shank

| | Length | D ₅ | | Body | | | Shank | Part No. |
|---|--------|----------------|---------------|----------------|----------------|----------------|-------|-------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | | |
| i | 3xD | 2.992 - 3.268 | 76.00 - 82.99 | 9-1/2 | 12-57/64 | 16-57/64 | CV50 | W7603H-CV50 |
| | 5xD | 2.992 - 3.268 | 76.00 - 82.99 | 16-3/8 | 19-27/64 | 23-27/64 | CV50 | W7605H-CV50 |
| | 8xD | 2.992 - 3.268 | 76.00 - 82.99 | 26-1/8 | 29-7/32 | 33-7/32 | CV50 | W7608H-CV50 |

Connection Accessories

| Mounting Screw | Mounting Screw Bit | Admissible Tightening Torque* |
|----------------|--------------------|-------------------------------|
| 78027-IP30-1 | 8IP-30B | 250 in-lb (2825 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

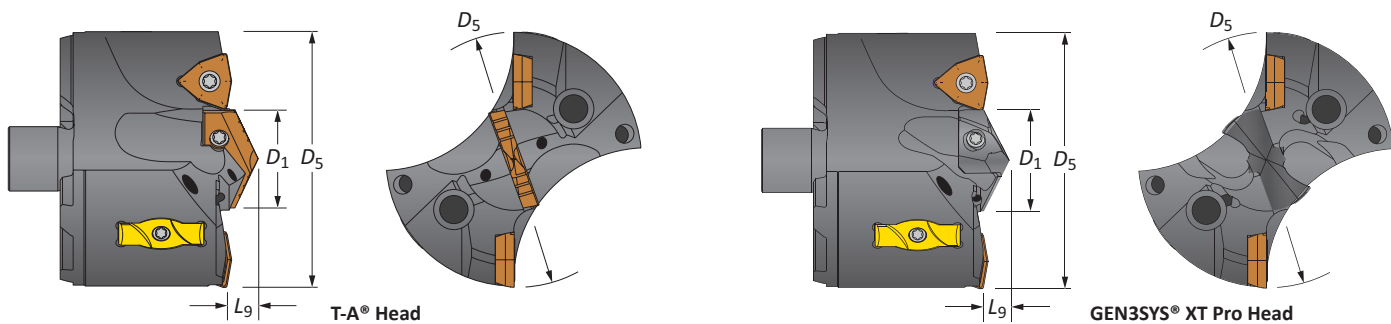
WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

Mounting screws sold in multiples of 4

APX Drill Heads

83 Series | Diameter Range: 3.268" - 3.504" (83.00 mm - 88.99 mm)



Heads

| Head | | | | | T-A Head | | | | GEN3SYS XT Pro Head | | | IC Insert Size | |
|---------------------------|---------------------|-----------------------|----------------|----------------|--------------------|--------------|----------------|------------------|---------------------|--------------|--------------|----------------|--------|
| D ₅ fractional | D ₅ inch | D ₅ metric | D ₁ | L ₉ | Part No. | Pilot Series | T-A Pro Insert | T-A (-TC) Insert | Part No. | Pilot Series | Pilot Insert | inch | metric |
| - | 3.307 | 84.00 | 1-3/8 | 7/16 | V8302S-84 | 2 | TA#2-34.93 | 1C12H-0112-TC | V8332S-84 | 32 | XT#32-34.93 | 1/2 | 12.70 |
| 3-5/16 | 3.313 | 84.14 | 1-3/8 | 7/16 | V8302S-0310 | 2 | TA#2-34.93 | 1C12H-0112-TC | V8332S-0310 | 32 | XT#32-34.93 | 1/2 | 12.70 |
| 3-3/8 | 3.375 | 85.73 | 1-3/8 | 7/16 | V8302S-0312 | 2 | TA#2-34.93 | 1C12H-0112-TC | V8332S-0312 | 32 | XT#32-34.93 | 1/2 | 12.70 |
| - | 3.386 | 86.00 | 1-3/8 | 7/16 | V8302S-86 | 2 | TA#2-34.93 | 1C12H-0112-TC | V8332S-86 | 32 | XT#32-34.93 | 1/2 | 12.70 |
| 3-7/16 | 3.438 | 87.31 | 1-3/8 | 7/16 | V8302S-0314 | 2 | TA#2-34.93 | 1C12H-0112-TC | V8332S-0314 | 32 | XT#32-34.93 | 1/2 | 12.70 |
| - | 3.465 | 88.00 | 1-3/8 | 7/16 | V8302S-88 | 2 | TA#2-34.93 | 1C12H-0112-TC | V8332S-88 | 32 | XT#32-34.93 | 1/2 | 12.70 |
| 3-1/2 | 3.500 | 88.90 | 1-3/8 | 7/16 | V8302S-0316 | 2 | TA#2-34.93 | 1C12H-0112-TC | V8332S-0316 | 32 | XT#32-34.93 | 1/2 | 12.70 |

#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

| Coating | Size | | Grade | Geometry | Part No. | Insert Screw | Insert Driver | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|-----------------------|--------------|---------------|-------------------------------|
| | inch | metric | | | | | | |
| AM300® | 1/2 | 12.70 | C5 (P35) | Standard | OP-080508-PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C1 (K35) | Standard | OP-080508-1PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C2 (K25) | Standard | OP-080508-2PW | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| AM300® | 1/2 | 12.70 | C5 (P35) | High Rake | OP-080508-PWHR | 74012-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Wear Pads

| Part No. | Wear Pad Screw | Wear Pad Driver | Admissible Tightening Torque* |
|---------------|----------------|-----------------|-------------------------------|
| WP7095 | 7358-IP10-1 | 8IP-10 | 27.0 in-lbs (300 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories

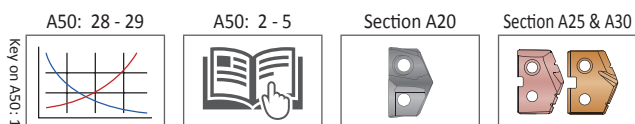
| Pilot Style | Series | Insert Screws | Insert Driver | Admissible Tightening Torque* |
|-------------|--------|---------------|---------------|-------------------------------|
| T-A | 2 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| GEN3SYS | 32 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Nonstocked diameters are also available. Follow the examples shown below.

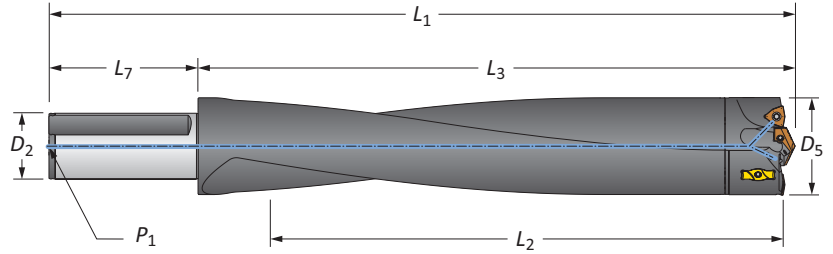
| | | |
|---------------|-------------------------------------|---------------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

Wear pads sold in multiples of 2 | Wear pad screws sold in multiples of 4
IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



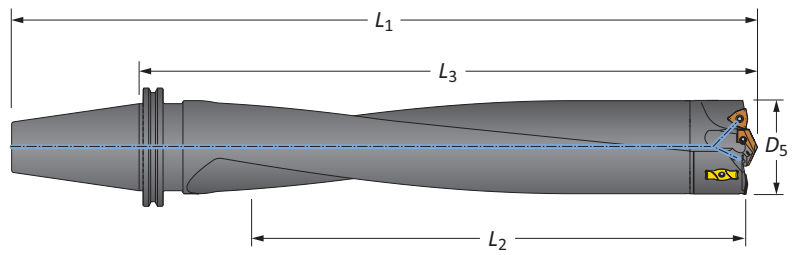
APX Drill Holders

83 Series | Diameter Range: 3.268" - 3.504" (83.00 mm - 88.99 mm)



Straight Shank

| | Length | D ₅ | | Body | | | Shank | | Part No. | |
|---|--------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|----------|----------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | | P ₁ |
| i | 3xD | 3.268 - 3.504 | 83.00 - 88.99 | 10-1/8 | 12-5/16 | 16-13/16 | 4-1/2 | 2 | 1/4 NPT | W8303H-200F |
| | 5xD | 3.268 - 3.504 | 83.00 - 88.99 | 17-1/2 | 19-5/16 | 23-13/16 | 4-1/2 | 2 | 1/4 NPT | W8305H-200F |
| | 8xD | 3.268 - 3.504 | 83.00 - 88.99 | 27-3/4 | 29-35/64 | 34-3/64 | 4-1/2 | 2 | 1/4 NPT | W8308H-200F |
| m | 3xD | 3.268 - 3.504 | 83.00 - 88.99 | 257.81 | 312.50 | 392.61 | 80.00 | 50.00 | 1/4 BSPT | W8303H-50FM |
| | 5xD | 3.268 - 3.504 | 83.00 - 88.99 | 445.00 | 490.50 | 570.51 | 80.00 | 50.00 | 1/4 BSPT | W8305H-50FM |
| | 8xD | 3.268 - 3.504 | 83.00 - 88.99 | 704.90 | 750.29 | 830.30 | 80.00 | 50.00 | 1/4 BSPT | W8308H-50FM |



CV50 Shank

| | Length | D ₅ | | Body | | | Shank | Part No. |
|---|--------|----------------|---------------|----------------|----------------|----------------|-------|-------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | | |
| i | 3xD | 3.268 - 3.504 | 83.00 - 88.99 | 10-1/8 | 13-11/16 | 17-11/16 | CV50 | W8303H-CV50 |
| | 5xD | 3.268 - 3.504 | 83.00 - 88.99 | 17-1/2 | 20-11/16 | 24-11/16 | CV50 | W8305H-CV50 |
| | 8xD | 3.268 - 3.504 | 83.00 - 88.99 | 26-7/8 | 30-3/64 | 34-3/64 | CV50 | W8308H-CV50 |

Connection Accessories

| Mounting Screw | Mounting Screw Bit | Admissible Tightening Torque* |
|----------------|--------------------|-------------------------------|
| 78027-IP30-1 | 8IP-30B | 250 in-lb (2825 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

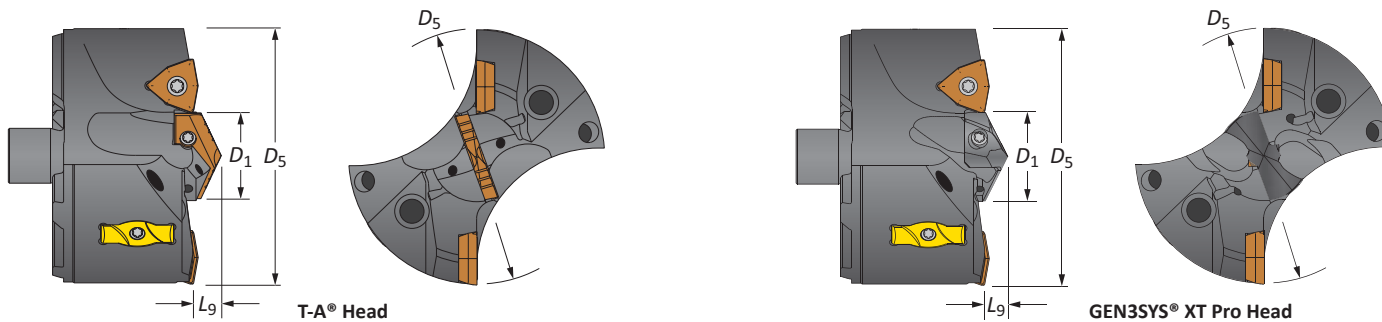
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

Mounting screws sold in multiples of 4

APX Drill Heads

89 Series | Diameter Range: 3.504" - 3.740" (89.00 mm - 94.99 mm)



Heads

| Head | | | | | T-A Head | | | | GEN3SYS XT Pro Head | | | IC Insert Size | |
|---------------------------|---------------------|-----------------------|----------------|----------------|-------------|--------------|----------------|------------------|---------------------|--------------|--------------|----------------|--------|
| D ₅ fractional | D ₅ inch | D ₅ metric | D ₁ | L ₉ | Part No. | Pilot Series | T-A Pro Insert | T-A (-TC) Insert | Part No. | Pilot Series | Pilot Insert | inch | metric |
| - | 3.543 | 90.00 | 1-1/4 | 27/64 | V8902S-90 | 2 | TA#2-31.75 | 1C12H-0108-TC | V8929S-90 | 29 | XT#29-31.75 | 9/16 | 14.29 |
| 3-9/16 | 3.563 | 90.49 | 1-1/4 | 27/64 | V8902S-0318 | 2 | TA#2-31.75 | 1C12H-0108-TC | V8929S-0318 | 29 | XT#29-31.75 | 9/16 | 14.29 |
| - | 3.622 | 92.00 | 1-1/4 | 27/64 | V8902S-92 | 2 | TA#2-31.75 | 1C12H-0108-TC | V8929S-92 | 29 | XT#29-31.75 | 9/16 | 14.29 |
| 3-5/8 | 3.625 | 92.08 | 1-1/4 | 27/64 | V8902S-0320 | 2 | TA#2-31.75 | 1C12H-0108-TC | V8929S-0320 | 29 | XT#29-31.75 | 9/16 | 14.29 |
| 3-11/16 | 3.688 | 93.66 | 1-1/4 | 27/64 | V8902S-0322 | 2 | TA#2-31.75 | 1C12H-0108-TC | V8929S-0322 | 29 | XT#29-31.75 | 9/16 | 14.29 |
| - | 3.701 | 94.00 | 1-1/4 | 27/64 | V8902S-94 | 2 | TA#2-31.75 | 1C12H-0108-TC | V8929S-94 | 29 | XT#29-31.75 | 9/16 | 14.29 |

#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

| Coating | Size | | Grade | Geometry | Part No. | Insert Screw | Insert Driver | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|----------------|--------------|---------------|-------------------------------|
| | inch | metric | | | | | | |
| AM300® | 9/16 | 14.29 | C5 (P35) | Standard | OP-090608-PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C1 (K35) | Standard | OP-090608-1PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C2 (K25) | Standard | OP-090608-2PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C5 (P35) | High Rake | OP-090608-PWHR | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Wear Pads

| Part No. | Wear Pad Screw | Wear Pad Driver | Admissible Tightening Torque* |
|----------|----------------|-----------------|-------------------------------|
| WP7095 | 7358-IP10-1 | 8IP-10 | 27.0 in-lbs (300 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories

| Pilot Style | Series | Insert Screws | Insert Driver | Admissible Tightening Torque* |
|-------------|--------|---------------|---------------|-------------------------------|
| T-A | 2 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| GEN3SYS | 29 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A50: 28 - 29

A50: 2 - 5

Section A20

Section A25 & A30

Nonstocked diameters are also available. Follow the examples shown below.

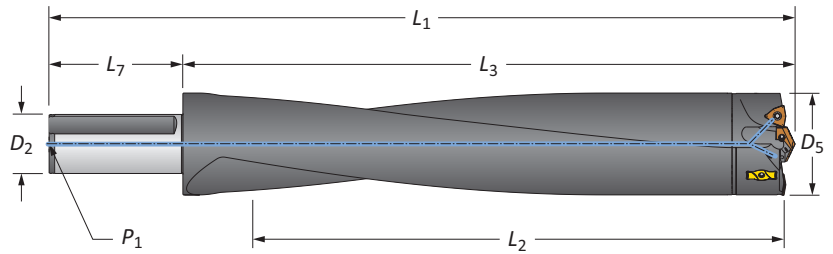
| | | |
|--------|-------------------------------------|--------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

Wear pads sold in multiples of 2 | Wear pad screws sold in multiples of 4
IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

A DRILLING B BORING C REAMING D BURNISHING E THREADING X SPECIALS

APX Drill Holders

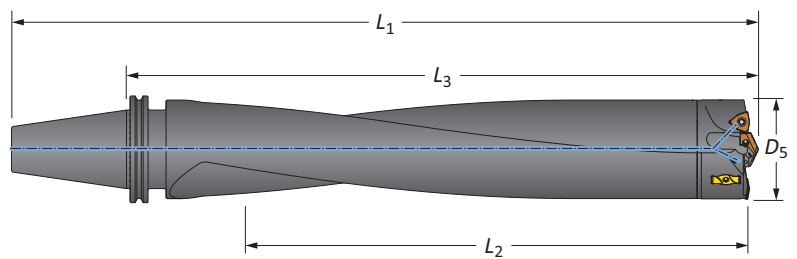
89 Series | Diameter Range: 3.504" - 3.740" (89.00 mm - 94.99 mm)



Straight Shank

| | Length | Body | | | | Shank | | | Part No. |
|---|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| | | D ₅ | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | |
| i | 3xD | 3.504 - 3.740 | 10-7/8 | 13-1/8 | 17-5/8 | 4-1/2 | 2 | 1/4 NPT | W8903H-200F |
| | 5xD | 3.504 - 3.740 | 18-5/8 | 20-5/8 | 25-1/8 | 4-1/2 | 2 | 1/4 NPT | W8905H-200F |
| | 8xD | 3.504 - 3.740 | 27-5/8 | 29-35/64 | 34-3/64 | 4-1/2 | 2 | 1/4 NPT | W8908H-200F |
| m | 3xD | 89.00 - 94.99 | 275.79 | 333.60 | 413.59 | 80.00 | 50.00 | 1/4 BSPT | W8903H-50FM |
| | 5xD | 89.00 - 94.99 | 475.01 | 523.70 | 603.71 | 80.00 | 50.00 | 1/4 BSPT | W8905H-50FM |
| | 8xD | 89.00 - 94.99 | 701.80 | 750.29 | 830.30 | 80.00 | 50.00 | 1/4 BSPT | W8908H-50FM |

*Thread to BSP and ISO 7-1



CV50 Shank

| | Length | D ₅ | | Body | | | Shank | Part No. |
|---|--------|----------------|---------------|----------------|----------------|----------------|-------|-------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | | |
| i | 3xD | 3.504 - 3.740 | 89.00 - 94.99 | 10-7/8 | 14-33/64 | 18-33/64 | CV50 | W8903H-CV50 |
| | 5xD | 3.504 - 3.740 | 89.00 - 94.99 | 18-5/8 | 22 | 26 | CV50 | W8905H-CV50 |
| | 8xD | 3.504 - 3.740 | 89.00 - 94.99 | 26-3/4 | 30-1/32 | 34-1/32 | CV50 | W8908H-CV50 |

Connection Accessories

| Mounting Screw | Mounting Screw Bit | Admissible Tightening Torque* |
|----------------|--------------------|-------------------------------|
| 78027-IP30-1 | 8IP-30B | 250 in-lb (2825 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

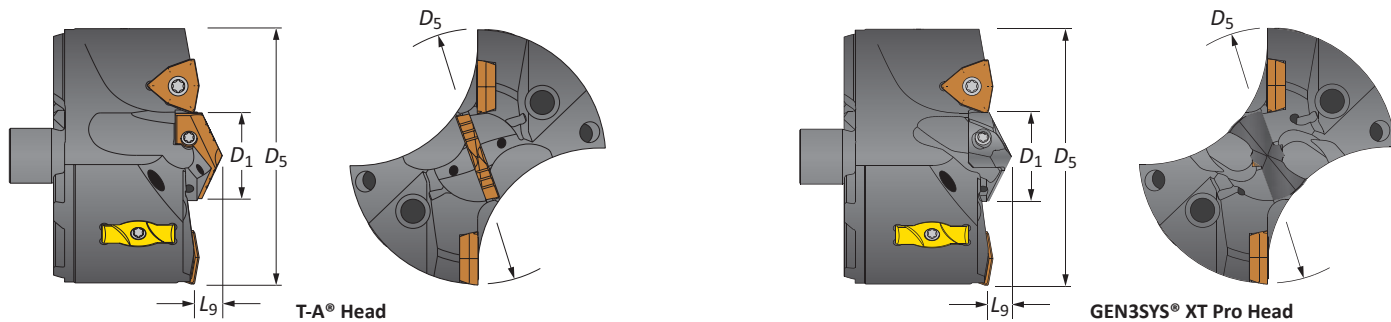
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

Mounting screws sold in multiples of 4

APX Drill Heads

95 Series | Diameter Range: 3.740" - 4.000" (95.00 mm - 101.60 mm)



Heads

| Head | | | | | T-A Head | | | | GEN3SYS XT Pro Head | | | IC Insert Size | |
|---------------------------|---------------------|-----------------------|----------------|----------------|-------------|--------------|----------------|------------------|---------------------|--------------|--------------|----------------|--------|
| D ₅ fractional | D ₅ inch | D ₅ metric | D ₁ | L ₉ | Part No. | Pilot Series | T-A Pro Insert | T-A (-TC) Insert | Part No. | Pilot Series | Pilot Insert | inch | metric |
| 3-3/4 | 3.750 | 95.25 | 1-3/8 | 29/64 | V9502S-0324 | 2 | TA#2-34.93 | 1C12H-0112-TC | V9532S-0324 | 32 | XT#32-34.93 | 9/16 | 14.29 |
| - | 3.780 | 96.00 | 1-3/8 | 29/64 | V9502S-96 | 2 | TA#2-34.93 | 1C12H-0112-TC | V9532S-96 | 32 | XT#32-34.93 | 9/16 | 14.29 |
| 3-13/16 | 3.813 | 96.84 | 1-3/8 | 29/64 | V9502S-0326 | 2 | TA#2-34.93 | 1C12H-0112-TC | V9532S-0326 | 32 | XT#32-34.93 | 9/16 | 14.29 |
| - | 3.858 | 98.00 | 1-3/8 | 29/64 | V9502S-98 | 2 | TA#2-34.93 | 1C12H-0112-TC | V9532S-98 | 32 | XT#32-34.93 | 9/16 | 14.29 |
| 3-7/8 | 3.875 | 98.43 | 1-3/8 | 29/64 | V9502S-0328 | 2 | TA#2-34.93 | 1C12H-0112-TC | V9532S-0328 | 32 | XT#32-34.93 | 9/16 | 14.29 |
| - | 3.937 | 100.00 | 1-3/8 | 29/64 | V9502S-100 | 2 | TA#2-34.93 | 1C12H-0112-TC | V9532S-100 | 32 | XT#32-34.93 | 9/16 | 14.29 |
| 3-15/16 | 3.936 | 100.01 | 1-3/8 | 29/64 | V9502S-0330 | 2 | TA#2-34.93 | 1C12H-0112-TC | V9532S-0330 | 32 | XT#32-34.93 | 9/16 | 14.29 |
| 4 | 4.000 | 101.60 | 1-3/8 | 29/64 | V9502S-0400 | 2 | TA#2-34.93 | 1C12H-0112-TC | V9532S-0400 | 32 | XT#32-34.93 | 9/16 | 14.29 |

#Denotes ISO material/geometry (P= steel, K= cast iron, N= nonferrous)

IC Inserts

| Coating | Size | | Grade | Geometry | Part No. | Insert Screw | Insert Driver | Admissible Tightening Torque* |
|---------|------|--------|----------|-----------|----------------|--------------|---------------|-------------------------------|
| | inch | metric | | | | | | |
| AM300® | 9/16 | 14.29 | C5 (P35) | Standard | OP-090608-PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C1 (K35) | Standard | OP-090608-1PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C2 (K25) | Standard | OP-090608-2PW | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |
| AM300® | 9/16 | 14.29 | C5 (P35) | High Rake | OP-090608-PWHR | 75014-IP20-1 | 8IP-20 | 121.0 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Wear Pads

| Part No. | Wear Pad Screw | Wear Pad Driver | Admissible Tightening Torque* |
|----------|----------------|-----------------|-------------------------------|
| WP7095 | 7358-IP10-1 | 8IP-10 | 27.0 in-lbs (300 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Pilot Accessories

| Pilot Style | Series | Insert Screws | Insert Driver | Admissible Tightening Torque* |
|-------------|--------|---------------|---------------|-------------------------------|
| T-A | 2 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |
| GEN3SYS | 32 | 7495-IP15-1 | 8IP-15 | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Nonstocked diameters are also available. Follow the examples shown below.

| | | | |
|--------------|------------|-------------|-------------------|
| A50: 28 - 29 | A50: 2 - 5 | Section A20 | Section A25 & A30 |
| | | | |

Key on A50: 1

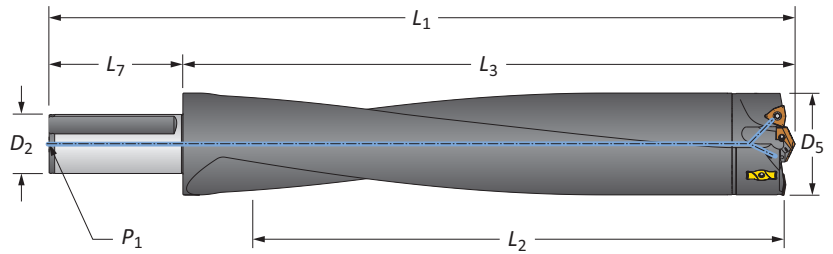
| | | |
|--------|-------------------------------------|--------------------------|
| Inch | 38 series, T-A (1 series), 1.6790" | Part No. = V3801D-1.6790 |
| Metric | 38 series, T-A (1 series), 42.15 mm | Part No. = V3801D-42.15 |

Wear pads sold in multiples of 2 | Wear pad screws sold in multiples of 4
IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

A DRILLING
B BORING
C REAMING
D BURISHING
E THREADING
X SPECIALS

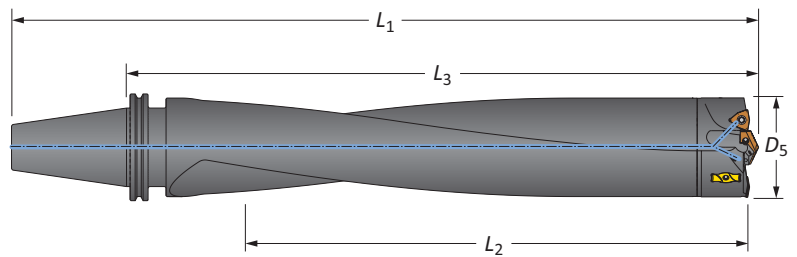
APX Drill Holders

95 Series | Diameter Range: 3.740" - 4.000" (95.00 mm - 101.60 mm)



Straight Shank

| | Length | D ₅ | | Body | | | Shank | | Part No. | |
|---|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|----------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | L ₇ | D ₂ | | P ₁ |
| i | 3xD | 3.740 - 4.000 | 95.00 - 101.60 | 11-7/8 | 14-9/32 | 18-25/32 | 4-1/2 | 2 | 1/4 NPT | W9503H-200F |
| | 5xD | 3.740 - 4.000 | 95.00 - 101.60 | 20 | 22-19/64 | 26-51/64 | 4-1/2 | 2 | 1/4 NPT | W9505H-200F |
| | 8xD | 3.740 - 4.000 | 95.00 - 101.60 | 27-1/2 | 29-51/64 | 34-19/64 | 4-1/2 | 2 | 1/4 NPT | W9508H-200F |
| m | 3xD | 3.740 - 4.000 | 95.00 - 101.60 | 302.01 | 362.79 | 442.80 | 80.00 | 50.00 | 1/4 BSPT | W9503H-50FM |
| | 5xD | 3.740 - 4.000 | 95.00 - 101.60 | 508.00 | 566.19 | 646.20 | 80.00 | 50.00 | 1/4 BSPT | W9505H-50FM |
| | 8xD | 3.740 - 4.000 | 95.00 - 101.60 | 699.00 | 756.69 | 836.70 | 80.00 | 50.00 | 1/4 BSPT | W9508H-50FM |



CV50 Shank

| | Length | D ₅ | | Body | | | Shank | Part No. |
|---|--------|----------------|----------------|----------------|----------------|----------------|-------|-------------|
| | | inch | mm | L ₂ | L ₃ | L ₁ | | |
| i | 3xD | 3.740 - 4.000 | 95.00 - 101.60 | 11-7/8 | 15-43/64 | 19-43/64 | CV50 | W9503H-CV50 |
| | 5xD | 3.740 - 4.000 | 95.00 - 101.60 | 20 | 23-43/64 | 27-43/64 | CV50 | W9505H-CV50 |
| | 8xD | 3.740 - 4.000 | 95.00 - 101.60 | 26-5/8 | 30-9/32 | 34-9/32 | CV50 | W9508H-CV50 |

Connection Accessories

| Mounting Screw | Mounting Screw Bit | Admissible Tightening Torque* |
|----------------|--------------------|-------------------------------|
| 78027-IP30-1 | 8IP-30B | 250 in-lb (2825 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.
ext: 7611 | email: appeng@alliedmachine.com

i = Imperial (in)
m = Metric (mm)

Mounting screws sold in multiples of 4



Recommended Drilling Data | Imperial (inch)

| ISO | Material | Hardness (BHN) | Feed Rate (IPR) by Diameter | | | | | | | | |
|-----|--|----------------|-----------------------------|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | Outboard Insert | | 5/16" IC | 3/8" IC | 1/2" IC | 9/16" IC | 3/8" IC | 1/2" IC | 9/16" IC |
| | | | Series | | 33 | 38 - 44 | 44 - 51 | 51 - 57 - 63 | 70 | 76 - 83 | 89 - 95 |
| | | | Speed (SFM) | Pilot Style | 1.299" - 1.495" | 1.496" - 1.885" | 1.886" - 2.210" | 2.211" - 2.755" | 2.756" - 2.992" | 2.992" - 3.503" | 3.504" - 4.000" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 250 | 450 - 750 | T-A/GEN3SYS | .006 - .011 | .007 - .012 | .009 - .012 | .009 - .012 | .006 - .010 | .007 - .011 | .007 - .012 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 275 | 450 - 750 | T-A/GEN3SYS | .006 - .011 | .007 - .012 | .009 - .012 | .009 - .012 | .006 - .010 | .007 - .011 | .007 - .012 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 325 | 450 - 750 | T-A/GEN3SYS | .006 - .011 | .007 - .012 | .009 - .012 | .009 - .012 | .006 - .010 | .007 - .011 | .007 - .012 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 375 | 400 - 700 | T-A/GEN3SYS | .005 - .007 | .005 - .009 | .007 - .010 | .007 - .011 | .005 - .009 | .006 - .010 | .006 - .010 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 400 | 300 - 500 | T-A/GEN3SYS | .005 - .006 | .005 - .007 | .005 - .008 | .006 - .009 | .005 - .007 | .005 - .008 | .006 - .008 |
| | Structural Steel A36, A285, A516, etc. | 100 - 350 | 450 - 750 | T-A/GEN3SYS | .006 - .008 | .007 - .009 | .008 - .010 | .009 - .011 | .005 - .009 | .006 - .010 | .007 - .010 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | 300 - 500 | T-A/GEN3SYS | .005 - .006 | .005 - .007 | .007 - .009 | .008 - .010 | .005 - .007 | .006 - .009 | .007 - .010 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 200 - 400 | T-A | .004 - .005 | .004 - .007 | .006 - .009 | .007 - .009 | .004 - .006 | .005 - .007 | .005 - .007 |
| | Titanium Alloy | 140 - 310 | 300 - 500 | T-A | .005 - .007 | .006 - .008 | .007 - .009 | .008 - .010 | .004 - .006 | .005 - .007 | .005 - .007 |
| | Aerospace Alloy S82 | 185 - 350 | 400 - 600 | T-A/GEN3SYS | .004 - .006 | .005 - .007 | .006 - .008 | .006 - .008 | .004 - .006 | .005 - .007 | .005 - .007 |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 350 | 300 - 500 | T-A/GEN3SYS | .006 - .008 | .007 - .009 | .008 - .010 | .009 - .011 | .005 - .007 | .007 - .009 | .007 - .010 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 300 - 500 | T-A/GEN3SYS | .005 - .007 | .006 - .008 | .007 - .009 | .008 - .010 | .004 - .008 | .006 - .010 | .006 - .010 |
| | Super Duplex Stainless Steel | 135 - 275 | 250 - 450 | T-A/GEN3SYS | .004 - .006 | .005 - .007 | .007 - .009 | .007 - .009 | .004 - .007 | .006 - .009 | .007 - .010 |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 - 600 | 300 - 500 | T-A | .003 - .005 | .004 - .006 | .006 - .008 | .007 - .009 | .003 - .005 | .004 - .006 | .004 - .006 |
| | Hardened Steel | 300 - 500 | 300 - 500 | T-A | .004 - .005 | .005 - .006 | .006 - .008 | .006 - .008 | .003 - .005 | .004 - .006 | .004 - .006 |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 320 | 500 - 800 | T-A/GEN3SYS | .005 - .009 | .006 - .010 | .008 - .012 | .010 - .012 | .008 - .010 | .009 - .011 | .010 - .012 |
| N | Cast Aluminum | 30 - 180 | 600 - 800 | T-A/GEN3SYS | .009 - .012 | .010 - .014 | .012 - .016 | .012 - .016 | .006 - .009 | .008 - .011 | .008 - .012 |
| | Wrought Aluminum | 30 - 180 | 600 - 800 | T-A/GEN3SYS | .007 - .011 | .008 - .012 | .010 - .014 | .010 - .014 | .006 - .009 | .008 - .011 | .008 - .012 |
| | Aluminum Bronze | 100 - 250 | 400 - 700 | T-A/GEN3SYS | .005 - .007 | .005 - .008 | .007 - .010 | .009 - .011 | .006 - .009 | .007 - .010 | .008 - .012 |
| | Brass | 30 - 100 | 800 | T-A/GEN3SYS | .006 - .008 | .007 - .009 | .008 - .010 | .009 - .012 | .006 - .008 | .007 - .009 | .008 - .012 |
| | Copper | 60 | 700 | T-A/GEN3SYS | .002 - .005 | .003 - .006 | .006 - .008 | .008 - .010 | .006 - .008 | .006 - .008 | .006 - .008 |

Coolant Recommendations

| Series | Pressure (PSI) | Flow Rate (GPM) |
|--------|----------------|-----------------|
| 33 | 350 | 10 |
| 38 | 300 | 10 |
| 44 | 275 | 12 |
| 51 | 250 | 18 |
| 57 | 225 | 20 |
| 63 | 200 | 22 |
| 70 | 150 | 25 |
| 76 | 100 | 28 |
| 83 | 100 | 30 |
| 89 | 100 | 33 |
| 95 | 100 | 33 |

Calculations

| Value | Formula |
|-------|-------------------------|
| SFM | RPM • 0.262 • Diameter |
| RPM | (SFM • 3.82) / Diameter |
| IPM | RPM • IPR |

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is also available through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied Machine recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the APX Drilling System will still function at reduced penetration rates. Contact our Application Engineering department for a more specific recommendation of coolant requirements and/or speeds and feeds.

⚠ WARNING Tool failure can cause serious injury. To prevent: For APX holders 8xD or longer, do not rotate tool more than 50 RPM unless it is engaged with workpiece or fixture. Refer to page A50: 30 for Deep Hole Drilling Guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is also available for your specific applications.

Recommended Drilling Data | Metric (mm)

| ISO | Material | Hardness (BHN) | Outboard Insert | | Feed Rate (mm/rev) by Diameter | | | | | | |
|-----|---|----------------|-----------------|-------------|--------------------------------|-------------|-------------|--------------|-------------|-------------|-------------|
| | | | Series | | 5/16" IC | 3/8" IC | 1/2" IC | 9/16" IC | 3/8" IC | 1/2" IC | 9/16" IC |
| | | | Speed (M/min) | Pilot Style | 33 | 38 - 44 | 44 - 51 | 51 - 57 - 63 | 70 | 76 - 83 | 89 - 95 |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 250 | 137 - 229 | T-A/GEN3SYS | 0.15 - 0.28 | 0.18 - 0.30 | 0.23 - 0.30 | 0.23 - 0.30 | 0.15 - 0.25 | 0.18 - 0.28 | 0.18 - 0.30 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 275 | 137 - 229 | T-A/GEN3SYS | 0.15 - 0.28 | 0.18 - 0.30 | 0.23 - 0.30 | 0.23 - 0.30 | 0.15 - 0.25 | 0.18 - 0.28 | 0.18 - 0.30 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 325 | 137 - 229 | T-A/GEN3SYS | 0.15 - 0.28 | 0.18 - 0.30 | 0.23 - 0.30 | 0.23 - 0.30 | 0.15 - 0.25 | 0.18 - 0.28 | 0.18 - 0.30 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 375 | 122 - 213 | T-A/GEN3SYS | 0.13 - 0.18 | 0.13 - 0.23 | 0.18 - 0.25 | 0.18 - 0.28 | 0.13 - 0.23 | 0.15 - 0.25 | 0.15 - 0.25 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 400 | 91 - 152 | T-A/GEN3SYS | 0.13 - 0.15 | 0.13 - 0.18 | 0.13 - 0.20 | 0.15 - 0.23 | 0.13 - 0.18 | 0.13 - 0.20 | 0.15 - 0.20 |
| | Structural Steel A36, A285, A516, etc. | 100 - 350 | 137 - 229 | T-A/GEN3SYS | 0.15 - 0.20 | 0.18 - 0.23 | 0.20 - 0.25 | 0.23 - 0.28 | 0.13 - 0.23 | 0.15 - 0.25 | 0.15 - 0.25 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | 91 - 152 | T-A/GEN3SYS | 0.13 - 0.15 | 0.13 - 0.18 | 0.18 - 0.23 | 0.20 - 0.25 | 0.13 - 0.18 | 0.15 - 0.23 | 0.18 - 0.25 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 61 - 122 | T-A | 0.10 - 0.13 | 0.10 - 0.18 | 0.15 - 0.23 | 0.18 - 0.23 | 0.10 - 0.15 | 0.13 - 0.18 | 0.13 - 0.18 |
| | Titanium Alloy | 140 - 310 | 91 - 152 | T-A | 0.13 - 0.18 | 0.15 - 0.20 | 0.18 - 0.23 | 0.20 - 0.25 | 0.10 - 0.15 | 0.13 - 0.18 | 0.13 - 0.18 |
| | Aerospace Alloy S82 | 185 - 350 | 122 - 183 | T-A/GEN3SYS | 0.10 - 0.15 | 0.13 - 0.18 | 0.15 - 0.20 | 0.15 - 0.20 | 0.10 - 0.15 | 0.13 - 0.18 | 0.13 - 0.18 |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 350 | 91 - 152 | T-A/GEN3SYS | 0.15 - 0.20 | 0.18 - 0.23 | 0.20 - 0.25 | 0.23 - 0.28 | 0.13 - 0.18 | 0.18 - 0.23 | 0.18 - 0.25 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 91 - 152 | T-A/GEN3SYS | 0.13 - 0.18 | 0.15 - 0.20 | 0.18 - 0.23 | 0.20 - 0.25 | 0.10 - 0.20 | 0.15 - 0.25 | 0.15 - 0.25 |
| | Super Duplex Stainless Steel | 135 - 275 | 76 - 137 | T-A/GEN3SYS | 0.10 - 0.15 | 0.13 - 0.18 | 0.18 - 0.23 | 0.18 - 0.23 | 0.10 - 0.18 | 0.15 - 0.23 | 0.18 - 0.25 |
| H | Wear Plate Hardox®, AR400, T-1, etc. | 400 - 600 | 91 - 152 | T-A | 0.07 - 0.13 | 0.10 - 0.15 | 0.15 - 0.20 | 0.18 - 0.23 | 0.08 - 0.13 | 0.10 - 0.15 | 0.10 - 0.15 |
| | Hardened Steel | 300 - 500 | 91 - 152 | T-A | 0.10 - 0.13 | 0.13 - 0.15 | 0.15 - 0.20 | 0.15 - 0.20 | 0.08 - 0.13 | 0.10 - 0.20 | 0.10 - 0.20 |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 320 | 152 - 244 | T-A/GEN3SYS | 0.13 - 0.23 | 0.15 - 0.25 | 0.20 - 0.30 | 0.25 - 0.30 | 0.20 - 0.25 | 0.23 - 0.28 | 0.25 - 0.30 |
| N | Cast Aluminum | 30 - 180 | 183 - 244 | T-A/GEN3SYS | 0.23 - 0.30 | 0.25 - 0.36 | 0.30 - 0.40 | 0.30 - 0.40 | 0.15 - 0.23 | 0.20 - 0.28 | 0.20 - 0.30 |
| | Wrought Aluminum | 30 - 180 | 183 - 244 | T-A/GEN3SYS | 0.18 - 0.28 | 0.20 - 0.30 | 0.25 - 0.36 | 0.25 - 0.36 | 0.15 - 0.23 | 0.20 - 0.28 | 0.20 - 0.30 |
| | Aluminum Bronze | 100 - 250 | 123 - 213 | T-A/GEN3SYS | 0.13 - 0.18 | 0.13 - 0.20 | 0.18 - 0.25 | 0.23 - 0.28 | 0.15 - 0.23 | 0.18 - 0.25 | 0.20 - 0.30 |
| | Brass | 30 - 100 | 244 | T-A/GEN3SYS | 0.15 - 0.20 | 0.18 - 0.23 | 0.20 - 0.25 | 0.23 - 0.30 | 0.15 - 0.20 | 0.18 - 0.23 | 0.20 - 0.25 |
| | Copper | 60 | 213 | T-A/GEN3SYS | 0.05 - 0.13 | 0.08 - 0.15 | 0.15 - 0.20 | 0.20 - 0.25 | 0.08 - 0.15 | 0.15 - 0.20 | 0.15 - 0.20 |

Coolant Recommendations

| Series | Pressure (BAR) | Flow Rate (LPM) |
|--------|----------------|-----------------|
| 33 | 24 | 38 |
| 38 | 21 | 38 |
| 44 | 19 | 45 |
| 51 | 17 | 68 |
| 57 | 16 | 76 |
| 63 | 14 | 83 |
| 70 | 10 | 95 |
| 76 | 7 | 106 |
| 83 | 7 | 114 |
| 89 | 7 | 125 |
| 95 | 7 | 125 |

Calculations

| Value | Formula |
|--------|--|
| M/min | $RPM \cdot 0.003 \cdot \text{Diameter}$ |
| RPM | $(M/min \cdot 318.47) / \text{Diameter}$ |
| mm/min | $RPM \cdot \text{mm/rev}$ |

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is also available through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied Machine recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the APX Drilling System will still function at reduced penetration rates. Contact our Application Engineering department for a more specific recommendation of coolant requirements and/or speeds and feeds.

⚠ WARNING Tool failure can cause serious injury. To prevent: For APX holders 8xD or longer, do not rotate tool more than 50 RPM unless it is engaged with workpiece or fixture. Refer to page A50: 30 for Deep Hole Drilling Guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is also available for your specific applications.



Deep Hole Drilling Guidelines

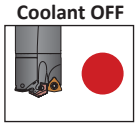
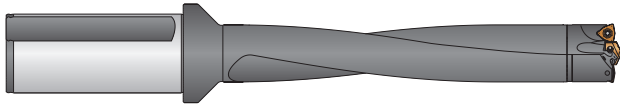
A

DRILLING



1. Approach
50 RPM max
12 IPM (300 mm/min)

Feed the longer drill within 1/16" (1.5 mm) short of the workpiece at a **maximum of 50 RPM** and 12 IPM (300 mm/min) feed rate.

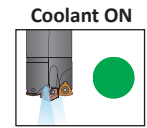
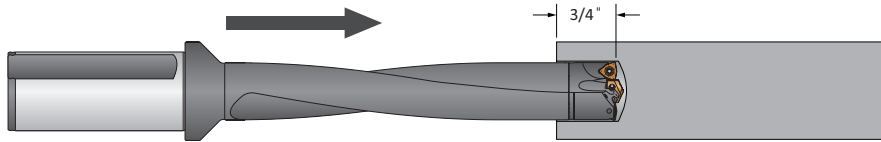


B

BORING

2. Feed-in
Speed at 75% of recommended start
Feed at 50% of recommended start

Drill 3/4" deep at 75% recommended speed and 50% recommended feed to establish the hole.

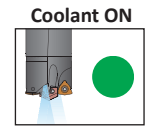
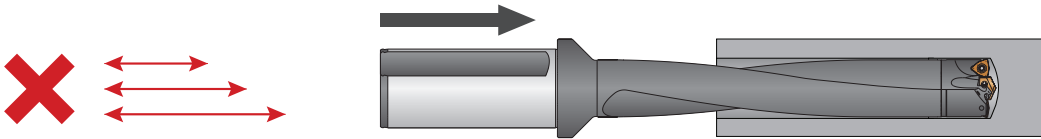


C

REAMING

3. Deep Hole Drilling - Blind
100 % RPM
100% IPR (mm/rev)

Drill to full depth at recommended speed and feed for longer drills (according to Allied Machine speed and feed charts).
***No peck cycle recommended.**

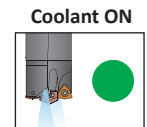
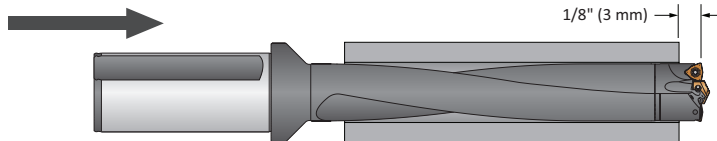


D

BURNISHING

4. Deep Hole Drilling - at Breakout
50% RPM
100% IPR (mm/rev)

***For through holes only:**
Reduce speed by 50% prior to breakout.
Do not break out more than 1/8" (3 mm) past the full diameter of the drill.



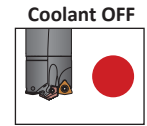
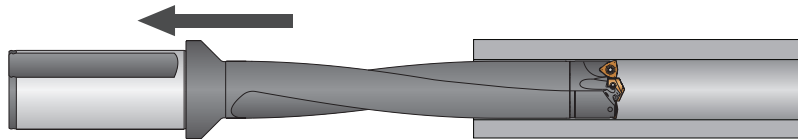
E

THREADING



5. Drill Retract
50 RPM max

Reduce speed to a **maximum of 50 RPM** before retracting from the hole.



X

SPECIALS

⚠ WARNING Tool failure can cause serious injury. To prevent: NEVER rotate these tool holders more than 50 RPM without proper engagement with a workpiece or fixture. Failure to do so could result in tool failure and/or personal injury. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is also available for your specific applications.
ext: 7611 | email: appeng@alliedmachine.com

SECTION

A55

4TEX® Drill

4TEX[®] Drill

Indexable Carbide Insert Drilling System

► **Diameter Range:** 0.472" - 1.850" (12.00 mm - 47.00 mm)



Don't Let Your Machine Slow You Down

The 4TEX indexable carbide drill provides increased penetration rates on light duty machines due to the single effective design. With twisted coolant outlets and increased core strength, the design provides improved hole size and finish.

The four sided 4TEX inserts are designed to use two sides in the center pocket and two sides in the periphery pocket for an improved cost per hole. With insert geometries available for all ISO material classes and a robust body design, the 4TEX is suited for your difficult applications.

| | | |
|-------------------------------|--------------------------|-----------------------------|
| Improved hole size and finish | Superior chip evacuation | Increased penetration rates |
|-------------------------------|--------------------------|-----------------------------|

Applicable Industries



Aerospace



Agriculture



Automotive



Firearms



General
Machining



Oil & Gas



Renewable
Energy

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

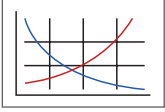
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



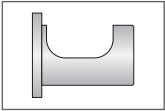
Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling



Eccentric Sleeves

Refers to the corresponding eccentric sleeve for the holder



Coolant-Through Option

Indicates that the product is coolant through

| Series | Diameter Range | |
|--------|-----------------|---------------|
| | Imperial (inch) | Metric (mm) |
| 03 | 0.472 - 0.531 | 12.00 - 13.49 |
| 04 | 0.532 - 0.610 | 13.50 - 15.49 |
| 05 | 0.611 - 0.728 | 15.50 - 18.49 |
| 06 | 0.728 - 0.866 | 18.50 - 21.99 |
| 07 | 0.867 - 1.043 | 22.00 - 26.49 |
| 09 | 1.044 - 1.259 | 26.50 - 31.99 |
| 11 | 1.260 - 1.535 | 32.00 - 38.99 |
| 14 | 1.536 - 1.850 | 39.00 - 47.00 |

Introduction Information

- Safety Information 2
- Case Study 3
- Product Overview 4
- Insert Information 5 - 6
- Product Nomenclature 7

Drill Series

- 03 Series 8 - 9
- 04 Series 10 - 11
- 05 Series 12 - 13
- 06 Series 14 - 15
- 07 Series 16 - 17
- 09 Series 18 - 21
- 11 Series 22 - 25
- 14 Series 26 - 29

- Eccentric Sleeves 30

Technical Information

- Diameter Adjustment 31
- Center Height Alignment 32 - 33

Recommended Cutting Data

- Imperial (inch) 34
- Metric (mm) 35

- Insert Geometry Recommendations 36

- Troubleshooting Guide 37

Safety Information



Mechanical / Physical Hazards

Operating cutting tools may present both mechanical and physical hazards. These hazards can result in serious injury to workers or those near machines and damage to machines and the cutting tools. Cutting tools and/or assemblies may break or come loose when in operation causing projectile metal fragments. Metal chips produced by cutting tools have sharp edges and may be very hot. To minimize the risk of mechanical or physical hazards:

- Always secure all components of the cutting tool assembly before operating.
- Wear cut-resistant gloves when handling cutting tool components and assemblies.
- Do not touch metal chips produced by the cutting tools with your hands.
- Always wear appropriate personal protective equipment including safety goggles or glasses with side shields.
- Immediately discontinue use of damaged cutting tools.
- To avoid machine tool damage, make sure the machine has adequate power and torque for the cutting tool when operating. See catalog for power and torque requirements.
- Operating long cutting tools at high spindle speeds can result in a high risk of tool failure and serious injury. Visit www.alliedmachine.com/DeepHoleGuidelines to read guidelines specific for deep hole drilling.

Dust and Fume Hazards

Grinding, welding, cutting or burning hard metals such as high-speed steel, cobalt or carbides produces hazardous dust and/or fumes. Continued long-term exposure to hazardous dust and fumes can cause serious health issues. To minimize the risk of dust and fume hazards:

- Do not regrind or sharpen cutting tools without using adequate ventilation.
- Use appropriate personal protective equipment such as approved respirator to avoid inhalation, swallowing, or skin contact with the hazardous dust and/or fumes.
- Do not eat, drink, or smoke in the machine operation area. Always wash skin prior to eating, drinking, or smoking to avoid hazardous ingestion.

Sensitizing Hazards

Components of an assembled cutting tool are made from a variety of metal elements that may cause allergic skin reactions with prolonged skin contact. To minimize the risk of allergic skin reactions:

- Avoid skin contact with cutting tools.
- Wear appropriate gloves and protective clothing.
- Wash skin and launder clothing after handling cutting tools to reduce the risk of skin allergies.

Preventive Safety Measure Applicable to all Hazards

- Prior to using cutting tools, always read Allied Machine's Safety Data Sheets, product catalog, and product labels for additional warnings for the Allied Machine product being used.
- For machining safety, only operate equipment when all necessary guards, interlocks and other safety devices are in place and functional. Use all appropriate safety guards or machine encapsulations to securely collect particles such as chips or cutting elements that may become projectiles.

Through Hole

- With through holes, a **sharp-edged disk** is created as tool breakout occurs.
 - ⚠ Proper personal protective equipment must be used to prevent injury (e.g. wear cut-resistant gloves).



Case Study

Do you need performance in extreme machining conditions?

Tooling is only a sliver of the pie when it comes to productivity. It doesn't matter what your tooling is capable of if your machine conditions restrict those capabilities. Our customer, who drills holes for machine gun bolt switches, utilizes a machine with oil coolant that creates more extreme drilling conditions than water-based coolant.



Because oil coolant doesn't dissipate heat fast enough, the customer's tooling only lasted for 160 holes per insert, and the tool experienced sporadic failure. They also needed to run a peck cycle for chip control.

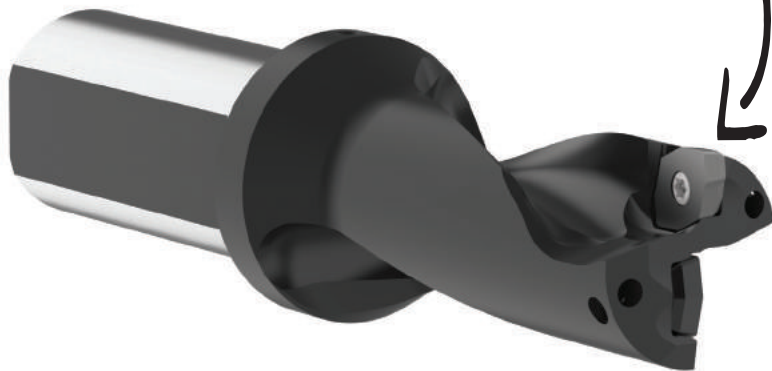
The customer decided to test the **4TEX indexable carbide drill** using the "P" geometry with AM480 coating designed specifically for wear-resistance in steel material applications. The 4TEX "P" geometry allowed for the speed and feed to be altered and accommodated the machine's oil coolant. The 4TEX penetration rate was able to decrease cycle time and also double the tool life to 320 holes per insert. The 4TEX geometry also improved chip formation and eliminated the peck cycle.

The 4TEX provided the stable and repeatable process the customer was looking for while increasing tool life by 100%. With all their objectives met, the customer was thrilled with the solution that optimized their machine's limitations. **Are you using the solution that best optimizes your machine's limitations?**

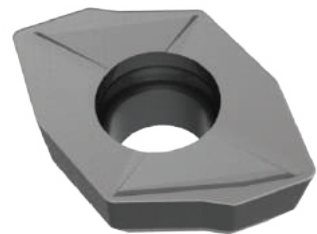
| Product: | 4TEX® Drill | Measure | Competitor IC Drill | 4TEX® Drill |
|-------------|--|------------------|----------------------------|---------------------------|
| Objectives: | (1) Exceed 160 holes per insert (2) Eliminate peck cycle (3) Provide stable/repeatable process | RPM | 2075 | 1223 |
| | | Speed Rate | 509 SFM (155.1432 M/min) | 300 SFM (91.44 M/min) |
| | | Feed Rate | 0.0015 IPR (0.0381 mm/rev) | 0.003 IPR (0.0762 mm/rev) |
| Industry: | Firearms | Penetration Rate | 3.11 IPM (78.994 mm/min) | 3.67 IPM (93.219 mm/min) |
| Part: | Machine gun bolt switch hole | Peck Cycle | Yes | No |
| Material: | 4340 steel | Cycle Time | 16 sec | 9 sec |
| Hole Ø: | 0.937" (23.7998 mm) | Tool Life | 160 holes per insert | 320 holes per insert |
| Hole Depth: | 0.590" (14.986 mm) | | | |

- ▶ 4TEX Drill holder
2xD length
Item No. D2070937I-100F

- ▶ 4TEX Drill inserts
P geometry (steel)
Item No. 4T-070305-P



100%
tool life increase



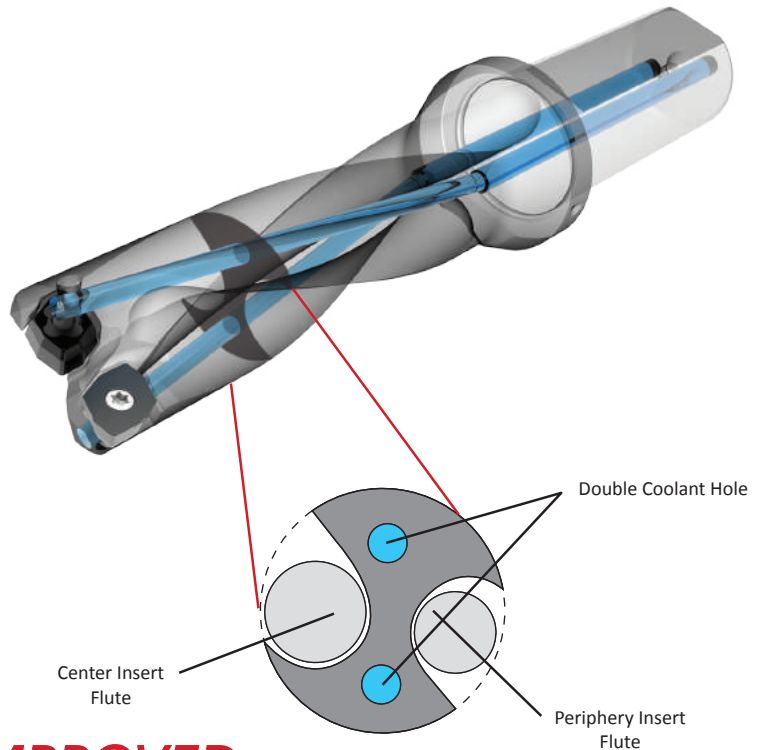
The 4-sided indexable inserts with wear-resistant coating provided:

- ✓ Increased tool life
- ✓ Decreased cycle time
- ✓ Worry-free machining

Product Overview

4TEX Drill *Advantages*

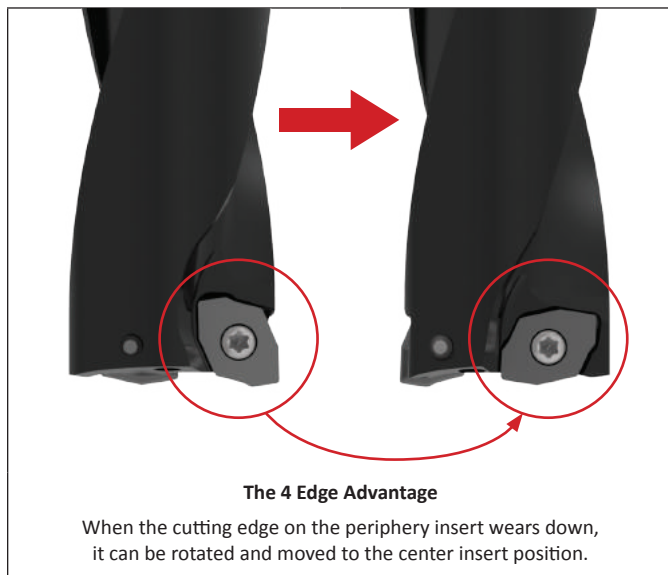
- ✓ **Superior chip evacuation**
provided by the two twisted coolant holes
- ✓ **Improved hole size**
from the increased holder rigidity
- ✓ **Longer tool life**
provided by the four-sided insert design
- ✓ **Optimal chip formation**
with ISO-specific insert geometry/coating combinations
- ✓ **Competitive cycle times**
due to single effective cutting when using light duty machines



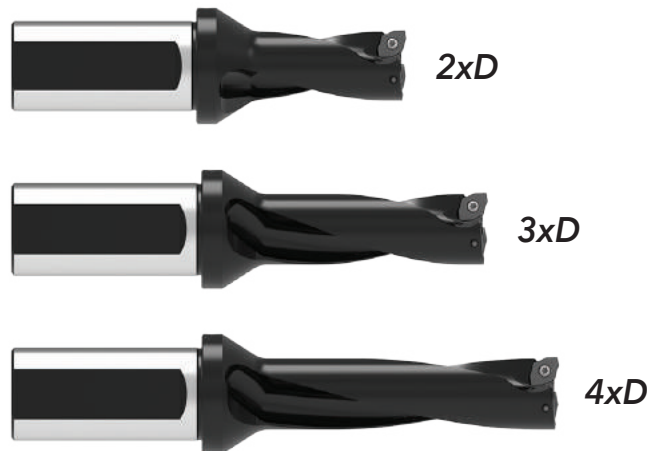
DESIGNED TO GIVE YOU *IMPROVED* HOLE SIZE AND STRAIGHTNESS

- The two twisted coolant holes allow the core to remain intact, making the core thicker and stronger for improved hole straightness even in uneven surfaces.
- The enlarged dual coolant outlets increase the coolant volume, which improved the chip evacuation resulting in improved hole size.
- The flute space of the internal cutting edge side (where chips get stuck most often) is 1.6x larger than typical IC drills, helping to mitigate catastrophic failures and improve hole size.

LONGER TOOL LIFE



AVAILABLE *LENGTHS*

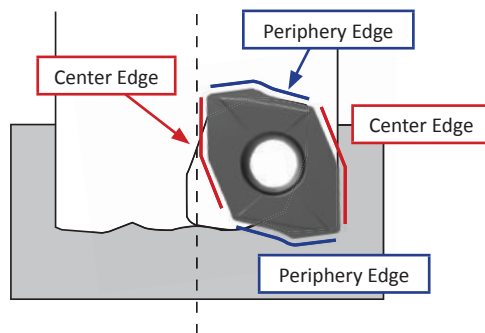


A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Insert Information

4 CUTTING EDGES

- Each insert has two inner cutting edges and two outer cutting edges
- Economical solution that increases tool life because of the rotation ability of the inserts
- Available in ISO material-specific geometry/coating combinations



Periphery Insert



Periphery edge chip formation:



Center Insert



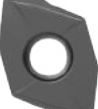


Center edge chip formation:



| ISO Material | Geometry | Coating | Description |
|--------------|--------------|---------|--|
| P | General Rake | AM480 | A general purpose geometry that provides excellent chip formation in most steels including free-machining, medium- and high-carbon steels. A P30 carbide substrate for improved toughness and AM480 coating, a proprietary wear resistant multilayer PVD coating to improve tool life. |
| S M | High Rake | AM485 | A higher rake geometry that provides excellent chip formation in both stainless steels and high-temperature alloys. A tough M25 carbide substrate coated with AM485, a high heat resistance proprietary multilayer PVD coating. |
| H | Low Rake | AM480 | A lower rake geometry to improve edge strength in both hardened tool steels and high-strength alloys. With a P30 carbide substrate for improved toughness and coated with AM480, a proprietary multilayer PVD coating to improve resistance against tool wear. |
| K | General Rake | AM480 | With a general purpose geometry, the K inserts can be used in grey cast irons as well as ductile irons. A high wear-resistant K10 carbide substrate to improve tool life and coated with AM480, a proprietary multilayer PVD coating to improve resistance against tool wear. |
| N | High Rake | TiCN | A higher rake cutting geometry provides excellent chip formation in nonferrous materials. An M15/K15 carbide substrate paired with TiCN coating for improved lubricity to resist built-up material, increasing tool life and maintaining chip formation. |

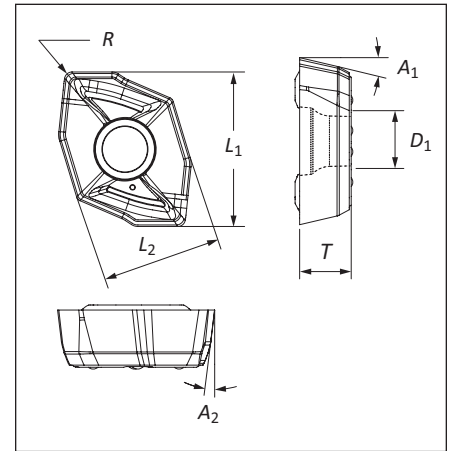
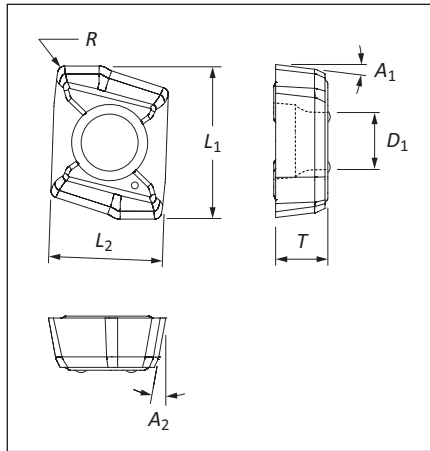
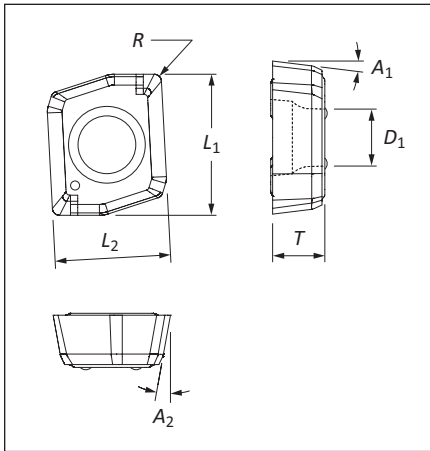
Insert Information

| Series | Insert Prefix | Dimension (mm) | | | | | Angle | | Shape |
|--------|---------------|----------------|-------|------|-------|------|-------|-------|--|
| | | L_1 | L_2 | T | D_1 | R | A_1 | A_2 | |
| 03 | 4T-030203C-x | 5.60 | 4.80 | 2.30 | 2.40 | 0.30 | 7° | 10° |  Style 1 |
| | 4T-030203P-x | 6.38 | 4.77 | 2.30 | 2.40 | 0.30 | 7° | 10° |  Style 2 |
| 04 | 4T-040203-x | 6.21 | 5.06 | 2.60 | 2.45 | 0.30 | 13° | 10° |  Style 3 |
| 05 | 4T-05T203-x | 7.26 | 5.48 | 2.76 | 2.55 | 0.30 | 13° | 7° | |
| 06 | 4T-06T204-x | 8.59 | 6.44 | 2.89 | 2.79 | 0.40 | 13° | 7° | |
| 07 | 4T-070305-x | 10.21 | 8.02 | 3.24 | 3.00 | 0.50 | 13° | 7° | |
| 09 | 4T-09T306-x | 12.18 | 9.55 | 4.03 | 3.64 | 0.60 | 13° | 7° | |
| 11 | 4T-11T306-x | 14.50 | 11.61 | 4.06 | 4.62 | 0.60 | 13° | 7° | |
| 14 | 4T-140408-x | 17.99 | 14.40 | 4.88 | 5.76 | 0.80 | 13° | 7° | |

Style 1

Style 2

Style 3

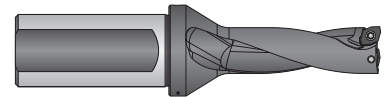


A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Product Nomenclature

4TEX Drill Holders

| | | | | | | |
|-----------|-----------|-------------|----------|---|------------|----------|
| D4 | 03 | 1200 | M | - | 075 | F |
| 1 | 2 | 3* | 4 | | 5 | 6 |



| 1. Length-to-Diameter-Ratio |
|-----------------------------|
| D2 = 2xD |
| D3 = 3xD |
| D4 = 4xD |

| 2. Series | |
|-----------------------|-----------------------|
| 03 = 03 series | 07 = 07 series |
| 04 = 04 series | 09 = 09 series |
| 05 = 05 series | 11 = 11 series |
| 06 = 06 series | 14 = 14 series |

| 3. Diameter* |
|---------------------|
| 0750 = .075" |
| 1200 = 12mm |

| 4. Diameter Style |
|---------------------|
| I = Imperial |
| M = Metric |

| 5. Shank Diameter | |
|---------------------|-------------------|
| Imperial | Metric |
| 075 = 0.75" | 20 = 20 mm |
| 100 = 1.000" | 25 = 25 mm |
| 125 = 1.250" | 32 = 32 mm |
| 150 = 1.500" | 40 = 40 mm |

| 6. Shank Style |
|-----------------------------------|
| F = Imperial flanged shank |
| FM = Metric flanged shank |

***Ordering Nonstocked Diameters:**

Non-stocked diameters are available upon request. Please refer to price list for applicable process fees.

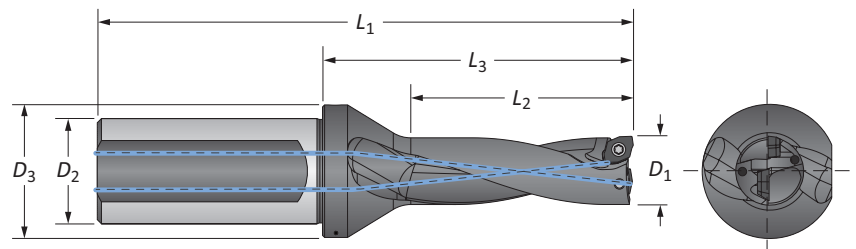
Ordering example:

Inch: 03 Series (∅ .480") = D2030480I-075F

Metric: 03 Series (12.65 mm) = D2031265M-20FM

Reference Key

| Symbol | Attribute |
|----------------------|--------------------------|
| D₁ | Drill diameter |
| D₂ | Shank diameter |
| D₃ | Flange diameter |
| L₁ | Assembled overall length |
| L₂ | Drill depth |
| L₃ | Reference length |



A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

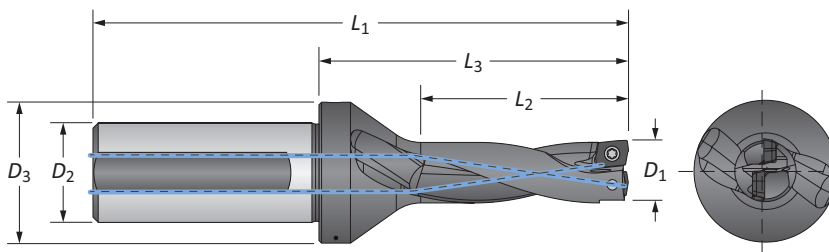
THREADING

X

SPECIALS

4TEX Drill Holders | Imperial Shank

03 Series | Diameter Range: 0.472" - 0.531" (12.00 mm - 13.49 mm)



Imperial Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 0.472 | 12.00 | 0.945 | 1.787 | 3.480 | 0.750 | 1.063 | 0.020 | D2031200M-075F |
| | 0.492 | 12.50 | 0.984 | 1.827 | 3.520 | 0.750 | 1.063 | 0.016 | D2031250M-075F |
| | 0.500 | 12.70 | 1.000 | 1.827 | 3.520 | 0.750 | 1.063 | 0.014 | D2030500I-075F |
| | 0.512 | 13.00 | 1.024 | 1.866 | 3.559 | 0.750 | 1.063 | 0.012 | D2031300M-075F |
| 3xD | 0.472 | 12.00 | 1.417 | 2.260 | 3.953 | 0.750 | 1.063 | 0.020 | D3031200M-075F |
| | 0.492 | 12.50 | 1.476 | 2.319 | 4.012 | 0.750 | 1.063 | 0.016 | D3031250M-075F |
| | 0.500 | 12.70 | 1.500 | 2.319 | 4.012 | 0.750 | 1.063 | 0.014 | D3030500I-075F |
| | 0.512 | 13.00 | 1.535 | 2.378 | 4.071 | 0.750 | 1.063 | 0.012 | D3031300M-075F |
| 4xD | 0.472 | 12.00 | 1.890 | 2.732 | 4.425 | 0.750 | 1.063 | 0.020 | D4031200M-075F |
| | 0.492 | 12.50 | 1.969 | 2.811 | 4.504 | 0.750 | 1.063 | 0.016 | D4031250M-075F |
| | 0.500 | 12.70 | 2.000 | 2.811 | 4.504 | 0.750 | 1.063 | 0.014 | D4030500I-075F |
| | 0.512 | 13.00 | 2.047 | 2.890 | 4.583 | 0.750 | 1.063 | 0.012 | D4031300M-075F |

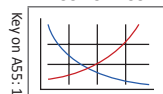
IC Inserts

| ISO Material | Style | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-----------|--------------|--------------|--------------|------------------------------|
| P | Center | 4T-030203C-P | 7241-T6-1 | 8T-6 | 4.4 in-lbs (0.5 N-m) |
| | Periphery | 4T-030203P-P | | | |
| S M | Center | 4T-030203C-M | | | |
| | Periphery | 4T-030203P-M | | | |
| H | Center | 4T-030203C-H | | | |
| | Periphery | 4T-030203P-H | | | |
| K | Center | 4T-030203C-K | | | |
| | Periphery | 4T-030203P-K | | | |
| N | Center | 4T-030203C-N | | | |
| | Periphery | 4T-030203P-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.004 / +.008 | -.10 / +.20 |
| 3xD | -.004 / +.008 | -.10 / +.20 |
| 4xD | -.004 / +.010 | -.10 / +.25 |

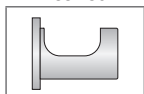
A55: 34 - 35



A55: 31 - 33



A55: 30



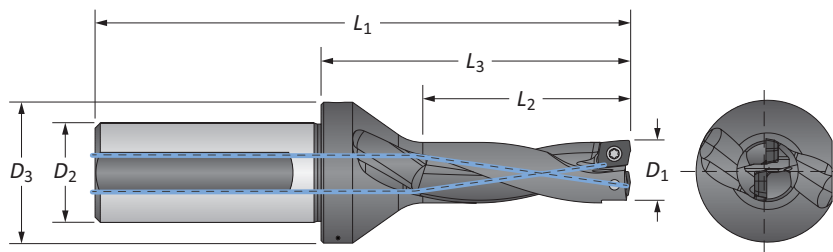
Key on A55: 1

i = Imperial (in)
m = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

03 Series | Diameter Range: 0.472" - 0.531" (12.00 mm - 13.49 mm)



Metric Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 0.472 | 12.00 | 24.00 | 45.40 | 88.40 | 20.00 | 27.00 | 0.50 | D2031200M-20FM |
| | 0.492 | 12.50 | 25.00 | 46.40 | 89.40 | 20.00 | 27.00 | 0.40 | D2031250M-20FM |
| | 0.500 | 12.70 | 25.40 | 46.40 | 89.40 | 20.00 | 27.00 | 0.35 | D2030500I-20FM |
| | 0.512 | 13.00 | 26.00 | 47.40 | 90.40 | 20.00 | 27.00 | 0.30 | D2031300M-20FM |
| 3xD | 0.472 | 12.00 | 36.00 | 57.40 | 100.40 | 20.00 | 27.00 | 0.50 | D3031200M-20FM |
| | 0.492 | 12.50 | 37.50 | 58.90 | 101.90 | 20.00 | 27.00 | 0.40 | D3031250M-20FM |
| | 0.500 | 12.70 | 38.10 | 58.90 | 101.90 | 20.00 | 27.00 | 0.35 | D3030500I-20FM |
| | 0.512 | 13.00 | 39.00 | 60.40 | 103.40 | 20.00 | 27.00 | 0.30 | D3031300M-20FM |
| 4xD | 0.472 | 12.00 | 48.00 | 69.40 | 112.40 | 20.00 | 27.00 | 0.50 | D4031200M-20FM |
| | 0.492 | 12.50 | 50.00 | 71.40 | 114.40 | 20.00 | 27.00 | 0.40 | D4031250M-20FM |
| | 0.500 | 12.70 | 50.80 | 71.40 | 114.40 | 20.00 | 27.00 | 0.35 | D4030500I-20FM |
| | 0.512 | 13.00 | 52.00 | 73.40 | 116.40 | 20.00 | 27.00 | 0.30 | D4031300M-20FM |

IC Inserts

| ISO Material | Style | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-----------|--------------|--------------|--------------|------------------------------|
| P | Center | 4T-030203C-P | 7241-T6-1 | 8T-6 | 4.4 in-lbs (0.5 N-m) |
| | Periphery | 4T-030203P-P | | | |
| S M | Center | 4T-030203C-M | | | |
| | Periphery | 4T-030203P-M | | | |
| H | Center | 4T-030203C-H | | | |
| | Periphery | 4T-030203P-H | | | |
| K | Center | 4T-030203C-K | | | |
| | Periphery | 4T-030203P-K | | | |
| N | Center | 4T-030203C-N | | | |
| | Periphery | 4T-030203P-N | | | |

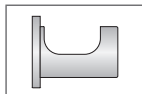
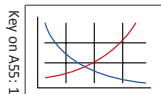
Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.004 / +.008 | -.10 / +.20 |
| 3xD | -.004 / +.008 | -.10 / +.20 |
| 4xD | -.004 / +.010 | -.10 / +.25 |

A55: 34 - 35

A55: 31 - 33

A55: 30



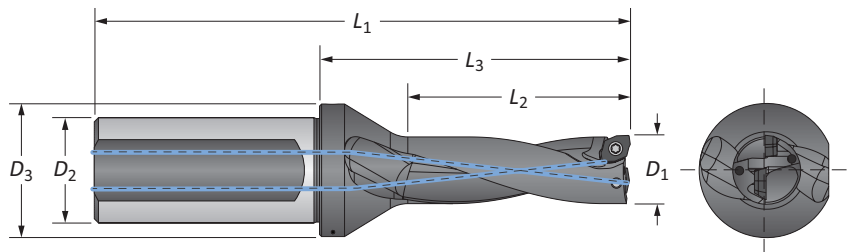
Key on A55: 1

ⓘ = Imperial (in)
Ⓜ = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Imperial Shank

04 Series | Diameter Range: 0.532" - 0.610" (13.50 mm - 15.49 mm)



Imperial Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 0.531 | 13.50 | 1.063 | 1.906 | 3.598 | 0.750 | 1.063 | 0.020 | D2041350M-075F |
| | 0.551 | 14.00 | 1.102 | 1.945 | 3.638 | 0.750 | 1.063 | 0.016 | D2041400M-075F |
| | 0.563 | 14.29 | 1.124 | 1.945 | 3.638 | 0.750 | 1.063 | 0.013 | D2040562I-075F |
| | 0.571 | 14.50 | 1.142 | 1.984 | 3.677 | 0.750 | 1.063 | 0.012 | D2041450M-075F |
| | 0.591 | 15.00 | 1.181 | 2.024 | 3.717 | 0.750 | 1.063 | 0.008 | D2041500M-075F |
| 3xD | 0.531 | 13.50 | 1.594 | 2.437 | 4.130 | 0.750 | 1.063 | 0.020 | D3041350M-075F |
| | 0.551 | 14.00 | 1.654 | 2.496 | 4.189 | 0.750 | 1.063 | 0.016 | D3041400M-075F |
| | 0.563 | 14.29 | 1.686 | 2.496 | 4.189 | 0.750 | 1.063 | 0.013 | D3040562I-075F |
| | 0.571 | 14.50 | 1.713 | 2.555 | 4.248 | 0.750 | 1.063 | 0.012 | D3041450M-075F |
| | 0.591 | 15.00 | 1.772 | 2.614 | 4.307 | 0.750 | 1.063 | 0.008 | D3041500M-075F |
| 4xD | 0.531 | 13.50 | 2.126 | 2.969 | 4.661 | 0.750 | 1.063 | 0.020 | D4041350M-075F |
| | 0.551 | 14.00 | 2.205 | 3.047 | 4.740 | 0.750 | 1.063 | 0.016 | D4041400M-075F |
| | 0.563 | 14.29 | 2.248 | 3.047 | 4.740 | 0.750 | 1.063 | 0.013 | D4040562I-075F |
| | 0.571 | 14.50 | 2.283 | 3.126 | 4.819 | 0.750 | 1.063 | 0.012 | D4041450M-075F |
| | 0.591 | 15.00 | 2.362 | 3.205 | 4.898 | 0.750 | 1.063 | 0.008 | D4041500M-075F |

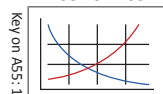
IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-040203-P | 7241-T6-1 | 8T-6 | 4.4 in-lbs (0.5 N-m) |
| S | 4T-040203-M | | | |
| H | 4T-040203-H | | | |
| K | 4T-040203-K | | | |
| N | 4T-040203-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.004 / +.008 | -.10 / +.20 |
| 3xD | -.004 / +.008 | -.10 / +.20 |
| 4xD | -.004 / +.010 | -.10 / +.25 |

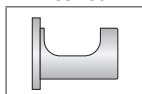
A55: 34 - 35



A55: 31 - 33



A55: 30



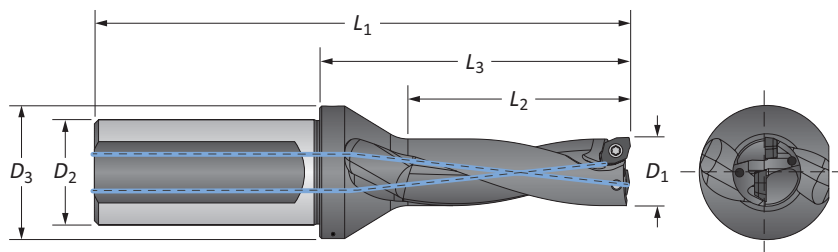
Key on A55: 1

ⓘ = Imperial (in)
Ⓜ = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

04 Series | Diameter Range: 0.532" - 0.610" (13.50 mm - 15.49 mm)



Metric Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 0.531 | 13.50 | 27.00 | 48.40 | 91.40 | 20.00 | 27.00 | 0.50 | D2041350M-20FM |
| | 0.551 | 14.00 | 28.00 | 49.40 | 92.40 | 20.00 | 27.00 | 0.40 | D2041400M-20FM |
| | 0.563 | 14.29 | 28.55 | 49.40 | 92.40 | 20.00 | 27.00 | 0.30 | D2040562I-20FM |
| | 0.571 | 14.50 | 29.00 | 50.40 | 93.40 | 20.00 | 27.00 | 0.30 | D2041450M-20FM |
| | 0.591 | 15.00 | 30.00 | 51.40 | 94.40 | 20.00 | 27.00 | 0.20 | D2041500M-20FM |
| 3xD | 0.531 | 13.50 | 40.50 | 61.90 | 104.90 | 20.00 | 27.00 | 0.50 | D3041350M-20FM |
| | 0.551 | 14.00 | 42.00 | 63.40 | 106.40 | 20.00 | 27.00 | 0.40 | D3041400M-20FM |
| | 0.563 | 14.29 | 42.82 | 63.40 | 106.40 | 20.00 | 27.00 | 0.30 | D3040562I-20FM |
| | 0.571 | 14.50 | 43.50 | 64.90 | 107.90 | 20.00 | 27.00 | 0.30 | D3041450M-20FM |
| | 0.591 | 15.00 | 45.00 | 66.40 | 109.40 | 20.00 | 27.00 | 0.20 | D3041500M-20FM |
| 4xD | 0.531 | 13.50 | 54.00 | 75.40 | 118.40 | 20.00 | 27.00 | 0.50 | D4041350M-20FM |
| | 0.551 | 14.00 | 56.00 | 77.40 | 120.40 | 20.00 | 27.00 | 0.40 | D4041400M-20FM |
| | 0.563 | 14.29 | 57.10 | 77.40 | 120.40 | 20.00 | 27.00 | 0.30 | D4040562I-20FM |
| | 0.571 | 14.50 | 58.00 | 79.40 | 122.40 | 20.00 | 27.00 | 0.30 | D4041450M-20FM |
| | 0.591 | 15.00 | 60.00 | 81.40 | 124.40 | 20.00 | 27.00 | 0.20 | D4041500M-20FM |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-040203-P | 7241-T6-1 | 8T-6 | 4.4 in-lbs (0.5 N-m) |
| S | 4T-040203-M | | | |
| H | 4T-040203-H | | | |
| K | 4T-040203-K | | | |
| N | 4T-040203-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.004 / +.008 | -.10 / +.20 |
| 3xD | -.004 / +.008 | -.10 / +.20 |
| 4xD | -.004 / +.010 | -.10 / +.25 |

Key on ASS: 1

A55: 34 - 35

A55: 31 - 33

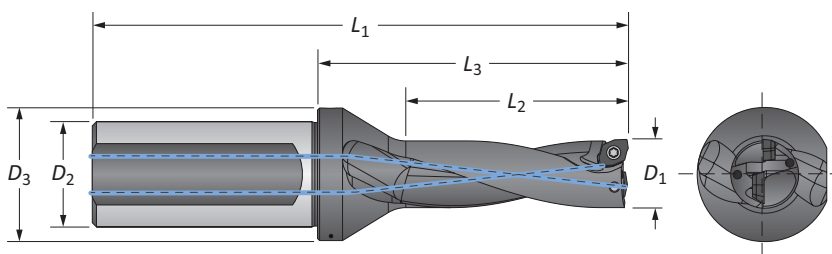
A55: 30

ⓘ = Imperial (in)
 ⓘ = Metric (mm)

IC inserts sold in quantities of 10
 Insert screws sold in quantities of 10

4TEX Drill Holders | Imperial Shank

05 Series | Diameter Range: 0.611" - 0.728" (15.50 mm - 18.49 mm)



Imperial Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 0.610 | 15.50 | 1.220 | 2.146 | 4.272 | 1.000 | 1.260 | 0.031 | D2051550M-100F |
| | 0.625 | 15.88 | 1.250 | 2.146 | 4.272 | 1.000 | 1.260 | 0.029 | D2050625I-100F |
| | 0.630 | 16.00 | 1.260 | 2.185 | 4.311 | 1.000 | 1.260 | 0.028 | D2051600M-100F |
| | 0.650 | 16.50 | 1.299 | 2.224 | 4.350 | 1.000 | 1.260 | 0.020 | D2051650M-100F |
| | 0.656 | 16.66 | 1.312 | 2.224 | 4.350 | 1.000 | 1.260 | 0.016 | D2050656I-100F |
| | 0.669 | 17.00 | 1.339 | 2.264 | 4.390 | 1.000 | 1.260 | 0.016 | D2051700M-100F |
| | 0.687 | 17.46 | 1.374 | 2.264 | 4.390 | 1.000 | 1.260 | 0.012 | D2050687I-100F |
| | 0.689 | 17.50 | 1.378 | 2.303 | 4.429 | 1.000 | 1.260 | 0.012 | D2051750M-100F |
| | 0.709 | 18.00 | 1.417 | 2.343 | 4.469 | 1.000 | 1.260 | 0.008 | D2051800M-100F |
| 3xD | 0.718 | 18.24 | 1.436 | 2.343 | 4.469 | 1.000 | 1.260 | 0.006 | D2050718I-100F |
| | 0.610 | 15.50 | 1.831 | 2.756 | 4.882 | 1.000 | 1.260 | 0.031 | D3051550M-100F |
| | 0.625 | 15.88 | 1.875 | 2.756 | 4.882 | 1.000 | 1.260 | 0.029 | D3050625I-100F |
| | 0.630 | 16.00 | 1.890 | 2.815 | 4.941 | 1.000 | 1.260 | 0.028 | D3051600M-100F |
| | 0.650 | 16.50 | 1.949 | 2.874 | 5.000 | 1.000 | 1.260 | 0.020 | D3051650M-100F |
| | 0.656 | 16.66 | 1.968 | 2.784 | 5.000 | 1.000 | 1.260 | 0.016 | D3050656I-100F |
| | 0.669 | 17.00 | 2.008 | 2.933 | 5.059 | 1.000 | 1.260 | 0.016 | D3051700M-100F |
| | 0.687 | 17.46 | 2.061 | 2.933 | 5.059 | 1.000 | 1.260 | 0.012 | D3050687I-100F |
| | 0.689 | 17.50 | 2.067 | 2.992 | 5.118 | 1.000 | 1.260 | 0.012 | D3051750M-100F |
| 4xD | 0.709 | 18.00 | 2.126 | 3.051 | 5.177 | 1.000 | 1.260 | 0.008 | D3051800M-100F |
| | 0.718 | 18.24 | 2.154 | 3.051 | 5.177 | 1.000 | 1.260 | 0.006 | D3050718I-100F |
| | 0.610 | 15.50 | 2.441 | 3.366 | 5.492 | 1.000 | 1.260 | 0.031 | D4051550M-100F |
| | 0.625 | 15.88 | 2.500 | 3.366 | 5.492 | 1.000 | 1.260 | 0.029 | D4050625I-100F |
| | 0.630 | 16.00 | 2.520 | 3.445 | 5.571 | 1.000 | 1.260 | 0.028 | D4051600M-100F |
| | 0.650 | 16.50 | 2.598 | 3.524 | 5.650 | 1.000 | 1.260 | 0.020 | D4051650M-100F |
| | 0.656 | 16.66 | 2.624 | 3.524 | 5.650 | 1.000 | 1.260 | 0.016 | D4050656I-100F |
| | 0.669 | 17.00 | 2.677 | 3.602 | 5.728 | 1.000 | 1.260 | 0.016 | D4051700M-100F |
| | 0.687 | 17.46 | 2.748 | 3.602 | 5.728 | 1.000 | 1.260 | 0.012 | D4050687I-100F |
| F | 0.689 | 17.50 | 2.756 | 3.681 | 5.807 | 1.000 | 1.260 | 0.012 | D4051750M-100F |
| | 0.709 | 18.00 | 2.835 | 3.760 | 5.886 | 1.000 | 1.260 | 0.008 | D4051800M-100F |
| | 0.718 | 18.24 | 2.872 | 3.760 | 5.886 | 1.000 | 1.260 | 0.006 | D4050718I-100F |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-05T203-P | 7243-T6-1 | 8T-6 | 4.4 in-lbs (0.5 N-m) |
| S | 4T-05T203-M | | | |
| M | 4T-05T203-M | | | |
| H | 4T-05T203-H | | | |
| K | 4T-05T203-K | | | |
| N | 4T-05T203-N | | | |

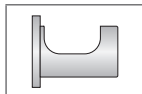
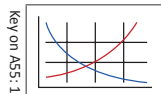
Expected Hole Tolerances

| Length | in | mm |
|--------|-----------------|---------------|
| 2xD | -0.004 / +0.008 | -0.10 / +0.20 |
| 3xD | -0.004 / +0.008 | -0.10 / +0.20 |
| 4xD | -0.004 / +0.010 | -0.10 / +0.25 |

A55: 34 - 35

A55: 31 - 33

A55: 30



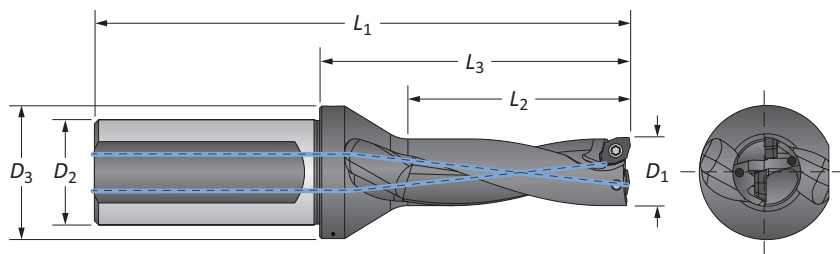
i = Imperial (in)

m = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

05 Series | Diameter Range: 0.611" - 0.728" (15.50 mm - 18.49 mm)



Metric Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 0.610 | 15.50 | 31.00 | 54.50 | 108.50 | 25.00 | 32.00 | 0.80 | D2051550M-25FM |
| | 0.625 | 15.88 | 31.75 | 54.50 | 108.50 | 25.00 | 32.00 | 0.70 | D2050625I-25FM |
| | 0.630 | 16.00 | 32.00 | 55.50 | 109.50 | 25.00 | 32.00 | 0.70 | D2051600M-25FM |
| | 0.650 | 16.50 | 33.00 | 56.50 | 110.50 | 25.00 | 32.00 | 0.50 | D2051650M-25FM |
| | 0.656 | 16.66 | 33.32 | 56.49 | 110.50 | 25.00 | 32.00 | 0.40 | D2050656I-25FM |
| | 0.669 | 17.00 | 34.00 | 57.50 | 111.50 | 25.00 | 32.00 | 0.40 | D2051700M-25FM |
| | 0.687 | 17.46 | 34.90 | 57.50 | 111.50 | 25.00 | 32.00 | 0.30 | D2050687I-25FM |
| | 0.689 | 17.50 | 35.00 | 58.50 | 112.50 | 25.00 | 32.00 | 0.30 | D2051750M-25FM |
| | 0.709 | 18.00 | 36.00 | 59.50 | 113.50 | 25.00 | 32.00 | 0.20 | D2051800M-25FM |
| 0.718 | 18.24 | 36.47 | 59.51 | 113.51 | 25.00 | 32.00 | 0.15 | D2050718I-25FM | |
| 3xD | 0.610 | 15.50 | 46.50 | 70.00 | 124.00 | 25.00 | 32.00 | 0.80 | D3051550M-25FM |
| | 0.625 | 15.88 | 47.63 | 70.00 | 124.00 | 25.00 | 32.00 | 0.70 | D3050625I-25FM |
| | 0.630 | 16.00 | 48.00 | 71.50 | 125.50 | 25.00 | 32.00 | 0.70 | D3051600M-25FM |
| | 0.650 | 16.50 | 49.50 | 73.00 | 127.00 | 25.00 | 32.00 | 0.50 | D3051650M-25FM |
| | 0.656 | 16.66 | 49.98 | 73.00 | 127.00 | 25.00 | 32.00 | 0.40 | D3050656I-25FM |
| | 0.669 | 17.00 | 51.00 | 74.50 | 128.50 | 25.00 | 32.00 | 0.40 | D3051700M-25FM |
| | 0.687 | 17.46 | 52.35 | 74.50 | 128.50 | 25.00 | 32.00 | 0.30 | D3050687I-25FM |
| | 0.689 | 17.50 | 52.50 | 76.00 | 130.00 | 25.00 | 32.00 | 0.30 | D3051750M-25FM |
| | 0.709 | 18.00 | 54.00 | 77.50 | 131.50 | 25.00 | 32.00 | 0.20 | D3051800M-25FM |
| 0.718 | 18.24 | 54.71 | 77.50 | 131.50 | 58.00 | 32.00 | 0.15 | D3050718I-25FM | |
| 4xD | 0.610 | 15.50 | 62.00 | 85.50 | 139.50 | 25.00 | 32.00 | 0.80 | D4051550M-25FM |
| | 0.625 | 15.88 | 63.50 | 85.50 | 139.50 | 25.00 | 32.00 | 0.70 | D4050625I-25FM |
| | 0.630 | 16.00 | 64.00 | 87.50 | 141.50 | 25.00 | 32.00 | 0.70 | D4051600M-25FM |
| | 0.650 | 16.50 | 66.00 | 89.50 | 143.50 | 25.00 | 32.00 | 0.50 | D4051650M-25FM |
| | 0.656 | 16.66 | 66.64 | 89.51 | 143.51 | 25.00 | 32.00 | 0.40 | D4050656I-25FM |
| | 0.669 | 17.00 | 68.00 | 91.50 | 145.50 | 25.00 | 32.00 | 0.40 | D4051700M-25FM |
| | 0.687 | 17.46 | 69.80 | 91.50 | 145.50 | 25.00 | 32.00 | 0.30 | D4050687I-25FM |
| | 0.689 | 17.50 | 70.00 | 93.50 | 147.50 | 25.00 | 32.00 | 0.30 | D4051750M-25FM |
| | 0.709 | 18.00 | 72.00 | 95.50 | 149.50 | 25.00 | 32.00 | 0.20 | D4051800M-25FM |
| 0.718 | 18.24 | 72.95 | 95.50 | 149.50 | 25.00 | 32.00 | 0.15 | D4050718I-25FM | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-05T203-P | 7243-T6-1 | 8T-6 | 4.4 in-lbs (0.5 N-m) |
| S M | 4T-05T203-M | | | |
| H | 4T-05T203-H | | | |
| K | 4T-05T203-K | | | |
| N | 4T-05T203-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.004 / +.008 | -.10 / +.20 |
| 3xD | -.004 / +.008 | -.10 / +.20 |
| 4xD | -.004 / +.010 | -.10 / +.25 |

Key on ASS: 1

A55: 34 - 35

A55: 31 - 33

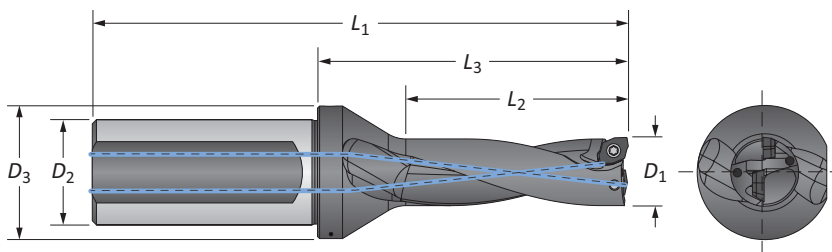
A55: 30

ⓘ = Imperial (in)
 ⓘ = Metric (mm)

IC inserts sold in quantities of 10
 Insert screws sold in quantities of 10

4TEX Drill Holders | Imperial Shank

06 Series | Diameter Range: 0.728" - 0.866" (18.50 mm - 21.99 mm)



Imperial Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 0.728 | 18.50 | 1.457 | 2.299 | 4.425 | 1.000 | 1.260 | 0.035 | D2061850M-100F |
| | 0.748 | 19.00 | 1.496 | 2.339 | 4.465 | 1.000 | 1.260 | 0.031 | D2061900M-100F |
| | 0.750 | 19.05 | 1.500 | 2.339 | 4.465 | 1.000 | 1.260 | 0.031 | D2060750I-100F |
| | 0.765 | 19.43 | 1.530 | 2.339 | 4.465 | 1.000 | 1.260 | 0.028 | D2060765I-100F |
| | 0.768 | 19.50 | 1.535 | 2.378 | 4.504 | 1.000 | 1.260 | 0.028 | D2061950M-100F |
| | 0.787 | 20.00 | 1.575 | 2.417 | 4.543 | 1.000 | 1.260 | 0.020 | D2062000M-100F |
| | 0.807 | 20.50 | 1.614 | 2.457 | 4.583 | 1.000 | 1.260 | 0.016 | D2062050M-100F |
| | 0.813 | 20.64 | 1.624 | 2.457 | 4.583 | 1.000 | 1.260 | 0.015 | D2060812I-100F |
| | 0.827 | 21.00 | 1.654 | 2.496 | 4.622 | 1.000 | 1.260 | 0.012 | D2062100M-100F |
| 3xD | 0.846 | 21.50 | 1.693 | 2.535 | 4.661 | 1.000 | 1.260 | 0.008 | D2062150M-100F |
| | 0.728 | 18.50 | 2.165 | 3.028 | 5.154 | 1.000 | 1.260 | 0.035 | D3061850M-100F |
| | 0.748 | 19.00 | 2.244 | 3.087 | 5.213 | 1.000 | 1.260 | 0.031 | D3061900M-100F |
| | 0.750 | 19.05 | 2.250 | 3.087 | 5.213 | 1.000 | 1.260 | 0.031 | D3060750I-100F |
| | 0.765 | 19.43 | 2.295 | 3.087 | 5.213 | 1.000 | 1.260 | 0.028 | D3060765I-100F |
| | 0.768 | 19.50 | 2.303 | 3.146 | 5.272 | 1.000 | 1.260 | 0.028 | D3061950M-100F |
| | 0.787 | 20.00 | 2.362 | 3.205 | 5.331 | 1.000 | 1.260 | 0.020 | D3062000M-100F |
| | 0.807 | 20.50 | 2.421 | 3.264 | 5.390 | 1.000 | 1.260 | 0.016 | D3062050M-100F |
| | 0.813 | 20.64 | 2.436 | 3.264 | 5.390 | 1.000 | 1.260 | 0.015 | D3060812I-100F |
| 4xD | 0.827 | 21.00 | 2.480 | 3.323 | 5.449 | 1.000 | 1.260 | 0.012 | D3062100M-100F |
| | 0.846 | 21.50 | 2.539 | 3.382 | 5.508 | 1.000 | 1.260 | 0.008 | D3062150M-100F |
| | 0.728 | 18.50 | 2.913 | 3.756 | 5.882 | 1.000 | 1.260 | 0.035 | D4061850M-100F |
| | 0.748 | 19.00 | 2.992 | 3.835 | 5.961 | 1.000 | 1.260 | 0.031 | D4061900M-100F |
| | 0.750 | 19.05 | 3.000 | 3.835 | 5.961 | 1.000 | 1.260 | 0.031 | D4060750I-100F |
| | 0.765 | 19.43 | 3.060 | 3.835 | 5.961 | 1.000 | 1.260 | 0.028 | D4060765I-100F |
| | 0.768 | 19.50 | 3.071 | 3.913 | 6.039 | 1.000 | 1.260 | 0.028 | D4061950M-100F |
| | 0.787 | 20.00 | 3.150 | 3.992 | 6.118 | 1.000 | 1.260 | 0.020 | D4062000M-100F |
| | 0.807 | 20.50 | 3.228 | 4.071 | 6.197 | 1.000 | 1.260 | 0.016 | D4062050M-100F |
| F | 0.813 | 20.64 | 3.248 | 4.071 | 6.197 | 1.000 | 1.260 | 0.015 | D4060812I-100F |
| | 0.827 | 21.00 | 3.307 | 4.150 | 6.276 | 1.000 | 1.260 | 0.012 | D4062100M-100F |
| | 0.846 | 21.50 | 3.386 | 4.228 | 6.354 | 1.000 | 1.260 | 0.008 | D4062150M-100F |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-06T204-P | 72251-T7-1 | 8T-7 | 7.1 in-lbs (0.8 N-m) |
| S | 4T-06T204-M | | | |
| M | 4T-06T204-M | | | |
| H | 4T-06T204-H | | | |
| K | 4T-06T204-K | | | |
| N | 4T-06T204-N | | | |

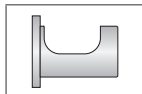
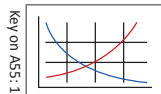
Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.004 / +.008 | -.10 / +.20 |
| 3xD | -.004 / +.008 | -.10 / +.20 |
| 4xD | -.004 / +.010 | -.10 / +.25 |

A55: 34 - 35

A55: 31 - 33

A55: 30



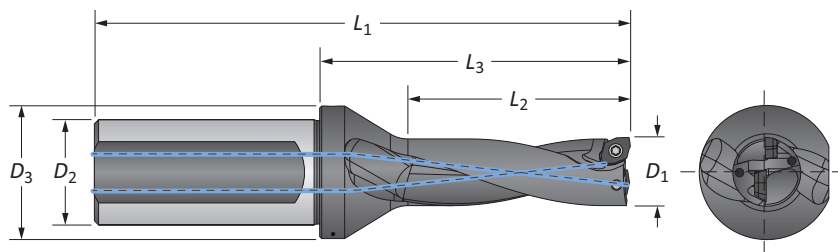
ⓘ = Imperial (in)

Ⓜ = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

06 Series | Diameter Range: 0.728" - 0.866" (18.50 mm - 21.99 mm)



Metric Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 0.728 | 18.50 | 37.00 | 58.40 | 112.40 | 25.00 | 32.00 | 0.90 | D2061850M-25FM |
| | 0.748 | 19.00 | 38.00 | 59.40 | 113.40 | 25.00 | 32.00 | 0.80 | D2061900M-25FM |
| | 0.750 | 19.05 | 38.10 | 59.40 | 113.40 | 25.00 | 32.00 | 0.80 | D2060750I-25FM |
| | 0.765 | 19.43 | 38.86 | 59.41 | 113.41 | 25.00 | 32.00 | 0.70 | D2060765I-25FM |
| | 0.768 | 19.50 | 39.00 | 60.40 | 114.40 | 25.00 | 32.00 | 0.70 | D2061950M-25FM |
| | 0.787 | 20.00 | 40.00 | 61.40 | 115.40 | 25.00 | 32.00 | 0.50 | D2062000M-25FM |
| | 0.807 | 20.50 | 41.00 | 62.40 | 116.40 | 25.00 | 32.00 | 0.40 | D2062050M-25FM |
| | 0.813 | 20.64 | 41.25 | 62.40 | 116.40 | 25.00 | 32.00 | 0.40 | D2060812I-25FM |
| | 0.827 | 21.00 | 42.00 | 63.40 | 117.40 | 25.00 | 32.00 | 0.30 | D2062100M-25FM |
| 0.846 | 21.50 | 43.00 | 64.40 | 118.40 | 25.00 | 32.00 | 0.20 | D2062150M-25FM | |
| 3xD | 0.728 | 18.50 | 55.00 | 76.90 | 130.90 | 25.00 | 32.00 | 0.90 | D3061850M-25FM |
| | 0.748 | 19.00 | 57.00 | 78.40 | 132.40 | 25.00 | 32.00 | 0.80 | D3061900M-25FM |
| | 0.750 | 19.05 | 57.15 | 78.40 | 132.40 | 25.00 | 32.00 | 0.80 | D3060750I-25FM |
| | 0.765 | 19.43 | 58.29 | 78.41 | 132.41 | 25.00 | 32.00 | 0.70 | D3060765I-25FM |
| | 0.768 | 19.50 | 58.50 | 79.90 | 133.90 | 25.00 | 32.00 | 0.70 | D3061950M-25FM |
| | 0.787 | 20.00 | 60.00 | 81.40 | 135.40 | 25.00 | 32.00 | 0.50 | D3062000M-25FM |
| | 0.807 | 20.50 | 61.50 | 82.90 | 136.90 | 25.00 | 32.00 | 0.40 | D3062050M-25FM |
| | 0.813 | 20.64 | 61.87 | 82.90 | 136.90 | 25.00 | 32.00 | 0.40 | D3060812I-25FM |
| | 0.827 | 21.00 | 63.00 | 84.40 | 138.40 | 25.00 | 32.00 | 0.30 | D3062100M-25FM |
| 0.846 | 21.50 | 64.50 | 85.90 | 139.90 | 25.00 | 32.00 | 0.20 | D3062150M-25FM | |
| 4xD | 0.728 | 18.50 | 74.00 | 95.40 | 149.40 | 25.00 | 32.00 | 0.90 | D4061850M-25FM |
| | 0.748 | 19.00 | 76.00 | 97.40 | 151.40 | 25.00 | 32.00 | 0.80 | D4061900M-25FM |
| | 0.750 | 19.05 | 76.20 | 97.40 | 151.40 | 25.00 | 32.00 | 0.80 | D4060750I-25FM |
| | 0.765 | 19.43 | 77.72 | 97.41 | 151.41 | 25.00 | 32.00 | 0.70 | D4060765I-25FM |
| | 0.768 | 19.50 | 78.00 | 99.40 | 153.40 | 25.00 | 32.00 | 0.70 | D4061950M-25FM |
| | 0.787 | 20.00 | 80.00 | 101.40 | 155.40 | 25.00 | 32.00 | 0.50 | D4062000M-25FM |
| | 0.807 | 20.50 | 82.00 | 103.40 | 157.40 | 25.00 | 32.00 | 0.40 | D4062050M-25FM |
| | 0.813 | 20.64 | 82.49 | 103.40 | 157.40 | 25.00 | 32.00 | 0.40 | D4060812I-25FM |
| | 0.827 | 21.00 | 84.00 | 105.40 | 159.40 | 25.00 | 32.00 | 0.30 | D4062100M-25FM |
| 0.846 | 21.50 | 86.00 | 107.40 | 161.40 | 25.00 | 32.00 | 0.20 | D4062150M-25FM | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-06T204-P | 72251-T7-1 | 8T-7 | 7.1 in-lbs (0.8 N-m) |
| S M | 4T-06T204-M | | | |
| H | 4T-06T204-H | | | |
| K | 4T-06T204-K | | | |
| N | 4T-06T204-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.004 / +.008 | -.10 / +.20 |
| 3xD | -.004 / +.008 | -.10 / +.20 |
| 4xD | -.004 / +.010 | -.10 / +.25 |

Key on ASS: 1

A55: 34 - 35

A55: 31 - 33

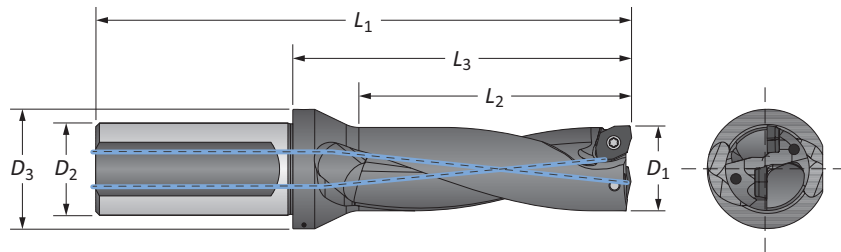
A55: 30

ⓘ = Imperial (in)
 ⓘ = Metric (mm)

IC inserts sold in quantities of 10
 Insert screws sold in quantities of 10

4TEX Drill Holders | Imperial Shank

07 Series | Diameter Range: 0.867" - 1.043" (22.00 mm - 26.49 mm)



Imperial Shank

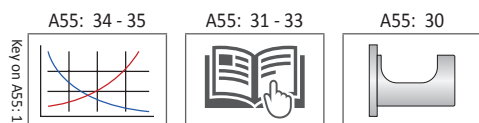
| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 0.866 | 22.00 | 1.732 | 2.555 | 4.681 | 1.000 | 1.299 | 0.047 | D2072200M-100F |
| | 0.875 | 22.22 | 1.750 | 2.555 | 4.681 | 1.000 | 1.299 | 0.043 | D2070875I-100F |
| | 0.886 | 22.50 | 1.772 | 2.594 | 4.720 | 1.000 | 1.299 | 0.039 | D2072250M-100F |
| | 0.906 | 23.00 | 1.811 | 2.634 | 4.760 | 1.000 | 1.299 | 0.035 | D2072300M-100F |
| | 0.925 | 23.50 | 1.850 | 2.673 | 4.799 | 1.000 | 1.299 | 0.031 | D2072350M-100F |
| | 0.937 | 23.81 | 1.874 | 2.673 | 4.799 | 1.000 | 1.299 | 0.292 | D2070937I-100F |
| | 0.945 | 24.00 | 1.890 | 2.713 | 4.839 | 1.000 | 1.299 | 0.028 | D2072400M-100F |
| | 0.965 | 24.50 | 1.929 | 2.752 | 4.878 | 1.000 | 1.299 | 0.020 | D2072450M-100F |
| | 0.984 | 25.00 | 1.969 | 2.791 | 4.917 | 1.000 | 1.299 | 0.016 | D2072500M-100F |
| | 1.000 | 25.40 | 2.000 | 2.791 | 4.917 | 1.000 | 1.299 | 0.013 | D2071000I-100F |
| 3xD | 1.004 | 25.50 | 2.008 | 2.831 | 4.957 | 1.000 | 1.299 | 0.012 | D2072550M-100F |
| | 1.024 | 26.00 | 2.047 | 2.870 | 4.996 | 1.000 | 1.299 | 0.008 | D2072600M-100F |
| | 0.866 | 22.00 | 2.598 | 3.421 | 5.547 | 1.000 | 1.299 | 0.047 | D3072200M-100F |
| | 0.875 | 22.22 | 2.625 | 3.421 | 5.547 | 1.000 | 1.299 | 0.043 | D3070875I-100F |
| | 0.886 | 22.50 | 2.657 | 3.480 | 5.606 | 1.000 | 1.299 | 0.039 | D3072250M-100F |
| | 0.906 | 23.00 | 2.717 | 3.539 | 5.665 | 1.000 | 1.299 | 0.035 | D3072300M-100F |
| | 0.925 | 23.50 | 2.776 | 3.598 | 5.724 | 1.000 | 1.299 | 0.031 | D3072350M-100F |
| | 0.937 | 23.81 | 2.811 | 3.598 | 5.724 | 1.000 | 1.299 | 0.292 | D3070937I-100F |
| | 0.945 | 24.00 | 2.835 | 3.657 | 5.783 | 1.000 | 1.299 | 0.028 | D3072400M-100F |
| | 0.965 | 24.50 | 2.894 | 3.717 | 5.843 | 1.000 | 1.299 | 0.020 | D3072450M-100F |
| 4xD | 0.984 | 25.00 | 2.953 | 3.776 | 5.902 | 1.000 | 1.299 | 0.016 | D3072500M-100F |
| | 1.000 | 25.40 | 3.000 | 3.776 | 5.902 | 1.000 | 1.299 | 0.013 | D3071000I-100F |
| | 1.004 | 25.50 | 3.012 | 3.835 | 5.961 | 1.000 | 1.299 | 0.012 | D3072550M-100F |
| | 1.024 | 26.00 | 3.071 | 3.894 | 6.020 | 1.000 | 1.299 | 0.008 | D3072600M-100F |
| | 0.866 | 22.00 | 3.465 | 4.287 | 6.413 | 1.000 | 1.299 | 0.047 | D4072200M-100F |
| | 0.875 | 22.22 | 3.500 | 4.287 | 6.413 | 1.000 | 1.299 | 0.043 | D4070875I-100F |
| | 0.886 | 22.50 | 3.543 | 4.366 | 6.492 | 1.000 | 1.299 | 0.039 | D4072250M-100F |
| | 0.906 | 23.00 | 3.622 | 4.445 | 6.571 | 1.000 | 1.299 | 0.035 | D4072300M-100F |
| | 0.925 | 23.50 | 3.701 | 4.524 | 6.650 | 1.000 | 1.299 | 0.031 | D4072350M-100F |
| | 0.937 | 23.81 | 3.748 | 4.524 | 6.650 | 1.000 | 1.299 | 0.292 | D4070937I-100F |
| 4xD | 0.945 | 24.00 | 3.780 | 4.602 | 6.728 | 1.000 | 1.299 | 0.028 | D4072400M-100F |
| | 0.965 | 24.50 | 3.858 | 4.681 | 6.807 | 1.000 | 1.299 | 0.020 | D4072450M-100F |
| | 0.984 | 25.00 | 3.937 | 4.760 | 6.886 | 1.000 | 1.299 | 0.016 | D4072500M-100F |
| | 1.000 | 25.40 | 4.000 | 4.760 | 6.886 | 1.000 | 1.299 | 0.013 | D4071000I-100F |
| | 1.004 | 25.50 | 4.016 | 4.839 | 6.965 | 1.000 | 1.299 | 0.012 | D4072550M-100F |
| | 1.024 | 26.00 | 4.094 | 4.917 | 7.043 | 1.000 | 1.299 | 0.008 | D4072600M-100F |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-070305-P | 72568-T8-1 | 8T-8 | 10.6 in-lbs (1.2 N-m) |
| S M | 4T-070305-M | | | |
| H | 4T-070305-H | | | |
| K | 4T-070305-K | | | |
| N | 4T-070305-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.004 / +.008 | -.10 / +.20 |
| 3xD | -.004 / +.008 | -.10 / +.20 |
| 4xD | -.004 / +.010 | -.10 / +.25 |

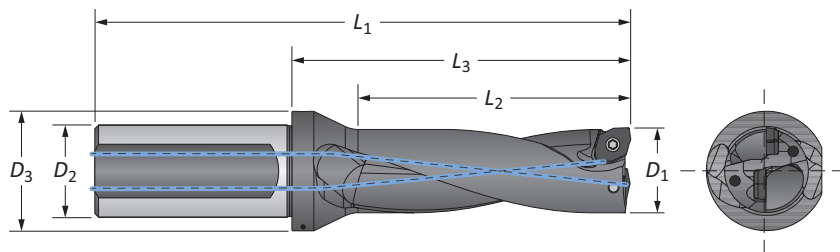


ⓘ = Imperial (in)
Ⓜ = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

07 Series | Diameter Range: 0.867" - 1.043" (22.00 mm - 26.49 mm)



Metric Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 0.866 | 22.00 | 44.00 | 64.90 | 118.90 | 25.00 | 33.00 | 1.20 | D2072200M-25FM |
| | 0.875 | 22.22 | 44.45 | 64.90 | 118.90 | 25.00 | 33.00 | 1.10 | D2070875I-25FM |
| | 0.886 | 22.50 | 45.00 | 65.90 | 119.90 | 25.00 | 33.00 | 1.00 | D2072250M-25FM |
| | 0.906 | 23.00 | 46.00 | 66.90 | 120.90 | 25.00 | 33.00 | 0.90 | D2072300M-25FM |
| | 0.925 | 23.50 | 47.00 | 67.90 | 121.90 | 25.00 | 33.00 | 0.80 | D2072350M-25FM |
| | 0.937 | 23.81 | 47.60 | 67.90 | 121.90 | 25.00 | 33.00 | 7.40 | D2070937I-25FM |
| | 0.945 | 24.00 | 48.00 | 68.90 | 122.90 | 25.00 | 33.00 | 0.70 | D2072400M-25FM |
| | 0.965 | 24.50 | 49.00 | 69.90 | 123.90 | 25.00 | 33.00 | 0.50 | D2072450M-25FM |
| | 0.984 | 25.00 | 50.00 | 70.90 | 124.90 | 25.00 | 33.00 | 0.40 | D2072500M-25FM |
| | 1.000 | 25.40 | 50.80 | 70.90 | 124.90 | 25.00 | 33.00 | 0.30 | D2071000I-25FM |
| | 1.004 | 25.50 | 51.00 | 71.90 | 125.90 | 25.00 | 33.00 | 0.30 | D2072550M-25FM |
| 1.024 | 26.00 | 52.00 | 72.90 | 126.90 | 25.00 | 33.00 | 0.20 | D2072600M-25FM | |
| 3xD | 0.866 | 22.00 | 66.00 | 86.90 | 140.90 | 25.00 | 33.00 | 1.20 | D3072200M-25FM |
| | 0.875 | 22.22 | 66.68 | 86.90 | 140.90 | 25.00 | 33.00 | 1.10 | D3070875I-25FM |
| | 0.886 | 22.50 | 67.50 | 88.40 | 142.40 | 25.00 | 33.00 | 1.00 | D3072250M-25FM |
| | 0.906 | 23.00 | 69.00 | 89.90 | 143.90 | 25.00 | 33.00 | 0.90 | D3072300M-25FM |
| | 0.925 | 23.50 | 70.50 | 91.40 | 145.40 | 25.00 | 33.00 | 0.80 | D3072350M-25FM |
| | 0.937 | 23.81 | 71.40 | 91.40 | 145.40 | 25.00 | 33.00 | 7.40 | D3070937I-25FM |
| | 0.945 | 24.00 | 72.00 | 92.90 | 146.90 | 25.00 | 33.00 | 0.70 | D3072400M-25FM |
| | 0.965 | 24.50 | 73.50 | 94.40 | 148.40 | 25.00 | 33.00 | 0.50 | D3072450M-25FM |
| | 0.984 | 25.00 | 75.00 | 95.90 | 149.90 | 25.00 | 33.00 | 0.40 | D3072500M-25FM |
| | 1.000 | 25.40 | 76.20 | 95.90 | 149.90 | 25.00 | 33.00 | 0.30 | D3071000I-25FM |
| | 1.004 | 25.50 | 76.50 | 97.00 | 151.00 | 25.00 | 33.00 | 0.30 | D3072550M-25FM |
| 1.024 | 26.00 | 78.00 | 99.00 | 153.00 | 25.00 | 33.00 | 0.20 | D3072600M-25FM | |
| 4xD | 0.866 | 22.00 | 88.00 | 109.00 | 163.00 | 25.00 | 33.00 | 1.20 | D4072200M-25FM |
| | 0.875 | 22.22 | 88.90 | 108.90 | 162.90 | 25.00 | 33.00 | 1.10 | D4070875I-25FM |
| | 0.886 | 22.50 | 90.00 | 111.00 | 165.00 | 25.00 | 33.00 | 1.00 | D4072250M-25FM |
| | 0.906 | 23.00 | 92.00 | 113.00 | 167.00 | 25.00 | 33.00 | 0.90 | D4072300M-25FM |
| | 0.925 | 23.50 | 94.00 | 115.00 | 169.00 | 25.00 | 33.00 | 0.80 | D4072350M-25FM |
| | 0.937 | 23.81 | 95.20 | 114.90 | 168.90 | 25.00 | 33.00 | 7.40 | D4070937I-25FM |
| | 0.945 | 24.00 | 96.00 | 117.00 | 171.00 | 25.00 | 33.00 | 0.70 | D4072400M-25FM |
| | 0.965 | 24.50 | 98.00 | 119.00 | 173.00 | 25.00 | 33.00 | 0.50 | D4072450M-25FM |
| | 0.984 | 25.00 | 100.00 | 121.00 | 175.00 | 25.00 | 33.00 | 0.40 | D4072500M-25FM |
| | 1.000 | 25.40 | 101.60 | 120.90 | 174.90 | 25.00 | 33.00 | 0.30 | D4071000I-25FM |
| | 1.004 | 25.50 | 102.00 | 123.00 | 177.00 | 25.00 | 33.00 | 0.30 | D4072550M-25FM |
| 1.024 | 26.00 | 104.00 | 125.00 | 179.00 | 25.00 | 33.00 | 0.20 | D4072600M-25FM | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-070305-P | 72568-T8-1 | 8T-8 | 10.6 in-lbs (1.2 N-m) |
| S M | 4T-070305-M | | | |
| H | 4T-070305-H | | | |
| K | 4T-070305-K | | | |
| N | 4T-070305-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.004 / +.008 | -.10 / +.20 |
| 3xD | -.004 / +.008 | -.10 / +.20 |
| 4xD | -.004 / +.010 | -.10 / +.25 |

Key on ASS: 1

A55: 34 - 35

A55: 31 - 33

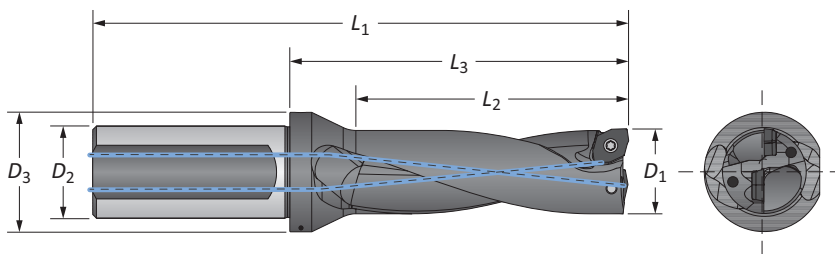
A55: 30

ⓘ = Imperial (in)
 ⓘ = Metric (mm)

IC inserts sold in quantities of 10
 Insert screws sold in quantities of 10

4TEX Drill Holders | Imperial Shank

09 Series | Diameter Range: 1.044" - 1.259" (26.50 mm - 31.99 mm)



Imperial Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 1.043 | 26.50 | 2.087 | 2.980 | 5.303 | 1.250 | 1.614 | 0.066 | D2092650M-125F |
| | 1.063 | 27.00 | 2.126 | 3.020 | 5.343 | 1.250 | 1.614 | 0.063 | D2092700M-125F |
| | 1.083 | 27.50 | 2.165 | 3.059 | 5.382 | 1.250 | 1.614 | 0.057 | D2092750M-125F |
| | 1.102 | 28.00 | 2.205 | 3.098 | 5.421 | 1.250 | 1.614 | 0.051 | D2092800M-125F |
| | 1.122 | 28.50 | 2.244 | 3.138 | 5.461 | 1.250 | 1.614 | 0.048 | D2092850M-125F |
| | 1.125 | 28.58 | 2.250 | 3.138 | 5.461 | 1.250 | 1.614 | 0.046 | D2091125I-125F |
| | 1.142 | 29.00 | 2.283 | 3.177 | 5.500 | 1.250 | 1.614 | 0.043 | D2092900M-125F |
| | 1.161 | 29.50 | 2.323 | 3.217 | 5.539 | 1.250 | 1.693 | 0.038 | D2092950M-125F |
| | 1.181 | 30.00 | 2.362 | 3.256 | 5.579 | 1.250 | 1.693 | 0.031 | D2093000M-125F |
| | 1.187 | 30.15 | 2.374 | 3.256 | 5.579 | 1.250 | 1.693 | 0.032 | D2091187I-125F |
| | 1.201 | 30.50 | 2.402 | 3.295 | 5.618 | 1.250 | 1.693 | 0.029 | D2093050M-125F |
| | 1.220 | 31.00 | 2.441 | 3.335 | 5.657 | 1.250 | 1.693 | 0.024 | D2093100M-125F |
| 3xD | 1.240 | 31.50 | 2.480 | 3.374 | 5.697 | 1.250 | 1.693 | 0.020 | D2093150M-125F |
| | 1.250 | 31.75 | 2.500 | 3.374 | 5.697 | 1.250 | 1.693 | 0.019 | D2091250I-125F |
| | 1.043 | 26.50 | 3.130 | 4.024 | 6.346 | 1.250 | 1.614 | 0.066 | D3092650M-125F |
| | 1.063 | 27.00 | 3.189 | 4.083 | 6.406 | 1.250 | 1.614 | 0.063 | D3092700M-125F |
| | 1.083 | 27.50 | 3.248 | 4.142 | 6.465 | 1.250 | 1.614 | 0.057 | D3092750M-125F |
| | 1.102 | 28.00 | 3.307 | 4.201 | 6.524 | 1.250 | 1.614 | 0.051 | D3092800M-125F |
| | 1.122 | 28.50 | 3.366 | 4.260 | 6.583 | 1.250 | 1.614 | 0.048 | D3092850M-125F |
| | 1.125 | 28.58 | 3.375 | 4.260 | 6.583 | 1.250 | 1.614 | 0.046 | D3091125I-125F |
| | 1.142 | 29.00 | 3.425 | 4.319 | 6.642 | 1.250 | 1.614 | 0.043 | D3092900M-125F |
| | 1.161 | 29.50 | 3.484 | 4.378 | 6.701 | 1.250 | 1.693 | 0.038 | D3092950M-125F |
| | 1.181 | 30.00 | 3.543 | 4.437 | 6.760 | 1.250 | 1.693 | 0.031 | D3093000M-125F |
| | 1.187 | 30.15 | 3.561 | 4.437 | 6.760 | 1.250 | 1.693 | 0.032 | D3091187I-125F |
| 1.201 | 30.50 | 3.602 | 4.496 | 6.819 | 1.250 | 1.693 | 0.029 | D3093050M-125F | |
| 1.220 | 31.00 | 3.661 | 4.555 | 6.878 | 1.250 | 1.693 | 0.024 | D3093100M-125F | |
| 1.240 | 31.50 | 3.720 | 4.614 | 6.937 | 1.250 | 1.693 | 0.020 | D3093150M-125F | |
| 1.250 | 31.75 | 3.750 | 4.614 | 6.937 | 1.250 | 1.693 | 0.019 | D3091250I-125F | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-09T306-P | 738-T10-1 | 8T-10 | 17.7 in-lbs (2.0 N-m) |
| S | 4T-09T306-M | | | |
| H | 4T-09T306-H | | | |
| K | 4T-09T306-K | | | |
| N | 4T-09T306-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.006 / +.010 | -.15 / +.25 |
| 3xD | -.006 / +.010 | -.15 / +.25 |
| 4xD | -.006 / +.012 | -.15 / +.30 |

A55: 34 - 35 A55: 31 - 33 A55: 30

Key on A55: 1

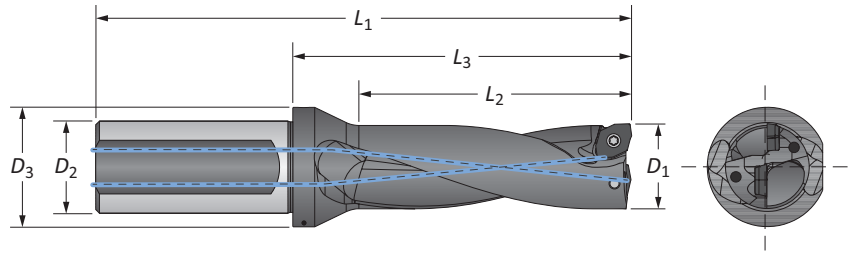
ⓘ = Imperial (in)
Ⓜ = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10



4TEX Drill Holders | Imperial Shank

09 Series | Diameter Range: 1.044" - 1.259" (26.50 mm - 31.99 mm)



Imperial Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| i 4xD | 1.043 | 26.50 | 4.173 | 5.067 | 7.390 | 1.250 | 1.614 | 0.066 | D4092650M-125F |
| | 1.063 | 27.00 | 4.252 | 5.146 | 7.469 | 1.250 | 1.614 | 0.063 | D4092700M-125F |
| | 1.083 | 27.50 | 4.331 | 5.224 | 7.547 | 1.250 | 1.614 | 0.057 | D4092750M-125F |
| | 1.102 | 28.00 | 4.409 | 5.303 | 7.626 | 1.250 | 1.614 | 0.051 | D4092800M-125F |
| | 1.122 | 28.50 | 4.488 | 5.382 | 7.705 | 1.250 | 1.614 | 0.048 | D4092850M-125F |
| | 1.125 | 28.58 | 4.500 | 5.382 | 7.705 | 1.250 | 1.614 | 0.046 | D4091125I-125F |
| | 1.142 | 29.00 | 4.567 | 5.461 | 7.783 | 1.250 | 1.614 | 0.043 | D4092900M-125F |
| | 1.161 | 29.50 | 4.646 | 5.539 | 7.862 | 1.250 | 1.693 | 0.038 | D4092950M-125F |
| | 1.181 | 30.00 | 4.724 | 5.618 | 7.941 | 1.250 | 1.693 | 0.031 | D4093000M-125F |
| | 1.187 | 30.15 | 4.748 | 5.618 | 7.941 | 1.250 | 1.693 | 0.032 | D4091187I-125F |
| | 1.201 | 30.50 | 4.803 | 5.697 | 8.020 | 1.250 | 1.693 | 0.029 | D4093050M-125F |
| | 1.220 | 31.00 | 4.882 | 5.776 | 8.098 | 1.250 | 1.693 | 0.024 | D4093100M-125F |
| | 1.240 | 31.50 | 4.961 | 5.854 | 8.177 | 1.250 | 1.693 | 0.020 | D4093150M-125F |
| | 1.250 | 31.75 | 5.000 | 5.854 | 8.177 | 1.250 | 1.693 | 0.019 | D4091250I-125F |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-09T306-P | 738-T10-1 | 8T-10 | 17.7 in-lbs (2.0 N-m) |
| S M | 4T-09T306-M | | | |
| H | 4T-09T306-H | | | |
| K | 4T-09T306-K | | | |
| N | 4T-09T306-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.006 / +.010 | -.15 / +.25 |
| 3xD | -.006 / +.010 | -.15 / +.25 |
| 4xD | -.006 / +.012 | -.15 / +.30 |

Key on ASS: 1

A55: 34 - 35

A55: 31 - 33

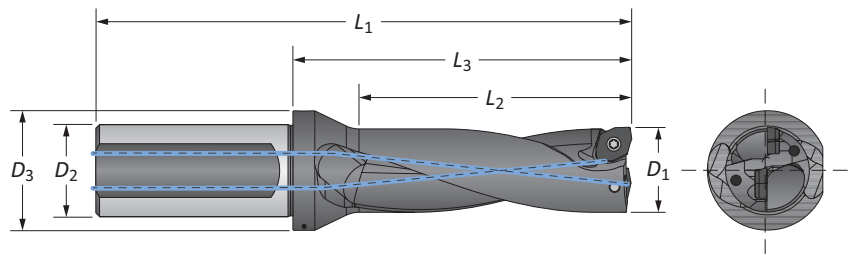
A55: 30

i = Imperial (in)
m = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

09 Series | Diameter Range: 1.044" - 1.259" (26.50 mm - 31.99 mm)



Metric Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 1.043 | 26.50 | 53.00 | 75.70 | 134.70 | 32.00 | 41.00 | 1.68 | D2092650M-32FM |
| | 1.063 | 27.00 | 54.00 | 76.70 | 135.70 | 32.00 | 41.00 | 1.60 | D2092700M-32FM |
| | 1.083 | 27.50 | 55.00 | 77.70 | 136.70 | 32.00 | 41.00 | 1.45 | D2092750M-32FM |
| | 1.102 | 28.00 | 56.00 | 78.70 | 137.70 | 32.00 | 41.00 | 1.30 | D2092800M-32FM |
| | 1.122 | 28.50 | 57.00 | 79.70 | 138.70 | 32.00 | 41.00 | 1.21 | D2092850M-32FM |
| | 1.125 | 28.58 | 57.15 | 79.70 | 138.70 | 32.00 | 41.00 | 1.20 | D2091125I-32FM |
| | 1.142 | 29.00 | 58.00 | 80.70 | 139.70 | 32.00 | 41.00 | 1.10 | D2092900M-32FM |
| | 1.161 | 29.50 | 59.00 | 81.70 | 140.70 | 32.00 | 43.00 | 0.97 | D2092950M-32FM |
| | 1.181 | 30.00 | 60.00 | 82.70 | 141.70 | 32.00 | 43.00 | 0.80 | D2093000M-32FM |
| | 1.187 | 30.15 | 60.30 | 82.70 | 141.70 | 32.00 | 43.00 | 0.82 | D2091187I-32FM |
| | 1.201 | 30.50 | 61.00 | 83.70 | 142.70 | 32.00 | 43.00 | 0.74 | D2093050M-32FM |
| | 1.220 | 31.00 | 62.00 | 84.70 | 143.70 | 32.00 | 43.00 | 0.60 | D2093100M-32FM |
| 3xD | 1.240 | 31.50 | 63.00 | 85.70 | 144.70 | 32.00 | 43.00 | 0.50 | D2093150M-32FM |
| | 1.250 | 31.75 | 63.50 | 85.70 | 144.70 | 32.00 | 43.00 | 0.50 | D2091250I-32FM |
| | 1.043 | 26.50 | 79.50 | 102.20 | 161.20 | 32.00 | 41.00 | 1.68 | D3092650M-32FM |
| | 1.063 | 27.00 | 81.00 | 103.70 | 162.70 | 32.00 | 41.00 | 1.60 | D3092700M-32FM |
| | 1.083 | 27.50 | 82.50 | 105.20 | 164.20 | 32.00 | 41.00 | 1.45 | D3092750M-32FM |
| | 1.102 | 28.00 | 84.00 | 106.70 | 165.70 | 32.00 | 41.00 | 1.30 | D3092800M-32FM |
| | 1.122 | 28.50 | 85.50 | 108.20 | 167.20 | 32.00 | 41.00 | 1.21 | D3092850M-32FM |
| | 1.125 | 28.58 | 85.73 | 108.20 | 167.20 | 32.00 | 41.00 | 1.20 | D3091125I-32FM |
| | 1.142 | 29.00 | 87.00 | 109.70 | 168.70 | 32.00 | 41.00 | 1.10 | D3092900M-32FM |
| | 1.161 | 29.50 | 88.50 | 111.20 | 170.20 | 32.00 | 43.00 | 0.97 | D3092950M-32FM |
| | 1.181 | 30.00 | 90.00 | 112.70 | 171.70 | 32.00 | 43.00 | 0.80 | D3093000M-32FM |
| | 1.187 | 30.15 | 90.45 | 112.70 | 171.70 | 32.00 | 43.00 | 0.82 | D3091187I-32FM |
| 1.201 | 30.50 | 91.50 | 114.20 | 173.20 | 32.00 | 43.00 | 0.74 | D3093050M-32FM | |
| 1.220 | 31.00 | 93.00 | 115.70 | 174.70 | 32.00 | 43.00 | 0.60 | D3093100M-32FM | |
| 1.240 | 31.50 | 94.50 | 117.00 | 176.20 | 32.00 | 43.00 | 0.50 | D3093150M-32FM | |
| 1.250 | 31.75 | 95.25 | 117.20 | 176.20 | 32.00 | 43.00 | 0.50 | D3091250I-32FM | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-09T306-P | 738-T10-1 | 8T-10 | 17.7 in-lbs (2.0 N-m) |
| S | 4T-09T306-M | | | |
| H | 4T-09T306-H | | | |
| K | 4T-09T306-K | | | |
| N | 4T-09T306-N | | | |

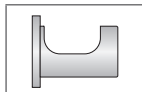
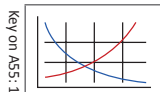
Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.006 / +.010 | -.15 / +.25 |
| 3xD | -.006 / +.010 | -.15 / +.25 |
| 4xD | -.006 / +.012 | -.15 / +.30 |

A55: 34 - 35

A55: 31 - 33

A55: 30

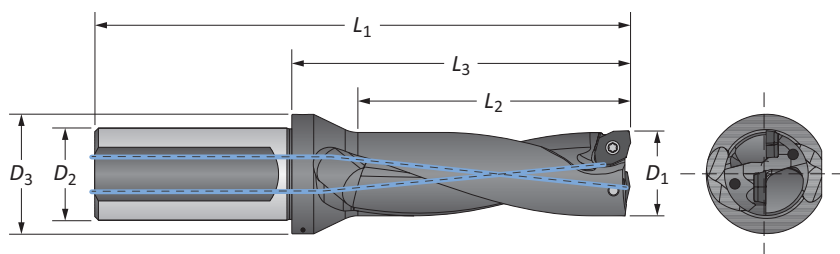


ⓘ = Imperial (in)
Ⓜ = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

09 Series | Diameter Range: 1.044" - 1.259" (26.50 mm - 31.99 mm)



Metric Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 4xD | 1.043 | 26.50 | 106.00 | 128.70 | 187.70 | 32.00 | 41.00 | 1.68 | D4092650M-32FM |
| | 1.063 | 27.00 | 108.00 | 130.70 | 189.70 | 32.00 | 41.00 | 1.60 | D4092700M-32FM |
| | 1.083 | 27.50 | 110.00 | 132.70 | 191.70 | 32.00 | 41.00 | 1.45 | D4092750M-32FM |
| | 1.102 | 28.00 | 112.00 | 134.70 | 193.70 | 32.00 | 41.00 | 1.30 | D4092800M-32FM |
| | 1.122 | 28.50 | 114.00 | 136.70 | 195.70 | 32.00 | 41.00 | 1.21 | D4092850M-32FM |
| | 1.125 | 28.58 | 114.30 | 136.70 | 195.70 | 32.00 | 41.00 | 1.20 | D4091125I-32FM |
| | 1.142 | 29.00 | 116.00 | 138.70 | 197.70 | 32.00 | 41.00 | 1.10 | D4092900M-32FM |
| | 1.161 | 29.50 | 118.00 | 140.70 | 199.70 | 32.00 | 43.00 | 0.97 | D4092950M-32FM |
| | 1.181 | 30.00 | 120.00 | 142.70 | 201.70 | 32.00 | 43.00 | 0.80 | D4093000M-32FM |
| | 1.187 | 30.15 | 120.60 | 142.70 | 201.70 | 32.00 | 43.00 | 0.82 | D4091187I-32FM |
| | 1.201 | 30.50 | 122.00 | 144.70 | 203.70 | 32.00 | 43.00 | 0.74 | D4093050M-32FM |
| | 1.220 | 31.00 | 124.00 | 146.70 | 205.70 | 32.00 | 43.00 | 0.60 | D4093100M-32FM |
| | 1.240 | 31.50 | 126.00 | 148.70 | 207.70 | 32.00 | 43.00 | 0.50 | D4093150M-32FM |
| 1.250 | 31.75 | 127.00 | 148.70 | 207.70 | 32.00 | 43.00 | 0.50 | D4091250I-32FM | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-09T306-P | 738-T10-1 | 8T-10 | 17.7 in-lbs (2.0 N-m) |
| S M | 4T-09T306-M | | | |
| H | 4T-09T306-H | | | |
| K | 4T-09T306-K | | | |
| N | 4T-09T306-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.006 / +.010 | -.15 / +.25 |
| 3xD | -.006 / +.010 | -.15 / +.25 |
| 4xD | -.006 / +.012 | -.15 / +.30 |

Key on ASS: 1

A55: 34 - 35

A55: 31 - 33

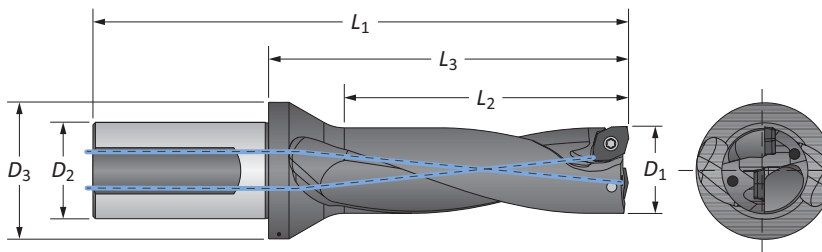
A55: 30

ⓘ = Imperial (in)
 ⓘ = Metric (mm)

IC inserts sold in quantities of 10
 Insert screws sold in quantities of 10

4TEX Drill Holders | Imperial Shank

11 Series | Diameter Range: 1.260" - 1.535" (32.00 mm - 38.99 mm)



Imperial Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 1.260 | 32.00 | 2.520 | 3.953 | 6.669 | 1.500 | 2.126 | 0.087 | D2113200M-150F |
| | 1.280 | 32.50 | 2.559 | 3.953 | 6.669 | 1.500 | 2.126 | 0.081 | D2113250M-150F |
| | 1.299 | 33.00 | 2.598 | 4.031 | 6.748 | 1.500 | 2.126 | 0.075 | D2113300M-150F |
| | 1.312 | 33.32 | 2.624 | 4.031 | 6.748 | 1.500 | 2.126 | 0.073 | D211312I-150F |
| | 1.319 | 33.50 | 2.638 | 4.031 | 6.748 | 1.500 | 2.126 | 0.071 | D2113350M-150F |
| | 1.339 | 34.00 | 2.677 | 4.110 | 6.827 | 1.500 | 2.126 | 0.067 | D2113400M-150F |
| | 1.358 | 34.50 | 2.717 | 4.110 | 6.827 | 1.500 | 2.126 | 0.061 | D2113450M-150F |
| | 1.375 | 34.92 | 2.750 | 4.110 | 6.827 | 1.500 | 2.126 | 0.056 | D2111375I-150F |
| | 1.378 | 35.00 | 2.756 | 4.189 | 6.906 | 1.500 | 2.126 | 0.055 | D2113500M-150F |
| | 1.398 | 35.50 | 2.795 | 4.189 | 6.906 | 1.500 | 2.126 | 0.051 | D2113550M-150F |
| | 1.417 | 36.00 | 2.835 | 4.268 | 6.984 | 1.500 | 2.126 | 0.047 | D2113600M-150F |
| | 1.437 | 36.50 | 2.874 | 4.268 | 6.984 | 1.500 | 2.126 | 0.042 | D2113650M-150F |
| | 1.457 | 37.00 | 2.913 | 4.346 | 7.063 | 1.500 | 2.126 | 0.035 | D2113700M-150F |
| | 1.476 | 37.50 | 2.953 | 4.346 | 7.063 | 1.500 | 2.126 | 0.032 | D2113750M-150F |
| 1.496 | 38.00 | 2.992 | 4.425 | 7.142 | 1.500 | 2.126 | 0.028 | D2113800M-150F | |
| 1.500 | 38.10 | 3.000 | 4.425 | 7.142 | 1.500 | 2.126 | 0.027 | D2111500I-150F | |
| 1.516 | 38.50 | 3.031 | 4.425 | 7.142 | 1.500 | 2.126 | 0.022 | D2113850M-150F | |
| 3xD | 1.260 | 32.00 | 3.780 | 5.213 | 7.929 | 1.500 | 2.126 | 0.087 | D3113200M-150F |
| | 1.280 | 32.50 | 3.839 | 5.213 | 7.929 | 1.500 | 2.126 | 0.081 | D3113250M-150F |
| | 1.299 | 33.00 | 3.898 | 5.331 | 8.047 | 1.500 | 2.126 | 0.075 | D3113300M-150F |
| | 1.312 | 33.32 | 3.936 | 5.331 | 8.047 | 1.500 | 2.126 | 0.073 | D3111312I-150F |
| | 1.319 | 33.50 | 3.957 | 5.331 | 8.047 | 1.500 | 2.126 | 0.071 | D3113350M-150F |
| | 1.339 | 34.00 | 4.016 | 5.449 | 8.165 | 1.500 | 2.126 | 0.067 | D3113400M-150F |
| | 1.358 | 34.50 | 4.075 | 5.449 | 8.165 | 1.500 | 2.126 | 0.061 | D3113450M-150F |
| | 1.375 | 34.92 | 4.125 | 5.449 | 8.165 | 1.500 | 2.126 | 0.056 | D3111375I-150F |
| | 1.378 | 35.00 | 4.134 | 5.567 | 8.283 | 1.500 | 2.126 | 0.055 | D3113500M-150F |
| | 1.398 | 35.50 | 4.193 | 5.567 | 8.283 | 1.500 | 2.126 | 0.051 | D3113550M-150F |
| | 1.417 | 36.00 | 4.252 | 5.685 | 8.402 | 1.500 | 2.126 | 0.047 | D3113600M-150F |
| | 1.437 | 36.50 | 4.311 | 5.685 | 8.402 | 1.500 | 2.126 | 0.042 | D3113650M-150F |
| | 1.457 | 37.00 | 4.370 | 5.803 | 8.520 | 1.500 | 2.126 | 0.035 | D3113700M-150F |
| | 1.476 | 37.50 | 4.429 | 5.803 | 8.520 | 1.500 | 2.126 | 0.032 | D3113750M-150F |
| 1.496 | 38.00 | 4.488 | 5.921 | 8.638 | 1.500 | 2.126 | 0.028 | D3113800M-150F | |
| 1.500 | 38.10 | 4.500 | 5.921 | 8.638 | 1.500 | 2.126 | 0.027 | D3111500I-150F | |
| 1.516 | 38.50 | 4.547 | 5.921 | 8.638 | 1.500 | 2.126 | 0.022 | D3113850M-150F | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-11T306-P | 7488-T15-1 | 8T-15 | 30.9 in-lbs (3.5 N-m) |
| S | 4T-11T306-M | | | |
| H | 4T-11T306-H | | | |
| K | 4T-11T306-K | | | |
| N | 4T-11T306-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.006 / +.010 | -.15 / +.25 |
| 3xD | -.006 / +.010 | -.15 / +.25 |
| 4xD | -.006 / +.012 | -.15 / +.30 |

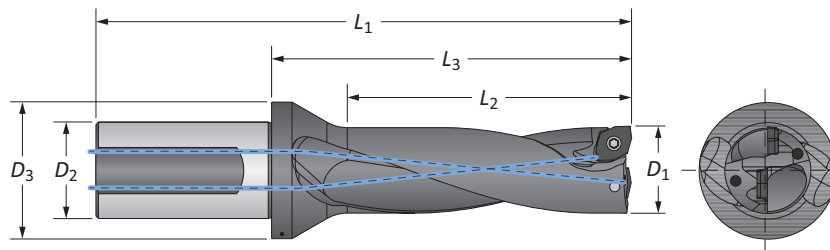
A55: 34 - 35 A55: 31 - 33 A55: 30

ⓘ = Imperial (in)
Ⓜ = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Imperial Shank

11 Series | Diameter Range: 1.260" - 1.535" (32.00 mm - 38.99 mm)



Imperial Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| i 4xD | 1.260 | 32.00 | 5.039 | 6.079 | 8.795 | 1.500 | 2.126 | 0.087 | D4113200M-150F |
| | 1.280 | 32.50 | 5.118 | 6.079 | 8.795 | 1.500 | 2.126 | 0.081 | D4113250M-150F |
| | 1.299 | 33.00 | 5.197 | 6.236 | 8.953 | 1.500 | 2.126 | 0.075 | D4113300M-150F |
| | 1.312 | 33.32 | 5.248 | 6.236 | 8.953 | 1.500 | 2.126 | 0.073 | D4111312I-150F |
| | 1.319 | 33.50 | 5.276 | 6.236 | 8.953 | 1.500 | 2.126 | 0.071 | D4113350M-150F |
| | 1.339 | 34.00 | 5.354 | 6.394 | 9.110 | 1.500 | 2.126 | 0.067 | D4113400M-150F |
| | 1.358 | 34.50 | 5.433 | 6.394 | 9.110 | 1.500 | 2.126 | 0.061 | D4113450M-150F |
| | 1.375 | 34.92 | 5.500 | 6.394 | 9.110 | 1.500 | 2.126 | 0.056 | D4111375I-150F |
| | 1.378 | 35.00 | 5.512 | 6.551 | 9.268 | 1.500 | 2.126 | 0.055 | D4113500M-150F |
| | 1.398 | 35.50 | 5.591 | 6.551 | 9.268 | 1.500 | 2.126 | 0.051 | D4113550M-150F |
| | 1.417 | 36.00 | 5.669 | 6.709 | 9.425 | 1.500 | 2.126 | 0.047 | D4113600M-150F |
| | 1.437 | 36.50 | 5.748 | 6.709 | 9.425 | 1.500 | 2.126 | 0.042 | D4113650M-150F |
| | 1.457 | 37.00 | 5.827 | 6.866 | 9.583 | 1.500 | 2.126 | 0.035 | D4113700M-150F |
| | 1.476 | 37.50 | 5.906 | 6.866 | 9.583 | 1.500 | 2.126 | 0.032 | D4113750M-150F |
| | 1.496 | 38.00 | 5.984 | 7.024 | 9.740 | 1.500 | 2.126 | 0.028 | D4113800M-150F |
| 1.500 | 38.10 | 6.000 | 7.024 | 9.740 | 1.500 | 2.126 | 0.027 | D4111500I-150F | |
| 1.516 | 38.50 | 6.063 | 7.024 | 9.740 | 1.500 | 2.126 | 0.022 | D4113850M-150F | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-11T306-P | 7488-T15-1 | 8T-15 | 30.9 in-lbs (3.5 N-m) |
| S M | 4T-11T306-M | | | |
| H | 4T-11T306-H | | | |
| K | 4T-11T306-K | | | |
| N | 4T-11T306-N | | | |

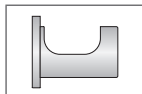
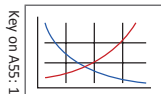
Expected Hole Tolerances

| Length | in | mm |
|--------|-----------------|-------------|
| 2xD | -0.006 / +0.010 | -.15 / +.25 |
| 3xD | -0.006 / +0.010 | -.15 / +.25 |
| 4xD | -0.006 / +0.012 | -.15 / +.30 |

A55: 34 - 35

A55: 31 - 33

A55: 30



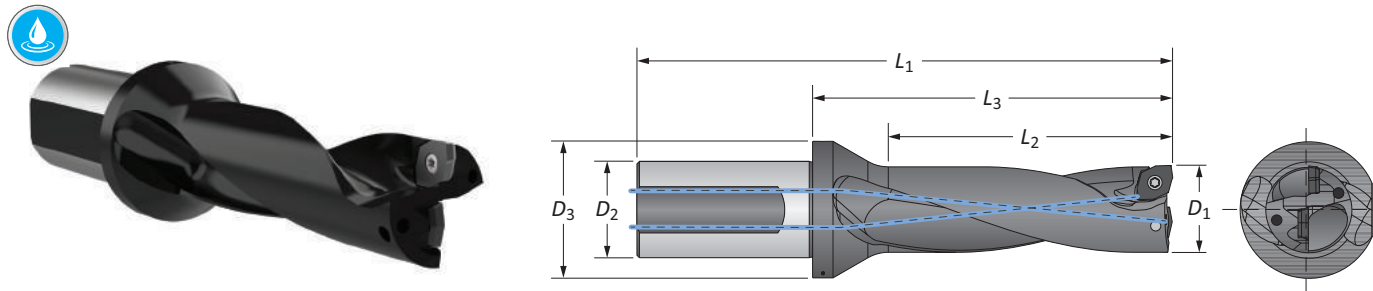
Key on ASS: 1

i = Imperial (in)
m = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

11 Series | Diameter Range: 1.260" - 1.535" (32.00 mm - 38.99 mm)



Metric Shank

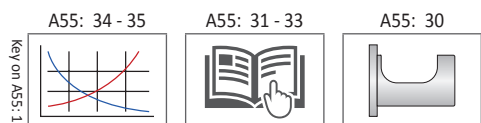
| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 1.260 | 32.00 | 64.00 | 100.40 | 169.40 | 40.00 | 54.00 | 2.20 | D2113200M-40FM |
| | 1.280 | 32.50 | 65.00 | 100.40 | 169.40 | 40.00 | 54.00 | 2.05 | D2113250M-40FM |
| | 1.299 | 33.00 | 66.00 | 102.40 | 171.40 | 40.00 | 54.00 | 1.90 | D2113300M-40FM |
| | 1.312 | 33.32 | 66.65 | 102.40 | 171.40 | 40.00 | 54.00 | 1.84 | D2111312I-40FM |
| | 1.319 | 33.50 | 67.00 | 102.40 | 171.40 | 40.00 | 54.00 | 1.80 | D2113350M-40FM |
| | 1.339 | 34.00 | 68.00 | 104.40 | 173.40 | 40.00 | 54.00 | 1.70 | D2113400M-40FM |
| | 1.358 | 34.50 | 69.00 | 104.40 | 173.40 | 40.00 | 54.00 | 1.55 | D2113450M-40FM |
| | 1.375 | 34.92 | 69.85 | 104.40 | 173.40 | 40.00 | 54.00 | 1.42 | D2111375I-40FM |
| | 1.378 | 35.00 | 70.00 | 106.40 | 175.40 | 40.00 | 54.00 | 1.40 | D2113500M-40FM |
| | 1.398 | 35.50 | 71.00 | 106.40 | 175.40 | 40.00 | 54.00 | 1.30 | D2113550M-40FM |
| | 1.417 | 36.00 | 72.00 | 108.40 | 177.40 | 40.00 | 54.00 | 1.20 | D2113600M-40FM |
| | 1.437 | 36.50 | 73.00 | 108.40 | 177.40 | 40.00 | 54.00 | 1.06 | D2113650M-40FM |
| | 1.457 | 37.00 | 74.00 | 110.40 | 179.40 | 40.00 | 54.00 | 0.90 | D2113700M-40FM |
| | 1.476 | 37.50 | 75.00 | 110.40 | 179.40 | 40.00 | 54.00 | 0.81 | D2113750M-40FM |
| 1.496 | 38.00 | 76.00 | 112.40 | 181.40 | 40.00 | 54.00 | 0.70 | D2113800M-40FM | |
| 1.500 | 38.10 | 76.20 | 112.40 | 181.40 | 40.00 | 54.00 | 0.69 | D2111500I-40FM | |
| 1.516 | 38.50 | 77.00 | 112.40 | 181.40 | 40.00 | 54.00 | 0.56 | D2113850M-40FM | |
| 3xD | 1.260 | 32.00 | 96.00 | 132.40 | 201.40 | 40.00 | 54.00 | 2.20 | D3113200M-40FM |
| | 1.280 | 32.50 | 97.50 | 132.40 | 201.40 | 40.00 | 54.00 | 2.05 | D3113250M-40FM |
| | 1.299 | 33.00 | 99.00 | 135.40 | 204.40 | 40.00 | 54.00 | 1.90 | D3113300M-40FM |
| | 1.312 | 33.32 | 99.97 | 135.40 | 204.40 | 40.00 | 54.00 | 1.84 | D3111312I-40FM |
| | 1.319 | 33.50 | 100.50 | 135.40 | 204.40 | 40.00 | 54.00 | 1.80 | D3113350M-40FM |
| | 1.339 | 34.00 | 102.00 | 138.40 | 207.40 | 40.00 | 54.00 | 1.70 | D3113400M-40FM |
| | 1.358 | 34.50 | 103.50 | 138.40 | 207.40 | 40.00 | 54.00 | 1.55 | D3113450M-40FM |
| | 1.375 | 34.92 | 104.78 | 138.40 | 207.40 | 40.00 | 54.00 | 1.42 | D3111375I-40FM |
| | 1.378 | 35.00 | 105.00 | 141.40 | 210.40 | 40.00 | 54.00 | 1.40 | D3113500M-40FM |
| | 1.398 | 35.50 | 106.50 | 141.40 | 210.40 | 40.00 | 54.00 | 1.30 | D3113550M-40FM |
| | 1.417 | 36.00 | 108.00 | 144.40 | 213.40 | 40.00 | 54.00 | 1.20 | D3113600M-40FM |
| | 1.437 | 36.50 | 109.50 | 144.40 | 213.40 | 40.00 | 54.00 | 1.06 | D3113650M-40FM |
| | 1.457 | 37.00 | 111.00 | 147.40 | 216.40 | 40.00 | 54.00 | 0.90 | D3113700M-40FM |
| | 1.476 | 37.50 | 112.50 | 147.40 | 216.40 | 40.00 | 54.00 | 0.81 | D3113750M-40FM |
| 1.496 | 38.00 | 114.00 | 150.40 | 219.40 | 40.00 | 54.00 | 0.70 | D3113800M-40FM | |
| 1.500 | 38.10 | 114.30 | 150.40 | 219.40 | 40.00 | 54.00 | 0.69 | D3111500I-40FM | |
| 1.516 | 38.50 | 115.50 | 150.40 | 219.40 | 40.00 | 54.00 | 0.56 | D3113850M-150F | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-11T306-P | 7488-T15-1 | 8T-15 | 30.9 in-lbs (3.5 N-m) |
| S | 4T-11T306-M | | | |
| H | 4T-11T306-H | | | |
| K | 4T-11T306-K | | | |
| N | 4T-11T306-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.006 / +.010 | -.15 / +.25 |
| 3xD | -.006 / +.010 | -.15 / +.25 |
| 4xD | -.006 / +.012 | -.15 / +.30 |

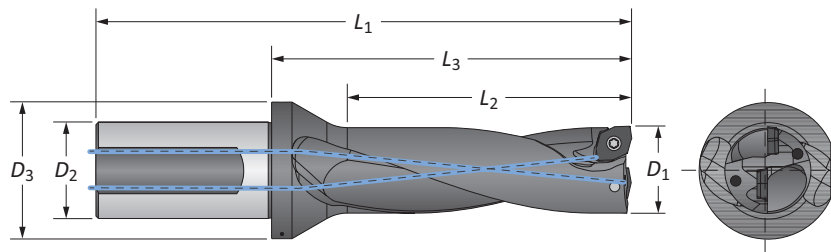


i = Imperial (in)
m = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

11 Series | Diameter Range: 1.260" - 1.535" (32.00 mm - 38.99 mm)



Metric Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| m 4xD | 1.260 | 32.00 | 128.00 | 154.40 | 223.40 | 40.00 | 54.00 | 2.20 | D4113200M-40FM |
| | 1.280 | 32.50 | 130.00 | 154.40 | 223.40 | 40.00 | 54.00 | 2.05 | D4113250M-40FM |
| | 1.299 | 33.00 | 132.00 | 158.40 | 227.40 | 40.00 | 54.00 | 1.90 | D4113300M-40FM |
| | 1.312 | 33.32 | 133.30 | 158.40 | 227.40 | 40.00 | 54.00 | 1.84 | D4111312I-40FM |
| | 1.319 | 33.50 | 134.00 | 158.40 | 227.40 | 40.00 | 54.00 | 1.80 | D4113350M-40FM |
| | 1.339 | 34.00 | 136.00 | 162.40 | 231.40 | 40.00 | 54.00 | 1.70 | D4113400M-40FM |
| | 1.358 | 34.50 | 138.00 | 162.40 | 231.40 | 40.00 | 54.00 | 1.55 | D4113450M-40FM |
| | 1.375 | 34.92 | 139.70 | 162.40 | 231.40 | 40.00 | 54.00 | 1.42 | D4111375I-40FM |
| | 1.378 | 35.00 | 140.00 | 166.40 | 235.40 | 40.00 | 54.00 | 1.40 | D4113500M-40FM |
| | 1.398 | 35.50 | 142.00 | 166.40 | 235.40 | 40.00 | 54.00 | 1.30 | D4113550M-40FM |
| | 1.417 | 36.00 | 144.00 | 170.40 | 239.40 | 40.00 | 54.00 | 1.20 | D4113600M-40FM |
| | 1.437 | 36.50 | 146.00 | 170.40 | 239.40 | 40.00 | 54.00 | 1.06 | D4113650M-40FM |
| | 1.457 | 37.00 | 148.00 | 174.40 | 243.40 | 40.00 | 54.00 | 0.90 | D4113700M-40FM |
| | 1.476 | 37.50 | 150.00 | 174.40 | 243.40 | 40.00 | 54.00 | 0.81 | D4113750M-40FM |
| | 1.496 | 38.00 | 152.00 | 178.40 | 247.40 | 40.00 | 54.00 | 0.70 | D4113800M-40FM |
| 1.500 | 38.10 | 152.40 | 178.40 | 247.40 | 40.00 | 54.00 | 0.69 | D4111500I-40FM | |
| 1.516 | 38.50 | 154.00 | 178.40 | 247.40 | 40.00 | 54.00 | 0.56 | D4113850M-40FM | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-11T306-P | 7488-T15-1 | 8T-15 | 30.9 in-lbs (3.5 N-m) |
| S M | 4T-11T306-M | | | |
| H | 4T-11T306-H | | | |
| K | 4T-11T306-K | | | |
| N | 4T-11T306-N | | | |

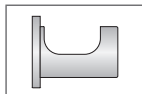
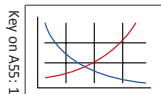
Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.006 / +.010 | -.15 / +.25 |
| 3xD | -.006 / +.010 | -.15 / +.25 |
| 4xD | -.006 / +.012 | -.15 / +.30 |

A55: 34 - 35

A55: 31 - 33

A55: 30

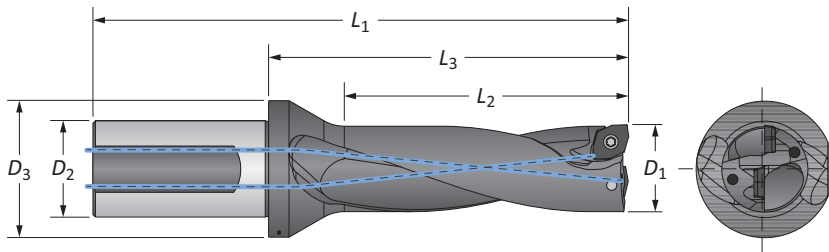


i = Imperial (in)
m = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Imperial Shank

14 Series | Diameter Range: 1.536" - 1.850" (39.00 mm - 47.00 mm)



Imperial Shank

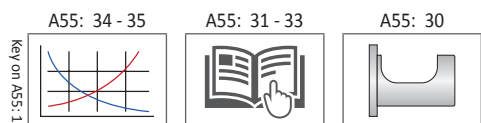
| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 1.535 | 39.00 | 3.071 | 4.346 | 7.063 | 1.500 | 2.126 | 0.110 | D2143900M-150F |
| | 1.555 | 39.50 | 3.110 | 4.346 | 7.063 | 1.500 | 2.126 | 0.105 | D2143950M-150F |
| | 1.562 | 39.67 | 3.124 | 4.346 | 7.063 | 1.500 | 2.126 | 0.103 | D2141562I-150F |
| | 1.575 | 40.00 | 3.150 | 4.425 | 7.142 | 1.500 | 2.126 | 0.098 | D2144000M-150F |
| | 1.594 | 40.50 | 3.189 | 4.425 | 7.142 | 1.500 | 2.126 | 0.095 | D2144050M-150F |
| | 1.614 | 41.00 | 3.228 | 4.504 | 7.220 | 1.500 | 2.126 | 0.091 | D2144100M-150F |
| | 1.625 | 41.28 | 3.250 | 4.504 | 7.220 | 1.500 | 2.126 | 0.088 | D2141625I-150F |
| | 1.634 | 41.50 | 3.268 | 4.504 | 7.220 | 1.500 | 2.126 | 0.085 | D2144150M-150F |
| | 1.654 | 42.00 | 3.307 | 4.583 | 7.299 | 1.500 | 2.126 | 0.079 | D2144200M-150F |
| | 1.673 | 42.50 | 3.346 | 4.583 | 7.299 | 1.500 | 2.126 | 0.075 | D2144250M-150F |
| | 1.687 | 42.85 | 3.374 | 4.583 | 7.299 | 1.500 | 2.126 | 0.072 | D2141687I-150F |
| | 1.693 | 43.00 | 3.386 | 4.661 | 7.378 | 1.500 | 2.323 | 0.071 | D2144300M-150F |
| | 1.713 | 43.50 | 3.425 | 4.661 | 7.378 | 1.500 | 2.323 | 0.065 | D2144350M-150F |
| | 1.732 | 44.00 | 3.465 | 4.740 | 7.457 | 1.500 | 2.323 | 0.059 | D2144400M-150F |
| | 1.750 | 44.45 | 3.500 | 4.740 | 7.457 | 1.500 | 2.323 | 0.055 | D2141750I-150F |
| | 1.752 | 44.50 | 3.504 | 4.740 | 7.457 | 1.500 | 2.323 | 0.055 | D2144450M-150F |
| | 1.772 | 45.00 | 3.543 | 4.819 | 7.535 | 1.500 | 2.323 | 0.051 | D2144500M-150F |
| | 1.791 | 45.50 | 3.583 | 4.819 | 7.535 | 1.500 | 2.323 | 0.045 | D2144550M-150F |
| 1.812 | 46.02 | 3.624 | 4.898 | 7.614 | 1.500 | 2.323 | 0.040 | D2141812I-150F | |
| 1.811 | 46.00 | 3.622 | 4.898 | 7.614 | 1.500 | 2.323 | 0.039 | D2144600M-150F | |
| 1.831 | 46.50 | 3.661 | 4.898 | 7.614 | 1.500 | 2.323 | 0.036 | D2144650M-150F | |
| 1.850 | 47.00 | 3.701 | 4.976 | 7.693 | 1.500 | 2.323 | 0.031 | D2144700M-150F | |
| 3xD | 1.535 | 39.00 | 4.606 | 5.882 | 8.598 | 1.500 | 2.126 | 0.110 | D3143900M-150F |
| | 1.555 | 39.50 | 4.665 | 5.882 | 8.598 | 1.500 | 2.126 | 0.105 | D3143950M-150F |
| | 1.562 | 39.67 | 4.686 | 5.882 | 8.598 | 1.500 | 2.126 | 0.103 | D3141562I-150F |
| | 1.575 | 40.00 | 4.724 | 6.000 | 8.717 | 1.500 | 2.126 | 0.098 | D3144000M-150F |
| | 1.594 | 40.50 | 4.783 | 6.000 | 8.717 | 1.500 | 2.126 | 0.095 | D3144050M-150F |
| | 1.614 | 41.00 | 4.843 | 6.118 | 8.835 | 1.500 | 2.126 | 0.091 | D3144100M-150F |
| | 1.625 | 41.28 | 4.875 | 6.118 | 8.835 | 1.500 | 2.126 | 0.088 | D3141625I-150F |
| | 1.634 | 41.50 | 4.902 | 6.118 | 8.835 | 1.500 | 2.126 | 0.085 | D3144150M-150F |
| | 1.654 | 42.00 | 4.961 | 6.236 | 8.953 | 1.500 | 2.126 | 0.079 | D3144200M-150F |
| | 1.673 | 42.50 | 5.020 | 6.236 | 8.953 | 1.500 | 2.126 | 0.075 | D3144250M-150F |
| | 1.687 | 42.85 | 5.061 | 6.236 | 8.953 | 1.500 | 2.126 | 0.072 | D3141687I-150F |
| | 1.693 | 43.00 | 5.079 | 6.354 | 9.071 | 1.500 | 2.323 | 0.071 | D3144300M-150F |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-140408-P | 7595-T20-1 | 8T-20 | 39.8 in-lbs (4.5 N-m) |
| S | 4T-140408-M | | | |
| H | 4T-140408-H | | | |
| K | 4T-140408-K | | | |
| N | 4T-140408-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|------------|
| 2xD | -0.08 / +.012 | -20 / +.30 |
| 3xD | -0.08 / +.012 | -20 / +.30 |
| 4xD | -0.08 / +.014 | -20 / +.35 |

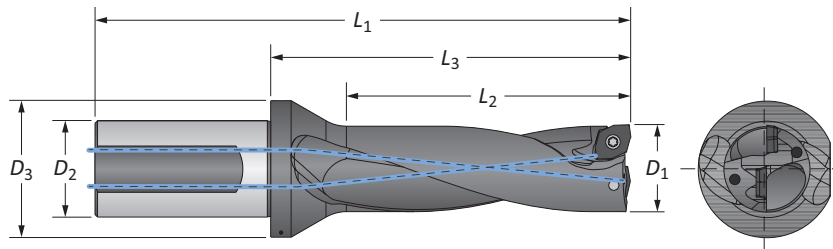


i = Imperial (in)
m = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Imperial Shank

14 Series | Diameter Range: 1.536" - 1.850" (39.00 mm - 47.00 mm)



Imperial Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 3xD | 1.713 | 43.50 | 5.138 | 6.354 | 9.071 | 1.500 | 2.323 | 0.065 | D3144350M-150F |
| | 1.732 | 44.00 | 5.197 | 6.472 | 9.189 | 1.500 | 2.323 | 0.059 | D3144400M-150F |
| | 1.750 | 44.45 | 5.250 | 6.472 | 9.189 | 1.500 | 2.323 | 0.055 | D3141750I-150F |
| | 1.752 | 44.50 | 5.256 | 6.472 | 9.189 | 1.500 | 2.323 | 0.055 | D3144450M-150F |
| | 1.772 | 45.00 | 5.315 | 6.591 | 9.307 | 1.500 | 2.323 | 0.051 | D3144500M-150F |
| | 1.791 | 45.50 | 5.374 | 6.591 | 9.307 | 1.500 | 2.323 | 0.045 | D3144550M-150F |
| | 1.811 | 46.00 | 5.433 | 6.709 | 9.425 | 1.500 | 2.323 | 0.039 | D3144600M-150F |
| | 1.812 | 46.02 | 5.436 | 6.709 | 9.425 | 1.500 | 2.323 | 0.040 | D3141812I-150F |
| | 1.831 | 46.50 | 5.492 | 6.709 | 9.425 | 1.500 | 2.323 | 0.036 | D3144650M-150F |
| 1.850 | 47.00 | 5.551 | 6.827 | 9.543 | 1.500 | 2.323 | 0.031 | D3144700M-150F | |
| 4xD | 1.535 | 39.00 | 6.142 | 7.417 | 10.134 | 1.500 | 2.126 | 0.110 | D4143900M-150F |
| | 1.555 | 39.50 | 6.220 | 7.417 | 10.134 | 1.500 | 2.126 | 0.105 | D4143950M-150F |
| | 1.562 | 39.67 | 6.248 | 7.417 | 10.134 | 1.500 | 2.126 | 0.103 | D4141562I-150F |
| | 1.575 | 40.00 | 6.299 | 7.575 | 10.291 | 1.500 | 2.126 | 0.098 | D4144000M-150F |
| | 1.594 | 40.50 | 6.378 | 7.575 | 10.291 | 1.500 | 2.126 | 0.095 | D4144050M-150F |
| | 1.614 | 41.00 | 6.457 | 7.732 | 10.449 | 1.500 | 2.126 | 0.091 | D4144100M-150F |
| | 1.625 | 41.28 | 6.500 | 7.732 | 10.449 | 1.500 | 2.126 | 0.088 | D4141625I-150F |
| | 1.634 | 41.50 | 6.535 | 7.732 | 10.449 | 1.500 | 2.126 | 0.085 | D4144150M-150F |
| | 1.654 | 42.00 | 6.614 | 7.890 | 10.606 | 1.500 | 2.126 | 0.079 | D4144200M-150F |
| | 1.673 | 42.50 | 6.693 | 7.890 | 10.606 | 1.500 | 2.126 | 0.075 | D4144250M-150F |
| | 1.687 | 42.85 | 6.748 | 7.890 | 10.606 | 1.500 | 2.126 | 0.072 | D4141687I-150F |
| | 1.693 | 43.00 | 6.772 | 8.047 | 10.764 | 1.500 | 2.323 | 0.071 | D4144300M-150F |
| | 1.713 | 43.50 | 6.850 | 8.047 | 10.764 | 1.500 | 2.323 | 0.065 | D4144350M-150F |
| | 1.732 | 44.00 | 6.929 | 8.205 | 10.921 | 1.500 | 2.323 | 0.059 | D4144400M-150F |
| | 1.750 | 44.45 | 7.000 | 8.205 | 10.921 | 1.500 | 2.323 | 0.055 | D4141750I-150F |
| | 1.752 | 44.50 | 7.008 | 8.205 | 10.921 | 1.500 | 2.323 | 0.055 | D4144450M-150F |
| | 1.772 | 45.00 | 7.087 | 8.362 | 11.079 | 1.500 | 2.323 | 0.051 | D4144500M-150F |
| | 1.791 | 45.50 | 7.165 | 8.362 | 11.079 | 1.500 | 2.323 | 0.045 | D4144550M-150F |
| | 1.811 | 46.00 | 7.244 | 8.520 | 11.236 | 1.500 | 2.323 | 0.039 | D4144600M-150F |
| | 1.812 | 46.02 | 7.248 | 8.520 | 11.236 | 1.500 | 2.323 | 0.040 | D4141812I-150F |
| 1.831 | 46.50 | 7.323 | 8.520 | 11.236 | 1.500 | 2.323 | 0.036 | D4144650M-150F | |
| 1.850 | 47.00 | 7.402 | 8.677 | 11.394 | 1.500 | 2.323 | 0.031 | D4144700M-150F | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-140408-P | 7595-T20-1 | 8T-20 | 39.8 in-lbs (4.5 N-m) |
| S M | 4T-140408-M | | | |
| H | 4T-140408-H | | | |
| K | 4T-140408-K | | | |
| N | 4T-140408-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.008 / +.012 | -.20 / +.30 |
| 3xD | -.008 / +.012 | -.20 / +.30 |
| 4xD | -.008 / +.014 | -.20 / +.35 |

Key on ASS: 1

A55: 34 - 35

A55: 31 - 33

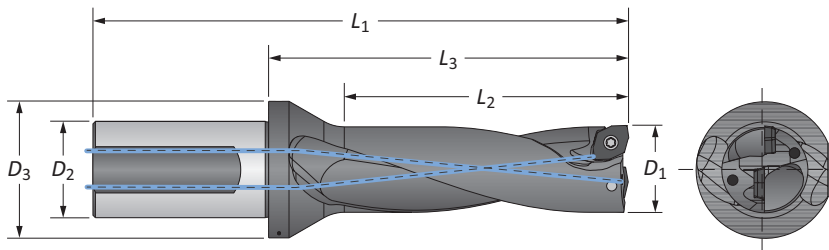
A55: 30

ⓘ = Imperial (in)
 ⓘ = Metric (mm)

IC inserts sold in quantities of 10
 Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

14 Series | Diameter Range: 1.536" - 1.850" (39.00 mm - 47.00 mm)



Metric Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|-------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 2xD | 1.535 | 39.00 | 78.00 | 110.40 | 179.40 | 40.00 | 54.00 | 2.80 | D2143900M-40FM |
| | 1.555 | 39.50 | 79.00 | 110.40 | 179.40 | 40.00 | 54.00 | 2.66 | D2143950M-40FM |
| | 1.562 | 39.67 | 79.40 | 110.40 | 179.40 | 40.00 | 54.00 | 2.61 | D2141562I-40FM |
| | 1.575 | 40.00 | 80.00 | 112.40 | 181.40 | 40.00 | 54.00 | 2.50 | D2144000M-40FM |
| | 1.594 | 40.50 | 81.00 | 112.40 | 181.40 | 40.00 | 54.00 | 2.41 | D2144050M-40FM |
| | 1.614 | 41.00 | 82.00 | 114.40 | 183.40 | 40.00 | 54.00 | 2.30 | D2144100M-40FM |
| | 1.625 | 41.28 | 82.55 | 114.40 | 183.40 | 40.00 | 54.00 | 2.23 | D2141625I-40FM |
| | 1.634 | 41.50 | 83.00 | 114.40 | 183.40 | 40.00 | 54.00 | 2.16 | D2144150M-40FM |
| | 1.654 | 42.00 | 84.00 | 116.40 | 185.40 | 40.00 | 54.00 | 2.00 | D2144200M-40FM |
| | 1.673 | 42.50 | 85.00 | 116.40 | 185.40 | 40.00 | 54.00 | 1.90 | D2144250M-40FM |
| | 1.687 | 42.85 | 85.70 | 116.40 | 185.40 | 40.00 | 54.00 | 1.82 | D2141687I-40FM |
| | 1.693 | 43.00 | 86.00 | 118.40 | 187.40 | 40.00 | 59.00 | 1.80 | D2144300M-40FM |
| | 1.713 | 43.50 | 87.00 | 118.40 | 187.40 | 40.00 | 59.00 | 1.65 | D2144350M-40FM |
| | 1.732 | 44.00 | 88.00 | 120.40 | 189.40 | 40.00 | 59.00 | 1.50 | D2144400M-40FM |
| | 1.750 | 44.45 | 88.90 | 120.40 | 189.40 | 40.00 | 59.00 | 1.41 | D2141750I-40FM |
| | 1.752 | 44.50 | 89.00 | 120.40 | 189.40 | 40.00 | 59.00 | 1.40 | D2144450M-40FM |
| | 1.772 | 45.00 | 90.00 | 122.40 | 191.40 | 40.00 | 59.00 | 1.30 | D2144500M-40FM |
| | 1.791 | 45.50 | 91.00 | 122.40 | 191.40 | 40.00 | 59.00 | 1.15 | D2144550M-40FM |
| 1.812 | 46.02 | 92.10 | 124.40 | 193.40 | 40.00 | 59.00 | 1.02 | D2141812I-40FM | |
| 1.811 | 46.00 | 92.00 | 124.40 | 193.40 | 40.00 | 59.00 | 1.00 | D2144600M-40FM | |
| 1.831 | 46.50 | 93.00 | 124.40 | 193.40 | 40.00 | 59.00 | 0.90 | D2144650M-40FM | |
| 1.850 | 47.00 | 94.00 | 126.40 | 195.40 | 40.00 | 59.00 | 0.80 | D2144700M-40FM | |
| 3xD | 1.535 | 39.00 | 117.00 | 149.40 | 218.40 | 40.00 | 54.00 | 2.80 | D3143900M-40FM |
| | 1.555 | 39.50 | 118.50 | 149.40 | 218.40 | 40.00 | 54.00 | 2.66 | D3143950M-40FM |
| | 1.562 | 39.67 | 119.02 | 149.40 | 218.40 | 40.00 | 54.00 | 2.61 | D3141562I-40FM |
| | 1.575 | 40.00 | 120.00 | 152.40 | 221.40 | 40.00 | 54.00 | 2.50 | D3144000M-40FM |
| | 1.594 | 40.50 | 121.50 | 152.40 | 221.40 | 40.00 | 54.00 | 2.41 | D3144050M-40FM |
| | 1.614 | 41.00 | 123.00 | 155.40 | 224.40 | 40.00 | 54.00 | 2.30 | D3144100M-40FM |
| | 1.625 | 41.28 | 123.83 | 155.40 | 224.40 | 40.00 | 54.00 | 2.23 | D3141625I-40FM |
| | 1.634 | 41.50 | 124.50 | 155.40 | 224.40 | 40.00 | 54.00 | 2.16 | D3144150M-40FM |
| | 1.654 | 42.00 | 126.00 | 158.40 | 227.40 | 40.00 | 54.00 | 2.00 | D3144200M-40FM |
| | 1.673 | 42.50 | 127.50 | 158.40 | 227.40 | 40.00 | 54.00 | 1.90 | D3144250M-40FM |
| | 1.687 | 42.85 | 128.55 | 158.40 | 227.40 | 40.00 | 54.00 | 1.82 | D3141687I-40FM |
| | 1.693 | 43.00 | 129.00 | 161.40 | 230.40 | 40.00 | 59.00 | 1.80 | D3144300M-40FM |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-140408-P | 7595-T20-1 | 8T-20 | 39.8 in-lbs (4.5 N-m) |
| S M | 4T-140408-M | | | |
| H | 4T-140408-H | | | |
| K | 4T-140408-K | | | |
| N | 4T-140408-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|----------------|------------|
| 2xD | -0.008 / +.012 | -20 / +.30 |
| 3xD | -0.008 / +.012 | -20 / +.30 |
| 4xD | -0.008 / +.014 | -20 / +.35 |

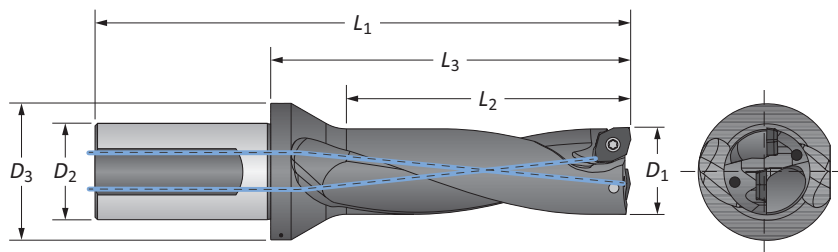
A55: 34 - 35 A55: 31 - 33 A55: 30

ⓘ = Imperial (in)
Ⓜ = Metric (mm)

IC inserts sold in quantities of 10
Insert screws sold in quantities of 10

4TEX Drill Holders | Metric Shank

14 Series | Diameter Range: 1.536" - 1.850" (39.00 mm - 47.00 mm)



Metric Shank

| Length | D ₁ | | Body | | | Shank | | Max Offset | Part No. |
|--------|----------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | in | mm | L ₂ | L ₃ | L ₁ | D ₂ | D ₃ | | |
| 3xD | 1.713 | 43.50 | 130.50 | 161.40 | 230.40 | 40.00 | 59.00 | 1.65 | D3144350M-40FM |
| | 1.732 | 44.00 | 132.00 | 164.40 | 233.40 | 40.00 | 59.00 | 1.50 | D3144400M-40FM |
| | 1.750 | 44.45 | 133.35 | 164.40 | 233.40 | 40.00 | 59.00 | 1.41 | D3141750I-40FM |
| | 1.752 | 44.50 | 133.50 | 164.40 | 233.40 | 40.00 | 59.00 | 1.40 | D3144450M-40FM |
| | 1.772 | 45.00 | 135.00 | 167.40 | 236.40 | 40.00 | 59.00 | 1.30 | D3144500M-40FM |
| | 1.791 | 45.50 | 136.50 | 167.40 | 236.40 | 40.00 | 59.00 | 1.15 | D3144550M-40FM |
| | 1.811 | 46.00 | 138.00 | 170.40 | 239.40 | 40.00 | 59.00 | 1.00 | D3144600M-40FM |
| | 1.812 | 46.02 | 138.07 | 170.40 | 239.40 | 40.00 | 59.00 | 1.02 | D3141812I-40FM |
| | 1.831 | 46.50 | 139.50 | 170.40 | 239.40 | 40.00 | 59.00 | 0.90 | D3144650M-40FM |
| 1.850 | 47.00 | 141.00 | 173.40 | 242.40 | 40.00 | 59.00 | 0.80 | D3144700M-40FM | |
| 4xD | 1.535 | 39.00 | 156.00 | 188.40 | 257.40 | 40.00 | 54.00 | 2.80 | D4143900M-40FM |
| | 1.555 | 39.50 | 158.00 | 188.40 | 257.40 | 40.00 | 54.00 | 2.66 | D4143950M-40FM |
| | 1.562 | 39.67 | 158.70 | 188.40 | 257.40 | 40.00 | 54.00 | 2.61 | D4141562I-40FM |
| | 1.575 | 40.00 | 160.00 | 192.40 | 261.40 | 40.00 | 54.00 | 2.50 | D4144000M-40FM |
| | 1.594 | 40.50 | 162.00 | 192.40 | 261.40 | 40.00 | 54.00 | 2.41 | D4144050M-40FM |
| | 1.614 | 41.00 | 164.00 | 196.40 | 265.40 | 40.00 | 54.00 | 2.30 | D4144100M-40FM |
| | 1.625 | 41.28 | 165.10 | 196.40 | 265.40 | 40.00 | 54.00 | 2.23 | D4141625I-40FM |
| | 1.634 | 41.50 | 166.00 | 196.40 | 265.40 | 40.00 | 54.00 | 2.16 | D4144150M-40FM |
| | 1.654 | 42.00 | 168.00 | 200.40 | 269.40 | 40.00 | 54.00 | 2.00 | D4144200M-40FM |
| | 1.673 | 42.50 | 170.00 | 200.40 | 269.40 | 40.00 | 54.00 | 1.90 | D4144250M-40FM |
| | 1.687 | 42.85 | 171.40 | 200.40 | 269.40 | 40.00 | 54.00 | 1.82 | D4141687I-40FM |
| | 1.693 | 43.00 | 172.00 | 204.40 | 273.40 | 40.00 | 59.00 | 1.80 | D4144300M-40FM |
| | 1.713 | 43.50 | 174.00 | 204.40 | 273.40 | 40.00 | 59.00 | 1.65 | D4144350M-40FM |
| | 1.732 | 44.00 | 176.00 | 208.40 | 277.40 | 40.00 | 59.00 | 1.50 | D4144400M-40FM |
| | 1.750 | 44.45 | 177.80 | 208.40 | 277.40 | 40.00 | 59.00 | 1.41 | D4141750I-40FM |
| | 1.752 | 44.50 | 178.00 | 208.40 | 277.40 | 40.00 | 59.00 | 1.40 | D4144450M-40FM |
| | 1.772 | 45.00 | 180.00 | 212.40 | 281.40 | 40.00 | 59.00 | 1.30 | D4144500M-40FM |
| | 1.791 | 45.50 | 182.00 | 212.40 | 281.40 | 40.00 | 59.00 | 1.15 | D4144550M-40FM |
| | 1.811 | 46.00 | 184.00 | 216.40 | 285.40 | 40.00 | 59.00 | 1.00 | D4144600M-40FM |
| | 1.812 | 46.02 | 184.10 | 216.40 | 285.40 | 40.00 | 59.00 | 1.02 | D4141812I-40FM |
| 1.831 | 46.50 | 186.00 | 216.40 | 285.40 | 40.00 | 59.00 | 0.90 | D4144650M-40FM | |
| 1.850 | 47.00 | 188.00 | 220.40 | 289.40 | 40.00 | 59.00 | 0.80 | D4144700M-40FM | |

IC Inserts

| ISO Material | Part No. | Insert Screw | Torx® Driver | Admissible Tightening Torque |
|--------------|-------------|--------------|--------------|------------------------------|
| P | 4T-140408-P | 7595-T20-1 | 8T-20 | 39.8 in-lbs (4.5 N-m) |
| S M | 4T-140408-M | | | |
| H | 4T-140408-H | | | |
| K | 4T-140408-K | | | |
| N | 4T-140408-N | | | |

Expected Hole Tolerances

| Length | in | mm |
|--------|---------------|-------------|
| 2xD | -.008 / +.012 | -.20 / +.30 |
| 3xD | -.008 / +.012 | -.20 / +.30 |
| 4xD | -.008 / +.014 | -.20 / +.35 |

Key on ASS-1

A55: 34 - 35

A55: 31 - 33

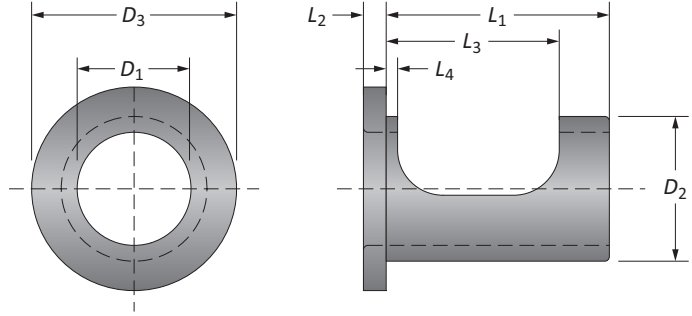
A55: 30

ⓘ = Imperial (in)
 ⓘ = Metric (mm)

IC inserts sold in quantities of 10
 Insert screws sold in quantities of 10

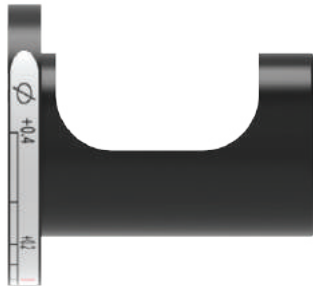
Eccentric Sleeves

For Cutting Diameter / Center Height Adjustment

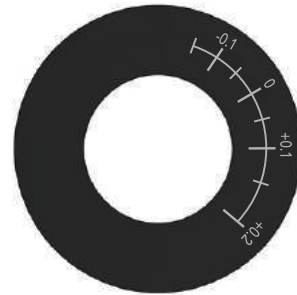


| | Sleeve Dimensions | | | | | | | Part No. | Adjustment Range | |
|----------|-------------------|-------|-------|-------|-------|-------|-------|--------------------|------------------|------------------|
| | D_1 | D_2 | D_3 | L_2 | L_3 | L_4 | L_1 | | Diameter* | Center Height |
| i | 0.750 | 1.000 | 1.614 | 0.157 | 1.593 | 0.118 | 1.837 | SLEEVE-075F | -0.008 to +0.016 | -0.006 to +0.008 |
| | 1.000 | 1.250 | 1.929 | 0.236 | 1.593 | 0.098 | 1.995 | SLEEVE-100F | -0.008 to +0.016 | -0.006 to +0.008 |
| | 1.250 | 1.500 | 2.283 | 0.236 | 1.693 | 0.098 | 2.087 | SLEEVE-125F | -0.008 to +0.016 | -0.006 to +0.008 |
| | 1.500 | 2.000 | 2.913 | 0.236 | 1.929 | 0.118 | 2.481 | SLEEVE-150F | -0.008 to +0.024 | -0.008 to +0.012 |
| m | 25.00 | 32.00 | 49.00 | 6.00 | 39.00 | 2.50 | 54.00 | SLEEVE-25FM | -0.20 to +0.40 | -0.15 to +0.20 |
| | 32.00 | 40.00 | 58.00 | 6.00 | 43.00 | 2.50 | 59.00 | SLEEVE-32FM | -0.20 to +0.40 | -0.15 to +0.20 |
| | 40.00 | 50.00 | 74.00 | 6.00 | 49.00 | 3.00 | 69.00 | SLEEVE-40FM | -0.20 to +0.40 | -0.20 to +0.30 |

*Diameter adjustment range refers to the cutting diameter.



Milling Applications
Peripheral Adjustment Position

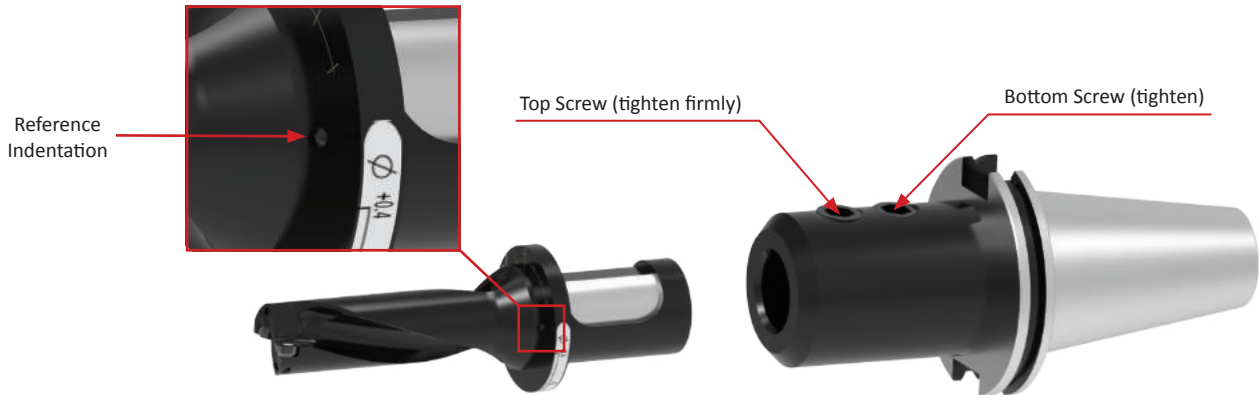


Lathe Applications
Front Adjustment Position

i = Imperial (in)
m = Metric (mm)

Diameter Adjustment

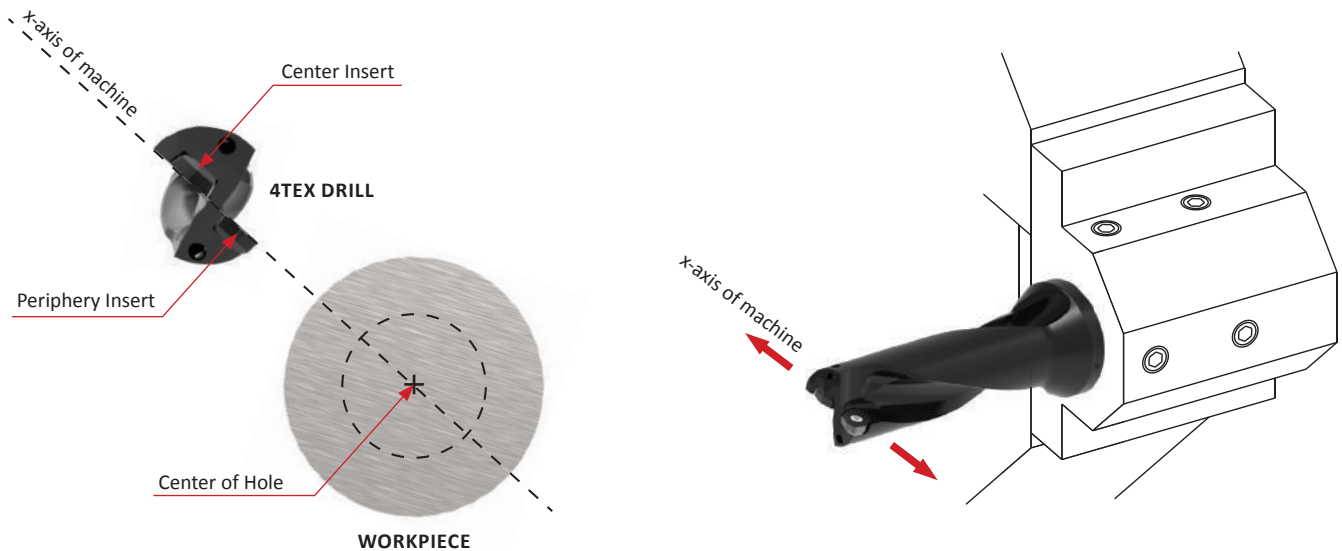
Milling and Lathe Applications



For Milling Applications

1. Assemble the 4TEX drill, eccentric sleeve, and tool holder. Do not tighten the tool holder set screws.
2. Using the peripheral marks for milling machines, align the reference indentation on the holder with the 0 (zero) mark on the eccentric sleeve to have no offset.
3. Rotate the sleeve in the (+) or (-) direction to increase or decrease the nominal diameter.
4. Once the drill has arrived at the desired diameter, firmly tighten the top set screw first and then tighten the bottom set screw.

NOTICE: Eccentric sleeves are to be used with side-locking tool holders only. Damage may result with other styles of tool holders.



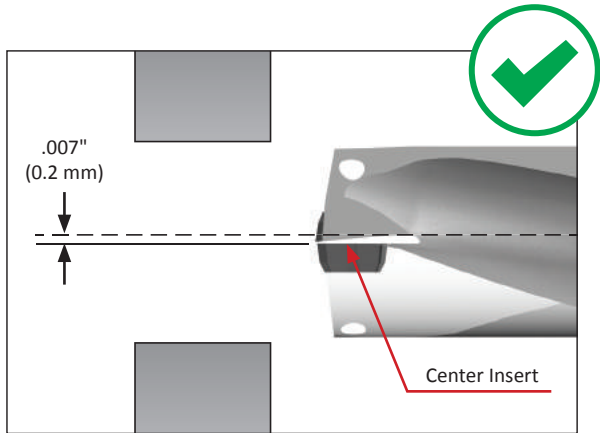
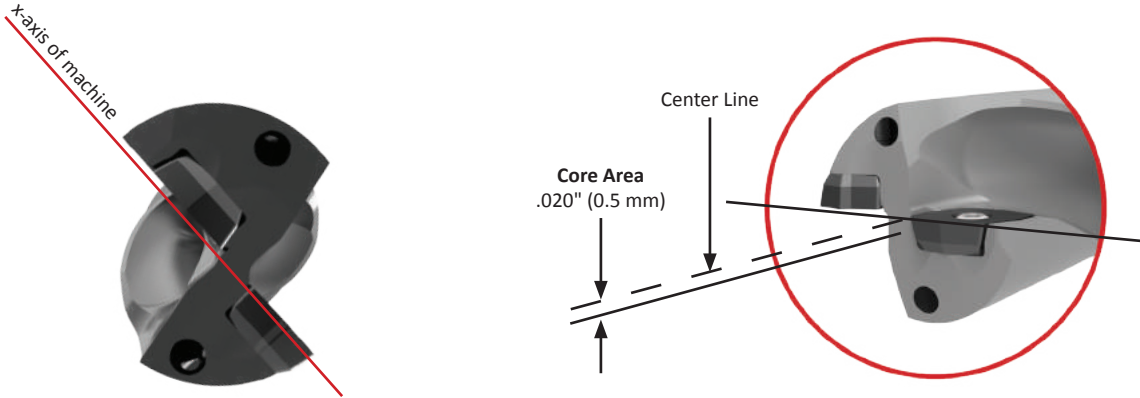
For Lathe Applications

1. Assemble the 4TEX drill into the lathe turret with the top face of the inserts parallel to the x-axis of the machine. This will allow for the diameter offsets to be made using the lathe's x-axis.
2. To increase the nominal diameter, offset the x-axis so the periphery insert moves away from the center of the hole.
3. To decrease the nominal diameter, offset the x-axis so the periphery insert moves toward the center of the hole.

NOTE: Eccentric sleeve is not required when adjusting the diameter of the hole on a lathe.

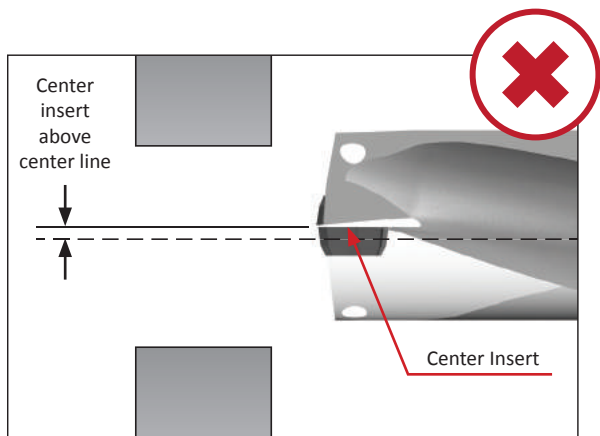
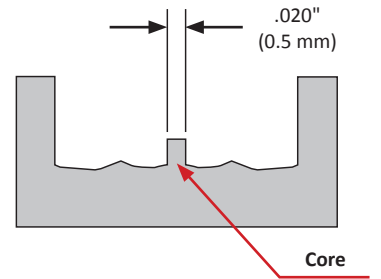
Center Height Alignment

Proper Center Line Position



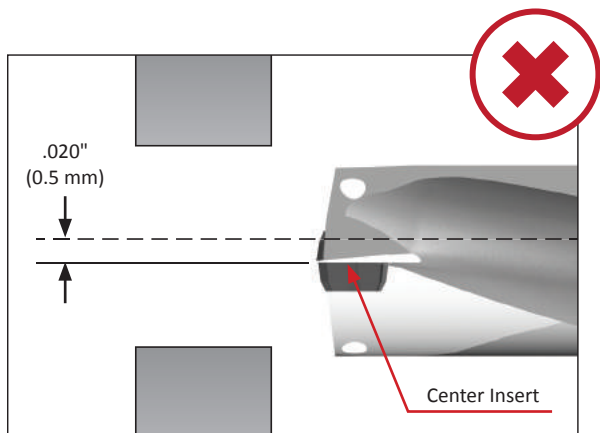
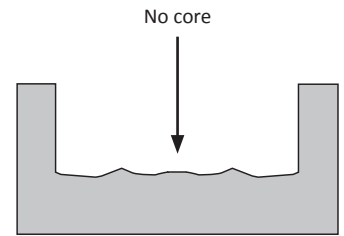
Proper Center Height Alignment

- The correct center height alignment will position the center insert .007" (0.2 mm) below the center line.



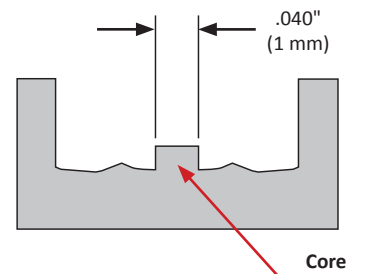
Center Insert Above the Center Line

- This will cause fracturing of the center insert
- Requires center height adjustment



Center Insert Too Far Below Center Line

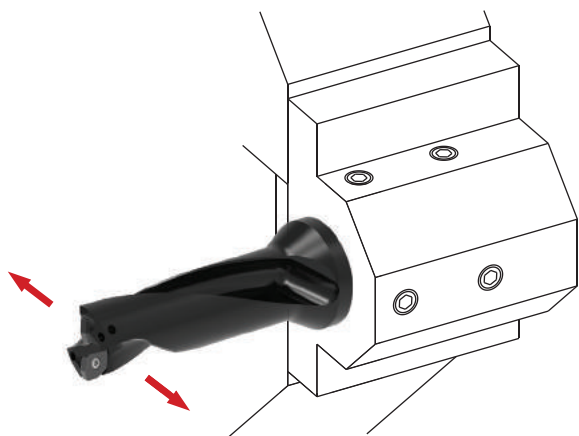
- This will cause the drill to interfere with the drilled hole
- This will impede chip evacuation on the periphery insert
- Requires center height adjustment



A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Center Height Alignment

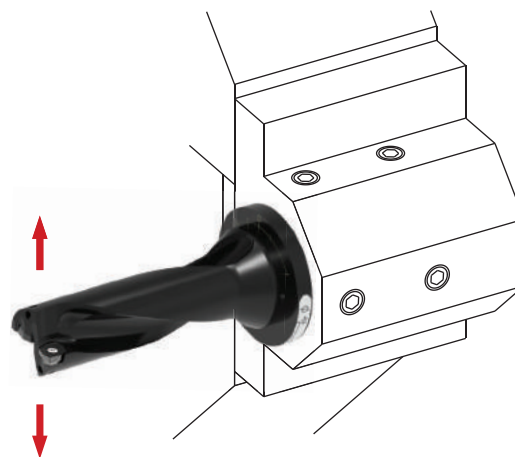
How to Correct Issues



Method 1: Adjustment with X-Axis

1. Rotate the drill body so the position of the center line of the inserts is perpendicular to the lathe's x-axis.
2. Use the x-axis to offset the position of the center line in a (+) or (-) direction to increase or decrease the center core diameter at the bottom of the hole.

NOTE: This method does not allow diameter adjustments using the x-axis.



Method 2: Adjustment with Eccentric Sleeve

1. Assemble the drill to the turret using the eccentric sleeve, positioning the center line of the inserts parallel to the x-axis.
2. Align the reference indentation on the drill to the "0" setting on the flange face.
3. Rotate the sleeve (+) or (-) to increase or decrease the center height of the inserts in order to increase or decrease the core diameter at the bottom of the hole.

NOTE: This method still allows diameter adjustments using the x-axis.

NOTE (applies to both methods): Adjusting the center line of the inserts may affect the hole diameter produced. Method two is preferred to make center height adjustments and compensate for hole diameter with the x-axis.

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS



Recommended Drilling Data | Imperial (inch)

| ISO | Material | Hardness (BHN) | Speed (SFM) | | | | Feed Rate (IPR) by Diameter - 2xD, 3xD** | | | |
|-------------------------|--|----------------|-------------|------------|----------------|-------------------|--|-------------------|-------------------|---------------|
| | | | P | K | H | M | N | 03, 04 Series | 05 Series | 06, 07 Series |
| | | | AM480 | AM485 | TiCN | Ø 0.472" - 0.610" | Ø 0.611" - 0.728" | Ø 0.729" - 1.043" | Ø 1.044" - 1.850" | |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100-150 | 400 - 1200 | 400 - 1200 | - | 0.0025 - 0.004 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0055 | |
| | | 150-200 | 400 - 1000 | 400 - 1000 | - | 0.0025 - 0.004 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0055 | |
| | | 200-250 | 400 - 800 | 400 - 800 | - | 0.0025 - 0.004 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0055 | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85-125 | 400 - 1000 | 400 - 1000 | - | 0.0025 - 0.004 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0055 | |
| | | 125-175 | 400 - 1000 | 400 - 1000 | - | 0.0025 - 0.004 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0055 | |
| | | 175-225 | 400 - 800 | 400 - 800 | - | 0.0025 - 0.004 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0055 | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225-275 | 400 - 800 | 400 - 800 | - | 0.0025 - 0.004 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0055 | |
| | | 125-175 | 330 - 800 | 330 - 800 | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 175-225 | 330 - 800 | 330 - 800 | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | Alloy Steel 4140, 5140, 8640, etc. | 225-275 | 330 - 800 | 330 - 800 | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 275-325 | 330 - 800 | 330 - 800 | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 325-375 | 330 - 800 | 330 - 800 | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 375-425 | 330 - 800 | 330 - 800 | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225-300 | 330 - 600 | - | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 300-350 | 330 - 600 | - | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 350-400 | 330 - 600 | - | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | Structural Steel A36, A285, A516, etc. | 100-150 | 330 - 600 | 330 - 600 | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 150-250 | 330 - 600 | 330 - 600 | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 250-350 | 330 - 600 | - | - | 0.0015 - 0.0055 | 0.0025 - 0.0065 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150-200 | 270 - 600 | 270 - 600 | - | 0.0015 - 0.003 | 0.0025 - 0.005 | 0.003 - 0.006 | 0.003 - 0.006 | |
| 200-250 | | 270 - 600 | - | - | 0.0015 - 0.003 | 0.0025 - 0.005 | 0.003 - 0.006 | 0.003 - 0.006 | | |
| S | High-Temp Alloy* Hastelloy B, Inconel 600, etc. | 140 - 220 | 100 - 250 | 100 - 250 | - | 0.002 - 0.003 | 0.002 - 0.003 | 0.0025 - 0.004 | 0.0025 - 0.004 | |
| | | 220 - 310 | 100 - 200 | 100 - 200 | - | 0.002 - 0.003 | 0.002 - 0.003 | 0.0025 - 0.004 | 0.0025 - 0.004 | |
| | Titanium Alloy* | 140 - 220 | 140 - 500 | 140 - 500 | - | 0.002 - 0.003 | 0.002 - 0.003 | 0.0025 - 0.004 | 0.0025 - 0.004 | |
| | | 220 - 310 | 140 - 300 | 140 - 300 | - | 0.002 - 0.003 | 0.002 - 0.003 | 0.0025 - 0.004 | 0.0025 - 0.004 | |
| Aerospace Alloy* S82 | 185 - 275 | 100 - 250 | 100 - 250 | - | 0.002 - 0.003 | 0.002 - 0.003 | 0.0025 - 0.004 | 0.0025 - 0.004 | | |
| | 275 - 350 | 100 - 200 | 100 - 200 | - | 0.002 - 0.003 | 0.002 - 0.003 | 0.0025 - 0.004 | 0.0025 - 0.004 | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | 240 - 600 | 240 - 700 | - | 0.0015 - 0.004 | 0.0025 - 0.005 | 0.0025 - 0.0055 | 0.0025 - 0.0055 | |
| | | 275 - 350 | 240 - 470 | 240 - 500 | - | 0.0015 - 0.004 | 0.0025 - 0.005 | 0.0025 - 0.0055 | 0.0025 - 0.0055 | |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | 240 - 600 | 240 - 700 | - | 0.0015 - 0.004 | 0.0025 - 0.005 | 0.0025 - 0.0055 | 0.0025 - 0.0055 | |
| | | 185 - 275 | 240 - 470 | 240 - 500 | - | 0.0015 - 0.004 | 0.0025 - 0.005 | 0.0025 - 0.0055 | 0.0025 - 0.0055 | |
| | Super Duplex Stainless Steel | 135 - 185 | 240 - 600 | 240 - 700 | - | 0.0015 - 0.004 | 0.0025 - 0.005 | 0.0025 - 0.0055 | 0.0025 - 0.0055 | |
| 185 - 275 | | 240 - 470 | 240 - 500 | - | 0.0015 - 0.004 | 0.0025 - 0.005 | 0.0025 - 0.0055 | 0.0025 - 0.0055 | | |
| H | Wear Plate Hardox, AR400, T-1, etc. | 400 | 100 - 200 | - | - | 0.0015 - 0.003 | 0.0025 - 0.005 | 0.003 - 0.006 | 0.003 - 0.006 | |
| | | 500 | 100 - 200 | - | - | 0.0015 - 0.003 | 0.0025 - 0.005 | 0.003 - 0.006 | 0.003 - 0.006 | |
| | | 600 | 100 - 200 | - | - | 0.0015 - 0.003 | 0.0025 - 0.005 | 0.003 - 0.006 | 0.003 - 0.006 | |
| | Hardened Steel | 300 - 400 | 100 - 300 | - | - | 0.0015 - 0.003 | 0.0025 - 0.005 | 0.003 - 0.006 | 0.003 - 0.006 | |
| 400 - 500 | | 100 - 200 | - | - | 0.0015 - 0.003 | 0.0025 - 0.005 | 0.003 - 0.006 | 0.003 - 0.006 | | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | 300 - 800 | - | - | 0.003 - 0.0055 | 0.003 - 0.007 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 150 - 200 | 300 - 800 | - | - | 0.003 - 0.0055 | 0.003 - 0.007 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 200 - 220 | 300 - 500 | - | - | 0.003 - 0.0055 | 0.003 - 0.007 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 220 - 260 | 270 - 400 | - | - | 0.003 - 0.0055 | 0.003 - 0.007 | 0.003 - 0.008 | 0.003 - 0.008 | |
| | | 260 - 320 | 270 - 400 | - | - | 0.003 - 0.0055 | 0.003 - 0.007 | 0.003 - 0.008 | 0.003 - 0.008 | |
| N | Cast Aluminum | 30 | - | - | 800 - 2000 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0065 | 0.003 - 0.008 | |
| | | 180 | - | - | 800 - 2000 | 0.0025 - 1.005 | 0.003 - 0.0055 | 0.003 - 0.0065 | 0.003 - 0.008 | |
| | Wrought Aluminum | 30 | - | - | 800 - 2000 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0065 | 0.003 - 0.008 | |
| | | 180 | - | - | 800 - 2000 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0065 | 0.003 - 0.008 | |
| | Aluminum Bronze | 100 - 200 | 500 - 1000 | - | 500 - 1000 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0065 | 0.003 - 0.008 | |
| | | 200 - 250 | 500 - 1000 | - | 500 - 1000 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0065 | 0.003 - 0.008 | |
| | Brass | 100 | 500 - 1000 | - | 500 - 1000 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0065 | 0.003 - 0.008 | |
| | Copper | 60 | - | - | 500 - 1000 | 0.0025 - 0.005 | 0.003 - 0.0055 | 0.003 - 0.0065 | 0.003 - 0.008 | |

*For high-temp materials, 1000 PSI is recommended as well as a quality synthetic coolant at approximately 10% emulsion.

**For 4xD tools, begin at low end of feed recommendation.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Factory technical assistance is also available through our Application Engineering Team.
 ext: 7611 | email: appeng@alliedmachine.com

Recommended Drilling Data | Metric (mm)

| ISO | Material | Hardness (BHN) | Speed (M/min) | | | | Feed Rate (mm/rev) by Diameter - 2xD, 3xD** | | | |
|-------------------------|--|----------------|---------------|-----------|-------------|-------------|---|--|------------------------------------|--|
| | | | P | K | H | M | N | 03, 04 Series Ø 12.00 mm - 15.49 mm | 05 Series Ø 15.50 mm - 18.49 mm | 06, 07 Series Ø 18.50 mm - 26.49 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | 125 - 365 | 125 - 365 | – | 0.07 - 0.1 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.14 | |
| | | 150 - 200 | 125 - 305 | 125 - 305 | – | 0.07 - 0.1 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.14 | |
| | | 200 - 250 | 125 - 245 | 125 - 245 | – | 0.07 - 0.1 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.14 | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | 125 - 305 | 125 - 305 | – | 0.07 - 0.1 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.14 | |
| | | 125 - 175 | 125 - 305 | 125 - 305 | – | 0.07 - 0.1 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.14 | |
| | | 175 - 225 | 125 - 245 | 125 - 245 | – | 0.07 - 0.1 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.14 | |
| | | 225 - 275 | 125 - 245 | 125 - 245 | – | 0.07 - 0.1 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.14 | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | 100 - 245 | 100 - 245 | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 175 - 225 | 100 - 245 | 100 - 245 | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 225 - 275 | 100 - 245 | 100 - 245 | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 275 - 325 | 100 - 245 | 100 - 185 | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 175 | 100 - 245 | – | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 175 - 225 | 100 - 245 | – | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 225 - 275 | 100 - 245 | – | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 275 - 325 | 100 - 245 | – | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 325 - 375 | 100 - 245 | – | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 300 | 100 - 165 | – | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 300 - 350 | 100 - 185 | – | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 350 - 400 | 100 - 185 | – | – | 0.05 - 0.14 | 0.07 - 0.17 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | Structural Steel A36, A285, A516, etc. | 100 - 150 | 100 - 185 | 100 - 185 | – | 0.05 - 0.13 | 0.07 - 0.13 | 0.08 - 0.13 | 0.08 - 0.13 | |
| | | 150 - 250 | 100 - 185 | 100 - 185 | – | 0.05 - 0.13 | 0.07 - 0.13 | 0.08 - 0.13 | 0.08 - 0.13 | |
| | | 250 - 350 | 100 - 185 | – | – | 0.05 - 0.13 | 0.07 - 0.13 | 0.08 - 0.13 | 0.08 - 0.13 | |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | 85 - 185 | 85 - 185 | – | 0.05 - 0.08 | 0.07 - 0.12 | 0.08 - 0.15 | 0.08 - 0.15 | |
| | | 200 - 250 | 85 - 185 | – | – | 0.05 - 0.08 | 0.07 - 0.12 | 0.08 - 0.15 | 0.08 - 0.15 | |
| S | High-Temp Alloy* Hastelloy B, Inconel 600, etc. | 140 - 220 | 30 - 80 | 30 - 80 | – | 0.06 - 0.08 | 0.06 - 0.08 | 0.07 - 0.1 | 0.07 - 0.1 | |
| | | 220 - 310 | 30 - 60 | 30 - 60 | – | 0.06 - 0.08 | 0.06 - 0.08 | 0.07 - 0.1 | 0.07 - 0.1 | |
| | Titanium Alloy* | 140 - 220 | 40 - 155 | 40 - 155 | – | 0.06 - 0.08 | 0.06 - 0.08 | 0.07 - 0.1 | 0.07 - 0.1 | |
| | | 220 - 310 | 40 - 90 | 40 - 90 | – | 0.06 - 0.08 | 0.06 - 0.08 | 0.07 - 0.1 | 0.07 - 0.1 | |
| Aerospace Alloy* S82 | 185 - 275 | 30 - 80 | 30 - 80 | – | 0.06 - 0.08 | 0.06 - 0.08 | 0.07 - 0.1 | 0.07 - 0.1 | | |
| | 275 - 350 | 30 - 60 | 31 - 60 | – | 0.06 - 0.08 | 0.06 - 0.08 | 0.07 - 0.1 | 0.07 - 0.1 | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | 75 - 185 | 75 - 215 | – | 0.05 - 0.1 | 0.07 - 0.12 | 0.07 - 0.14 | 0.07 - 0.14 | |
| | | 275 - 350 | 75 - 145 | 75 - 155 | – | 0.05 - 0.1 | 0.07 - 0.12 | 0.07 - 0.14 | 0.07 - 0.14 | |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | 75 - 185 | 75 - 215 | – | 0.05 - 0.1 | 0.07 - 0.12 | 0.07 - 0.14 | 0.07 - 0.14 | |
| | | 185 - 275 | 75 - 145 | 75 - 155 | – | 0.05 - 0.1 | 0.07 - 0.12 | 0.07 - 0.14 | 0.07 - 0.14 | |
| | Super Duplex Stainless Steel | 135 - 185 | 75 - 185 | 75 - 215 | – | 0.05 - 0.1 | 0.07 - 0.12 | 0.07 - 0.14 | 0.07 - 0.14 | |
| 185 - 275 | | 75 - 145 | 75 - 155 | – | 0.05 - 0.1 | 0.07 - 0.12 | 0.07 - 0.14 | 0.07 - 0.14 | | |
| H | Wear Plate Hardox, AR400, T-1, etc. | 400 | 30 - 60 | – | – | 0.05 - 0.08 | 0.07 - 0.12 | 0.08 - 0.15 | 0.08 - 0.15 | |
| | | 500 | 30 - 60 | – | – | 0.05 - 0.08 | 0.07 - 0.12 | 0.08 - 0.15 | 0.08 - 0.15 | |
| | | 600 | 30 - 60 | – | – | 0.05 - 0.08 | 0.07 - 0.12 | 0.08 - 0.15 | 0.08 - 0.15 | |
| | Hardened Steel | 300 - 400 | 30 - 90 | – | – | 0.05 - 0.08 | 0.07 - 0.12 | 0.08 - 0.15 | 0.08 - 0.15 | |
| 400 - 500 | | 30 - 60 | – | – | 0.05 - 0.08 | 0.07 - 0.12 | 0.08 - 0.15 | 0.08 - 0.15 | | |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | 90 - 245 | – | – | 0.08 - 0.14 | 0.08 - 0.19 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 150 - 200 | 90 - 245 | – | – | 0.08 - 0.14 | 0.08 - 0.19 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 200 - 220 | 90 - 155 | – | – | 0.08 - 0.14 | 0.08 - 0.19 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 220 - 260 | 80 - 125 | – | – | 0.08 - 0.14 | 0.08 - 0.19 | 0.08 - 0.21 | 0.08 - 0.21 | |
| | | 260 - 320 | 80 - 125 | – | – | 0.08 - 0.14 | 0.08 - 0.19 | 0.08 - 0.21 | 0.08 - 0.21 | |
| N | Cast Aluminum | 30 | – | – | 245 - 610 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.17 | 0.08 - 0.21 | |
| | | 180 | – | – | 245 - 610 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.17 | 0.08 - 0.21 | |
| | Wrought Aluminum | 30 | – | – | 245 - 610 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.17 | 0.08 - 0.21 | |
| | | 180 | – | – | 245 - 610 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.17 | 0.08 - 0.21 | |
| | Aluminum Bronze | 100 - 200 | 150 - 305 | – | 150 - 305 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.17 | 0.08 - 0.21 | |
| | | 200 - 250 | 150 - 305 | – | 150 - 305 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.17 | 0.08 - 0.21 | |
| | Brass | 100 | 150 - 305 | – | 150 - 305 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.17 | 0.08 - 0.21 | |
| | Copper | 60 | – | – | 150 - 305 | 0.07 - 0.12 | 0.08 - 0.14 | 0.08 - 0.17 | 0.08 - 0.21 | |

*For high-temp materials, 70 bar is recommended as well as a quality synthetic coolant at approximately 10% emulsion.

**For 4xD tools, begin at low end of feed recommendation.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Factory technical assistance is also available through our Application Engineering Team.
 ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

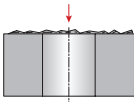


Insert Geometry Recommendations

| ISO | Material | Hardness (BHN) | Geometry | | | | |
|---|---|----------------|----------|---|---|---|---|
| | | | P | M | K | N | H |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | ○ | ● | | | |
| | | 150 - 200 | ● | ○ | | | |
| | | 200 - 250 | ● | ○ | | | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | ○ | ● | | | |
| | | 125 - 175 | ○ | ● | | | |
| | | 175 - 225 | ○ | ● | | | |
| | | 225 - 275 | ● | ○ | | | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | ○ | ● | | | |
| | | 175 - 225 | ○ | ● | | | |
| | | 225 - 275 | ● | ○ | | | |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 175 | ○ | ● | | | |
| | | 175 - 225 | ● | ○ | | | |
| | | 225 - 275 | ● | | | | ○ |
| | | 275 - 325 | ● | | | | ○ |
| | | 325 - 375 | ○ | | | | ● |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 300 | ● | | | | |
| | | 300 - 350 | ○ | | | | ● |
| | | 350 - 400 | ○ | | | | ● |
| Structural Steel A36, A285, A516, etc. | 100 - 150 | ○ | ● | | | | |
| | 150 - 250 | ○ | ● | | | | |
| | 250 - 350 | ● | | | | ○ | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | ● | ○ | | | | |
| | 200 - 250 | ● | | | | ○ | |
| S | High-Temp Alloy* Hastelloy B, Inconel 600, etc. | 140 - 220 | ○ | ● | | | |
| | | 220 - 310 | ○ | ● | | | |
| | Titanium Alloy* | 140 - 220 | ○ | ● | | | |
| | | 220 - 310 | ○ | ● | | | |
| | Aerospace Alloy* S82 | 185 - 275 | ○ | ● | | | |
| 275 - 350 | | ○ | ● | | | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 275 | ○ | ● | | | |
| | | 275 - 350 | ○ | ● | | | |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | ○ | ● | | | |
| | | 185 - 275 | ○ | ● | | | |
| | Super Duplex Stainless Steel | | ○ | ● | | | |
| | 135 - 275 | ○ | ● | | | | |
| H | Wear Plate Hardox, AR400, T-1, etc. | 400 | ○ | | | | ● |
| | | 500 | ○ | | | | ● |
| | | 600 | ○ | | | | ● |
| | Hardened Steel | 300 - 400 | ○ | | | | ● |
| | | 400 - 500 | ○ | | | | ● |
| K | Nodular, Ductile Cast Iron | 120 - 150 | ● | ○ | | | |
| | | 150 - 200 | ● | ○ | | | |
| | | 200 - 220 | ● | ○ | | | |
| | | 220 - 260 | | | | | ○ |
| | | 260 - 320 | | | ● | | ○ |
| | Grey / White Iron | 120 - 150 | | | | ● | ○ |
| | | 150 - 200 | | | | ● | ○ |
| | | 200 - 220 | | | | ● | |
| | | 220 - 260 | | | | ● | |
| | | 260 - 320 | | | | ● | |
| N | Cast Aluminum | 30 | | | | ● | |
| | | 180 | | | | ● | |
| | Wrought Aluminum | 30 | | | | ● | |
| | | 180 | | | | ● | |
| | Aluminum Bronze | 100 - 200 | ○ | | | ● | |
| | | 200 - 250 | ○ | | | ● | |
| | Brass | 100 | ○ | | | ● | |
| Copper | 60 | | | | ● | | |


Troubleshooting

1.



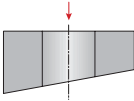
Starting on Uneven Surfaces

 - Reduce entry feed by 50% if necessary
2.



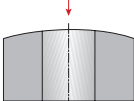
Starting on Angled Surfaces

 - Reduce entry feed by 20 - 50%
 - Use lower rake geometry if insert chipping occurs
3.



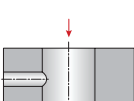
Angled Bore Exit

 - Reduce entry feed by 50% on breakout
 - Use tough insert and stable corner radius
4.



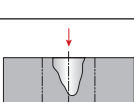
Starting on Convex Surfaces

 - Reduce entry feed by 50%
 - Use lower rake geometry if insert chipping occurs
5.



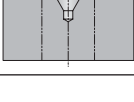
Drilling Through a Cross Hole

 - Reduce feed rate 50% if necessary
 - Use good coolant flow and monitor chip packing
 - Use lower rake geometry if insert chipping occurs
6.



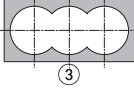
Drilling on a Groove or Large Centering Box

 - Reduce entry feed
 - Use lower rake geometry for center insert
7.



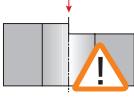
Chain Drilling

 - Use good coolant flow
 - Reduce feed rate by 50% for interrupted cut
 - Use lower rake geometry if insert chipping occurs
8.



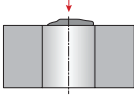
Starting on an Edge

 - Reduce entry feed rate by 50%
 - Use lower rake geometry if insert chipping occurs
9.



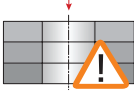
Starting on a Welded Seam

 - Reduce entry feed rate by 50%
 - Use lower rake geometry if insert chipping occurs
10.



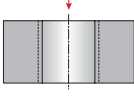
Drilling Through Stacked Plates

 - Not recommended
11.



Opening an Existing Hole

 - Use flood coolant
12.



Adjustable

 - For mills, use eccentric sleeve with end mill holder
 - For lathes, use x-axis to adjust offset ϕ

NOTE: Refer to maximum offset ϕ in data tables

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

SECTION

A60

Revolution Drill®

Revolution Drill®

Large Diameter Replaceable IC Insert Drilling System

► **Diameter Range:** 1.875" - 4.000" (47.63 mm - 101.60 mm)



Large Scale Innovation

The Revolution Drill has an innovative design that allows for adjustability of 0.200" (5.10 mm) on diameter. This eliminates the need for special tooling and/or subsequent boring operations. With the ability to drill from solid, the Revolution Drill does not require a previously drilled pilot hole. The replaceable cartridges reduce setup time, and the indexable inserts protect your investment. The insert design provides excellent chip control and aggressive penetration rates.

| | | |
|-------------------|--------------------------|------------------------|
| Drills from solid | Drill depths up to 4.5xD | Excellent chip control |
|-------------------|--------------------------|------------------------|

Applicable Industries



Aerospace



Agriculture



Automotive



Firearms



General
Machining



Oil & Gas



Renewable
Energy

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

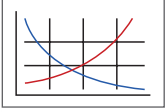
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling



Coolant-Through Option

Indicates that the product is coolant through

| Series | Diameter Range | |
|--------|-----------------|----------------|
| | Imperial (inch) | Metric (mm) |
| 34 | 1.875 - 2.000 | 47.63 - 50.80 |
| 36 | 2.000 - 2.200 | 50.80 - 55.88 |
| 38 | 2.200 - 2.400 | 55.88 - 60.96 |
| 42 | 2.400 - 2.600 | 60.96 - 66.04 |
| 44 | 2.600 - 2.800 | 66.04 - 71.12 |
| 46 | 2.800 - 3.000 | 71.12 - 76.20 |
| 48 | 3.000 - 3.200 | 76.20 - 81.28 |
| 52 | 3.200 - 3.400 | 81.28 - 86.36 |
| 54 | 3.400 - 3.600 | 86.36 - 91.44 |
| 56 | 3.600 - 3.800 | 91.44 - 96.52 |
| 58 | 3.800 - 4.000 | 96.52 - 101.60 |

Introduction Information

Product Overview 2 - 3
 Setup Instructions 4
 Product Nomenclature 5

Drill Series

34 Series 6 - 7
 36 Series 8 - 9
 38 Series 10 - 11
 42 Series 12 - 13
 44 Series 14 - 15
 46 Series 16 - 17
 48 Series 18 - 19
 52 Series 20 - 21
 54 Series 22 - 23
 56 Series 24 - 25
 58 Series 26 - 27

Recommended Cutting Data

Imperial (inch) 28
 Metric (mm) 29



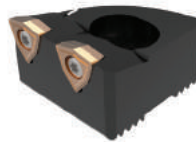
Product Overview

| Series | Diameter Range | | Length-to-Diameter Ratio | Shank Options | | | Inserts per Cartridge | Page |
|--------|----------------|----------------|--------------------------|---------------|-------|-------|-----------------------|---------|
| | Imperial (in) | Metric (mm) | | Straight | CAT40 | CAT50 | | |
| 34 | 1.875 - 2.000 | 47.63 - 50.80 | 2.2, 3.5, 4.5 | ✓ | ✓ | ✓ | 2 | 6 - 7 |
| 36 | 2.000 - 2.200 | 50.80 - 55.88 | 2.2, 3.5, 4.5 | ✓ | ✓ | ✓ | 2 | 8 - 9 |
| 38 | 2.200 - 2.400 | 55.88 - 60.96 | 2.2, 3.5, 4.5 | ✓ | ✓ | ✓ | 2 | 10 - 11 |
| 42 | 2.400 - 2.600 | 60.96 - 66.00 | 2.2, 3.5, 4.5 | ✓ | ✓ | ✓ | 2 | 12 - 13 |
| 44 | 2.600 - 2.800 | 66.00 - 71.12 | 2.2, 3.5 | ✓ | | ✓ | 3 | 14 |
| 46 | 2.800 - 3.000 | 71.12 - 76.20 | 2.2, 3.5 | ✓ | | ✓ | 3 | 15 |
| 48 | 3.000 - 3.200 | 76.20 - 81.28 | 1.0, 2.5 | ✓ | | ✓ | 3 | 16 |
| 52 | 3.200 - 3.400 | 81.28 - 86.36 | 1.0, 2.5 | ✓ | | ✓ | 3 | 17 |
| 54 | 3.400 - 3.600 | 86.36 - 91.44 | 1.0, 2.5 | ✓ | | ✓ | 3 | 18 |
| 56 | 3.600 - 3.800 | 91.44 - 96.52 | 1.0, 2.5 | ✓ | | ✓ | 4 | 19 |
| 58 | 3.800 - 4.000 | 96.52 - 101.60 | 1.0, 2.5 | ✓ | | ✓ | 4 | 20 |

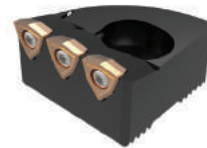
NOTE: Stacked plate styles are also available

Features & Benefits

- Adjustability of 0.200" (5.10 mm) on diameter
- Drill depths up to 4.5xD (standard)
- The replaceable cartridges protect your investment
- Adjustable diameter reduces inventory and cost
- The insert design allows for excellent chip control and aggressive penetration rates
- No pilot hole needed



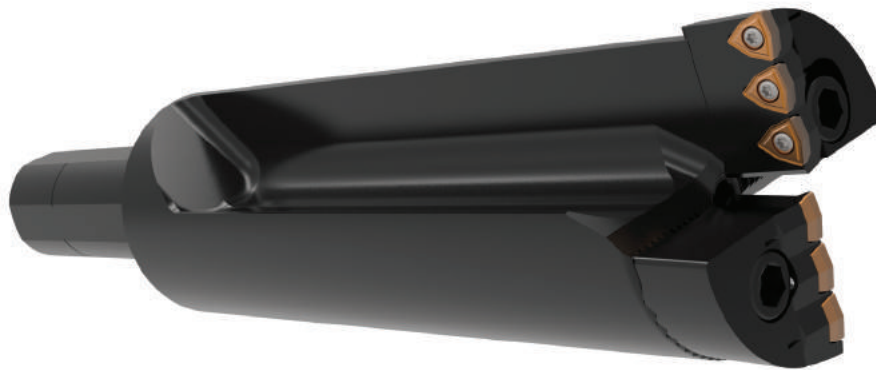
2 Inserts
(34 - 42 series)



3 Inserts
(44 - 54 series)



4 Inserts
(56 - 58 series)



Shank Options



Straight Shank
(all series)



CAT40 Shank
(34, 36, 38, 42 series)



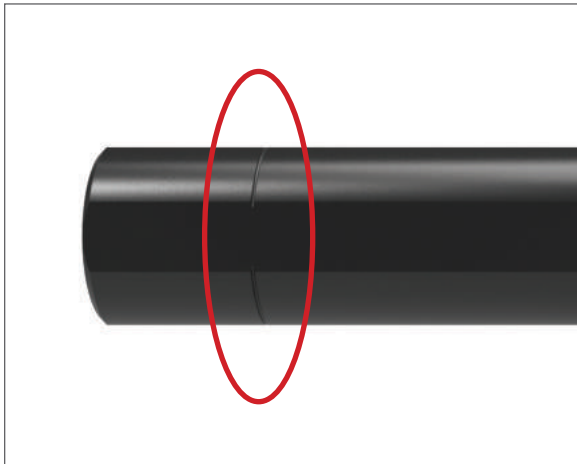
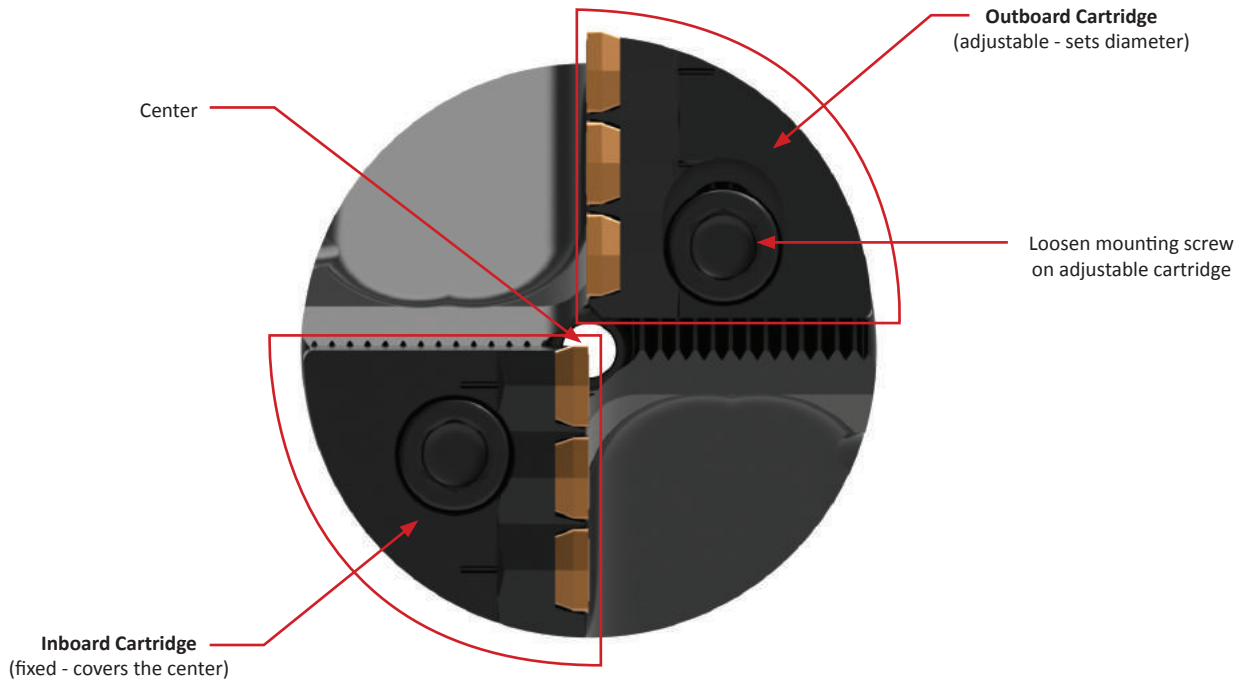
CAT50 Shank
(all series)

Body Lengths

- 1.0xD (48, 52, 54, 56, 58 series)
- 2.2xD (34, 36, 38, 42, 44, 46 series)
- 2.5xD (48, 52, 54, 56, 58 series)
- 3.5xD (34, 36, 38, 42, 44, 46 series)
- 4.5xD (34, 36, 38, 42, 44, 46 series)

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Product Overview



Straight Shanks

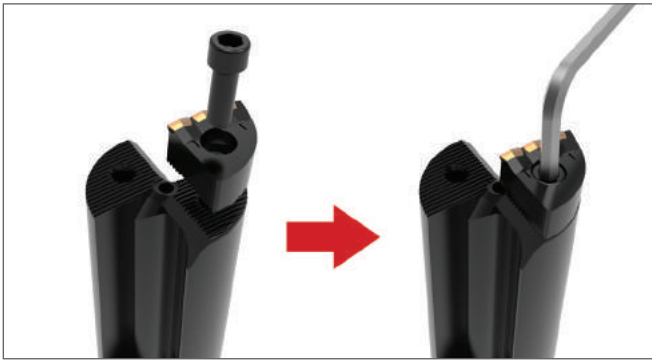
- Designed for lathe applications
- Can be cut off for use in end mill holders
- The score mark (circled above) is provided for recommended cut length
- Cut and deburr at the score mark
- This improves rigidity when the body sits against the face of an end mill holder



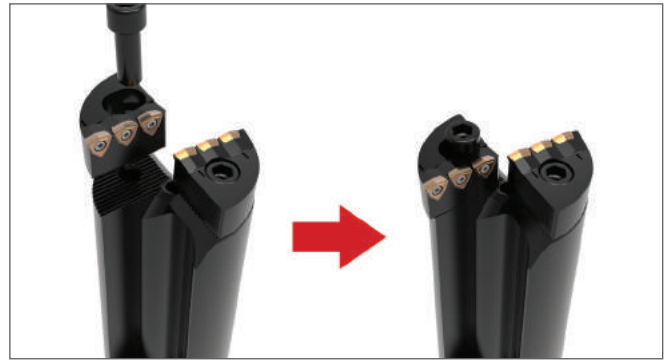
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Setup Instructions

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS



Step 1:
Mount the fixed cartridge and tighten the mounting screw to 11-14 ft-lbf (15-19 N-m).



Step 2:
Finger-tighten the mounting screw on the adjustable cartridge.



Step 3:
Set the diameter using the adjustment screw against the mounting screw. Place the drill in a presetter to ensure the correct diameter setting.



Step 4:
Tighten the mounting screw to 11-14 ft-lbf (15-19 N-m).

IC Inserts

- The design allows for excellent chip control and aggressive penetration rates
- The proprietary AM200® and AM300® coatings increase tool life above competitors' premium coatings
- The same inserts are used for both Revolution Drill® and Opening Drill® products



AM300®



AM200®



TIN

Insert Application Recommendations

Carbide Grade Options

| | |
|----------|--|
| C5 (P35) | General purpose carbide grade suitable for most applications. ▶ <i>Common application in steels and stainless steels.</i> |
| C1 (K35) | Toughest carbide grade. Provides the best combination of edge strength and tool life. ▶ <i>Recommended for less rigid applications.</i> |
| C2 (K25) | Higher wear-resistant carbide suitable for abrasive material applications. ▶ <i>Recommended for grey, ductile, and nodular irons.</i> |

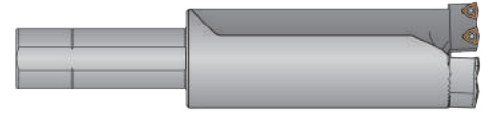
Additional Geometry Option

| | |
|----------------|--|
| High Rake (HR) | Provides superior chip control and tool life in long chipping carbon and alloy steels below 200 Bhn. |
|----------------|--|

Product Nomenclature

Revolution Drill Holders

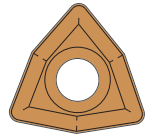
| | | | | | |
|----------|-----------|----------|-----------|----------|-------------|
| R | 34 | X | 22 | - | 150L |
| 1 | 2 | | 3 | | 4 |



| 1. Drill Style | 2. Series | 3. Length-to-Diameter Ratio | 4. Shank Information | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|-----------------------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--|--|------------|------------|------------|------------|------------|---|------------------------------|--------------------------|---------------------|---------------------|--------------|--------------|
| R = Standard SP = Stacked Plate | <table border="0"> <tr> <td>34 = 34 series</td> <td>44 = 44 series</td> <td>54 = 54 series</td> </tr> <tr> <td>36 = 36 series</td> <td>46 = 46 series</td> <td>56 = 56 series</td> </tr> <tr> <td>38 = 38 series</td> <td>48 = 48 series</td> <td>58 = 58 series</td> </tr> <tr> <td>42 = 42 series</td> <td>52 = 52 series</td> <td></td> </tr> </table> | 34 = 34 series | 44 = 44 series | 54 = 54 series | 36 = 36 series | 46 = 46 series | 56 = 56 series | 38 = 38 series | 48 = 48 series | 58 = 58 series | 42 = 42 series | 52 = 52 series | | <table border="0"> <tr> <td>10 = 1.0xD</td> </tr> <tr> <td>22 = 2.2xD</td> </tr> <tr> <td>25 = 2.5xD</td> </tr> <tr> <td>35 = 3.5xD</td> </tr> <tr> <td>45 = 4.5xD</td> </tr> </table> | 10 = 1.0xD | 22 = 2.2xD | 25 = 2.5xD | 35 = 3.5xD | 45 = 4.5xD | <table border="0"> <tr> <td>150L = 1-1/2 ϕ straight</td> </tr> <tr> <td>200L = 2 ϕ straight</td> </tr> <tr> <td>40M = 40mm ISO 9766</td> </tr> <tr> <td>50M = 50mm ISO 9766</td> </tr> <tr> <td>CV40 = CAT40</td> </tr> <tr> <td>CV50 = CAT50</td> </tr> </table> | 150L = 1-1/2 ϕ straight | 200L = 2 ϕ straight | 40M = 40mm ISO 9766 | 50M = 50mm ISO 9766 | CV40 = CAT40 | CV50 = CAT50 |
| 34 = 34 series | 44 = 44 series | 54 = 54 series | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 = 36 series | 46 = 46 series | 56 = 56 series | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 = 38 series | 48 = 48 series | 58 = 58 series | | | | | | | | | | | | | | | | | | | | | | | | |
| 42 = 42 series | 52 = 52 series | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 = 1.0xD | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 = 2.2xD | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 = 2.5xD | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 = 3.5xD | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 = 4.5xD | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 150L = 1-1/2 ϕ straight | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200L = 2 ϕ straight | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40M = 40mm ISO 9766 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50M = 50mm ISO 9766 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CV40 = CAT40 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CV50 = CAT50 | | | | | | | | | | | | | | | | | | | | | | | | | | |

Revolution Drill Inserts

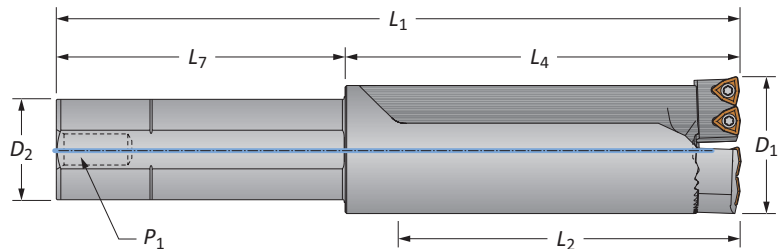
| | | | | | | | | |
|-----------|----------|-----------|-----------|-----------|----------|----------|----------|-----------|
| OP | - | 05 | T3 | 08 | - | 1 | H | HR |
| 1 | | 2 | 3 | 4 | | 5 | 6 | 7 |



| 1. Compatible with: | 2. IC Type | 3. Thickness | 4. Radius | 5. Carbide Grade |
|--|---|--------------|------------|--|
| Opening Drill® Revolution Drill® | 05 = 5/16" | T3 = 5/32" | 08 = 1/32" | Blank = C5 (P35) 1 = C1 (K35) 2 = C2 (K25) |
| 6. Coating | 7. Geometry | | | |
| P = AM300® H = AM200® T = TiN A = TiAlN N = TiCN U = Uncoated | Blank = General Purpose HR = High Rake | | | |

Reference Key

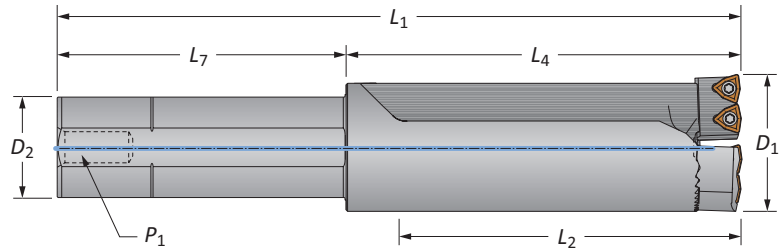
| Symbol | Attribute |
|--------|----------------------|
| D_1 | Drill diameter range |
| D_2 | Shank diameter |
| L_1 | Overall length |
| L_2 | Maximum drill depth |
| L_4 | Holder length |
| L_7 | Shank length |
| P_1 | Rear pipe tap |



Revolution Drill Holders

34 Series | Diameter Range: 1.875" - 2.000" (47.63 mm - 50.80 mm)

A DRILLING



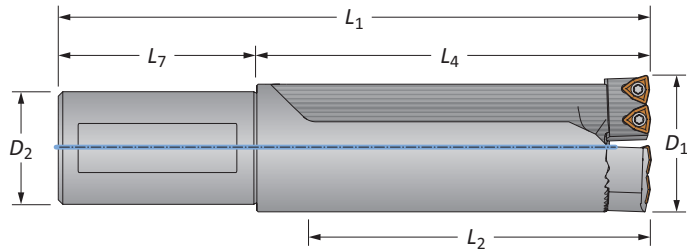
B BORING

Straight Shank Imperial

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 2.2xD | 1.875 - 2.000 | 4-17/32 | 5-13/32 | 9-13/32 | 1-1/2 | 4 | 1/4 | R34X22-150L | C34-... |
| Standard | 3.5xD | 1.875 - 2.000 | 7-1/32 | 7-29/32 | 11-29/32 | 1-1/2 | 4 | 1/4 | R34X35-150L | C34-... |
| Standard | 4.5xD | 1.875 - 2.000 | 9-1/32 | 9-29/32 | 13-29/32 | 1-1/2 | 4 | 1/4 | R34X45-150L | C34-... |
| Stacked Plate | 2.2xD | 1.875 - 2.000 | 4-27/64 | 5-5/16 | 9-5/16 | 1-1/2 | 4 | 1/4 | SP34X22-150L | C34SP-... |

*Holder includes cartridges; however, inserts are sold separately.

C REAMING



D BURNISHING

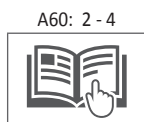
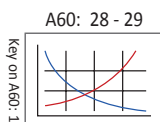
Straight Shank Metric

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 2.2xD | 47.63 - 50.80 | 114.94 | 137.36 | 207.36 | 40.00 | 70.00 | - | R34X22-40M | C34-... |
| Standard | 3.5xD | 47.63 - 50.80 | 178.44 | 200.86 | 270.86 | 40.00 | 70.00 | - | R34X35-40M | C34-... |
| Standard | 4.5xD | 47.63 - 50.80 | 229.24 | 251.66 | 321.66 | 40.00 | 70.00 | - | R34X45-40M | C34-... |
| Stacked Plate | 2.2xD | 47.63 - 50.80 | 112.40 | 134.80 | 204.80 | 40.00 | 70.00 | - | SP34X22-40M | C34SP-... |

*Holder includes cartridges; however, inserts are sold separately.

F THREADING

X SPECIALS

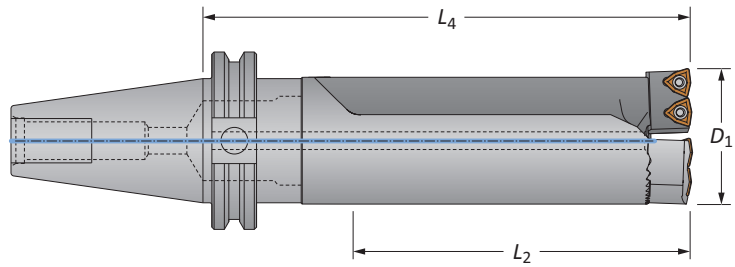


i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

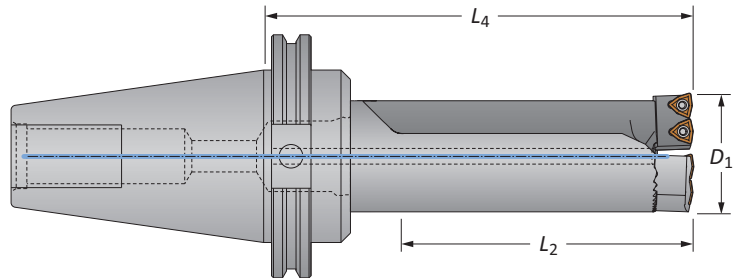
34 Series | Diameter Range: 1.875" - 2.000" (47.63 mm - 50.80 mm)



CV40 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 2.2xD | 1.875 - 2.000 | 4-17/32 | 6-25/32 | CV40 | R34X22-CV40 | C34-... |
| Standard | 3.5xD | 1.875 - 2.000 | 7-1/32 | 9-9/32 | CV40 | R34X35-CV40 | C34-... |
| Standard | 4.5xD | 1.875 - 2.000 | 9-1/32 | 11-9/32 | CV40 | R34X45-CV40 | C34-... |
| Stacked Plate | 2.2xD | 1.875 - 2.000 | 4-27/64 | 6-11/16 | CV40 | SP34X22-CV40 | C34SP-... |

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 2.2xD | 1.875 - 2.000 | 4-17/32 | 6-25/32 | CV50 | R34X22-CV50 | C34-... |
| Standard | 3.5xD | 1.875 - 2.000 | 7-1/32 | 9-9/32 | CV50 | R34X35-CV50 | C34-... |
| Standard | 4.5xD | 1.875 - 2.000 | 9-1/32 | 11-9/32 | CV50 | R34X45-CV50 | C34-... |
| Stacked Plate | 2.2xD | 1.875 - 2.000 | 4-27/64 | 6-11/16 | CV50 | SP34X22-CV50 | C34SP-... |

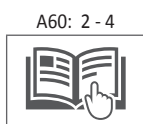
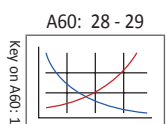
*Holder includes cartridges; however, inserts are sold separately.

Cartridges

| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R34... | C34-FIX | 2 | MS-17M-1 | 5 mm | AS-16T9-1 | 8T-9 |
| | C34-ADJ | 2 | MS-17M-1 | 5 mm | AS-16T9-1 | 8T-9 |
| SP34... | C34SP-FIX | 2 | MS-17M-1 | 5 mm | AS-16T9-1 | 8T-9 |
| | C34SP-ADJ | 2 | MS-17M-1 | 5 mm | AS-16T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

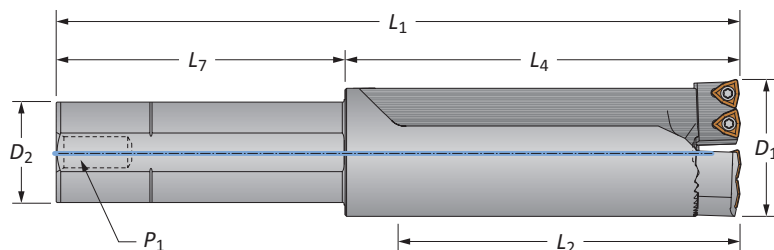


Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)

Revolution Drill Holders

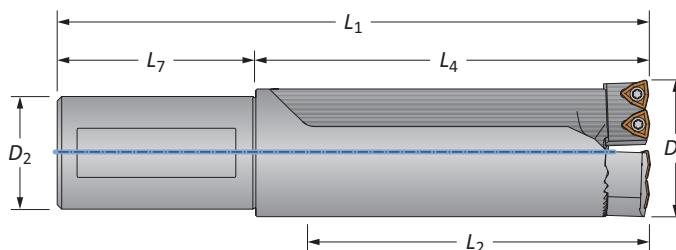
36 Series | Diameter Range: 2.000" - 2.200" (50.80 mm - 55.88 mm)



Straight Shank Imperial

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 2.2xD | 2.000 - 2.200 | 4-61/64 | 5-57/64 | 9-57/64 | 1-1/2 | 4 | 1/4 | R36X22-150L | C36-... |
| Standard | 3.5xD | 2.000 - 2.200 | 7-45/64 | 8-41/64 | 12-41/64 | 1-1/2 | 4 | 1/4 | R36X35-150L | C36-... |
| Standard | 4.5xD | 2.000 - 2.200 | 9-61/64 | 10-57/64 | 14-57/64 | 1-1/2 | 4 | 1/4 | R36X45-150L | C36-... |
| Stacked Plate | 2.2xD | 2.000 - 2.200 | 4-57/64 | 5-13/16 | 9-13/16 | 1-1/2 | 4 | 1/4 | SP36X22-150L | C36SP-... |

*Holder includes cartridges; however, inserts are sold separately.



Straight Shank Metric

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 2.2xD | 50.80 - 55.88 | 125.96 | 149.58 | 219.58 | 40.00 | 70.00 | - | R36X22-40M | C36-... |
| Standard | 3.5xD | 50.80 - 55.88 | 195.81 | 219.43 | 289.43 | 40.00 | 70.00 | - | R36X35-40M | C36-... |
| Standard | 4.5xD | 50.80 - 55.88 | 252.96 | 276.58 | 346.58 | 40.00 | 70.00 | - | R36X45-40M | C36-... |
| Stacked Plate | 2.2xD | 50.80 - 55.88 | 125.96 | 147.60 | 217.60 | 40.00 | 70.00 | - | SP36X22-40M | C36SP-... |

*Holder includes cartridges; however, inserts are sold separately.

A DRILLING

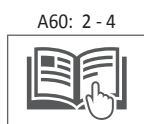
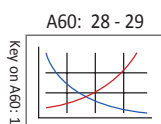
B BORING

C REAMING

D BURNISHING

F THREADING

X SPECIALS

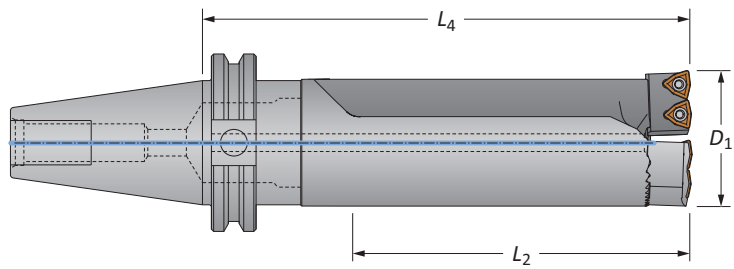


i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

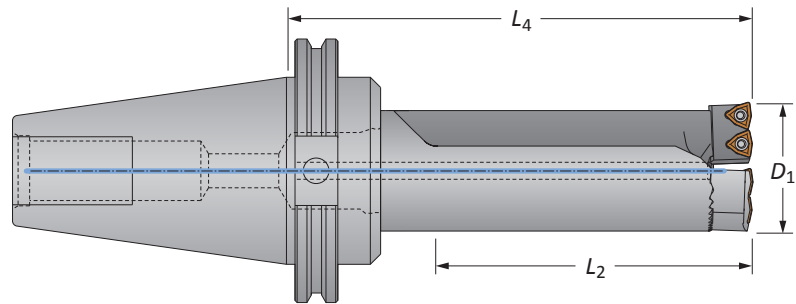
36 Series | Diameter Range: 2.000" - 2.200" (50.80 mm - 55.88 mm)



CV40 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 2.2xD | 2.000 - 2.200 | 4-61/64 | 7-17/64 | CV40 | R36X22-CV40 | C36-... |
| Standard | 3.5xD | 2.000 - 2.200 | 7-45/64 | 10-1/64 | CV40 | R36X35-CV40 | C36-... |
| Standard | 4.5xD | 2.000 - 2.200 | 9-61/64 | 12-17/64 | CV40 | R36X45-CV40 | C36-... |
| Stacked Plate | 2.2xD | 2.000 - 2.200 | 4-57/64 | 7-35/64 | CV40 | SP36X22-CV40 | C36SP-... |

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 2.2xD | 2.000 - 2.200 | 4-61/64 | 7-17/64 | CV50 | R36X22-CV50 | C36-... |
| Standard | 3.5xD | 2.000 - 2.200 | 7-45/64 | 10-1/64 | CV50 | R36X35-CV50 | C36-... |
| Standard | 4.5xD | 2.000 - 2.200 | 9-61/64 | 12-17/64 | CV50 | R36X45-CV50 | C36-... |
| Stacked Plate | 2.2xD | 2.000 - 2.200 | 4-57/64 | 7-35/64 | CV50 | SP36X22-CV50 | C36SP-... |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

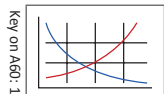
| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R36... | C36-FIX | 2 | MS-17M-1 | 5 mm | AS-18T9-1 | 8T-9 |
| | C36-ADJ | 2 | MS-17M-1 | 5 mm | AS-18T9-1 | 8T-9 |
| SP36... | C36SP-FIX | 2 | MS-17M-1 | 5 mm | AS-18T9-1 | 8T-9 |
| | C36SP-ADJ | 2 | MS-17M-1 | 5 mm | AS-18T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A60: 28 - 29

A60: 2 - 4

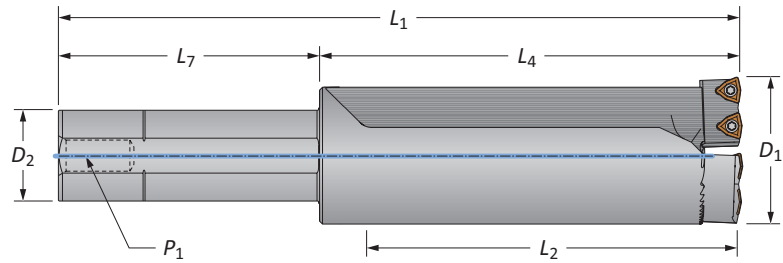


Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)

Revolution Drill Holders

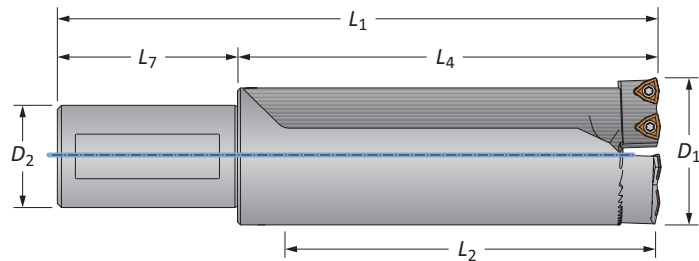
38 Series | Diameter Range: 2.200" - 2.400" (55.88 mm - 60.96 mm)



Straight Shank Imperial

| Style | Length | D_1 Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|---------------|----------|----------|----------|-------|-------|-------|---------------------|------------|
| | | | L_2 | L_4 | L_1 | D_2 | L_7 | P_1 | | |
| Standard | 2.2xD | 2.200 - 2.400 | 5-29/64 | 6-25/64 | 10-25/64 | 1-1/2 | 4 | 1/4 | R38X22-150L | C38-... |
| Standard | 3.5xD | 2.200 - 2.400 | 8-29/64 | 9-25/64 | 13-25/64 | 1-1/2 | 4 | 1/4 | R38X35-150L | C38-... |
| Standard | 4.5xD | 2.200 - 2.400 | 10-61/64 | 11-57/64 | 15-57/64 | 1-1/2 | 4 | 1/4 | R38X45-150L | C38-... |
| Stacked Plate | 2.2xD | 2.200 - 2.400 | 5-3/8 | 6-19/64 | 10-19/64 | 1-1/2 | 4 | 1/4 | SP38X22-150L | C38SP-... |

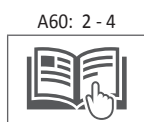
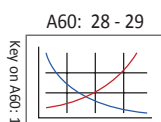
*Holder includes cartridges; however, inserts are sold separately.



Straight Shank Metric

| Style | Length | D_1 Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|---------------|--------|--------|--------|-------|-------|-------|--------------------|------------|
| | | | L_2 | L_4 | L_1 | D_2 | L_7 | P_1 | | |
| Standard | 2.2xD | 55.88 - 60.96 | 138.66 | 162.20 | 232.20 | 40.00 | 70.00 | - | R38X22-40M | C38-... |
| Standard | 3.5xD | 55.88 - 60.96 | 214.86 | 238.40 | 308.40 | 40.00 | 70.00 | - | R38X35-40M | C38-... |
| Standard | 4.5xD | 55.88 - 60.96 | 278.36 | 301.90 | 371.90 | 40.00 | 70.00 | - | R38X45-40M | C38-... |
| Stacked Plate | 2.2xD | 55.88 - 60.96 | 138.66 | 159.99 | 230.00 | 40.00 | 70.00 | - | SP38X22-40M | C38SP-... |

*Holder includes cartridges; however, inserts are sold separately.

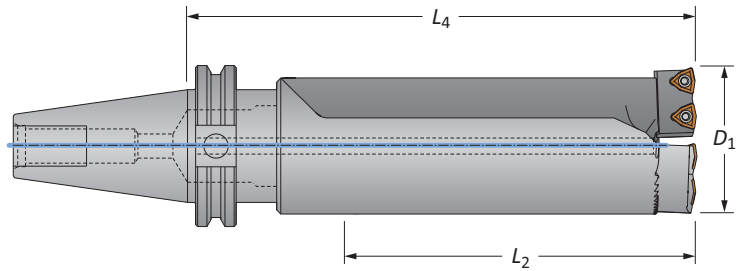


i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

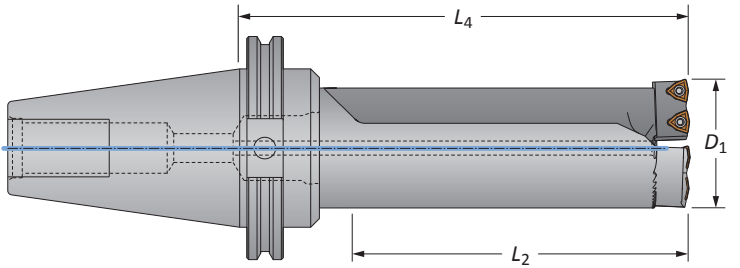
38 Series | Diameter Range: 2.200" - 2.400" (55.88 mm - 60.96 mm)



CV40 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 2.2xD | 2.200 - 2.400 | 5-29/64 | 7-49/64 | CV40 | R38X22-CV40 | C38-... |
| Standard | 3.5xD | 2.200 - 2.400 | 8-29/64 | 10-49/64 | CV40 | R38X35-CV40 | C38-... |
| Standard | 4.5xD | 2.200 - 2.400 | 10-61/64 | 13-17/64 | CV40 | R38X45-CV40 | C38-... |
| Stacked Plate | 2.2xD | 2.200 - 2.400 | 5-3/8 | 7-43/64 | CV40 | SP38X22-CV40 | C38SP-... |

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 2.2xD | 2.200 - 2.400 | 5-29/64 | 7-49/64 | CV50 | R38X22-CV50 | C38-... |
| Standard | 3.5xD | 2.200 - 2.400 | 8-29/64 | 10-49/64 | CV50 | R38X35-CV50 | C38-... |
| Standard | 4.5xD | 2.200 - 2.400 | 10-61/64 | 13-17/64 | CV50 | R38X45-CV50 | C38-... |
| Stacked Plate | 2.2xD | 2.200 - 2.400 | 5-3/8 | 7-43/64 | CV50 | SP38X22-CV50 | C38SP-... |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

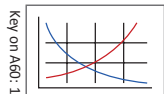
| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R38... | C38-FIX | 2 | MS-17M-1 | 5 mm | AS-18T9-1 | 8T-9 |
| | C38-ADJ | 2 | MS-17M-1 | 5 mm | AS-18T9-1 | 8T-9 |
| SP38... | C38SP-FIX | 2 | MS-17M-1 | 5 mm | AS-18T9-1 | 8T-9 |
| | C38SP-ADJ | 2 | MS-17M-1 | 5 mm | AS-18T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A60: 28 - 29

A60: 2 - 4



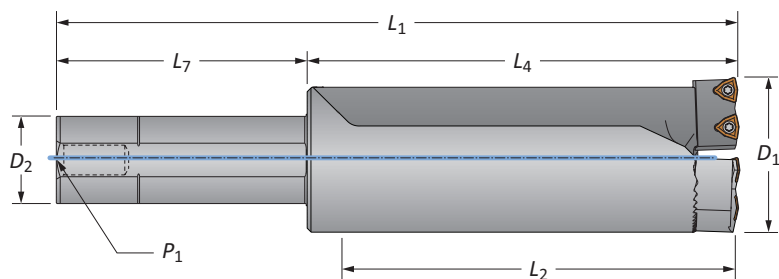
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

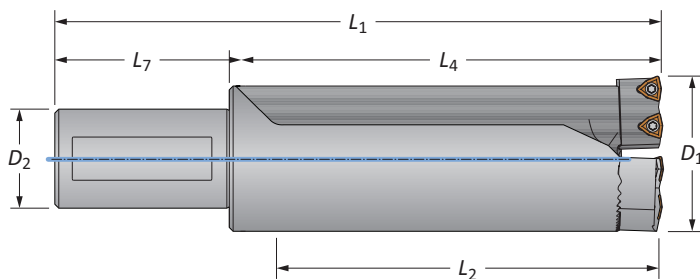
42 Series | Diameter Range: 2.400" - 2.600" (60.96 mm - 66.04 mm)



Straight Shank Imperial

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 2.2xD | 2.400 - 2.600 | 5-45/64 | 6-49/64 | 10-49/64 | 1-1/2 | 4 | 1/4 | R42X22-150L | C42-... |
| Standard | 3.5xD | 2.400 - 2.600 | 9-13/64 | 10-17/64 | 14-17/64 | 1-1/2 | 4 | 1/4 | R42X35-150L | C42-... |
| Standard | 4.5xD | 2.400 - 2.600 | 11-45/64 | 12-49/64 | 16-49/64 | 1-1/2 | 4 | 1/4 | R42X45-150L | C42-... |
| Stacked Plate | 2.2xD | 2.400 - 2.600 | 5-3/4 | 6-13/16 | 10-13/16 | 1-1/2 | 4 | 1/4 | SP42X22-150L | C42SP-... |

*Holder includes cartridges; however, inserts are sold separately.



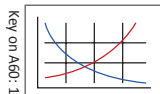
Straight Shank Metric

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 2.2xD | 60.96 - 66.04 | 144.88 | 171.68 | 241.68 | 40.00 | 70.00 | - | R42X22-40M | C42-... |
| Standard | 3.5xD | 60.96 - 66.04 | 233.78 | 260.58 | 330.58 | 40.00 | 70.00 | - | R42X35-40M | C42-... |
| Standard | 4.5xD | 60.96 - 66.04 | 297.28 | 324.08 | 394.08 | 40.00 | 70.00 | - | R42X45-40M | C42-... |
| Stacked Plate | 2.2xD | 60.96 - 66.04 | 146.10 | 172.90 | 242.90 | 40.00 | 70.00 | - | SP42X22-40M | C42SP-... |

*Holder includes cartridges; however, inserts are sold separately.

A60: 28 - 29

A60: 2 - 4

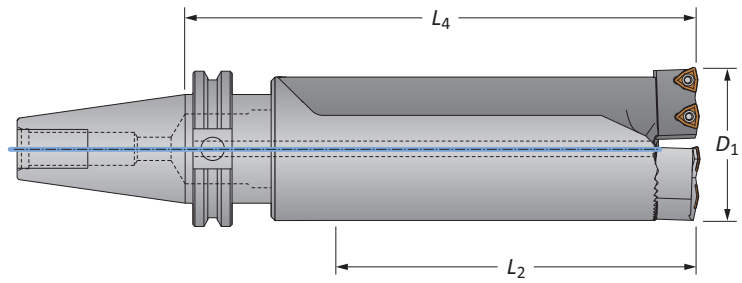


i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

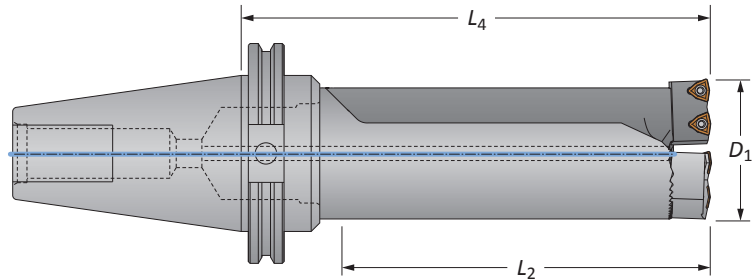
42 Series | Diameter Range: 2.400" - 2.600" (60.96 mm - 66.04 mm)



CV40 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 2.2xD | 2.400 - 2.600 | 5-45/64 | 8-9/64 | CV40 | R42X22-CV40 | C42-... |
| Standard | 3.5xD | 2.400 - 2.600 | 9-13/64 | 11-41/64 | CV40 | R42X35-CV40 | C42-... |
| Standard | 4.5xD | 2.400 - 2.600 | 11-45/64 | 14-9/64 | CV40 | R42X45-CV40 | C42-... |
| Stacked Plate | 2.2xD | 2.400 - 2.600 | 5-3/4 | 8-3/16 | CV40 | SP42X22-CV40 | C42SP-... |

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 2.2xD | 2.400 - 2.600 | 5-45/64 | 8-9/64 | CV50 | R42X22-CV50 | C42-... |
| Standard | 3.5xD | 2.400 - 2.600 | 9-13/64 | 11-41/64 | CV50 | R42X35-CV50 | C42-... |
| Standard | 4.5xD | 2.400 - 2.600 | 11-45/64 | 14-9/64 | CV50 | R42X45-CV50 | C42-... |
| Stacked Plate | 2.2xD | 2.400 - 2.600 | 5-3/4 | 8-3/16 | CV50 | SP42X22-CV50 | C42SP-... |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R42... | C42-FIX | 2 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| | C42-ADJ | 2 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| SP42... | C42SP-FIX | 2 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| | C42SP-ADJ | 2 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

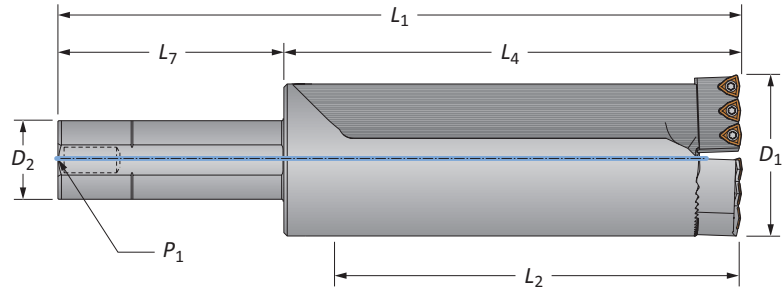
A60: 28 - 29 A60: 2 - 4

Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

i = Imperial (in)
m = Metric (mm)

Revolution Drill Holders

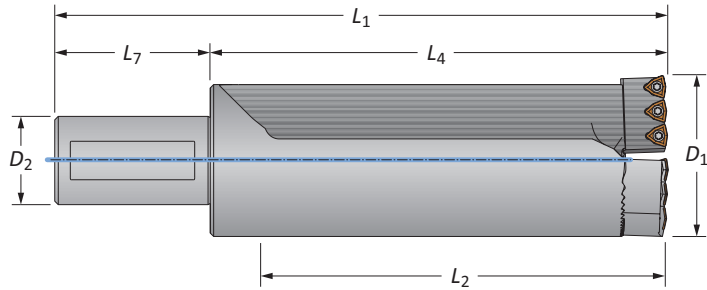
44 Series | Diameter Range: 2.600" - 2.800" (66.04 mm - 71.12 mm)



Straight Shank Imperial

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 2.2xD | 2.600 - 2.800 | 6-13/64 | 7-1/2 | 11-1/2 | 1-1/2 | 4 | 1/4 | R44X22-150L | C44-... |
| Standard | 3.5xD | 2.600 - 2.800 | 9-61/64 | 11-1/4 | 15-1/4 | 1-1/2 | 4 | 1/4 | R44X35-150L | C44-... |
| Stacked Plate | 2.2xD | 2.600 - 2.800 | 6-1/4 | 7-35/64 | 11-35/64 | 1-1/2 | 4 | 1/4 | SP44X22-150L | C44SP-... |

*Holder includes cartridges; however, inserts are sold separately.



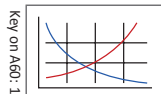
Straight Shank Metric

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 2.2xD | 66.04 - 71.12 | 157.63 | 190.65 | 260.65 | 40.00 | 70.00 | - | R44X22-40M | C44-... |
| Standard | 3.5xD | 66.04 - 71.12 | 252.88 | 285.90 | 355.90 | 40.00 | 70.00 | - | R44X35-40M | C44-... |
| Stacked Plate | 2.2xD | 66.04 - 71.12 | 158.70 | 191.69 | 261.70 | 40.00 | 70.00 | - | SP44X22-40M | C44SP-... |

*Holder includes cartridges; however, inserts are sold separately.

A60: 28 - 29

A60: 2 - 4

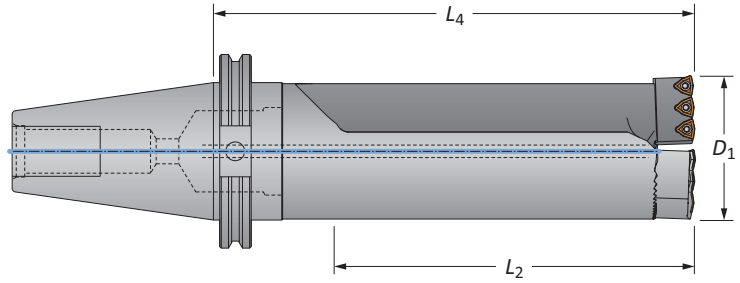


i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

44 Series | Diameter Range: 2.600" - 2.800" (66.04 mm - 71.12 mm)



CV50 Shank

| Style | Length | D_1 Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|---------------|---------|---------|-------|--------------|------------|
| | | | L_2 | L_4 | | | |
| Standard | 2.2xD | 2.600 - 2.800 | 6-13/64 | 8-7/8 | CV50 | R44X22-CV50 | C44-... |
| Standard | 3.5xD | 2.600 - 2.800 | 9-61/64 | 12-5/8 | CV50 | R44X35-CV50 | C44-... |
| Stacked Plate | 2.2xD | 2.600 - 2.800 | 6-1/4 | 8-59/64 | CV50 | SP44X22-CV50 | C44SP-... |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

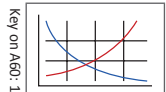
| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R44... | C44-FIX | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| | C44-ADJ | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| SP44... | C44SP-FIX | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| | C44SP-ADJ | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A60: 28 - 29

A60: 2 - 4



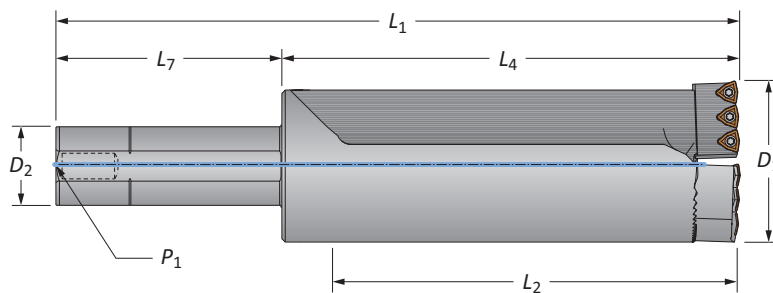
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

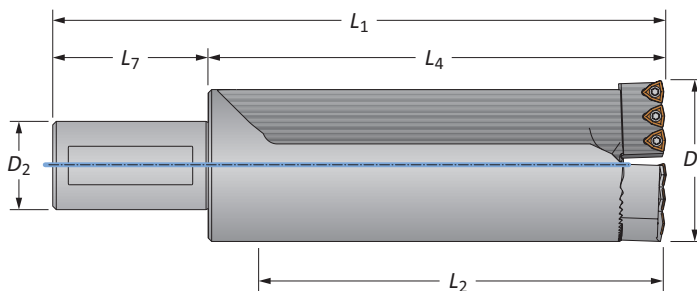
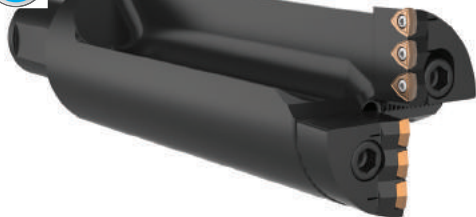
46 Series | Diameter Range: 2.800" - 3.000" (71.12 mm - 76.20 mm)



Straight Shank Imperial

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 2.2xD | 2.800 - 3.000 | 6-45/64 | 8 | 12 | 1-1/2 | 4 | 1/4 | R46X22-150L | C46-... |
| Standard | 3.5xD | 2.800 - 3.000 | 10-29/64 | 11-3/4 | 15-3/4 | 1-1/2 | 4 | 1/4 | R46X35-150L | C46-... |
| Stacked Plate | 2.2xD | 2.800 - 3.000 | 6-3/4 | 8-3/64 | 12-3/64 | 1-1/2 | 4 | 1/4 | SP46X22-150L | C46SP-... |

*Holder includes cartridges; however, inserts are sold separately.



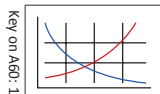
Straight Shank Metric

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 2.2xD | 71.12 - 76.20 | 170.36 | 203.38 | 273.38 | 40.00 | 70.00 | - | R46X22-40M | C46-... |
| Standard | 3.5xD | 71.12 - 76.20 | 265.61 | 298.63 | 368.63 | 40.00 | 70.00 | - | R46X35-40M | C46-... |
| Stacked Plate | 2.2xD | 71.12 - 76.20 | 171.40 | 204.39 | 274.40 | 40.00 | 70.00 | - | SP46X22-40M | C46SP-... |

*Holder includes cartridges; however, inserts are sold separately.

A60: 28 - 29

A60: 2 - 4

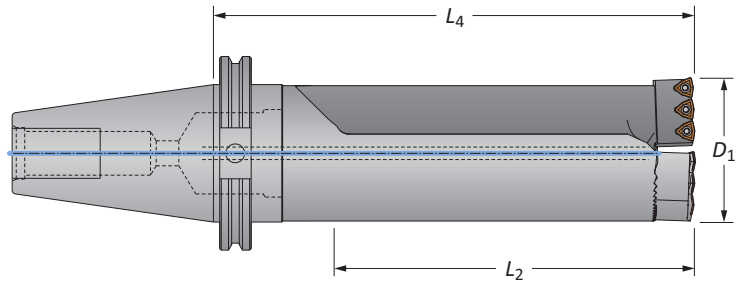


i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

46 Series | Diameter Range: 2.800" - 3.000" (71.12 mm - 76.20 mm)



CV50 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 2.2xD | 2.800 - 3.000 | 6-45/64 | 9-25/64 | CV50 | R46X22-CV50 | C46-... |
| Standard | 3.5xD | 2.800 - 3.000 | 10-29/64 | 13-1/8 | CV50 | R46X35-CV50 | C46-... |
| Stacked Plate | 2.2xD | 2.800 - 3.000 | 6-3/4 | 9-27/64 | CV50 | SP46X22-CV50 | C46SP-... |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R46... | C46-FIX | 3 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| | C46-ADJ | 3 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| SP46... | C46SP-FIX | 3 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| | C46SP-ADJ | 3 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

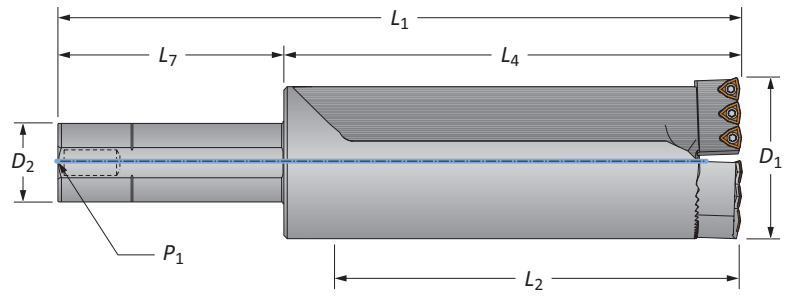
A60: 28 - 29 A60: 2 - 4

Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)

Revolution Drill Holders

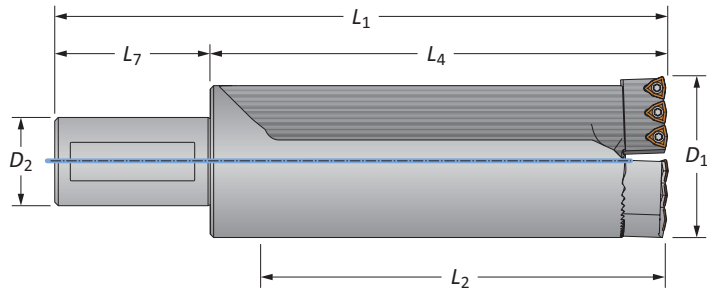
48 Series | Diameter Range: 3.000" - 3.200" (76.20 mm - 81.28 mm)



Straight Shank Imperial

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 1.0xD | 3.000 - 3.200 | 3-5/32 | 4-33/64 | 9-1/64 | 2 | 4-1/2 | 1/4 | R48X10-200L | C48-... |
| Standard | 2.5xD | 3.000 - 3.200 | 7-29/32 | 9-17/64 | 13-49/64 | 2 | 4-1/2 | 1/4 | R48X25-200L | C48-... |
| Stacked Plate | 1.0xD | 3.000 - 3.200 | 3-15/64 | 4-19/32 | 9-3/32 | 2 | 4-1/2 | 1/4 | SP48X10-200L | C48SP-... |
| Stacked Plate | 2.5xD | 3.000 - 3.200 | 7-63/64 | 9-11/32 | 13-27/32 | 2 | 4-1/2 | 1/4 | SP48X25-200L | C48SP-... |

*Holder includes cartridges; however, inserts are sold separately.



Straight Shank Metric

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 1.0xD | 76.20 - 81.28 | 80.21 | 114.50 | 194.50 | 50.00 | 80.00 | - | R48X10-50M | C48-... |
| Standard | 2.5xD | 76.20 - 81.28 | 200.86 | 235.15 | 315.15 | 50.00 | 80.00 | - | R48X25-50M | C48-... |
| Stacked Plate | 1.0xD | 76.20 - 81.28 | 80.21 | 116.51 | 196.52 | 50.00 | 80.00 | - | SP48X10-50M | C48SP-... |
| Stacked Plate | 2.5xD | 76.20 - 81.28 | 200.86 | 237.21 | 317.22 | 50.00 | 80.00 | - | SP48X25-50M | C48SP-... |

*Holder includes cartridges; however, inserts are sold separately.

A DRILLING

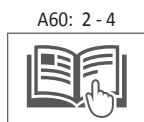
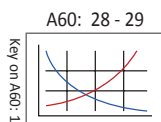
B BORING

C REAMING

D BURNISHING

F THREADING

X SPECIALS

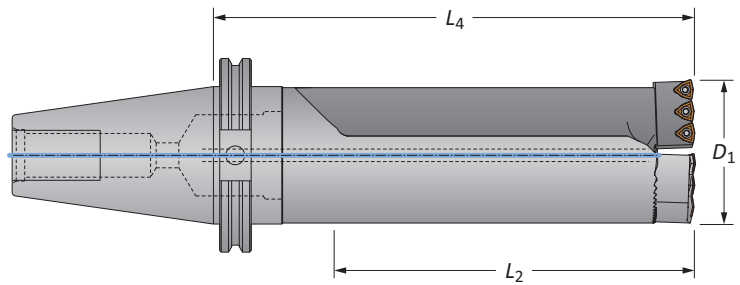


i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

48 Series | Diameter Range: 3.000" - 3.200" (76.20 mm - 81.28 mm)



CV50 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 1.0xD | 3.000 - 3.200 | 3-5/32 | 5-57/64 | CV50 | R48X10-CV50 | C48-... |
| Standard | 2.5xD | 3.000 - 3.200 | 7-29/32 | 10-41/64 | CV50 | R48X25-CV50 | C48-... |
| Stacked Plate | 1.0xD | 3.000 - 3.200 | 3-15/64 | 5-31/32 | CV50 | SP48X10-CV50 | C48SP-... |
| Stacked Plate | 2.5xD | 3.000 - 3.200 | 7-63/64 | 10-23/32 | CV50 | SP48X25-CV50 | C48SP-... |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

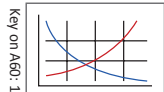
| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R48... | C48-FIX | 3 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| | C48-ADJ | 3 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| SP48... | C48SP-FIX | 3 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| | C48SP-ADJ | 3 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A60: 28 - 29

A60: 2 - 4

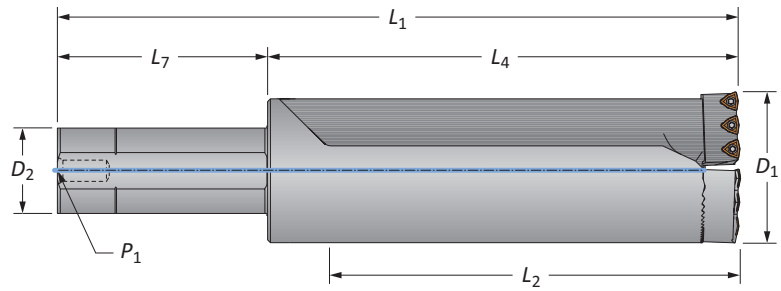


Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)

Revolution Drill Holders

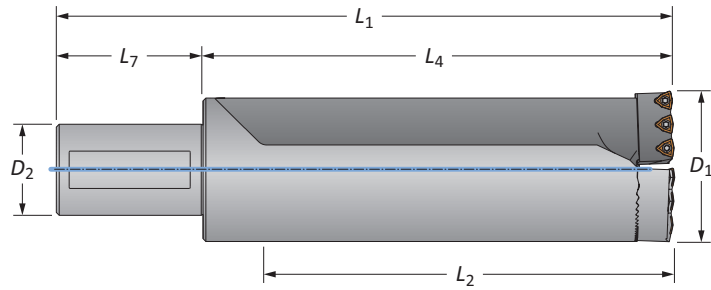
52 Series | Diameter Range: 3.200" - 3.400" (81.28 mm - 86.36 mm)



Straight Shank Imperial

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 1.0xD | 3.200 - 3.400 | 3-27/64 | 5-1/64 | 9-33/64 | 2 | 4-1/2 | 1/4 | R52X10-200L | C52-... |
| Standard | 2.5xD | 3.200 - 3.400 | 8-27/64 | 10-1/64 | 14-33/64 | 2 | 4-1/2 | 1/4 | R52X25-200L | C52-... |
| Stacked Plate | 1.0xD | 3.200 - 3.400 | 3-31/64 | 5-5/64 | 9-37/64 | 2 | 4-1/2 | 1/4 | SP52X10-200L | C52SP-... |
| Stacked Plate | 2.5xD | 3.200 - 3.400 | 8-31/64 | 10-5/64 | 14-37/64 | 2 | 4-1/2 | 1/4 | SP52X25-200L | C52SP-... |

*Holder includes cartridges; however, inserts are sold separately.



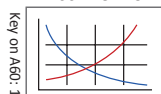
Straight Shank Metric

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 1.0xD | 81.28 - 86.36 | 86.72 | 127.23 | 207.23 | 50.00 | 80.00 | - | R52X10-50M | C52-... |
| Standard | 2.5xD | 81.28 - 86.36 | 213.72 | 254.02 | 334.02 | 50.00 | 80.00 | - | R52X25-50M | C52-... |
| Stacked Plate | 1.0xD | 81.28 - 86.36 | 88.60 | 129.11 | 209.12 | 50.00 | 80.00 | - | SP52X10-50M | C52SP-... |
| Stacked Plate | 2.5xD | 81.28 - 86.36 | 215.60 | 256.11 | 336.12 | 50.00 | 80.00 | - | SP52X25-50M | C52SP-... |

*Holder includes cartridges; however, inserts are sold separately.

A
DRILLINGB
BORINGC
REAMINGD
BURNISHINGE
THREADINGX
SPECIALS

A60: 28 - 29



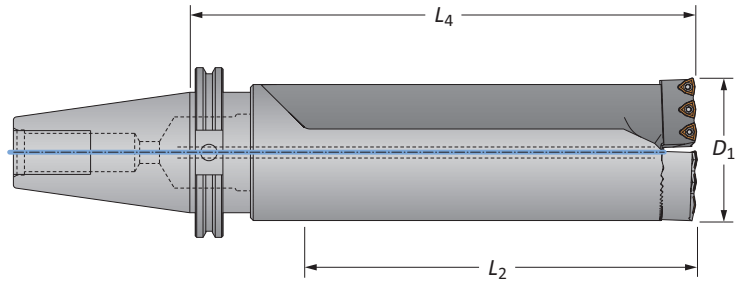
A60: 2 - 4





Revolution Drill Holders

52 Series | Diameter Range: 3.200" - 3.400" (81.28 mm - 86.36 mm)



CV50 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 1.0xD | 3.200 - 3.400 | 3-27/64 | 6-25/64 | CV50 | R52X10-CV50 | C52-... |
| Standard | 2.5xD | 3.200 - 3.400 | 8-27/64 | 11-25/64 | CV50 | R52X25-CV50 | C52-... |
| Stacked Plate | 1.0xD | 3.200 - 3.400 | 3-31/64 | 6-29/64 | CV50 | SP52X10-CV50 | C52SP-... |
| Stacked Plate | 2.5xD | 3.200 - 3.400 | 8-31/64 | 11-29/64 | CV50 | SP52X25-CV50 | C52SP-... |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

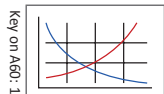
| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R52... | C52-FIX | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| | C52-ADJ | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| SP52... | C52SP-FIX | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| | C52SP-ADJ | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A60: 28 - 29

A60: 2 - 4

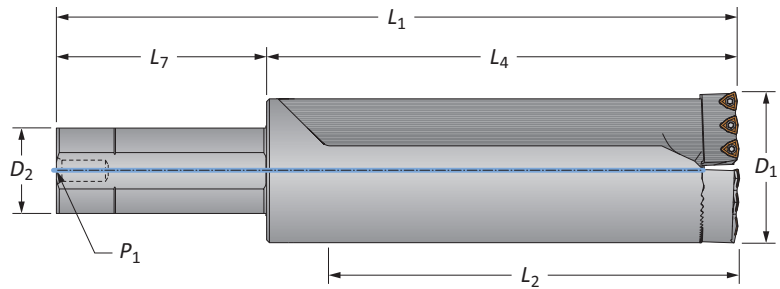


Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)

Revolution Drill Holders

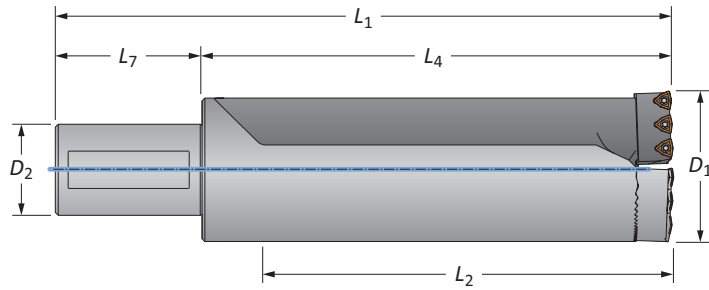
54 Series | Diameter Range: 3.400" - 3.600" (86.36 mm - 91.44 mm)



Straight Shank Imperial

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 1.0xD | 3.400 - 3.600 | 3-21/32 | 5-17/64 | 9-49/64 | 2 | 4-1/2 | 1/4 | R54X10-200L | C54-... |
| Standard | 2.5xD | 3.400 - 3.600 | 8-29/32 | 10-33/64 | 15-1/64 | 2 | 4-1/2 | 1/4 | R54X25-200L | C54-... |
| Stacked Plate | 1.0xD | 3.400 - 3.600 | 3-23/32 | 5-21/64 | 9-53/64 | 2 | 4-1/2 | 1/4 | SP54X10-200L | C54SP-... |
| Stacked Plate | 2.5xD | 3.400 - 3.600 | 8-31/32 | 10-37/64 | 15-5/64 | 2 | 4-1/2 | 1/4 | SP54X25-200L | C54SP-... |

*Holder includes cartridges; however, inserts are sold separately.



Straight Shank Metric

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 1.0xD | 86.36 - 91.44 | 92.94 | 133.58 | 213.58 | 50.00 | 80.00 | - | R54X10-50M | C54-... |
| Standard | 2.5xD | 86.36 - 91.44 | 226.29 | 266.93 | 346.93 | 50.00 | 80.00 | - | R54X25-50M | C54-... |
| Stacked Plate | 1.0xD | 86.36 - 91.44 | 94.50 | 135.10 | 215.10 | 50.00 | 80.00 | - | SP54X10-50M | C54SP-... |
| Stacked Plate | 2.5xD | 86.36 - 91.44 | 227.81 | 268.50 | 348.51 | 50.00 | 80.00 | - | SP54X25-50M | C54SP-... |

*Holder includes cartridges; however, inserts are sold separately.

A DRILLING

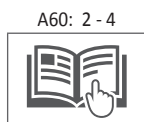
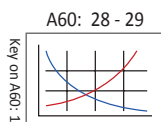
B BORING

C REAMING

D BURNISHING

F THREADING

X SPECIALS

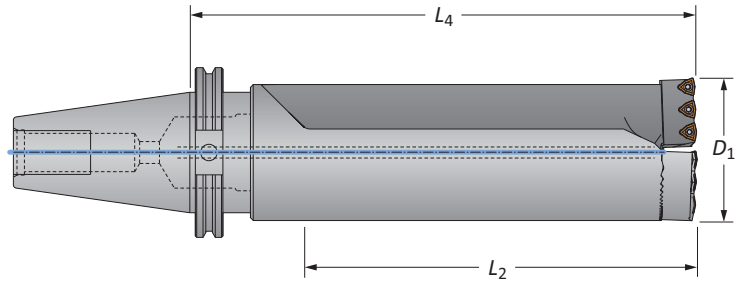


i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

54 Series | Diameter Range: 3.400" - 3.600" (86.36 mm - 91.44 mm)



CV50 Shank

| Style | Length | D_1 Range | Holder | | Shank | Part No.* | Cartridges | |
|-------|---------------|-------------|---------------|---------|----------|-----------|--------------|-----------|
| | | | L_2 | L_4 | | | | |
| i | Standard | 1.0xD | 3.400 - 3.600 | 3-21/32 | 6-41/64 | CV50 | R54X10-CV50 | C54-... |
| | Standard | 2.5xD | 3.400 - 3.600 | 8-29/32 | 11-57/64 | CV50 | R54X25-CV50 | C54-... |
| | Stacked Plate | 1.0xD | 3.400 - 3.600 | 3-23/32 | 6-11/16 | CV50 | SP54X10-CV50 | C54SP-... |
| | Stacked Plate | 2.5xD | 3.400 - 3.600 | 8-31/32 | 11-15/16 | CV50 | SP54X25-CV50 | C54SP-... |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

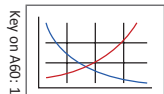
| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R54... | C54-FIX | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| | C54-ADJ | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| SP54... | C54SP-FIX | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |
| | C54SP-ADJ | 3 | MS-19M-1 | 6 mm | AS-18T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A60: 28 - 29

A60: 2 - 4



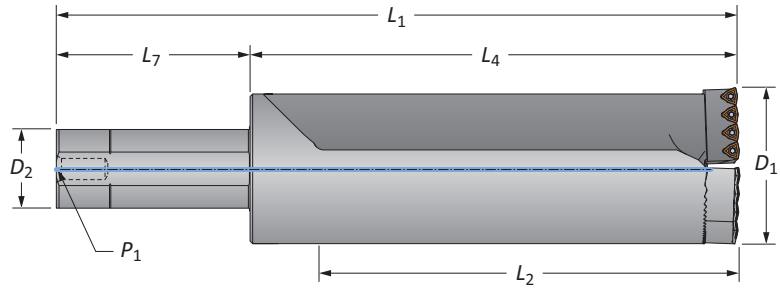
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

i = Imperial (in)
 m = Metric (mm)

Revolution Drill Holders

56 Series | Diameter Range: 3.600" - 3.800" (91.44 mm - 96.52 mm)

A DRILLING



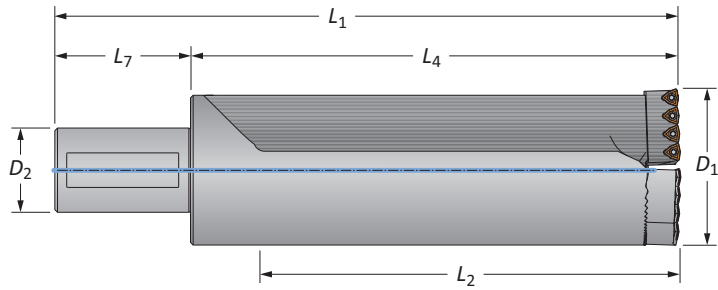
B BORING

Straight Shank Imperial

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 1.0xD | 3.600 - 3.800 | 3-7/8 | 5-3/4 | 10-1/4 | 2 | 4-1/2 | 1/4 | R56X10-200L | C56-... |
| Standard | 2.5xD | 3.600 - 3.800 | 9-3/8 | 11-1/4 | 15-3/4 | 2 | 4-1/2 | 1/4 | R56X25-200L | C56-... |
| Stacked Plate | 1.0xD | 3.600 - 3.800 | 3-15/16 | 5-13/16 | 10-5/16 | 2 | 4-1/2 | 1/4 | SP56X10-200L | C56SP-... |
| Stacked Plate | 2.5xD | 3.600 - 3.800 | 9-7/16 | 11-5/16 | 15-13/16 | 2 | 4-1/2 | 1/4 | SP56X25-200L | C56SP-... |

*Holder includes cartridges; however, inserts are sold separately.

C REAMING



D BURNISHING

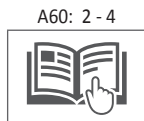
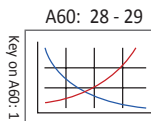
Straight Shank Metric

| Style | Length | D ₁ Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Standard | 1.0xD | 91.44 - 96.52 | 98.60 | 146.23 | 226.23 | 50.00 | 80.00 | - | R56X10-50M | C56-... |
| Standard | 2.5xD | 91.44 - 96.52 | 238.30 | 285.93 | 365.93 | 50.00 | 80.00 | - | R56X25-50M | C56-... |
| Stacked Plate | 1.0xD | 91.44 - 96.52 | 99.90 | 147.60 | 227.61 | 50.00 | 80.00 | - | SP56X10-50M | C56SP-... |
| Stacked Plate | 2.5xD | 91.44 - 96.52 | 239.60 | 287.30 | 367.31 | 50.00 | 80.00 | - | SP56X25-50M | C56SP-... |

*Holder includes cartridges; however, inserts are sold separately.

F THREADING

X SPECIALS

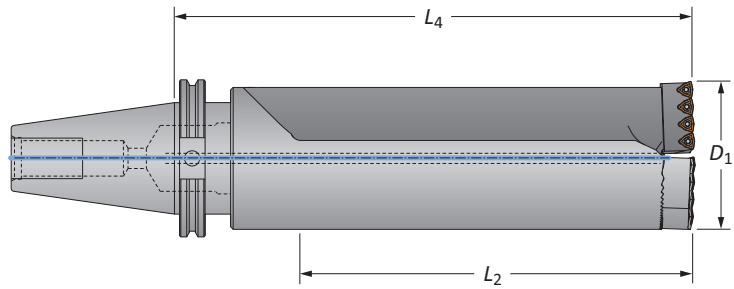


i = Imperial (in)
m = Metric (mm)



Revolution Drill Holders

56 Series | Diameter Range: 3.600" - 3.800" (91.44 mm - 96.52 mm)



CV50 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 1.0xD | 3.600 - 3.800 | 3-7/8 | 7-1/8 | CV50 | R56X10-CV50 | C56-... |
| Standard | 2.5xD | 3.600 - 3.800 | 9-3/8 | 12-5/8 | CV50 | R56X25-CV50 | C56-... |
| Stacked Plate | 1.0xD | 3.600 - 3.800 | 3-15/16 | 7-3/16 | CV50 | SP56X10-CV50 | C56SP-... |
| Stacked Plate | 2.5xD | 3.600 - 3.800 | 9-7/16 | 12-11/16 | CV50 | SP56X25-CV50 | C56SP-... |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

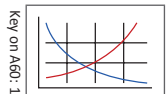
| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R56... | C56-FIX | 4 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| | C56-ADJ | 4 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| SP56... | C56SP-FIX | 4 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| | C56SP-ADJ | 4 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A60: 28 - 29

A60: 2 - 4

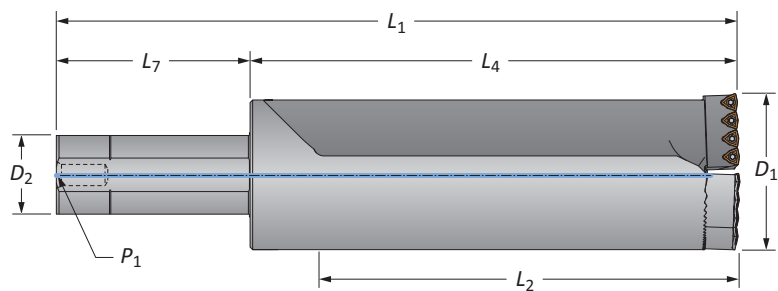


Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)

Revolution Drill Holders

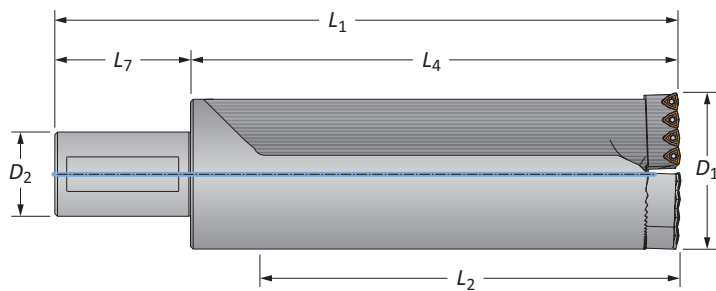
58 Series | Diameter Range: 3.800" - 4.000" (96.52 mm - 101.60 mm)



Straight Shank Imperial

| Style | Length | D_1 Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|---------------|---------|----------|---------|-------|-------|-------|--------------|------------|
| | | | L_2 | L_4 | L_1 | D_2 | L_7 | P_1 | | |
| Standard | 1.0xD | 3.800 - 4.000 | 3-7/8 | 5-3/4 | 10-1/4 | 2 | 4-1/2 | 1/4 | R58X10-200L | C58-... |
| Standard | 2.5xD | 3.800 - 4.000 | 9-7/8 | 11-3/4 | 16-1/4 | 2 | 4-1/2 | 1/4 | R58X25-200L | C58-... |
| Stacked Plate | 1.0xD | 3.800 - 4.000 | 3-15/16 | 5-13/16 | 10-5/16 | 2 | 4-1/2 | 1/4 | SP58X10-200L | C58SP-... |
| Stacked Plate | 2.5xD | 3.800 - 4.000 | 9-15/16 | 11-13/16 | 16-5/16 | 2 | 4-1/2 | 1/4 | SP58X25-200L | C58SP-... |

*Holder includes cartridges; however, inserts are sold separately.

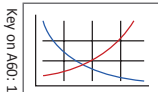


Straight Shank Metric

| Style | Length | D_1 Range | Holder | | | Shank | | | Part No.* | Cartridges |
|---------------|--------|----------------|--------|--------|--------|-------|-------|-------|-------------|------------|
| | | | L_2 | L_4 | L_1 | D_2 | L_7 | P_1 | | |
| Standard | 1.0xD | 96.52 - 101.60 | 98.60 | 146.20 | 226.20 | 50.00 | 80.00 | - | R58X10-50M | C58-... |
| Standard | 2.5xD | 96.52 - 101.60 | 251.00 | 298.60 | 378.60 | 50.00 | 80.00 | - | R58X25-50M | C58-... |
| Stacked Plate | 1.0xD | 96.52 - 101.60 | 99.80 | 147.40 | 227.41 | 50.00 | 80.00 | - | SP58X10-50M | C58SP-... |
| Stacked Plate | 2.5xD | 96.52 - 101.60 | 252.20 | 299.80 | 379.81 | 50.00 | 80.00 | - | SP58X25-50M | C58SP-... |

*Holder includes cartridges; however, inserts are sold separately.

A60: 28 - 29



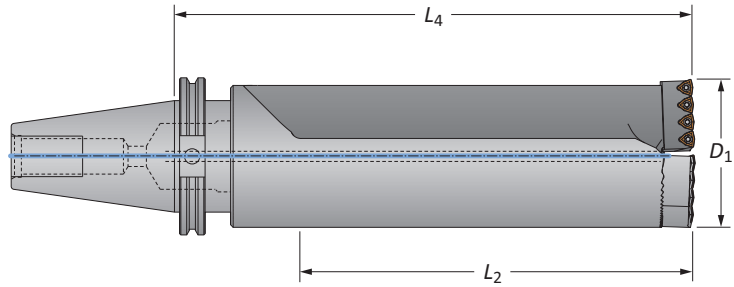
A60: 2 - 4





Revolution Drill Holders

58 Series | Diameter Range: 3.800" - 4.000" (96.52 mm - 101.60 mm)



CV50 Shank

| Style | Length | D ₁ Range | Holder | | Shank | Part No.* | Cartridges |
|---------------|--------|----------------------|----------------|----------------|-------|--------------|------------|
| | | | L ₂ | L ₄ | | | |
| Standard | 1.0xD | 3.800 - 4.000 | 3-7/8 | 7-1/8 | CV50 | R58X10-CV50 | C58-... |
| Standard | 2.5xD | 3.800 - 4.000 | 9-7/8 | 13-1/8 | CV50 | R58X25-CV50 | C58-... |
| Stacked Plate | 1.0xD | 3.800 - 4.000 | 3-15/16 | 7-3/16 | CV50 | SP58X10-CV50 | C58SP-... |
| Stacked Plate | 2.5xD | 3.800 - 4.000 | 9-15/16 | 13-3/16 | CV50 | SP58X25-CV50 | C58SP-... |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

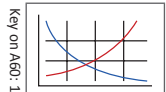
| Holder Part No. | Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|-----------------|------------------------|---------------------|----------------|----------|-----------------|--------|
| R58... | C58-FIX | 4 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| | C58-ADJ | 4 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| SP58... | C58SP-FIX | 4 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |
| | C58SP-ADJ | 4 | MS-21M-1 | 8 mm | AS-18T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A60: 28 - 29




A60: 2 - 4



Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)

Recommended Cutting Data | Imperial (inch)

| ISO | Material | Hardness (BHN) | Speed (SFM) | | | Feed Rate (IPR) |
|-----|--|--|--|---|---|-----------------|
| | | |  AM300® |  AM200® |  TiN | |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 250 | 900 - 1300 | 850 - 1200 | 700 - 900 | .0035 - .007 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 275 | 850 - 1250 | 800 - 1150 | 650 - 850 | .003 - .0065 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 325 | 800 - 1050 | 750 - 950 | 600 - 850 | .0035 - .0065 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 375 | 750 - 1000 | 700 - 900 | 600 - 850 | .0035 - .0065 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 400 | 600 - 850 | 550 - 750 | 400 - 650 | .003 - .005 |
| | Structural Steel A36, A285, A516, etc. | 100 - 350 | 850 - 1050 | 800 - 950 | 650 - 850 | .003 - .0065 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | 400 - 800 | 350 - 700 | 250 - 650 | .0025 - .005 |
| | S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 250 - 450 | 250 - 350 | 150 - 300 |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 350 | 600 - 850 | 550 - 750 | 400 - 650 | .003 - .006 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 600 - 850 | 550 - 750 | 400 - 650 | .003 - .006 |
| | Super Duplex Stainless Steel | 135 - 275 | 500 - 750 | 450 - 650 | 300 - 550 | .002 - .005 |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 320 | 700 - 900 | 650 - 800 | 500 - 700 | .004 - .008 |
| N | Cast Aluminum | 30 - 180 | 1250 - 1650 | 1200 - 1550 | 950 - 1100 | .006 - .012 |
| | Wrought Aluminum | 30 - 180 | 1250 - 1650 | 1200 - 1550 | 950 - 1100 | .006 - .012 |
| | Brass | 30 - 100 | 950 - 1350 | 900 - 1250 | 750 - 1100 | .005 - .009 |

Material Constants

| Type of Material | Hardness (BHN) | K _m (lbs/in ²) |
|------------------------------|----------------|---------------------------------------|
| Free-Machining Steel | 100 - 250 | 0.75 |
| Low-Carbon Steel | 85 - 275 | 0.85 |
| Medium-Carbon Steel | 125 - 325 | 0.90 |
| Alloy Steel | 125 - 375 | 1.00 |
| High-Strength Steel | 225 - 400 | 1.15 |
| Structural Steel | 100 - 350 | 1.00 |
| Tool Steel | 150 - 250 | 0.90 |
| High-Temperature Alloy | 140 - 310 | 1.44 |
| Titanium Alloy | 140 - 310 | 0.72 |
| Aerospace Alloy | 185 - 350 | 0.70 |
| Stainless Steel 400 Series | 185 - 350 | 1.08 |
| Stainless Steel 300 Series | 135 - 275 | 0.94 |
| Super Duplex Stainless Steel | 135 - 275 | 0.94 |
| Wear Plate | 400 - 600 | 1.60 |
| Hardened Steel | 300 - 500 | 1.40 |
| Nodular, Ductile Cast Iron | 120 - 320 | 0.65 |
| Grey Cast Iron | 120 - 320 | 0.75 |
| Cast Aluminum | 30 - 180 | 0.40 |
| Wrought Aluminum | 30 - 180 | 0.40 |
| Aluminum Bronze | 100 - 250 | 0.50 |
| Brass | 100 | 0.35 |
| Copper | 60 | 0.30 |




Formulas

| | |
|----|---|
| 1. | RPM = $(3.82 \cdot \text{SFM}) / \text{DIA}$ where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch) |
| 2. | HP = $(0.6676 \cdot \text{DIA}^2 \cdot \text{IPR} \cdot \text{RPM} \cdot K_m) / 0.80$ where: Tool Power = tool power (HP) DIA = diameter of drill (inch) IPR = feed rate (in/rev) RPM = revolutions per minute (rev/min) K _m = specific cutting energy (lbs/in ²) machine efficiency (using 0.80 as constant) |
| 3. | Thrust = $148,500 \cdot \text{IPR} \cdot \text{DIA} \cdot K_m$ where: Thrust = axial thrust (lbs) IPR = feed rate (in/rev) DIA = diameter of drill (inch) K _m = specific cutting energy (lbs/in ²) |
| 5. | Torque = $(\text{HP} \cdot 5252) / \text{RPM}$ where: Torque = torque (ft/lbs) HP = tool power (HP) RPM = revolutions per minute (rev/min) |

The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.

IMPORTANT: The speeds and feeds listed above are considered a general starting point for all applications. Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Recommended Cutting Data | Metric (mm)

| ISO | Material | Hardness (BHN) | Speed (M/min) | | | Feed Rate (mm/rev) |
|-----|---|----------------|--|---|---|--------------------|
| | | |  AM300® |  AM200® |  TiN | |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 250 | 274 - 396 | 259 - 366 | 213 - 274 | 0.09 - 0.18 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 275 | 259 - 381 | 244 - 351 | 198 - 259 | 0.08 - 0.17 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 325 | 244 - 320 | 229 - 290 | 183 - 259 | 0.09 - 0.17 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 375 | 229 - 305 | 213 - 274 | 183 - 259 | 0.09 - 0.17 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 400 | 183 - 259 | 168 - 229 | 122 - 198 | 0.08 - 0.13 |
| | Structural Steel A36, A285, A516, etc. | 100 - 350 | 259 - 320 | 244 - 290 | 198 - 259 | 0.08 - 0.17 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | 122 - 244 | 107 - 213 | 76 - 198 | 0.06 - 0.13 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 76 - 137 | 76 - 107 | 46 - 91 | 0.06 - 0.11 |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 350 | 183 - 259 | 168 - 229 | 122 - 198 | 0.08 - 0.15 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 183 - 259 | 168 - 229 | 122 - 198 | 0.08 - 0.15 |
| | Super Duplex Stainless Steel | 135 - 275 | 152 - 228 | 137 - 198 | 91 - 152 | 0.05 - 0.12 |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 320 | 213 - 274 | 198 - 244 | 152 - 213 | 0.10 - 0.20 |
| N | Cast Aluminum | 30 - 180 | 381 - 503 | 381 - 472 | 290 - 335 | 0.15 - 0.30 |
| | Wrought Aluminum | 30 - 180 | 381 - 503 | 381 - 472 | 290 - 335 | 0.15 - 0.30 |
| | Brass | 30 - 100 | 290 - 411 | 274 - 381 | 229 - 335 | 0.13 - 0.23 |

Material Constants

| Type of Material | Hardness (BHN) | K _m (kPa) |
|------------------------------|----------------|----------------------|
| Free-Machining Steel | 100 - 250 | 5.17 |
| Low-Carbon Steel | 85 - 275 | 5.86 |
| Medium-Carbon Steel | 125 - 325 | 6.21 |
| Alloy Steel | 125 - 375 | 6.90 |
| High-Strength Steel | 225 - 400 | 7.93 |
| Structural Steel | 100 - 350 | 6.90 |
| Tool Steel | 150 - 250 | 6.21 |
| High-Temperature Alloy | 140 - 310 | 9.93 |
| Titanium Alloy | 140 - 310 | 4.97 |
| Aerospace Alloy | 185 - 350 | 4.48 |
| Stainless Steel 400 Series | 185 - 350 | 7.45 |
| Stainless Steel 300 Series | 135 - 275 | 6.48 |
| Super Duplex Stainless Steel | 135 - 275 | 6.48 |
| Wear Plate | 400 - 600 | 11.04 |
| Hardened Steel | 300 - 500 | 9.66 |
| Nodular, Ductile Cast Iron | 120 - 320 | 4.48 |
| Grey Cast Iron | 120 - 320 | 5.17 |
| Cast Aluminum | 30 - 180 | 2.76 |
| Wrought Aluminum | 30 - 180 | 2.76 |
| Aluminum Bronze | 100 - 250 | 3.45 |
| Brass | 100 | 2.41 |
| Copper | 60 | 2.07 |

Formulas

| |
|--|
| 1. RPM = $(318.31 \cdot M/min) / DIA$ where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm) |
| 2. kW = $(DIA^2 \cdot mm/rev \cdot RPM \cdot K_m) / 181,018$ where: kW = tool power (kW) DIA = diameter of drill (mm) mm/rev = feed rate (mm/rev) RPM = revolutions per minute (rev/min) K _m = specific cutting energy (kPa) machine efficiency (using 181,018 as constant) |
| 3. Thrust = $148.78 \cdot mm/rev \cdot DIA \cdot K_m$ where: Thrust = axial thrust (N) mm/rev = feed rate (mm/rev) DIA = diameter of drill (mm) K _m = specific cutting energy (kPa) |
| 5. Torque = $(kW \cdot 9549.3) / RPM$ where: Torque = torque (Nm) HP = tool power (kW) RPM = revolutions per minute (rev/min) |

The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.

IMPORTANT: The speeds and feeds listed above are considered a general starting point for all applications. Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

SECTION

A70

Opening Drill®

Opening Drill®

Large Diameter Replaceable IC Insert Drilling System

► Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Need larger holes? No problem.

The Opening Drill is an extremely effective tool designed to enlarge existing holes. It is available in nine different shank styles: Straight, ABS 63, CAT V40, CAT V50, HSK 63A/C, HSK 100A/C, BT 40, BT 50, and DIN50.

In a *single* operation, an existing hole can be opened and large amounts of material can be removed. The insert design reduces chip size and improves evacuation. Also, inventory and cost are reduced by the adjustable diameters.

| | | |
|------------------------|--|---|
| Excellent chip control | Improves hole quality and surface finish | Provides maximum durability and stability |
|------------------------|--|---|

Applicable Industries



Aerospace



Agriculture



Automotive



Firearms



General Machining



Oil & Gas



Renewable Energy

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

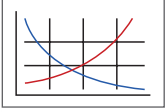
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling



Coolant-Through Option

Indicates that the product is coolant through

| Series | Diameter Range | |
|--------|-----------------|-----------------|
| | Imperial (inch) | Metric (mm) |
| OP1 | 2.000 - 2.500 | 50.80 - 63.50 |
| OP2 | 2.500 - 3.000 | 63.50 - 76.20 |
| OP3 | 3.000 - 4.120 | 76.20 - 104.65 |
| OP4 | 4.120 - 5.620 | 104.65 - 142.75 |

Introduction Information

Product Overview 2
 Setup Instructions 3
 Product Nomenclature. 4 - 5

Drill Shank Style

Straight Imperial 6
 Straight Metric 7
 CAT40 8
 CAT50 9
 BT40. 10
 BT50. 11
 HSK63 12
 HSK100 13
 ABS63 14
 DIN50 15

Recommended Cutting Data

Imperial (inch) 16 - 17
 Metric (mm) 18 - 19

Product Overview

Features

- Can be used as a rotating or stationary tool
- Can be used in rough boring operations
- Available in multiple different shanks (see chart below)
- Smooth cutting action and quiet operations in lathes and mills
- Special lengths, diameters, and shanks are available upon request

Advantages

- Opens an existing hole in a single operation
- Ignores core shifts up to 1/8" (3.18 mm) providing straight and true holes without the need for boring
- Allows for large amounts of material removal
- Unique design enables larger holes to be made on low horsepower machines
- Replaceable cartridges protect your investment
- Adjustable diameters reduce inventory and cost

Shank Options



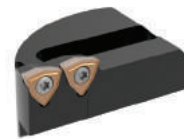
AM300°



AM200°



TiN



2 Inserts
(OP1 - OP3 series)



3 Inserts
(OP4 series)

Insert Application Recommendations

Carbide Grade Options

- | | |
|----------|--|
| C5 (P35) | General purpose carbide grade suitable for most applications. ▶ <i>Common application in steels and stainless steels.</i> |
| C1 (K35) | Toughest carbide grade. Provides the best combination of edge strength and tool life. ▶ <i>Recommended for less rigid applications.</i> |
| C2 (K25) | Higher wear-resistant carbide suitable for abrasive material applications. ▶ <i>Recommended for grey, ductile, and nodular irons.</i> |

Additional Geometry Option

- | | |
|----------------|--|
| High Rake (HR) | Provides superior chip control and tool life in long chipping carbon and alloy steels below 200 Bhn. |
|----------------|--|

IC Inserts

- The design allows for excellent chip control and aggressive penetration rates
- The proprietary AM200° and AM300° coatings increase tool life above competitors' premium coatings
- The same inserts are used for both Revolution Drill and Opening Drill products

Setup Instructions



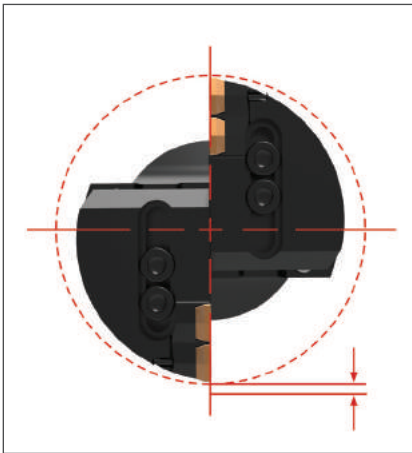
Step 1:
Loosen the mounting screws on both cartridges.



Step 2:
Set one cartridge to the finish diameter by tightening the adjustment screw against the adjustment pin.



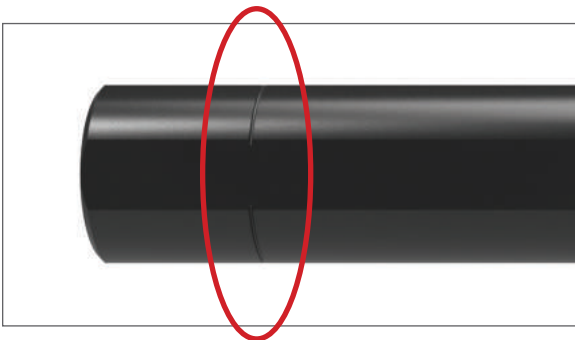
Step 3:
Tighten the mounting screws on the cartridge to 11-14 ft-lbf (15-19 N-m).



Step 4:
Set the opposing cartridge with 0.160" (4.06 mm) to 0.200" (5.08 mm) radial offset inward by tightening the adjustment screw against the adjustment pin (optimum situation for each insert to remove equal material).



Step 5:
Tighten the mounting screws on the cartridge to 11-14 ft-lbf (15-19 N-m).



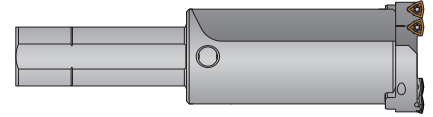
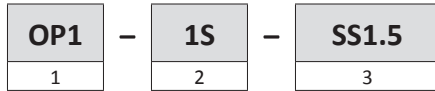
Straight Shanks

- Designed for lathe applications
- Can be cut off for use in endmill holders
- The score mark (circled above) is provided for recommended cut length
- Cut and deburr at the score mark
- This improves rigidity when the body sits against the face of an endmill holder



Product Nomenclature

Opening Drill Holders



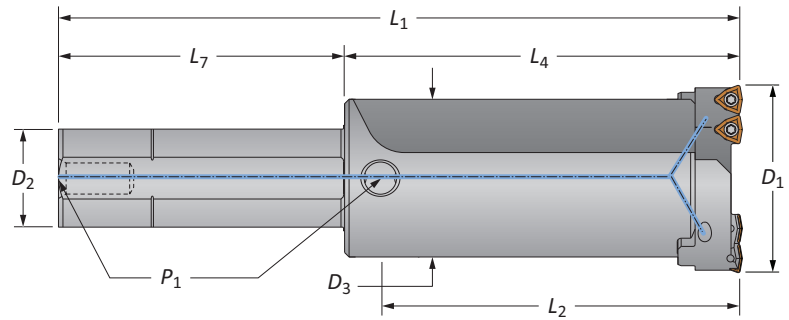
| 1. Series |
|--|
| OP1 = 2.000" - 2.500" (50.80 mm - 63.50 mm) |
| OP2 = 2.500" - 3.000" (63.50 mm - 76.20 mm) |
| OP3 = 3.000" - 4.120" (76.20 mm - 104.65 mm) |
| OP4 = 4.120" - 5.620" (104.65 mm - 142.75 mm) |

| 2. Length |
|-------------------|
| 1S = Short |
| 1L = Long |

| 3. Shank Type | |
|---------------------------------|----------------------------|
| SS1.5 = 1-1/2 Ø straight | BT40 = BT40 |
| SS2.0 = 2 Ø straight | BT50 = BT50 |
| 40M = 40mm straight | HSK63 = HSK 63A/C |
| 50M = 50mm straight | HSK100 = HSK 100A/C |
| CV40 = CAT40 | ABS63 = ABS63 |
| CV50 = CAT50 | DV50 = DIN50 |

Reference Key

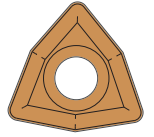
| Symbol | Attribute |
|--------|----------------------|
| D_1 | Drill diameter range |
| D_2 | Shank diameter |
| D_3 | Body diameter |
| L_1 | Overall length |
| L_2 | Maximum drill depth |
| L_4 | Holder length |
| L_7 | Shank length |
| P_1 | Rear pipe tap |



Product Nomenclature

Opening Drill Inserts

| | | | | | | | | |
|-----------|---|-----------|-----------|-----------|---|----------|----------|-----------|
| OP | - | 05 | T3 | 08 | - | 1 | H | HR |
| 1 | | 2 | 3 | 4 | | 5 | 6 | 7 |



| | | | | |
|---|---|--|---------------------------------------|--|
| 1. Compatible with: Opening Drill® Revolution Drill® | 2. IC Type 05 = 5/16" | 3. Thickness T3 = 5/32" | 4. Radius 08 = 1/32" | 5. Carbide Grade Blank = C5 (P35) 1 = C1 (K35) 2 = C2 (K25) |
| 6. Coating P = AM300® H = AM200® T = TiN A = TiAlN N = TiCN U = Uncoated | 7. Geometry Blank = General Purpose HR = High Rake | | | |

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

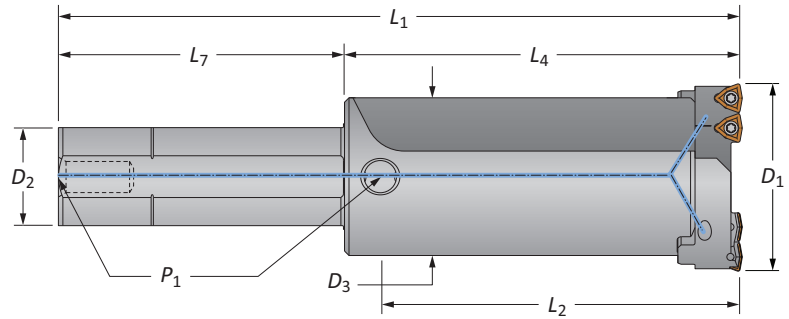
THREADING

X

SPECIALS

Opening Drill Holders

Straight Shank | Imperial | Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Holder

| Length | D ₁ Range | Holder | | | | Shank | | | Part No. | Cartridges |
|--------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------------|------------|
| | | D ₃ | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | |
| Short | 2.000 - 2.500 | 1.840 | 3-9/32 | 4-3/64 | 8-3/64 | 1-1/2 | 4 | 1/4 NPT | OP1-1S-SS1.5 | OP1-WC05 |
| Long | 2.000 - 2.500 | 1.840 | 5-17/32 | 6-19/64 | 10-19/64 | 1-1/2 | 4 | 1/4 NPT | OP1-1L-SS1.5 | OP1-WC05 |
| Short | 2.500 - 3.000 | 2.220 | 4-43/64 | 5-1/2 | 9-1/2 | 1-1/2 | 4 | 1/4 NPT | OP2-1S-SS1.5 | OP2-WC05 |
| Long | 2.500 - 3.000 | 2.220 | 7-43/64 | 8-1/2 | 12-1/2 | 1-1/2 | 4 | 1/4 NPT | OP2-1L-SS1.5 | OP2-WC05 |
| Short | 3.000 - 4.120 | 2.806 | 5-7/64 | 6 | 10 | 1-1/2 | 4 | 1/4 NPT | OP3-1S-SS1.5 | OP3-WC05 |
| Long | 3.000 - 4.120 | 2.806 | 9-7/64 | 10 | 14 | 1-1/2 | 4 | 1/4 NPT | OP3-1L-SS1.5 | OP3-WC05 |
| Short | 4.120 - 5.620 | 3.500 | 5-1/64 | 6 | 10-1/2 | 2 | 4-1/2 | 1/4 NPT | OP4-1S-SS2.0 | OP4-WC05 |
| Long | 4.120 - 5.620 | 3.500 | 10-33/64 | 11-1/2 | 16 | 2 | 4-1/2 | 1/4 NPT | OP4-1L-SS2.0 | OP4-WC05 |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

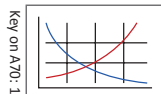
| Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|------------------------|---------------------|----------------|----------|-----------------|--------|
| OP1-WC05 | 2 | MS-13M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP2-WC05 | 2 | MS-15M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP3-WC05 | 2 | MS-15M-1 | 5 mm | AS-12T9-1 | 8T-9 |
| OP4-WC05 | 3 | MS-15M-1 | 5 mm | AS-14T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A70: 16 - 19

A70: 2 - 3



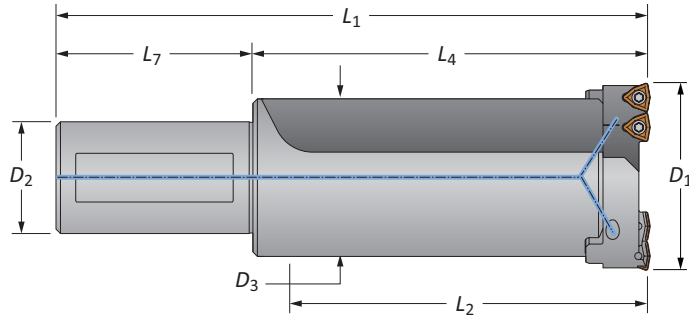
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10
 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4

i = Imperial (in)
m = Metric (mm)

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

Opening Drill Holders

Straight Shank | Metric | Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Holder

| Length | D ₁ Range | Holder | | | | Shank | | | Part No. | Cartridges | |
|--------|----------------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|------------|----------|
| | | D ₃ | L ₂ | L ₄ | L ₁ | D ₂ | L ₇ | P ₁ | | | |
| m | Short | 50.80 - 63.50 | 46.74 | 83.46 | 104.44 | 174.45 | 40.00 | 70.00 | - | OP1-1S-40M | OP1-WC05 |
| | Long | 50.80 - 63.50 | 46.74 | 140.61 | 161.59 | 231.60 | 40.00 | 70.00 | - | OP1-1L-40M | OP1-WC05 |
| | Short | 63.50 - 76.20 | 56.39 | 118.52 | 141.25 | 211.25 | 40.00 | 70.00 | - | OP2-1S-40M | OP2-WC05 |
| | Long | 63.50 - 76.20 | 56.39 | 194.72 | 217.45 | 287.45 | 40.00 | 70.00 | - | OP2-1L-40M | OP2-WC05 |
| | Short | 76.20 - 104.65 | 71.27 | 129.90 | 153.95 | 223.95 | 40.00 | 70.00 | - | OP3-1S-40M | OP3-WC05 |
| | Long | 76.20 - 104.65 | 71.27 | 231.50 | 255.55 | 325.55 | 40.00 | 70.00 | - | OP3-1L-40M | OP3-WC05 |
| | Short | 104.65 - 142.65 | 88.90 | 127.43 | 153.95 | 233.96 | 50.00 | 80.00 | - | OP4-1S-50M | OP4-WC05 |
| | Long | 104.65 - 142.65 | 88.90 | 267.13 | 293.65 | 373.66 | 50.00 | 80.00 | - | OP4-1L-50M | OP4-WC05 |

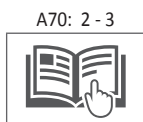
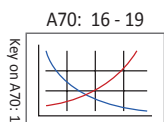
*Holder includes cartridges; however, inserts are sold separately.

Cartridges

| Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|------------------------|---------------------|----------------|----------|-----------------|--------|
| OP1-WC05 | 2 | MS-13M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP2-WC05 | 2 | MS-15M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP3-WC05 | 2 | MS-15M-1 | 5 mm | AS-12T9-1 | 8T-9 |
| OP4-WC05 | 3 | MS-15M-1 | 5 mm | AS-14T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

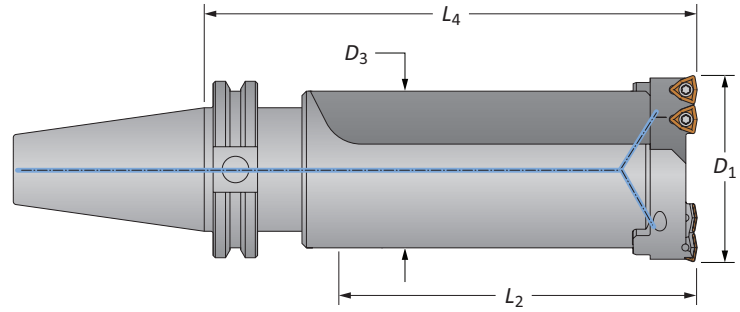


IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10
 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4

i = Imperial (in)
m = Metric (mm)

Opening Drill Holders

CAT40 Shank | Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Holder

| Length | D ₁ Range | D ₃ | Holder | | Part No. | Cartridges |
|--------|----------------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | | |
| Short | 2.000 - 2.500 | 1.840 | 3-9/32 | 5-27/64 | OP1-1S-CV40 | OP1-WC05 |
| Long | 2.000 - 2.500 | 1.840 | 5-17/32 | 7-43/64 | OP1-1L-CV40 | OP1-WC05 |
| Short | 2.500 - 3.000 | 2.220 | 4-43/64 | 6-7/8 | OP2-1S-CV40 | OP2-WC05 |
| Long | 2.500 - 3.000 | 2.220 | 7-43/64 | 9-7/8 | OP2-1L-CV40 | OP2-WC05 |
| Short | 3.000 - 4.120 | 2.806 | 5-7/64 | 7-3/8 | OP3-1S-CV40 | OP3-WC05 |
| Long | 3.000 - 4.120 | 2.806 | 9-7/64 | 11-3/8 | OP3-1L-CV40 | OP3-WC05 |
| Short | 4.120 - 5.620 | 3.500 | 5-1/64 | 7-3/8 | OP4-1S-CV40 | OP4-WC05 |

*Holder includes cartridges; however, inserts are sold separately.

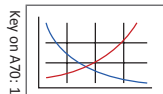
Cartridges

| Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|------------------------|---------------------|----------------|----------|-----------------|--------|
| OP1-WC05 | 2 | MS-13M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP2-WC05 | 2 | MS-15M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP3-WC05 | 2 | MS-15M-1 | 5 mm | AS-12T9-1 | 8T-9 |
| OP4-WC05 | 3 | MS-15M-1 | 5 mm | AS-14T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A70: 16 - 19



A70: 2 - 3



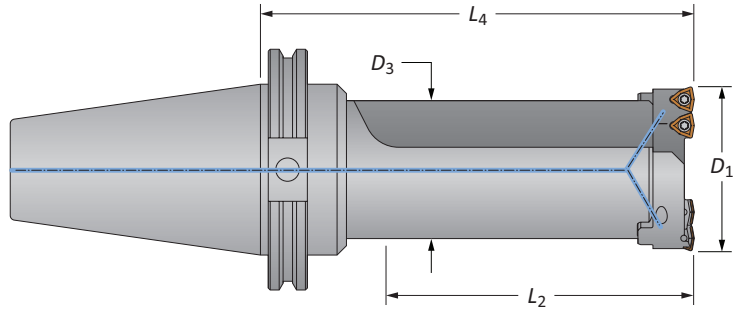
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10
 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4

i = Imperial (in)
m = Metric (mm)

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

Opening Drill Holders

CAT50 Shank | Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Holder

| Length | D ₁ Range | D ₃ | Holder | | Part No. | Cartridges |
|--------|----------------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | | |
| Short | 2.000 - 2.500 | 1.840 | 3-9/32 | 5-27/64 | OP1-1S-CV50 | OP1-WC05 |
| | | | 5-17/32 | 7-43/64 | OP1-1L-CV50 | OP1-WC05 |
| Long | 2.500 - 3.000 | 2.220 | 4-43/64 | 6-7/8 | OP2-1S-CV50 | OP2-WC05 |
| | | | 7-43/64 | 9-7/8 | OP2-1L-CV50 | OP2-WC05 |
| Short | 3.000 - 4.120 | 2.806 | 5-7/64 | 7-3/8 | OP3-1S-CV50 | OP3-WC05 |
| | | | 9-7/64 | 11-3/8 | OP3-1L-CV50 | OP3-WC05 |
| Long | 4.120 - 5.620 | 3.500 | 5-1/64 | 7-3/8 | OP4-1S-CV50 | OP4-WC05 |
| | | | 10-33/64 | 12-7/8 | OP4-1L-CV50 | OP4-WC05 |

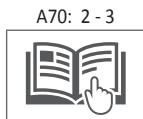
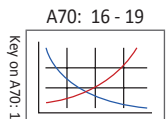
*Holder includes cartridges; however, inserts are sold separately.

Cartridges

| Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|------------------------|---------------------|----------------|----------|-----------------|--------|
| OP1-WC05 | 2 | MS-13M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP2-WC05 | 2 | MS-15M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP3-WC05 | 2 | MS-15M-1 | 5 mm | AS-12T9-1 | 8T-9 |
| OP4-WC05 | 3 | MS-15M-1 | 5 mm | AS-14T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

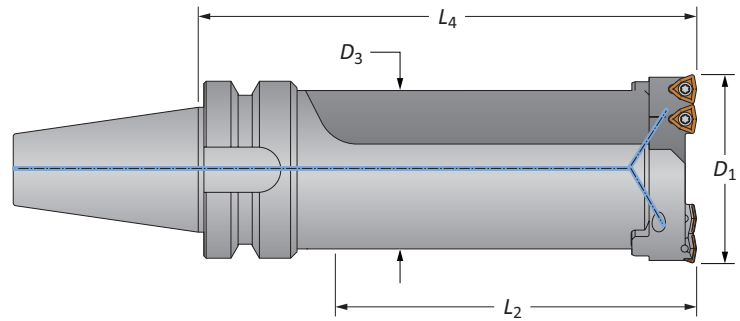


IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10
 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4

I = Imperial (in)
M = Metric (mm)

Opening Drill Holders

BT40 Shank | Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Holder

| Length | D ₁ Range | D ₃ | Holder | | Part No. | Cartridges |
|--------|----------------------|----------------|----------------|----------------|-------------|------------|
| | | | L ₂ | L ₄ | | |
| Short | 50.80 - 63.50 | 46.74 | 83.46 | 137.85 | OP1-1S-BT40 | OP1-WC05 |
| | | | 140.61 | 195.00 | OP1-1L-BT40 | OP1-WC05 |
| Long | 50.80 - 63.50 | 46.74 | 118.52 | 174.68 | OP2-1S-BT40 | OP2-WC05 |
| | | | 194.72 | 250.88 | OP2-1L-BT40 | OP2-WC05 |
| Short | 63.50 - 76.20 | 56.39 | 129.90 | 187.38 | OP3-1S-BT40 | OP3-WC05 |
| | | | 231.50 | 288.98 | OP3-1L-BT40 | OP3-WC05 |
| Long | 63.50 - 76.20 | 56.39 | 104.65 | 187.38 | OP4-1S-BT40 | OP4-WC05 |
| | | | 127.43 | 187.38 | OP4-1S-BT40 | OP4-WC05 |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

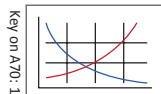
| Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|------------------------|---------------------|----------------|----------|-----------------|--------|
| OP1-WC05 | 2 | MS-13M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP2-WC05 | 2 | MS-15M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP3-WC05 | 2 | MS-15M-1 | 5 mm | AS-12T9-1 | 8T-9 |
| OP4-WC05 | 3 | MS-15M-1 | 5 mm | AS-14T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A70: 16 - 19

A70: 2 - 3



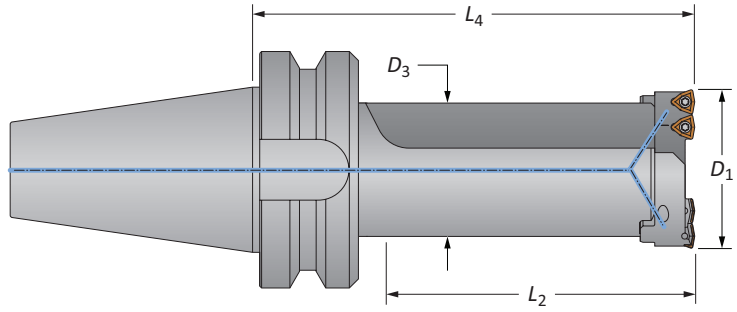
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10
 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4

i = Imperial (in)
m = Metric (mm)

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

Opening Drill Holders

BT50 Shank | Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Holder

| | Length | D ₁ Range | Holder | | | Part No. | Cartridges |
|---|--------|----------------------|----------------|----------------|----------------|-------------|------------|
| | | | D ₃ | L ₂ | L ₄ | | |
| m | Short | 50.80 - 63.50 | 46.74 | 83.46 | 147.37 | OP1-1S-BT50 | OP1-WC05 |
| | Long | 50.80 - 63.50 | 46.74 | 140.61 | 204.52 | OP1-1L-BT50 | OP1-WC05 |
| | Short | 63.50 - 76.20 | 56.39 | 118.52 | 184.20 | OP2-1S-BT50 | OP2-WC05 |
| | Long | 63.50 - 76.20 | 56.39 | 194.72 | 260.40 | OP2-1L-BT50 | OP2-WC05 |
| | Short | 76.20 - 104.65 | 71.27 | 129.90 | 196.90 | OP3-1S-BT50 | OP3-WC05 |
| | Long | 76.20 - 104.65 | 71.27 | 231.50 | 298.50 | OP3-1L-BT50 | OP3-WC05 |
| | Short | 104.65 - 142.75 | 88.90 | 127.43 | 196.90 | OP4-1S-BT50 | OP4-WC05 |
| | Long | 104.65 - 142.75 | 88.90 | 267.13 | 336.60 | OP4-1L-BT50 | OP4-WC05 |

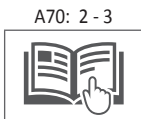
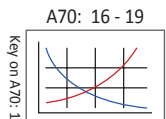
*Holder includes cartridges; however, inserts are sold separately.

Cartridges

| Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|------------------------|---------------------|----------------|----------|-----------------|--------|
| OP1-WC05 | 2 | MS-13M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP2-WC05 | 2 | MS-15M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP3-WC05 | 2 | MS-15M-1 | 5 mm | AS-12T9-1 | 8T-9 |
| OP4-WC05 | 3 | MS-15M-1 | 5 mm | AS-14T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

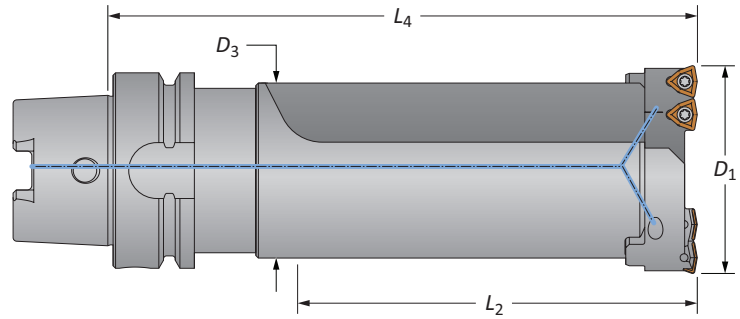


IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10
 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4

I = Imperial (in)
M = Metric (mm)

Opening Drill Holders

HSK63 Shank | Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Holder

| Length | D ₁ Range | D ₃ | Holder | | Part No. | Cartridges |
|--------|----------------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | | |
| Short | 2.000 - 2.500 | 1.840 | 3-9/32 | 5-59/64 | OP1-1S-HSK63 | OP1-WC05 |
| Long | 2.000 - 2.500 | 1.840 | 5-17/32 | 8-11/64 | OP1-1L-HSK63 | OP1-WC05 |
| Short | 2.500 - 3.000 | 2.220 | 4-43/64 | 7-3/8 | OP2-1S-HSK63 | OP2-WC05 |
| Long | 2.500 - 3.000 | 2.220 | 7-43/64 | 10-3/8 | OP2-1L-HSK63 | OP2-WC05 |
| Short | 3.000 - 4.120 | 2.806 | 5-7/64 | 7-7/8 | OP3-1S-HSK63 | OP3-WC05 |
| Long | 3.000 - 4.120 | 2.806 | 9-7/64 | 11-7/8 | OP3-1L-HSK63 | OP3-WC05 |
| Short | 4.120 - 5.620 | 3.500 | 5-1/64 | 7-7/8 | OP4-1S-HSK63 | OP4-WC05 |

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

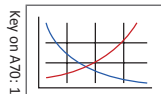
| Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|------------------------|---------------------|----------------|----------|-----------------|--------|
| OP1-WC05 | 2 | MS-13M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP2-WC05 | 2 | MS-15M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP3-WC05 | 2 | MS-15M-1 | 5 mm | AS-12T9-1 | 8T-9 |
| OP4-WC05 | 3 | MS-15M-1 | 5 mm | AS-14T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A70: 16 - 19

A70: 2 - 3

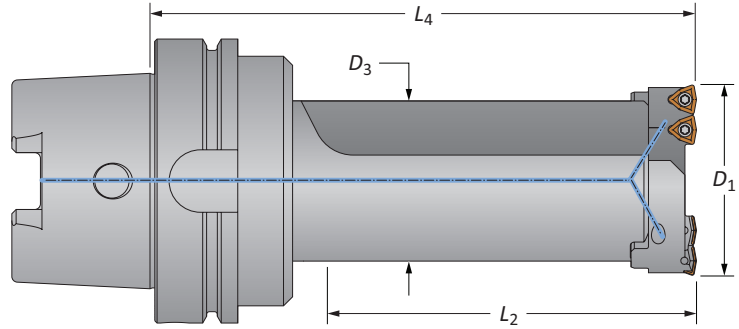


IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10
 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4

i = Imperial (in)
m = Metric (mm)

Opening Drill Holders

HSK100 Shank | Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Holder

| Length | D ₁ Range | Holder | | | Part No. | Cartridges |
|--------|----------------------|----------------|----------------|----------------|----------------------|------------|
| | | D ₃ | L ₂ | L ₄ | | |
| Short | 2.000 - 2.500 | 1.840 | 3-9/32 | 6-1/64 | OP1-1S-HSK100 | OP1-WC05 |
| | | | 5-17/32 | 8-17/64 | OP1-1L-HSK100 | OP1-WC05 |
| Long | 2.500 - 3.000 | 2.220 | 4-43/64 | 7-15/32 | OP2-1S-HSK100 | OP2-WC05 |
| | | | 7-43/64 | 10-15/32 | OP2-1L-HSK100 | OP2-WC05 |
| Short | 3.000 - 4.120 | 2.806 | 5-7/64 | 7-31/32 | OP3-1S-HSK100 | OP3-WC05 |
| | | | 9-7/64 | 11-31/32 | OP3-1L-HSK100 | OP3-WC05 |
| Long | 4.120 - 5.620 | 3.500 | 5-1/64 | 7-31/32 | OP4-1S-HSK100 | OP4-WC05 |
| | | | 10-33/64 | 13-15/32 | OP4-1L-HSK100 | OP4-WC05 |

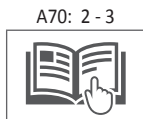
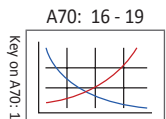
*Holder includes cartridges; however, inserts are sold separately.

Cartridges

| Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|------------------------|---------------------|----------------|----------|-----------------|--------|
| OP1-WC05 | 2 | MS-13M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP2-WC05 | 2 | MS-15M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP3-WC05 | 2 | MS-15M-1 | 5 mm | AS-12T9-1 | 8T-9 |
| OP4-WC05 | 3 | MS-15M-1 | 5 mm | AS-14T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

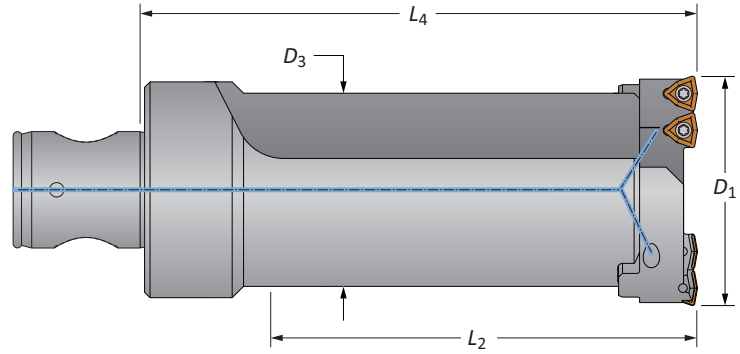


IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10
 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4

I = Imperial (in)
M = Metric (mm)

Opening Drill Holders

ABS63 Shank | Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Holder

| Length | D ₁ Range | D ₃ | Holder | | Part No. | Cartridges |
|--------|----------------------|----------------|----------------|----------------|--------------|------------|
| | | | L ₂ | L ₄ | | |
| Short | 2.000 - 2.500 | 1.840 | 3-9/32 | 5-1/2 | OP1-1S-ABS63 | OP1-WC05 |
| Long | 2.000 - 2.500 | 1.840 | 5-17/32 | 7-3/4 | OP1-1L-ABS63 | OP1-WC05 |
| Short | 2.500 - 3.000 | 2.220 | 4-43/64 | 6-1/4 | OP2-1S-ABS63 | OP2-WC05 |
| Long | 2.500 - 3.000 | 2.220 | 7-43/64 | 9-1/4 | OP2-1L-ABS63 | OP2-WC05 |
| Short | 3.000 - 4.120 | 2.806 | 5-7/64 | 6-3/4 | OP3-1S-ABS63 | OP3-WC05 |
| Long | 3.000 - 4.120 | 2.806 | 9-7/64 | 10-3/4 | OP3-1L-ABS63 | OP3-WC05 |
| Short | 4.120 - 5.620 | 3.500 | 5-1/64 | 6-3/4 | OP4-1S-ABS63 | OP4-WC05 |

*Holder includes cartridges; however, inserts are sold separately.

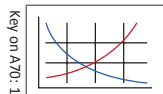
Cartridges

| Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|------------------------|---------------------|----------------|----------|-----------------|--------|
| OP1-WC05 | 2 | MS-13M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP2-WC05 | 2 | MS-15M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP3-WC05 | 2 | MS-15M-1 | 5 mm | AS-12T9-1 | 8T-9 |
| OP4-WC05 | 3 | MS-15M-1 | 5 mm | AS-14T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |

A70: 16 - 19



A70: 2 - 3

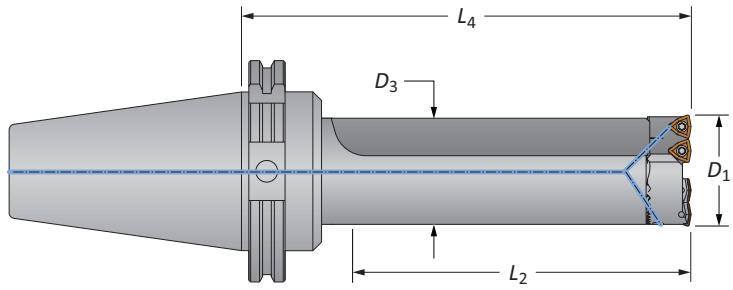


IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10
 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4

i = Imperial (in)
m = Metric (mm)

Opening Drill Holders

DIN50 Shank | Diameter Range: 2.000" - 5.620" (50.80 mm - 142.75 mm)



Holder

| | Length | D ₁ Range | Holder | | | Part No. | Cartridges |
|---|--------|----------------------|----------------|----------------|----------------|-------------|------------|
| | | | D ₃ | L ₂ | L ₄ | | |
| m | Short | 50.80 - 63.50 | 46.74 | 83.46 | 137.92 | OP1-1S-DV50 | OP1-WC05 |
| | Long | 50.80 - 63.50 | 46.74 | 140.61 | 195.07 | OP1-1L-DV50 | OP1-WC05 |
| | Short | 63.50 - 76.20 | 56.39 | 118.52 | 174.75 | OP2-1S-DV50 | OP2-WC05 |
| | Long | 63.50 - 76.20 | 56.39 | 194.72 | 250.95 | OP2-1L-DV50 | OP2-WC05 |
| | Short | 76.20 - 104.65 | 71.27 | 129.90 | 187.45 | OP3-1S-DV50 | OP3-WC05 |
| | Long | 76.20 - 104.65 | 71.27 | 231.50 | 289.05 | OP3-1L-DV50 | OP3-WC05 |
| | Short | 104.65 - 142.75 | 88.90 | 127.43 | 187.45 | OP4-1S-DV50 | OP4-WC05 |
| | Long | 104.65 - 142.75 | 88.90 | 267.13 | 327.15 | OP4-1L-DV50 | OP4-WC05 |

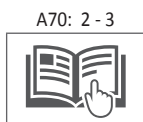
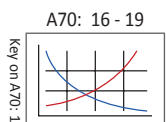
*Holder includes cartridges; however, inserts are sold separately.

Cartridges

| Replacement Cartridges | Qty. Inserts Needed | Mounting Screw | Key Size | Adjusting Screw | Driver |
|------------------------|---------------------|----------------|----------|-----------------|--------|
| OP1-WC05 | 2 | MS-13M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP2-WC05 | 2 | MS-15M-1 | 5 mm | AS-10T9-1 | 8T-9 |
| OP3-WC05 | 2 | MS-15M-1 | 5 mm | AS-12T9-1 | 8T-9 |
| OP4-WC05 | 3 | MS-15M-1 | 5 mm | AS-14T9-1 | 8T-9 |

IC Inserts

| Carbide Grade | Geometry | Part No. | | | Insert Screws | Driver |
|---------------|-----------|---------------|---------------|--------------|---------------|--------|
| | | AM300® | AM200® | TiN | | |
| C5 (P35) | Standard | OP-05T308-P | OP-05T308-H | OP-05T308-T | IS-10-1 | 8T-9 |
| C1 (K35) | Standard | OP-05T308-1P | OP-05T308-1H | OP-05T308-1T | IS-10-1 | 8T-9 |
| C2 (K25) | Standard | OP-05T308-2P | OP-05T308-2H | - | IS-10-1 | 8T-9 |
| C5 (P35) | High Rake | OP-05T308-PHR | OP-05T308-HHR | - | IS-10-1 | 8T-9 |



IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10
 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4

I = Imperial (in)
M = Metric (mm)

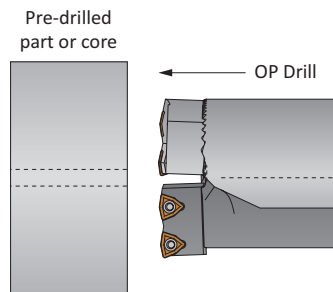
Recommended Cutting Data | Imperial (inch)

| ISO | Material | Hardness (BHN) | Speed (SFM) | | | Feed Rate (IPR) |
|-----|--|----------------|-------------|-------------|------------|-----------------|
| | | | AM300® | AM200® | TiN | |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 250 | 900 - 1300 | 850 - 1200 | 700 - 900 | .0035 - .007 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 275 | 850 - 1250 | 800 - 1150 | 650 - 850 | .003 - .0065 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 325 | 800 - 1050 | 750 - 950 | 600 - 850 | .0035 - .0065 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 375 | 750 - 1000 | 700 - 900 | 600 - 850 | .0035 - .0065 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 400 | 600 - 850 | 550 - 750 | 400 - 650 | .003 - .005 |
| | Structural Steel A36, A285, A516, etc. | 100 - 350 | 850 - 1050 | 800 - 950 | 650 - 850 | .003 - .0065 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | 400 - 800 | 350 - 700 | 250 - 650 | .0025 - .005 |
| | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 250 - 450 | 250 - 350 | 150 - 300 | .0025 - .005 |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 350 | 600 - 850 | 550 - 750 | 400 - 650 | .003 - .006 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 600 - 850 | 550 - 750 | 400 - 650 | .003 - .006 |
| | Super Duplex Stainless Steel | 135 - 275 | 500 - 750 | 450 - 650 | 300 - 550 | .002 - .005 |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 320 | 700 - 900 | 650 - 800 | 500 - 700 | .004 - .008 |
| N | Cast Aluminum | 30 - 180 | 1250 - 1650 | 1200 - 1550 | 950 - 1100 | .006 - .012 |
| | Wrought Aluminum | 30 - 180 | 1250 - 1650 | 1200 - 1550 | 950 - 1100 | .006 - .012 |
| | Brass | 30 - 100 | 950 - 1350 | 900 - 1250 | 750 - 1100 | .005 - .009 |

Minimum Pilot Hole Diameter = Finish Diameter – C

Ex: To open an existing diameter hole to 2.75" diameter, an OP2 tool would be used. The minimum pilot hole diameter would be: **2.750 - 1.880 = 0.870"**

| Opening Drill Series | Drill Diameter Range | C |
|----------------------|----------------------|-------|
| OP1 | 2.00 - 2.50 | 1.880 |
| OP2 | 2.50 - 3.00 | 1.880 |
| OP3 | 3.00 - 4.12 | 1.880 |
| OP4 | 4.12 - 5.62 | 2.680 |



IMPORTANT: The speeds and feeds listed above are considered a general starting point for all applications. Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Formulas and Constants | Imperial (inch)

Material Constants

| Type of Material | Hardness (BHN) | K _m (lbs/in ²) |
|------------------------------|----------------|---------------------------------------|
| Free-Machining Steel | 100 - 250 | 0.75 |
| Low-Carbon Steel | 85 - 275 | 0.85 |
| Medium-Carbon Steel | 125 - 325 | 0.90 |
| Alloy Steel | 125 - 375 | 1.00 |
| High-Strength Steel | 225 - 400 | 1.15 |
| Structural Steel | 100 - 350 | 1.00 |
| Tool Steel | 150 - 250 | 0.90 |
| High-Temperature Alloy | 140 - 310 | 1.44 |
| Titanium Alloy | 140 - 310 | 0.72 |
| Aerospace Alloy | 185 - 350 | 0.70 |
| Stainless Steel 400 Series | 185 - 350 | 1.08 |
| Stainless Steel 300 Series | 135 - 275 | 0.94 |
| Super Duplex Stainless Steel | 135 - 275 | 0.94 |
| Wear Plate | 400 - 600 | 1.60 |
| Hardened Steel | 300 - 500 | 1.40 |
| Nodular, Ductile Cast Iron | 120 - 320 | 0.65 |
| Grey Cast Iron | 120 - 320 | 0.75 |
| Cast Aluminum | 30 - 180 | 0.40 |
| Wrought Aluminum | 30 - 180 | 0.40 |
| Aluminum Bronze | 100 - 250 | 0.50 |
| Brass | 100 | 0.35 |
| Copper | 60 | 0.30 |




Formulas

| | |
|------------------|--|
| 1. RPM | $= (3.82 \cdot \text{SFM}) / \text{DIA}_F$ |
| <i>where:</i> | |
| RPM | = revolutions per minute (rev/min) |
| SFM | = speed (ft/min) |
| DIA _F | = finish diameter of drill (inch) |
| 2. HP | $= (0.5891 \cdot (\text{DIA}_F^2 - \text{DIA}_P^2) \cdot \text{IPR} \cdot \text{RPM} \cdot \text{K}_m) / 0.80$ |
| <i>where:</i> | |
| Tool Power | = tool power (HP) |
| DIA _F | = finish diameter of drill (inch) |
| DIA _P | = pre-drill diameter (inch) |
| IPR | = feed rate (in/rev) |
| RPM | = revolutions per minute (rev/min) |
| K _m | = specific cutting energy (lbs/in ²) machine efficiency (using 0.80 as constant) |
| 3. Thrust | $= 148,500 \cdot \text{IPR} \cdot (\text{DIA}_F - \text{DIA}_P) \cdot \text{K}_m$ |
| <i>where:</i> | |
| Thrust | = axial thrust (lbs) |
| IPR | = feed rate (in/rev) |
| DIA _F | = finish diameter of drill (inch) |
| DIA _P | = pre-drill diameter (inch) |
| K _m | = specific cutting energy (lbs/in ²) |
| 5. Torque | $= (\text{HP} \cdot 5252) / \text{RPM}$ |
| <i>where:</i> | |
| Torque | = torque (ft/lbs) |
| HP | = tool power (HP) |
| RPM | = revolutions per minute (rev/min) |

The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.



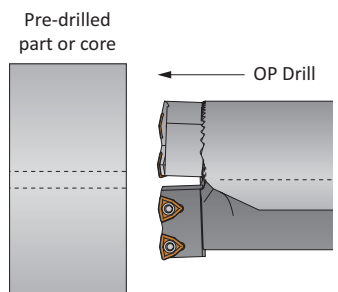
Recommended Cutting Data | Metric (mm)

| ISO | Material | Hardness (BHN) | Speed (M/min) | | | Feed Rate (mm/rev) |
|-----|--|----------------|--|---|---|--------------------|
| | | |  AM300® |  AM200® |  TiN | |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 250 | 274 - 396 | 259 - 366 | 213 - 274 | 0.09 - 0.18 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 275 | 259 - 381 | 244 - 351 | 198 - 259 | 0.08 - 0.17 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 325 | 244 - 320 | 229 - 290 | 183 - 259 | 0.09 - 0.17 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 375 | 229 - 305 | 213 - 274 | 183 - 259 | 0.09 - 0.17 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 400 | 183 - 259 | 168 - 229 | 122 - 198 | 0.08 - 0.13 |
| | Structural Steel A36, A285, A516, etc. | 100 - 350 | 259 - 320 | 244 - 290 | 198 - 259 | 0.08 - 0.17 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | 122 - 244 | 107 - 213 | 76 - 198 | 0.06 - 0.13 |
| | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 76 - 137 | 76 - 107 | 46 - 91 | 0.06 - 0.11 |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 350 | 183 - 259 | 168 - 229 | 122 - 198 | 0.08 - 0.15 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 183 - 259 | 168 - 229 | 122 - 198 | 0.08 - 0.15 |
| | Super Duplex Stainless Steel | 135 - 275 | 152 - 228 | 137 - 198 | 91 - 152 | 0.05 - 0.12 |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 320 | 213 - 274 | 198 - 244 | 152 - 213 | 0.10 - 0.20 |
| N | Cast Aluminum | 30 - 180 | 381 - 503 | 381 - 472 | 290 - 335 | 0.15 - 0.30 |
| | Wrought Aluminum | 30 - 180 | 381 - 503 | 381 - 472 | 290 - 335 | 0.15 - 0.30 |
| | Brass | 30 - 100 | 290 - 411 | 274 - 381 | 229 - 335 | 0.13 - 0.23 |

Minimum Pilot Hole Diameter = Finish Diameter - C

Ex: To open an existing diameter hole to 69.85mm diameter, an OP2 tool would be used. The minimum pilot hole diameter would be: **69.85 - 47.75 = 22.10**

| Opening Drill Series | Drill Diameter Range | C |
|----------------------|----------------------|-------|
| OP1 | 50.8 - 63.5 | 47.75 |
| OP2 | 63.5 - 76.2 | 47.75 |
| OP3 | 76.2 - 104.6 | 47.75 |
| OP4 | 104.6 - 142.7 | 68.07 |



IMPORTANT: The speeds and feeds listed above are considered a general starting point for all applications. Factory technical assistance is available for your specific applications through our Application Engineering department.

Formulas and Constants | Metric (mm)

Material Constants

| Type of Material | Hardness (BHN) | K _m (kPa) |
|------------------------------|----------------|----------------------|
| Free-Machining Steel | 100 - 250 | 5.17 |
| Low-Carbon Steel | 85 - 275 | 5.86 |
| Medium-Carbon Steel | 125 - 325 | 6.21 |
| Alloy Steel | 125 - 375 | 6.90 |
| High-Strength Steel | 225 - 400 | 7.93 |
| Structural Steel | 100 - 350 | 6.90 |
| Tool Steel | 150 - 250 | 6.21 |
| High-Temperature Alloy | 140 - 310 | 9.93 |
| Titanium Alloy | 140 - 310 | 4.97 |
| Aerospace Alloy | 185 - 350 | 4.48 |
| Stainless Steel 400 Series | 185 - 350 | 7.45 |
| Stainless Steel 300 Series | 135 - 275 | 6.48 |
| Super Duplex Stainless Steel | 135 - 275 | 6.48 |
| Wear Plate | 400 - 600 | 11.04 |
| Hardened Steel | 300 - 500 | 9.66 |
| Nodular, Ductile Cast Iron | 120 - 320 | 4.48 |
| Grey Cast Iron | 120 - 320 | 5.17 |
| Cast Aluminum | 30 - 180 | 2.76 |
| Wrought Aluminum | 30 - 180 | 2.76 |
| Aluminum Bronze | 100 - 250 | 3.45 |
| Brass | 100 | 2.41 |
| Copper | 60 | 2.07 |

Formulas

| | |
|------------------|---|
| 1. RPM | = (318.31 • M/min) / DIA_F |
| <i>where:</i> | |
| RPM | = revolutions per minute (rev/min) |
| M/min | = speed (M/min) |
| DIA _F | = finish diameter of drill (mm) |
| 2. kW | = ((DIA_F² - DIA_P²) • mm/rev • RPM • K_m) / 205,154 |
| <i>where:</i> | |
| kW | = tool power (kW) |
| DIA _F | = finish diameter of drill (mm) |
| DIA _P | = pre-drill diameter (mm) |
| mm/rev | = feed rate (mm/rev) |
| RPM | = revolutions per minute (rev/min) |
| K _m | = specific cutting energy (kPa) machine efficiency (using 205,154 as constant) |
| 3. Thrust | = 148.78 • mm/rev • (DIA_F - DIA_P) • K_m |
| <i>where:</i> | |
| Thrust | = axial thrust (N) |
| IPR | = feed rate (mm/rev) |
| DIA _F | = finish diameter of drill (mm) |
| DIA _P | = pre-drill diameter (mm) |
| K _m | = specific cutting energy (kPa) |
| 4. Torque | = (kW • 9549.3) / RPM |
| <i>where:</i> | |
| Torque | = torque (Nm) |
| kW | = tool power (kW) |
| RPM | = revolutions per minute (rev/min) |

The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

SECTION

A91

Structural Steel Solutions

Structural Steel Drilling Solutions

Replaceable Insert Drilling System | GEN3SYS® XT Pro | T-A® and GEN2 T-A®

- ▶ GEN3SYS XT Pro Diameter Range: 0.4724" - 1.3780" (12.00 mm - 35.00 mm)
- ▶ T-A Diameter Range: 0.511" - 1.882" (12.98 mm - 47.80 mm)



Take on Tough Drilling

Allied Machine's Structural Steel Drilling System is designed for maximum performance in structural steel materials and applications. These solutions utilize the GEN3SYS XT Pro, T-A, and GEN2 T-A designs and capabilities.

With multiple geometries and coatings, you're sure to find the solution that is right for you. Tough drilling is tough no more.

| | | |
|------------------------|--|---|
| Excellent chip control | Improves hole quality and surface finish | Provides maximum durability and stability |
|------------------------|--|---|

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

Applicable Industries

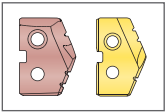


Structural Steel

Structural Steel Drilling Solutions Contents

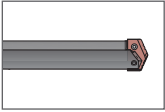
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



Corresponding T-A Inserts

Refers to the corresponding T-A insert items that connect with each specific holder series



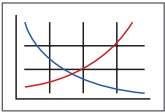
Corresponding T-A Holders

Refers to the corresponding T-A holder items that connect with each specific insert series



Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling



Coolant-Through Option

Indicates that the product is coolant through

| Series | GEN3SYS XT Pro Diameter Range | |
|--------|-------------------------------|---------------|
| | Imperial (inch) | Metric (mm) |
| 12 | 0.4724 - 0.5117 | 12.00 - 12.99 |
| 13 | 0.5118 - 0.5511 | 13.00 - 13.99 |
| 14 | 0.5512 - 0.5905 | 14.00 - 14.99 |
| 15 | 0.5906 - 0.6298 | 15.00 - 15.99 |
| 16 | 0.6299 - 0.6692 | 16.00 - 16.99 |
| 17 | 0.6693 - 0.7086 | 17.00 - 17.99 |
| 18 | 0.7087 - 0.7873 | 18.00 - 19.99 |
| 20 | 0.7874 - 0.8660 | 20.00 - 21.99 |
| 22 | 0.8661 - 0.9448 | 22.00 - 23.99 |
| 24 | 0.9449 - 1.0235 | 24.00 - 25.99 |
| 26 | 1.0236 - 1.1416 | 26.00 - 28.99 |
| 29 | 1.1417 - 1.2597 | 29.00 - 31.99 |
| 32 | 1.2598 - 1.3780 | 32.00 - 35.00 |

| Series | T-A Diameter Range | |
|--------|--------------------|---------------|
| | Imperial (inch) | Metric (mm) |
| 0 | 0.511 - 0.695 | 12.98 - 17.65 |
| 1 | 0.690 - 0.960 | 17.53 - 24.38 |
| 2 | 0.961 - 1.380 | 24.41 - 35.05 |
| 3 | 1.353 - 1.882 | 34.36 - 47.80 |

Introduction Information

| | |
|--|---|
| Structural Steel Drilling Overview | 2 |
| Case Study Example | 3 |

GEN3SYS® XT Pro System

| | |
|--|---------|
| GEN3SYS XT Pro System Overview | 4 |
| Product Nomenclature | 5 |
| 12 - 13 Series | 6 - 7 |
| 14 - 15 Series | 8 - 9 |
| 16 - 17 Series | 10 - 11 |
| 18 - 20 Series | 12 - 13 |
| 22 - 24 Series | 14 - 15 |
| 26 - 29 Series | 16 - 17 |
| 32 Series | 18 |

T-A® Drilling System

| | |
|---|---------|
| T-A System Overview | 20 |
| Product Nomenclature | 21 |
| 0 Series | 22 - 25 |
| 1 Series | 26 - 29 |
| 2 Series | 30 - 33 |
| 3 Series | 34 - 36 |
| Deep Hole Drilling Guidelines | 37 |

Recommended Cutting Data

| | |
|---------------------------------|---------|
| GEN3SYS XT Pro System | 38 - 39 |
| T-A System | 40 - 41 |

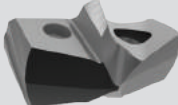




Structural Steel Drilling

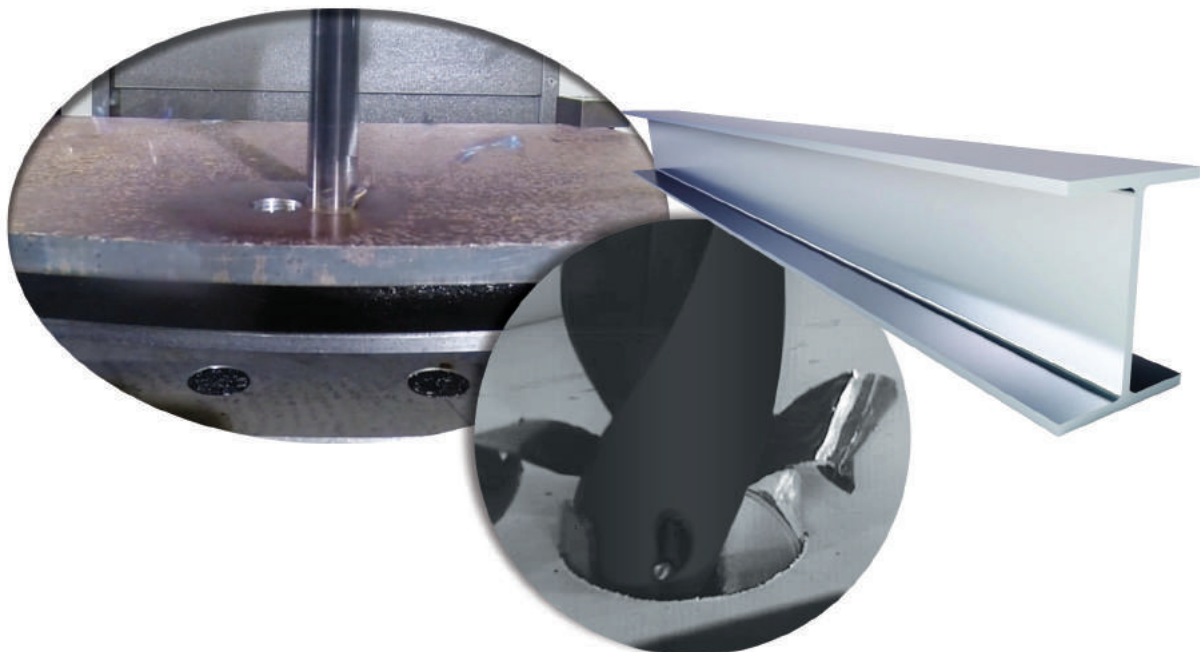
Achieving Optimal Results in Structural Steel

Drilling in structural steel materials can be a difficult process, and achieving optimal results becomes a major issue. Allied Machine's structural steel drilling solutions have been specifically designed to produce the best results in the toughest materials. With solutions in both the T-A® and GEN3SYS® XT Pro product lines, you have multiple options to solve your application problems.



Insert Style Comparison

| |  GEN3SYS® XT Pro Structural Steel |  T-A® Thin Wall |  T-A® Notch Point® |  T-A® 150° Structural Steel |  GEN2 T-A® High Efficiency |
|---|--|--|---|--|---|
| High penetration | <input checked="" type="checkbox"/> | | | | |
| Material less than 7/16" thick | | <input checked="" type="checkbox"/> | | | |
| Material over 7/16" thick | <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Reduced exit burr | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Includes Notch Point® geometry | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Available from carbide | <input checked="" type="checkbox"/> | | | | <input checked="" type="checkbox"/> |
| Stocked in common sizes for the Structural Steel industry | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |



A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Case Study Example

CASE STUDY

Project Profile: Structural Steel I-Beam Construction
Tooling Solution: T-A® Structural Steel Drilling System

The Problem:

Previously, the customer was using a competitor spade drill running at the following parameters:

- 650 RPM
- 0.010 IPR (0.25 mm/rev)
- 6.5 IPM (165.1 mm/min)

The tool drilled a 0.875" (22.23 mm) diameter hole to a 0.4375" (11.11 mm) depth. The drill had a tool life of **only 20 holes**.

The poor tool performance was brought to the attention of the technician, who was familiar with Allied Machine products. The following day, Allied Machine tooling was brought in for testing. The customer needed improvement in the tool life of the inserts.

The Solution:

Allied Machine recommended the T-A Structural Steel Drilling System.

- **Insert** = 151A-0028-TW (#1 series T-A insert with TiAlN coating and Thin Wall geometry)
- **Holder** = 25010H-004IS052 (#1 series T-A holder with #4 Morse Taper shank and helical flute)

The tool ran at the following parameters:

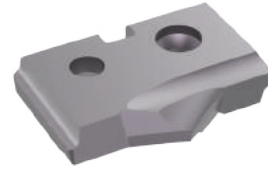
- 440 RPM
- 0.010 IPR (0.25 mm/rev)
- 4.4 IPM (111.7 mm/min)

The tool achieved the desired diameter and depth. But most of all, the tool produced **1,500 holes**.

Summary:

The customer was able to take advantage of Allied Machine's vast experience in the structural steel drilling niche. Allied's wide variety of stocked solutions for specific customer problems allows for a remarkable increase in tool life.

The T-A Structural Steel Drilling System defeated the competition, decreasing the total cost per hole from \$2.02 to just \$0.22. This reduction resulted in a **savings of 89%** for the customer.

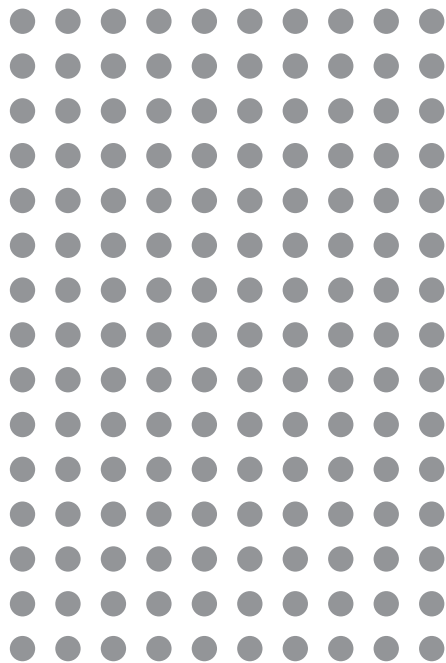


The PROOF is in the NUMBERS

Competitor Insert Tool Life
(number of holes = 20)



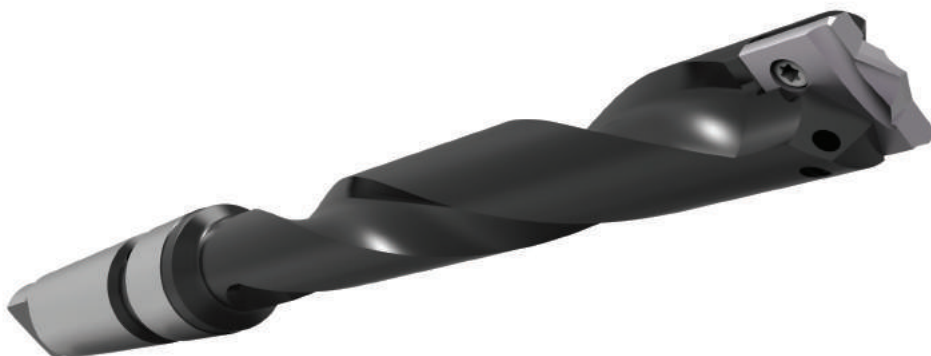
T-A Structural Steel Insert Tool Life
(number of holes = 1,500)



Overall **SAVINGS** of
89%



PREMIUM SOLUTION



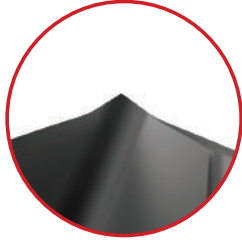
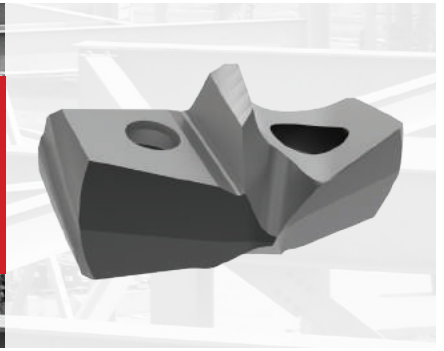
GEN3SYS® XT Pro Structural Steel Drilling System

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS



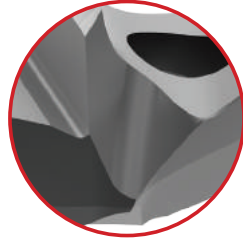
GEN3SYS® XT Pro *ST*

STRUCTURAL STEEL ENHANCEMENTS



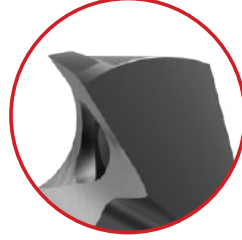
New Point Design

Increases stability without hindering penetration



Redesigned Insert

Provides consistent performance and adds durability



Improved Geometry

Extends tool life and increases insert strength without increasing horsepower consumption



AM420

AM420 Coating

Increases heat threshold and extends tool life

Get the Consistency You Need

The challenge of drilling structural steel materials is about to get easier. Developed through a rigorous and thorough testing process, the modified and improved XTST insert is a product of innovation.

Achieve the **consistent performance** you need while matching or even exceeding your current parameters.

Tough Drilling is Tough No More

Structural steel applications can prove to be difficult to machine, so you need a drill that's been put through the fire to ensure it can conquer those challenging applications.

Rigorous testing and countless hours of design and programming make the XT Pro structural steel insert the optimal drill for structural steel applications.

- Diameter range: 0.4724" - 1.3780" (12.00 mm - 35.00 mm)
- Holders available in 1.5xD, 3xD, 5xD, and 7xD lengths
- Flanged shank with flat



1.5xD

3xD

5xD

7xD

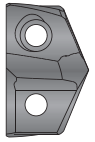


NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

GEN3SYS® XT Pro Drill Nomenclature

GEN3SYS XT Pro Drill Inserts

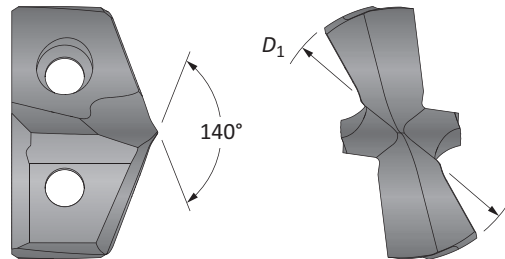
| | | | | |
|-----------|-----------|-----------|---|--------------|
| XT | ST | 20 | - | 20.00 |
| 1 | 2 | 3 | | 4 |



| 1. XT Pro Drill Insert | 2. Geometry | 3. Series | 4. Diameter (mm) | | | | | | | | | | | | | | | |
|------------------------|-----------------------|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--|-----------------------|-----------------------|--|--|
| XT = XT Pro insert | ST = Structural Steel | <table border="0"> <tr> <td>12 = 12 series</td> <td>17 = 17 series</td> <td>26 = 26 series</td> </tr> <tr> <td>13 = 13 series</td> <td>18 = 18 series</td> <td>29 = 29 series</td> </tr> <tr> <td>14 = 14 series</td> <td>20 = 20 series</td> <td>32 = 32 series</td> </tr> <tr> <td>15 = 15 series</td> <td>22 = 22 series</td> <td></td> </tr> <tr> <td>16 = 16 series</td> <td>24 = 24 series</td> <td></td> </tr> </table> | 12 = 12 series | 17 = 17 series | 26 = 26 series | 13 = 13 series | 18 = 18 series | 29 = 29 series | 14 = 14 series | 20 = 20 series | 32 = 32 series | 15 = 15 series | 22 = 22 series | | 16 = 16 series | 24 = 24 series | | For complete list of diameter ranges by series, see contents page. |
| 12 = 12 series | 17 = 17 series | 26 = 26 series | | | | | | | | | | | | | | | | |
| 13 = 13 series | 18 = 18 series | 29 = 29 series | | | | | | | | | | | | | | | | |
| 14 = 14 series | 20 = 20 series | 32 = 32 series | | | | | | | | | | | | | | | | |
| 15 = 15 series | 22 = 22 series | | | | | | | | | | | | | | | | | |
| 16 = 16 series | 24 = 24 series | | | | | | | | | | | | | | | | | |

Reference Key

| Symbol | Attribute |
|--------|-----------------|
| D_1 | Insert diameter |

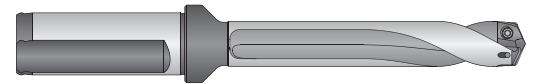


Sizes not shown are available upon request.
When ordering, please follow the example below:

| | |
|------------------|--|
| Imperial: | 0.7913", 20 series = use Part No. XTST20-20.10 |
| Metric: | 20.10 mm, 20 series = use Part No. XTST20-20.10 |

GEN3SYS Structural Steel Drill Holders

| | | | | | | |
|-----------|-----------|-----------|----------|---|-----------|-----------|
| ST | 03 | 12 | 0 | - | 20 | FM |
| 1 | 2 | 3 | 4 | | 5 | 6 |

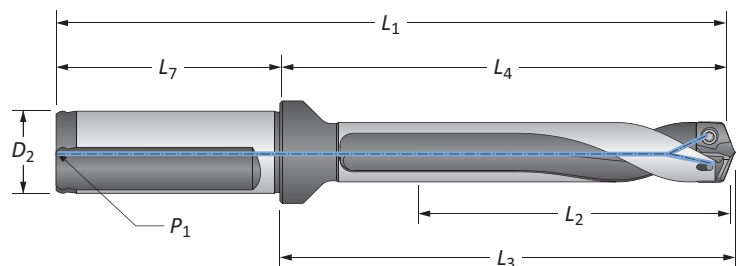


| 1. Holder | 2. Length | 3. Series | 4. Body Diameter | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---|---------------------------|-------------------------|-------------------------|-------------------------|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--|-----------------------|-----------------------|--|--|---------------------|----------------------|
| ST = Structural steel holder | <table border="0"> <tr> <td>01 = 1.5x Diameter</td> </tr> <tr> <td>03 = 3x Diameter</td> </tr> <tr> <td>05 = 5x Diameter</td> </tr> <tr> <td>07 = 7x Diameter</td> </tr> </table> | 01 = 1.5x Diameter | 03 = 3x Diameter | 05 = 5x Diameter | 07 = 7x Diameter | <table border="0"> <tr> <td>12 = 12 series</td> <td>17 = 17 series</td> <td>26 = 26 series</td> </tr> <tr> <td>13 = 13 series</td> <td>18 = 18 series</td> <td>29 = 29 series</td> </tr> <tr> <td>14 = 14 series</td> <td>20 = 20 series</td> <td>32 = 32 series</td> </tr> <tr> <td>15 = 15 series</td> <td>22 = 22 series</td> <td></td> </tr> <tr> <td>16 = 16 series</td> <td>24 = 24 series</td> <td></td> </tr> </table> | 12 = 12 series | 17 = 17 series | 26 = 26 series | 13 = 13 series | 18 = 18 series | 29 = 29 series | 14 = 14 series | 20 = 20 series | 32 = 32 series | 15 = 15 series | 22 = 22 series | | 16 = 16 series | 24 = 24 series | | <table border="0"> <tr> <td>0 = Standard</td> </tr> <tr> <td>5 = Oversized</td> </tr> </table> | 0 = Standard | 5 = Oversized |
| 01 = 1.5x Diameter | | | | | | | | | | | | | | | | | | | | | | | | |
| 03 = 3x Diameter | | | | | | | | | | | | | | | | | | | | | | | | |
| 05 = 5x Diameter | | | | | | | | | | | | | | | | | | | | | | | | |
| 07 = 7x Diameter | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 = 12 series | 17 = 17 series | 26 = 26 series | | | | | | | | | | | | | | | | | | | | | | |
| 13 = 13 series | 18 = 18 series | 29 = 29 series | | | | | | | | | | | | | | | | | | | | | | |
| 14 = 14 series | 20 = 20 series | 32 = 32 series | | | | | | | | | | | | | | | | | | | | | | |
| 15 = 15 series | 22 = 22 series | | | | | | | | | | | | | | | | | | | | | | | |
| 16 = 16 series | 24 = 24 series | | | | | | | | | | | | | | | | | | | | | | | |
| 0 = Standard | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 = Oversized | | | | | | | | | | | | | | | | | | | | | | | | |

| 5. Shank Diameter | 6. Shank Style | | | | | | | | | | | | |
|---|-------------------------------------|-------------|---------------------------------------|-------------------------------------|---------------------------------------|-------------------------------------|-----------------|-------------------|---|------------------------------|--------------------------------------|----------------------------------|--|
| <table border="0"> <tr> <th>Imperial (in)</th> <th>Metric (mm)</th> </tr> <tr> <td>063 = 5/8" 125 = 1-1/4"</td> <td>16 = 16 mm 32 = 32 mm</td> </tr> <tr> <td>075 = 3/4" 150 = 1-1/2"</td> <td>20 = 20 mm 40 = 40 mm</td> </tr> <tr> <td>100 = 1"</td> <td>25 = 25 mm</td> </tr> </table> | Imperial (in) | Metric (mm) | 063 = 5/8" 125 = 1-1/4" | 16 = 16 mm 32 = 32 mm | 075 = 3/4" 150 = 1-1/2" | 20 = 20 mm 40 = 40 mm | 100 = 1" | 25 = 25 mm | <table border="0"> <tr> <td>F = Flanged with flat</td> </tr> <tr> <td>FM = Flanged metric with flat</td> </tr> <tr> <td>C = Cylindrical (no flat)</td> </tr> <tr> <td>CM = Cylindrical metric (no flat)</td> </tr> </table> | F = Flanged with flat | FM = Flanged metric with flat | C = Cylindrical (no flat) | CM = Cylindrical metric (no flat) |
| Imperial (in) | Metric (mm) | | | | | | | | | | | | |
| 063 = 5/8" 125 = 1-1/4" | 16 = 16 mm 32 = 32 mm | | | | | | | | | | | | |
| 075 = 3/4" 150 = 1-1/2" | 20 = 20 mm 40 = 40 mm | | | | | | | | | | | | |
| 100 = 1" | 25 = 25 mm | | | | | | | | | | | | |
| F = Flanged with flat | | | | | | | | | | | | | |
| FM = Flanged metric with flat | | | | | | | | | | | | | |
| C = Cylindrical (no flat) | | | | | | | | | | | | | |
| CM = Cylindrical metric (no flat) | | | | | | | | | | | | | |

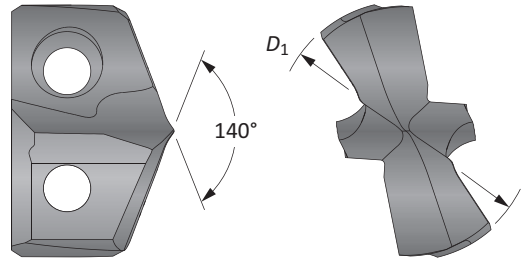
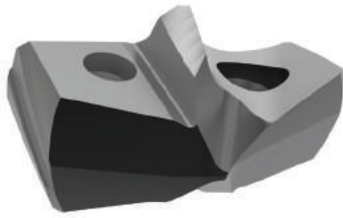
Reference Key

| Symbol | Attribute |
|--------|-------------------------|
| D_2 | Shank diameter |
| L_1 | Overall length |
| L_2 | Drill depth |
| L_3 | Holder reference length |
| L_4 | Holder body length |
| L_7 | Shank length |
| P_1 | Rear pipe tap |



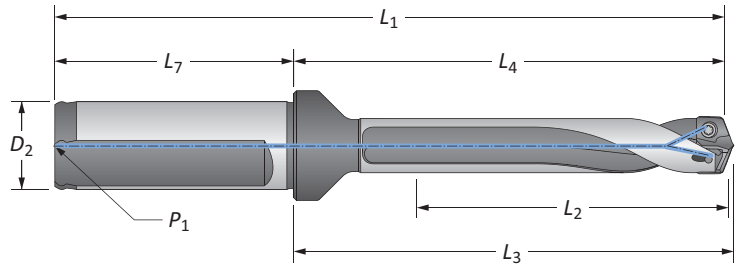
GEN3SYS® XT Pro Structural Steel Drilling System

12 Series | Diameter Range: 0.4724" - 0.5117" (12.00 mm - 12.99 mm)



Inserts






| Fractional Equivalent | Insert D_1 inch | D_1 mm |  XTST Part No. |
|-----------------------|----------------------|----------|--|
| – | 0.4724 | 12.00 | XTST12-12.00 |



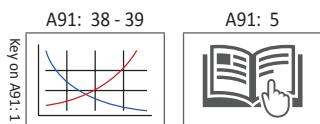
HOLDERS

| Length | Body | | | | Shank | | | | Flat | Part No. |
|----------------|---------|---------|---------|---------|--------|-------|----------|-----|---------------------|----------|
| | L_2 | L_4 | L_3 | L_1 | L_7 | D_2 | P_1 | | | |
| i 1.5xD | 49/64 | 1-55/64 | 1-15/16 | 3-57/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST01120-075F | |
| i 3xD | 1-17/32 | 2-5/8 | 2-45/64 | 4-21/32 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST03120-075F | |
| i 5xD | 2-9/16 | 3-41/64 | 3-47/64 | 5-43/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST05120-075F | |
| i 7xD | 3-37/64 | 4-43/64 | 4-3/4 | 6-45/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST07120-075F | |
| m 1.5xD | 19.5 | 47.1 | 49.3 | 97.1 | 50 | 20 | 1/8 BSPT | YES | ST01120-20FM | |
| m 3xD | 39.0 | 68.8 | 68.8 | 118.8 | 50 | 20 | 1/8 BSPT | YES | ST03120-20FM | |
| m 5xD | 65.0 | 94.8 | 94.8 | 144.8 | 50 | 20 | 1/8 BSPT | YES | ST05120-20FM | |
| m 7xD | 90.9 | 120.8 | 120.8 | 170.8 | 50 | 20 | 1/8 BSPT | YES | ST07120-20FM | |

Connection Accessories

|  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|--|---|--|--|---|----------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



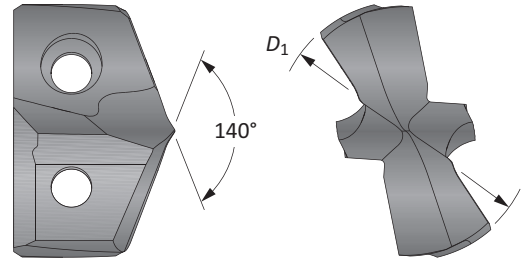
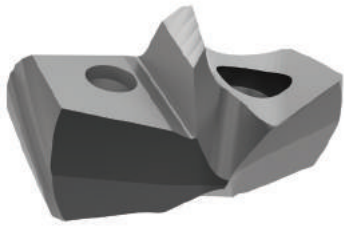
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

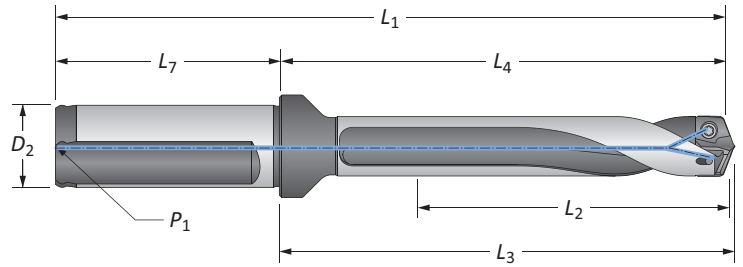
GEN3SYS® XT Pro Structural Steel Drilling System

13 Series | Diameter Range: 0.5118" - 0.5511" (13.00 mm - 13.99 mm)



Inserts




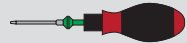

| Fractional Equivalent | Insert D_1 inch | D_1 mm |  XTST Part No. |
|-----------------------|----------------------|----------|--|
| - | 0.5118 | 13.00 | XTST13-13.00 |



Holders

| | Length | Body | | | | Shank | | | | Part No. |
|----------|--------|---------|---------|---------|---------|--------|-------|----------|------|--------------|
| | | L_2 | L_4 | L_3 | L_1 | L_7 | D_2 | P_1 | Flat | |
| i | 1.5xD | 53/64 | 1-57/64 | 1-63/64 | 3-59/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST01130-075F |
| | 3xD | 1-21/32 | 2-23/32 | 2-13/16 | 4-3/4 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST03130-075F |
| | 5xD | 2-3/4 | 3-53/64 | 3-29/32 | 5-55/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST05130-075F |
| | 7xD | 3-55/64 | 4-15/16 | 5-1/32 | 6-31/32 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST07130-075F |
| m | 1.5xD | 21.1 | 48.1 | 50.3 | 99.7 | 50 | 20 | 1/8 BSPT | YES | ST01130-20FM |
| | 3xD | 42.1 | 69.1 | 71.3 | 120.7 | 50 | 20 | 1/8 BSPT | YES | ST03130-20FM |
| | 5xD | 69.9 | 97.2 | 99.4 | 148.8 | 50 | 20 | 1/8 BSPT | YES | ST05130-20FM |
| | 7xD | 97.9 | 125.4 | 127.6 | 177.0 | 50 | 20 | 1/8 BSPT | YES | ST07130-20FM |

Connection Accessories

|  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|--|---|--|---|---|-------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)
m = Metric (mm)

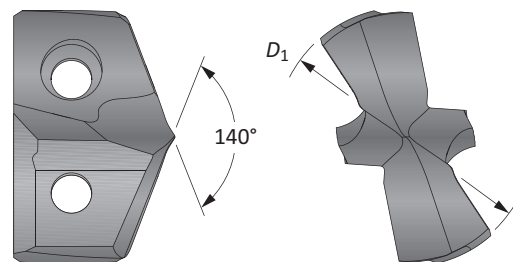
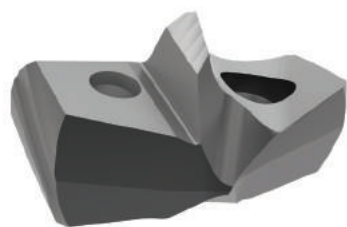
Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

GEN3SYS® XT Pro Structural Steel Drilling System

14 Series | Diameter Range: 0.5512" - 0.5905" (14.00 mm - 14.99 mm)

A
DRILLING

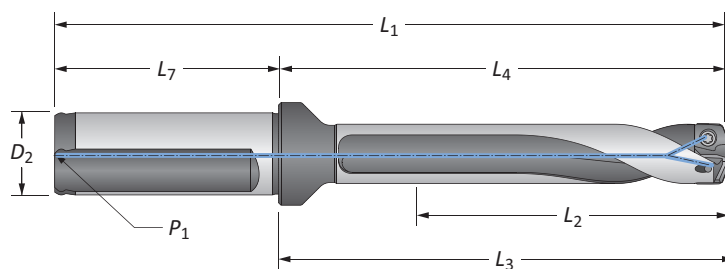


B
BORING

Inserts

| Fractional Equivalent | Insert D_1 inch | D_1 mm | XTST Part No. |
|-----------------------|----------------------|----------|---------------|
| – | 0.5512 | 14.00 | XTST14-14.00 |
| 9/16 | 0.5626 | 14.29 | XTST14-14.29 |

C
REAMING



D
BURNISHING

Holders

| Length | Body | | | | Shank | | | | Flat | Part No. |
|--------|---------|---------|---------|---------|--------|-------|----------|-----|--------------|----------|
| | L_2 | L_4 | L_3 | L_1 | L_7 | D_2 | P_1 | | | |
| 1.5xD | 29/32 | 1-61/64 | 2-1/16 | 3-63/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST01140-075F | |
| 3xD | 1-25/32 | 2-27/32 | 2-61/64 | 4-7/8 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST03140-075F | |
| 5xD | 2-61/64 | 4-1/32 | 4-1/8 | 6-1/16 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST05140-075F | |
| 7xD | 4-9/64 | 5-13/64 | 5-5/16 | 7-15/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST07140-075F | |
| 1.5xD | 22.5 | 49.9 | 52.5 | 99.9 | 50 | 20 | 1/8 BSPT | YES | ST01140-20FM | |
| 3xD | 45.0 | 72.4 | 75.0 | 122.4 | 50 | 20 | 1/8 BSPT | YES | ST03140-20FM | |
| 5xD | 75.0 | 102.4 | 104.9 | 152.4 | 50 | 20 | 1/8 BSPT | YES | ST05140-20FM | |
| 7xD | 104.9 | 132.3 | 134.9 | 182.3 | 50 | 20 | 1/8 BSPT | YES | ST07140-20FM | |

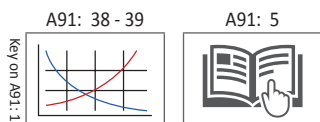
E
THREADING

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

X
SPECIALS



i = Imperial (in)
m = Metric (mm)

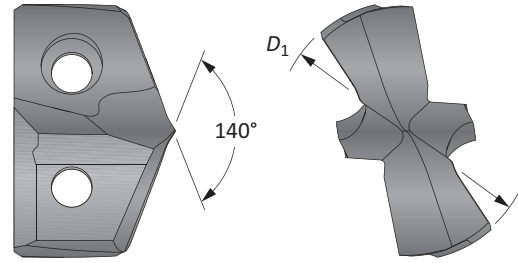
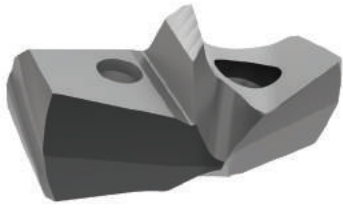
Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com




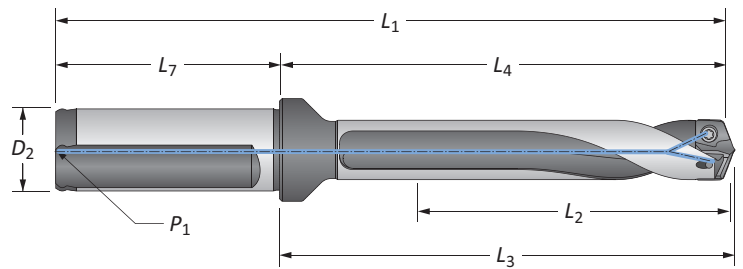
GEN3SYS® XT Pro Structural Steel Drilling System

15 Series | Diameter Range: 0.5906" - 0.6298" (15.00 mm - 15.99 mm)



Inserts






| Fractional Equivalent | Insert D_1 inch | D_1 mm |  XTST Part No. |
|-----------------------|----------------------|----------|--|
| | 0.5906 | 15.00 | XTST15-15.00 |
| 5/8 | 0.6252 | 15.88 | XTST15-15.88 |



Holders

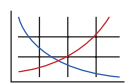
| | Length | Body | | | | Shank | | | | Part No. |
|---|--------|---------|---------|---------|---------|--------|-------|----------|------|--------------|
| | | L_2 | L_4 | L_3 | L_1 | L_7 | D_2 | P_1 | Flat | |
| i | 1.5xD | 61/64 | 2-1/64 | 2-7/64 | 4-3/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST01150-075F |
| | 3xD | 1-57/64 | 2-61/64 | 3-3/64 | 4-63/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST03150-075F |
| | 5xD | 3-5/32 | 4-7/32 | 4-5/16 | 6-1/4 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST05150-075F |
| | 7xD | 4-27/64 | 5-15/32 | 5-37/64 | 7-1/2 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST07150-075F |
| m | 1.5xD | 24.0 | 51.1 | 53.6 | 101.1 | 50 | 20 | 1/8 BSPT | YES | ST01150-20FM |
| | 3xD | 48.0 | 75.1 | 77.6 | 125.1 | 50 | 20 | 1/8 BSPT | YES | ST03150-20FM |
| | 5xD | 80.0 | 107.0 | 109.6 | 157.0 | 50 | 20 | 1/8 BSPT | YES | ST05150-20FM |
| | 7xD | 111.9 | 139.0 | 141.6 | 189.0 | 50 | 20 | 1/8 BSPT | YES | ST07150-20FM |

Connection Accessories

|  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|--|---|--|---|---|----------------------------------|
| 7247-IP7-1 | 7247N-IP7-1 | 8IP-7 | 8IP-7TL | 8IP-7B | 7.4 in-lbs (84 N-cm) |


*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A91: 38 - 39



Key on A91: 1

A91: 5



i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

GEN3SYS® XT Pro Structural Steel Drilling System

16 Series | Diameter Range: 0.6299" - 0.6692" (16.00 mm - 16.99 mm)

A
DRILLING

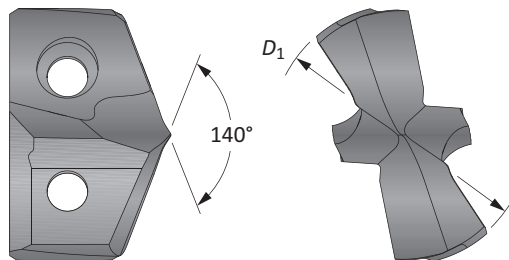
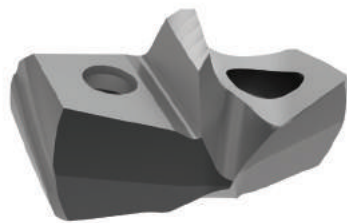
B
BORING

C
REAMING


D
URNISHING

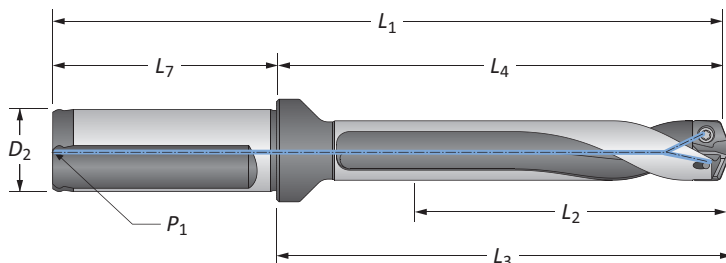
E
HREADING

X
PECIALS



Inserts





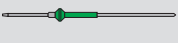
| Fractional Equivalent | Insert D ₁ inch | D ₁ mm |  XTST Part No. |
|-----------------------|-------------------------------|-------------------|--|
| – | 0.6299 | 16.00 | XTST16-16.00 |



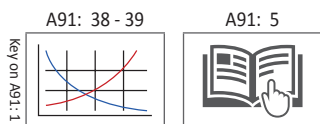
Holders

| Length | Body | | | | Shank | | | | Flat | Part No. |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|------|--------------|
| | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| i | 1.5xD | 1-1/64 | 2-13/64 | 2-5/16 | 4-15/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST01160-075F |
| | 3xD | 2-1/64 | 3-13/64 | 3-5/16 | 5-15/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST03160-075F |
| | 5xD | 3-23/64 | 4-17/32 | 4-21/32 | 6-9/16 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST05160-075F |
| | 7xD | 4-11/16 | 5-7/8 | 5-63/64 | 7-29/32 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST07160-075F |
| m | 1.5xD | 25.5 | 55.8 | 58.7 | 105.8 | 50 | 20 | 1/8 BSPT | YES | ST01160-20FM |
| | 3xD | 51.0 | 81.3 | 84.2 | 131.3 | 50 | 20 | 1/8 BSPT | YES | ST03160-20FM |
| | 5xD | 84.9 | 115.3 | 118.2 | 165.3 | 50 | 20 | 1/8 BSPT | YES | ST05160-20FM |
| | 7xD | 118.9 | 149.3 | 152.2 | 199.3 | 50 | 20 | 1/8 BSPT | YES | ST07160-20FM |

Connection Accessories

|  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|--|---|--|--|---|----------------------------------|
| 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



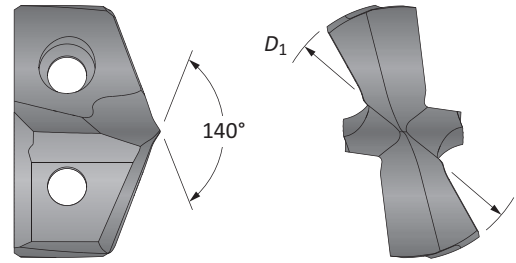
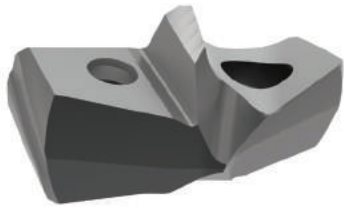
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

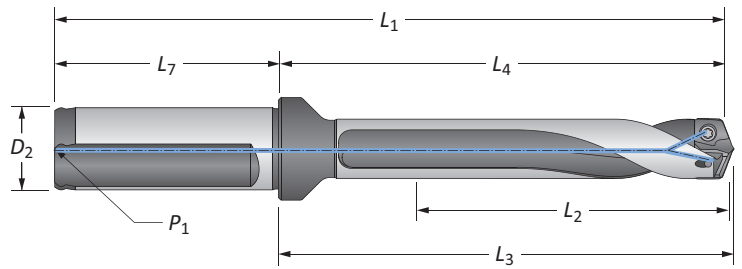
GEN3SYS® XT Pro Structural Steel Drilling System

17 Series | Diameter Range: 0.6693" - 0.7086" (17.00 mm - 17.99 mm)



Inserts




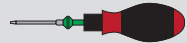

| Fractional Equivalent | Insert D_1 inch | D_1 mm |  XTST Part No. |
|-----------------------|----------------------|----------|--|
| – | 0.6693 | 17.00 | XTST17-17.00 |
| 11/16 | 0.6876 | 17.46 | XTST17-17.46 |



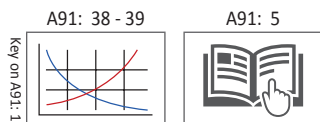
Holders

| | Length | Body | | | | Shank | | | | Part No. |
|----------|--------|---------|---------|---------|---------|--------|-------|----------|------|--------------|
| | | L_2 | L_4 | L_3 | L_1 | L_7 | D_2 | P_1 | Flat | |
| i | 1.5xD | 1-1/16 | 2-1/4 | 2-23/64 | 4-9/32 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST01170-075F |
| | 3xD | 2-1/8 | 3-5/16 | 3-27/64 | 5-11/32 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST03170-075F |
| | 5xD | 3-35/64 | 4-23/32 | 4-27/32 | 6-3/4 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST05170-075F |
| | 7xD | 4-31/32 | 6-9/64 | 6-1/4 | 8-11/64 | 2-1/32 | 3/4 | 1/8 NPT | YES | ST07170-075F |
| m | 1.5xD | 27.0 | 57.1 | 60 | 107.1 | 50 | 20 | 1/8 BSPT | YES | ST01170-20FM |
| | 3xD | 54.0 | 84.1 | 87.0 | 134.1 | 50 | 20 | 1/8 BSPT | YES | ST03170-20FM |
| | 5xD | 89.9 | 120.0 | 122.9 | 170.0 | 50 | 20 | 1/8 BSPT | YES | ST05170-20FM |
| | 7xD | 125.9 | 156.0 | 158.9 | 206.0 | 50 | 20 | 1/8 BSPT | YES | ST07170-20FM |

Connection Accessories

|  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|--|---|--|---|---|----------------------------------|
| 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



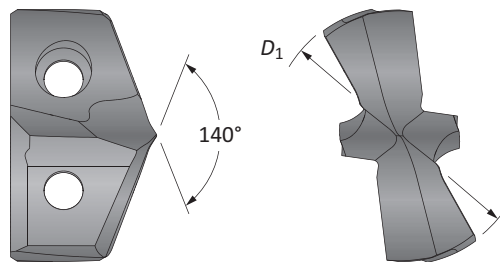
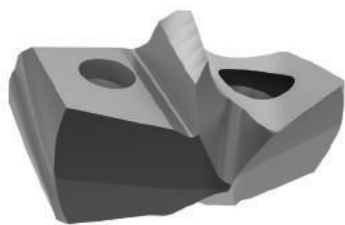
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

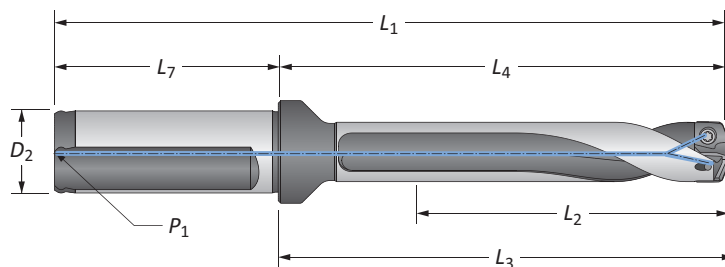
GEN3SYS® XT Pro Structural Steel Drilling System

18 Series | Diameter Range: 0.7087" - 0.7873" (18.00 mm - 19.99 mm)



Inserts






| Fractional Equivalent | Insert D_1 inch | D_1 mm |  XTST Part No. |
|-----------------------|----------------------|----------|--|
| - | 0.7087 | 18.00 | XTST18-18.00 |
| - | 0.7480 | 19.00 | XTST18-19.00 |



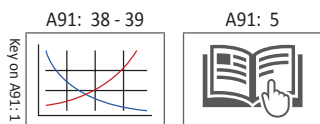
Holders

| Length | Body | | | | Shank | | | | Flat | Part No. |
|--------|---------|---------|---------|---------|--------|-------|----------|-----|--------------|----------|
| | L_2 | L_4 | L_3 | L_1 | L_7 | D_2 | P_1 | | | |
| 1.5xD | 1-3/16 | 2-17/32 | 2-41/64 | 4-51/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST01180-100F | |
| 3xD | 2-3/8 | 3-45/64 | 3-53/64 | 5-63/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST03180-100F | |
| 5xD | 3-15/16 | 5-9/32 | 5-25/64 | 7-9/16 | 2-9/32 | 1 | 1/8 NPT | YES | ST05180-100F | |
| 7xD | 5-33/64 | 6-27/32 | 6-31/32 | 9-1/8 | 2-9/32 | 1 | 1/8 NPT | YES | ST07180-100F | |
| 1.5xD | 30.0 | 64 | 67.1 | 114 | 50 | 20 | 1/8 BSPT | YES | ST01180-20FM | |
| 3xD | 60.0 | 94.0 | 97.1 | 144.0 | 50 | 20 | 1/8 BSPT | YES | ST03180-20FM | |
| 5xD | 99.9 | 134.0 | 137.1 | 184.0 | 50 | 20 | 1/8 BSPT | YES | ST05180-20FM | |
| 7xD | 139.9 | 174.0 | 177.1 | 224.0 | 50 | 20 | 1/8 BSPT | YES | ST07180-20FM | |

Connection Accessories

|  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|--|---|--|--|---|----------------------------------|
| 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)
m = Metric (mm)

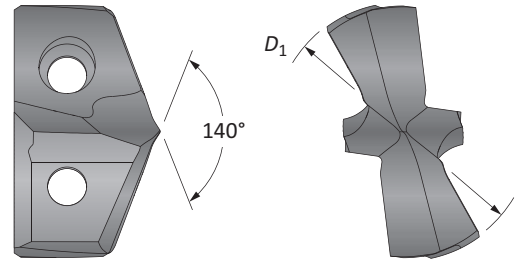
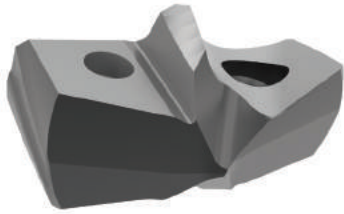
Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com




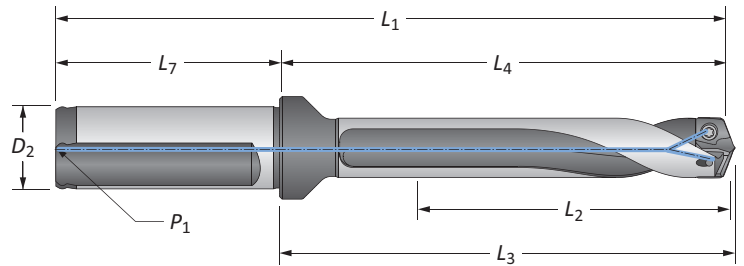
GEN3SYS® XT Pro Structural Steel Drilling System

20 Series | Diameter Range: 0.7874" - 0.8660" (20.00 mm - 21.99 mm)



Inserts






| Fractional Equivalent | Insert | |  XTST Part No. |
|-----------------------|---------------------|-------------------|--|
| | D ₁ inch | D ₁ mm | |
| - | 0.7874 | 20.00 | XTST20-20.00 |
| 13/16 | 0.8126 | 20.64 | XTST20-20.64 |
| - | 0.8268 | 21.00 | XTST20-21.00 |
| - | 0.8591 | 21.82 | XTST20-21.82 |



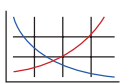

Holders

| | Length | Body | | | | Shank | | | | Part No. |
|----------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|---------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | Flat | |
| i | 1.5xD | 1-15/64 | 2-41/64 | 2-49/64 | 4-59/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST01200-100F |
| | 3xD | 2-17/32 | 3-15/16 | 4-1/16 | 6-7/32 | 2-9/32 | 1 | 1/8 NPT | YES | ST03200-100F |
| | 5xD | 4-11/32 | 5-43/64 | 5-51/64 | 7-61/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST05200-100F |
| | 7xD | 6-1/16 | 7-13/32 | 7-17/32 | 9-11/16 | 2-9/32 | 1 | 1/8 NPT | YES | ST07200-100F |
| m | 1.5xD | 33.0 | 67.1 | 70.3 | 123.1 | 56 | 25 | 1/8 BSPT | YES | ST01200-25FM |
| | 3xD | 66.0 | 100.1 | 103.3 | 156.1 | 56 | 25 | 1/8 BSPT | YES | ST03200-25FM |
| | 5xD | 110.0 | 144.1 | 147.2 | 200.1 | 56 | 25 | 1/8 BSPT | YES | ST05200-25FM |
| | 7xD | 153.9 | 188.1 | 191.2 | 244.1 | 56 | 25 | 1/8 BSPT | YES | ST07200-25FM |

Connection Accessories

|  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|--|---|--|---|---|----------------------------------|
| 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A91: 38 - 39  A91: 5 

Key on A91: 1

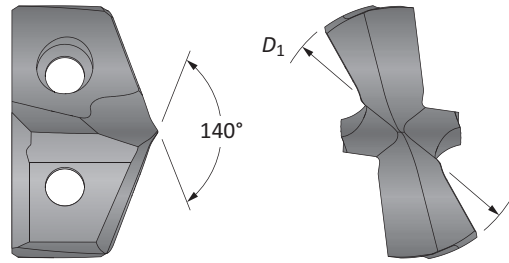
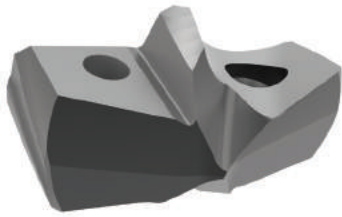
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

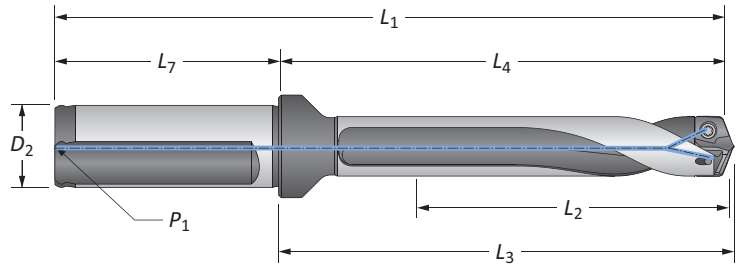
GEN3SYS® XT Pro Structural Steel Drilling System

22 Series | Diameter Range: 0.8661" - 0.9448" (22.00 mm - 23.99 mm)



Inserts

| Fractional Equivalent | Insert D_1 inch | D_1 mm | XTST Part No. |
|-----------------------|----------------------|----------|---------------|
| - | 0.8661 | 22.00 | XTST22-22.00 |
| 7/8 | 0.8752 | 22.23 | XTST22-22.23 |
| - | 0.9055 | 23.00 | XTST22-23.00 |
| 15/16 | 0.9374 | 23.81 | XTST22-23.81 |



Holders

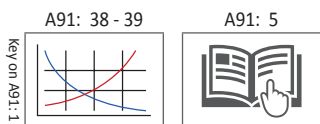
| Length | Body | | | | Shank | | | | Part No. |
|--------|---------|---------|---------|----------|--------|-------|----------|------|---------------|
| | L_2 | L_4 | L_3 | L_1 | L_7 | D_2 | P_1 | Flat | |
| 1.5xD | 1-13/32 | 2-23/32 | 2-55/64 | 5 | 2-9/32 | 1 | 1/8 NPT | YES | ST01220-100F |
| 1.5xD | 1-13/32 | 2-23/32 | 2-55/64 | 5 | 2-9/32 | 1 | 1/8 NPT | YES | ST01225-100F |
| 3xD | 2-53/64 | 4-9/64 | 4-9/32 | 6-27/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST03220-100F |
| 3xD | 2-53/64 | 4-9/64 | 4-9/32 | 6-27/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST03225-100F* |
| 5xD | 4-23/32 | 6-1/32 | 6-11/64 | 8-5/16 | 2-9/32 | 1 | 1/8 NPT | YES | ST05220-100F |
| 5xD | 4-23/32 | 6-1/32 | 6-11/64 | 8-5/16 | 2-9/32 | 1 | 1/8 NPT | YES | ST05225-100F* |
| 7xD | 6-39/64 | 7-59/64 | 8-1/16 | 10-13/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST07220-100F |
| 7xD | 6-39/64 | 7-59/64 | 8-1/16 | 10-13/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST07225-100F* |
| 1.5xD | 36.0 | 69.3 | 72.7 | 125.3 | 56 | 25 | 1/8 BSPT | YES | ST01220-25FM |
| 1.5xD | 36.0 | 69.3 | 72.7 | 125.3 | 56 | 25 | 1/8 BSPT | YES | ST01225-25FM |
| 3xD | 72.0 | 105.3 | 108.7 | 161.3 | 56 | 25 | 1/8 BSPT | YES | ST03220-25FM |
| 3xD | 72.0 | 105.3 | 108.7 | 161.3 | 56 | 25 | 1/8 BSPT | YES | ST03225-25FM* |
| 5xD | 119.9 | 153.3 | 156.7 | 209.3 | 56 | 25 | 1/8 BSPT | YES | ST05220-25FM |
| 5xD | 119.9 | 153.3 | 156.7 | 209.3 | 56 | 25 | 1/8 BSPT | YES | ST05225-25FM* |
| 7xD | 167.9 | 201.3 | 204.7 | 257.3 | 56 | 25 | 1/8 BSPT | YES | ST07220-25FM |
| 7xD | 167.9 | 201.3 | 204.7 | 257.3 | 56 | 25 | 1/8 BSPT | YES | ST07225-25FM* |

*Oversized body holder (minimum drill diameter = 23mm)

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



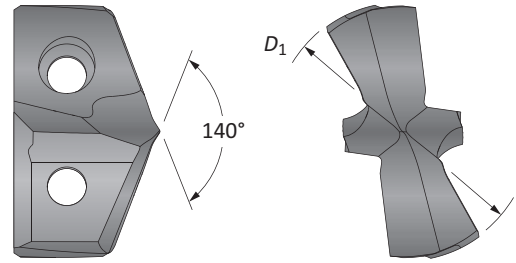
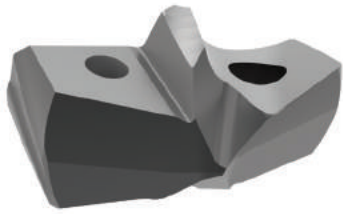
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

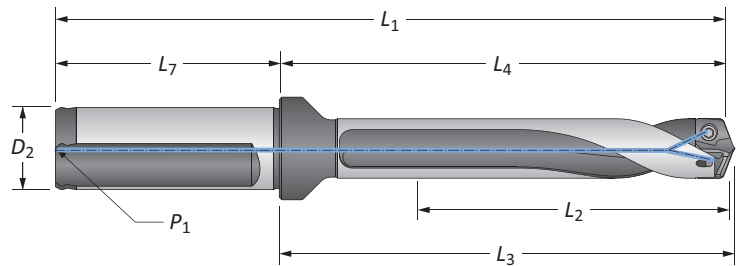
GEN3SYS® XT Pro Structural Steel Drilling System

24 Series | Diameter Range: 0.9449" - 1.0235" (24.00 mm - 25.99 mm)



Inserts




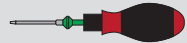

| Fractional Equivalent | Insert | |  | XTST Part No. |
|-----------------------|---------------------|-------------------|---|---------------------|
| | D ₁ inch | D ₁ mm | | |
| – | 0.9449 | 24.00 | | XTST24-24.00 |
| – | 0.9685 | 24.60 | | XTST24-24.60 |
| 1 | 1.0000 | 25.40 | | XTST24-25.40 |
| – | 1.0150 | 25.78 | | XTST24-25.78 |



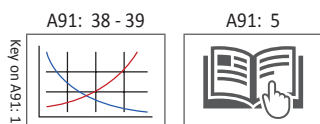
Holders

| | Length | Body | | | | Shank | | | | Part No. |
|----------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|---------------------|
| | | L ₂ | L ₄ | L ₃ | L ₁ | L ₇ | D ₂ | P ₁ | Flat | |
| i | 1.5xD | 1-35/64 | 2-61/64 | 3-3/32 | 5-15/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST01240-100F |
| | 3xD | 3-5/64 | 4-31/64 | 4-5/8 | 6-49/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST03240-100F |
| | 5xD | 5-1/8 | 6-17/32 | 6-21/32 | 8-13/16 | 2-9/32 | 1 | 1/8 NPT | YES | ST05240-100F |
| | 7xD | 7-11/64 | 8-37/64 | 8-45/64 | 10-55/64 | 2-9/32 | 1 | 1/8 NPT | YES | ST07240-100F |
| m | 1.5xD | 39.0 | 74.8 | 78.3 | 130.8 | 56 | 25 | 1/8 BSPT | YES | ST01240-25FM |
| | 3xD | 78.0 | 113.8 | 117.3 | 169.8 | 56 | 25 | 1/8 BSPT | YES | ST03240-25FM |
| | 5xD | 129.9 | 165.8 | 169.2 | 221.8 | 56 | 25 | 1/8 BSPT | YES | ST05240-25FM |
| | 7xD | 181.9 | 217.8 | 221.2 | 273.8 | 56 | 25 | 1/8 BSPT | YES | ST07240-25FM |

Connection Accessories

|  |  |  |  |  | Admissible Tightening Torque* |
|---|---|---|--|---|-------------------------------|
| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | |
| 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



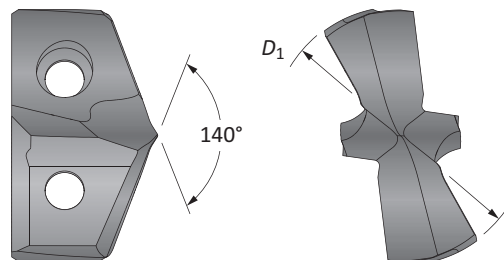
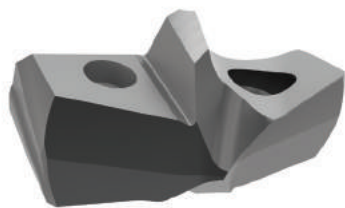
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

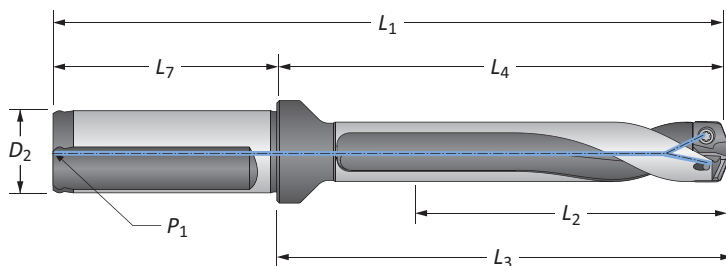
GEN3SYS® XT Pro Structural Steel Drilling System

26 Series | Diameter Range: 1.0236" - 1.1416" (26.00 mm - 28.99 mm)



Inserts

| Fractional Equivalent | Insert D_1 inch | D_1 mm | XTST Part No. |
|-----------------------|----------------------|----------|---------------|
| - | 1.0236 | 26.00 | XTST26-26.00 |
| 1-1/16 | 1.0626 | 26.99 | XTST26-26.99 |
| - | 1.0630 | 27.00 | XTST26-27.00 |
| - | 1.1024 | 28.00 | XTST26-28.00 |
| 1-1/8 | 1.1252 | 28.58 | XTST26-28.58 |



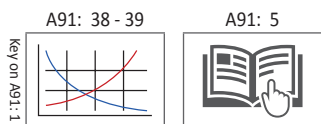
Holders

| Length | Body | | | | Shank | | | | Part No. | |
|--------|-------|---------|---------|---------|----------|--------|-------|----------|----------|--------------|
| | L_2 | L_4 | L_3 | L_1 | L_7 | D_2 | P_1 | Flat | | |
| i | 1.5xD | 1-45/64 | 3-11/32 | 3-15/32 | 5-5/8 | 2-9/32 | 1-1/4 | 1/4 NPT | YES | ST01260-125F |
| | 3xD | 3-27/64 | 5-1/16 | 5-3/16 | 7-11/32 | 2-9/32 | 1-1/4 | 1/4 NPT | YES | ST03260-125F |
| | 5xD | 5-23/32 | 7-11/32 | 7-31/64 | 9-5/8 | 2-9/32 | 1-1/4 | 1/4 NPT | YES | ST05260-125F |
| | 7xD | 7-63/64 | 9-5/8 | 9-49/64 | 11-29/32 | 2-9/32 | 1-1/4 | 1/4 NPT | YES | ST07260-125F |
| m | 1.5xD | 43.5 | 84.6 | 87.9 | 144.6 | 60 | 32 | 1/4 BSPT | YES | ST01260-32FM |
| | 3xD | 87.0 | 128.1 | 131.4 | 188.1 | 60 | 32 | 1/4 BSPT | YES | ST03260-32FM |
| | 5xD | 145.0 | 186.1 | 189.4 | 246.1 | 60 | 32 | 1/4 BSPT | YES | ST05260-32FM |
| | 7xD | 202.9 | 244.0 | 247.4 | 304.0 | 60 | 32 | 1/4 BSPT | YES | ST07260-32FM |

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



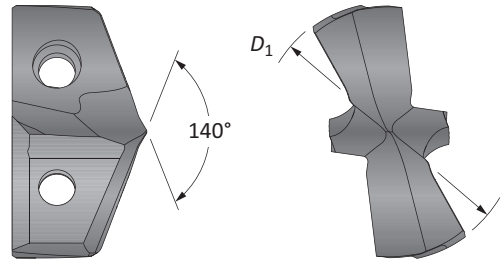
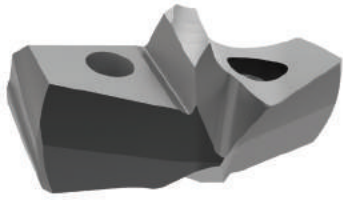
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

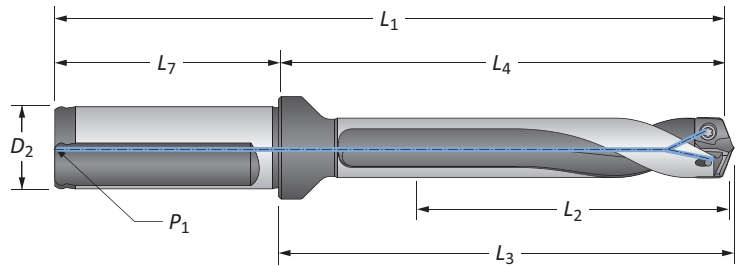
GEN3SYS® XT Pro Structural Steel Drilling System

29 Series | Diameter Range: 1.1417" - 1.2597" (29.00 mm - 31.99 mm)



Inserts




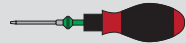

| Fractional Equivalent | Insert D_1 inch | D_1 mm |  XTST Part No. |
|-----------------------|----------------------|----------|--|
| - | 1.1417 | 29.00 | XTST29-29.00 |
| - | 1.1811 | 30.00 | XTST29-30.00 |
| 1-3/16 | 1.1874 | 30.16 | XTST29-30.16 |
| - | 1.2205 | 31.00 | XTST29-31.00 |
| 1-1/4 | 1.2500 | 31.75 | XTST29-31.75 |



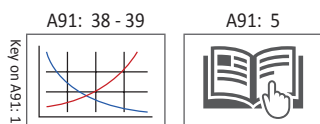
Holders

| Length | Body | | | | Shank | | | | Part No. |
|----------------|---------|----------|---------|----------|--------|-------|----------|------|--------------|
| | L_2 | L_4 | L_3 | L_1 | L_7 | D_2 | P_1 | Flat | |
| i 1.5xD | 1-57/64 | 3-21/64 | 3-5/8 | 5-49/64 | 2-9/32 | 1-1/4 | 1/4 NPT | YES | ST01290-125F |
| i 3xD | 3-25/32 | 5-3/8 | 5-33/64 | 7-21/32 | 2-9/32 | 1-1/4 | 1/4 NPT | YES | ST03290-125F |
| i 5xD | 6-19/64 | 7-29/32 | 8-3/64 | 10-3/16 | 2-9/32 | 1-1/4 | 1/4 NPT | YES | ST05290-125F |
| i 7xD | 8-13/16 | 10-27/64 | 10-9/16 | 12-45/64 | 2-9/32 | 1-1/4 | 1/4 NPT | YES | ST07290-125F |
| m 1.5xD | 48 | 88.2 | 91.7 | 148.2 | 60 | 32 | 1/4 BSPT | YES | ST01290-32FM |
| m 3xD | 96.0 | 136.2 | 139.7 | 196.2 | 60 | 32 | 1/4 BSPT | YES | ST03290-32FM |
| m 5xD | 159.9 | 200.1 | 203.7 | 260.1 | 60 | 32 | 1/4 BSPT | YES | ST05290-32FM |
| m 7xD | 223.9 | 264.1 | 267.7 | 324.1 | 60 | 32 | 1/4 BSPT | YES | ST07290-32FM |

Connection Accessories

|  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|--|---|--|---|---|----------------------------------|
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



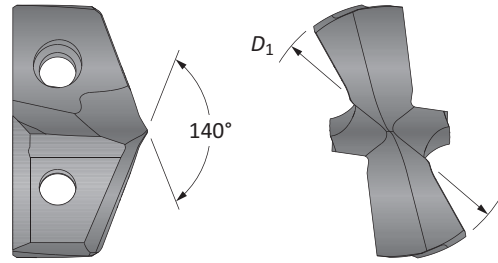
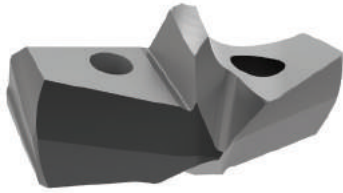
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

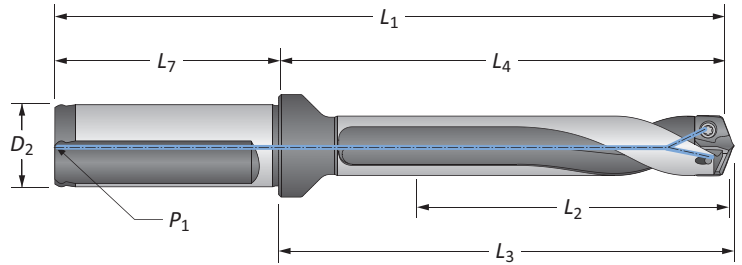
GEN3SYS® XT Pro Structural Steel Drilling System

32 Series | Diameter Range: 1.2598" - 1.3780" (32.00 mm - 35.00 mm)



Inserts

| Fractional Equivalent | Insert D_1 inch | D_1 mm | XTST Part No. |
|-----------------------|----------------------|----------|---------------|
| - | 1.2598 | 32.00 | XTST32-32.00 |
| - | 1.2992 | 33.00 | XTST32-33.00 |
| 1-5/16 | 1.3126 | 33.34 | XTST32-33.34 |
| - | 1.3386 | 34.00 | XTST32-34.00 |
| 1-3/8 | 1.3752 | 34.93 | XTST32-34.93 |



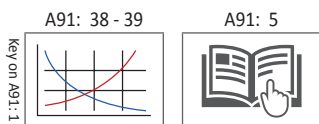
Holders

| Length | Body | | | | Shank | | | | Flat | Part No. |
|--------|-------|---------|----------|----------|----------|---------|-------|----------|------|--------------|
| | L_2 | L_4 | L_3 | L_1 | L_7 | D_2 | P_1 | | | |
| i | 1.5xD | 2-5/64 | 4-5/32 | 4-5/16 | 6-53/64 | 2-11/16 | 1-1/2 | 1/4 NPT | YES | ST01320-150F |
| | 3xD | 4-9/64 | 6-7/32 | 6-3/8 | 8-29/32 | 2-11/16 | 1-1/2 | 1/4 NPT | YES | ST03320-150F |
| | 5xD | 6-59/64 | 8-31/32 | 9-1/8 | 11-21/32 | 2-11/16 | 1-1/2 | 1/4 NPT | YES | ST05320-150F |
| | 7xD | 9-41/64 | 11-23/32 | 11-57/64 | 14-13/32 | 2-11/16 | 1-1/2 | 1/4 NPT | YES | ST07320-150F |
| m | 1.5xD | 52.5 | 105.2 | 109.5 | 165.2 | 60 | 32 | 1/4 BSPT | YES | ST01320-32FM |
| | 1.5xD | 52.5 | 105.2 | 109.5 | 173.5 | 70 | 40 | 1/4 BSPT | YES | ST01320-40FM |
| | 3xD | 105.0 | 157.7 | 162.0 | 217.7 | 60 | 32 | 1/4 BSPT | YES | ST03320-32FM |
| | 3xD | 105.0 | 157.7 | 162.0 | 227.7 | 70 | 40 | 1/4 BSPT | YES | ST03320-40FM |
| | 5xD | 175.0 | 227.7 | 232.0 | 287.7 | 60 | 32 | 1/4 BSPT | YES | ST05320-32FM |
| | 5xD | 175.0 | 227.7 | 232.0 | 297.7 | 70 | 40 | 1/4 BSPT | YES | ST05320-40FM |
| | 7xD | 244.9 | 297.7 | 302.2 | 357.7 | 60 | 32 | 1/4 BSPT | YES | ST07320-32FM |
| | 7xD | 244.9 | 297.7 | 302.2 | 367.7 | 70 | 40 | 1/4 BSPT | YES | ST07320-40FM |

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)
m = Metric (mm)

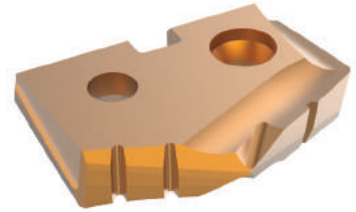
Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS holders are specifically designed to be used only with XTST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools. ext: 7611 | email: appeng@alliedmachine.com

T-A® Structural Steel Drilling System

STRUCTURAL STEEL ENHANCEMENTS T-A & T-A GEN2

GEN2 T-A Insert
Available in AM300® Coating

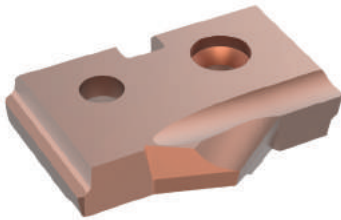


High Efficiency (-HE)

- Improves performance
- Improves tool life
- Improves chip formation in structural steel materials

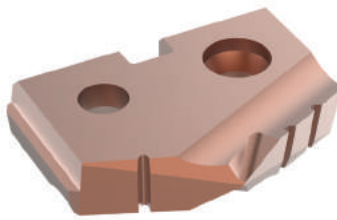
T-A Inserts

Available in AM200® and TiAlN Coatings



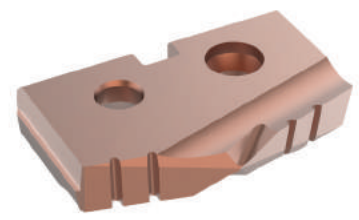
Thin Wall (-TW)

- Designed for drilling 7/16" thick or less I-Beam or structural materials
- Increases hole diameter tolerance
- Improves hole roundness
- Decreases material deflection



Notch Point® (-NP)

- Provides excellent self-centering characteristics
- Reduces bellmouth and tool lead-off
- Reduces axial thrust requirements



Structural Steel (-SS)

- Designed for drilling 7/16" thick or thicker I-Beam or structural materials
- Reduces exit burrs
- Increases stability
- Lowers drilling forces
- Includes Notch Point® web geometry



Holder Anatomy

1. Morse Taper Shank
2. Coolant Inlet
3. Flute (straight or helical)
4. Built-up Body Diameter
5. Coolant Outlets



Straight Flute



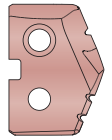
Helical Flute

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Drill Nomenclature

T-A Drill Inserts

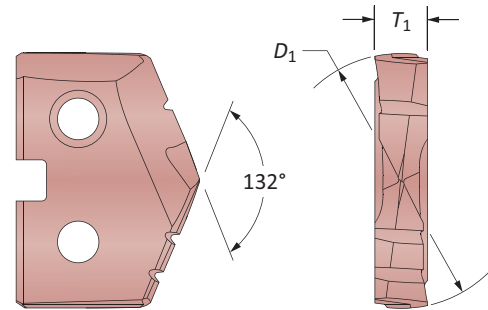
| | | | | | | | |
|----------|----------|----------|----------|---|-------------|---|-----------|
| 4 | 5 | 3 | H | - | 0115 | - | HE |
| 1 | 2 | 3 | 4 | | 5 | | 6 |



| 1. Insert | 2. Material | 3. Series | 4. Coating | 5. Diameter | 6. Geometry |
|-------------------------|---|--|-------------------------|--|--|
| 1 = T-A 4 = GEN2 T-A | 5 = Super cobalt C1 = C1 (K35) carbide | 0 = 0 series 1 = 1 series 2 = 2 series 3 = 3 series | H = AM200® A = TiAlN | 0017 = Inch .515 = Decimal 13 = Metric | TW = Thin Wall NP = Notch Point® SS = Structural Steel HE = High Efficiency |

Reference Key

| Symbol | Attribute |
|--------|------------------|
| D_1 | Insert diameter |
| T_1 | Insert thickness |



T-A Drill Holders

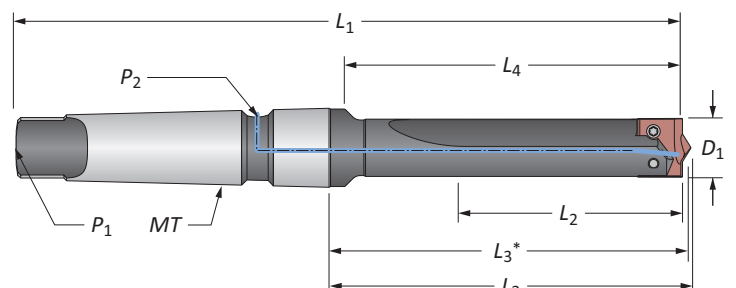
| | | | | | | | |
|----------|-----------|-----------|----------|---|------------|-----------|------------|
| 2 | 40 | 20 | S | - | 004 | IS | 060 |
| 1 | 2 | 3 | 4 | | 5 | 6 | 7 |



| 1. Holder | 2. Length | 3. Series | 4. Flute |
|------------------------|---|---|-----------------------------|
| 2 = T-A holder | 20 = Short 40 = Standard 50 = Extended 60 = Long | 00 = 0 series 05 = 0.5 series 10 = 1 series 15 = 1.5 series 20 = 2 series 25 = 2.5 series 30 = 3 series | S = Straight H = Helical |
| 5. Shank Designator | 6. Shank Code | 7. Minimum Insert Diameter | |
| 003 = 3MT 004 = 4MT | IS = Imperial Morse taper structural steel | In increments of 1/64 of an inch | |

Reference Key

| Symbol | Attribute | Symbol | Attribute |
|---------|-------------------------|--------|------------------|
| D_1 | Drill insert range | L_4 | Flute length |
| L_1 | Overall length | P_1 | Rear pipe tap |
| L_2 | Drill depth | P_2 | Side pipe tap |
| L_3 | Holder reference length | MT | Morse taper size |
| L_3^* | Holder reference length | | |



*If using Structural Steel holder with Notch Point®, T-A GEN2, or 150° Structural Steel T-A drill insert geometry

0

DRILLING | Structural Steel Replaceable Insert Drilling System

A

T-A® Structural Steel Drill Inserts

0 Series | Diameter Range: 0.5512" - 0.6875" (14.00 mm - 17.46 mm)

DRILLING

Thin Wall
 For material up to 7/16" thick

B

BORING

Notch Point®
 For material over 7/16" thick

C

REAMING

150° Structural Steel
 For material over 7/16" thick
 and for reduced exit burr

D

BURNISHING

HSS Inserts – Super Cobalt

| Series | Insert | | | | | Thin Wall | | Notch Point | | 150° Structural Steel | |
|--------|-----------------------|------------|----------|-------|-----------------|----------------|-----------------|----------------|-----------------|-----------------------|--|
| | Fractional Equivalent | D_1 inch | D_1 mm | T_1 | | | | | | | |
| | | | | | AM200® Part No. | TiAlN Part No. | AM200® Part No. | TiAlN Part No. | AM200® Part No. | TiAlN Part No. | |
| 0 | – | 0.5512 | 14.00 | 1/8 | | | | | | | |
| | 9/16 | 0.5625 | 14.29 | 1/8 | | | | | | | |
| | 5/8 | 0.6250 | 15.88 | 1/8 | | | | | | | |
| 0.5 | – | 0.6299 | 16.00 | 1/8 | | | | | | | |
| | 11/16 | 0.6875 | 17.46 | 1/8 | | | | | | | |

E

THREADING

X

SPECIALS

A91: 40 - 41 A91: 20 A91: 24 - 25
Key on A91: 1

Inserts sold in multiples of 2

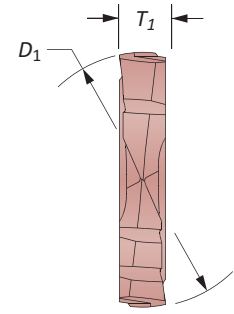
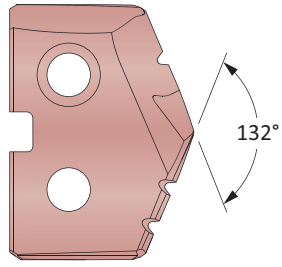
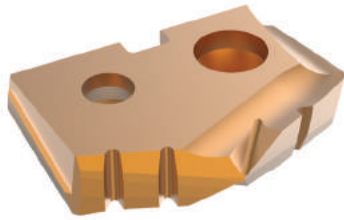
A91: 22

www.alliedmachine.com | 1.330.343.4283





GEN2 T-A® Structural Steel Drill Inserts

0 Series | Diameter Range: 0.5512" - 0.6875" (14.00 mm - 17.46 mm)



HSS Inserts – Super Cobalt | Carbide Inserts – C1 (K35)

| Series | Fractional Equivalent | Insert | | | Part No. | |
|--------|-----------------------|---------------------|-------------------|----------------|--|--|
| | | D ₁ inch | D ₁ mm | T ₁ |  Super Cobalt |  C1 (K35) |
| 0 | – | 0.5512 | 14.00 | 1/8 | 450H-14-HE | 4C10P-14-HE |
| | 9/16 | 0.5625 | 14.29 | 1/8 | 450H-0018-HE | 4C10P-0018-HE |
| 0.5 | 5/8 | 0.6250 | 15.88 | 1/8 | 450H-0020-HE | 4C10P-0020-HE |
| | – | 0.6299 | 16.00 | 1/8 | 450H-16-HE | 4C10P-16-HE |
| | 11/16 | 0.6875 | 17.46 | 1/8 | 450H-0022-HE | 4C10P-0022-HE |

Key on A91-1

A91: 40 - 41

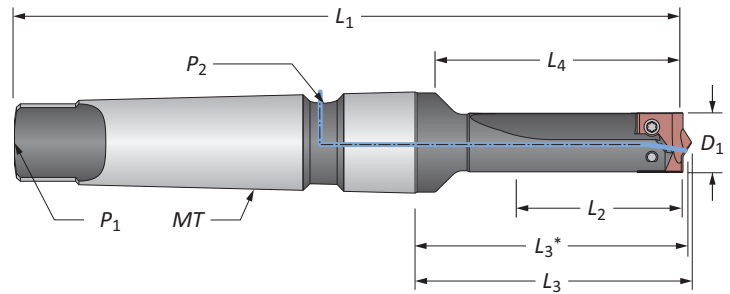
A91: 20

A91: 24 - 25

Inserts sold in multiples of 2

T-A® Structural Steel Drill Insert Holders

0 Series | Taper Shank








Straight Flute #3 Morse Taper

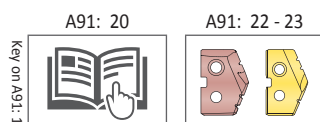
| Series | Length | D_1 | Body | | | | | Shank | | | Part No. | |
|--------|--------|-------|-------|-------|--------|---------|---------|--------|-------|-------|----------|-----------------|
| | | | L_2 | L_4 | L_3 | L_3^* | L_1 | MT | P_1 | P_2 | | |
| i | 0 | Short | 9/16 | 1-3/8 | 2-3/16 | 2-35/64 | 2-31/64 | 6-1/16 | #3 | TTC | TSC | 22000S-003IS036 |
| | 0.5 | Short | 5/8 | 1-3/8 | 2-3/16 | 2-35/64 | 2-31/64 | 6-1/16 | #3 | TTC | TSC | 22005S-003IS040 |
| | | Short | 11/16 | 1-3/8 | 2-3/16 | 2-35/64 | 2-31/64 | 6-1/16 | #3 | TTC | TSC | 22005S-003IS044 |
| m | 0 | Short | 14 | 35 | 56 | 64.7 | 63.1 | 154 | #3 | TTC | TSC | 22000S-003IS036 |
| | 0.5 | Short | 16 | 35 | 56 | 64.7 | 63.1 | 154 | #3 | TTC | TSC | 22005S-003IS040 |
| | | Short | 17.5 | 35 | 56 | 64.7 | 63.1 | 154 | #3 | TTC | TSC | 22005S-003IS044 |

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

Connection Accessories

| Series |  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|--------|---|--|---|--|--|-------------------------------|
| 0 | 72556-IP8-1 | 72556N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |
| 0.5 | 72567-IP8-1 | 72567N-IP8-1 | 8IP-8 | 8IP-8TL | 8IP-8B | 15.5 in-lbs (175 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



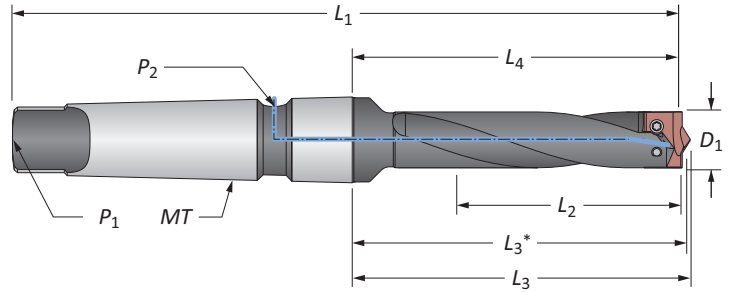
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10



T-A® Structural Steel Drill Insert Holders

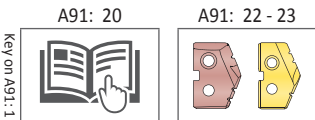
O Series | Taper Shank



Helical Flute #3 Morse Taper

| Series | Length | D ₁ | Body | | | | | Shank | | | Part No. | |
|--------|--------|----------------|----------------|----------------|----------------|------------------|----------------|---------|----------------|----------------|----------|-------------------|
| | | | L ₂ | L ₄ | L ₃ | L ₃ * | L ₁ | MT | P ₁ | P ₂ | | |
| i | 0 | Standard | 9/16 | 2-1/2 | 3-5/16 | 3-43/64 | 3-39/64 | 7-3/16 | #3 | TTC | TSC | 24000H-003IS036 |
| | | Extended | 9/16 | 6-1/2 | 9-7/16 | 9-51/64 | 9-19/32 | 13-5/64 | #3 | TTC | TSC | ⚠ 25000H-003IS036 |
| | 0.5 | Standard | 5/8 | 2-1/2 | 3-5/16 | 3-43/64 | 3-39/64 | 7-3/16 | #3 | TTC | TSC | 24005H-003IS040 |
| | | Extended | 11/16 | 6-1/2 | 9-7/16 | 9-51/64 | 9-19/32 | 13-5/64 | #3 | TTC | TSC | ⚠ 25005H-003IS044 |
| m | 0 | Standard | 14 | 64 | 84 | 93.3 | 91.7 | 183 | #3 | TTC | TSC | 24000H-003IS036 |
| | | Extended | 14 | 165 | 240 | 248.8 | 243.7 | 338 | #3 | TTC | TSC | ⚠ 25000H-003IS036 |
| | 0.5 | Standard | 16 | 64 | 84 | 93.3 | 91.7 | 183 | #3 | TTC | TSC | 24005H-003IS040 |
| | | Extended | 17.5 | 64 | 84 | 93.3 | 91.7 | 183 | #3 | TTC | TSC | 24005H-003IS044 |
| | | | 17.5 | 165 | 240 | 248.8 | 243.7 | 338 | #3 | TTC | TSC | ⚠ 25005H-003IS044 |

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry



i = Imperial (in)
m = Metric (mm)

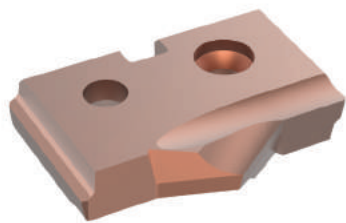
Screws sold in multiples of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A91: 35 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

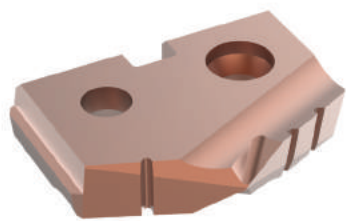
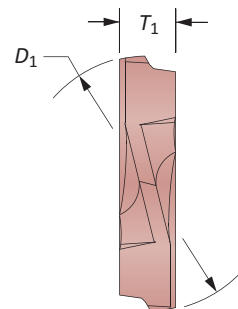
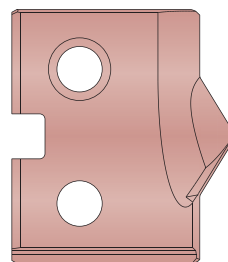


T-A® Structural Steel Drill Inserts

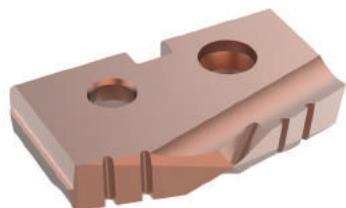
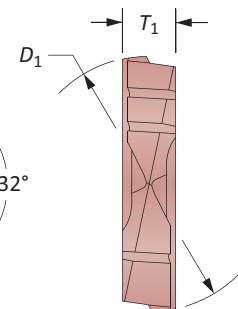
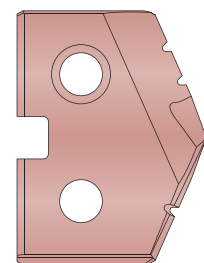
1 Series | Diameter Range: 0.7087" - 0.9449" (18.00 mm - 24.00 mm)



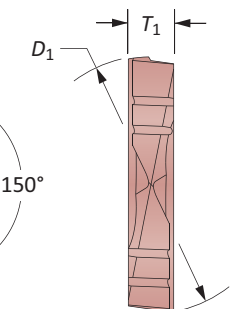
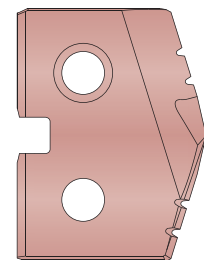
Thin Wall
For material up to 7/16" thick









Notch Point®
For material over 7/16" thick

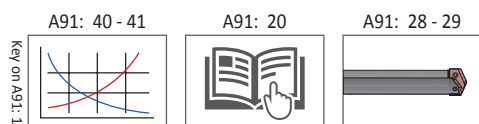


150° Structural Steel
For material over 7/16" thick
and for reduced exit burr



HSS Inserts – Super Cobalt

| Series | Insert | | | | Thin Wall | | Notch Point | | 150° Structural Steel | |
|--------|-----------------------|------------|----------|-------|---|--|---|--|---|--|
| | Fractional Equivalent | D_1 inch | D_1 mm | T_1 |  AM200® Part No. |  TiAlN Part No. |  AM200® Part No. |  TiAlN Part No. |  AM200® Part No. |  TiAlN Part No. |
| 1 | – | 0.7087 | 18.00 | 5/32 | 151H-18-TW | 151A-18-TW | 151H-18-NP | 151A-18-NP | 151H-18-SS | 151A-18-SS |
| | 13/16 | 0.8125 | 20.64 | 5/32 | 151H-0026-TW | 151A-0026-TW | 151H-0026-NP | 151A-0026-NP | 151H-0026-SS | 151A-0026-SS |
| | – | 0.8268 | 21.00 | 5/32 | 151H-21-TW | 151A-21-TW | 151H-21-NP | 151A-21-NP | 151H-21-SS | 151A-21-SS |
| | – | 0.8661 | 22.00 | 5/32 | 151H-22-TW | 151A-22-TW | 151H-22-NP | 151A-22-NP | 151H-22-SS | 151A-22-SS |
| 1.5 | 7/8 | 0.8750 | 22.23 | 5/32 | 151H-0028-TW | 151A-0028-TW | 151H-0028-NP | 151A-0028-NP | 151H-0028-SS | 151A-0028-SS |
| | 15/16 | 0.9375 | 23.81 | 5/32 | 151H-0030-TW | 151A-0030-TW | 151H-0030-NP | 151A-0030-NP | 151H-0030-SS | 151A-0030-SS |
| | – | 0.9449 | 24.00 | 5/32 | 151H-24-TW | 151A-24-TW | 151H-24-NP | 151A-24-NP | 151H-24-SS | 151A-24-SS |

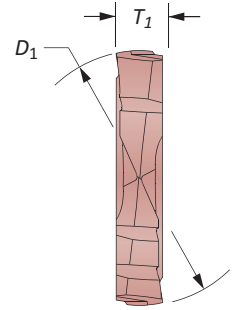
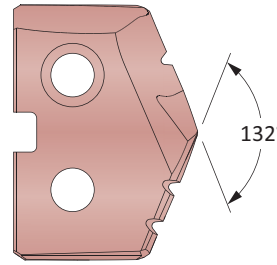
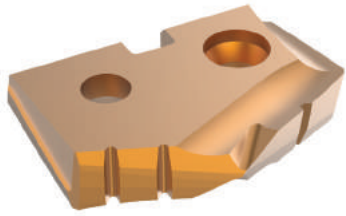


Inserts sold in multiples of 2





GEN2 T-A® Structural Steel Drill Inserts

1 Series | Diameter Range: 0.7087" - 0.9449" (18.00 mm - 24.00 mm)



HSS Inserts – Super Cobalt | Carbide Inserts – C1 (K35)

| Series | Fractional Equivalent | Insert | | | Part No. | |
|--------|-----------------------|---------------------|-------------------|----------------|--|--|
| | | D ₁ inch | D ₁ mm | T ₁ |  Super Cobalt |  C1 (K35) |
| 1 | – | 0.7087 | 18.00 | 5/32 | 451H-18-HE | 4C11P-18-HE |
| | 13/16 | 0.8125 | 20.64 | 5/32 | 451H-0026-HE | 4C11P-0026-HE |
| | – | 0.8268 | 21.00 | 5/32 | 451H-21-HE | 4C11P-21-HE |
| | – | 0.8661 | 22.00 | 5/32 | 451H-22-HE | 4C11P-22-HE |
| 1.5 | 7/8 | 0.8750 | 22.23 | 5/32 | 451H-0028-HE | 4C11P-0028-HE |
| | 15/16 | 0.9375 | 23.81 | 5/32 | 451H-0030-HE | 4C11P-0030-HE |
| | – | 0.9449 | 24.00 | 5/32 | 451H-24-HE | 4C11P-24-HE |

Key on A91-1

A91: 40 - 41

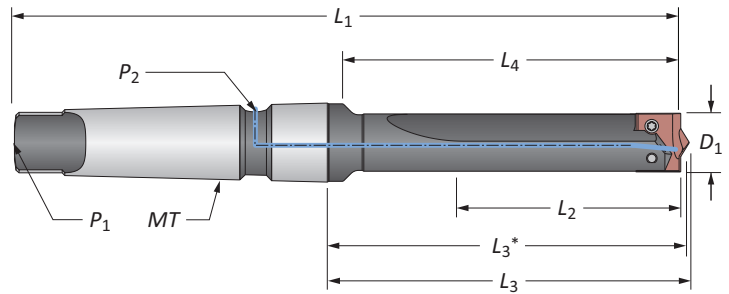
A91: 20

A91: 28 - 29

Inserts sold in multiples of 2

T-A® Structural Steel Drill Insert Holders

1 Series | Taper Shank



Straight Flute #3 Morse Taper

| Series | Length | D_1 | Body | | | | | L_1 | MT | P_1 | P_2 | Part No. |
|--------|--------|-------|-------|-------|-------|---------|---------|-------|----|-------|-------|-----------------|
| | | | L_2 | L_4 | L_3 | L_3^* | | | | | | |
| i | 1 | Short | 18mm | 2-3/4 | 3-7/8 | 4-17/64 | 4-13/64 | 7-3/4 | #3 | TTC | TSC | 22010S-003IS045 |
| | | Short | 13/16 | 2-3/4 | 3-7/8 | 4-17/64 | 4-13/64 | 7-3/4 | #3 | TTC | TSC | 22010S-003IS052 |
| | 1.5 | Short | 7/8 | 2-3/4 | 3-7/8 | 4-17/64 | 4-13/64 | 7-3/4 | #3 | TTC | TSC | 22015S-003IS056 |
| | | Short | 15/16 | 2-3/4 | 3-7/8 | 4-17/64 | 4-13/64 | 7-3/4 | #3 | TTC | TSC | 22015S-003IS060 |
| m | 1 | Short | 18 | 70 | 98 | 108.4 | 106.8 | 197 | #3 | TTC | TSC | 22010S-003IS045 |
| | | Short | 21 | 70 | 98 | 108.4 | 106.8 | 197 | #3 | TTC | TSC | 22010S-003IS052 |
| | 1.5 | Short | 22 | 70 | 98 | 108.4 | 106.8 | 197 | #3 | TTC | TSC | 22015S-003IS056 |
| | | Short | 24 | 70 | 98 | 108.4 | 106.8 | 197 | #3 | TTC | TSC | 22015S-003IS060 |






*If using Structural Steel holder with Notch Point®, T-A GEN2, or 150° Structural Steel T-A drill insert geometry

Straight Flute #4 Morse Taper

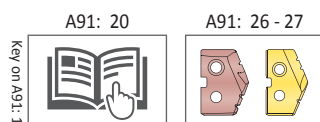
| Series | Length | D_1 | Body | | | | | L_1 | MT | P_1 | P_2 | Part No. |
|--------|--------|-------|-------|-------|-------|---------|---------|-------|----|-------|-------|-----------------|
| | | | L_2 | L_4 | L_3 | L_3^* | | | | | | |
| i | 1 | Short | 18mm | 2-3/4 | 3-7/8 | 4-21/64 | 4-17/64 | 8-3/4 | #4 | TTC | TSC | 22010S-004IS045 |
| | | Short | 13/16 | 2-3/4 | 3-7/8 | 4-21/64 | 4-17/64 | 8-3/4 | #4 | TTC | TSC | 22010S-004IS052 |
| | 1.5 | Short | 7/8 | 2-3/4 | 3-7/8 | 4-21/64 | 4-17/64 | 8-3/4 | #4 | TTC | TSC | 22015S-004IS056 |
| | | Short | 15/16 | 2-3/4 | 3-7/8 | 4-21/64 | 4-17/64 | 8-3/4 | #4 | TTC | TSC | 22015S-004IS060 |
| m | 1 | Short | 18 | 70 | 98 | 109.9 | 108.3 | 222 | #4 | TTC | TSC | 22010S-004IS045 |
| | | Short | 21 | 70 | 98 | 109.9 | 108.3 | 222 | #4 | TTC | TSC | 22010S-004IS052 |
| | 1.5 | Short | 22 | 70 | 98 | 109.9 | 108.3 | 222 | #4 | TTC | TSC | 22015S-004IS056 |
| | | Short | 24 | 70 | 98 | 109.9 | 108.3 | 222 | #4 | TTC | TSC | 22015S-004IS060 |

*If using Structural Steel holder with Notch Point®, T-A GEN2, or 150° Structural Steel T-A drill insert geometry

Connection Accessories

| Series |  Insert Screws |  Nylon Locking Screws |  Insert Driver |  Preset Torque Hand Driver |  Replacement Tips | Admissible Tightening Torque* |
|--------|---|--|---|--|--|-------------------------------|
| 1 | 7375-IP9-1 | 7375N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |
| 1.5 | 739-IP9-1 | 739N-IP9-1 | 8IP-9 | 8IP-9TL | 8IP-9B | 27.0 in-lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



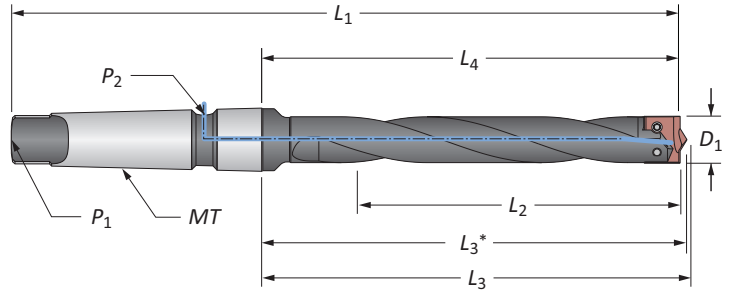
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10



T-A® Structural Steel Drill Insert Holders

1 Series | Taper Shank



Helical Flute #3 Morse Taper

| Series | Length | D ₁ | Body | | | | | Shank | | | Part No. | |
|--------|----------|----------------|----------------|----------------|----------------|------------------|----------------|---------|----------------|----------------|-------------------|-------------------|
| | | | L ₂ | L ₄ | L ₃ | L ₃ * | L ₁ | MT | P ₁ | P ₂ | | |
| i | 1 | Standard | 18mm | 4-3/4 | 5-7/8 | 6-17/64 | 6-13/64 | 9-3/4 | #3 | TTC | TSC | 24010H-003IS045 |
| | | Standard | 13/16 | 4-3/4 | 5-7/8 | 6-17/64 | 6-13/64 | 9-3/4 | #3 | TTC | TSC | 24010H-003IS052 |
| | | Extended | 18mm | 6-1/2 | 9-11/32 | 9-47/64 | 9-1/2 | 13-7/32 | #3 | TTC | TSC | ⚠ 25010H-003IS045 |
| | 1.5 | Standard | 7/8 | 4-3/4 | 5-7/8 | 6-17/64 | 6-13/64 | 9-3/4 | #3 | TTC | TSC | 24015H-003IS056 |
| | | Standard | 15/16 | 4-3/4 | 5-7/8 | 6-17/64 | 6-13/64 | 9-3/4 | #3 | TTC | TSC | 24015H-003IS060 |
| | | Extended | 15/16 | 6-1/2 | 9-11/32 | 9-47/64 | 9-15/32 | 13-7/32 | #3 | TTC | TSC | ⚠ 25015H-003IS060 |
| m | 1 | Standard | 18 | 121 | 149 | 159.2 | 157.6 | 248 | #3 | TTC | TSC | 24010H-003IS045 |
| | | Standard | 21 | 121 | 149 | 159.2 | 157.6 | 248 | #3 | TTC | TSC | 24010H-003IS052 |
| | | Extended | 18 | 165 | 237 | 247.3 | 241.3 | 336 | #3 | TTC | TSC | ⚠ 25010H-003IS045 |
| | | Extended | 22 | 165 | 237 | 247.3 | 241.3 | 336 | #3 | TTC | TSC | ⚠ 25010H-003IS052 |
| | 1.5 | Standard | 22 | 121 | 149 | 159.2 | 157.6 | 248 | #3 | TTC | TSC | 24015H-003IS056 |
| | | Standard | 24 | 121 | 149 | 159.2 | 157.6 | 248 | #3 | TTC | TSC | 24015H-003IS060 |
| | Extended | 24 | 165 | 237 | 247.3 | 234.5 | 336 | #3 | TTC | TSC | ⚠ 25015H-003IS060 | |

*If using Structural Steel holder with Notch Point®, T-A GEN2, or 150° Structural Steel T-A drill insert geometry

Helical Flute #4 Morse Taper

| Series | Length | D ₁ | Body | | | | | Shank | | | Part No. | |
|--------|----------|----------------|----------------|----------------|----------------|------------------|----------------|----------|----------------|----------------|-------------------|-------------------|
| | | | L ₂ | L ₄ | L ₃ | L ₃ * | L ₁ | MT | P ₁ | P ₂ | | |
| i | 1 | Standard | 18mm | 4-3/4 | 5-7/8 | 6-21/64 | 6-17/64 | 10-3/4 | #4 | TTC | TSC | 24010H-004IS045 |
| | | Standard | 13/16 | 4-3/4 | 5-7/8 | 6-21/64 | 6-17/64 | 10-3/4 | #4 | TTC | TSC | 24010H-004IS052 |
| | | Extended | 13/16 | 6-1/2 | 9-9/32 | 9-47/64 | 9-43/64 | 14-5/32 | #4 | TTC | TSC | ⚠ 25010H-004IS052 |
| | | Long | 13/16 | 6-1/2 | 15-25/32 | 16-15/64 | 16-11/64 | 20-21/32 | #4 | TTC | TSC | ⚠ 26010H-004IS052 |
| | 1.5 | Standard | 7/8 | 4-3/4 | 5-7/8 | 6-21/64 | 6-17/64 | 10-3/4 | #4 | TTC | TSC | 24015H-004IS056 |
| | | Standard | 15/16 | 4-3/4 | 5-7/8 | 6-21/64 | 6-17/64 | 10-3/4 | #4 | TTC | TSC | 24015H-004IS060 |
| | Extended | 15/16 | 6-1/2 | 9-9/32 | 9-47/64 | 9-43/64 | 14-5/32 | #4 | TTC | TSC | ⚠ 25015H-004IS060 | |
| | Long | 15/16 | 6-1/2 | 15-13/16 | 16-17/64 | 16-13/64 | 20-11/16 | #4 | TTC | TSC | ⚠ 26015H-004IS060 | |
| m | 1 | Standard | 18 | 121 | 149 | 159.2 | 157.6 | 248 | #4 | TTC | TSC | 24010H-004IS045 |
| | | Standard | 21 | 121 | 149 | 159.2 | 157.6 | 248 | #4 | TTC | TSC | 24010H-004IS052 |
| | | Extended | 22 | 165 | 237 | 247.3 | 241.3 | 336 | #4 | TTC | TSC | ⚠ 25010H-004IS052 |
| | | Long | 22 | 165 | 237 | 247.3 | 241.3 | 336 | #4 | TTC | TSC | ⚠ 26010H-004IS052 |
| | 1.5 | Standard | 22 | 121 | 149 | 159.2 | 157.6 | 248 | #4 | TTC | TSC | 24015H-004IS056 |
| | | Standard | 24 | 121 | 149 | 159.2 | 157.6 | 248 | #4 | TTC | TSC | 24015H-004IS060 |
| | Extended | 24 | 165 | 237 | 247.3 | 234.5 | 336 | #4 | TTC | TSC | ⚠ 25015H-004IS060 | |
| | Long | 24 | 165 | 237 | 247.3 | 234.5 | 336 | #4 | TTC | TSC | ⚠ 26015H-004IS060 | |

*If using Structural Steel holder with Notch Point®, T-A GEN2, or 150° Structural Steel T-A drill insert geometry

i = Imperial (in)
m = Metric (mm)

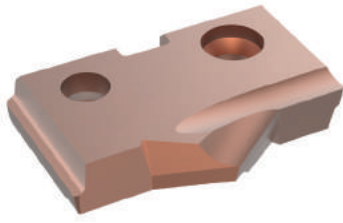
Screws sold in multiples of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A91: 35 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

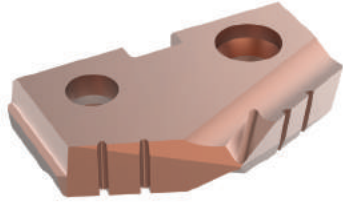
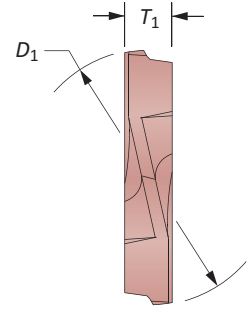
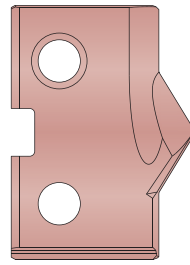
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Structural Steel Drill Inserts

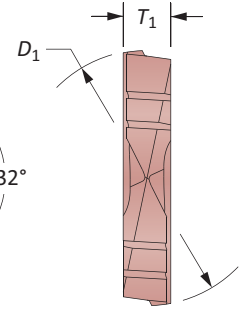
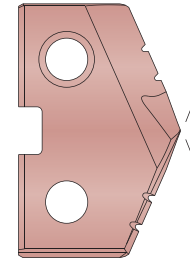
2 Series | Diameter Range: 1.0000" - 1.3750" (25.40 mm - 34.93 mm)



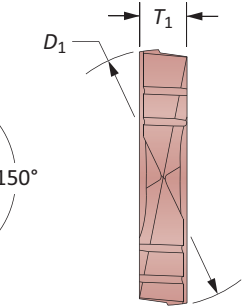
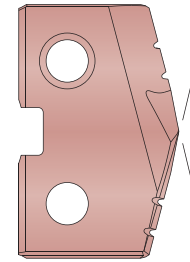
Thin Wall
For material up to 7/16" thick









Notch Point®
For material over 7/16" thick

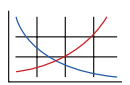




150° Structural Steel
For material over 7/16" thick
and for reduced exit burr



HSS Inserts – Super Cobalt

| Series | Insert | | | | Thin Wall | | Notch Point | | 150° Structural Steel | |
|--------|-----------------------|---------------------|-------------------|----------------|---|--|---|--|---|--|
| | Fractional Equivalent | D ₁ inch | D ₁ mm | T ₁ |  AM200® Part No. |  TiAlN Part No. |  AM200® Part No. |  TiAlN Part No. |  AM200® Part No. |  TiAlN Part No. |
| 2 | 1 | 1.0000 | 25.40 | 3/16 | 152H-0100-TW | 152A-0100-TW | 152H-0100-NP | 152A-0100-NP | 152H-0100-SS | 152A-0100-SS |
| | – | 1.0236 | 26.00 | 3/16 | 152H-26-TW | 152A-26-TW | 152H-26-NP | 152A-26-NP | 152H-26-SS | 152A-26-SS |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 152H-0102-TW | 152A-0102-TW | 152H-0102-NP | 152A-0102-NP | 152H-0102-SS | 152A-0102-SS |
| | – | 1.0630 | 27.00 | 3/16 | 152H-27-TW | 152A-27-TW | 152H-27-NP | 152A-27-NP | 152H-27-SS | 152A-27-SS |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 152H-0104-TW | 152A-0104-TW | 152H-0104-NP | 152A-0104-NP | 152H-0104-SS | 152A-0104-SS |
| 2.5 | 1-3/16 | 1.1875 | 30.16 | 3/16 | 152H-0106-TW | 152A-0106-TW | 152H-0106-NP | 152A-0106-NP | 152H-0106-SS | 152A-0106-SS |
| | – | 1.2205 | 31.00 | 3/16 | 152H-31-TW | 152A-31-TW | 152H-31-NP | 152A-31-NP | 152H-31-SS | 152A-31-SS |
| | 1-1/4 | 1.2500 | 31.75 | 3/16 | 152H-0108-TW | 152A-0108-TW | 152H-0108-NP | 152A-0108-NP | 152H-0108-SS | 152A-0108-SS |
| | – | 1.2992 | 33.00 | 3/16 | 152H-33-TW | 152A-33-TW | 152H-33-NP | 152A-33-NP | 152H-33-SS | 152A-33-SS |
| | 1-5/16 | 1.3125 | 33.34 | 3/16 | 152H-0110-TW | 152A-0110-TW | 152H-0110-NP | 152A-0110-NP | 152H-0110-SS | 152A-0110-SS |
| | 1-3/8 | 1.3750 | 34.93 | 3/16 | 152H-0112-TW | 152A-0112-TW | 152H-0112-NP | 152A-0112-NP | 152H-0112-SS | 152A-0112-SS |

A91: 40 - 41  A91: 20  A91: 32 - 33 

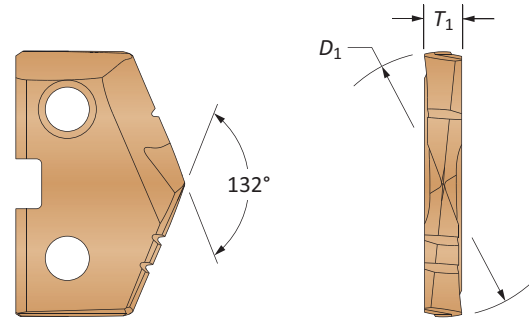
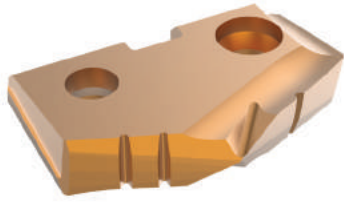
Key on A91: 1

Inserts sold in multiples of 2



A DRILLING
B BORING
C REAMING
D BURISHING
E THREADING
X SPECIALS

GEN2 T-A® Structural Steel Drill Inserts

2 Series | Diameter Range: 1.0000" - 1.3750" (25.40 mm - 34.93 mm)



HSS Inserts – Super Cobalt | Carbide Inserts – C1 (K35)

| Series | Fractional Equivalent | Insert | | | Part No. | |
|--------|-----------------------|---------------------|-------------------|----------------|--|--|
| | | D ₁ inch | D ₁ mm | T ₁ |  Super Cobalt |  C1 (K35) |
| 2 | 1 | 1.0000 | 25.40 | 3/16 | 452H-0100-HE | 4C12P-0100-HE |
| | – | 1.0236 | 26.00 | 3/16 | 452H-26-HE | 4C12P-26-HE |
| | 1-1/16 | 1.0625 | 26.99 | 3/16 | 452H-0102-HE | 4C12P-0102-HE |
| | – | 1.0630 | 27.00 | 3/16 | 452H-27-HE | 4C12P-27-HE |
| | 1-1/8 | 1.1250 | 28.58 | 3/16 | 452H-0104-HE | 4C12P-0104-HE |
| 2.5 | 1-3/16 | 1.1875 | 30.16 | 3/16 | 452H-0106-HE | 4C12P-0106-HE |
| | – | 1.2205 | 31.00 | 3/16 | 452H-31-HE | 4C12P-31-HE |
| | 1-1/4 | 1.2500 | 31.75 | 3/16 | 452H-0108-HE | 4C12P-0108-HE |
| | – | 1.2992 | 33.00 | 3/16 | 452H-33-HE | 4C12P-33-HE |
| | 1-5/16 | 1.3125 | 33.34 | 3/16 | 452H-0110-HE | 4C12P-0110-HE |
| | 1-3/8 | 1.3750 | 34.93 | 3/16 | 452H-0112-HE | 4C12P-0112-HE |

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

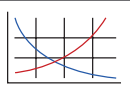
THREADING

X


SPECIALS

Key on A91-1


A91: 40 - 41



A91: 20



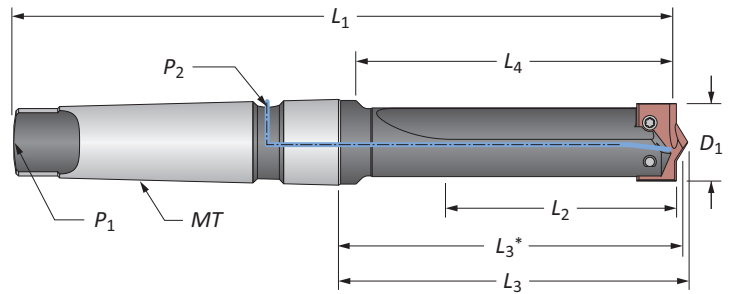
A91: 32 - 33



Inserts sold in multiples of 2

T-A® Structural Steel Drill Insert Holders

2 Series | Taper Shank



Straight Flute #4 Morse Taper

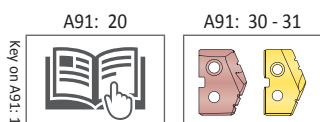
| Series | Length | D ₁ | Body | | | | | Shank | | | Part No. | |
|--------|--------|----------------|----------------|----------------|----------------|------------------|----------------|-------|----------------|----------------|----------|-----------------|
| | | | L ₂ | L ₄ | L ₃ | L ₃ * | L ₁ | MT | P ₁ | P ₂ | | |
| i | 2 | Short | 1 - 1-3/8 | 3-3/8 | 4-1/2 | 4-63/64 | 4-57/64 | 9-3/8 | #4 | TTC | TSC | 22020S-004IS100 |
| | 2.5 | Short | 1-3/16 - 1-3/8 | 3-3/8 | 4-1/2 | 4-63/64 | 4-57/64 | 9-3/8 | #4 | TTC | TSC | 22025S-004IS112 |
| m | 2 | Short | 26 | 86 | 114 | 126.6 | 124.2 | 238 | #4 | TTC | TSC | 22020S-004IS100 |
| | 2.5 | Short | 31 | 86 | 114 | 126.6 | 124.2 | 238 | #4 | TTC | TSC | 22025S-004IS112 |

*If using Structural Steel holder with Notch Point®, T-A GEN2, or 150° Structural Steel T-A drill insert geometry

Connection Accessories

| Series | Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|--------|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 2 | 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |
| 2.5 | 7495-IP15-1 | 7495N-IP15-1 | 8IP-15 | 8IP-15TL | 8IP-15B | 61.0 in-lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength



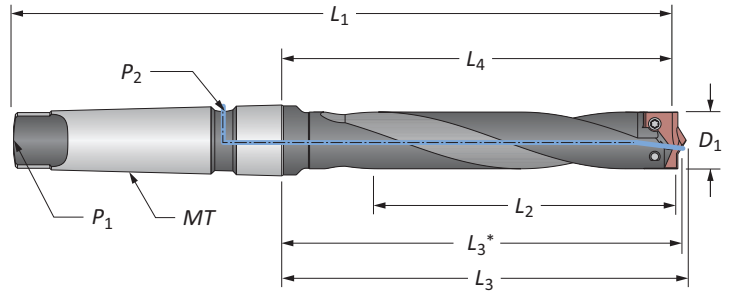
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10



T-A® Structural Steel Drill Insert Holders

2 Series | Taper Shank



Helical Flute #3 Morse Taper

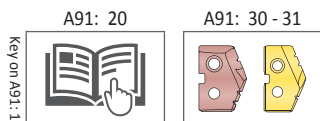
| Series | Length | D ₁ | Body | | | | | Shank | | | Part No. |
|------------|----------|----------------|----------------|----------------|----------------|------------------|----------------|-------|----------------|----------------|------------------------|
| | | | L ₂ | L ₄ | L ₃ | L ₃ * | L ₁ | MT | P ₁ | P ₂ | |
| i 2 | Extended | 1 - 1-3/8 | 6-1/2 | 9-11/32 | 9-3/4 | 9-29/64 | 13-7/32 | #3 | TTC | TSC | 25020H-003IS100 |
| m 2 | Extended | 26 | 165 | 237 | 247.7 | 240.1 | 336 | #3 | TTC | TSC | 25020H-003IS100 |

*If using Structural Steel holder with Notch Point®, T-A GEN2, or 150° Structural Steel T-A drill insert geometry

Helical Flute #4 Morse Taper

| Series | Length | D ₁ | Body | | | | | Shank | | | Part No. |
|------------|----------|----------------|----------------|----------------|----------------|------------------|----------------|-------|----------------|----------------|------------------------|
| | | | L ₂ | L ₄ | L ₃ | L ₃ * | L ₁ | MT | P ₁ | P ₂ | |
| i 2 | Standard | 1 - 1-3/8 | 5-3/8 | 6-1/2 | 6-63/64 | 6-57/64 | 11-3/8 | #4 | TTC | TSC | 24020H-004IS100 |
| | Extended | 1 - 1-3/8 | 6-1/2 | 9-7/32 | 9-3/4 | 9-43/64 | 14-5/32 | #4 | TTC | TSC | 25020H-004IS100 |
| | Long | 1 - 1-3/8 | 6-1/2 | 16 | 16-15/32 | 16-25/64 | 20-7/8 | #4 | TTC | TSC | 26020H-004IS100 |
| 2.5 | Standard | 1-3/16 - 1-3/8 | 5-3/8 | 6-1/2 | 6-63/64 | 6-57/64 | 11-3/8 | #4 | TTC | TSC | 24025H-004IS112 |
| m 2 | Standard | 26 | 137 | 165 | 177.4 | 175.0 | 289 | #4 | TTC | TSC | 24020H-004IS100 |
| | Extended | 26 | 165 | 237 | 247.7 | 240.1 | 360 | #4 | TTC | TSC | 25020H-004IS100 |
| | Long | 26 | 165 | 406 | 418.3 | 416.3 | 530 | #4 | TTC | TSC | 26020H-004IS100 |
| | 2.5 | Standard | 31 | 137 | 165 | 177.4 | 175.0 | 289 | #4 | TTC | TSC |

*If using Structural Steel holder with Notch Point®, T-A GEN2, or 150° Structural Steel T-A drill insert geometry



i = Imperial (in)
m = Metric (mm)

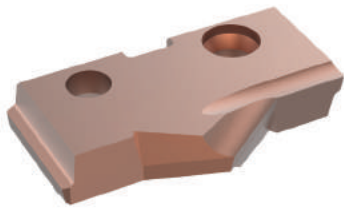
Screws sold in multiples of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A91: 35 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

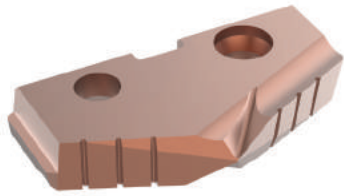
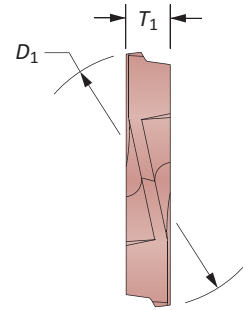
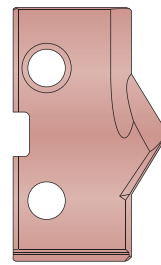
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Structural Steel Drill Inserts

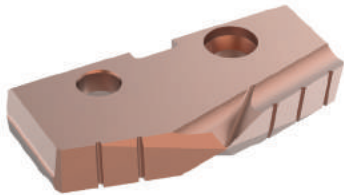
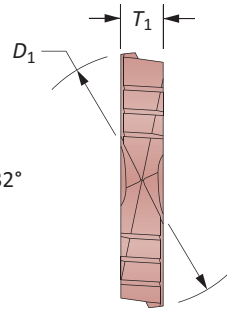
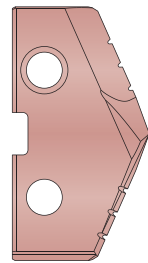
3 Series | Diameter Range: 1.4375" - 1.5625" (36.51 mm - 39.69 mm)



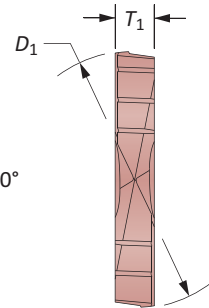
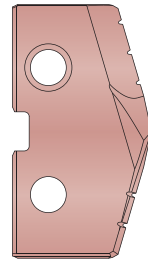
Thin Wall
For material up to 7/16" thick









Notch Point®
For material over 7/16" thick



150° Structural Steel
For material over 7/16" thick
and for reduced exit burr



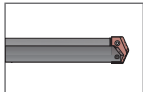
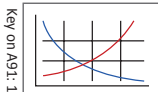
HSS Inserts – Super Cobalt

| Insert | | | | Thin Wall | | Notch Point | | 150° Structural Steel | |
|-----------------------|------------|----------|-------|---|---|---|---|---|---|
| Fractional Equivalent | D_1 inch | D_1 mm | T_1 |  |  |  |  |  |  |
| | | | | AM200® Part No. | TiAlN Part No. | AM200® Part No. | TiAlN Part No. | AM200® Part No. | TiAlN Part No. |
| 1-7/16 | 1.4375 | 36.51 | 1/4 | 153H-0114-TW | 153A-0114-TW | 153H-0114-NP | 153A-0114-NP | 153H-0114-SS | 153A-0114-SS |
| 1-1/2 | 1.5000 | 38.10 | 1/4 | 153H-0116-TW | 153A-0116-TW | 153H-0116-NP | 153A-0116-NP | 153H-0116-SS | 153A-0116-SS |
| - | 1.5354 | 39.00 | 1/4 | 153H-39-TW | 153A-39-TW | 153H-39-NP | 153A-39-NP | 153H-39-SS | 153A-39-SS |
| 1-9/16 | 1.5625 | 39.69 | 1/4 | 153H-0118-TW | 153A-0118-TW | 153H-0118-NP | 153A-0118-NP | 153H-0118-SS | 153A-0118-SS |

A91: 40 - 41

A91: 20

A91: 36

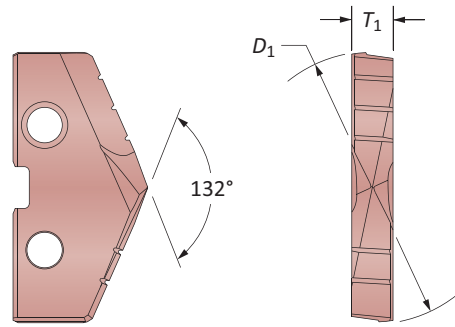
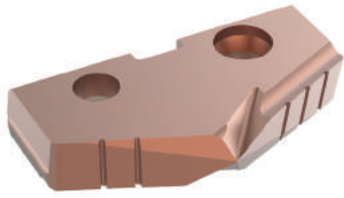


Inserts sold in multiples of 1



GEN2 T-A® Structural Steel Drill Inserts

3 Series | Diameter Range: 1.4375" - 1.5625" (36.51 mm - 39.69 mm)



HSS Inserts – Super Cobalt

| Fractional Equivalent | Insert | | | Part No. |
|-----------------------|------------|----------|-------|--------------|
| | D_1 inch | D_1 mm | T_1 | Super Cobalt |
| 1-7/16 | 1.4375 | 36.51 | 1/4 | 453H-0114-HE |
| 1-1/2 | 1.5000 | 38.10 | 1/4 | 453H-0116-HE |
| - | 1.5354 | 39.00 | 1/4 | 453H-39-HE |
| 1-9/16 | 1.5625 | 39.69 | 1/4 | 453H-0118-HE |

Key on A91-1

A91: 40 - 41

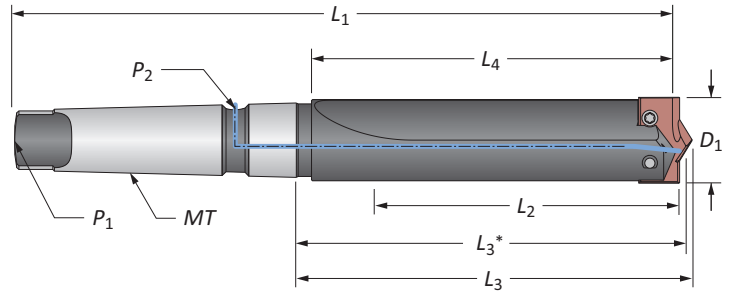
A91: 20

A91: 36

Inserts sold in multiples of 1

T-A® Structural Steel Drill Insert Holders

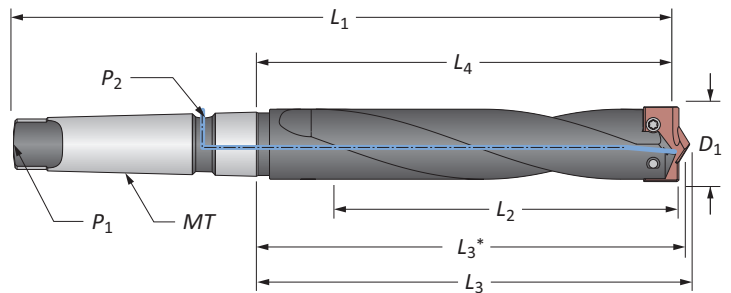
3 Series | Taper Shank



Straight Flute #4 Morse Taper

| Length | D_1 | Body | | | | | Shank | | | Part No. |
|---------|-----------------|-------|-------|-------|---------|--------|-------|-------|-------|-----------------|
| | | L_2 | L_4 | L_3 | L_3^* | L_1 | MT | P_1 | P_2 | |
| ① Short | 1-13/32 - 1-7/8 | 4-3/4 | 6 | 6-1/2 | 6-7/16 | 10-7/8 | #4 | TTC | TSC | 22030S-004IS126 |

*If using Structural Steel holder with Notch Point®, T-A GEN2, or 150° Structural Steel T-A drill insert geometry



Helical Flute #4 Morse Taper

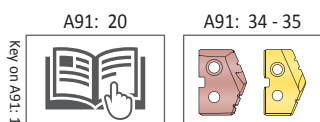
| Length | D_1 | Body | | | | | Shank | | | Part No. |
|------------|-----------------|-------|-------|-------|---------|--------|-------|-------|-------|-----------------|
| | | L_2 | L_4 | L_3 | L_3^* | L_1 | MT | P_1 | P_2 | |
| ① Standard | 1-13/32 - 1-7/8 | 6-1/2 | 7-3/4 | 8-1/4 | 8-3/16 | 12-5/8 | #4 | TTC | TSC | 24030H-004IS126 |

*If using Structural Steel holder with Notch Point®, T-A GEN2, or 150° Structural Steel T-A drill insert geometry

Connection Accessories

| Insert Screws | Nylon Locking Screws | Insert Driver | Preset Torque Hand Driver | Replacement Tips | Admissible Tightening Torque* |
|---------------|----------------------|---------------|---------------------------|------------------|-------------------------------|
| 7514-IP20-1 | 7514N-IP20-1 | 8IP-20 | - | - | 121.3 in-lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

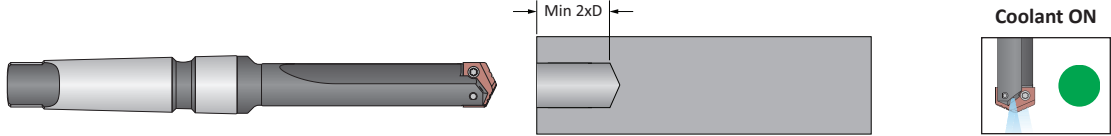

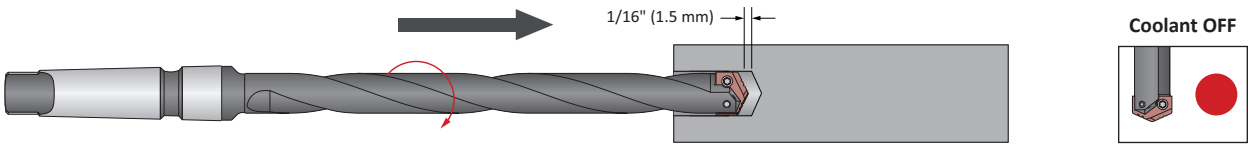
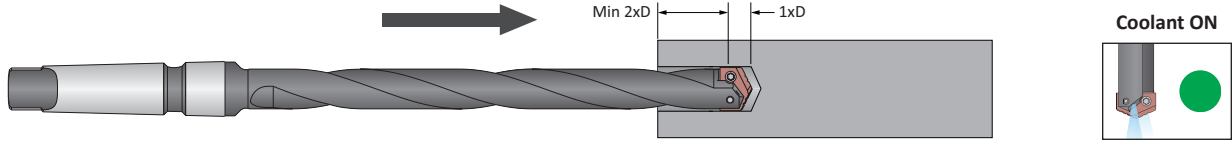
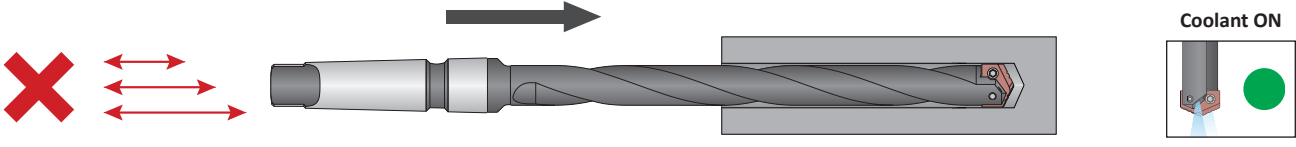
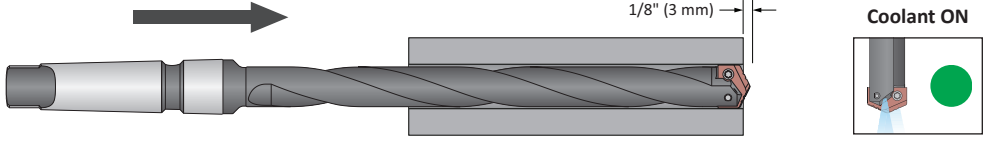

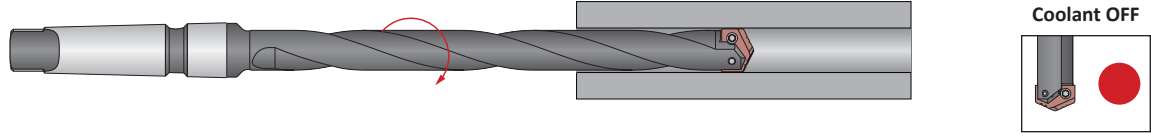


① = Imperial (in)
 Ⓜ = Metric (mm)

Screws sold in multiples of 10

Deep Hole Drilling Guidelines

For Use with Drills Greater than 9xD (Extended, Long, XL, 3XL, and Special Length)

| | | |
|---|---|---|
| <p>1. Pilot Hole 100 % RPM 100% IPR (mm/rev)</p> | <p>Establish the pilot hole using the same diameter short drill to a depth of 2xD minimum. Utilize a pilot drill with the same or larger included point angle.</p> |  <p>Coolant ON</p> |
| <p> 2. Feed-in 50 RPM max 12 IPM (300 mm/min)</p> | <p>Feed the longer drill within 1/16" (1.5 mm) short of the established pilot hole bottom at a maximum of 50 RPM and 12 IPM (300 mm/min) feed rate.</p> |  <p>Coolant OFF</p> |
| <p>3. Deep Hole Transition Drilling 50 % RPM 75% IPR (mm/rev)</p> | <p>Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed. Minimum of 1 second dwell is required to meet full speed before feeding.</p> |  <p>Coolant ON</p> |
| <p>4. Deep Hole Drilling - Blind 100% RPM 100% IPR (mm/rev)</p> | <p>Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts. No peck cycle recommended.</p> |  <p>Coolant ON</p> |
| <p>5. Deep Hole Drilling - at Breakout 50% RPM 75% IPR (mm/rev)</p> | <p>For through holes only: Reduce speed by 50% and feed by 25% prior to breakout. Do not break out more than 1/8" (3 mm) past the full diameter of the drill.</p> |  <p>Coolant ON</p> |
| <p> 6. Drill Retract 50 RPM max</p> | <p>Reduce speed to a maximum of 50 RPM before retracting from the hole.</p> |  <p>Coolant OFF</p> |

⚠ WARNING Tool failure can cause serious injury. To prevent:

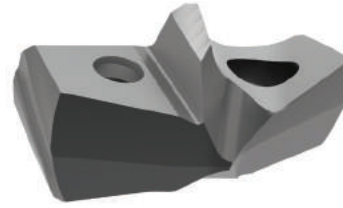
- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Cutting Data

GEN3SYS® XT Pro (XTST)



Imperial (inch)

| ISO | Material | Speed (SFM) - Mist Coolant | | Feed Rate (IPR) by Diameter | | | |
|-----|---|----------------------------|-------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| | | Hardness (BHN) | AM420 Speed | 12 series 0.4724" - 0.5117" | 13 series 0.5118" - 0.5511" | 14 series 0.5512" - 0.5905" | 15 series 0.5906" - 0.6298" |
| P | Structural Steel A36, A285, A516, A572, etc. | 100 - 150 | 350 | 0.008 | 0.009 | 0.010 | 0.010 |
| | | 150 - 250 | 300 | 0.007 | 0.008 | 0.009 | 0.009 |
| | | 250 - 350 | 260 | 0.006 | 0.007 | 0.008 | 0.008 |

Metric (mm)

| ISO | Material | Speed (M/min) - Mist Coolant | | Feed Rate (mm/rev) by Diameter | | | |
|-----|---|------------------------------|-------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | | Hardness (BHN) | AM420 Speed | 12 series 12.00 mm - 12.99 mm | 13 series 13.00 mm - 13.99 mm | 14 series 14.00 mm - 14.99 mm | 15 series 15.00 mm - 15.99 mm |
| P | Structural Steel A36, A285, A516, A572, etc. | 100 - 150 | 107 | 0.20 | 0.22 | 0.25 | 0.25 |
| | | 150 - 250 | 91 | 0.18 | 0.20 | 0.23 | 0.23 |
| | | 250 - 350 | 79 | 0.15 | 0.17 | 0.20 | 0.20 |

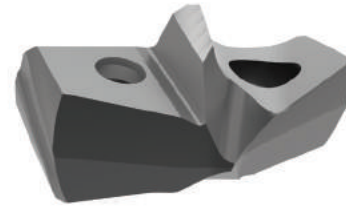
Speed and Feed Multiplier

| | Depth of Cut | |
|-------|-----------------|---------|
| | <= 1.5xD | > 1.5xD |
| Speed | See above chart | 0.75 |
| Feed | See above chart | 0.90 |

NOTE: The speeds and feeds listed above are based on a rigid setup using air mist through tool coolant. Speed may be increased up to 50% if using high pressure flood or through coolant.

NOTE: If drilling dry without coolant, speed must be reduced significantly based on setup, drill depth, and material hardness. Up to 50% speed and feed reduction may be necessary in these types of applications. Contact the Application Engineering department for assistance. ext: 7611 | email: appeng@alliedmachine.com

NOTE: If drilling material thickness of 0.500" (12.7mm) or less, a minimum of 10% reduction in feed is required to minimize material deflection.



Feed Rate (IPR) by Diameter

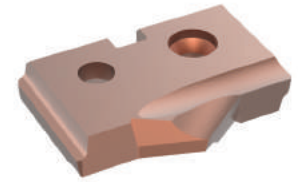
| 16 series 0.6299" - 0.6692" | 17 series 0.6693" - 0.7086" | 18 series 0.7087" - 0.7873" | 20 series 0.7874" - 0.8660" | 22 series 0.8661" - 0.9448" | 24 series 0.9449" - 1.0235" | 26 series 1.0236" - 1.1416" | 29 series 1.1417" - 1.2597" | 32 series 1.2598" - 1.3780" |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| 0.012 | 0.012 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.019 | 0.019 |
| 0.010 | 0.010 | 0.012 | 0.014 | 0.015 | 0.016 | 0.017 | 0.018 | 0.018 |
| 0.009 | 0.009 | 0.011 | 0.012 | 0.013 | 0.014 | 0.015 | 0.016 | 0.016 |

Feed Rate (mm/rev) by Diameter



| 16 series 16.00 mm - 16.99 mm | 17 series 17.00 mm - 17.99 mm | 18 series 18.00 mm - 19.99 mm | 20 series 20.00 mm - 21.99 mm | 22 series 22.00 mm - 23.99 mm | 24 series 24.00 mm - 25.99 mm | 26 series 26.00 mm - 28.99 mm | 29 series 29.00 mm - 31.99 mm | 32 series 32.00 mm - 35.00 mm |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 0.30 | 0.30 | 0.36 | 0.38 | 0.41 | 0.43 | 0.46 | 0.48 | 0.48 |
| 0.25 | 0.25 | 0.30 | 0.36 | 0.38 | 0.41 | 0.43 | 0.46 | 0.46 |
| 0.23 | 0.23 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.41 |

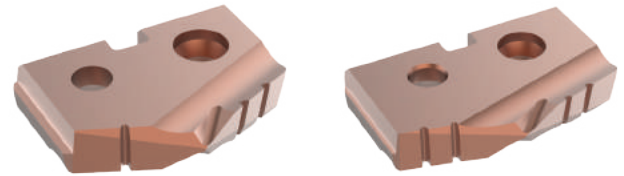
Recommended Cutting Data | Imperial (inch)

T-A® | GEN2 T-A®





Thin Wall Inserts
Super Cobalt

| ISO | Material | Speed (SFM) - Mist Coolant | | | Feed Rate (IPR) by Diameter | | | |
|-----|---|----------------------------|--|---|-------------------------------|--------------------------------|----------------------------|----------------------------------|
| | | Hardness (BHN) |  AM200® Speed |  TiAlN Speed | 0 series 9/16" - 11/16" | 1 series 13/16" - 15/16" | 2 series 1" - 1-3/8" | 3 series 1-13/32" - 1-7/8" |
| P | Structural Steel A36, A285, A516, etc. | 100 - 150 | 125 | 110 | 0.012 | 0.018 | 0.019 | 0.020 |
| | | 150 - 250 | 115 | 100 | 0.011 | 0.016 | 0.017 | 0.019 |
| | | 250 - 350 | 105 | 90 | 0.010 | 0.014 | 0.016 | 0.018 |




Notch Point® and 150° Structural Steel Inserts
Super Cobalt


| ISO | Material | Speed (SFM) - Mist Coolant | | | Feed Rate (IPR) by Diameter | | | |
|-----|---|----------------------------|--|---|-------------------------------|--------------------------------|----------------------------|----------------------------------|
| | | Hardness (BHN) |  AM200® Speed |  TiAlN Speed | 0 series 9/16" - 11/16" | 1 series 13/16" - 15/16" | 2 series 1" - 1-3/8" | 3 series 1-13/32" - 1-7/8" |
| P | Structural Steel A36, A285, A516, etc. | 100 - 150 | 125 | 110 | 0.010 | 0.012 | 0.014 | 0.018 |
| | | 150 - 250 | 115 | 100 | 0.009 | 0.011 | 0.012 | 0.016 |
| | | 250 - 350 | 105 | 90 | 0.008 | 0.010 | 0.011 | 0.014 |



GEN2 T-A Inserts
Super Cobalt

| ISO | Material | Speed (SFM) - Mist Coolant | | | Feed Rate (IPR) by Diameter | | | |
|-----|---|----------------------------|--|-------------------------------|--------------------------------|----------------------------|----------------------------------|--|
| | | Hardness (BHN) |  AM200® Speed | 0 series 9/16" - 11/16" | 1 series 13/16" - 15/16" | 2 series 1" - 1-3/8" | 3 series 1-13/32" - 1-7/8" | |
| P | Structural Steel A36, A285, A516, etc. | 100 - 150 | 125 | 0.010 | 0.012 | 0.014 | 0.018 | |
| | | 150 - 250 | 115 | 0.009 | 0.011 | 0.012 | 0.016 | |
| | | 250 - 350 | 105 | 0.008 | 0.010 | 0.011 | 0.014 | |

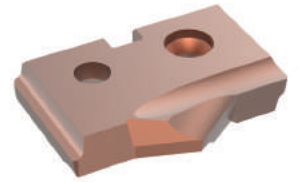
GEN2 T-A Inserts
Carbide C1 (K35)

| ISO | Material | Speed (SFM) - Mist Coolant | | | Feed Rate (IPR) by Diameter | | | |
|-----|---|----------------------------|--|-------------------------------|--------------------------------|----------------------------|----------------------------------|--|
| | | Hardness (BHN) |  AM300® Speed | 0 series 9/16" - 11/16" | 1 series 13/16" - 15/16" | 2 series 1" - 1-3/8" | 3 series 1-13/32" - 1-7/8" | |
| P | Structural Steel A36, A285, A516, etc. | 100 - 150 | 165 | 0.008 | 0.011 | 0.015 | 0.017 | |
| | | 150 - 250 | 155 | 0.006 | 0.010 | 0.013 | 0.015 | |
| | | 250 - 350 | 140 | 0.005 | 0.009 | 0.012 | 0.013 | |



NOTE: The speeds and feeds listed above are based on a rigid setup using air mist through tool coolant. Speed may be increased up to 50% if using high pressure flood or through coolant.
NOTE: If drilling dry without coolant, speed must be reduced significantly based on setup, drill depth, and material hardness. Up to 50% speed and feed reduction may be necessary in these types of applications. Contact the Application Engineering department for assistance. ext: 7611 | email: appeng@alliedmachine.com

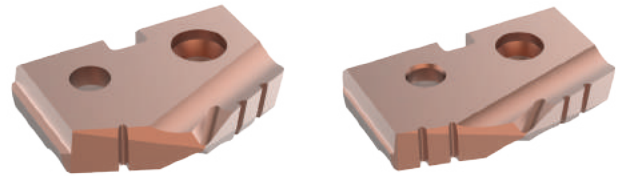
Recommended Cutting Data | Metric (mm)

T-A® | GEN2 T-A®





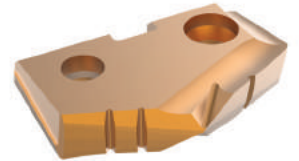
**Thin Wall Inserts
Super Cobalt**

| ISO | Material | Speed (M/min) - Mist Coolant | | Feed Rate (mm/rev) by Diameter | | | | |
|-----|---|------------------------------|--|---|------------------------------|------------------------------|------------------------------|------------------------------|
| | | Hardness (BHN) |  AM200® Speed |  TiAlN Speed | 0 series 14 mm - 16 mm | 1 series 18 mm - 24 mm | 2 series 25 mm - 35 mm | 3 series 36 mm - 47 mm |
| P | Structural Steel A36, A285, A516, etc. | 100 - 150 | 39 | 34 | 0.30 | 0.45 | 0.48 | 0.50 |
| | | 150 - 250 | 35 | 31 | 0.28 | 0.40 | 0.43 | 0.48 |
| | | 250 - 350 | 32 | 28 | 0.25 | 0.36 | 0.40 | 0.45 |




**Notch Point® and 150° Structural Steel Inserts
Super Cobalt**


| ISO | Material | Speed (M/min) - Mist Coolant | | Feed Rate (mm/rev) by Diameter | | | | |
|-----|---|------------------------------|--|---|------------------------------|------------------------------|------------------------------|------------------------------|
| | | Hardness (BHN) |  AM200® Speed |  TiAlN Speed | 0 series 14 mm - 16 mm | 1 series 18 mm - 24 mm | 2 series 25 mm - 35 mm | 3 series 36 mm - 47 mm |
| P | Structural Steel A36, A285, A516, etc. | 100 - 150 | 39 | 34 | 0.25 | 0.30 | 0.36 | 0.45 |
| | | 150 - 250 | 35 | 31 | 0.23 | 0.28 | 0.30 | 0.40 |
| | | 250 - 350 | 35 | 28 | 0.20 | 0.25 | 0.28 | 0.36 |



**GEN2 T-A Inserts
Super Cobalt**

| ISO | Material | Speed (M/min) - Mist Coolant | | Feed Rate (mm/rev) by Diameter | | | |
|-----|---|------------------------------|--|--------------------------------|---------------------------|---------------------------|---------------------------|
| | | Hardness (BHN) |  AM200® Speed | 0 series 14 mm - 16 mm | 1 series 18 mm - 24 mm | 2 series 25 mm - 35 mm | 3 series 36 mm - 47 mm |
| P | Structural Steel A36, A285, A516, etc. | 100 - 150 | 39 | 0.25 | 0.30 | 0.36 | 0.46 |
| | | 150 - 250 | 35 | 0.23 | 0.28 | 0.30 | 0.40 |
| | | 250 - 350 | 35 | 0.20 | 0.25 | 0.28 | 0.36 |

**GEN2 T-A Inserts
Carbide C1 (K35)**

| ISO | Material | Speed (M/min) - Mist Coolant | | Feed Rate (mm/rev) by Diameter | | | |
|-----|---|------------------------------|--|--------------------------------|---------------------------|---------------------------|---------------------------|
| | | Hardness (BHN) |  AM300® Speed | 0 series 14 mm - 16 mm | 1 series 18 mm - 24 mm | 2 series 25 mm - 35 mm | 3 series 36 mm - 47 mm |
| P | Structural Steel A36, A285, A516, etc. | 100 - 150 | 50 | 0.20 | 0.28 | 0.38 | 0.43 |
| | | 150 - 250 | 47 | 0.15 | 0.25 | 0.33 | 0.38 |
| | | 250 - 350 | 43 | 0.13 | 0.23 | 0.30 | 0.33 |

NOTE: The speeds and feeds listed above are based on a rigid setup using air mist through tool coolant. Speed may be increased up to 50% if using high pressure flood or through coolant.
NOTE: If drilling dry without coolant, speed must be reduced significantly based on setup, drill depth, and material hardness. Up to 50% speed and feed reduction may be necessary in these types of applications. Contact the Application Engineering department for assistance. ext: 7611 | email: appeng@alliedmachine.com

SECTION

A92

AccuPort 432®

AccuPort 432®

Port Contour Cutters | J1926 | ISO6149 | AS5202 | JDS-G173.1



High-Performance Multistep Action

Durable and precise, the AccuPort 432 holders provide a strong and rigid platform for the drilling of hydraulic ports. The precision ground insert location on each holder ensures total repeatability and simple, uncomplicated changing of the replaceable inserts.

With the AccuPort technology, you can drill and finish port forms in **ONE** operation. Save time and money with AccuPort.

| | | |
|--|--------------------------|--|
| Single operation hydraulic port cutting system | No pre-drilling required | Replaceable inserts eliminate regrinding and resetting |
|--|--------------------------|--|

Applicable Industries



Aerospace



Agriculture



Automotive



Marine /
Shipbuilding

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

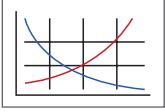
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



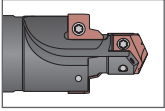
Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling



Accuport 432 Holders

Refers to the full details of the holder items included in each kit



Port and Thread Finishing Kits

Lists the available kits complete with AccuPort tool and AccuThread® solid carbide thread mill



Coolant-Through Option

Indicates that the product is coolant through

Introduction Information

Product Overview 2 - 4
 Product Nomenclature 5

Port Specifications

SAE J-1926 / ISO 11926-1 / MS-16142 6 - 11
 ISO 6149-1:2006 / SAE J-2244/1 12 - 13
 SAE AS5202 / AND10050 14 - 15
 JDS-G173.1 16 - 17

Port and Thread Finishing Kits

SAE J-1926 / ISO 11926-1 / MS-16142 18 - 21
 ISO 6149-1:2006 / SAE J-2244/1 22 - 25
 SAE AS5202 / AND10050 26 - 27
 JDS-G173.1 28

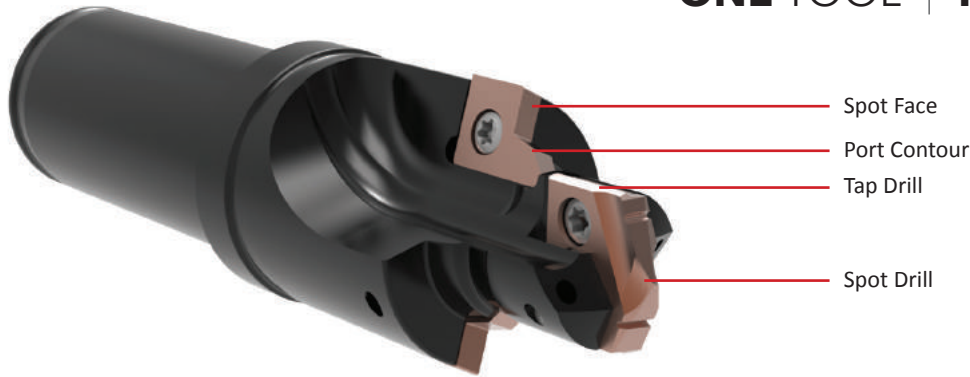
Recommended Cutting Data

| | | |
|--------------------|---|---------------------------|
| Imperial (inch) | [| HSS 30 - 31 |
| | | Carbide 32 - 33 |
| Metric (mm) | [| HSS 34 - 35 |
| | | Carbide 36 - 37 |

Product Overview

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

ONE TOOL | FOUR OPERATIONS


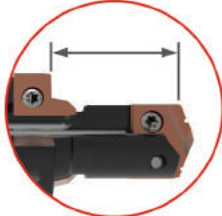
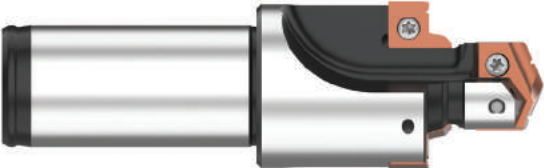







Advanced Solutions, Outstanding Results

As designers and manufacturing engineers push the limits of production technology to improve productivity and performance, Allied Machine has continued to innovate and develop new solutions like the unique AccuPort 432 hydraulic port contour cutter system. Every product in the AccuPort system is designed to deliver maximum performance in a diverse range of hydraulic port cutting applications and demanding manufacturing environments.

Using precision replaceable inserts for both the drilling and port forming operations, AccuPort eliminates the need for tool regrinding and enables absolute repeatability, excellent surface finish, and reduced cost per hole. The AccuPort drills, forms, and precision-finishes the hydraulic port in **one** pass. This replaces up to three separate cutting operations in a single tool to deliver outstanding improvements in productivity, accuracy, and repeatability.

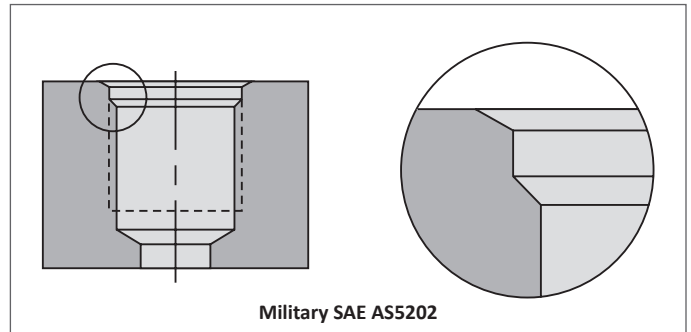
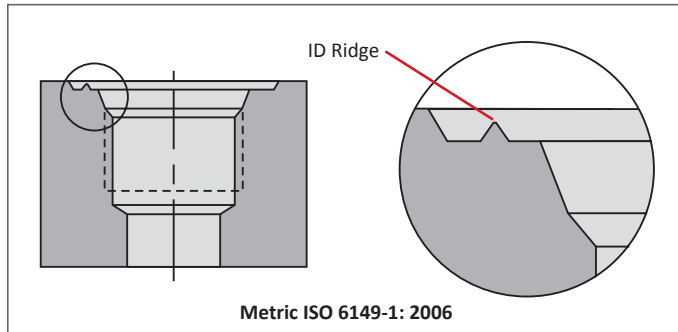
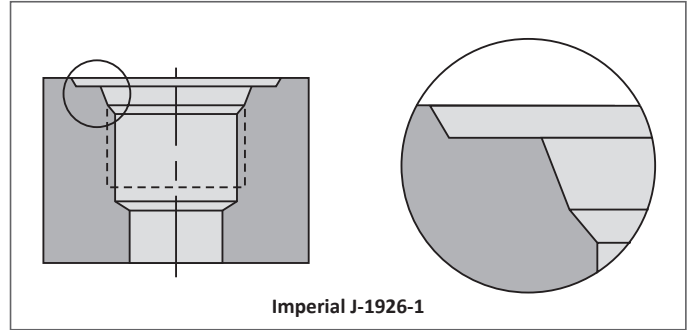
Hydraulic systems are present in an incredibly diverse range of industries. Anywhere a hydraulic port is required, AccuPort can provide a more cost-effective and higher performance solution in a fraction of the time taken for traditional methods using separate drills, special forming tools, and spot facers.

| Port Specification | Notes |
|--|---|
| <p>Imperial SAE J-1926 ISO 11926-1 MS-16142</p>  | <p>Extended minor diameter length option also available</p>  |
| <p>Metric ISO 6149-1:2006 SAE J-2244/1</p>  | <p>Holders made with ID ridge Utilizes inserts with or without ID ridge</p>  <ul style="list-style-type: none">  ID ridge  No ID ridge |
| <p>Military SAE AS5202</p>  | <p>Also conforms to AND10050 specification by using an alternate tap drill size for a UN thread</p> |
| <p>John Deere® JDS-G173.1</p>  | <p>Adheres to John Deere port standards</p> |



Choosing the Right System

Every product in the AccuPort 432 product line is designed to deliver maximum performance in a diverse range of hydraulic port cutting applications and demanding manufacturing environments. The innovative design delivers the best possible range of benefits in terms of productivity, cost per hole, and tool life.



Common Industry Sectors and Components



Aerospace
Pumps
Landing Gear
Brake Cylinders
Manifolds



Agriculture
Pumps
Manifolds
Cylinders and Rams
Gear Pumps



Automotive
Motor Valves
Relief Valves
Brake Cylinders
Power Steering Pumps



Marine / Shipbuilding
Pumps
Cylinders and Rams
Motors
Manifolds

The Complete Package

Producing fully finished threaded hydraulic ports has never been easier. The Port and Thread Finishing Kit includes the AccuPort 432 contour cutter with a dedicated AccuThread® solid carbide thread mill in a single kit. You also receive the T-A® inserts and port form inserts needed to complete the assembly.

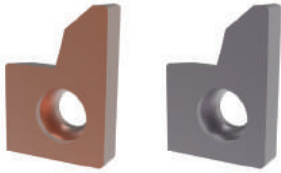

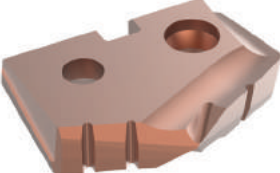

Port kits incorporate the AccuThread solid carbide thread mills to increase the manufacturing flexibility by allowing hydraulic ports to be produced in just two operations. In addition, where a unique port profile is required, Allied Machine provides a dedicated special tooling solution using our extensive tool design and manufacturing experience to meet precise specifications.



Replaceable Inserts Overview

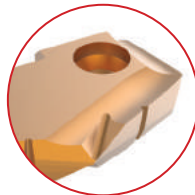
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

| T-A® Drill Insert Grades | | | |
|--|---|--|---|
| HSS Super Cobalt (T-A® / GEN2 T-A®) Suited for good to rigid machining applications, used for drilling exotic and high alloy materials, or general use when surface speed needs to be increased for use in material hardness up to 350 BHN 121kg. | Carbide C5 (P40) (T-A® only) Excellent for drilling free-machining steel, low-/medium-carbon steels, alloy steels, high-strength steels, tool steels, and hardened steels. | Carbide C1 (K10) (GEN2 T-A® only) Excellent for drilling free-machining steel, low-/medium-carbon steels, alloy steels, high-strength steels, tool steels, and hardened steels. | Carbide C3 (K35) (T-A® only) Designed for drilling grey/white cast irons. The special geometry offers substantial increases in penetration rates and provides exceptional edge strength and tool life. |

| Port Form Inserts | GEN2 T-A Inserts | | T-A Inserts |
|--|---|--|--|
|  AM200® TiAlN |  AM300® |  AM200® |  TiN |

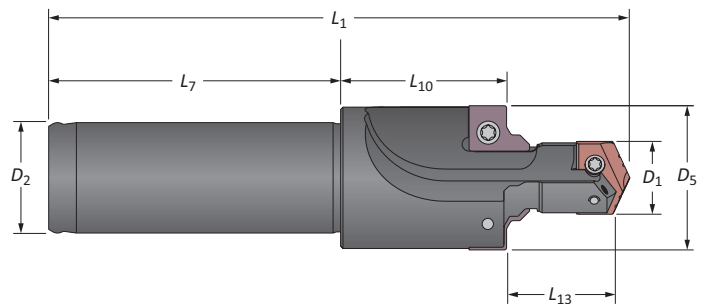
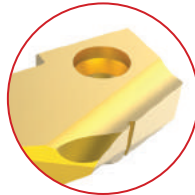
GEN2 T-A Standard Geometry

- Designed for rigid machining applications, primarily used for drilling exotic and high alloy materials
- Ideal for general use when the surface speed needs to be increased



T-A Standard Geometry

- First choice for machining aluminum
- Enhanced geometry improves chip formation and hole quality
- TiN coating improves heat resistance and extends tool life



Made-to-Order Tool Specifications

Scan and email a copy of the table below to Allied's Application Engineering Department to receive pricing for a made-to-order AccuPort 432 Port Contour Cutter.

Send emails to appeng@alliedmachine.com

| Tube Dash No. | Specification | Port Thread Size | D ₁ | L ₁₃ | D ₅ | L ₁₀ | L ₁ | D ₂ | L ₇ |
|---------------|---|------------------|----------------|-----------------|----------------|-----------------|----------------|----------------|----------------|
| | <input type="checkbox"/> J1926 <input type="checkbox"/> ISO 6149 <input type="checkbox"/> ISO 6149 (no ridge) <input type="checkbox"/> JDS-G173.1 <input type="checkbox"/> AS5202 | | | | | | | | |

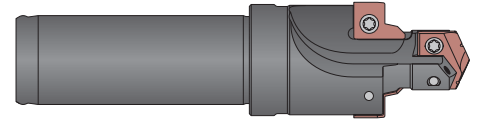
| | | |
|---|---|--------------------------------------|
| Company Name <input type="text"/> | Contact Name <input type="text"/> | Phone <input type="text"/> |
| Distributor Name <input type="text"/> | Fax <input type="text"/> | |



Product Nomenclature

AccuPort 432 Holders

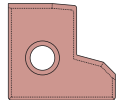
| | | | | | | |
|--------------|---|-----------|---|----------|---|-------------|
| J1926 | - | 04 | - | Y | - | 063F |
| 1 | | 2 | | 3 | | 4 |



| 1. Port Specifications | 2. Port Tube Dash No. | 3. T-A® Insert Series | 4. Shank Configuration | |
|--|-----------------------|-----------------------|------------------------------|----------------------------|
| J1926 = Imperial - J1926-1 | 04 14 | Y = Y series | Imperial | Metric |
| X1926 = Imperial - J1926-1 (extended minor length) | 05 16 | Z = Z series | 063F = 5/8" flanged | 16FM = 16mm flanged |
| I6149 = Metric (ISO) - 6149-1 | 06 18 | 0 = 0 series | 075F = 3/4" flanged | 20FM = 20mm flanged |
| G1731 = John Deere® - G173.1 | 08 20 | 1 = 1 series | 100F = 1" flanged | 25FM = 25mm flanged |
| AS5202 = Military - AS5202 | 10 24 | 2 = 2 series | 125F = 1-1/4" flanged | 32FM = 32mm flanged |
| | 12 32 | 3 = 3 series | 150F = 1-1/2" flanged | |
| | | 4 = 4 series | | |

AccuPort 432 Port Form Inserts

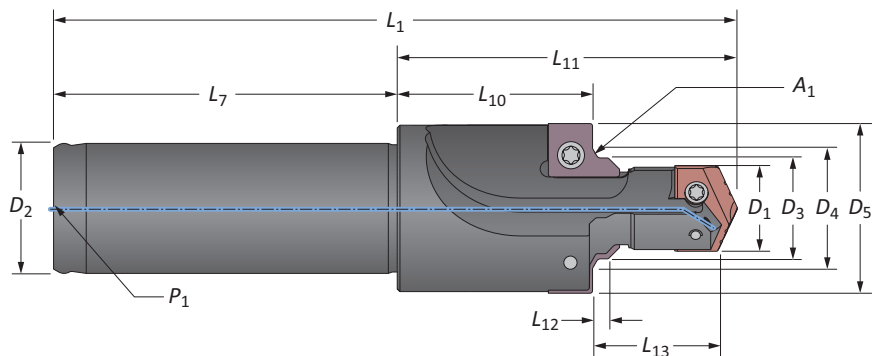
| | | | | | | | | |
|--------------|---|-----------|---|----------|---|-----------|---|----------|
| J1926 | - | 02 | - | R | - | C5 | - | A |
| 1 | | 2 | | 3 | | 4 | | 5 |



| 1. Port Specifications | 2. Insert Size | 3. Port Specifications | 4. Substrate | 5. Coating |
|-----------------------------|---------------------|----------------------------|------------------------|-------------------|
| J1926 = Imperial | 02 10 | Blank = No ID ridge | C5 = C5 carbide | A = TiAlN |
| I6149 = Metric (ISO) | 03 11 | R = ID ridge | C3 = C3 carbide | H = AM200® |
| G1731 = John Deere | 04 12 | | | |
| AS5202 = Military | 05 14 | | | |
| | 06 16 | | | |
| | 07 20 | | | |
| | 08 24 | | | |
| | 09 32 | | | |

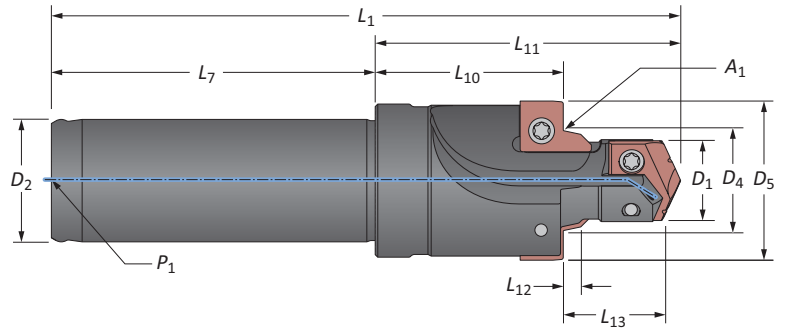
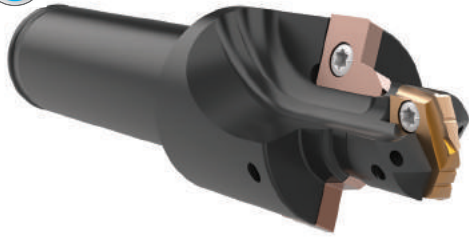
Reference Key

| Symbol | Attribute |
|----------|------------------------------|
| A_1 | Seal angle |
| D_1 | Minor diameter |
| D_2 | Shank diameter |
| D_3 | Pilot diameter |
| D_4 | Seal angle diameter |
| D_5 | Spot face diameter |
| L_1 | Overall length |
| L_7 | Shank length |
| L_{10} | Spot face to shoulder length |
| L_{11} | Total head length |
| L_{12} | Seal angle length |
| L_{13} | Minor diameter length |
| P_1 | Rear pipe tap |



SAE J-1926 / ISO 11926-1 / MS-16142

Imperial Shank Holders



| Tube Dash No. | Cutting | | | Seal Angle | | | Holder | | | Shank | | | Port Thread Size | Part No. |
|---------------|----------------|-------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|----------------|------------------|----------------|
| | D ₁ | L ₁₃ * | D ₅ | A ₁ | D ₄ | L ₁₂ | L ₁₁ | L ₁₀ | L ₁ | L ₇ | D ₂ | P ₁ | | |
| -4 | 0.386 | 0.551 | 0.840 | 12° | 0.490 | 0.106 | 1.527 | 0.896 | 3.402 | 1.875 | 0.625 | 1/16 NPT | 7/16-20 UNF-2B | J1926-04Y-063F |
| -5 | 0.453 | 0.551 | 0.926 | 12° | 0.553 | 0.106 | 1.527 | 0.885 | 3.402 | 1.875 | 0.625 | 1/16 NPT | 1/2-20 UNF-2B | J1926-05Z-063F |
| -6 | 0.512 | 0.610 | 0.989 | 12° | 0.618 | 0.106 | 1.857 | 1.144 | 3.826 | 1.969 | 0.750 | 1/8 NPT | 9/16-18 UNF-2B | J1926-060-075F |
| -8 | 0.689 | 0.689 | 1.206 | 15° | 0.813 | 0.106 | 1.982 | 1.150 | 3.951 | 1.969 | 0.750 | 1/8 NPT | 3/4-16 UNF-2B | J1926-080-075F |
| -10 | 0.807 | 0.787 | 1.344 | 15° | 0.945 | 0.106 | 2.140 | 1.185 | 4.421 | 2.281 | 1.000 | 1/8 NPT | 7/8-14 UNF-2B | J1926-101-100F |
| i -12 | 0.984 | 0.906 | 1.655 | 15° | 1.150 | 0.138 | 2.640 | 1.530 | 4.921 | 2.281 | 1.250 | 1/4 NPT | 1 1/16-12 UN-2B | J1926-122-125F |
| -14 | 1.102 | 0.906 | 1.781 | 15° | 1.276 | 0.138 | 2.640 | 1.504 | 4.921 | 2.281 | 1.250 | 1/4 NPT | 1 3/16-12 UN-2B | J1926-142-125F |
| -16 | 1.231 | 0.906 | 1.934 | 15° | 1.400 | 0.138 | 2.640 | 1.477 | 4.921 | 2.281 | 1.250 | 1/4 NPT | 1 5/16-12 UN-2B | J1926-162-125F |
| -20 | 1.535 | 0.906 | 2.306 | 15° | 1.715 | 0.138 | 3.062 | 1.835 | 5.750 | 2.688 | 1.500 | 1/4 NPT | 1 5/8-12 UN-2B | J1926-203-150F |
| -24 | 1.791 | 0.906 | 2.564 | 15° | 1.965 | 0.138 | 3.062 | 1.778 | 5.750 | 2.688 | 1.500 | 1/4 NPT | 1 7/8-12 UN-2B | J1926-243-150F |
| -32 | 2.421 | 0.906 | 3.470 | 15° | 2.589 | 0.138 | 3.812 | 2.393 | 6.500 | 2.688 | 1.500 | 1/4 NPT | 2 1/2-12 UN-2B | J1926-324-150F |
| m -4 | 9.80 | 14.00 | 21.30 | 12° | 12.50 | 2.70 | 38.80 | 22.80 | 86.40 | 47.60 | 15.90 | 1/16 NPT | 7/16-20 UNF-2B | J1926-04Y-063F |
| -5 | 11.50 | 14.00 | 23.50 | 12° | 14.10 | 2.70 | 38.80 | 22.50 | 86.40 | 47.60 | 15.90 | 1/16 NPT | 1/2-20 UNF-2B | J1926-05Z-063F |
| -6 | 13.00 | 15.50 | 25.10 | 12° | 15.70 | 2.70 | 47.20 | 29.00 | 97.20 | 50.00 | 19.10 | 1/8 NPT | 9/16-18 UNF-2B | J1926-060-075F |
| -8 | 17.50 | 17.50 | 30.60 | 15° | 20.70 | 2.70 | 50.30 | 29.20 | 100.40 | 50.00 | 19.10 | 1/8 NPT | 3/4-16 UNF-2B | J1926-080-075F |
| -10 | 20.50 | 20.00 | 34.10 | 15° | 24.00 | 2.70 | 54.40 | 30.10 | 112.30 | 57.90 | 25.40 | 1/8 NPT | 7/8-14 UNF-2B | J1926-101-100F |
| m -12 | 25.00 | 23.00 | 42.00 | 15° | 29.20 | 3.50 | 67.10 | 38.90 | 125.00 | 57.90 | 31.80 | 1/4 NPT | 1 1/16-12 UN-2B | J1926-122-125F |
| -14 | 28.00 | 23.00 | 45.20 | 15° | 32.40 | 3.50 | 67.10 | 38.20 | 125.00 | 57.90 | 31.80 | 1/4 NPT | 1 3/16-12 UN-2B | J1926-142-125F |
| -16 | 31.20 | 23.00 | 49.10 | 15° | 35.60 | 3.50 | 67.10 | 37.50 | 125.00 | 57.90 | 31.80 | 1/4 NPT | 1 5/16-12 UN-2B | J1926-162-125F |
| -20 | 39.00 | 23.00 | 58.50 | 15° | 43.60 | 3.50 | 77.80 | 46.60 | 146.00 | 68.30 | 38.10 | 1/4 NPT | 1 5/8-12 UN-2B | J1926-203-150F |
| -24 | 45.50 | 23.00 | 65.10 | 15° | 49.90 | 3.50 | 77.80 | 45.20 | 146.00 | 68.30 | 38.10 | 1/4 NPT | 1 7/8-12 UN-2B | J1926-243-150F |
| -32 | 61.50 | 23.00 | 88.10 | 15° | 65.80 | 3.50 | 96.80 | 60.80 | 165.10 | 68.30 | 38.10 | 1/4 NPT | 2 1/2-12 UN-2B | J1926-324-150F |

*Port contour cutters are available with extended pilot length (L₁₃). See pages A92: 10-11 for items.

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

A92: 30 - 37 Key on A92: 1

A92: 2 - 4

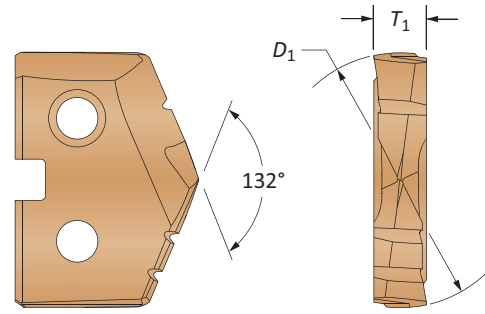
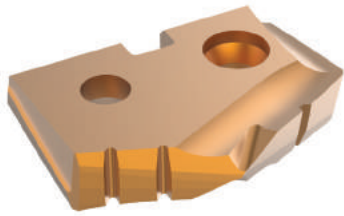
A92: 18 - 19

i = Imperial (in)
m = Metric (mm)



SAE J-1926 / ISO 11926-1 / MS-16142

Inserts



See section A30 for complete T-A insert details

T-A® / GEN2 T-A® Drill Inserts

| Tube Dash No. | AccuPort Part No. | T-A® Insert Series | Part No. | | Insert Screw | Insert Driver | Admissible Tightening Torque* |
|---------------|-------------------|--------------------|-----------------------|------------------|--------------|---------------|-------------------------------|
| | | | Super Cobalt (AM200®) | Carbide (AM300®) | | | |
| -4 | J1926-04Y-063F | Y | 45YH-.386 | 4C1YP-.386 | 724-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -5 | J1926-05Z-063F | Z | 45ZH-11.5 | 4C1ZP-11.5 | 7247-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -6 | J1926-060-075F | 0 | 450H-13 | 4C10P-13 | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | J1926-080-075F | 0 | 450H-0022 | 4C10P-0022 | 72567-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | J1926-101-100F | 1 | 451H-20.5 | 4C11P-20.5 | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -12 | J1926-122-125F | 2 | 452H-25 | 4C12P-25 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -14 | J1926-142-125F | 2 | 452H-28 | 4C12P-28 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -16 | J1926-162-125F | 2 | 452H-1.231 | 4C12P-1.231 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -20 | J1926-203-150F | 3 | 453H-39 | 1C53A-39 | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -24 | J1926-243-150F | 3 | 453H-45.5 | 1C53A-45.5 | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -32 | J1926-324-150F | 4 | 454H-61.5 | - | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Port Form Drill Inserts

| Tube Dash No. | AccuPort Part No. | Part No. | | Insert Screw | Insert Driver | Admissible Tightening Torque* |
|---------------|-------------------|---------------------|--------------------|--------------|---------------|-------------------------------|
| | | C3 Carbide (AM200®) | C5 Carbide (TiAlN) | | | |
| -4 | J1926-04Y-063F | J1926-02-C3H | J1926-02-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -5 | J1926-05Z-063F | J1926-03-C3H | J1926-03-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -6 | J1926-060-075F | J1926-03-C3H | J1926-03-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | J1926-080-075F | J1926-07-C3H | J1926-07-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | J1926-101-100F | J1926-04-C3H | J1926-04-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -12 | J1926-122-125F | J1926-08-C3H | J1926-08-C5A | 7375-IP9-1 | 8IP-9 | 15.5 in/lbs (175 N-cm) |
| -14 | J1926-142-125F | J1926-08-C3H | J1926-08-C5A | 7375-IP9-1 | 8IP-9 | 15.5 in/lbs (175 N-cm) |
| -16 | J1926-162-125F | J1926-09-C3H | J1926-09-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -20 | J1926-203-150F | J1926-10-C3H | J1926-10-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -24 | J1926-243-150F | J1926-11-C3H | J1926-11-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -32 | J1926-324-150F | J1926-12-C3H | J1926-12-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A92: 30 - 37

A92: 2 - 4

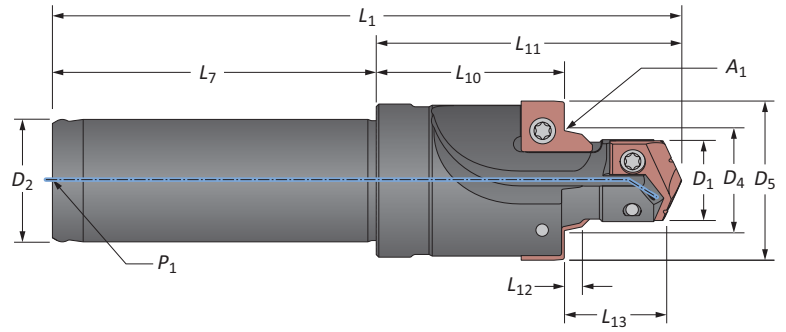
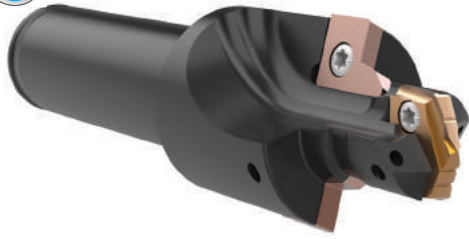
A92: 18 - 19

Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

SAE J-1926 / ISO 11926-1 / MS-16142

Metric Shank Holders



| Tube Dash No. | Cutting | | | Seal Angle | | | Holder | | | Shank | | | Port Thread Size | Part No. |
|---------------|----------------|-----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|----------------|------------------|-----------------|
| | D ₁ | L ₁₃ | D ₅ | A ₁ | D ₄ | L ₁₂ | L ₁₁ | L ₁₀ | L ₁ | L ₇ | D ₂ | P ₁ | | |
| -4 | 0.386 | 0.551 | 0.840 | 12° | 0.490 | 0.106 | 1.527 | 0.896 | 3.177 | 1.650 | 0.630 | 1/16 BSPT | 7/16-20 UNF-2B | J1926-04Y-16FM |
| -5 | 0.453 | 0.551 | 0.926 | 12° | 0.553 | 0.106 | 1.527 | 0.885 | 3.177 | 1.650 | 0.630 | 1/16 BSPT | 1/2-20 UNF-2B | J1926-05Z-16FM |
| -6 | 0.512 | 0.610 | 0.989 | 12° | 0.618 | 0.106 | 1.857 | 1.144 | 3.508 | 1.650 | 0.787 | 1/8 BSPT | 9/16-18 UNF-2B | J1926-060-20FM |
| -8 | 0.689 | 0.689 | 1.206 | 15° | 0.813 | 0.106 | 1.982 | 1.150 | 3.630 | 1.650 | 0.787 | 1/8 BSPT | 3/4-16 UNF-2B | J1926-080-20FM |
| -10 | 0.807 | 0.787 | 1.344 | 15° | 0.945 | 0.106 | 2.140 | 1.185 | 4.232 | 2.091 | 0.984 | 1/8 BSPT | 7/8-14 UNF-2B | J1926-101-25FM |
| i -12 | 0.984 | 0.906 | 1.655 | 15° | 1.150 | 0.138 | 2.640 | 1.530 | 4.921 | 2.280 | 1.260 | 1/4 BSPT | 1 1/16-12 UN-2B | J1926-122-32FM |
| -14 | 1.102 | 0.906 | 1.781 | 15° | 1.276 | 0.138 | 2.640 | 1.504 | 4.921 | 2.280 | 1.260 | 1/4 BSPT | 1 3/16-12 UN-2B | J1926-142-32FM |
| -16 | 1.231 | 0.906 | 1.934 | 15° | 1.400 | 0.138 | 2.640 | 1.477 | 4.921 | 2.280 | 1.260 | 1/4 BSPT | 1 5/16-12 UN-2B | J1926-162-32FM |
| -20 | 1.535 | 0.906 | 2.306 | 15° | 1.715 | 0.138 | 3.062 | 1.835 | 5.642 | 2.580 | 1.260 | 1/4 BSPT | 1 5/8-12 UN-2B | J1926-203-32FM* |
| -24 | 1.791 | 0.906 | 2.564 | 15° | 1.965 | 0.138 | 3.062 | 1.778 | 5.642 | 2.580 | 1.260 | 1/4 BSPT | 1 7/8-12 UN-2B | J1926-243-32FM* |
| -32 | 2.421 | 0.906 | 3.470 | 15° | 2.589 | 0.138 | 3.812 | 2.393 | 6.390 | 2.580 | 1.260 | 1/4 BSPT | 2 1/2-12 UN-2B | J1926-324-32FM* |
| m -4 | 9.80 | 14.00 | 21.30 | 12° | 12.50 | 2.70 | 38.80 | 22.80 | 80.70 | 41.90 | 16.00 | 1/16 BSPT | 7/16-20 UNF-2B | J1926-04Y-16FM |
| -5 | 11.50 | 14.00 | 23.50 | 12° | 14.10 | 2.70 | 38.80 | 22.50 | 80.70 | 41.90 | 16.00 | 1/16 BSPT | 1/2-20 UNF-2B | J1926-05Z-16FM |
| -6 | 13.00 | 15.50 | 25.10 | 12° | 15.70 | 2.70 | 47.20 | 29.00 | 89.10 | 41.90 | 20.00 | 1/8 BSPT | 9/16-18 UNF-2B | J1926-060-20FM |
| -8 | 17.50 | 17.50 | 30.60 | 15° | 20.70 | 2.70 | 50.30 | 29.20 | 92.20 | 41.90 | 20.00 | 1/8 BSPT | 3/4-16 UNF-2B | J1926-080-20FM |
| -10 | 20.50 | 20.00 | 34.10 | 15° | 24.00 | 2.70 | 54.40 | 30.10 | 107.50 | 53.10 | 25.00 | 1/8 BSPT | 7/8-14 UNF-2B | J1926-101-25FM |
| m -12 | 25.00 | 23.00 | 42.00 | 15° | 29.20 | 3.50 | 67.10 | 38.90 | 125.00 | 57.90 | 32.00 | 1/4 BSPT | 1 1/16-12 UN-2B | J1926-122-32FM |
| -14 | 28.00 | 23.00 | 45.20 | 15° | 32.40 | 3.50 | 67.10 | 38.20 | 125.00 | 57.90 | 32.00 | 1/4 BSPT | 1 3/16-12 UN-2B | J1926-142-32FM |
| -16 | 31.20 | 23.00 | 49.10 | 15° | 35.60 | 3.50 | 67.10 | 37.50 | 125.00 | 57.90 | 32.00 | 1/4 BSPT | 1 5/16-12 UN-2B | J1926-162-32FM |
| -20 | 39.00 | 23.00 | 58.50 | 15° | 43.60 | 3.50 | 77.80 | 46.60 | 143.30 | 65.50 | 32.00 | 1/4 BSPT | 1 5/8-12 UN-2B | J1926-203-32FM* |
| -24 | 45.50 | 23.00 | 65.10 | 15° | 49.90 | 3.50 | 77.80 | 45.20 | 143.30 | 65.50 | 32.00 | 1/4 BSPT | 1 7/8-12 UN-2B | J1926-243-32FM* |
| -32 | 61.50 | 23.00 | 88.10 | 15° | 65.80 | 3.50 | 96.80 | 60.80 | 162.30 | 65.50 | 32.00 | 1/4 BSPT | 2 1/2-12 UN-2B | J1926-324-32FM* |

***NOTICE:** Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

A92: 30 - 37

A92: 2 - 4

A92: 18 - 21

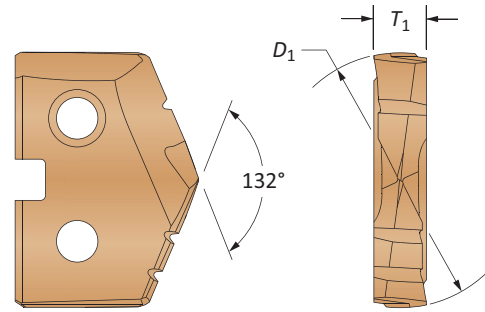
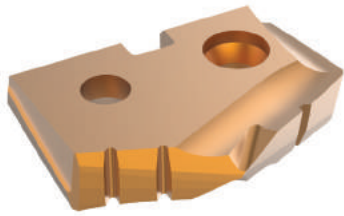
Key on A92: 1

i = Imperial (in)
m = Metric (mm)





SAE J-1926 / ISO 11926-1 / MS-16142

Inserts



See section A30 for complete T-A insert details



T-A® / GEN2 T-A® Drill Inserts

| Tube Dash No. | AccuPort Part No. | T-A® Insert Series | Part No. | | Insert Screw | Insert Driver | Admissible Tightening Torque** |
|---------------|-------------------|--------------------|---|--|--------------|---------------|--------------------------------|
| | | |  Super Cobalt (AM200®) |  Carbide (AM300®) | | | |
| -4 | J1926-04Y-16FM | Y | 45YH-.386 | 4C1YP-.386 | 724-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -5 | J1926-05Z-16FM | Z | 45ZH-11.5 | 4C1ZP-11.5 | 7247-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -6 | J1926-060-20FM | 0 | 450H-13 | 4C10P-13 | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | J1926-080-20FM | 0 | 450H-0022 | 4C10P-0022 | 72567-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | J1926-101-25FM | 1 | 451H-20.5 | 4C11P-20.5 | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -12 | J1926-122-32FM | 2 | 452H-25 | 4C12P-25 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -14 | J1926-142-32FM | 2 | 452H-28 | 4C12P-28 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -16 | J1926-162-32FM | 2 | 452H-1.231 | 4C12P-1.231 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -20 | J1926-203-32FM* | 3 | 453H-39 | 1C53A-39 | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -24 | J1926-243-32FM* | 3 | 453H-45.5 | 1C53A-45.5 | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -32 | J1926-324-32FM* | 4 | 454H-61.5 | - | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

**Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

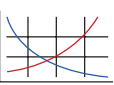
Port Form Drill Inserts

| Tube Dash No. | AccuPort Part No. | Part No. | | Insert Screw | Insert Driver | Admissible Tightening Torque** |
|---------------|-------------------|---|--|--------------|---------------|--------------------------------|
| | |  C3 Carbide (AM200®) |  C5 Carbide (TiAlN) | | | |
| -4 | J1926-04Y-16FM | J1926-02-C3H | J1926-02-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -5 | J1926-05Z-16FM | J1926-03-C3H | J1926-03-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -6 | J1926-060-20FM | J1926-03-C3H | J1926-03-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | J1926-080-20FM | J1926-07-C3H | J1926-07-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | J1926-101-25FM | J1926-04-C3H | J1926-04-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -12 | J1926-122-32FM | J1926-08-C3H | J1926-08-C5A | 7375-IP9-1 | 8IP-9 | 15.5 in/lbs (175 N-cm) |
| -14 | J1926-142-32FM | J1926-08-C3H | J1926-08-C5A | 7375-IP9-1 | 8IP-9 | 15.5 in/lbs (175 N-cm) |
| -16 | J1926-162-32FM | J1926-09-C3H | J1926-09-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -20 | J1926-203-32FM* | J1926-10-C3H | J1926-10-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -24 | J1926-243-32FM* | J1926-11-C3H | J1926-11-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -32 | J1926-324-32FM* | J1926-12-C3H | J1926-12-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |


*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

**Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength


A92: 30 - 37



A92: 2 - 4



A92: 18 - 21

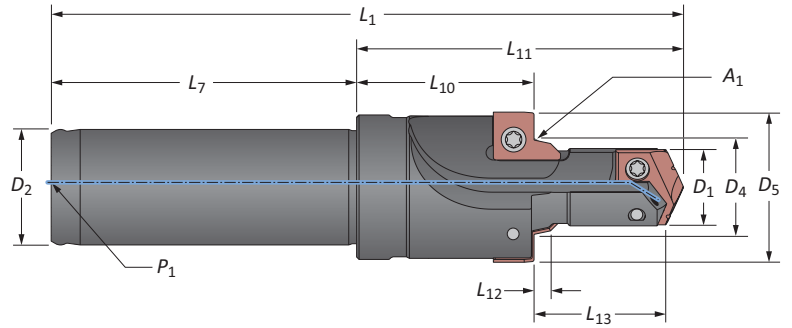


Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

A DRILLING B BORING C REAMING D BURNISHING E THREADING X SPECIALS

SAE J-1926 / ISO 11926-1 / MS-16142

Imperial Shank Holders | Extended Minor Diameter Lengths (L_{13})



| Tube Dash No. | Cutting | | | Seal Angle | | | Holder | | | Shank | | | Port Thread Size | Part No. |
|---------------|---------|----------|-------|------------|-------|----------|----------|----------|--------|-------|-------|----------|------------------|----------------|
| | D_1 | L_{13} | D_5 | A_1 | D_4 | L_{12} | L_{11} | L_{10} | L_1 | L_7 | D_2 | P_1 | | |
| -4 | 0.386 | 0.801 | 0.840 | 12° | 0.490 | 0.106 | 1.777 | 0.896 | 3.650 | 1.875 | 0.625 | 1/16 NPT | 7/16-20 UNF-2B | X1926-04Y-063F |
| -5 | 0.453 | 0.801 | 0.926 | 12° | 0.553 | 0.106 | 1.777 | 0.885 | 3.650 | 1.875 | 0.625 | 1/16 NPT | 1/2-20 UNF-2B | X1926-05Z-063F |
| -6 | 0.512 | 0.860 | 0.989 | 12° | 0.618 | 0.106 | 2.107 | 1.144 | 4.075 | 1.969 | 0.750 | 1/8 NPT | 9/16-18 UNF-2B | X1926-060-075F |
| -8 | 0.689 | 0.939 | 1.206 | 15° | 0.813 | 0.106 | 2.232 | 1.150 | 4.201 | 1.969 | 0.750 | 1/8 NPT | 3/4-16 UNF-2B | X1926-080-075F |
| -10 | 0.807 | 1.037 | 1.344 | 15° | 0.945 | 0.106 | 2.390 | 1.185 | 4.669 | 2.281 | 1.000 | 1/8 NPT | 7/8-14 UNF-2B | X1926-101-100F |
| i -12 | 0.984 | 1.156 | 1.655 | 15° | 1.150 | 0.138 | 2.890 | 1.530 | 5.169 | 2.281 | 1.250 | 1/4 NPT | 1 1/16-12 UN-2B | X1926-122-125F |
| -14 | 1.102 | 1.156 | 1.781 | 15° | 1.276 | 0.138 | 2.890 | 1.504 | 5.169 | 2.281 | 1.250 | 1/4 NPT | 1 3/16-12 UN-2B | X1926-142-125F |
| -16 | 1.231 | 1.156 | 1.934 | 15° | 1.400 | 0.138 | 2.890 | 1.477 | 5.169 | 2.281 | 1.250 | 1/4 NPT | 1 5/16-12 UN-2B | X1926-162-125F |
| -20 | 1.535 | 1.156 | 2.306 | 15° | 1.715 | 0.138 | 3.312 | 1.835 | 6.000 | 2.688 | 1.500 | 1/4 NPT | 1 5/8-12 UN-2B | X1926-203-150F |
| -24 | 1.791 | 1.156 | 2.564 | 15° | 1.965 | 0.138 | 3.312 | 1.778 | 6.000 | 2.688 | 1.500 | 1/4 NPT | 1 7/8-12 UN-2B | X1926-243-150F |
| -32 | 2.421 | 1.156 | 3.470 | 15° | 2.589 | 0.138 | 4.062 | 2.393 | 6.752 | 2.688 | 1.500 | 1/4 NPT | 2 1/2-12 UN-2B | X1926-324-150F |
| m -4 | 9.80 | 20.30 | 21.30 | 12° | 12.50 | 2.70 | 45.10 | 22.80 | 92.70 | 47.60 | 15.90 | 1/16 NPT | 7/16-20 UNF-2B | X1926-04Y-063F |
| -5 | 11.50 | 20.30 | 23.50 | 12° | 14.10 | 2.70 | 45.10 | 22.50 | 92.70 | 47.60 | 15.90 | 1/16 NPT | 1/2-20 UNF-2B | X1926-05Z-063F |
| -6 | 13.00 | 21.80 | 25.10 | 12° | 15.70 | 2.70 | 53.50 | 29.00 | 103.50 | 50.00 | 19.10 | 1/8 NPT | 9/16-18 UNF-2B | X1926-060-075F |
| -8 | 17.50 | 23.80 | 30.60 | 15° | 20.70 | 2.70 | 56.70 | 29.20 | 106.70 | 50.00 | 19.10 | 1/8 NPT | 3/4-16 UNF-2B | X1926-080-075F |
| -10 | 20.50 | 26.30 | 34.10 | 15° | 24.00 | 2.70 | 60.70 | 30.10 | 118.60 | 57.90 | 25.40 | 1/8 NPT | 7/8-14 UNF-2B | X1926-101-100F |
| m -12 | 25.00 | 29.30 | 42.00 | 15° | 29.20 | 3.50 | 73.40 | 38.90 | 131.30 | 57.90 | 31.80 | 1/4 NPT | 1 1/16-12 UN-2B | X1926-122-125F |
| -14 | 28.00 | 29.30 | 45.20 | 15° | 32.40 | 3.50 | 73.40 | 38.20 | 131.30 | 57.90 | 31.80 | 1/4 NPT | 1 3/16-12 UN-2B | X1926-142-125F |
| -16 | 31.20 | 29.30 | 49.10 | 15° | 35.60 | 3.50 | 73.40 | 37.50 | 131.30 | 57.90 | 31.80 | 1/4 NPT | 1 5/16-12 UN-2B | X1926-162-125F |
| -20 | 39.00 | 29.30 | 58.50 | 15° | 43.60 | 3.50 | 84.10 | 46.60 | 152.40 | 68.30 | 38.10 | 1/4 NPT | 1 5/8-12 UN-2B | X1926-203-150F |
| -24 | 45.50 | 29.30 | 65.10 | 15° | 49.90 | 3.50 | 84.10 | 45.20 | 152.40 | 68.30 | 38.10 | 1/4 NPT | 1 7/8-12 UN-2B | X1926-243-150F |
| -32 | 61.50 | 29.30 | 88.10 | 15° | 65.80 | 3.50 | 103.20 | 60.80 | 171.50 | 68.30 | 38.10 | 1/4 NPT | 2 1/2-12 UN-2B | X1926-324-150F |

A DRILLING

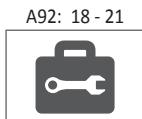
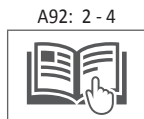
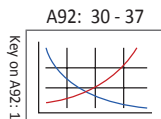
B BORING

C REAMING

D BURNISHING

F THREADING

X SPECIALS



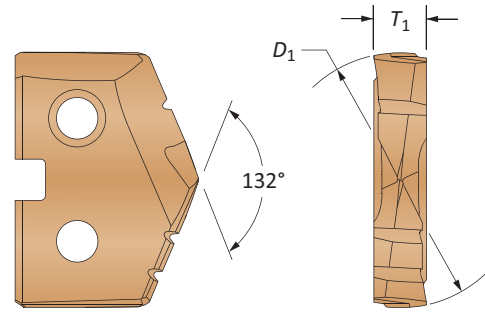
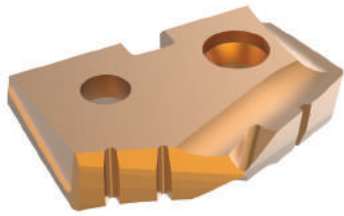
Key on A92: 1

i = Imperial (in)
m = Metric (mm)



SAE J-1926 / ISO 11926-1 / MS-16142

Inserts



See section A30 for complete T-A insert details

T-A® / GEN2 T-A® Drill Inserts

| Tube Dash No. | AccuPort Part No. | T-A® Insert Series | Part No. | | Insert Screw | Insert Driver | Admissible Tightening Torque* |
|---------------|-------------------|--------------------|-----------------------|------------------|--------------|---------------|-------------------------------|
| | | | Super Cobalt (AM200®) | Carbide (AM300®) | | | |
| -4 | X1926-04Y-063F | Y | 45YH-.386 | 4C1YP-.386 | 724-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -5 | X1926-05Z-063F | Z | 45ZH-11.5 | 4C1ZP-11.5 | 7247-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -6 | X1926-060-075F | 0 | 450H-13 | 4C10P-13 | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | X1926-080-075F | 0 | 450H-0022 | 4C10P-0022 | 72567-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | X1926-101-100F | 1 | 451H-20.5 | 4C11P-20.5 | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -12 | X1926-122-125F | 2 | 452H-25 | 4C12P-25 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -14 | X1926-142-125F | 2 | 452H-28 | 4C12P-28 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -16 | X1926-162-125F | 2 | 452H-1.231 | 4C12P-1.231 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -20 | X1926-203-150F | 3 | 453H-39 | 1C53A-39 | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -24 | X1926-243-150F | 3 | 453H-45.5 | 1C53A-45.5 | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -32 | X1926-324-150F | 4 | 454H-61.5 | - | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Port Form Drill Inserts

| Tube Dash No. | AccuPort Part No. | Part No. | | Insert Screw | Insert Driver | Admissible Tightening Torque* |
|---------------|-------------------|---------------------|--------------------|--------------|---------------|-------------------------------|
| | | C3 Carbide (AM200®) | C5 Carbide (TiAlN) | | | |
| -4 | X1926-04Y-063F | J1926-02-C3H | J1926-02-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -5 | X1926-05Z-063F | J1926-03-C3H | J1926-03-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -6 | X1926-060-075F | J1926-03-C3H | J1926-03-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | X1926-080-075F | J1926-07-C3H | J1926-07-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | X1926-101-100F | J1926-04-C3H | J1926-04-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -12 | X1926-122-125F | J1926-08-C3H | J1926-08-C5A | 7375-IP9-1 | 8IP-9 | 15.5 in/lbs (175 N-cm) |
| -14 | X1926-142-125F | J1926-08-C3H | J1926-08-C5A | 7375-IP9-1 | 8IP-9 | 15.5 in/lbs (175 N-cm) |
| -16 | X1926-162-125F | J1926-09-C3H | J1926-09-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -20 | X1926-203-150F | J1926-10-C3H | J1926-10-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -24 | X1926-243-150F | J1926-11-C3H | J1926-11-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -32 | X1926-324-150F | J1926-12-C3H | J1926-12-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A92: 30 - 37

A92: 2 - 4

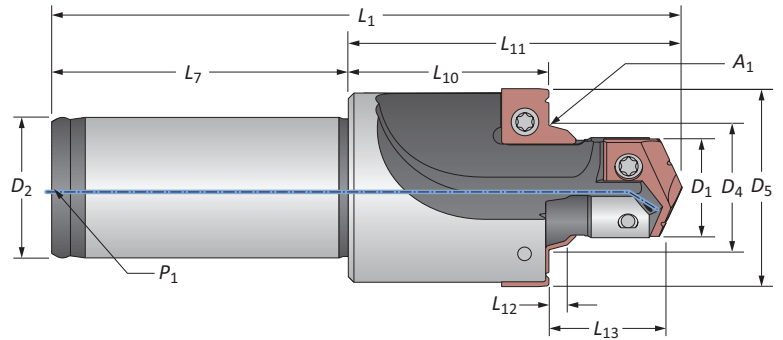
A92: 18 - 21

Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

X
 A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

ISO 6149-1:2006 / SAE J-2244/1

Metric Shank Holders



| Tube Dash No. | Cutting | | | Seal Angle | | | Holder | | | Shank | | Port Thread Size | Part No. | |
|---------------|----------------|-----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|------------------|-----------|------------------|
| | D ₁ | L ₁₃ | D ₅ | A ₁ | D ₄ | L ₁₂ | L ₁₁ | L ₁₀ | L ₁ | L ₇ | D ₂ | | | P ₁ |
| -4 | 0.413 | 0.556 | 0.945 | 15° | 0.544 | 0.102 | 1.527 | 0.876 | 3.177 | 1.650 | 0.630 | 1/16 BSPT | M12 X 1.5 | I6149-04RY-16FM |
| -5 | 0.492 | 0.556 | 1.024 | 15° | 0.623 | 0.102 | 1.527 | 0.858 | 3.177 | 1.650 | 0.630 | 1/16 BSPT | M14 X 1.5 | I6149-05RZ-16FM |
| -6 | 0.571 | 0.615 | 1.102 | 15° | 0.702 | 0.102 | 1.857 | 1.116 | 3.508 | 1.650 | 0.787 | 1/8 BSPT | M16 X 1.5 | I6149-06R0-20FM |
| -8 | 0.650 | 0.674 | 1.181 | 15° | 0.781 | 0.102 | 1.982 | 1.164 | 3.630 | 1.650 | 0.787 | 1/8 BSPT | M18 X 1.5 | I6149-08R0-20FM |
| -10 | 0.807 | 0.717 | 1.339 | 15° | 0.938 | 0.102 | 2.140 | 1.246 | 4.232 | 2.091 | 0.984 | 1/8 BSPT | M22 X 1.5 | I6149-10R1-25FM |
| i -12 | 0.984 | 0.874 | 1.575 | 15° | 1.159 | 0.130 | 2.640 | 1.552 | 4.921 | 2.280 | 1.260 | 1/4 BSPT | M27 X 2 | I6149-12R2-32FM |
| -14 | 1.102 | 0.874 | 1.733 | 15° | 1.277 | 0.130 | 2.640 | 1.526 | 4.921 | 2.280 | 1.260 | 1/4 BSPT | M30 X 2 | I6149-14R2-32FM |
| -16 | 1.220 | 0.874 | 1.929 | 15° | 1.395 | 0.130 | 2.640 | 1.499 | 4.921 | 2.280 | 1.260 | 1/4 BSPT | M33 X 2 | I6149-16R2-32FM |
| -20 | 1.575 | 0.895 | 2.362 | 15° | 1.749 | 0.130 | 3.062 | 1.828 | 5.343 | 2.280 | 1.260 | 1/4 BSPT | M42 X 2 | I6149-20R3-32FM* |
| -24 | 1.811 | 0.993 | 2.602 | 15° | 1.985 | 0.130 | 3.062 | 1.676 | 5.343 | 2.280 | 1.260 | 1/4 BSPT | M48 X 2 | I6149-24R3-32FM* |
| -32 | 2.283 | 1.092 | 2.992 | 15° | 2.458 | 0.130 | 3.812 | 2.228 | 6.091 | 2.280 | 1.260 | 1/4 BSPT | M60 X 2 | I6149-32R4-32FM* |
| <hr/> | | | | | | | | | | | | | | |
| m -4 | 10.50 | 14.10 | 24.00 | 15° | 13.81 | 2.60 | 38.80 | 22.20 | 80.70 | 41.90 | 16.00 | 1/16 BSPT | M12 X 1.5 | I6149-04RY-16FM |
| -5 | 12.50 | 14.10 | 26.00 | 15° | 15.80 | 2.60 | 38.80 | 21.80 | 80.70 | 41.90 | 16.00 | 1/16 BSPT | M14 X 1.5 | I6149-05RZ-16FM |
| -6 | 14.50 | 15.60 | 28.00 | 15° | 17.80 | 2.60 | 47.20 | 28.30 | 89.10 | 41.90 | 20.00 | 1/8 BSPT | M16 X 1.5 | I6149-06R0-20FM |
| -8 | 16.50 | 17.10 | 30.00 | 15° | 19.80 | 2.60 | 50.30 | 29.60 | 92.20 | 41.90 | 20.00 | 1/8 BSPT | M18 X 1.5 | I6149-08R0-20FM |
| -10 | 20.50 | 18.20 | 34.00 | 15° | 23.80 | 2.60 | 54.40 | 31.60 | 107.50 | 53.10 | 25.00 | 1/8 BSPT | M22 X 1.5 | I6149-10R1-25FM |
| m -12 | 25.00 | 22.20 | 40.00 | 15° | 29.40 | 3.30 | 67.10 | 39.40 | 125.00 | 57.90 | 32.00 | 1/4 BSPT | M27 X 2 | I6149-12R2-32FM |
| -14 | 28.00 | 22.20 | 44.00 | 15° | 32.40 | 3.30 | 67.10 | 38.80 | 125.00 | 57.90 | 32.00 | 1/4 BSPT | M30 X 2 | I6149-14R2-32FM |
| -16 | 31.00 | 22.20 | 49.00 | 15° | 35.40 | 3.30 | 67.10 | 38.10 | 125.00 | 57.90 | 32.00 | 1/4 BSPT | M33 X 2 | I6149-16R2-32FM |
| -20 | 40.00 | 22.70 | 60.00 | 15° | 44.40 | 3.30 | 77.80 | 46.40 | 135.70 | 57.90 | 32.00 | 1/4 BSPT | M42 X 2 | I6149-20R3-32FM* |
| -24 | 46.00 | 25.20 | 66.10 | 15° | 50.40 | 3.30 | 77.80 | 42.60 | 135.70 | 57.90 | 32.00 | 1/4 BSPT | M48 X 2 | I6149-24R3-32FM* |
| -32 | 58.00 | 27.70 | 76.00 | 15° | 62.40 | 3.30 | 96.80 | 56.60 | 154.70 | 57.90 | 32.00 | 1/4 BSPT | M60 X 2 | I6149-32R4-32FM* |

***NOTICE:** Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

A92: 30 - 37

A92: 2 - 4

A92: 22 - 25

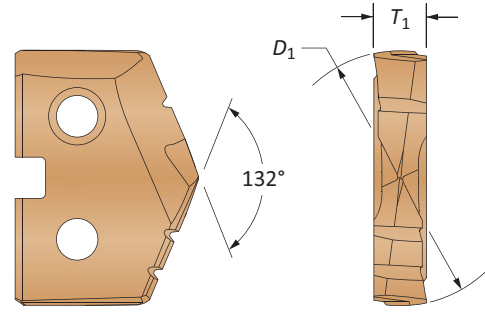
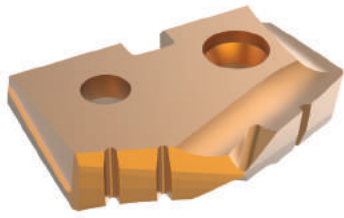
Key on A92: 1

i = Imperial (in)
m = Metric (mm)



ISO 6149-1:2006 / SAE J-2244/1

Inserts



See section A30 for complete T-A insert details

T-A® / GEN2 T-A® Drill Inserts

| Tube Dash No. | AccuPort Part No. | T-A® Insert Series | Part No. | | Insert Screw | Insert Driver | Admissible Tightening Torque** |
|---------------|-------------------|--------------------|-----------------------|------------------|--------------|---------------|--------------------------------|
| | | | Super Cobalt (AM200®) | Carbide (AM300®) | | | |
| -4 | I6149-04RY-16FM | Y | 45YH-10.5 | 4C1YP-10.5 | 724-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -5 | I6149-05RZ-16FM | Z | 45ZH-12.5 | 4C1ZP-12.5 | 7247-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -6 | I6149-06R0-20FM | 0 | 450H-14.5 | 4C10P-14.5 | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | I6149-08R0-20FM | 0 | 450H-16.5 | 4C10P-16.5 | 72567-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | I6149-10R1-25FM | 1 | 451H-20.5 | 4C11P-20.5 | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -12 | I6149-12R2-32FM | 2 | 452H-25 | 4C12P-25 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -14 | I6149-14R2-32FM | 2 | 452H-28 | 4C12P-28 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -16 | I6149-16R2-32FM | 2 | 452H-31 | 4C12P-31 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -20 | I6149-20R3-32FM* | 3 | 453H-40 | 1C53A-40 | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -24 | I6149-24R3-32FM* | 3 | 453H-46 | 1C53A-46 | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -32 | I6149-32R4-32FM* | 4 | 454H-58 | - | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

**Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Port Form Drill Inserts

| Tube Dash No. | AccuPort Part No. | Part No. - C3 Carbide (AM200®) | | Part No. - C5 Carbide (TiAlN) | | Insert Screw | Insert Driver | Admissible Tightening Torque** |
|---------------|-------------------|--------------------------------|--------------|-------------------------------|--------------|--------------|---------------|--------------------------------|
| | | ID Ridge | No ID Ridge | ID Ridge | No ID Ridge | | | |
| -4 | I6149-04RY-16FM | I6149-04R-C3H | I6149-04-C3H | I6149-04R-C5A | I6149-04-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -5 | I6149-05RZ-16FM | I6149-04R-C3H | I6149-04-C3H | I6149-04R-C5A | I6149-04-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -6 | I6149-06R0-20FM | I6149-06R-C3H | I6149-06-C3H | I6149-06R-C5A | I6149-06-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | I6149-08R0-20FM | I6149-06R-C3H | I6149-06-C3H | I6149-06R-C5A | I6149-06-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | I6149-10R1-25FM | I6149-04R-C3H | I6149-04-C3H | I6149-04R-C5A | I6149-04-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -12 | I6149-12R2-32FM | I6149-12R-C3H | I6149-12-C3H | I6149-12R-C5A | I6149-12-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -14 | I6149-14R2-32FM | I6149-14R-C3H | I6149-14-C3H | I6149-14R-C5A | I6149-14-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -16 | I6149-16R2-32FM | I6149-16R-C3H | I6149-16-C3H | I6149-16R-C5A | I6149-16-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -20 | I6149-20R3-32FM* | I6149-20R-C3H | I6149-20-C3H | I6149-20R-C5A | I6149-20-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -24 | I6149-24R3-32FM* | I6149-24R-C3H | I6149-24-C3H | I6149-24R-C5A | I6149-24-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -32 | I6149-32R4-32FM* | I6149-32R-C3H | I6149-32-C3H | I6149-32R-C5A | I6149-32-C5A | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

**Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

A92: 30 - 37

A92: 2 - 4

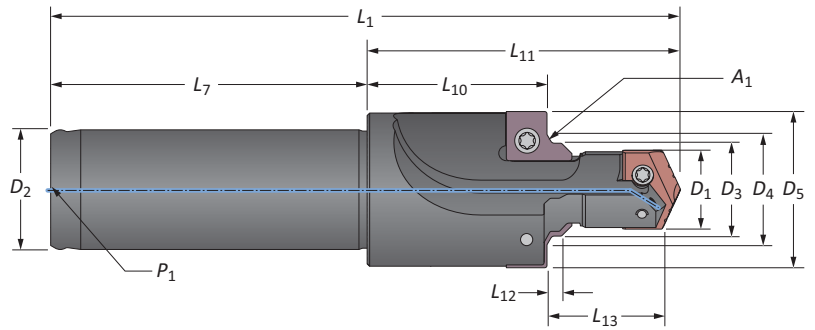
A92: 22 - 25

Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

A DRILLING B BORING C REAMING D BURNISHING E THREADING X SPECIALS

SAE AS5202 / AND10050

Imperial Shank Holders



| Tube Dash No. | Cutting | | | | Seal Angle | | | Holder | | | | Shank | | | Port Thread Size | Port Thread Size* | Part No. |
|---------------|----------------|------------------|-----------------|----------------|----------------|----------------|-----------------|----------------|-----------------|-----------------|----------------|----------------|----------------|----------------|------------------|-------------------|-----------------|
| | D ₁ | D ₁ * | L ₁₃ | D ₅ | A ₁ | D ₄ | L ₁₂ | D ₃ | L ₁₁ | L ₁₀ | L ₁ | L ₇ | D ₂ | P ₁ | | | |
| -4 | 0.390 | 0.386 | 0.661 | 0.875 | 60° | 0.565 | 0.083 | 0.456 | 1.647 | 0.896 | 3.522 | 1.875 | 0.625 | 1/16 NPT | 7/16-20 UNJF-3B | 7/16-20 UNF-3B | AS5202-04Y-063F |
| -5 | 0.453 | 0.451 | 0.661 | 0.916 | 60° | 0.628 | 0.083 | 0.519 | 1.647 | 0.882 | 3.522 | 1.875 | 0.625 | 1/16 NPT | 1/2-20 UNJF-3B | 1/2-20 UNF-3B | AS5202-05Z-063F |
| -6 | 0.510 | 0.506 | 0.714 | 0.979 | 60° | 0.691 | 0.091 | 0.582 | 1.950 | 1.119 | 3.919 | 1.969 | 0.750 | 1/8 NPT | 9/16-18 UNJF-3B | 9/16-18 UNF-3B | AS5202-06Z-075F |
| -8 | 0.689 | 0.688 | 0.839 | 1.198 | 60° | 0.878 | 0.102 | 0.771 | 2.117 | 1.125 | 4.086 | 1.969 | 0.750 | 1/8 NPT | 3/4-16 UNJF-3B | 3/4-16 UNF-3B | AS5202-080-075F |
| -10 | 0.807 | 0.801 | 0.937 | 1.354 | 60° | 1.003 | 0.115 | 0.898 | 2.303 | 1.189 | 4.584 | 2.281 | 1.000 | 1/8 NPT | 7/8-14 UNJF-3B | 7/8-14 UNF-3B | AS5202-101-100F |
| i -12 | 0.984 | 0.976 | 1.071 | 1.635 | 60° | 1.241 | 0.133 | 1.088 | 2.779 | 1.494 | 5.060 | 2.281 | 1.250 | 1/4 NPT | 1 1/16-12 UNJ-3B | 1 1/16-12 UN-3B | AS5202-122-125F |
| -14 | 1.109 | 1.102 | 1.071 | 1.775 | 60° | 1.365 | 0.133 | 1.212 | 2.778 | 1.465 | 5.059 | 2.281 | 1.250 | 1/4 NPT | 1 3/16-12 UNJ-3B | 1 3/16-12 UN-3B | AS5202-142-125F |
| -16 | 1.234 | 1.226 | 1.071 | 1.920 | 60° | 1.490 | 0.133 | 1.337 | 2.778 | 1.437 | 5.059 | 2.281 | 1.250 | 1/4 NPT | 1 5/16-12 UNJ-3B | 1 5/16-12 UN-3B | AS5202-162-125F |
| -20 | 1.547 | 1.535 | 1.124 | 2.280 | 60° | 1.803 | 0.133 | 1.650 | 3.202 | 1.745 | 5.890 | 2.688 | 1.500 | 1/4 NPT | 1 5/8-12 UNJ-3B | 1 5/8-12 UN-3B | AS5202-203-150F |
| -24 | 1.797 | 1.791 | 1.135 | 2.570 | 60° | 2.053 | 0.133 | 1.900 | 3.200 | 1.676 | 5.888 | 2.688 | 1.500 | 1/4 NPT | 1 7/8-12 UNJ-3B | 1 7/8-12 UN-3B | AS5202-243-150F |
| -32 | 2.421 | 2.413 | 1.376 | 3.490 | 60° | 2.679 | 0.133 | 2.526 | 3.701 | 1.802 | 6.389 | 2.688 | 1.500 | 1/4 NPT | 2 1/2-12 UNJ-3B | 2 1/2-12 UN-3B | AS5202-324-150F |
| -4 | 9.91 | 9.80 | 16.79 | 22.23 | 60° | 14.34 | 2.11 | 11.57 | 41.83 | 22.76 | 89.46 | 47.63 | 15.87 | 1/16 NPT | 7/16-20 UNJF-3B | 7/16-20 UNF-3B | AS5202-04Y-063F |
| -5 | 11.50 | 11.46 | 16.79 | 23.27 | 60° | 15.94 | 2.11 | 13.17 | 41.83 | 22.40 | 89.46 | 47.63 | 15.87 | 1/16 NPT | 1/2-20 UNJF-3B | 1/2-20 UNF-3B | AS5202-05Z-063F |
| -6 | 12.95 | 12.85 | 18.14 | 24.87 | 60° | 17.56 | 2.31 | 14.78 | 49.53 | 28.42 | 99.54 | 50.01 | 19.05 | 1/8 NPT | 9/16-18 UNJF-3B | 9/16-18 UNF-3B | AS5202-06Z-075F |
| -8 | 17.50 | 17.48 | 21.31 | 30.43 | 60° | 22.29 | 2.59 | 19.57 | 53.77 | 28.58 | 103.78 | 50.01 | 19.05 | 1/8 NPT | 3/4-16 UNJF-3B | 3/4-16 UNF-3B | AS5202-080-075F |
| -10 | 20.50 | 20.35 | 23.80 | 34.39 | 60° | 25.48 | 2.92 | 22.80 | 58.50 | 30.20 | 116.43 | 57.94 | 25.40 | 1/8 NPT | 7/8-14 UNJF-3B | 7/8-14 UNF-3B | AS5202-101-100F |
| m -12 | 25.00 | 24.79 | 27.20 | 41.53 | 60° | 31.51 | 3.38 | 27.63 | 70.59 | 37.95 | 128.52 | 57.94 | 31.74 | 1/4 NPT | 1 1/16-12 UNJ-3B | 1 1/16-12 UN-3B | AS5202-122-125F |
| -14 | 28.17 | 27.99 | 27.20 | 45.09 | 60° | 34.68 | 3.38 | 30.79 | 70.56 | 37.21 | 128.50 | 57.94 | 31.74 | 1/4 NPT | 1 3/16-12 UNJ-3B | 1 3/16-12 UN-3B | AS5202-142-125F |
| -16 | 31.34 | 31.14 | 27.20 | 48.77 | 60° | 37.85 | 3.38 | 33.96 | 70.56 | 36.50 | 128.50 | 57.94 | 31.74 | 1/4 NPT | 1 5/16-12 UNJ-3B | 1 5/16-12 UN-3B | AS5202-162-125F |
| -20 | 39.29 | 38.99 | 28.54 | 57.91 | 60° | 45.79 | 3.38 | 41.91 | 81.33 | 44.32 | 149.61 | 68.28 | 38.09 | 1/4 NPT | 1 5/8-12 UNJ-3B | 1 5/8-12 UN-3B | AS5202-203-150F |
| -24 | 45.64 | 45.49 | 28.82 | 65.28 | 60° | 52.13 | 3.38 | 48.25 | 81.28 | 42.57 | 149.56 | 68.28 | 38.09 | 1/4 NPT | 1 7/8-12 UNJ-3B | 1 7/8-12 UN-3B | AS5202-243-150F |
| -32 | 61.49 | 61.29 | 34.95 | 88.65 | 60° | 68.03 | 3.38 | 64.15 | 94.01 | 45.77 | 162.28 | 68.28 | 38.09 | 1/4 NPT | 2 1/2-12 UNJ-3B | 2 1/2-12 UN-3B | AS5202-324-150F |

*Values above represent assembled dimensions. Resulting machined dimensions conforming to SAE AS5202 or AND10050 specifications.

*AND10050 specifications are shown in red.

A92: 30 - 37 A92: 2 - 4 A92: 26 - 27

Key on A92: 1

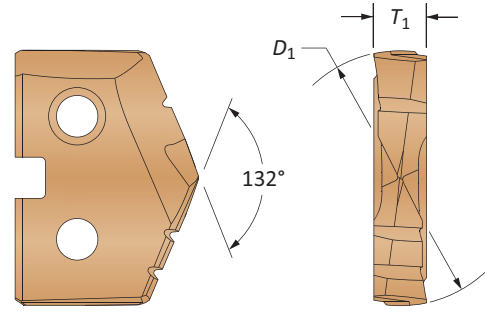
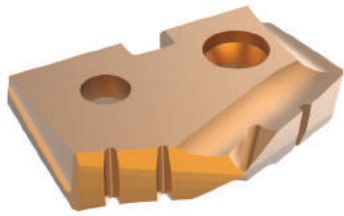
i = Imperial (in)
m = Metric (mm)

A
DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS



SAE AS5202 / AND10050

Inserts



See section A30 for complete T-A insert details

T-A® / GEN2 T-A® Drill Inserts

| Tube Dash No. | AccuPort Part No. | T-A® Insert Series | Part No. | | | | Insert Screw | Insert Driver | Admissible Tightening Torque* |
|---------------|-------------------|--------------------|-----------------------|------------|------------------|-------------|--------------|---------------|-------------------------------|
| | | | Super Cobalt (AM200®) | | Carbide (AM300®) | | | | |
| -4 | AS5202-04Y-063F | Y | 45YH-.390 | 45YH-.386 | 4C1YP-.390 | 4C1YP-.386 | 724-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -5 | AS5202-05Z-063F | Z | 45ZH-11.5 | 45ZH-.451 | 4C1ZP-11.5 | 4C1ZP-.451 | 7247-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -6 | AS5202-06Z-075F | Z | 45ZH-.510 | 45ZH-.506 | 4C1ZP-.510 | 4C1ZP-.506 | 7247-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -8 | AS5202-080-075F | 0 | 450H-17.5 | 450H-0022 | 4C10P-17.5 | 4C10P-0022 | 72567-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | AS5202-101-100F | 1 | 451H-20.5 | 451H-.801 | 4C11P-20.5 | 4C11P-.801 | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -12 | AS5202-122-125F | 2 | 452H-25 | 452H-.976 | 4C12P-25 | 4C12P-.976 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -14 | AS5202-142-125F | 2 | 452H-1.109 | 452H-28 | 4C12P-1.109 | 4C12P-28 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -16 | AS5202-162-125F | 2 | 452H-1.234 | 452H-1.226 | 4C12P-1.234 | 4C12P-1.226 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -20 | AS5202-203-150F | 3 | 453H-1.547 | 453H-39 | 1C53A-1.547 | 1C53A-39 | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -24 | AS5202-243-150F | 3 | 453H-1.797 | 453H-45.5 | 1C53A-1.797 | 1C53A-45.5 | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -32 | AS5202-324-150F | 4 | 454H-2.421 | 454H-2.413 | - | - | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

NOTE: AND10050 specifications shown in red

Port Form Drill Inserts

| Tube Dash No. | AccuPort Part No. | Part No. | | Insert Driver | Admissible Tightening Torque* |
|---------------|-------------------|--------------------|--------------|---------------|-------------------------------|
| | | C5 Carbide (TiAlN) | Insert Screw | | |
| -4 | AS5202-04Y-063F | AS5202-04-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -5 | AS5202-05Z-063F | AS5202-05-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -6 | AS5202-06Z-075F | AS5202-06-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | AS5202-080-075F | AS5202-08-C5A | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | AS5202-101-100F | AS5202-10-C5A | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -12 | AS5202-122-125F | AS5202-12-C5A | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -14 | AS5202-142-125F | AS5202-14-C5A | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -16 | AS5202-162-125F | AS5202-16-C5A | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -20 | AS5202-203-150F | AS5202-20-C5A | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -24 | AS5202-243-150F | AS5202-24-C5A | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -32 | AS5202-324-150F | AS5202-32-C5A | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Key on A92-1

A92: 30 - 37

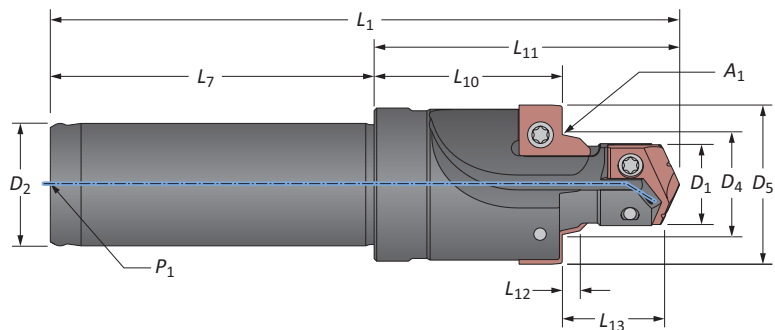
A92: 2 - 4

A92: 26 - 27

Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

JDS-G173.1

Metric Shank Holders

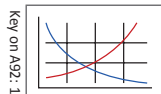


| Tube Dash No. | Cutting | | | Seal Angle | | | Holder | | | Shank | | | Port Thread Size | Part No. |
|---------------|----------------|-----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|----------------|------------------|-----------------|
| | D ₁ | L ₁₃ | D ₅ | A ₁ | D ₄ | L ₁₂ | L ₁₁ | L ₁₀ | L ₁ | L ₇ | D ₂ | P ₁ | | |
| -4 | 0.413 | 0.709 | 0.945 | 15° | 0.547 | 0.104 | 1.670 | 0.875 | 3.320 | 1.650 | 0.630 | 1/16 BSPT | M12 X 1.5 | G1731-04Y-16FM |
| -5 | 0.492 | 0.709 | 1.024 | 15° | 0.626 | 0.104 | 1.670 | 0.858 | 3.320 | 1.650 | 0.630 | 1/16 BSPT | M14 X 1.5 | G1731-05Z-16FM |
| -6 | 0.571 | 0.748 | 1.142 | 15° | 0.705 | 0.104 | 1.977 | 1.117 | 3.627 | 1.650 | 0.787 | 1/8 BSPT | M16 X 1.5 | G1731-06O-20FM |
| -8 | 0.650 | 0.827 | 1.220 | 15° | 0.783 | 0.104 | 2.127 | 1.161 | 3.777 | 1.650 | 0.787 | 1/8 BSPT | M18 X 1.5 | G1731-08O-20FM |
| -10 | 0.807 | 0.866 | 1.378 | 15° | 0.941 | 0.104 | 2.280 | 1.246 | 4.370 | 2.090 | 0.984 | 1/8 BSPT | M22 X 1.5 | G1731-101-25FM |
| -12 | 0.984 | 1.063 | 1.614 | 15° | 1.161 | 0.132 | 2.820 | 1.553 | 5.100 | 2.280 | 1.260 | 1/4 BSPT | M27 X 2 | G1731-122-32FM |
| i -14 | 1.102 | 1.063 | 1.732 | 15° | 1.280 | 0.132 | 2.820 | 1.526 | 5.100 | 2.280 | 1.260 | 1/4 BSPT | M30 X 2 | G1731-142-32FM |
| -16 | 1.221 | 1.063 | 1.969 | 15° | 1.398 | 0.132 | 2.820 | 1.500 | 5.100 | 2.280 | 1.260 | 1/4 BSPT | M33 X 2 | G1731-162-32FM |
| -18 | 1.417 | 1.063 | 2.165 | 15° | 1.594 | 0.132 | 3.207 | 1.844 | 5.786 | 2.580 | 1.260 | 1/4 BSPT | M38 X 2 | G1731-183-32FM* |
| -20 | 1.575 | 1.063 | 2.402 | 15° | 1.752 | 0.132 | 3.207 | 1.809 | 5.786 | 2.580 | 1.260 | 1/4 BSPT | M42 X 2 | G1731-203-32FM* |
| -24 | 1.811 | 1.142 | 2.638 | 15° | 1.988 | 0.132 | 3.207 | 1.687 | 5.786 | 2.580 | 1.260 | 1/4 BSPT | M48 X 2 | G1731-243-32FM* |
| -32 | 2.284 | 1.260 | 3.031 | 15° | 2.461 | 0.132 | 3.967 | 2.300 | 6.546 | 2.580 | 1.260 | 1/4 BSPT | M60 X 2 | G1731-324-32FM* |
| C** | 0.728 | 0.787 | 1.299 | 15° | 0.862 | 0.104 | 2.140 | 1.281 | 4.231 | 2.090 | 0.984 | 1/8 BSPT | M20 X 1.5 | G1731-CV1-25FM |
| <hr/> | | | | | | | | | | | | | | |
| -4 | 10.50 | 18.00 | 24.00 | 15° | 13.90 | 2.65 | 42.42 | 22.20 | 84.32 | 41.90 | 16.00 | 1/16 BSPT | M12 X 1.5 | G1731-04Y-16FM |
| -5 | 12.50 | 18.00 | 26.00 | 15° | 15.90 | 2.65 | 42.42 | 21.80 | 84.32 | 41.90 | 16.00 | 1/16 BSPT | M14 X 1.5 | G1731-05Z-16FM |
| -6 | 14.50 | 19.00 | 29.00 | 15° | 17.90 | 2.65 | 50.22 | 28.40 | 92.12 | 41.90 | 20.00 | 1/8 BSPT | M16 X 1.5 | G1731-06O-20FM |
| -8 | 16.50 | 21.00 | 31.00 | 15° | 19.90 | 2.65 | 54.03 | 29.50 | 95.93 | 41.90 | 20.00 | 1/8 BSPT | M18 X 1.5 | G1731-08O-20FM |
| -10 | 20.50 | 22.00 | 35.00 | 15° | 23.90 | 2.65 | 57.91 | 31.60 | 111.01 | 53.10 | 25.00 | 1/8 BSPT | M22 X 1.5 | G1731-101-25FM |
| -12 | 25.00 | 27.00 | 41.00 | 15° | 29.50 | 3.35 | 71.63 | 39.40 | 129.53 | 57.90 | 32.00 | 1/4 BSPT | M27 X 2 | G1731-122-32FM |
| m -14 | 28.00 | 27.00 | 44.00 | 15° | 32.50 | 3.35 | 71.63 | 39.70 | 129.53 | 57.90 | 32.00 | 1/4 BSPT | M30 X 2 | G1731-142-32FM |
| -16 | 31.00 | 27.00 | 50.00 | 15° | 35.50 | 3.35 | 71.63 | 38.10 | 129.53 | 57.90 | 32.00 | 1/4 BSPT | M33 X 2 | G1731-162-32FM |
| -18 | 36.00 | 27.00 | 55.00 | 15° | 40.50 | 3.35 | 81.46 | 46.80 | 146.96 | 65.50 | 32.00 | 1/4 BSPT | M38 X 2 | G1731-183-32FM* |
| -20 | 40.00 | 27.00 | 61.00 | 15° | 44.50 | 3.35 | 81.46 | 45.90 | 146.96 | 65.50 | 32.00 | 1/4 BSPT | M42 X 2 | G1731-203-32FM* |
| -24 | 46.00 | 29.00 | 67.00 | 15° | 50.50 | 3.35 | 81.46 | 42.80 | 146.96 | 65.50 | 32.00 | 1/4 BSPT | M48 X 2 | G1731-243-32FM* |
| -32 | 58.00 | 32.00 | 77.00 | 15° | 62.50 | 3.35 | 100.76 | 58.40 | 166.26 | 65.50 | 32.00 | 1/4 BSPT | M60 X 2 | G1731-324-32FM* |
| C** | 18.50 | 20.00 | 33.00 | 15° | 21.90 | 2.65 | 54.36 | 32.50 | 107.46 | 53.10 | 25.00 | 1/8 BSPT | M20 X 1.5 | G1731-CV1-25FM |

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

**Cartridge cavity

A92: 30 - 37



A92: 2 - 4



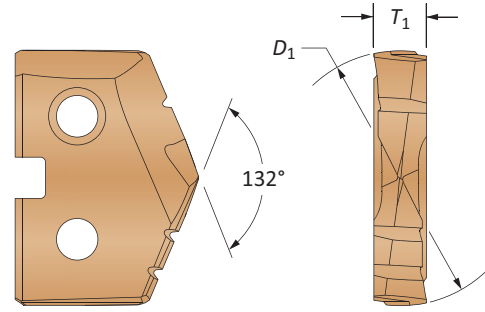
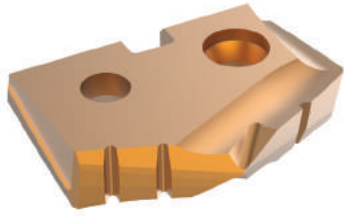
A92: 28







JDS-G173.1

Inserts



See section A30 for complete T-A insert details

GEN2 T-A® Drill Inserts


| Tube Dash No. | AccuPort Part No. | T-A® Insert Series | Part No. | | Insert Screw | Insert Driver | Admissible Tightening Torque** |
|---------------|-------------------|--------------------|---|--|--------------|---------------|--------------------------------|
| | | |  Super Cobalt (AM200®) |  Carbide (AM300®) | | | |
| -4 | G1731-04Y-16FM | Y | 45YH-10.5 | 4C2YP-10.5 | 724-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -5 | G1731-05Z-16FM | Z | 45ZH-12.5 | 4C2ZP-12.5 | 7247-IP7-1 | 8IP-7 | 7.4 in/lbs (84 N-cm) |
| -6 | G1731-060-20FM | 0 | 450H-14.5 | 4C20P-14.5 | 72567-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | G1731-080-20FM | 0 | 450H-16.5 | 4C20P-16.5 | 72567-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | G1731-101-25FM | 1 | 451H-20.5 | 4C21P-20.5 | 739-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -12 | G1731-122-32FM | 2 | 452H-25 | 4C22P-25 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -14 | G1731-142-32FM | 2 | 452H-28 | 4C22P-28 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -16 | G1731-162-32FM | 2 | 452H-31 | 4C22P-31 | 7495-IP15-1 | 8IP-15 | 61.0 in/lbs (690 N-cm) |
| -18 | G1731-183-32FM* | 3 | 453H-36 | - | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -20 | G1731-203-32FM* | 3 | 453H-40 | - | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -24 | G1731-243-32FM* | 3 | 453H-46 | - | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| -32 | G1731-324-32FM* | 4 | 454H-58 | - | 7514-IP20-1 | 8IP-20 | 121.3 in/lbs (1370 N-cm) |
| C*** | G1731-CV1-25FM | 1 | 451H-18.5 | 4C21P-18.5 | 739-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

**Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

***Cartridge cavity

Port Form Drill Inserts

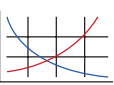
| Tube Dash No. | AccuPort Part No. | Part No. | | Insert Screw | Insert Driver | Admissible Tightening Torque** |
|---------------|-------------------|---|--|--------------|---------------|--------------------------------|
| | |  C3 Carbide (AM200®) | | | | |
| -4 | G1731-04Y-16FM | G1731-01-C3H | | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -5 | G1731-05Z-16FM | G1731-01-C3H | | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -6 | G1731-060-20FM | G1731-02-C3H | | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -8 | G1731-080-20FM | G1731-02-C3H | | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -10 | G1731-101-25FM | G1731-02-C3H | | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -12 | G1731-122-32FM | G1731-03-C3H | | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -14 | G1731-142-32FM | G1731-03-C3H | | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |
| -16 | G1731-162-32FM | G1731-04-C3H | | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -18 | G1731-183-32FM* | G1731-04-C3H | | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -20 | G1731-203-32FM* | G1731-05-C3H | | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -24 | G1731-243-32FM* | G1731-05-C3H | | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| -32 | G1731-324-32FM* | G1731-06-C3H | | 7375-IP9-1 | 8IP-9 | 27.0 in/lbs (305 N-cm) |
| C*** | G1731-CV1-25FM | G1731-02-C3H | | 72556-IP8-1 | 8IP-8 | 15.5 in/lbs (175 N-cm) |

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.


**Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

***Cartridge cavity


A92: 30 - 37



A92: 2 - 4



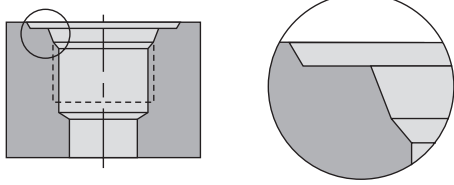
A92: 28



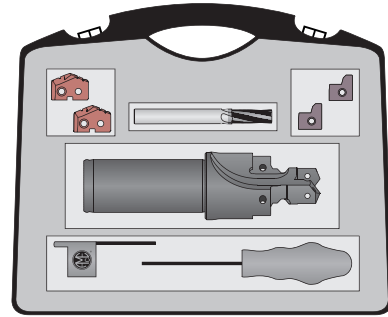
Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

Port and Thread Finishing Kits

J1926 | Imperial | Ferrous Materials

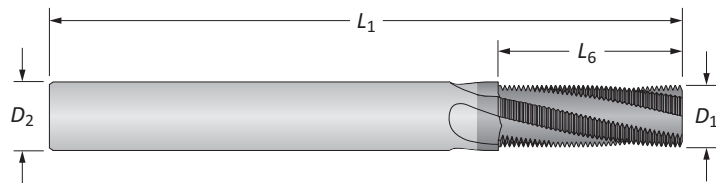


SAE J-1926-1 / ISO 11926-1



Port and Thread Finishing Kits

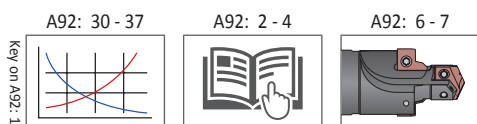
| Tube Dash No. | AccuPort 432 | | | GEN2 T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|----------------|------------------|-----|-----------------------|-----|--------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (AM200®) | Qty | C5 Carbide (TiAlN) | Qty | Part No. (AM210®) | Qty | |
| -4 | J1926-04Y-063F | 7/16-20 UNF-2B | 1 | 45YH-.386 | 2 | J1926-02-C5A | 2 | TMAK0438-20 | 1 | ATKK04-1926 |
| -5 | J1926-05Z-063F | 1/2-20 UNF-2B | 1 | 45ZH-11.5 | 2 | J1926-03-C5A | 2 | TMAK0438-20 | 1 | ATKK05-1926 |
| -6 | J1926-060-075F | 9/16-18 UNF-2B | 1 | 450H-13 | 2 | J1926-03-C5A | 2 | TMAK0563-18 | 1 | ATKK06-1926 |
| -8 | J1926-080-075F | 3/4-16 UNF-2B | 1 | 450H-0022 | 2 | J1926-07-C5A | 2 | TMAK0750-16 | 1 | ATKK08-1926 |
| -10 | J1926-101-100F | 7/8-14 UNF-2B | 1 | 451H-20.5 | 2 | J1926-04-C5A | 2 | TMAK0875-14 | 1 | ATKK10-1926 |
| -12 | J1926-122-125F | 1-1/16-12 UN-2B | 1 | 452H-25 | 2 | J1926-08-C5A | 2 | TMAK1063-12 | 1 | ATKK12-1926 |
| -14 | J1926-142-125F | 1-3/16-12 UN-2B | 1 | 452H-28 | 2 | J1926-08-C5A | 2 | TMAK1063-12 | 1 | ATKK14-1926 |
| -16 | J1926-162-125F | 1-5/16-12 UN-2B | 1 | 452H-1.231 | 2 | J1926-09-C5A | 2 | TMAK1063-12 | 1 | ATKK16-1926 |
| -20 | J1926-203-150F | 1-5/8-12 UN-2B | 1 | 453H-39 | 1 | J1926-10-C5A | 2 | TMAK1063-12 | 1 | ATKK20-1926 |
| -24 | J1926-243-150F | 1-7/8-12 UN-2B | 1 | 453H-45.5 | 1 | J1926-11-C5A | 2 | TMAK1063-12 | 1 | ATKK24-1926 |
| -32 | J1926-324-150F | 2-1/2-12 UN-2B | 1 | 454H-61.5 | 1 | J1926-12-C5A | 2 | TMAK1063-12 | 1 | ATKK32-1926 |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|----------------|----------------|----------------|----------------|--------|-------------|
| | | D ₁ | L ₆ | D ₂ | L ₁ | | |
| -4 to -5 | 20 | 0.335 | 0.600 | 0.375 | 3.5 | 4 | TMAK0438-20 |
| -6 | 18 | 0.370 | 0.666 | 0.375 | 3.5 | 4 | TMAK0563-18 |
| -8 | 16 | 0.495 | 0.750 | 0.500 | 3.5 | 4 | TMAK0750-16 |
| -10 | 14 | 0.495 | 0.857 | 0.500 | 3.5 | 4 | TMAK0875-14 |
| -12 to -32 | 12 | 0.495 | 0.917 | 0.500 | 3.5 | 4 | TMAK1063-12 |

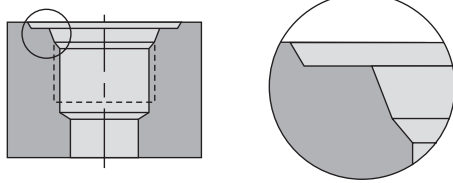
AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.



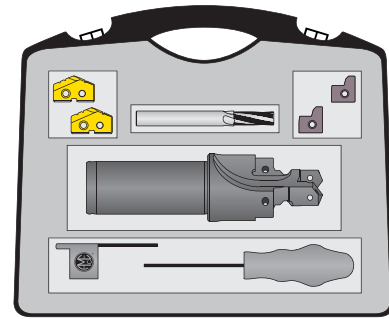


Port and Thread Finishing Kits

J1926 | Imperial | Nonferrous Materials

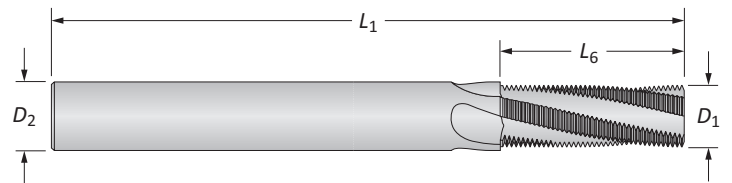


SAE J-1926-1 / ISO 11926-1



Port and Thread Finishing Kits

| Tube Dash No. | AccuPort 432 | | | T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|----------------|------------------|-----|--------------------|-----|--------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (TiN) | Qty | C5 Carbide (TiAlN) | Qty | Part No. (Uncoated) | Qty | |
| -4 | J1926-04Y-063F | 7/16-20 UNF-2B | 1 | 15YT-.386 | 2 | J1926-02-C5A | 2 | TMAU0438-20 | 1 | ATKU04-1926 |
| -5 | J1926-05Z-063F | 1/2-20 UNF-2B | 1 | 15ZT-11.5 | 2 | J1926-03-C5A | 2 | TMAU0438-20 | 1 | ATKU05-1926 |
| -6 | J1926-060-075F | 9/16-18 UNF-2B | 1 | 150T-13 | 2 | J1926-03-C5A | 2 | TMAU0563-18 | 1 | ATKU06-1926 |
| -8 | J1926-080-075F | 3/4-16 UNF-2B | 1 | 150T-0022 | 2 | J1926-07-C5A | 2 | TMAU0750-16 | 1 | ATKU08-1926 |
| -10 | J1926-101-100F | 7/8-14 UNF-2B | 1 | 151T-20.5 | 2 | J1926-04-C5A | 2 | TMAU0875-14 | 1 | ATKU10-1926 |
| -12 | J1926-122-125F | 1-1/16-12 UN-2B | 1 | 152T-25 | 2 | J1926-08-C5A | 2 | TMAU1063-12 | 1 | ATKU12-1926 |
| -14 | J1926-142-125F | 1-3/16-12 UN-2B | 1 | 152T-28 | 2 | J1926-08-C5A | 2 | TMAU1063-12 | 1 | ATKU14-1926 |
| -16 | J1926-162-125F | 1-5/16-12 UN-2B | 1 | 152T-1.231 | 2 | J1926-09-C5A | 2 | TMAU1063-12 | 1 | ATKU16-1926 |
| -20 | J1926-203-150F | 1-5/8-12 UN-2B | 1 | 453T-39 | 1 | J1926-10-C5A | 2 | TMAU1063-12 | 1 | ATKU20-1926 |
| -24 | J1926-243-150F | 1-7/8-12 UN-2B | 1 | 453T-45.5 | 1 | J1926-11-C5A | 2 | TMAU1063-12 | 1 | ATKU24-1926 |
| -32 | J1926-324-150F | 2-1/2-12 UN-2B | 1 | 454T-61.5 | 1 | J1926-12-C5A | 2 | TMAU1063-12 | 1 | ATKU32-1926 |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|-------------|-------|-------|-------|--------|-------------|
| | | D_1 | L_6 | D_2 | L_1 | | |
| -4 to -5 | 20 | 0.335 | 0.600 | 0.375 | 3.5 | 4 | TMAU0438-20 |
| -6 | 18 | 0.370 | 0.666 | 0.375 | 3.5 | 4 | TMAU0563-18 |
| -8 | 16 | 0.495 | 0.750 | 0.500 | 3.5 | 4 | TMAU0750-16 |
| -10 | 14 | 0.495 | 0.857 | 0.500 | 3.5 | 4 | TMAU0875-14 |
| -12 to -32 | 12 | 0.495 | 0.917 | 0.500 | 3.5 | 4 | TMAU1063-12 |

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE A5202 port form specifications.

Key on A92-1

A92: 30 - 37

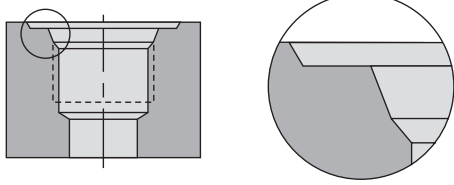
A92: 2 - 4

A92: 6 - 7

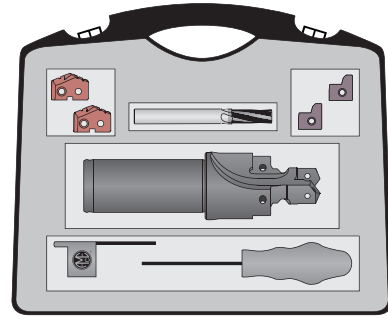
J
 A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

Port and Thread Finishing Kits

J1926 | Metric | Ferrous Materials

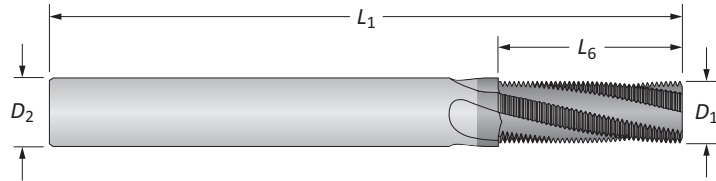


SAE J-1926-1 / ISO 11926-1



Port and Thread Finishing Kits

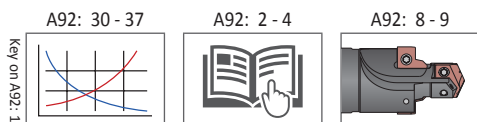
| Tube Dash No. | AccuPort 432 | | | GEN2 T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|----------------|------------------|-----|-----------------------|-----|--------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (AM200®) | Qty | C5 Carbide (TiAlN) | Qty | Part No. (AM210®) | Qty | |
| -4 | J1926-04Y-16FM | 7/16-20 UNF-2B | 1 | 45YH-.386 | 2 | J1926-02-C5A | 2 | TMAK0438-20M | 1 | ATKK04-1926M |
| -5 | J1926-05Z-16FM | 1/2-20 UNF-2B | 1 | 45ZH-11.5 | 2 | J1926-03-C5A | 2 | TMAK0438-20M | 1 | ATKK05-1926M |
| -6 | J1926-060-20FM | 9/16-18 UNF-2B | 1 | 450H-13 | 2 | J1926-03-C5A | 2 | TMAK0563-18M | 1 | ATKK06-1926M |
| -8 | J1926-080-20FM | 3/4-16 UNF-2B | 1 | 450H-0022 | 2 | J1926-07-C5A | 2 | TMAK0750-16M | 1 | ATKK08-1926M |
| -10 | J1926-101-25FM | 7/8-14 UNF-2B | 1 | 451H-20.5 | 2 | J1926-04-C5A | 2 | TMAK0875-14M | 1 | ATKK10-1926M |
| -12 | J1926-122-32FM | 1-1/16-12 UN-2B | 1 | 452H-25 | 2 | J1926-08-C5A | 2 | TMAK1063-12M | 1 | ATKK12-1926M |
| -14 | J1926-142-32FM | 1-3/16-12 UN-2B | 1 | 452H-28 | 2 | J1926-08-C5A | 2 | TMAK1063-12M | 1 | ATKK14-1926M |
| -16 | J1926-162-32FM | 1-5/16-12 UN-2B | 1 | 452H-1.231 | 2 | J1926-09-C5A | 2 | TMAK1063-12M | 1 | ATKK16-1926M |
| -20 | J1926-203-32FM | 1-5/8-12 UN-2B | 1 | 453H-39 | 1 | J1926-10-C5A | 2 | TMAK1063-12M | 1 | ATKK20-1926M |
| -24 | J1926-243-32FM | 1-7/8-12 UN-2B | 1 | 453H-45.5 | 1 | J1926-11-C5A | 2 | TMAK1063-12M | 1 | ATKK24-1926M |
| -32 | J1926-324-32FM | 2-1/2-12 UN-2B | 1 | 454H-61.5 | 1 | J1926-12-C5A | 2 | TMAK1063-12M | 1 | ATKK32-1926M |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|----------------|----------------|----------------|----------------|--------|--------------|
| | | D ₁ | L ₆ | D ₂ | L ₁ | | |
| -4 to -5 | 20 | 8.51 | 15.24 | 10.00 | 73.00 | 4 | TMAK0438-20M |
| -6 | 18 | 9.40 | 16.92 | 10.00 | 73.00 | 4 | TMAK0563-18M |
| -8 | 16 | 11.94 | 19.05 | 12.00 | 84.00 | 4 | TMAK0750-16M |
| -10 | 14 | 11.94 | 21.77 | 12.00 | 84.00 | 4 | TMAK0875-14M |
| -12 to -32 | 12 | 11.94 | 23.29 | 12.00 | 84.00 | 4 | TMAK1063-12M |

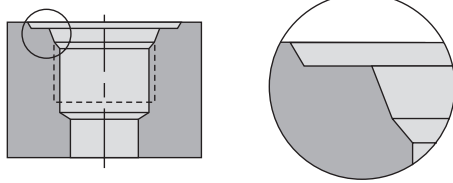
AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.



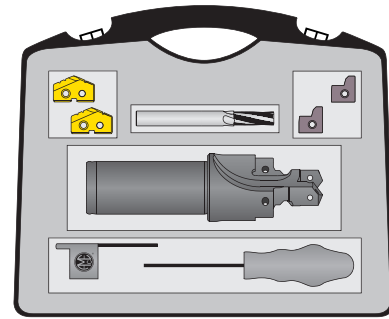


Port and Thread Finishing Kits

J1926 | Metric | Nonferrous Materials

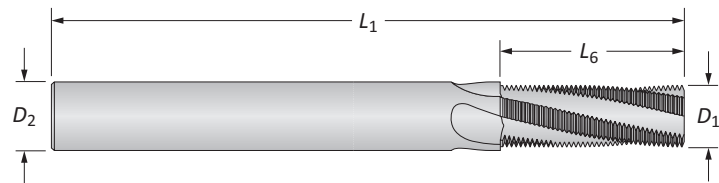


SAE J-1926-1 / ISO 11926-1



Port and Thread Finishing Kits

| Tube Dash No. | AccuPort 432 | | | T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|----------------|------------------|-----|--------------------|-----|--------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (TiN) | Qty | C5 Carbide (TiAlN) | Qty | Part No. (Uncoated) | Qty | |
| -4 | J1926-04Y-16FM | 7/16-20 UNF-2B | 1 | 15YT-.386 | 2 | J1926-02-C5A | 2 | TMAU0438-20M | 1 | ATKU04-1926M |
| -5 | J1926-05Z-16FM | 1/2-20 UNF-2B | 1 | 15ZT-11.5 | 2 | J1926-03-C5A | 2 | TMAU0438-20M | 1 | ATKU05-1926M |
| -6 | J1926-060-20FM | 9/16-18 UNF-2B | 1 | 150T-13 | 2 | J1926-03-C5A | 2 | TMAU0563-18M | 1 | ATKU06-1926M |
| -8 | J1926-080-20FM | 3/4-16 UNF-2B | 1 | 150T-0022 | 2 | J1926-07-C5A | 2 | TMAU0750-16M | 1 | ATKU08-1926M |
| -10 | J1926-101-25FM | 7/8-14 UNF-2B | 1 | 151T-20.5 | 2 | J1926-04-C5A | 2 | TMAU0875-14M | 1 | ATKU10-1926M |
| -12 | J1926-122-32FM | 1-1/16-12 UN-2B | 1 | 152T-25 | 2 | J1926-08-C5A | 2 | TMAU1063-12M | 1 | ATKU12-1926M |
| -14 | J1926-142-32FM | 1-3/16-12 UN-2B | 1 | 152T-28 | 2 | J1926-08-C5A | 2 | TMAU1063-12M | 1 | ATKU14-1926M |
| -16 | J1926-162-32FM | 1-5/16-12 UN-2B | 1 | 152T-1.231 | 2 | J1926-09-C5A | 2 | TMAU1063-12M | 1 | ATKU16-1926M |
| -20 | J1926-203-32FM | 1-5/8-12 UN-2B | 1 | 453T-39 | 1 | J1926-10-C5A | 2 | TMAU1063-12M | 1 | ATKU20-1926M |
| -24 | J1926-243-32FM | 1-7/8-12 UN-2B | 1 | 453T-45.5 | 1 | J1926-11-C5A | 2 | TMAU1063-12M | 1 | ATKU24-1926M |
| -32 | J1926-324-32FM | 2-1/2-12 UN-2B | 1 | 454T-61.5 | 1 | J1926-12-C5A | 2 | TMAU1063-12M | 1 | ATKU32-1926M |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|----------------|----------------|----------------|----------------|--------|--------------|
| | | D ₁ | L ₆ | D ₂ | L ₁ | | |
| -4 to -5 | 20 | 8.51 | 15.24 | 10.00 | 73.00 | 4 | TMAU0438-20M |
| -6 | 18 | 9.40 | 16.92 | 10.00 | 73.00 | 4 | TMAU0563-18M |
| -8 | 16 | 11.94 | 19.05 | 12.00 | 84.00 | 4 | TMAU0750-16M |
| -10 | 14 | 11.94 | 21.77 | 12.00 | 84.00 | 4 | TMAU0875-14M |
| -12 to -32 | 12 | 11.94 | 23.29 | 12.00 | 84.00 | 4 | TMAU1063-12M |

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE A5202 port form specifications.

Key on A92: 1

A92: 30 - 37

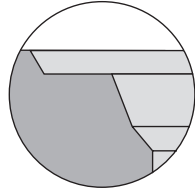
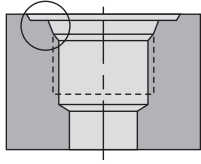
A92: 2 - 4

A92: 8 - 9

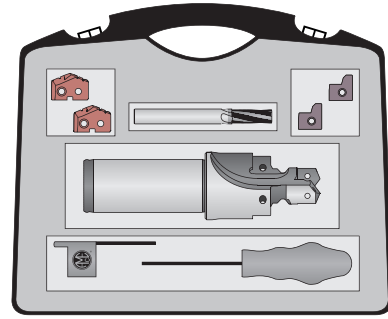
J
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Port and Thread Finishing Kits

I6149 | No ID Ridge | Ferrous Materials

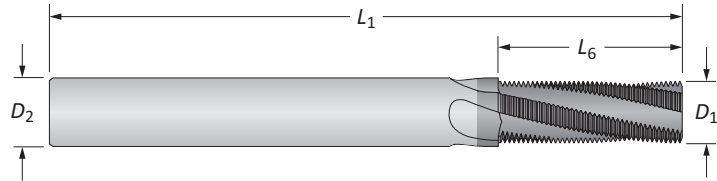


ISO 6149-1:2006 / SAE J-2244/1



Port and Thread Finishing Kits

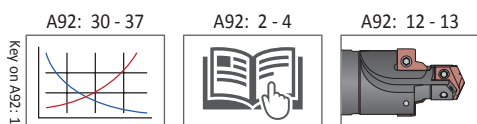
| Tube Dash No. | AccuPort 432 | | | GEN2 T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|-----------------|------------------|-----|-----------------------|-----|--------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (AM200®) | Qty | C5 Carbide (TiAlN) | Qty | Part No. (AM210®) | Qty | |
| -4 | I6149-04RY-16FM | M12 X 1.5 | 1 | 45YH-10.5 | 2 | I6149-04-C5A | 2 | TMMK1000-150M | 1 | ATKK04-6149 |
| -5 | I6149-05RZ-16FM | M14 X 1.5 | 1 | 45ZH-12.5 | 2 | I6149-04-C5A | 2 | TMMK1400-150M | 1 | ATKK05-6149 |
| -6 | I6149-06RO-20FM | M16 X 1.5 | 1 | 450H-14.5 | 2 | I6149-06-C5A | 2 | TMMK1400-150M | 1 | ATKK06-6149 |
| -8 | I6149-08RO-20FM | M18 X 1.5 | 1 | 450H-16.5 | 2 | I6149-06-C5A | 2 | TMMK1800-150M | 1 | ATKK08-6149 |
| -10 | I6149-10R1-25FM | M22 X 1.5 | 1 | 451H-20.5 | 2 | I6149-04-C5A | 2 | TMMK1800-150M | 1 | ATKK10-6149 |
| -12 | I6149-12R2-32FM | M27 X 2 | 1 | 452H-25 | 2 | I6149-12-C5A | 2 | TMMK2000-200M | 1 | ATKK12-6149 |
| -14 | I6149-14R2-32FM | M30 X 2 | 1 | 452H-28 | 2 | I6149-14-C5A | 2 | TMMK2000-200M | 1 | ATKK14-6149 |
| -16 | I6149-16R2-32FM | M33 X 2 | 1 | 452H-31 | 2 | I6149-16-C5A | 2 | TMMK2000-200M | 1 | ATKK16-6149 |
| -20 | I6149-20R3-32FM | M42 X 2 | 1 | 453H-40 | 1 | I6149-20-C5A | 2 | TMMK2000-200M | 1 | ATKK20-6149 |
| -24 | I6149-24R3-32FM | M48 X 2 | 1 | 453H-46 | 1 | I6149-24-C5A | 2 | TMMK2000-200M | 1 | ATKK24-6149 |
| -32 | I6149-32R4-32FM | M60 X 2 | 1 | 454H-58 | 1 | I6149-32-C5A | 2 | TMMK2000-200M | 1 | ATKK32-6149 |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|-------------|-------|-------|-------|--------|---------------|
| | | D_1 | L_6 | D_2 | L_1 | | |
| -4 | 1.50 | 7.40 | 19.50 | 8.00 | 64.00 | 4 | TMMK1000-150M |
| -5 to -6 | 1.50 | 10.90 | 27.00 | 12.00 | 84.00 | 4 | TMMK1400-150M |
| -8 to -10 | 1.50 | 11.90 | 31.50 | 12.00 | 84.00 | 4 | TMMK1800-150M |
| -12 to -32 | 2.00 | 11.95 | 30.00 | 12.00 | 84.00 | 4 | TMMK2000-200M |

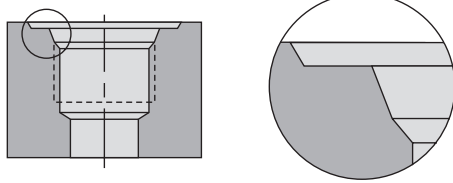
AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.



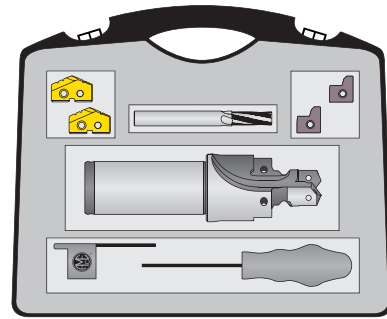


Port and Thread Finishing Kits

I6149 | No ID Ridge | Nonferrous Materials

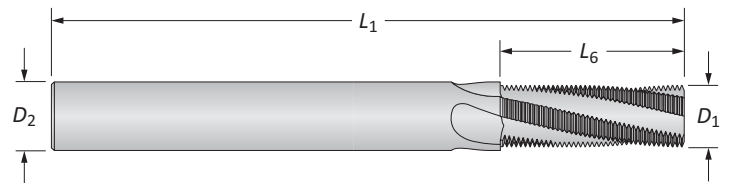


ISO 6149-1:2006 / SAE J-2244/1



Port and Thread Finishing Kits

| Tube Dash No. | AccuPort 432 | | | T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|-----------------|------------------|-----|--------------------|-----|--------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (TiN) | Qty | C5 Carbide (TiAlN) | Qty | Part No. (Uncoated) | Qty | |
| -4 | I6149-04RY-16FM | M12 X 1.5 | 1 | 15YT-10.5 | 2 | I6149-04-C5A | 2 | TMMU1000-150M | 1 | ATKU04-6149 |
| -5 | I6149-05RZ-16FM | M14 X 1.5 | 1 | 15ZT-12.5 | 2 | I6149-04-C5A | 2 | TMMU1400-150M | 1 | ATKU05-6149 |
| -6 | I6149-06R0-20FM | M16 X 1.5 | 1 | 150T-14.5 | 2 | I6149-06-C5A | 2 | TMMU1400-150M | 1 | ATKU06-6149 |
| -8 | I6149-08R0-20FM | M18 X 1.5 | 1 | 150T-16.5 | 2 | I6149-06-C5A | 2 | TMMU1800-150M | 1 | ATKU08-6149 |
| -10 | I6149-10R1-25FM | M22 X 1.5 | 1 | 151T-20.5 | 2 | I6149-04-C5A | 2 | TMMU1800-150M | 1 | ATKU10-6149 |
| -12 | I6149-12R2-32FM | M27 X 2 | 1 | 152T-25 | 2 | I6149-12-C5A | 2 | TMMU2000-200M | 1 | ATKU12-6149 |
| -14 | I6149-14R2-32FM | M30 X 2 | 1 | 152T-28 | 2 | I6149-14-C5A | 2 | TMMU2000-200M | 1 | ATKU14-6149 |
| -16 | I6149-16R2-32FM | M33 X 2 | 1 | 152T-31 | 2 | I6149-16-C5A | 2 | TMMU2000-200M | 1 | ATKU16-6149 |
| -20 | I6149-20R3-32FM | M42 X 2 | 1 | 453T-40 | 1 | I6149-20-C5A | 2 | TMMU2000-200M | 1 | ATKU20-6149 |
| -24 | I6149-24R3-32FM | M48 X 2 | 1 | 453T-46 | 1 | I6149-24-C5A | 2 | TMMU2000-200M | 1 | ATKU24-6149 |
| -32 | I6149-32R4-32FM | M60 X 2 | 1 | 454T-58 | 1 | I6149-32-C5A | 2 | TMMU2000-200M | 1 | ATKU32-6149 |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|----------------|----------------|----------------|----------------|--------|---------------|
| | | D ₁ | L ₆ | D ₂ | L ₁ | | |
| -4 | 1.50 | 7.40 | 19.50 | 8.00 | 64.00 | 4 | TMMU1000-150M |
| -5 to -6 | 1.50 | 10.90 | 27.00 | 12.00 | 84.00 | 4 | TMMU1400-150M |
| -8 to -10 | 1.50 | 11.90 | 31.50 | 12.00 | 84.00 | 4 | TMMU1800-150M |
| -12 to -32 | 2.00 | 11.95 | 30.00 | 12.00 | 84.00 | 4 | TMMU2000-200M |

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE A5202 port form specifications.

Key on A92: 1

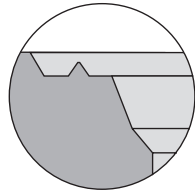
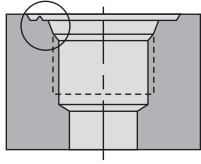
A92: 30 - 37

A92: 2 - 4

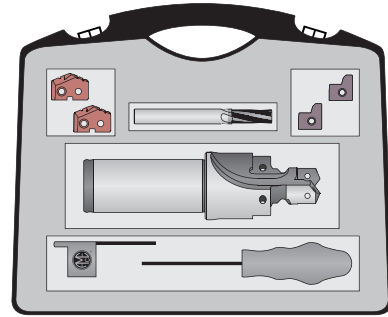
A92: 12 - 13

Port and Thread Finishing Kits

I6149 | ID Ridge | Ferrous Materials

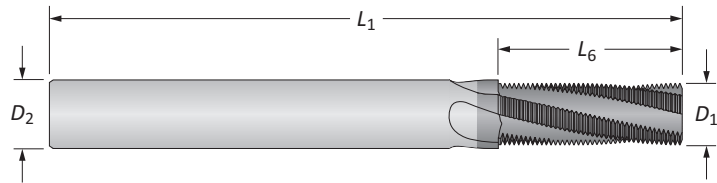


ISO 6149-1:2006 / SAE J-2244/1



Port and Thread Finishing Kits

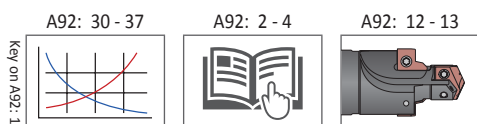
| Tube Dash No. | AccuPort 432 | | | GEN2 T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|-----------------|------------------|-----|-----------------------|-----|--------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (AM200®) | Qty | C5 Carbide (TiAlN) | Qty | Part No. (AM210®) | Qty | |
| -4 | I6149-04RY-16FM | M12 X 1.5 | 1 | 45YH-10.5 | 2 | I6149-04R-C5A | 2 | TMMK1000-150M | 1 | ATKK04R-6149 |
| -5 | I6149-05RZ-16FM | M14 X 1.5 | 1 | 45ZH-12.5 | 2 | I6149-04R-C5A | 2 | TMMK1400-150M | 1 | ATKK05R-6149 |
| -6 | I6149-06R0-20FM | M16 X 1.5 | 1 | 450H-14.5 | 2 | I6149-06R-C5A | 2 | TMMK1400-150M | 1 | ATKK06R-6149 |
| -8 | I6149-08R0-20FM | M18 X 1.5 | 1 | 450H-16.5 | 2 | I6149-06R-C5A | 2 | TMMK1800-150M | 1 | ATKK08R-6149 |
| -10 | I6149-10R1-25FM | M22 X 1.5 | 1 | 451H-20.5 | 2 | I6149-04R-C5A | 2 | TMMK1800-150M | 1 | ATKK10R-6149 |
| -12 | I6149-12R2-32FM | M27 X 2 | 1 | 452H-25 | 2 | I6149-12R-C5A | 2 | TMMK2000-200M | 1 | ATKK12R-6149 |
| -14 | I6149-14R2-32FM | M30 X 2 | 1 | 452H-28 | 2 | I6149-14R-C5A | 2 | TMMK2000-200M | 1 | ATKK14R-6149 |
| -16 | I6149-16R2-32FM | M33 X 2 | 1 | 452H-31 | 2 | I6149-16R-C5A | 2 | TMMK2000-200M | 1 | ATKK16R-6149 |
| -20 | I6149-20R3-32FM | M42 X 2 | 1 | 453H-40 | 1 | I6149-20R-C5A | 2 | TMMK2000-200M | 1 | ATKK20R-6149 |
| -24 | I6149-24R3-32FM | M48 X 2 | 1 | 453H-46 | 1 | I6149-24R-C5A | 2 | TMMK2000-200M | 1 | ATKK24R-6149 |
| -32 | I6149-32R4-32FM | M60 X 2 | 1 | 454H-58 | 1 | I6149-32R-C5A | 2 | TMMK2000-200M | 1 | ATKK32R-6149 |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|-------------|-------|-------|-------|--------|---------------|
| | | D_1 | L_6 | D_2 | L_1 | | |
| -4 | 1.50 | 7.40 | 19.50 | 8.00 | 64.00 | 4 | TMMK1000-150M |
| -5 to -6 | 1.50 | 10.90 | 27.00 | 12.00 | 84.00 | 4 | TMMK1400-150M |
| -8 to -10 | 1.50 | 11.90 | 31.50 | 12.00 | 84.00 | 4 | TMMK1800-150M |
| -12 to -32 | 2.00 | 11.95 | 30.00 | 12.00 | 84.00 | 4 | TMMK2000-200M |

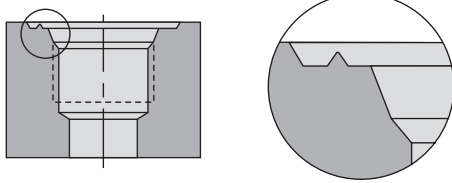
AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.



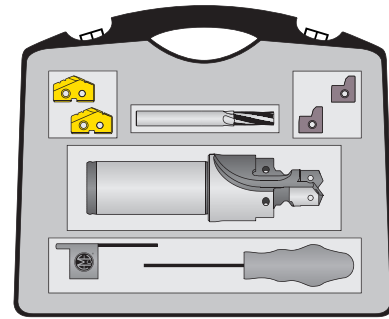


Port and Thread Finishing Kits

I6149 | ID Ridge | Nonferrous Materials

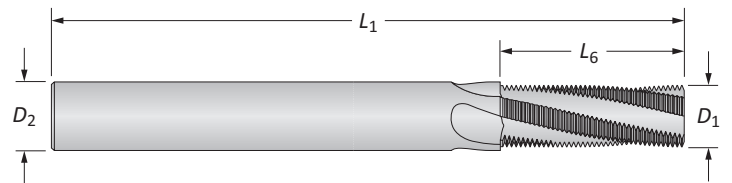


ISO 6149-1:2006 / SAE J-2244/1



Port and Thread Finishing Kits

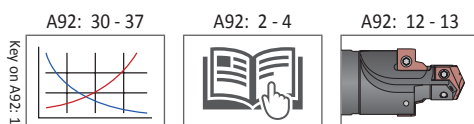
| Tube Dash No. | AccuPort 432 | | | T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|-----------------|------------------|-----|--------------------|-----|--------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (TiN) | Qty | C5 Carbide (TiAlN) | Qty | Part No. (Uncoated) | Qty | |
| -4 | I6149-04RY-16FM | M12 X 1.5 | 1 | 15YT-10.5 | 2 | I6149-04R-C5A | 2 | TMMU1000-150M | 1 | ATKU04R-6149 |
| -5 | I6149-05RZ-16FM | M14 X 1.5 | 1 | 15ZT-12.5 | 2 | I6149-04R-C5A | 2 | TMMU1400-150M | 1 | ATKU05R-6149 |
| -6 | I6149-06R0-20FM | M16 X 1.5 | 1 | 150T-14.5 | 2 | I6149-06R-C5A | 2 | TMMU1400-150M | 1 | ATKU06R-6149 |
| -8 | I6149-08R0-20FM | M18 X 1.5 | 1 | 150T-16.5 | 2 | I6149-06R-C5A | 2 | TMMU1800-150M | 1 | ATKU08R-6149 |
| -10 | I6149-10R1-25FM | M22 X 1.5 | 1 | 151T-20.5 | 2 | I6149-04R-C5A | 2 | TMMU1800-150M | 1 | ATKU10R-6149 |
| -12 | I6149-12R2-32FM | M27 X 2 | 1 | 152T-25 | 2 | I6149-12R-C5A | 2 | TMMU2000-200M | 1 | ATKU12R-6149 |
| -14 | I6149-14R2-32FM | M30 X 2 | 1 | 152T-28 | 2 | I6149-14R-C5A | 2 | TMMU2000-200M | 1 | ATKU14R-6149 |
| -16 | I6149-16R2-32FM | M33 X 2 | 1 | 152T-31 | 2 | I6149-16R-C5A | 2 | TMMU2000-200M | 1 | ATKU16R-6149 |
| -20 | I6149-20R3-32FM | M42 X 2 | 1 | 453T-40 | 1 | I6149-20R-C5A | 2 | TMMU2000-200M | 1 | ATKU20R-6149 |
| -24 | I6149-24R3-32FM | M48 X 2 | 1 | 453T-46 | 1 | I6149-24R-C5A | 2 | TMMU2000-200M | 1 | ATKU24R-6149 |
| -32 | I6149-32R4-32FM | M60 X 2 | 1 | 454T-58 | 1 | I6149-32R-C5A | 2 | TMMU2000-200M | 1 | ATKU32R-6149 |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|----------------|----------------|----------------|----------------|--------|---------------|
| | | D ₁ | L ₆ | D ₂ | L ₁ | | |
| -4 | 1.50 | 7.40 | 19.50 | 8.00 | 64.00 | 4 | TMMU1000-150M |
| -5 to -6 | 1.50 | 10.90 | 27.00 | 12.00 | 84.00 | 4 | TMMU1400-150M |
| -8 to -10 | 1.50 | 11.90 | 31.50 | 12.00 | 84.00 | 4 | TMMU1800-150M |
| -12 to -32 | 2.00 | 11.95 | 30.00 | 12.00 | 84.00 | 4 | TMMU2000-200M |

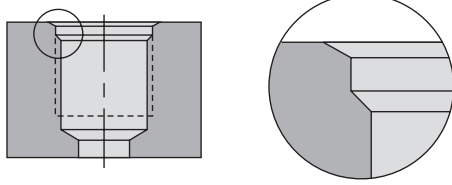
AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE A5202 port form specifications.



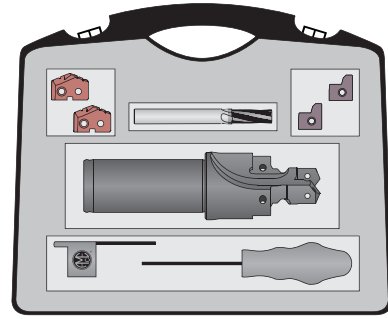
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Port and Thread Finishing Kits

AS5202 | Ferrous Materials

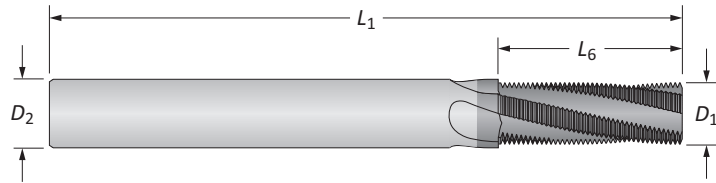


SAE AS5202



Port and Thread Finishing Kits

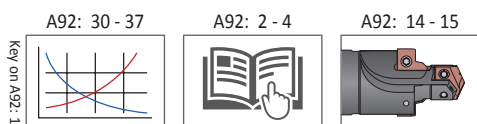
| Tube Dash No. | AccuPort 432 | | | GEN2 T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|-----------------|------------------|-----|-----------------------|-----|--------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (AM200®) | Qty | C5 Carbide (TiAlN) | Qty | Part No. (AM210®) | Qty | |
| -4 | AS5202-04Y-063F | 7/16-20 UNJF-3B | 1 | 45YH-.390 | 2 | AS5202-04-C5A | 2 | TMAK0438-20 | 1 | ATKK04-5202 |
| -5 | AS5202-05Z-063F | 1/2-20 UNJF-3B | 1 | 45ZH-11.5 | 2 | AS5202-05-C5A | 2 | TMAK0438-20 | 1 | ATKK05-5202 |
| -6 | AS5202-06Z-075F | 9/16-18 UNJF-3B | 1 | 45ZH-.510 | 2 | AS5202-06-C5A | 2 | TMAK0563-18 | 1 | ATKK06-5202 |
| -8 | AS5202-080-075F | 3/4-16 UNJF-3B | 1 | 450H-17.5 | 2 | AS5202-08-C5A | 2 | TMAK0750-16 | 1 | ATKK08-5202 |
| -10 | AS5202-101-100F | 7/8-14 UNJF-3B | 1 | 451H-20.5 | 2 | AS5202-10-C5A | 2 | TMAK0875-14 | 1 | ATKK10-5202 |
| -12 | AS5202-122-125F | 1-1/16-12 UNJ-3B | 1 | 452H-25 | 2 | AS5202-12-C5A | 2 | TMAK1063-12 | 1 | ATKK12-5202 |
| -14 | AS5202-142-125F | 1-3/16-12 UNJ-3B | 1 | 452H-1.109 | 2 | AS5202-14-C5A | 2 | TMAK1063-12 | 1 | ATKK14-5202 |
| -16 | AS5202-162-125F | 1-5/16-12 UNJ-3B | 1 | 452H-1.234 | 2 | AS5202-16-C5A | 2 | TMAK1063-12 | 1 | ATKK16-5202 |
| -20 | AS5202-203-150F | 1-5/8-12 UNJ-3B | 1 | 453H-1.547 | 1 | AS5202-20-C5A | 2 | TMAK1063-12 | 1 | ATKK20-5202 |
| -24 | AS5202-243-150F | 1-7/8-12 UNJ-3B | 1 | 453H-1.797 | 1 | AS5202-24-C5A | 2 | TMAK1063-12 | 1 | ATKK24-5202 |
| -32 | AS5202-324-150F | 2-1/2-12 UNJ-3B | 1 | 454H-61.5 | 1 | AS5202-32-C5A | 2 | TMAK1063-12 | 1 | ATKK32-5202 |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|----------------|----------------|----------------|----------------|--------|-------------|
| | | D ₁ | L ₆ | D ₂ | L ₁ | | |
| -4 to -5 | 20 | 0.335 | 0.600 | 0.375 | 3.5 | 4 | TMAK0438-20 |
| -6 | 18 | 0.370 | 0.666 | 0.375 | 3.5 | 4 | TMAK0563-18 |
| -8 | 16 | 0.495 | 0.750 | 0.500 | 3.5 | 4 | TMAK0750-16 |
| -10 | 14 | 0.495 | 0.857 | 0.500 | 3.5 | 4 | TMAK0875-14 |
| -12 to -32 | 12 | 0.495 | 0.917 | 0.500 | 3.5 | 4 | TMAK1063-12 |

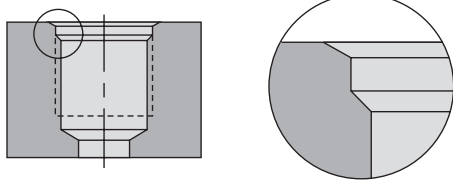
AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.



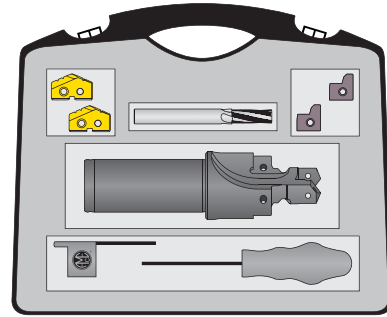


Port and Thread Finishing Kits

AS5202 | Nonferrous Materials

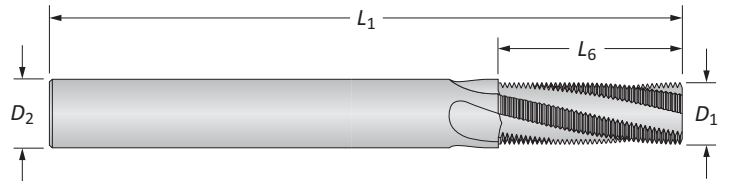


SAE AS5202



Port and Thread Finishing Kits

| Tube Dash No. | AccuPort 432 | | | T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|-----------------|------------------|-----|--------------------|-----|--------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (TiN) | Qty | C5 Carbide (TiAlN) | Qty | Part No. (Uncoated) | Qty | |
| -4 | AS5202-04Y-063F | 7/16-20 UNJF-3B | 1 | 15YT-.390 | 2 | AS5202-04-C5A | 2 | TMAU0438-20 | 1 | ATKU04-5202 |
| -5 | AS5202-05Z-063F | 1/2-20 UNJF-3B | 1 | 15ZT-11.5 | 2 | AS5202-05-C5A | 2 | TMAU0438-20 | 1 | ATKU05-5202 |
| -6 | AS5202-06Z-075F | 9/16-18 UNJF-3B | 1 | 15ZT-.510 | 2 | AS5202-06-C5A | 2 | TMAU0563-18 | 1 | ATKU06-5202 |
| -8 | AS5202-080-075F | 3/4-16 UNJF-3B | 1 | 150T-17.5 | 2 | AS5202-08-C5A | 2 | TMAU0750-16 | 1 | ATKU08-5202 |
| -10 | AS5202-101-100F | 7/8-14 UNJF-3B | 1 | 151T-20.5 | 2 | AS5202-10-C5A | 2 | TMAU0875-14 | 1 | ATKU10-5202 |
| -12 | AS5202-122-125F | 1-1/16-12 UNJ-3B | 1 | 152T-25 | 2 | AS5202-12-C5A | 2 | TMAU1063-12 | 1 | ATKU12-5202 |
| -14 | AS5202-142-125F | 1-3/16-12 UNJ-3B | 1 | 152T-1.109 | 2 | AS5202-14-C5A | 2 | TMAU1063-12 | 1 | ATKU14-5202 |
| -16 | AS5202-162-125F | 1-5/16-12 UNJ-3B | 1 | 152T-1.234 | 2 | AS5202-16-C5A | 2 | TMAU1063-12 | 1 | ATKU16-5202 |
| -20 | AS5202-203-150F | 1-5/8-12 UNJ-3B | 1 | 453T-1.547 | 1 | AS5202-20-C5A | 2 | TMAU1063-12 | 1 | ATKU20-5202 |
| -24 | AS5202-243-150F | 1-7/8-12 UNJ-3B | 1 | 453T-1.797 | 1 | AS5202-24-C5A | 2 | TMAU1063-12 | 1 | ATKU24-5202 |
| -32 | AS5202-324-150F | 2-1/2-12 UNJ-3B | 1 | 454T-61.5 | 1 | AS5202-32-C5A | 2 | TMAU1063-12 | 1 | ATKU32-5202 |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|----------------|----------------|----------------|----------------|--------|-------------|
| | | D ₁ | L ₆ | D ₂ | L ₁ | | |
| -4 to -5 | 20 | 0.335 | 0.600 | 0.375 | 3.5 | 4 | TMAU0438-20 |
| -6 | 18 | 0.370 | 0.666 | 0.375 | 3.5 | 4 | TMAU0563-18 |
| -8 | 16 | 0.495 | 0.750 | 0.500 | 3.5 | 4 | TMAU0750-16 |
| -10 | 14 | 0.495 | 0.857 | 0.500 | 3.5 | 4 | TMAU0875-14 |
| -12 to -32 | 12 | 0.495 | 0.917 | 0.500 | 3.5 | 4 | TMAU1063-12 |

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

A92: 30 - 37

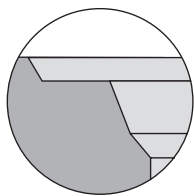
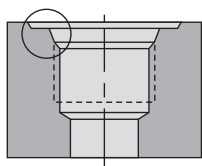
A92: 2 - 4

A92: 14 - 15

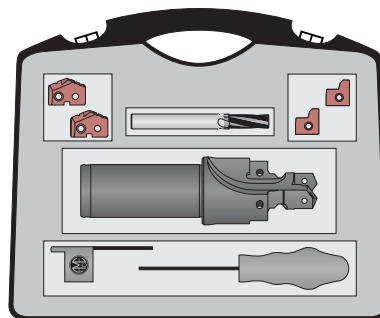
Key on A92: 1

Port and Thread Finishing Kits

G1731 | Ferrous Materials

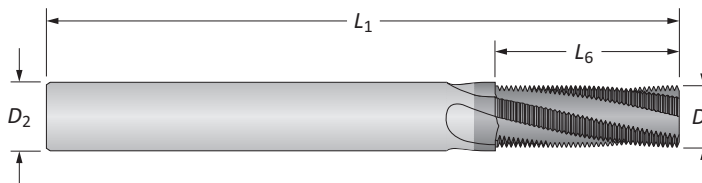


JDS-G173.1



Port and Thread Finishing Kits

| Tube Dash No. | AccuPort 432 | | | GEN2 T-A® Insert | | Port Form Insert | | AccuThread® Thread Mill | | Kit Part No. |
|---------------|----------------|------------------|-----|-----------------------|-----|---------------------|-----|-------------------------|-----|--------------|
| | Part No. | Port Thread Size | Qty | Super Cobalt (AM200®) | Qty | C3 Carbide (AM200®) | Qty | Part No. (AM210®) | Qty | |
| -4 | G1731-04Y-16FM | M12 X 1.5 | 1 | 45YH-10.5 | 2 | G1731-01-C3H | 2 | TMMK1000-150M | 1 | ATKK04-G1731 |
| -5 | G1731-05Z-16FM | M14 X 1.5 | 1 | 45ZH-12.5 | 2 | G1731-01-C3H | 2 | TMMK1400-150M | 1 | ATKK05-G1731 |
| -6 | G1731-06O-20FM | M16 X 1.5 | 1 | 45OH-14.5 | 2 | G1731-02-C3H | 2 | TMMK1400-150M | 1 | ATKK06-G1731 |
| -8 | G1731-08O-20FM | M18 X 1.5 | 1 | 45OH-16.5 | 2 | G1731-02-C3H | 2 | TMMK1800-150M | 1 | ATKK08-G1731 |
| -10 | G1731-10I-25FM | M22 X 1.5 | 1 | 45IH-20.5 | 2 | G1731-02-C3H | 2 | TMMK1800-150M | 1 | ATKK10-G1731 |
| -12 | G1731-12Z-32FM | M27 X 2 | 1 | 45ZH-25 | 2 | G1731-03-C3H | 2 | TMMK2000-200M | 1 | ATKK12-G1731 |
| -14 | G1731-14Z-32FM | M30 X 2 | 1 | 45ZH-28 | 2 | G1731-03-C3H | 2 | TMMK2000-200M | 1 | ATKK14-G1731 |
| -16 | G1731-16Z-32FM | M33 X 2 | 1 | 45ZH-31 | 2 | G1731-04-C3H | 2 | TMMK2000-200M | 1 | ATKK16-G1731 |
| -18 | G1731-18Z-32FM | M38 X 2 | 1 | 45ZH-36 | 1 | G1731-04-C3H | 2 | TMMK2000-200M | 1 | ATKK18-G1731 |
| -20 | G1731-20Z-32FM | M42 X 2 | 1 | 45ZH-40 | 1 | G1731-05-C3H | 2 | TMMK2000-200M | 1 | ATKK20-G1731 |
| -24 | G1731-24Z-32FM | M48 X 2 | 1 | 45ZH-46 | 1 | G1731-05-C3H | 2 | TMMK2000-200M | 1 | ATKK24-G1731 |
| -32 | G1731-32Z-32FM | M60 X 2 | 1 | 45ZH-58 | 1 | G1731-06-C3H | 2 | TMMK2000-200M | 1 | ATKK32-G1731 |



AccuThread® Port Specific Solid Carbide Thread Mills

| Port Size | Pitch | Thread Mill | | | | Flutes | Part No. |
|------------|-------|-------------|-------|-------|-------|--------|---------------|
| | | D_1 | L_6 | D_2 | L_1 | | |
| -4 | 1.50 | 7.40 | 19.50 | 8.00 | 64.00 | 4 | TMMK1000-150M |
| -5 to -6 | 1.50 | 10.90 | 27.00 | 12.00 | 84.00 | 4 | TMMK1400-150M |
| -8 to -10 | 1.50 | 11.90 | 31.50 | 12.00 | 84.00 | 4 | TMMK1800-150M |
| -12 to -32 | 2.00 | 11.95 | 30.00 | 12.00 | 84.00 | 4 | TMMK2000-200M |

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

A92: 30 - 37 A92: 2 - 4 A92: 16 - 17

Key on A92: 1



Recommended Drilling Data | Imperial (inch)

HSS

| ISO | Material | Hardness (BHN) | Grade | Speed (SFM) | | | | Feed Rate (IPR) by Tube Size and T-A® Insert Series | | | | | |
|---|---|----------------|-------|-------------|-------|-------|---------|---|----------------|--------------|------------------|------------------|--------------|
| | | | | TiN | TiAlN | TiCN | AM200® | Tube No. 4 - 5 | Tube No. 6 - 8 | Tube No. 10 | Tube No. 12 - 16 | Tube No. 20 - 24 | Tube No. 32 |
| | | | | | | | | T-A Series Y - Z | T-A Series 0 | T-A Series 1 | T-A Series 2 | T-A Series 3 | T-A Series 4 |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | HSS | 200 | 280 | 260 | 325 | 0.007 | 0.010 | 0.013 | 0.016 | 0.020 | 0.023 |
| | | 150 - 200 | HSS | 180 | 260 | 235 | 300 | 0.007 | 0.010 | 0.013 | 0.016 | 0.020 | 0.023 |
| | | 200 - 250 | HSS | 160 | 240 | 210 | 280 | 0.006 | 0.010 | 0.013 | 0.016 | 0.020 | 0.023 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | HSS | 170 | 250 | 220 | 290 | 0.006 ❖ | 0.009 | 0.012 | 0.015 | 0.019 | 0.023 |
| | | 125 - 175 | HSS | 160 | 240 | 210 | 275 | 0.006 ❖ | 0.009 | 0.012 | 0.015 | 0.019 | 0.023 |
| | | 175 - 225 | HSS | 150 | 225 | 195 | 260 | 0.005 ❖ | 0.008 | 0.010 | 0.014 | 0.018 | 0.021 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | HSS | 160 | 240 | 210 | 275 | 0.006 | 0.009 | 0.012 | 0.015 | 0.019 | 0.023 |
| | | 175 - 225 | HSS | 150 | 225 | 195 | 260 | 0.005 | 0.008 | 0.010 | 0.014 | 0.018 | 0.021 |
| | | 225 - 275 | HSS | 140 | 210 | 180 | 240 | 0.005 | 0.008 | 0.010 | 0.014 | 0.018 | 0.021 |
| | Alloy Steel 4140, 5140, 8640, etc. | 275 - 325 | SC | 130 | 195 | 170 | 225 | 0.004 | 0.007 | 0.009 | 0.012 | 0.016 | 0.019 |
| | | 125 - 175 | HSS | 150 | 210 | 195 | 240 | 0.006 | 0.008 | 0.010 | 0.014 | 0.017 | 0.019 |
| | | 175 - 225 | HSS | 140 | 195 | 180 | 225 | 0.005 | 0.008 | 0.010 | 0.014 | 0.017 | 0.019 |
| | | 225 - 275 | HSS | 130 | 180 | 170 | 210 | 0.005 | 0.007 | 0.010 | 0.014 | 0.017 | 0.019 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 275 - 325 | SC | 120 | 170 | 155 | 195 | 0.004 | 0.006 | 0.009 | 0.012 | 0.015 | 0.017 |
| | | 325 - 375 | SC | 110 | 155 | 145 | 180 | 0.003 | 0.006 | 0.009 | 0.012 | 0.015 | 0.017 |
| | | 225 - 300 | SC | 80 | 110 | 100 | 125 | 0.005 ❖ | 0.007 | 0.009 | 0.010 | 0.014 | 0.017 |
| | Structural Steel A36, A285, A516, etc. | 300 - 350 | SC | 60 | 85 | 80 | 100 | 0.004 ❖ | 0.007 | 0.009 | 0.010 | 0.014 | 0.017 |
| | | 350 - 400 | SC | 50 | 70 | 65 | 80 | 0.003 ❖ | 0.006 | 0.008 | 0.009 | 0.012 | 0.015 |
| 100 - 150 | | HSS | 140 | 200 | 180 | 235 | 0.006 ❖ | 0.010 | 0.012 | 0.014 | 0.018 | 0.021 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | HSS | 120 | 170 | 155 | 190 | 0.005 ❖ | 0.009 | 0.010 | 0.012 | 0.016 | 0.019 | |
| | 250 - 350 | SC | 100 | 140 | 130 | 160 | 0.004 ❖ | 0.009 | 0.009 | 0.010 | 0.014 | 0.017 | |
| | 150 - 200 | SC | 80 | 110 | 105 | 125 | 0.004 ❖ | 0.006 | 0.008 | 0.010 | 0.014 | 0.015 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 200 - 250 | SC | 60 | 90 | 85 | 105 | 0.004 ❖ | 0.006 | 0.008 | 0.010 | 0.012 | 0.015 |
| | | 140 - 220 | SC | 30 | 40 | 35 | 45 | 0.003 ❖ | 0.007 | 0.008 | 0.010 | 0.012 | 0.015 |
| M | Stainless Steel 400 Series 416, 420, 303, etc. | 220 - 310 | SC | 25 | 35 | 30 | 40 | 0.003 ❖ | 0.006 | 0.007 | 0.008 | 0.010 | 0.012 |
| | | 185 - 275 | SC | 75 | 105 | 95 | 110 | 0.006 ❖ | 0.008 | 0.009 | 0.011 | 0.012 | 0.016 |
| K | Nodular, Grey, Ductile Cast Iron | 275 - 350 | SC | 60 | 90 | 80 | 100 | 0.005 ❖ | 0.007 | 0.008 | 0.010 | 0.012 | 0.014 |
| | | 120 - 150 | HSS | 170 | 250 | 220 | 290 | 0.007 | 0.012 | 0.016 | 0.020 | 0.024 | 0.027 |
| | | 150 - 200 | HSS | 150 | 225 | 195 | 260 | 0.006 | 0.011 | 0.014 | 0.018 | 0.022 | 0.025 |
| | | 200 - 220 | HSS | 130 | 195 | 170 | 225 | 0.006 | 0.009 | 0.012 | 0.016 | 0.018 | 0.021 |
| | | 220 - 260 | SC | 110 | 165 | 145 | 190 | 0.005 | 0.007 | 0.009 | 0.012 | 0.014 | 0.017 |
| 260 - 320 | SC | 90 | 135 | 120 | 155 | 0.004 | 0.006 | 0.007 | 0.009 | 0.012 | 0.014 | | |
| N | Aluminum | 30 | HSS | 600 | 850 | 750 | - | 0.008 | 0.013 | 0.016 | 0.020 | 0.022 | 0.025 |
| | | 180 | HSS | 300 | 450 | 400 | - | 0.008 | 0.013 | 0.016 | 0.018 | 0.022 | 0.025 |

Formulas

| | | |
|--|--|---|
| <p>1. RPM = (3.82 • SFM) / DIA</p> <p>where:</p> <p>RPM = revolutions per minute (rev/min)</p> <p>SFM = speed (ft/min)</p> <p>DIA = finish diameter of drill (inch)</p> | <p>2. SFM = RPM • 0.262 • DIA</p> <p>where:</p> <p>SFM = speed (ft/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>DIA = diameter of drill (inch)</p> | <p>3. IPM = RPM • IPR</p> <p>where:</p> <p>IPM = Feed rate</p> <p>RPM = revolutions per minute (rev/min)</p> <p>IPR = feed rate (in/rev)</p> |
|--|--|---|

The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is also available through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com
Due to potential chip formation issues, contact our Application Engineering Team for assistance machining materials marked with a ❖.

Coolant Recommendations | Imperial (inch)

HSS

| ISO | Material | Pressure / Flow Rate | Tube No. 4 - 5 | Tube No. 6 - 8 | Tube No. 10 | Tube No. 12 - 16 | Tube No. 20 - 24 | Tube No. 32 |
|-----|--|----------------------|------------------|----------------|--------------|------------------|------------------|--------------|
| | | | T-A Series Y - Z | T-A Series 0 | T-A Series 1 | T-A Series 2 | T-A Series 3 | T-A Series 4 |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | PSI | 175 - 185 | 100 - 120 | 105 - 140 | 80 - 115 | 75 - 100 | 40 - 50 |
| | | GPM | 2.5 - 2.6 | 2.8 - 3.0 | 4.4 - 5.2 | 7 - 8 | 12 - 14 | 30 - 33 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | PSI | 165 - 170 | 75 - 90 | 75 - 95 | 60 - 80 | 55 - 75 | 30 - 40 |
| | | GPM | 2.4 - 2.5 | 2.4 - 2.6 | 3.7 - 4.2 | 6 - 7 | 11 - 12 | 26 - 30 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | PSI | 160 - 165 | 70 - 85 | 70 - 90 | 55 - 75 | 50 - 70 | 30 - 40 |
| | | GPM | 2.3 - 2.4 | 2.3 - 2.6 | 3.7 - 4.2 | 5 - 6 | 10 - 12 | 26 - 30 |
| | Alloy Steel 4140, 5140, 8640, etc. | PSI | 160 - 165 | 65 - 75 | 65 - 80 | 50 - 70 | 45 - 60 | 30 - 35 |
| | | GPM | 2.3 - 2.4 | 2.2 - 2.4 | 3.5 - 3.9 | 5 - 6 | 10 - 11 | 26 - 28 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | PSI | 150 - 155 | 55 - 60 | 45 - 50 | 25 - 30 | 25 - 30 | 20 - 25 |
| | | GPM | 2.3 - 2.4 | 2.1 - 2.2 | 2.9 - 3.1 | 4 - 5 | 7 - 8 | 21 - 23 |
| | Structural Steel A36, A285, A516, etc. | PSI | 160 - 165 | 75 - 85 | 65 - 80 | 40 - 55 | 40 - 50 | 25 - 30 |
| | | GPM | 2.3 - 2.4 | 2.4 - 2.6 | 3.5 - 3.9 | 5 - 6 | 9 - 10 | 23 - 26 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | PSI | 150 - 155 | 55 - 60 | 45 - 50 | 25 - 30 | 25 - 30 | 20 - 25 |
| | | GPM | 2.3 - 2.4 | 2.1 - 2.2 | 2.9 - 3.1 | 4 - 5 | 7 - 8 | 21 - 23 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | PSI | 150 - 155 | 60 - 65 | 50 - 55 | 30 - 35 | 25 - 30 | 25 - 30 |
| | | GPM | 2.3 - 2.4 | 2.2 - 2.3 | 3.1 - 3.2 | 4 - 5 | 7 - 8 | 23 - 26 |
| M | Stainless Steel 400 Series 416, 420, 303, etc. | PSI | 171 | 86 | 75 | 55 | 51 | 29 |
| | | GPM | 3 | 3 | 4 | 6 | 10 | 26 |
| K | Nodular, Grey, Ductile Cast Iron | PSI | 160 | 65 | 61 | 41 | 35 | 29 |
| | | GPM | 2 | 2 | 3 | 5 | 9 | 26 |
| N | Aluminum | PSI | 210 | 180 | 230 | 159 | 125 | 51 |
| | | GPM | 3 | 4 | 6 | 9 | 16 | 33 |

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied's recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the AccuPort 432 Port Contour Cutter will still function at reduced penetration rates. Contact our Application Engineering Department for a more specific recommendation of coolant requirements and/or speeds and feeds. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Drilling Data | Imperial (inch)

Carbide

| ISO | Material | Hardness (BHN) | Grade | Speed (SFM) | | | Feed Rate (IPR) by Tube Size and T-A® Insert Series | | | | |
|-----|---|----------------|--------|-------------|-------|--------|---|----------------|--------------|------------------|------------------|
| | | | | TiN | TiAlN | AM200® | Tube No. 4 - 5 | Tube No. 6 - 8 | Tube No. 10 | Tube No. 12 - 16 | Tube No. 20 - 24 |
| | | | | | | | T-A Series Y - Z | T-A Series 0 | T-A Series 1 | T-A Series 2 | T-A Series 3 |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | C1, C5 | 320 | 420 | 480 | 0.008 | 0.012 | 0.015 | 0.018 | 0.021 |
| | | 150 - 200 | C1, C5 | 280 | 360 | 415 | 0.007 | 0.011 | 0.014 | 0.016 | 0.019 |
| | | 200 - 250 | C1, C5 | 260 | 340 | 390 | 0.006 | 0.010 | 0.013 | 0.015 | 0.017 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | C1, C5 | 300 | 390 | 450 | 0.008 ❖ | 0.010 | 0.013 | 0.017 | 0.019 |
| | | 125 - 175 | C1, C5 | 260 | 340 | 390 | 0.007 ❖ | 0.010 | 0.013 | 0.016 | 0.018 |
| | | 175 - 225 | C1, C5 | 240 | 310 | 355 | 0.006 ❖ | 0.009 | 0.012 | 0.015 | 0.017 |
| | | 225 - 275 | C1, C5 | 210 | 270 | 310 | 0.005 ❖ | 0.009 | 0.012 | 0.015 | 0.017 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | C1, C5 | 260 | 340 | 390 | 0.007 | 0.010 | 0.013 | 0.016 | 0.018 |
| | | 175 - 225 | C1, C5 | 240 | 310 | 355 | 0.006 | 0.009 | 0.012 | 0.015 | 0.017 |
| | | 225 - 275 | C1, C5 | 210 | 270 | 310 | 0.006 | 0.009 | 0.012 | 0.015 | 0.017 |
| | | 275 - 325 | C1, C5 | 180 | 230 | 265 | 0.005 | 0.008 | 0.011 | 0.014 | 0.016 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 175 | C1, C5 | 250 | 325 | 375 | 0.007 | 0.010 | 0.013 | 0.016 | 0.018 |
| | | 175 - 225 | C1, C5 | 230 | 300 | 345 | 0.006 | 0.009 | 0.012 | 0.015 | 0.017 |
| | | 225 - 275 | C1, C5 | 210 | 270 | 310 | 0.006 | 0.009 | 0.012 | 0.015 | 0.017 |
| | | 275 - 325 | C1, C5 | 200 | 250 | 285 | 0.005 | 0.008 | 0.011 | 0.014 | 0.016 |
| | | 325 - 375 | C1, C5 | 170 | 220 | 255 | 0.004 | 0.007 | 0.010 | 0.013 | 0.015 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 300 | C1, C5 | 160 | 200 | 230 | 0.006 ❖ | 0.009 | 0.010 | 0.012 | 0.015 |
| | | 300 - 350 | C1, C5 | 140 | 180 | 205 | 0.005 ❖ | 0.008 | 0.009 | 0.011 | 0.014 |
| | | 350 - 400 | C1, C5 | 120 | 160 | 185 | 0.004 ❖ | 0.007 | 0.008 | 0.010 | 0.012 |
| | Structural Steel A36, A285, A516, etc. | 100 - 150 | C1, C5 | 240 | 310 | 355 | 0.008 ❖ | 0.011 | 0.014 | 0.016 | 0.018 |
| | | 150 - 250 | C1, C5 | 200 | 250 | 285 | 0.006 ❖ | 0.010 | 0.012 | 0.014 | 0.016 |
| | | 250 - 350 | C1, C5 | 180 | 230 | 265 | 0.005 ❖ | 0.009 | 0.011 | 0.012 | 0.014 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | C1, C5 | 160 | 220 | 255 | 0.004 ❖ | 0.007 | 0.009 | 0.011 | 0.013 |
| | | 200 - 250 | C1, C5 | 120 | 170 | 195 | 0.004 ❖ | 0.007 | 0.009 | 0.011 | 0.013 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | C2 | 80 | 105 | 120 | 0.004 ❖ | 0.007 | 0.009 | 0.011 | 0.013 |
| | | 220 - 310 | C2 | 60 | 85 | 95 | 0.004 ❖ | 0.006 | 0.008 | 0.010 | 0.012 |
| M | Stainless Steel 400 Series 416, 420, 303, etc. | 185 - 275 | C2 | 160 | 210 | 240 | 0.007 ❖ | 0.009 | 0.012 | 0.014 | 0.016 |
| | | 275 - 350 | C2 | 120 | 160 | 185 | 0.006 ❖ | 0.008 | 0.011 | 0.012 | 0.014 |
| K | Nodular, Grey, Ductile Cast Iron | 120 - 150 | C2, C3 | 320 | 460 | 500 | 0.008 | 0.012 | 0.015 | 0.019 | 0.023 |
| | | 150 - 200 | C2, C3 | 270 | 400 | 480 | 0.007 | 0.011 | 0.013 | 0.017 | 0.021 |
| | | 200 - 220 | C2, C3 | 240 | 360 | 430 | 0.006 | 0.009 | 0.012 | 0.015 | 0.018 |
| | | 220 - 260 | C2, C3 | 210 | 310 | 370 | 0.005 | 0.008 | 0.011 | 0.013 | 0.015 |
| | | 260 - 320 | C2, C3 | 180 | 270 | 335 | 0.005 | 0.007 | 0.010 | 0.011 | 0.013 |
| N | Aluminum | 30 | C2 | 1200 | 1500 | - | 0.010 | 0.015 | 0.018 | 0.020 | 0.022 |
| | | 180 | C2 | 800 | 1000 | - | 0.009 | 0.013 | 0.016 | 0.018 | 0.020 |

Formulas

| | | |
|--|--|---|
| <p>1. RPM = (3.82 • SFM) / DIA</p> <p>where:</p> <p>RPM = revolutions per minute (rev/min)</p> <p>SFM = speed (ft/min)</p> <p>DIA = finish diameter of drill (inch)</p> | <p>2. SFM = RPM • 0.262 • DIA</p> <p>where:</p> <p>SFM = speed (ft/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>DIA = diameter of drill (inch)</p> | <p>3. IPM = RPM • IPR</p> <p>where:</p> <p>IPM = Feed rate</p> <p>RPM = revolutions per minute (rev/min)</p> <p>IPR = feed rate (in/rev)</p> |
|--|--|---|

The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is also available through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com
Due to potential chip formation issues, contact our Application Engineering Team for assistance machining materials marked with a ❖.

Coolant Recommendations | Imperial (inch)

Carbide

| ISO | Material | Pressure / Flow Rate | Tube No. 4 - 5 | Tube No. 6 - 8 | Tube No. 10 | Tube No. 12 - 16 | Tube No. 20 - 24 |
|-----|--|-------------------------|---------------------|-------------------|-----------------|---------------------|---------------------|
| | | | T-A Series Y - Z | T-A Series 0 | T-A Series 1 | T-A Series 2 | T-A Series 3 |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | PSI | 195 | 140 | 160 | 140 | 155 |
| | | GPM | 2.6 | 3.3 | 5.5 | 9 | 18 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | PSI | 180 | 105 | 105 | 110 | 115 |
| | | GPM | 2.5 | 2.9 | 4.4 | 8 | 15 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | PSI | 175 | 100 | 90 | 100 | 75 |
| | | GPM | 2.5 | 2.8 | 4.1 | 7 | 13 |
| | Alloy Steel 4140, 5140, 8640, etc. | PSI | 165 | 85 | 100 | 75 | 70 |
| | | GPM | 2.4 | 2.6 | 4.3 | 6 | 12 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | PSI | 160 | 65 | 55 | 40 | 35 |
| | | GPM | 2.4 | 2.3 | 3.2 | 5 | 8 |
| | Structural Steel A36, A285, A516, etc. | PSI | 175 | 115 | 105 | 75 | 70 |
| | | GPM | 2.5 | 3 | 4.4 | 6 | 12 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | PSI | 155 | 60 | 55 | 40 | 35 |
| | | GPM | 2.4 | 2.2 | 3.2 | 5 | 8 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | PSI | 150 - 155 | 60 - 65 | 50 - 55 | 30 - 35 | 25 - 30 |
| | | GPM | 2.3 - 2.4 | 2.2 - 2.3 | 3.1 - 3.2 | 4 - 5 | 7 - 8 |
| M | Stainless Steel 400 Series 416, 420, 303, etc. | PSI | 329 | 239 | 260 | 250 | 190 |
| | | GPM | 3 | 4 | 7 | 12 | 20 |
| K | Nodular, Grey, Ductile Cast Iron | PSI | 225 | 104 | 90 | 90 | 80 |
| | | GPM | 3 | 3 | 4 | 7 | 13 |
| N | Aluminum | PSI | 350 | 319 | 315 | 284 | 200 |
| | | GPM | 4 | 5 | 8 | 12 | 20 |

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied's recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the AccuPort 432 Port Contour Cutter will still function at reduced penetration rates. Contact our Application Engineering Department for a more specific recommendation of coolant requirements and/or speeds and feeds. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Drilling Data | Metric (mm)

HSS

| ISO | Material | Hardness (BHN) | Grade | Speed (M/min) | | | | Feed Rate (mm/rev) by Tube Size and T-A® Insert Series | | | | | |
|-----------|---|----------------|-------|---------------|-------|------|--------|--|----------------|--------------|------------------|------------------|--------------|
| | | | | TiN | TiAlN | TiCN | AM200® | Tube No. 4 - 5 | Tube No. 6 - 8 | Tube No. 10 | Tube No. 12 - 16 | Tube No. 20 - 24 | Tube No. 32 |
| | | | | | | | | T-A Series Y - Z | T-A Series 0 | T-A Series 1 | T-A Series 2 | T-A Series 3 | T-A Series 4 |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | HSS | 61 | 85 | 79 | 92 | 0.18 | 0.25 | 0.33 | 0.41 | 0.51 | 0.58 |
| | | 150 - 200 | HSS | 55 | 79 | 72 | 87 | 0.18 | 0.25 | 0.33 | 0.41 | 0.51 | 0.58 |
| | | 200 - 250 | HSS | 49 | 73 | 64 | 81 | 0.15 | 0.25 | 0.33 | 0.41 | 0.51 | 0.58 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | HSS | 52 | 76 | 67 | 84 | 0.15 ❖ | 0.23 | 0.30 | 0.38 | 0.48 | 0.58 |
| | | 125 - 175 | HSS | 49 | 73 | 64 | 81 | 0.15 ❖ | 0.23 | 0.30 | 0.38 | 0.48 | 0.58 |
| | | 175 - 225 | HSS | 46 | 69 | 59 | 76 | 0.13 ❖ | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | HSS | 49 | 73 | 64 | 79 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 | 0.58 |
| | | 175 - 225 | HSS | 46 | 69 | 59 | 75 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 |
| | | 225 - 275 | HSS | 43 | 64 | 55 | 70 | 0.13 ❖ | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 175 | HSS | 46 | 64 | 59 | 69 | 0.15 | 0.20 | 0.25 | 0.36 | 0.43 | 0.48 |
| | | 175 - 225 | HSS | 43 | 59 | 55 | 66 | 0.13 | 0.20 | 0.25 | 0.36 | 0.43 | 0.48 |
| | | 225 - 275 | HSS | 40 | 55 | 52 | 60 | 0.13 | 0.18 | 0.25 | 0.36 | 0.43 | 0.48 |
| | | 275 - 325 | SC | 37 | 52 | 47 | 56 | 0.10 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 325 - 375 | SC | 34 | 47 | 44 | 55 | 0.08 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | | 225 - 300 | SC | 24 | 34 | 30 | 37 | 0.13 ❖ | 0.18 | 0.23 | 0.25 | 0.36 | 0.43 |
| | | 300 - 350 | SC | 18 | 26 | 24 | 27 | 0.10 ❖ | 0.18 | 0.23 | 0.25 | 0.36 | 0.43 |
| | Structural Steel A36, A285, A516, etc. | 350 - 400 | SC | 15 | 21 | 20 | 23 | 0.08 ❖ | 0.15 | 0.20 | 0.23 | 0.30 | 0.38 |
| | | 100 - 150 | HSS | 43 | 61 | 55 | 67 | 0.15 ❖ | 0.25 | 0.30 | 0.36 | 0.46 | 0.53 |
| | | 150 - 250 | HSS | 37 | 52 | 47 | 56 | 0.13 ❖ | 0.23 | 0.25 | 0.30 | 0.41 | 0.48 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 250 - 350 | SC | 30 | 43 | 40 | 47 | 0.10 ❖ | 0.20 | 0.23 | 0.25 | 0.36 | 0.43 |
| 150 - 200 | | SC | 24 | 34 | 32 | 37 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.38 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 200 - 250 | SC | 18 | 27 | 26 | 31 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.38 |
| | | 140 - 220 | SC | 30 | 40 | 35 | 45 | 0.08 ❖ | 0.18 | 0.20 | 0.25 | 0.30 | 0.38 |
| M | Stainless Steel 400 Series 416, 420, 303, etc. | 220 - 310 | SC | 25 | 35 | 30 | 40 | 0.08 ❖ | 0.15 | 0.18 | 0.20 | 0.25 | 0.30 |
| | | 185 - 275 | SC | 23 | 32 | 29 | 33 | 0.15 ❖ | 0.20 | 0.23 | 0.28 | 0.36 | 0.41 |
| K | Nodular, Grey, Ductile Cast Iron | 275 - 350 | SC | 18 | 27 | 24 | 29 | 0.13 ❖ | 0.18 | 0.20 | 0.25 | 0.30 | 0.36 |
| | | 120 - 150 | HSS | 52 | 76 | 67 | 82 | 0.18 | 0.30 | 0.41 | 0.51 | 0.61 | 0.69 |
| | | 150 - 200 | HSS | 46 | 69 | 59 | 75 | 0.15 | 0.28 | 0.36 | 0.46 | 0.56 | 0.64 |
| | | 200 - 220 | HSS | 40 | 59 | 52 | 66 | 0.15 | 0.23 | 0.30 | 0.41 | 0.46 | 0.53 |
| | | 220 - 260 | SC | 34 | 50 | 44 | 55 | 0.13 | 0.18 | 0.23 | 0.30 | 0.36 | 0.43 |
| 260 - 320 | SC | 27 | 41 | 37 | 44 | 0.10 | 0.15 | 0.18 | 0.23 | 0.30 | 0.36 | | |
| N | Aluminum | 30 | HSS | 183 | 259 | 229 | - | 0.20 | 0.33 | 0.41 | 0.51 | 0.56 | 0.64 |
| | | 180 | HSS | 91 | 137 | 122 | - | 0.20 | 0.33 | 0.41 | 0.46 | 0.56 | 0.64 |

Formulas

| | | |
|---|---|---|
| <p>1. RPM = (318.47 • M/min) / DIA</p> <p>where:</p> <p>RPM = revolutions per minute (rev/min)</p> <p>M/min = speed (M/min)</p> <p>DIA = finish diameter of drill (mm)</p> | <p>2. M/min = RPM • 0.003 • DIA</p> <p>where:</p> <p>M/min = speed (M/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>DIA = diameter of drill (mm)</p> | <p>3. IPM = RPM • mm/rev</p> <p>where:</p> <p>IPM = feed rate</p> <p>RPM = revolutions per minute (rev/min)</p> <p>mm/rev = feed rate (mm/rev)</p> |
|---|---|---|

The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is also available through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com
Due to potential chip formation issues, contact our Application Engineering Team for assistance machining materials marked with a ❖.

Coolant Recommendations | Metric (mm)

HSS

| ISO | Material | Pressure / Flow Rate | Tube No. 4 - 5 | Tube No. 6 - 8 | Tube No. 10 | Tube No. 12 - 16 | Tube No. 20 - 24 | Tube No. 32 |
|-----|--|----------------------|------------------|----------------|--------------|------------------|------------------|--------------|
| | | | T-A Series Y - Z | T-A Series 0 | T-A Series 1 | T-A Series 2 | T-A Series 3 | T-A Series 4 |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | BAR | 12 - 13 | 7 - 8 | 7 - 10 | 6 - 8 | 6 - 7 | 3 - 4 |
| | | LPM | 9.5 - 9.8 | 10.6 - 11.4 | 16.7 - 19.7 | 26.5 - 30.3 | 45.4 - 53.0 | 114 - 125 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | BAR | 11 - 12 | 5 - 6 | 5 - 7 | 4 - 6 | 4 - 5 | 2 - 3 |
| | | LPM | 9.1 - 9.5 | 9.1 - 9.8 | 14.0 - 15.9 | 22.7 - 26.5 | 41.6 - 45.4 | 98 - 114 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | BAR | 11 | 5 - 6 | 5 - 6 | 4 - 5 | 3 - 5 | 2 - 3 |
| | | LPM | 8.7 - 9.1 | 8.7 - 9.8 | 13.6 - 15.5 | 18.9 - 22.7 | 37.9 - 45.4 | 98 - 114 |
| | Alloy Steel 4140, 5140, 8640, etc. | BAR | 11 | 5 - 6 | 5 | 3 - 5 | 3 - 4 | 2 |
| | | LPM | 8.7 - 9.1 | 13.2 - 14.8 | 8.3 - 9.1 | 18.9 - 22.7 | 34.1 - 37.9 | 87 - 98 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | BAR | 10 - 11 | 4 - 5 | 3 - 4 | 2 | 2 | 2 |
| | | LPM | 8.7 - 9.1 | 7.9 - 8.3 | 11.0 - 11.7 | 15.1 - 18.9 | 26.5 - 30.3 | 79 - 87 |
| | Structural Steel A36, A285, A516, etc. | BAR | 11 | 5 - 6 | 5 - 6 | 3 - 4 | 3 | 2 |
| | | LPM | 8.7 - 9.1 | 9.1 - 9.8 | 13.2 - 14.8 | 18.9 - 22.7 | 34.1 - 37.9 | 87 - 98 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | BAR | 4 | 10 - 11 | 3 | 2 | 2 | 1 - 2 |
| | | LPM | 7.9 - 8.3 | 8.7 - 9.1 | 11.0 - 11.7 | 15.1 - 18.9 | 26.5 - 30.3 | 79 - 87 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | BAR | 10 - 11 | 4 - 5 | 3 - 4 | 2 | 2 | 2 |
| | | LPM | 8.7 - 9.1 | 8.3 - 8.7 | 11.7 - 12.1 | 15.1 - 18.9 | 26.5 - 30.3 | 87 - 98 |
| M | Stainless Steel 400 Series 416, 420, 303, etc. | BAR | 11.4 - 11.7 | 4.8 - 5.8 | 4.5 - 5.2 | 2.7 - 3.8 | 2.7 - 3.4 | 1.7 - 2 |
| | | LPM | 9.1 - 9.5 | 8.7 - 9.8 | 13.2 - 14 | 18.9 - 22.7 | 34.1 - 37.9 | 87 - 98 |
| K | Nodular, Grey, Ductile Cast Iron | BAR | 10.7 - 11.0 | 4.1 - 4.5 | 3.4 - 4.1 | 2 - 2.7 | 2 - 2.4 | 1.7 - 2 |
| | | LPM | 8.7 - 9.1 | 8.3 - 8.7 | 11.7 - 12.5 | 15.1 - 18.9 | 30.3 - 34.1 | 87 - 98 |
| N | Aluminum | BAR | 13.1 - 14.5 | 9.6 - 12.4 | 10.3 - 15.8 | 7.9 - 11 | 6.2 - 8.6 | 2.7 - 3.4 |
| | | LPM | 9.8 - 10.2 | 12.5 - 14 | 20.1 - 23.1 | 30.3 - 34.1 | 53 - 60.6 | 114 - 125 |

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied's recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the AccuPort 432 Port Contour Cutter will still function at reduced penetration rates. Contact our Application Engineering Department for a more specific recommendation of coolant requirements and/or speeds and feeds. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Drilling Data | Metric (mm)

Carbide

| ISO | Material | Hardness (BHN) | Grade | Speed (M/min) | | | Feed Rate (mm/rev) by Tube Size and T-A® Insert Series | | | | |
|---|---|----------------|--------|---------------|-------|--------|--|----------------|--------------|------------------|------------------|
| | | | | TiN | TiAlN | AM200® | Tube No. 4 - 5 | Tube No. 6 - 8 | Tube No. 10 | Tube No. 12 - 16 | Tube No. 20 - 24 |
| | | | | | | | T-A Series Y - Z | T-A Series 0 | T-A Series 1 | T-A Series 2 | T-A Series 3 |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | C1, C5 | 98 | 128 | 146 | 0.020 | 0.30 | 0.38 | 0.46 | 0.53 |
| | | 150 - 200 | C1, C5 | 85 | 110 | 126 | 0.18 | 0.28 | 0.36 | 0.41 | 0.48 |
| | | 200 - 250 | C1, C5 | 79 | 104 | 119 | 0.15 | 0.25 | 0.33 | 0.38 | 0.43 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | C1, C5 | 91 | 119 | 137 | 0.20 ❖ | 0.25 | 0.33 | 0.43 | 0.48 |
| | | 125 - 175 | C1, C5 | 79 | 104 | 119 | 0.18 ❖ | 0.25 | 0.33 | 0.41 | 0.46 |
| | | 175 - 225 | C1, C5 | 73 | 94 | 108 | 0.15 ❖ | 0.23 | 0.30 | 0.38 | 0.43 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | C1, C5 | 79 | 104 | 119 | 0.18 | 0.25 | 0.33 | 0.41 | 0.46 |
| | | 175 - 225 | C1, C5 | 73 | 94 | 108 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | | 225 - 275 | C1, C5 | 64 | 82 | 94 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 175 | C1, C5 | 76 | 99 | 114 | 0.18 | 0.25 | 0.33 | 0.41 | 0.46 |
| | | 175 - 225 | C1, C5 | 70 | 91 | 105 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | | 225 - 275 | C1, C5 | 64 | 82 | 94 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 275 - 325 | C1, C5 | 61 | 76 | 87 | 0.13 | 0.20 | 0.28 | 0.36 | 0.41 |
| | | 325 - 375 | C1, C5 | 52 | 67 | 78 | 0.10 | 0.18 | 0.25 | 0.33 | 0.38 |
| | | 225 - 300 | C1, C5 | 49 | 61 | 73 | 0.15 ❖ | 0.23 | 0.25 | 0.30 | 0.38 |
| | Structural Steel A36, A285, A516, etc. | 300 - 350 | C1, C5 | 43 | 55 | 62 | 0.13 ❖ | 0.20 | 0.23 | 0.28 | 0.36 |
| | | 350 - 400 | C1, C5 | 37 | 49 | 56 | 0.10 ❖ | 0.18 | 0.20 | 0.25 | 0.30 |
| | | 100 - 150 | C1, C5 | 73 | 94 | 108 | 0.20 ❖ | 0.28 | 0.36 | 0.41 | 0.46 |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | C1, C5 | 61 | 76 | 87 | 0.15 ❖ | 0.25 | 0.30 | 0.36 | 0.41 | |
| | 250 - 350 | C1, C5 | 55 | 70 | 81 | 0.13 ❖ | 0.23 | 0.28 | 0.30 | 0.36 | |
| | 150 - 200 | C1, C5 | 49 | 67 | 78 | 0.10 ❖ | 0.18 | 0.23 | 0.28 | 0.33 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 200 - 250 | C1, C5 | 37 | 52 | 59 | 0.10 ❖ | 0.18 | 0.23 | 0.28 | 0.33 |
| | | 140 - 220 | C2 | 24 | 32 | 36 | 0.10 ❖ | 0.18 | 0.23 | 0.28 | 0.33 |
| M | Stainless Steel 400 Series 416, 420, 303, etc. | 220 - 310 | C2 | 18 | 26 | 29 | 0.10 ❖ | 0.15 | 0.20 | 0.25 | 0.30 |
| | | 185 - 275 | C2 | 49 | 64 | 73 | 0.18 ❖ | 0.23 | 0.30 | 0.36 | 0.41 |
| K | Nodular, Grey, Ductile Cast Iron | 275 - 350 | C2 | 37 | 49 | 46 | 0.15 ❖ | 0.20 | 0.28 | 0.30 | 0.36 |
| | | 120 - 150 | C2, C3 | 98 | 140 | 152 | 0.20 | 0.30 | 0.38 | 0.48 | 0.58 |
| | | 150 - 200 | C2, C3 | 82 | 122 | 146 | 0.18 | 0.28 | 0.33 | 0.43 | 0.53 |
| | | 200 - 220 | C2, C3 | 73 | 110 | 131 | 0.15 | 0.23 | 0.30 | 0.38 | 0.46 |
| | | 220 - 260 | C2, C3 | 64 | 94 | 113 | 0.13 | 0.20 | 0.28 | 0.33 | 0.38 |
| N | Aluminum | 260 - 320 | C2, C3 | 55 | 82 | 102 | 0.13 | 0.18 | 0.25 | 0.28 | 0.33 |
| | | 30 | C2 | 366 | 457 | - | 0.25 | 0.38 | 0.46 | 0.51 | 0.56 |
| | | 180 | C2 | 244 | 305 | - | 0.23 | 0.33 | 0.41 | 0.46 | 0.51 |

Formulas

| | | |
|---|---|---|
| <p>1. $RPM = (318.47 \cdot M/min) / DIA$</p> <p>where:</p> <p>RPM = revolutions per minute (rev/min)</p> <p>M/min = speed (M/min)</p> <p>DIA = finish diameter of drill (mm)</p> | <p>2. $M/min = RPM \cdot 0.003 \cdot DIA$</p> <p>where:</p> <p>M/min = speed (M/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>DIA = diameter of drill (mm)</p> | <p>3. $IPM = RPM \cdot mm/rev$</p> <p>where:</p> <p>IPM = feed rate</p> <p>RPM = revolutions per minute (rev/min)</p> <p>mm/rev = feed rate (mm/rev)</p> |
|---|---|---|

The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is also available through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com
Due to potential chip formation issues, contact our Application Engineering Team for assistance machining materials marked with a ❖.

Coolant Recommendations | Metric (mm)

Carbide

| ISO | Material | Pressure / Flow Rate | Tube No. 4 - 5 | Tube No. 6 - 8 | Tube No. 10 | Tube No. 12 - 16 | Tube No. 20 - 24 |
|-----|--|-------------------------|---------------------|-------------------|-----------------|---------------------|---------------------|
| | | | T-A Series Y - Z | T-A Series 0 | T-A Series 1 | T-A Series 2 | T-A Series 3 |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | BAR | 20 | 16 | 17 | 15 | 12 |
| | | LPM | 12.2 | 16.3 | 25.3 | 41.5 | 71.9 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | BAR | 11.4 | 13.3 | 20.6 | 36.5 | 62 |
| | | LPM | 17 | 10 | 10 | 10 | 8 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | BAR | 17 | 9 | 10 | 8 | 7 |
| | | LPM | 11.1 | 12.3 | 19.3 | 30 | 55.8 |
| | Alloy Steel 4140, 5140, 8640, etc. | BAR | 10.4 | 9.1 | 12.6 | 18.8 | 33.6 |
| | | LPM | 16 | 9 | 8 | 7 | 5 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | BAR | 15 | 5 | 5 | 3 | 3 |
| | | LPM | 10.4 | 9.1 | 13.6 | 19.7 | 36.5 |
| | Structural Steel A36, A285, A516, etc. | BAR | 16 | 9 | 8 | 7 | 5 |
| | | LPM | 10.8 | 12 | 17.5 | 27.8 | 47.1 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | BAR | 15 | 5 | 5 | 3 | 3 |
| | | LPM | 10.4 | 9.1 | 13.6 | 19.7 | 36.5 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | BAR | 17 | 11.4 | 12.4 | 11 | 9 |
| | | LPM | 11.1 | 13.5 | 21.9 | 35.4 | 62 |
| M | Stainless Steel 400 Series 416, 420, 303, etc. | BAR | 22.7 | 16.5 | 17.9 | 17.2 | 13.1 |
| | | LPM | 13 | 16.3 | 26.3 | 44.2 | 75 |
| K | Nodular, Grey, Ductile Cast Iron | BAR | 15.5 | 7.2 | 6.2 | 6.2 | 5.5 |
| | | LPM | 10.7 | 10.8 | 15.4 | 26.5 | 48.7 |
| N | Aluminum | BAR | 24.1 | 22 | 21.7 | 19.6 | 13.8 |
| | | LPM | 13.4 | 18.8 | 29 | 47.2 | 77 |

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied's recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the AccuPort 432 Port Contour Cutter will still function at reduced penetration rates. Contact our Application Engineering Department for a more specific recommendation of coolant requirements and/or speeds and feeds. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

SECTION

A93

BT-A Drill

BT-A Drill

BTA (STS) Deep Hole Machining System

► **Diameter Range:** 0.5100" - 1.8820" (12.95 mm - 47.80 mm)



Material Ejection with Efficiency

The BT-A drill (using the single tube system or STS) conquers deep hole applications in ways other drills simply cannot. The internal ejection system flushes chips and debris from the hole with no interference to the cutting process.

By utilizing the countless advantages of the T-A® drill insert, the BT-A design significantly increases penetration rates over brazed heads and traditional gun drills. A specific BT geometry has also been developed to increase productivity in these types of drilling applications.

| | | |
|--------------------------------|---------------------------|---|
| Excellent hole size and finish | Optimizes chip evacuation | Up to 2x the penetration rate of traditional BTA heads |
|--------------------------------|---------------------------|---|

Applicable Industries



Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

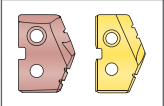
NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

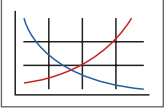
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



T-A® Inserts

Refers to the range of inserts that connect with the corresponding holders



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling

Introduction Information

System Overview 2
 Product Nomenclature 3

T-A Drill Series

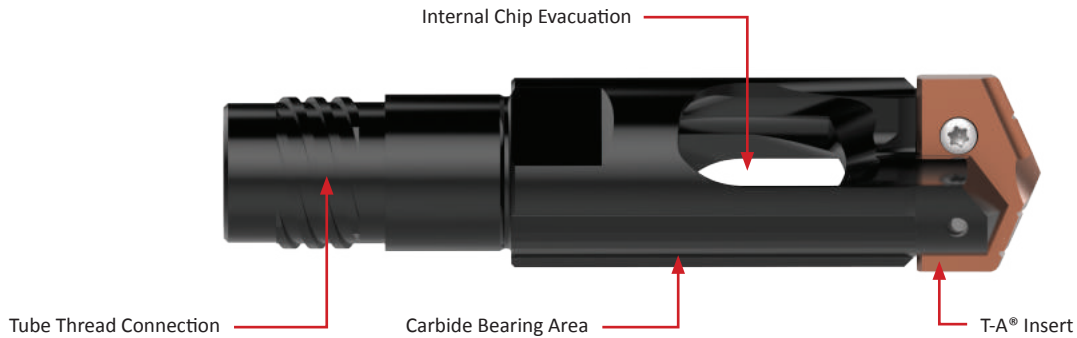
0 Series 4
 1 Series 5
 2 Series 6
 3 Series 7

| Series | Diameter Range | |
|--------|-----------------|---------------|
| | Imperial (inch) | Metric (mm) |
| 0 | 0.5100 - 0.6959 | 12.95 - 17.68 |
| 1 | 0.6960 - 0.9600 | 17.69 - 24.38 |
| 2 | 0.9601 - 1.3800 | 24.39 - 35.05 |
| 3 | 1.3801 - 1.8820 | 35.06 - 47.80 |

System Overview

BTA Machining

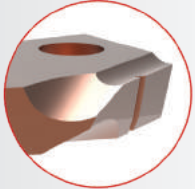
BTA machining is the reverse of typical gun drilling systems. The BT-A drill is a drill head consisting of a holder body and a replaceable tip T-A® insert. The drill head threads into an STS (single tube system) cylindrical tube with a diameter smaller than the drill head. The difference in diameter forms an annular area between the hole and the tube OD. This allows high-volume coolant to be directed to the cutting edge.

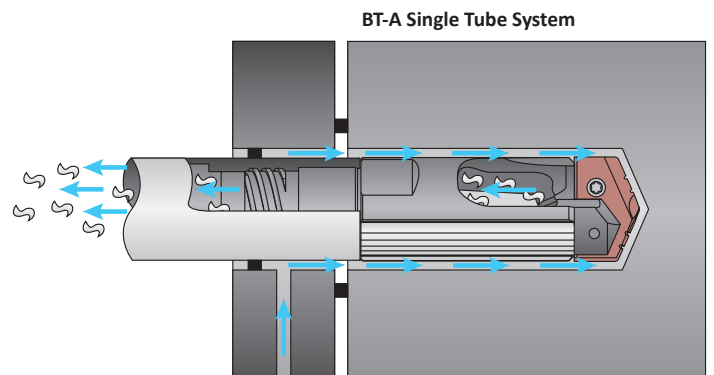


- ✓ **Improve hole straightness**
with the laser clad bearing area
- ✓ **Eliminate the need for resharpener**
with replaceable cutting edges
- ✓ **Reduce your inventory**
with the replaceable T-A® feature
- ✓ **Compatibility**
heads are compatible with standard BTA-STS systems
- ✓ **Balanced cutting forces**
- ✓ **Patented design**

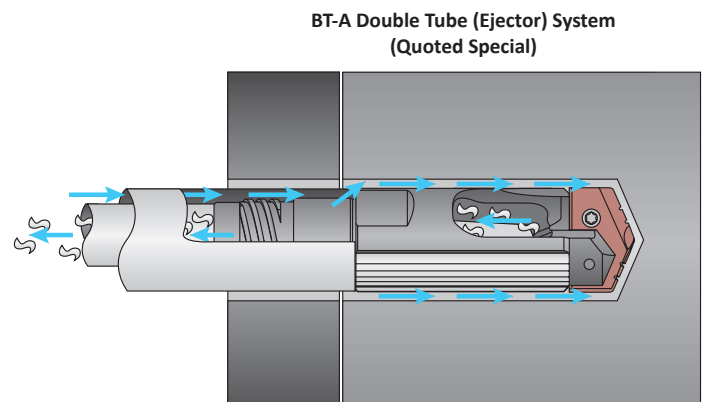
T-A Insert: BT-A Geometry (-BT)

- Low thrust web geometry reduces Z-axis requirements
- Lip geometry identical to the tiny chip (-TC) for improved chip formation
- Polished cutting surface eliminates material buildup





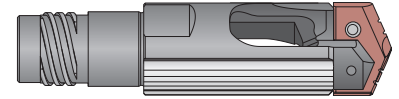
2x INCREASE in penetration rates over traditional BTA heads



Product Nomenclature

BT-A Drill Holders

| | | | | |
|-------------|---|------------|---|---------------|
| BTA2 | - | 804 | - | 1.1299 |
| 1 | | 2 | | 3 |



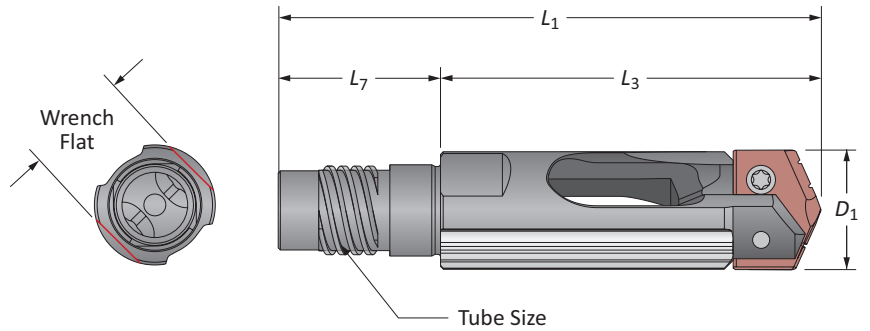
| 1. BT-A Drill T-A® Insert Series |
|-----------------------------------|
| BTA0 = 0 series T-A insert |
| BTA1 = 1 series T-A insert |
| BTA2 = 2 series T-A insert |
| BTA3 = 3 series T-A insert |

| 2. Tube Size | | |
|--------------|-----|-----|
| 794 | 800 | 806 |
| 795 | 801 | 807 |
| 796 | 802 | 808 |
| 797 | 803 | 809 |
| 798 | 804 | 810 |
| 799 | 805 | 811 |

| 3. Diameter |
|-----------------------|
| 0.7344 = Inch |
| 25.00 = Metric |

Reference Key

| Symbol | Attribute |
|--------|-------------------------|
| D_1 | Drill insert range |
| L_1 | Overall length |
| L_3 | Holder reference length |
| L_7 | Shank length |



BT-A Drill Tubes

| | | | | |
|-------------|---|------------|---|-----------|
| BTAT | - | 804 | - | 63 |
| 1 | | 2 | | 3 |

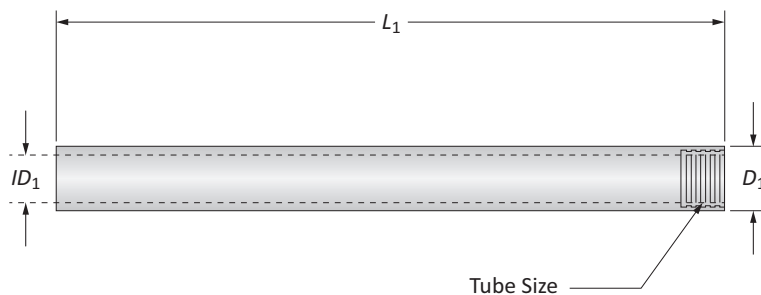
| 1. BT-A Drill T-A Insert Series |
|---------------------------------|
| BTAT = BT-A Tube |

| 2. Tube Size | | |
|--------------|-----|-----|
| 794 | 800 | 806 |
| 795 | 801 | 807 |
| 796 | 802 | 808 |
| 797 | 803 | 809 |
| 798 | 804 | 810 |
| 799 | 805 | 811 |

| 3. Length |
|----------------------|
| 63 = Standard |
| 102 = Long |

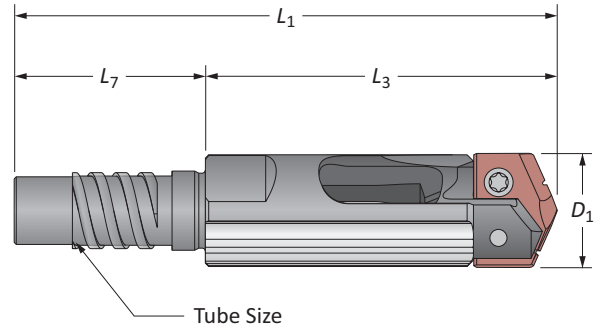
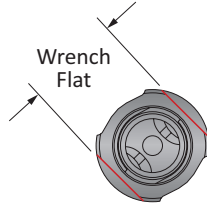
Reference Key


| Symbol | Attribute |
|--------|-------------------|
| D_1 | Body diameter |
| ID_1 | Internal diameter |
| L_1 | Overall length |

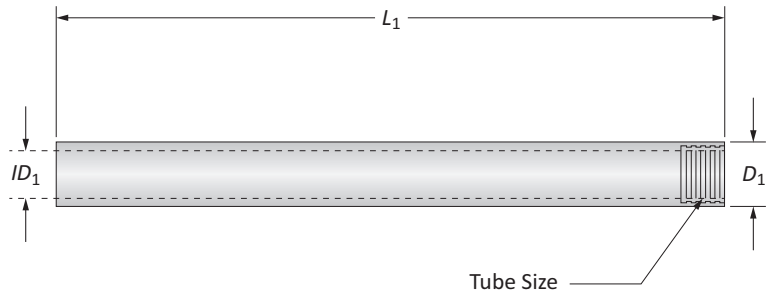


BT-A Drill Holders

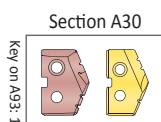
0 Series | Diameter Range: 0.5100" - 0.6959" (12.95 mm - 17.68 mm)



| Tube Size | D_1 | Holder | | | | Part No. |  T-A® Insert | Wrench Flat (mm) |
|-----------|-------|-----------------|---------|---------|-------|------------------------|--|------------------|
| | | L_3 | L_1 | L_7 | | | | |
| i | 794 | 0.5100 - 0.5359 | 1-45/64 | 2-39/64 | 29/32 | BTA0-794-X.XXXX | 1C10H-XXXX-BT | 11 |
| | 795 | 0.5360 - 0.5759 | 1-3/4 | 2-21/32 | 29/32 | BTA0-795-X.XXXX | 1C10H-XXXX-BT | 12 |
| | 796 | 0.5760 - 0.6149 | 1-13/16 | 2-3/4 | 61/64 | BTA0-796-X.XXXX | 1C10H-XXXX-BT | 13 |
| | 797 | 0.6150 - 0.6579 | 1-13/16 | 2-3/4 | 61/64 | BTA0-797-X.XXXX | 1C10H-XXXX-BT | 14 |
| | 798 | 0.6580 - 0.6959 | 1-25/32 | 2-47/64 | 61/64 | BTA0-798-X.XXXX | 1C10H-XXXX-BT | 15 |
| m | 794 | 12.95 - 13.61 | 43.4 | 66.4 | 23 | BTA0-794-XX.XX | 1C10H-XXXX-BT | 11 |
| | 795 | 13.62 - 14.63 | 44.6 | 67.6 | 23 | BTA0-795-XX.XX | 1C10H-XXXX-BT | 12 |
| | 796 | 14.64 - 15.62 | 45.9 | 69.9 | 24 | BTA0-796-XX.XX | 1C10H-XXXX-BT | 13 |
| | 797 | 15.63 - 16.71 | 45.9 | 69.9 | 24 | BTA0-797-XX.XX | 1C10H-XXXX-BT | 14 |
| | 798 | 16.72 - 17.68 | 45.3 | 69.3 | 24 | BTA0-798-XX.XX | 1C10H-XXXX-BT | 15 |



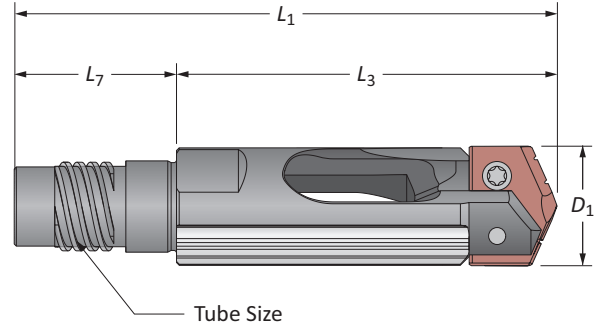
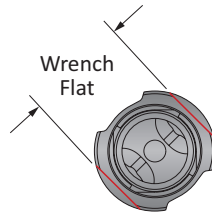
| Tube Size | Tube | | | Part No. | |
|-----------|-------|--------|-------|----------|--------------------|
| | D_1 | ID_1 | L_1 | | |
| i | 794 | 0.433 | 0.276 | 63 | BTAT794-63 |
| | 794 | 0.433 | 0.276 | 102 | BTAT794-102 |
| | 795 | 0.472 | 0.315 | 63 | BTAT795-63 |
| | 795 | 0.472 | 0.315 | 102 | BTAT795-102 |
| | 796 | 0.512 | 0.335 | 63 | BTAT796-63 |
| | 796 | 0.512 | 0.335 | 102 | BTAT796-102 |
| | 797 | 0.551 | 0.354 | 63 | BTAT797-63 |
| | 797 | 0.551 | 0.354 | 102 | BTAT797-102 |
| | 798 | 0.591 | 0.394 | 63 | BTAT798-63 |
| | 798 | 0.591 | 0.394 | 102 | BTAT798-102 |



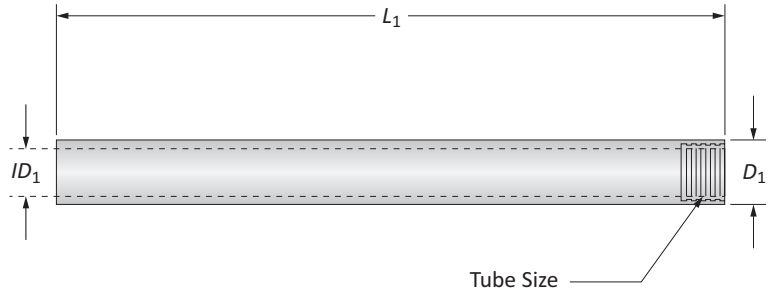
i = Imperial (in)
m = Metric (mm)

BT-A Drill Holders

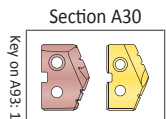
1 Series | Diameter Range: 0.6960" - 0.9600" (17.69 mm - 24.38 mm)



| Tube Size | D_1 | Holder | | | Part No. | T-A® Insert | Wrench Flat (mm) | |
|-----------|-------|-----------------|---------|---------|----------|-----------------|------------------|----|
| | | L_3 | L_1 | L_7 | | | | |
| i | 799 | 0.6960 - 0.7449 | 2-15/64 | 3-9/32 | 63/64 | BTA1-799-X.XXXX | 1C11H-XXXX-BT | 16 |
| | 800 | 0.7450 - 0.7879 | 2-5/16 | 3-27/64 | 1-7/64 | BTA1-800-X.XXXX | 1C11H-XXXX-BT | 17 |
| | 801 | 0.7880 - 0.8589 | 2-11/32 | 3-35/64 | 1-13/64 | BTA1-801-X.XXXX | 1C11H-XXXX-BT | 18 |
| | 802 | 0.8590 - 0.9489 | 2-25/64 | 3-11/16 | 1-19/64 | BTA1-802-X.XXXX | 1C11H-XXXX-BT | 19 |
| | 803 | 0.9490 - 0.9600 | 2-33/64 | 3-13/16 | 1-19/64 | BTA1-803-X.XXXX | 1C11H-XXXX-BT | 21 |
| m | 799 | 17.69 - 18.92 | 58.2 | 83.2 | 25 | BTA1-799-XX.XX | 1C11H-XXXX-BT | 16 |
| | 800 | 18.93 - 20.01 | 58.8 | 86.8 | 28 | BTA1-800-XX.XX | 1C11H-XXXX-BT | 17 |
| | 801 | 20.02 - 21.81 | 59.4 | 89.9 | 30.5 | BTA1-801-XX.XX | 1C11H-XXXX-BT | 18 |
| | 802 | 21.82 - 24.10 | 60.7 | 93.7 | 33 | BTA1-802-XX.XX | 1C11H-XXXX-BT | 19 |
| | 803 | 24.11 - 24.38 | 63.9 | 96.9 | 33 | BTA1-803-XX.XX | 1C11H-XXXX-BT | 21 |



| Tube Size | Tube | | | Part No. | |
|-----------|-------|--------|-------|----------|-------------|
| | D_1 | ID_1 | L_1 | | |
| i | 799 | 0.630 | 0.413 | 63 | BTAT799-63 |
| | 799 | 0.630 | 0.413 | 102 | BTAT799-102 |
| | 800 | 0.669 | 0.453 | 63 | BTAT800-63 |
| | 800 | 0.669 | 0.453 | 102 | BTAT800-102 |
| | 801 | 0.709 | 0.472 | 63 | BTAT801-63 |
| | 801 | 0.709 | 0.472 | 102 | BTAT801-102 |
| | 802 | 0.787 | 0.512 | 63 | BTAT802-63 |
| | 802 | 0.787 | 0.512 | 102 | BTAT802-102 |
| | 803 | 0.866 | 0.551 | 63 | BTAT803-63 |
| | 803 | 0.866 | 0.551 | 102 | BTAT803-102 |

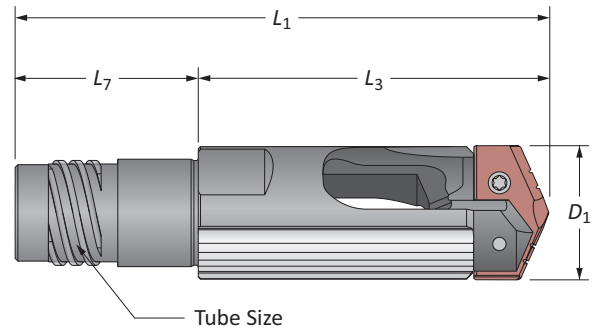
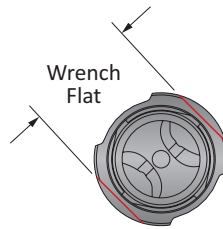
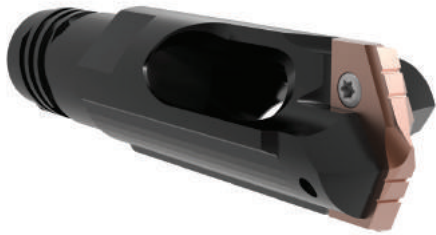



Key on A93: 1

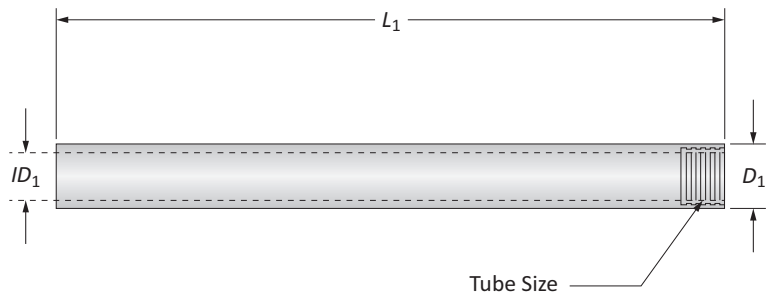
i = Imperial (in)
m = Metric (mm)

BT-A Drill Holders

2 Series | Diameter Range: 0.9601" - 1.3800" (24.39 mm - 35.05 mm)

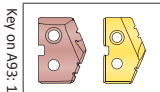


| Tube Size | Holder | | | | Part No. |  T-A® Insert | Wrench Flat (mm) | |
|-----------|--------|-----------------|---------|---------|----------|---|------------------|----|
| | D_1 | L_3 | L_1 | L_7 | | | | |
| i | 803 | 0.9601 - 1.0399 | 3-3/32 | 4-25/64 | 1-19/64 | BTA2-803-X.XXXX | 1C12H-XXXX-BT | 21 |
| | 804 | 1.0400 - 1.1299 | 3 | 4-3/32 | 1-7/64 | BTA2-804-X.XXXX | 1C12H-XXXX-BT | 22 |
| | 805 | 1.1300 - 1.2209 | 2-31/32 | 4-25/64 | 1-27/64 | BTA2-805-X.XXXX | 1C12H-XXXX-BT | 25 |
| | 806 | 1.2210 - 1.3119 | 3-1/16 | 4-31/64 | 1-27/64 | BTA2-806-X.XXXX | 1C12H-XXXX-BT | 27 |
| | 807 | 1.3120 - 1.3800 | 3-1/16 | 4-31/64 | 1-27/64 | BTA2-807-X.XXXX | 1C12H-XXXX-BT | 30 |
| m | 803 | 24.39 - 26.41 | 78.5 | 111.5 | 33 | BTA2-803-XX.XX | 1C12H-XXXX-BT | 21 |
| | 804 | 26.42 - 28.70 | 75.9 | 103.9 | 28 | BTA2-804-XX.XX | 1C12H-XXXX-BT | 22 |
| | 805 | 28.71 - 31.01 | 75.4 | 111.4 | 36 | BTA2-805-XX.XX | 1C12H-XXXX-BT | 25 |
| | 806 | 31.02 - 33.32 | 77.9 | 113.8 | 36 | BTA2-806-XX.XX | 1C12H-XXXX-BT | 27 |
| | 807 | 33.33 - 35.05 | 77.9 | 113.8 | 36 | BTA2-807-XX.XX | 1C12H-XXXX-BT | 30 |



| Tube Size | Tube | | | Part No. | |
|-----------|-------|--------|-------|----------|--------------------|
| | D_1 | ID_1 | L_1 | | |
| i | 803 | 0.866 | 0.551 | 63 | BTAT803-63 |
| | 803 | 0.866 | 0.551 | 102 | BTAT803-102 |
| | 804 | 0.945 | 0.610 | 63 | BTAT804-63 |
| | 804 | 0.945 | 0.610 | 102 | BTAT804-102 |
| | 805 | 1.024 | 0.669 | 63 | BTAT805-63 |
| | 805 | 1.024 | 0.669 | 102 | BTAT805-102 |
| | 806 | 1.102 | 0.728 | 102 | BTAT806-102 |
| | 807 | 1.181 | 0.787 | 102 | BTAT807-102 |

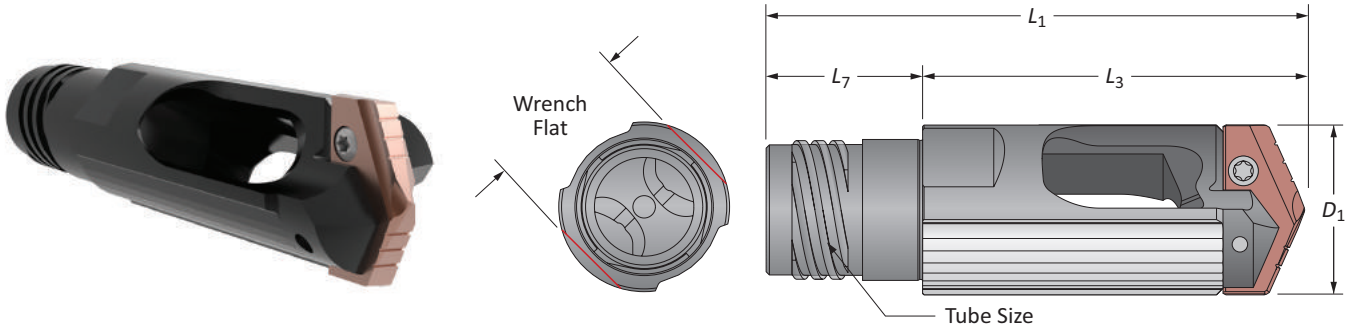
Section A30



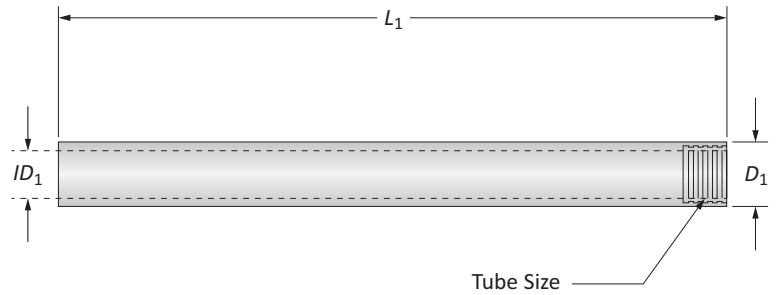
i = Imperial (in)
m = Metric (mm)

BT-A Drill Holders

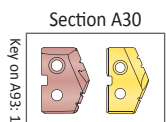
3 Series | Diameter Range: 1.3801" - 1.8820" (35.06 mm - 47.80 mm)



| Tube Size | D ₁ | Holder | | | Part No. | T-A® Insert | Wrench Flat (mm) | |
|-----------|----------------|-----------------|----------------|----------------|----------|------------------------|------------------|----|
| | | L ₃ | L ₁ | L ₇ | | | | |
| i | 807 | 1.3801 - 1.4259 | 3-13/16 | 5-15/64 | 1-27/64 | BTA3-807-X.XXXX | 1C13H-XXXX-BT | 30 |
| | 808 | 1.4260 - 1.5599 | 3-15/16 | 5-11/16 | 1-3/4 | BTA3-808-X.XXXX | 1C13H-XXXX-BT | 32 |
| | 809 | 1.5600 - 1.6929 | 4-1/16 | 5-3/4 | 1-11/16 | BTA3-809-X.XXXX | 1C13H-XXXX-BT | 36 |
| | 810 | 1.6930 - 1.8509 | 4-1/64 | 5-45/64 | 1-11/16 | BTA3-810-X.XXXX | 1C13H-XXXX-BT | 41 |
| | 811 | 1.8510 - 1.8820 | 4-1/16 | 5-3/4 | 1-11/16 | BTA3-811-X.XXXX | 1C13H-XXXX-BT | 41 |
| m | 807 | 35.06 - 36.22 | 96.8 | 132.8 | 36 | BTA3-807-XX.XX | 1C13H-XXXX-BT | 30 |
| | 808 | 36.23 - 39.62 | 100.0 | 144.4 | 44.5 | BTA3-808-XX.XX | 1C13H-XXXX-BT | 32 |
| | 809 | 39.63 - 43.00 | 103.1 | 146.2 | 43 | BTA3-809-XX.XX | 1C13H-XXXX-BT | 36 |
| | 810 | 43.01 - 47.01 | 101.9 | 144.9 | 43 | BTA3-810-XX.XX | 1C13H-XXXX-BT | 41 |
| | 811 | 47.02 - 47.80 | 103.2 | 146.2 | 43 | BTA3-811-XX.XX | 1C13H-XXXX-BT | 41 |



| Tube Size | Tube | | | Part No. | |
|-----------|----------------|-----------------|----------------|----------|--------------------|
| | D ₁ | ID ₁ | L ₁ | | |
| i | 807 | 1.181 | 0.787 | 102 | BTAT807-102 |
| | 808 | 1.299 | 0.906 | 102 | BTAT808-102 |
| | 809 | 1.417 | 0.984 | 102 | BTAT809-102 |
| | 810 | 1.535 | 1.102 | 102 | BTAT810-102 |
| | 811 | 1.693 | 1.220 | 102 | BTAT811-102 |



i = Imperial (in)
m = Metric (mm)

SECTION

B10

Wohlhaupter® Overview

Wohlhaupter® High Precision Boring Systems

► Diameter Range: 0.016" - 128.150" (0.40 mm - 3255.00 mm)



Precision at Its Finest

From high precision to high production, Wohlhaupter has the right solution for your hole finishing applications. The Wohlhaupter product line offers the widest range of stocked boring tools and the most precise and flexible modular systems on the market. With the most reliable digital readout tools and the ability to design and build special tools, Wohlhaupter is the solution for your boring challenges.

Also available to assist your application needs is the online tool modeling software, ToolMD®. You can find your tooling, configure your system, and validate your selection all within the program. With ToolMD, you will find the right tool with just a few clicks.

| | | |
|-------------------------|---------------------------|-------------------------------------|
| Rough and finish boring | Reliable digital readouts | Precise and flexible modular system |
|-------------------------|---------------------------|-------------------------------------|

Applicable Industries



Aerospace



Agriculture



Automotive



Firearms



General Machining



Oil & Gas



Renewable Energy

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

Wohlhaupter® High Precision Boring Systems Contents

Introduction Information 2 - 3

Versatile Tooling Systems

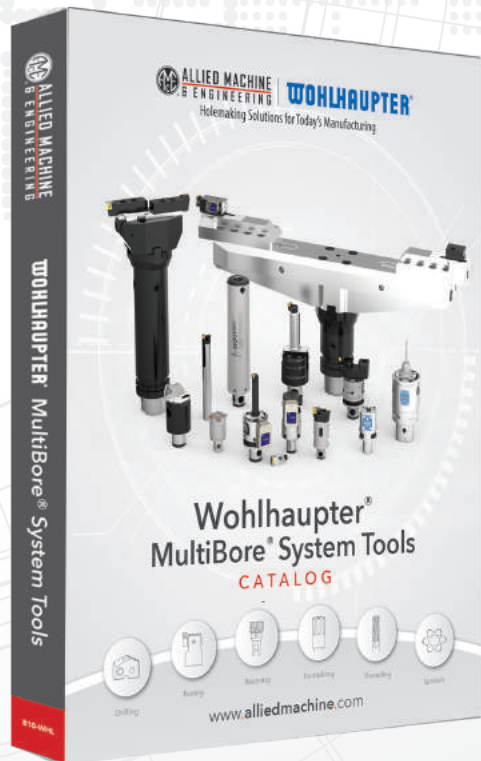
VarioBore Versatile Fine Boring 4
PrimeBore Versatile Fine Boring 5
DigiBore Versatile Fine Boring 6

Boring Kits 7

Boring Tools

249 (248) Versatile Fine Boring 8
511 (510) Versatile Fine Boring 8
420 (410) & 465 (464) 3E^{TECH+} Digital Fine Boring 9
465 (464) & 365 (364) Balanced Analog Fine Boring 9
565 (564) Digital Balanced Fine Boring 10
320 (310) Unbalanced Analog Boring 10
538 (537) Analog and 3E^{TECH+} Digital Cassettes 11
Combi-Line Rough and Finish Boring 11
Twin Cutter Rough Boring Tools 12
VolCut Rough Machining Insert Holders 12
Grooving Tools 13
Chamfering Tools 13
Wohlhaupter Inserts 14
Special Boring Tools 14

Online Tools 15



To find more information about the complete line of Wohlhaupter® High Precision Boring Systems, visit www.alliedmachine.com.

Additional information may also be found in the Wohlhaupter MultiBore® System Tools catalog.

(Literature Order Number: B10-WHL)



A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

RUN THE GAMUT:

*from the most advanced to
the toughest, we have the
solution you need.*



Find the perfect solution



Decrease cost per hole



Reduce setup times

*With a complete range of
boring tools from*

WOHLHAUPTER®

*you'll find exactly what
you need to increase your
productivity.*

Precision Boring



Analog



Analog Balanced



3ETECH Digital Balanced



Built-in Digital Balanced



Rough and Finish Boring

Plus many more



THE
COMPLETE RANGE
Ø 0.016" - 128.15"
(Ø 0.40 mm - 3255.00 mm)



- A DRILLING
- B BORING
- C REAMING
- D BURNISHING
- E THREADING
- X SPECIALS

VarioBore Versatile Tooling

VARIO BORE

with **3E^{TECH}+** Universal Digital Readout Module

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

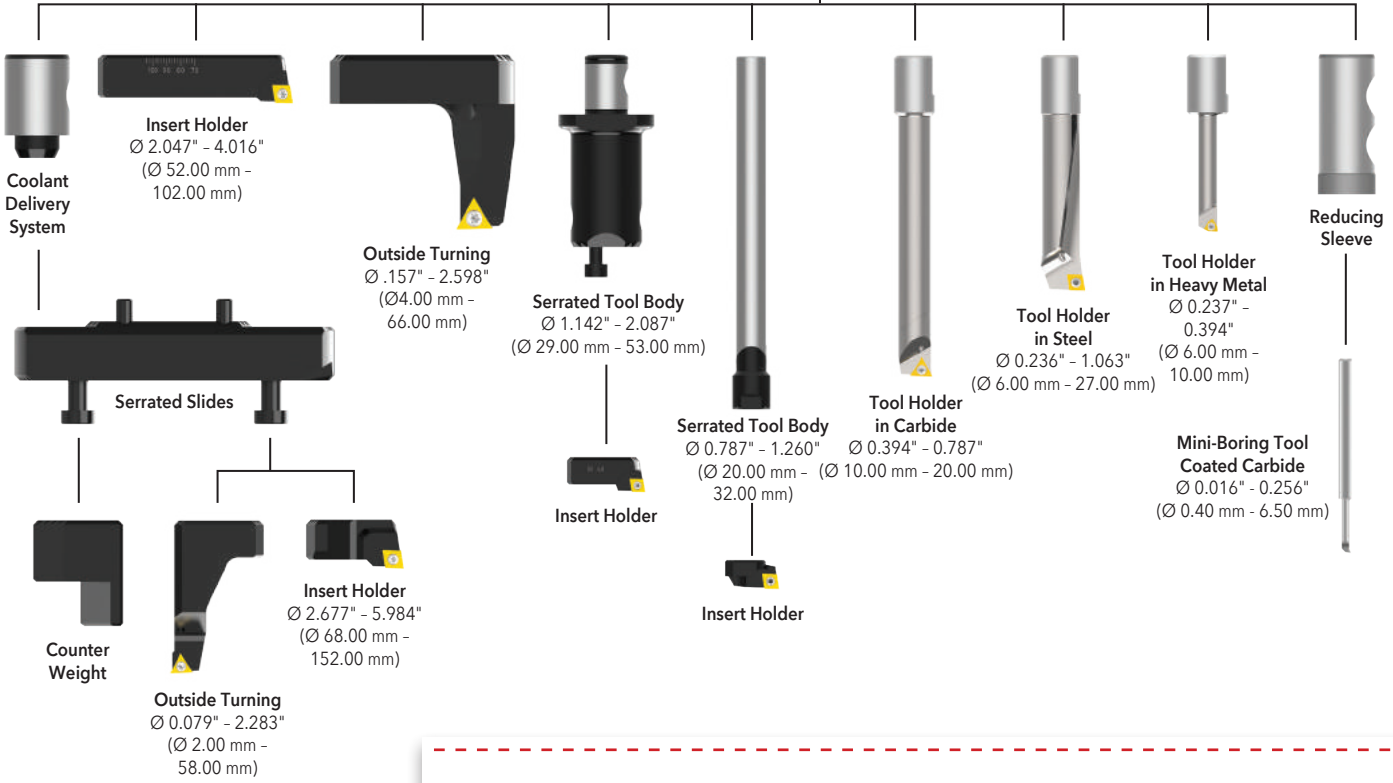


3E^{TECH}+
Universal Digital
Module



VarioBore Head

NOTE: Imperial items pictured
NOTE: 3E^{TECH}+ adjustment accuracy of 0.0001" or 0.001 mm on diameter
NOTE: Vernier adjustment accuracy of 0.0001" or 0.002 mm on diameter



OPERATION **VERSATILITY**

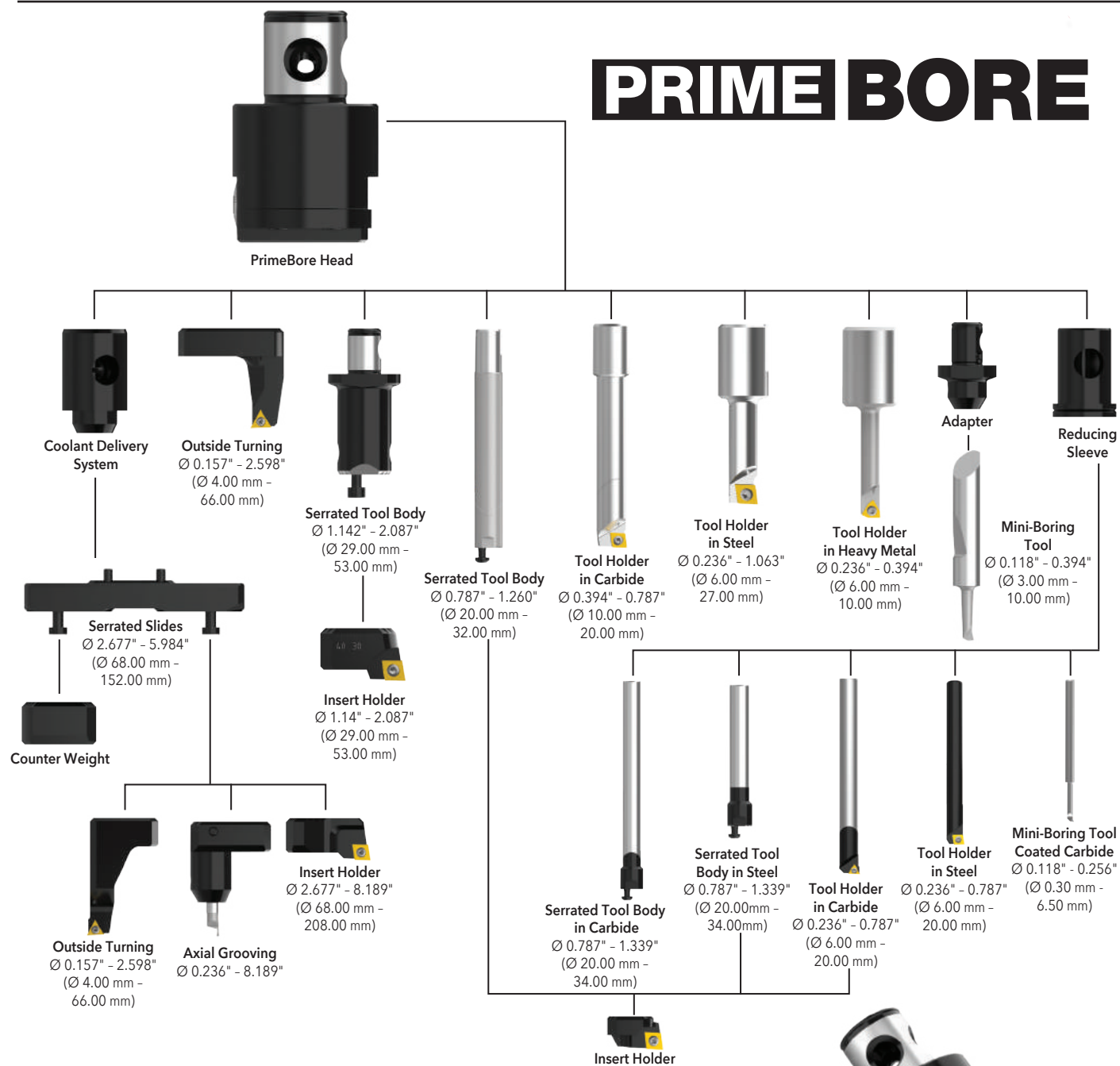
from **0.016" to 5.984" (0.40 mm to 152.00 mm)**
plus outside turning



NOTE: Imperial items pictured
NOTE: 3E^{TECH}+ adjustment accuracy of 0.0001" or 0.001 mm on diameter
NOTE: Vernier adjustment accuracy of 0.0001" or 0.002 mm on diameter

PrimeBore Versatile Tooling

PRIME BORE



OPERATION **VERSATILITY**

from **0.118"** to **8.189"** (3.00 mm to 208.00 mm)
plus outside turning

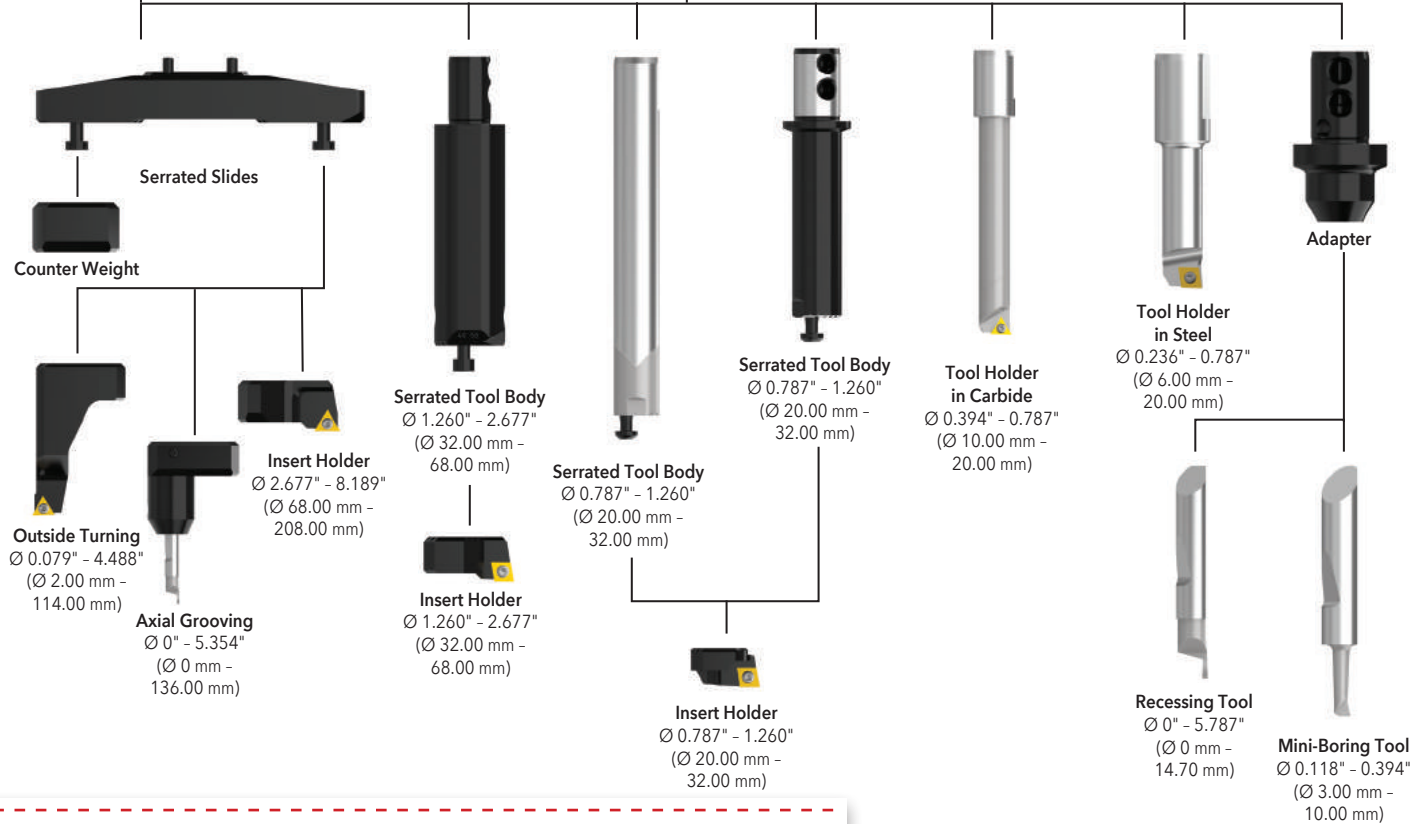


DigiBore Versatile Tooling

A
DRILLING
B
BORING
C
REAMING
D
URNISHING
E
HREADING
X
PECIALS

DIGI BORE

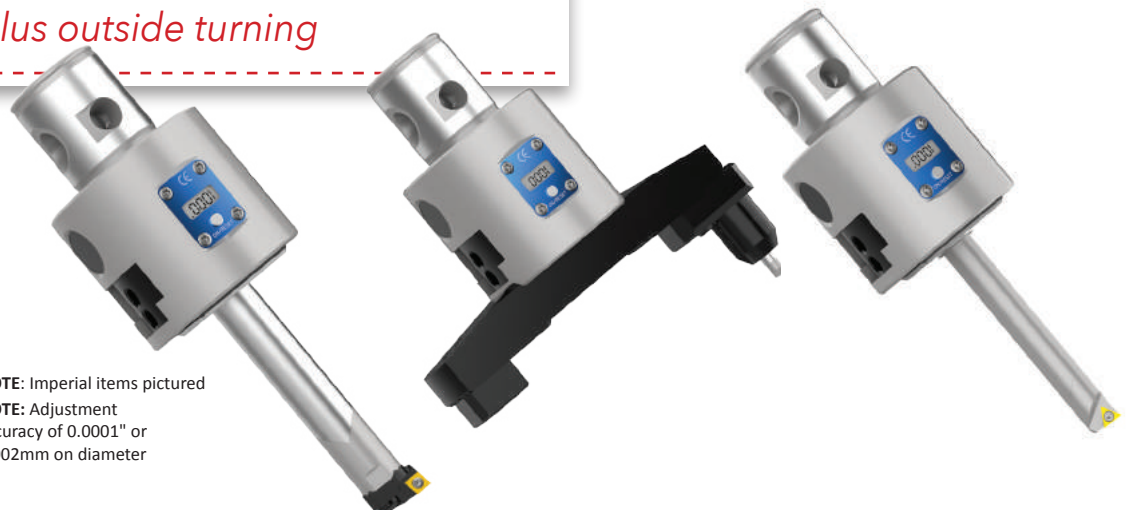
NOTE: Imperial item pictured
NOTE: Adjustment accuracy of 0.0001" or 0.002 mm on diameter



OPERATION **VERSATILITY**

from **0.118"** to **8.189"** (3.00 mm to 208.00 mm)
plus outside turning

NOTE: Imperial items pictured
NOTE: Adjustment accuracy of 0.0001" or 0.002mm on diameter



Wohlhaupter Boring Kits

WE HAVE A **KIT** FOR THAT

Kits aren't for everyone, but if you work on different projects from day to day, you need to **be prepared for the work tomorrow will bring.**

VERSATILE SETUPS AND IMPROVED READINESS

BROAD SELECTION OF DIAMETER RANGES

EASY, CONVENIENT STORAGE AND ORGANIZATION

COST SAVINGS OVER BUYING INDIVIDUAL COMPONENTS

DIGIBORE **KITS**

- Diameter range: **0.394" - 8.189"** (10.00 mm - 208.00 mm)
- Available in both inch (i) and metric (m)
- Inserts and master shanks sold separately
- Insert form 20 and 101 available

| Kits Ø 0.393" - 1.259" (10.00 mm - 32.00 mm) | | | Kits Ø 2.677" - 5.984" (68.00 mm - 152.00 mm) | | |
|--|----------|---------|---|----------|---------|
| | Form 101 | Form 20 | | Form 101 | Form 20 |
| i Kit Part No. | 104061 | 104062 | i Kit Part No. | 104065 | 104066 |
| m Kit Part No. | 103061 | 103062 | m Kit Part No. | 103065 | 103066 |

| Kits Ø 1.259" - 2.677" (32.00 mm - 68.00 mm) | | | Kits Ø 3.779" - 8.189" (96.00 mm - 208.00 mm) | | |
|--|----------|---------|---|----------|---------|
| | Form 101 | Form 20 | | Form 101 | Form 20 |
| i Kit Part No. | 104063 | 104064 | i Kit Part No. | 104081 | 104080 |
| m Kit Part No. | 103063 | 103064 | m Kit Part No. | 103081 | 103080 |



VARIOBORE **KITS**

- Diameter range: **0.394" - 4.016"** (10.00 mm - 102.00 mm)
- Available in both inch (i) and metric (m)
- Inserts and master shanks sold separately
- Insert form 20 and 101 available
- Kits available in both digital and non-digital



NOTE: Imperial display pictured
NOTE: Adjustment accuracy of 0.0001" or 0.001 mm on diameter

3ETECH+

***Portable Digital Display**
 Use with multiple boring heads equipped with a 3ETECH+ port

3ETECH+ Digital Readout Module

| Part No. | Charging Unit* |
|----------|----------------|
| 536015 | 536016 |

NOTE: WEEE-Reg.-Nr. DE 15820388
 *Charging unit sold separately

| Digital Kits Ø 0.394" - 1.181" (10.00 mm - 30.00 mm) | | | Non-Digital Kits Ø 0.394" - 1.181" (10.00 mm - 30.00 mm) | | |
|--|----------|---------|--|----------|---------|
| | Form 101 | Form 20 | | Form 101 | Form 20 |
| i Kit Part No. | 104046 | 104045 | i Kit Part No. | 104050 | 104049 |
| m Kit Part No. | 103046 | 103045 | m Kit Part No. | 103050 | 103049 |

NOTE: 3ETECH+ sold separately

| Digital Kits Ø 0.394" - 4.016" (10.00 mm - 102.00 mm) | | | Non-Digital Kits Ø 0.394" - 4.016" (10.00 mm - 102 mm) | | |
|---|----------|---------|--|----------|---------|
| Kit Part No. | Form 101 | Form 20 | | Form 101 | Form 20 |
| i Kit Part No. | 104048 | 104047 | i Kit Part No. | 104052 | 104051 |
| m Kit Part No. | 103048 | 103047 | m Kit Part No. | 103052 | 103051 |

NOTE: 3ETECH+ sold separately



PRIMEBORE **KITS**

- Diameter range: **0.236" - 5.039"** (6.00 mm - 128.00 mm)
- Available in both inch (i) and metric (m)
- Inserts and master shanks sold separately
- Insert form 20 and 101 available



| | Form 101 / 211 | Form 20 / 211 |
|----------------|----------------|---------------|
| i Kit Part No. | 104088 | 104089 |
| m Kit Part No. | 103088 | 103089 |



MASTER SHANKS WITH MVS (sold separately)

CAT | Dual Contact CAT | BT | Dual Contact BT | HSK | PSC | NMTB | MT | R8

249 (248) and 511 (510) Versatile Fine Boring

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

249 (248)
Versatile Fine Boring
Ø 0.118" - 1.189" (3.00 mm - 30.20 mm)



Features

- Compact construction
- 0.0005" (0.010 mm) dial adjustment on diameter
- Variable length adjustment with accessories
- Coolant through



511 (510)
Versatile Fine Boring
Ø 0.016" - 1.339" (0.40 mm - 34.00 mm)



Features

- 0.0001" (0.02 mm) digital adjustment on diameter
- Lengths and diameters achieved through the use of boring tools and bars
- Four balancing elements for precision
- Coolant through

NOTE: Imperial items pictured

NOTE: Adjustment accuracy of 0.0001" or 0.002 mm on diameter



420 (410) & 465 (464) Digital Balanced Fine Boring | 465 (464) & 365 (364) Analog Blanced Fine Boring

420 (410) & 465 (464) 3E^{TECH+} Digital Fine Boring

∅ 0.787" - 8.071" (20.00 mm - 205.00 mm)



NOTE: 3E^{TECH+} adjustment accuracy of 0.0001" or 0.001 mm on diameter
NOTE: Vernier adjustment accuracy of 0.0001" or 0.002 mm on diameter

Features

- 3E^{TECH+} and vernier diameter adjustment of 0.0001" (0.002 mm)
- Unbalanced 420 (410) diameter range: 0.787" - 1.142" (20.00 mm - 29.00 mm)
- Balanced 465 (464) diameter range: 1.142" - 8.071" (29.00 mm - 205.00 mm)
- Balanced 465 (464) Alu-Line diameter range: 2.559" - 8.071" (65.00 mm - 205.00 mm)
- Coolant through
- Insert holder can be rotated for reverse machining

465 (464) & 365 (364) Analog Balanced Fine Boring

∅ 0.787" - 1.988" (20.00 mm - 50.50 mm)

**Features**

- 365 (364) diameter range: 0.787" - 1.161" (20.00 mm - 29.50 mm)
- 465 (464) diameter range: 1.142" - 8.071" (29.00 mm - 205.00 mm)
- 465 (464) Alu-Line diameter range: 2.559" - 8.071" (65.00 mm - 205.00 mm)
- Internal balancing improves tool life and surface finish
- Vernier diameter adjustment of 0.0001" (0.002 mm)
- Insert holder can be rotated for reverse machining
- Coolant through

565 (564) Digital Balanced Fine Boring | 320 (310) Unbalanced Analog Boring

565 (564)
Digital Balanced Fine Boring
 Ø 1.969" - 8.071" (50.00 mm - 25.00 mm)



Features

- 0.0001" (0.002 mm) digital adjustment on diameter
- Internal autobalancing
- Tools with Ø 1.969" - 2.579" (50.00 mm - 65.50 mm) are made of steel
- Tools with Ø 2.559" - 8.071" (65.00 mm-205.00 mm) are made of aluminum
- Coolant through
- Insert holder can be rotated for reverse machining
- Can be used with Alu-Line serrated slides for large diameter OD turning



320 (310)
Unbalanced Analog Boring
 Ø 0.787" - 8.071" (20.00 mm - 205.00 mm)



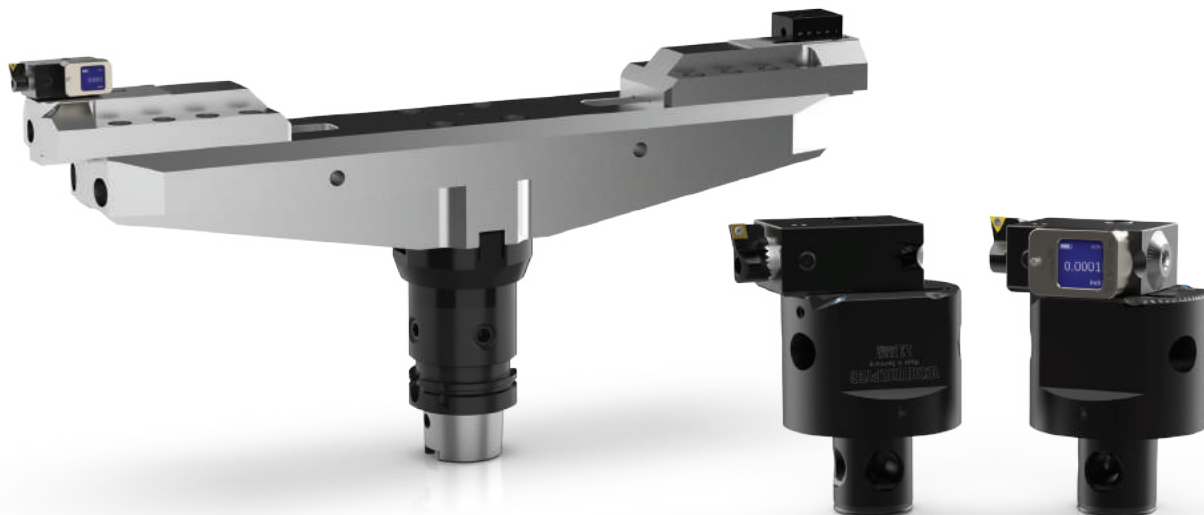
Features

- 0.0001" (0.002 mm) vernier adjustment on diameter
- Tools with Ø 0.787" - 4.05" (20.00 mm - 103.00 mm) are made of steel
- Tools with Ø 3.937" - 8.071" (100.00 mm - 205.00 mm) are made of aluminum
- Insert holder can be rotated for reverse machining
- Coolant through
- Can be used with Alu-Line serrated slides for large diameter OD turning

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

538 (537) Fine Boring Cassettes and Combi-Line Rough and Finish Boring Heads**538 (537)****Analog & 3E^{TECH+} Digital Cassette**
Ø 3.937" - 128.15" (100.00 mm - 3255.00 mm)**Features**

- 0.0001" (0.002 mm) analog and digital adjustment on diameter
- Ø 3.937" - 8.071" (100.00 mm - 205.00 mm) on serrated tool bodies
- Ø 7.874" - 128.150" (200.00 mm - 3255.00 mm) on Alu-Line slides
- 3E^{TECH+} module provides a simple digital readout
- Analog version with a vernier scale
- Insert holders can be rotated for reverse machining



NOTE: 3E^{TECH+} adjustment accuracy of 0.0001" or 0.001 mm on diameter

NOTE: Vernier adjustment accuracy of 0.0001" or 0.002 mm on diameter

Combi-Line**Rough & Finish Boring**
Ø 0.965" - 7.913" (24.50 mm - 201.00 mm)**Features**

- Rough and finish boring in one operation
- 0.0001" (0.002 mm) vernier adjustment on finishing insert holder
- Available in height displaced and same level cutting
- Coolant through
- Standard ISO inserts



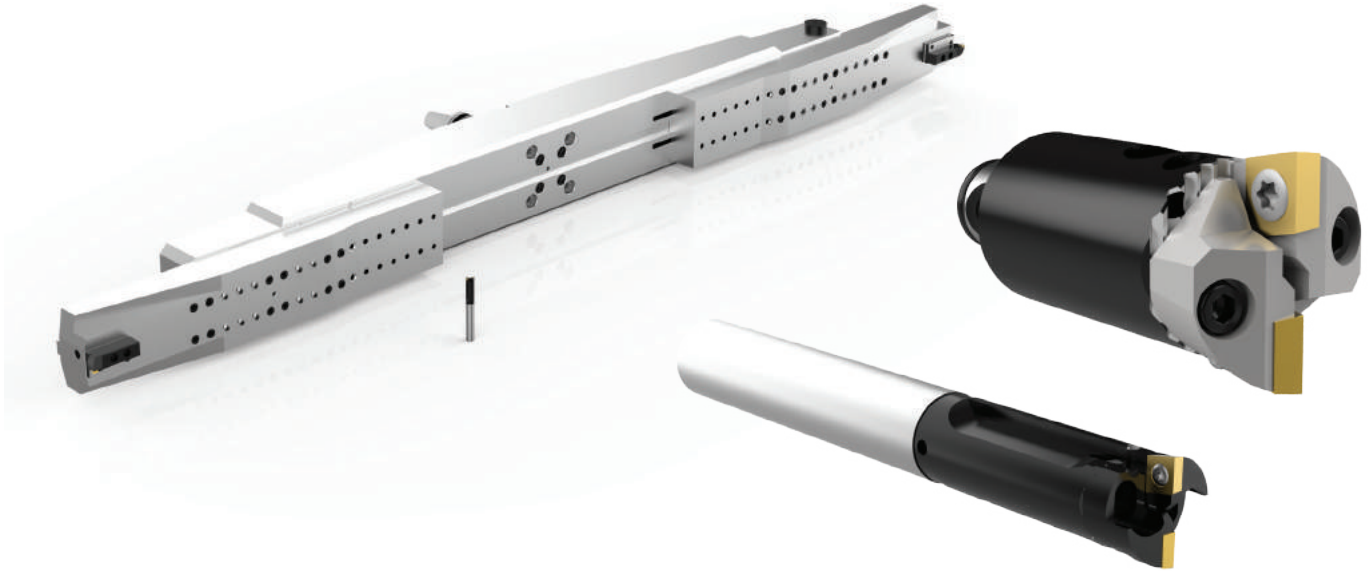
Twin Cutter and VolCut

Twin Cutter Tools

Ø 3.937" - 128.15" (100.00 mm - 3255.00 mm)

Features

- Available with cylindrical shanks or MVS shanks
- Same level to double feed
- Height displacement to double material removal
- Coolant through
- Standard ISO inserts



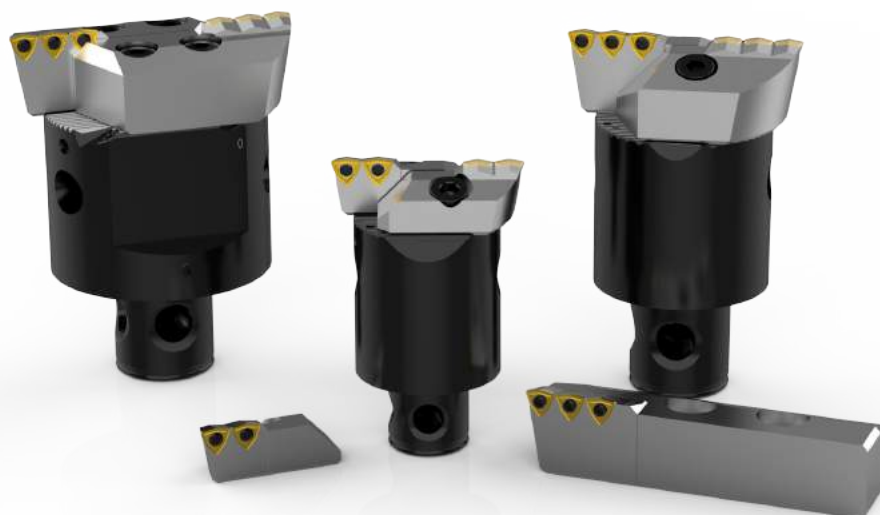
VolCut

Rough Machining Insert Holders

Ø 1.969" - 8.071" (50.00 mm - 25.00 mm)

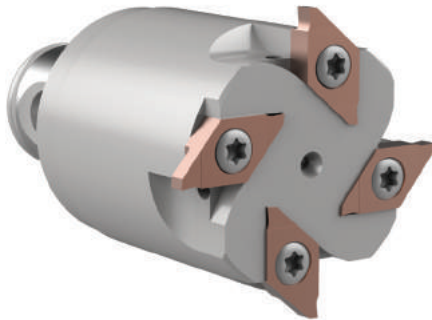
Features

- Increased material removal up to 2.755" (70.00 mm) on diameter
- Low machine power consumption with our form 464/OP indexable inserts
- Excellent chip control even with long-chipping materials
- High cutting speeds for reduced cycle times
- Wohlhaupter standard serrated tool bodies for unmatched length and diameter solutions
- Wohlhaupter MVS connection



A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Grooving Tools

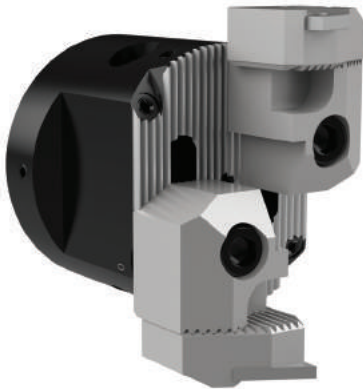


Grooving Tools for Circular Milling

 $\varnothing > 0.787''$ (20.00 mm)

Features

- Groove widths from 0.050" (1.27 mm)
- Two - eight inserts (depending on diameter)
- Two-sided inserts
- Coolant through



Axial Grooving Tools

 $\varnothing 0.787'' - 8.071''$ (20.00 mm - 205.00 mm)

Features

- Groove widths from 0.138" - 0.295" (3.50 mm - 7.50 mm)
- Three-sided inserts
- Utilizes the same serrated tool body as other roughing tools

Chamfering Tools

 $\varnothing > 0.748''$ (19.00 mm)

Features

- Utilizes the same serrated tool holder as other roughing tools
- Chamfer angle of 15°, 20°, 30°, and 45°
- Coolant through
- Standard ISO inserts



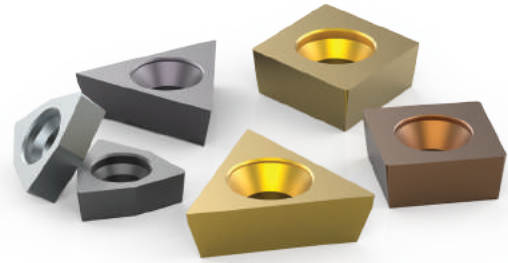
Inserts

Cutting-Edge Technology

Wohlhaupter has the cutting-edge technology to achieve success in all of your boring applications. With precision in mind, our inserts are available in multiple insert geometries, coatings, and nose radii. Wohlhaupter inserts are offered in uncoated and coated carbide, cermet, and also CBN and PCD materials.

To find the perfect inserts for your boring applications, try our user-friendly insert selector available at the link below or download it at the app store.

www.alliedmachine.com/bis



Wohlhaupter Special Boring Solutions

When it comes to special solutions for customers, Wohlhaupter has unique capabilities to effectively design and develop custom boring tools. Our special boring tools are designed for specific machines, processes, and materials to help decrease your cycle time.

- Lay down cartridge tool with replaceable cartridges
- Large OD boring tools
- Combined multidiameter tools
- Special boring tools with guide pads
- Line boring tools
- 3E^{TECH+} digital readout module docking capabilities
- Special boring bars with standard tool connection
- MVS connection for quick and easy connections
- Decrease cycle time



Online Tools



Increase the production and success of your applications today.

- Access 2D drawings and 3D models directly
- Assemble and view tool images in your browser
- Download drawings for use in most machining software programs
- Browse products, search item numbers, and save assemblies for future use

Design Your Own Solutions

ToolMD is a configurator for Allied tooling and Wohlhaupter modular systems that allows customers to virtually build their own solution. This online-based simulator puts our inventory at your fingertips. It provides a digital bank of individual parts in either inch or metric measurements.

Once you select a component, you will be guided by a series of user-friendly prompts to select the next components until you have built your tooling system. Throughout the process, you can monitor the size of your custom tool and ensure what you're building matches your real-life specifications. Once a complete system is virtually assembled, the program will render the tool in either a 2D drawing or 3D model to view on your device. Each project can be saved for future editing.

Designing your tools with ToolMD saves you time and allows you to instantly obtain the right tool for the job.



Design anytime from anywhere.
Available online 24/7.

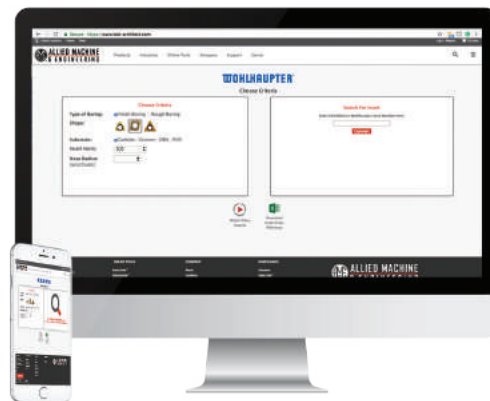
toolmd.com

WOHLHAUPTER®

Boring Insert Selector

Find the best insert for your application.

- Generate the correct boring insert for your job in just six easy steps
- Choose type, shape, substrate, insert form, nose radius, and material
- Order easily by adding the item to your cart



www.alliedmahcine.com/bis



SECTION

B20

Criterion® Boring Systems

Criterion® Modular Boring Systems

MBS | CBS | MDS | Cri-Bore® | Large Cri-Bore® | CB Style



CRITERION®

Boring holes doesn't have to be boring.

Criterion modular boring systems bring speed, tolerance, toughness, and versatility to your boring applications.

The MBS finish boring tool is ideal for small diameter bores and high spindle speeds to bore quickly and efficiently.

The Cri-Bore boring system is designed for finish boring applications and can be used for extremely tight tolerances. When the tolerance is tight, the Cri-Bore can be adjusted in 0.00005" (fifty-millionths).

The versatile CB style boring heads are available in both microadjusting and standard. Made for maximum toughness, the CB style boring head can produce a wide range of diameters.

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.



Aerospace



Agriculture



Automotive



Firearms

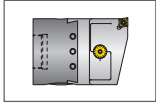


Renewable
Energy

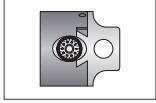
Criterion® Modular Boring Systems Contents

Reference Icons

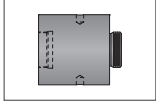
The following icons will appear throughout the catalog to help you navigate between products.



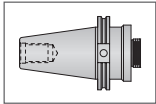
Boring Heads - Insert Holders
Microadjusting boring heads that use inserts for cutting



Boring Heads - Boring Bar Holders
Standard and microadjusting boring heads that use boring bars for cutting



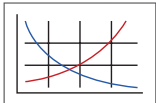
Head-to-Shank Adapters
Extensions and reducers that attach the boring head to the shank



Shanks
A variety of shanks for different machines



Setup / Assembly Information
Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data
Speed and feed recommendations for optimum and safe boring

MBS Finish Boring Tools 2 - 6

CBS Finish Boring Tools 8 - 11

MDS Finish Boring Tools 12 - 13

Cri-Bore® Micro Adjusting Finish Boring Heads 14 - 16

Large Cri-Bore® Finish Boring / OD Turning System 18 - 23

CB Style Versatile Finish Boring Heads 24 - 43

Intermediate Modules 44 - 45

Master Shanks 46 - 50

Parts & Accessories 51 - 52

Technical Information 53 - 55

Guidelines / Troubleshooting

Guidelines to Not Exceed Recommended Length 56

Calculating Tool Assembly Weight 57

Recommended Cutting Data 58 - 59

| Series | Bore Diameter Range | |
|--|---------------------|-----------------------|
| | Imperial (inch) | Metric (mm) |
| MBS Finish Boring Tools | 0.050" - 0.750" | – |
| CBS Finish Boring Tools | 0.050" - 0.750" | – |
| MDS Finish Boring Tools | 0.710" - 1.280" | 18.00 mm - 33.00 mm |
| Cri-Bore® Micro Adjusting Finish Boring Heads | 1.050" - 5.065" | 27.00 mm - 128.00 mm |
| Large Cri-Bore® Finish Boring / OD Turning System | 5.000" - 12.125" | 127.00 mm - 308.00 mm |
| CB Style Versatile Finish Boring Heads | 0.250" - 21.500" | – |



WE KNOW

SPEED MATTERS

MBS Finish Boring Tool

Ideal for small diameter bores and high spindle speeds

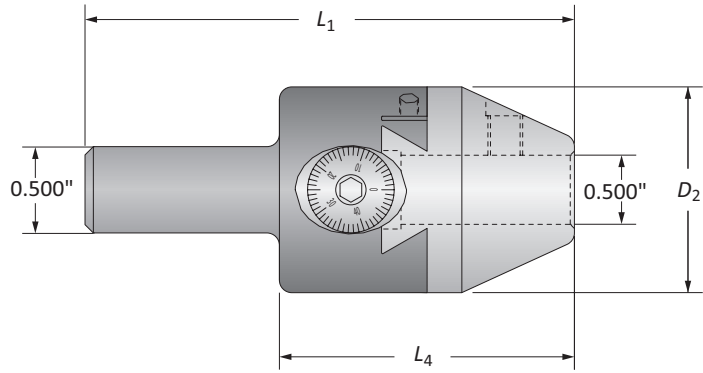
Compact design great for live tooling

Cylindrical shank can be dropped into existing tool holders



MBS Finish Boring Tool

Bore Diameter Range: 0.050" - 0.750"



| Boring Range | Boring Head | | | Weight | Part No. |
|------------------------|-------------|-------|-------|-------------|-----------------|
| | L_1 | L_4 | D_2 | | |
| i 0.050 - 0.750 | 3.500 | 2.125 | 1.500 | 0.900 (lbs) | MBS0500B |

IMPORTANT: Wax covered gib screws are factory set and should not be removed. Adjustment of these screws will cause performance issues.

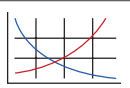
Imperial (in) = 0.001" adjustment on diameter

NOTE: Max spindle speed: 7,000 RPM at 0 radial offset

B20: 58 - 59

B20: 54 - 55

Key on B20: 1

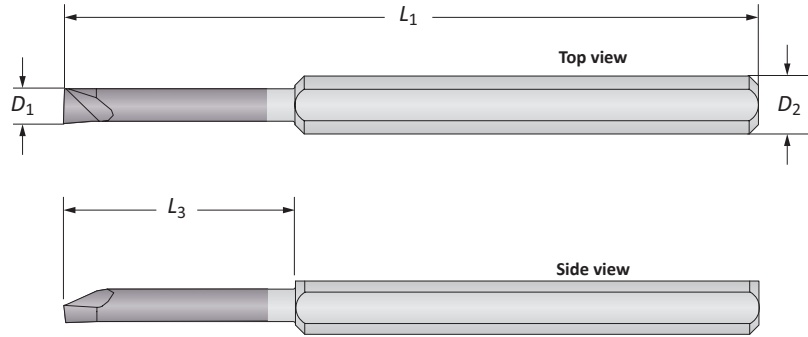


i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

Mini Coated Boring Tools

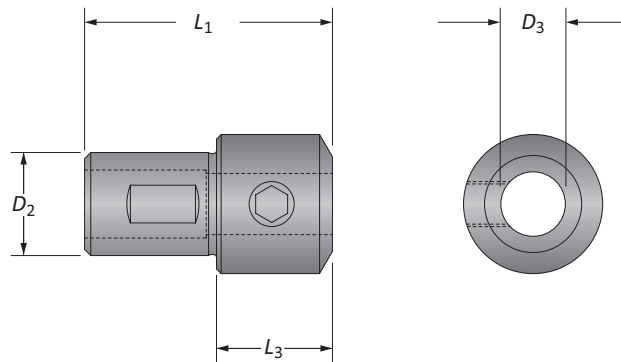
Bore Diameter Range: 0.050" - 0.275"



Mini Coated Boring Bars

| Min. Boring Diameter | Boring Bar | | | | Weight | Part No. |
|----------------------|------------|-------|--------|-------------|---------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | |
| 0.050 | 0.300 | 1.500 | 0.125* | 0.010 (lbs) | 0050GA | |
| 0.060 | 0.300 | 1.500 | 0.125* | 0.010 (lbs) | 0060GA | |
| 0.080 | 0.500 | 1.500 | 0.125* | 0.010 (lbs) | 0080GA | |
| 0.100 | 0.600 | 1.500 | 0.125* | 0.010 (lbs) | 0100GA | |
| 0.110 | 0.700 | 1.500 | 0.125* | 0.010 (lbs) | 0110GA | |
| 0.120 | 0.750 | 2.500 | 0.250* | 0.020 (lbs) | 0120HA | |
| 0.140 | 0.750 | 2.500 | 0.250* | 0.020 (lbs) | 0140HA | |
| 0.160 | 0.875 | 2.500 | 0.250* | 0.020 (lbs) | 0160HA | |
| 0.180 | 1.125 | 2.500 | 0.250* | 0.020 (lbs) | 0180HA | |
| 0.200 | 1.250 | 2.500 | 0.250* | 0.020 (lbs) | 0200HA | |

*Reducing sleeve required

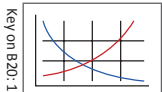


Reducing Sleeves

| | Reducing Sleeve | | | | Weight | Part No. |
|----------|-----------------|-------|-------|-------|-------------|---------------------|
| | D_3 | D_2 | L_1 | L_3 | | |
| i | 0.125 | 0.500 | 2.000 | 0.220 | 0.100 (lbs) | BTH-01250500 |
| | 0.250 | 0.500 | 1.312 | - | 0.050 (lbs) | BTH-02500500 |

B20: 58 - 59

B20: 54 - 55

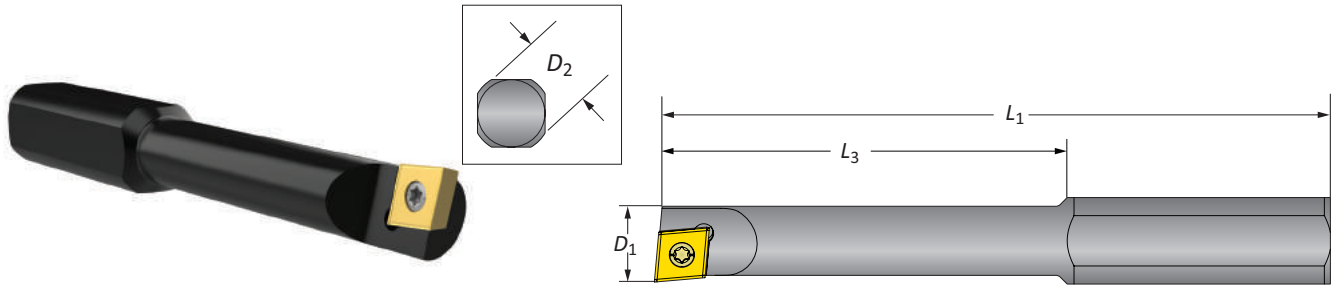


i = Imperial (in)
m = Metric (mm)

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

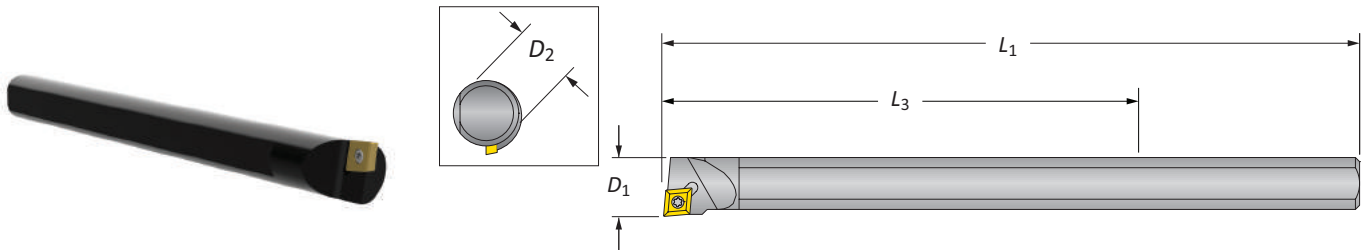
Boring Bars

Bore Diameter Range: 0.250" - 0.750"



Steel Boring Bars | Bore Diameter Range: 0.250" - 0.750"

| Min. Boring Diameter | Boring Bar | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|-------|-------------|-------------|--------------|
| | D_1 | L_3 | L_1 | | | |
| i 0.250 | 1.062 | 2.500 | 0.500 | 0.080 (lbs) | WBGX0301.. | 0250B |
| 0.312 | 1.437 | 2.750 | 0.500 | 0.080 (lbs) | WBGX0301.. | 0312B |
| 0.375 | 1.750 | 3.062 | 0.500 | 0.100 (lbs) | WBGX0301.. | 0375B |
| 0.437 | 2.062 | 3.375 | 0.500 | 0.110 (lbs) | CC..215.. | 0437B |
| 0.500 | 2.187 | 3.500 | 0.500 | 0.140 (lbs) | CC..215.. | 0500B |



Heavy Metal Boring Bars | Bore Diameter Range: 0.365" - 0.750"

| Min. Boring Diameter | Boring Bar | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|--------|-------------|-------------|----------------|
| | D_1 | L_3 | L_1 | | | |
| i 0.365 | 2.250 | 4.000 | 0.312* | 0.080 (lbs) | CC..215.. | 0365HM |
| 0.550 | 3.250 | 6.000 | 0.500 | 0.300 (lbs) | CC..215.. | 0550BHM |

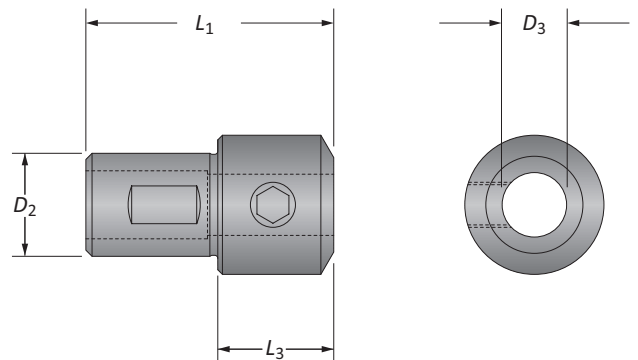
*Reducing sleeve required

Carbide Boring Bars | Bore Diameter Range: 0.625" - 0.750"

| Min. Boring Diameter | Boring Bar | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|-------|-------------|-------------|----------------|
| | D_1 | L_3 | L_1 | | | |
| i 0.625 | 4.500 | 8.000 | 0.500 | 0.410 (lbs) | CC..215.. | 0625BCS |

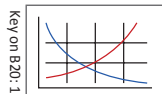
Reducing Sleeves

| Reducing Sleeve | | | | Weight | Part No. |
|-----------------|-------|-------|-------|-------------|---------------------|
| | D_3 | D_2 | L_1 | | |
| i 0.312 | 0.500 | 1.312 | - | 0.040 (lbs) | BTH-03120500 |
| 0.375 | 0.500 | 1.312 | - | 0.030 (lbs) | BTH-03750500 |



B20: 58 - 59

B20: 54 - 55



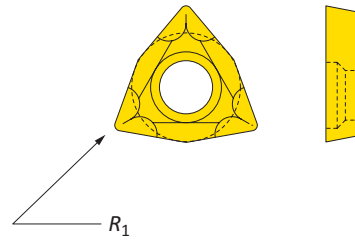
i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

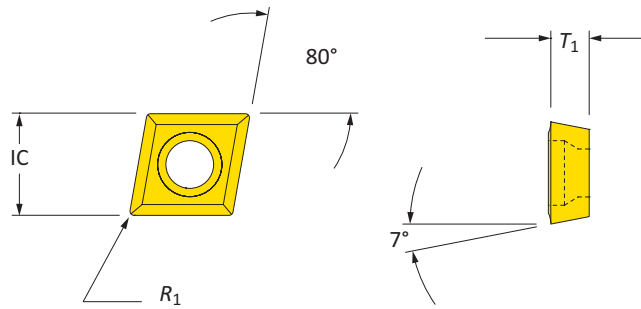
Boring Inserts

Trigon | 80° Diamond



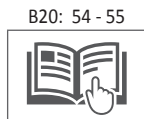
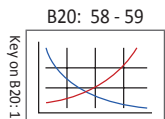
Coated Trigon Insert

| | | Insert | | Part No. |
|-------------|------------|--------|-------------------|----------|
| Insert Form | | R_1 | | |
| i | WBGX0301.. | 0.004 | WBGX030101 | |



Coated 80° Diamond Insert

| | | Insert | | | Part No. |
|-------------|-----------|--------|-------|-------|-------------------|
| Insert Form | | IC | T_1 | R_1 | |
| i | CC..215.. | 0.250 | 0.094 | 0.008 | CCMT060202 |



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately



WE KNOW

REACH MATTERS

CBS Finish Boring Tool



Ease the stress of reaching past fixturing

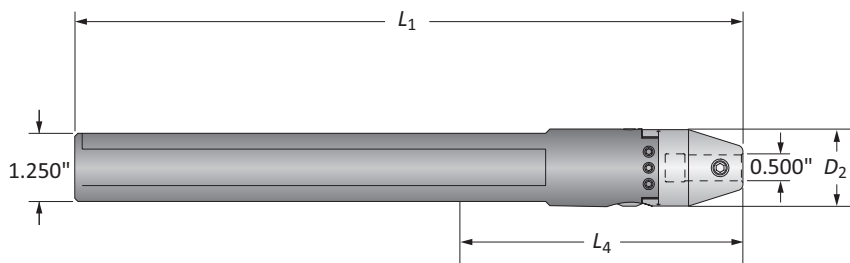
Ideal for small diameter bores with long overhangs

Cylindrical shank can be dropped into existing end mill (side-lock) holders



CBS Finish Boring Tool

Bore Diameter Range: 0.050" - 0.750"



| Boring Range | Boring Head | | | Weight | Part No. |
|------------------------|-------------|-------|-------|-------------|-----------------|
| | L_1 | L_4 | D_2 | | |
| i 0.050 - 0.750 | 10.600 | 8.320 | 1.250 | 3.100 (lbs) | CBS1250B |

IMPORTANT: Wax covered gib screws are factory set and should not be removed. Adjustment of these screws will cause performance issues.

Imperial (in) = 0.001" adjustment on diameter

NOTE: Max spindle speed: 3,500 RPM at 0 radial offset

A

DRILLING

B

BORING

C

REAMING

D

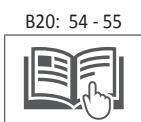
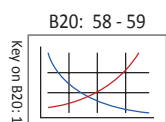
BURNISHING

E

THREADING

X

SPECIALS

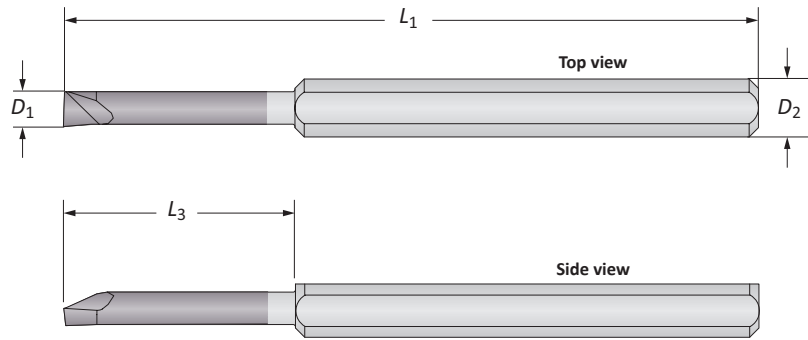


i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

Mini Coated Boring Tools

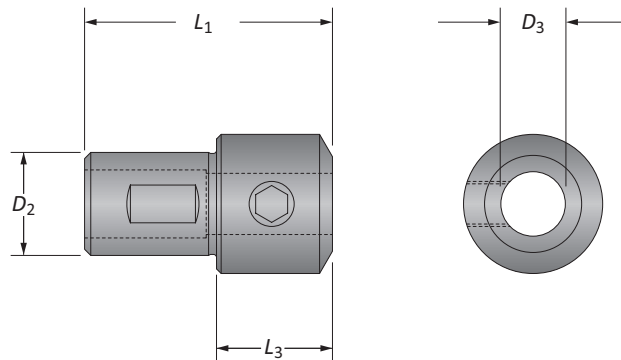
Bore Diameter Range: 0.050" - 0.275"



Mini Coated Boring Tools

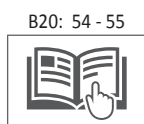
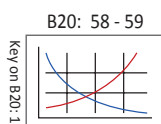
| Min. Boring Diameter | Boring Bar | | | | Weight | Coated Part No. |
|----------------------|------------|-------|--------|-------------|--------|-----------------|
| | D_1 | L_3 | L_1 | D_2 | | |
| 0.050 | 0.300 | 1.500 | 0.125* | 0.010 (lbs) | 0050GA | |
| 0.060 | 0.300 | 1.500 | 0.125* | 0.010 (lbs) | 0060GA | |
| 0.080 | 0.500 | 1.500 | 0.125* | 0.010 (lbs) | 0080GA | |
| 0.100 | 0.600 | 1.500 | 0.125* | 0.010 (lbs) | 0100GA | |
| 0.110 | 0.700 | 1.500 | 0.125* | 0.010 (lbs) | 0110GA | |
| 0.120 | 0.750 | 2.500 | 0.250* | 0.020 (lbs) | 0120HA | |
| 0.140 | 0.750 | 2.500 | 0.250* | 0.020 (lbs) | 0140HA | |
| 0.160 | 0.875 | 2.500 | 0.250* | 0.020 (lbs) | 0160HA | |
| 0.180 | 1.125 | 2.500 | 0.250* | 0.020 (lbs) | 0180HA | |
| 0.200 | 1.250 | 2.500 | 0.250* | 0.020 (lbs) | 0200HA | |

*Reducing sleeve required



Reducing Sleeves

| | Reducing Sleeve | | | | Weight | Part No. |
|-------|-----------------|-------|-------|-------------|--------------|----------|
| | D_3 | D_2 | L_1 | L_3 | | |
| 0.125 | 0.500 | 2.000 | 0.220 | 0.100 (lbs) | BTH-01250500 | |
| 0.250 | 0.500 | 1.312 | - | 0.050 (lbs) | BTH-02500500 | |
| 0.375 | 0.500 | 1.312 | - | 0.030 (lbs) | BTH-03750500 | |

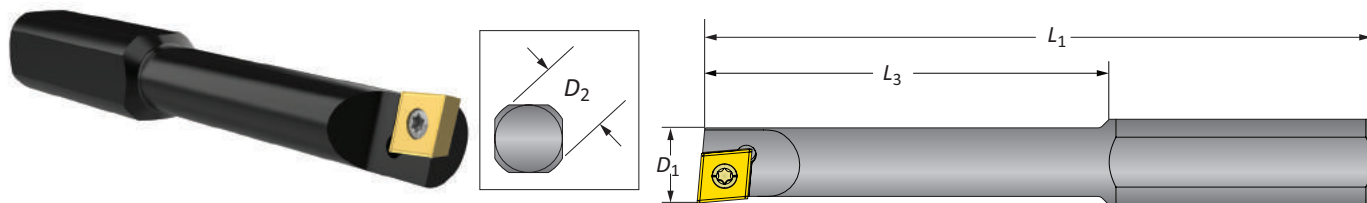


i = Imperial (in)
m = Metric (mm)



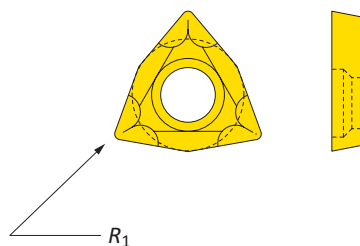
Steel Boring Bars | Boring Inserts

Bore Diameter Range: 0.250" - 0.750"



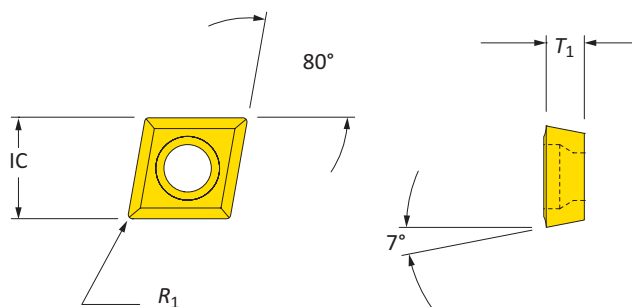
Steel Boring Bars

| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|-------|-------------|-------------|--------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| 0.250 | 1.062 | 2.500 | 0.500 | 0.080 (lbs) | WBGX0301... | 0250B | |
| 0.312 | 1.437 | 2.750 | 0.500 | 0.080 (lbs) | WBGX0301... | 0312B | |
| 0.375 | 1.750 | 3.062 | 0.500 | 0.100 (lbs) | WBGX0301... | 0375B | |
| 0.437 | 2.062 | 3.375 | 0.500 | 0.110 (lbs) | CC..215.. | 0437B | |
| 0.500 | 2.187 | 3.500 | 0.500 | 0.140 (lbs) | CC..215.. | 0500B | |



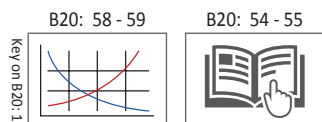
Coated Trigon Insert

| Insert Form | Insert | | Part No. |
|-------------|--------|--|-------------------|
| | R_1 | | |
| WBGX0301... | 0.004 | | WBGX030101 |



Coated 80° Diamond Insert

| Insert Form | Insert | | | Part No. |
|-------------|--------|-------|-------|-------------------|
| | IC | T_1 | R_1 | |
| CC..215.. | 0.250 | 0.094 | 0.008 | CCMT060202 |



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS



WE KNOW CONVENIENCE MATTERS

MDS Finish Boring Tool

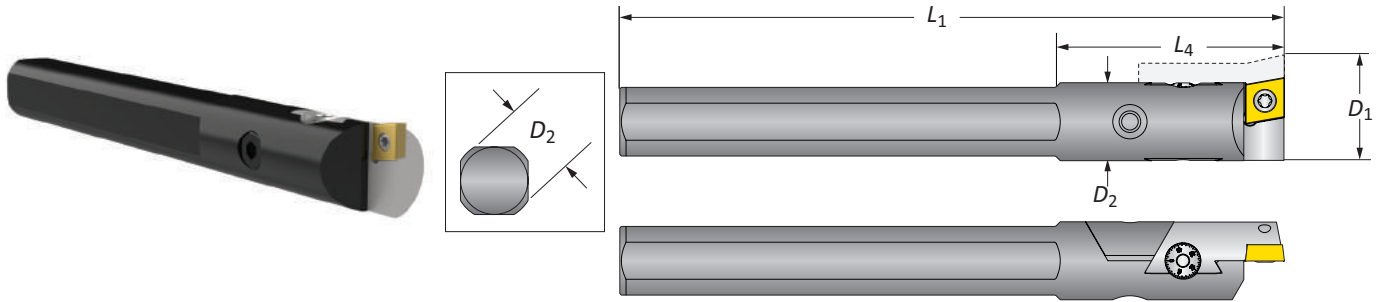
Compact design and rugged insert holder make it one of the toughest boring tools under 1.000" (25.4 mm) diameter

Cylindrical shank can be dropped into existing end mill (side-lock) holders

Available in both imperial (in) and metric (mm) versions

MDS Finish Boring Tools | Boring Inserts

Bore Diameter Range: 0.710" - 1.280" (18.00 mm - 33.00 mm)

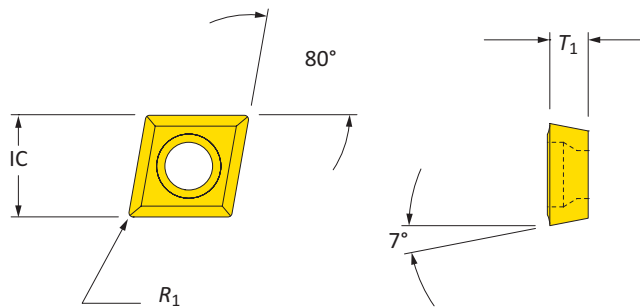


| | Boring Range | | Shank Diameter | | Boring Head | | Weight | Insert Form | Part No. |
|---|---------------|-------|----------------|-----------|-------------|------------|---------|-------------|----------|
| | D_1 | D_2 | L_1 | Max L_4 | | | | | |
| i | 0.710 - 0.960 | 0.625 | 5.250 | 3.386 | 0.400 (lbs) | CC..215.. | MDS0625 | | |
| | 0.890 - 1.280 | 0.750 | 6.310 | 4.435 | 0.700 (lbs) | CC..325.. | MDS0750 | | |
| m | 18.00 - 24.25 | 16.00 | 133.00 | 85.37 | 0.18 (kg) | CC..0602.. | MDS16M | | |
| | 22.00 - 33.00 | 20.00 | 160.00 | 112.37 | 0.32 (kg) | CC..09T3.. | MDS20M | | |

Imperial (in) = 0.001" adjustment on diameter

Metric (mm) = 0.020 mm adjustment on diameter

NOTE: Max spindle speed: 1,000 SFM (305 M/Min) at 0 radial offset

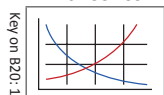


Coated 80° Diamond Inserts

| | Insert Form | Insert | | | Part No. |
|---|-------------|--------|-------|-------|------------|
| | | IC | T_1 | R_1 | |
| i | CC..215.. | 0.250 | 0.094 | 0.008 | CCMT060202 |
| | CC..325.. | 0.375 | 0.156 | 0.008 | CCMT09T302 |
| | CC..325.. | 0.375 | 0.156 | 0.016 | CCMT09T304 |
| m | CC..0602.. | 6.35 | 2.38 | 0.20 | CCMT060202 |
| | CC..09T3.. | 9.53 | 3.97 | 0.20 | CCMT09T302 |
| | CC..09T3.. | 9.53 | 3.97 | 0.40 | CCMT09T304 |

B20: 58 - 59

B20: 54 - 55



i = Imperial (in)

m = Metric (mm)

Inserts sold separately

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.

ext: 7611 | email: appeng@alliedmachine.com



WE KNOW

TOLERANCE MATTERS

Cri-Bore[®] Micro Adjusting

Allows for 0.00005" (0.001 mm) on diameter bore increments

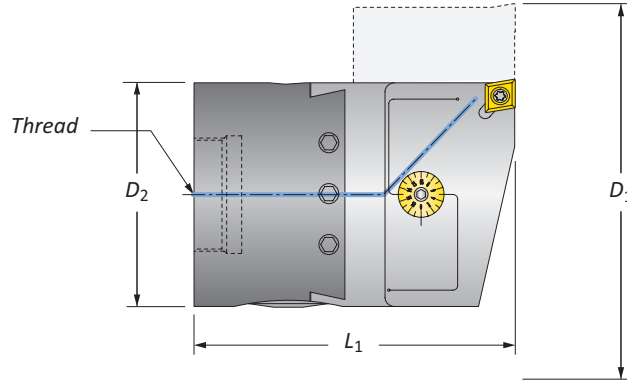
Modular system can be used on virtually any machine

Available in both imperial (in) and metric (mm) versions



Cri-Bore® Micro Adjusting Finish Boring Heads

Bore Diameter Range: 1.050" - 5.065" (27.00 mm - 128.00 mm)



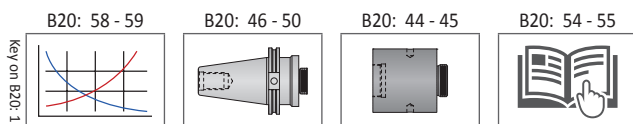
| | Boring Range | | Boring Head | | Weight | Insert Form | Part. No |
|----------------|---------------|-------------------|-------------|-----------|-------------|-------------|----------|
| | D_1 | Thread Connection | L_1 | D_2 | | | |
| i | 1.050 - 1.320 | ¾ - 20 | 2.690 | 1.000 | 0.500 (lbs) | CC..215.. | CB1000CC |
| | 1.050 - 1.320 | ¾ - 20 | 2.690 | 1.000 | 0.500 (lbs) | TC..215.. | CB1000TC |
| | 1.300 - 1.600 | ¾ - 20 | 2.900 | 1.250 | 0.800 (lbs) | CC..215.. | CB1250CC |
| | 1.300 - 1.600 | ¾ - 20 | 2.900 | 1.250 | 0.800 (lbs) | TC..215.. | CB1250TC |
| | 1.585 - 2.700 | ¾ - 20 | 3.200 | 1.500 | 1.300 (lbs) | CC..325.. | CB1500CC |
| | 1.585 - 2.700 | ¾ - 20 | 3.200 | 1.500 | 1.300 (lbs) | TC..325.. | CB1500TC |
| | 2.060 - 3.320 | ¾ - 20 | 3.590 | 2.000 | 2.400 (lbs) | CC..325.. | CB2000CC |
| | 2.060 - 3.320 | ¾ - 20 | 3.590 | 2.000 | 2.400 (lbs) | TC..325.. | CB2000TC |
| m | 3.065 - 5.065 | 1½ - 18 | 4.100 | 3.000 | 5.800 (lbs) | CC..325.. | CB3000CC |
| | 3.065 - 5.065 | 1½ - 18 | 4.100 | 3.000 | 5.800 (lbs) | TC..325.. | CB3000TC |
| | 27.00 - 33.00 | ¾ - 20 | 68.35 | 25.00 | 0.23 (kg) | CC..0602.. | CB025MCC |
| | 27.00 - 33.00 | ¾ - 20 | 68.35 | 25.00 | 0.23 (kg) | TC..1102.. | CB025MTC |
| | 33.00 - 41.00 | ¾ - 20 | 73.65 | 32.00 | 0.36 (kg) | CC..0602.. | CB032MCC |
| | 33.00 - 41.00 | ¾ - 20 | 73.65 | 32.00 | 0.36 (kg) | TC..1102.. | CB032MTC |
| | 41.00 - 68.00 | ¾ - 20 | 81.25 | 38.00 | 0.59 (kg) | CC..09T3.. | CB038MCC |
| | 41.00 - 68.00 | ¾ - 20 | 81.25 | 38.00 | 0.59 (kg) | TC..16T3.. | CB038MTC |
| | 53.00 - 84.00 | ¾ - 20 | 91.30 | 50.00 | 1.09 (kg) | CC..09T3.. | CB050MCC |
| | 53.00 - 84.00 | ¾ - 20 | 91.30 | 50.00 | 1.09 (kg) | TC..16T3.. | CB050MTC |
| 78.00 - 128.00 | 1½ - 18 | 104.25 | 76.00 | 2.36 (kg) | CC..09T3.. | CB076MCC | |
| 78.00 - 128.00 | 1½ - 18 | 104.25 | 76.00 | 2.36 (kg) | TC..16T3.. | CB076MTC | |

IMPORTANT: Wax covered gib screws are factory set and should not be removed. Adjustment of these screws will cause performance issues.

Imperial (in) = 0.00005" adjustment on diameter

Metric (mm) = 0.001 mm adjustment on diameter

NOTE: Max spindle speed: 1,000 SFM (305 M/Min) at 0 radial offset



i = Imperial (in)
m = Metric (mm)

Inserts sold separately

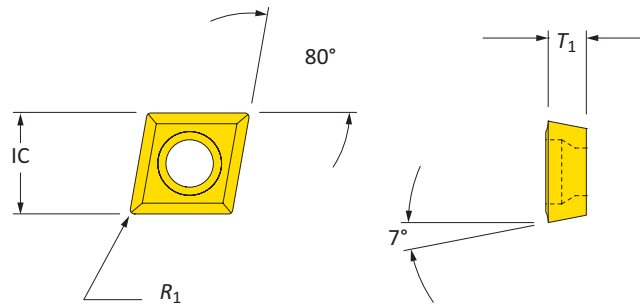
IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.

ext: 7611 | email: appeng@alliedmachine.com

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

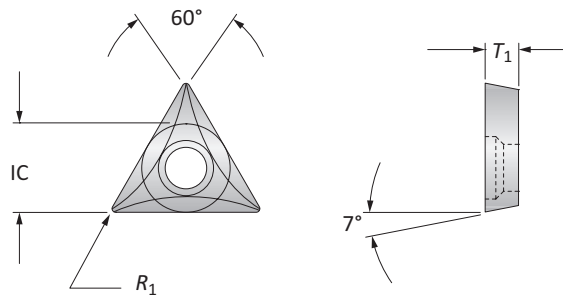
Boring Inserts

80° Diamond Insert | 60° Triangle Insert



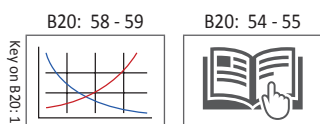
Coated 80° Diamond Inserts

| | Insert Form | Insert | | | Part No. |
|----------|-------------|--------|----------------|----------------|------------|
| | | IC | T ₁ | R ₁ | |
| i | CC..215.. | 0.250 | 0.094 | 0.008 | CCMT060202 |
| | CC..215.. | 0.250 | 0.094 | 0.016 | CCMT060204 |
| | CC..325.. | 0.375 | 0.156 | 0.008 | CCMT09T302 |
| | CC..325.. | 0.375 | 0.156 | 0.016 | CCMT09T304 |
| m | CC..0602.. | 6.35 | 2.38 | 0.20 | CCMT060202 |
| | CC..0602.. | 6.35 | 2.38 | 0.40 | CCMT060204 |
| | CC..09T3.. | 9.53 | 3.97 | 0.20 | CCMT09T302 |
| | CC..09T3.. | 9.53 | 3.97 | 0.40 | CCMT09T304 |



Coated 60° Triangle Inserts

| | Insert Form | Insert | | | Part No. |
|----------|-------------|--------|----------------|----------------|------------|
| | | IC | T ₁ | R ₁ | |
| i | TC..215.. | 0.250 | 0.094 | 0.008 | TCGT110202 |
| | TC..215.. | 0.250 | 0.094 | 0.016 | TCGT110204 |
| | TC..325.. | 0.375 | 0.156 | 0.016 | TCGT16T304 |
| m | TC..1102.. | 6.35 | 2.38 | 0.20 | TCGT110202 |
| | TC..1102.. | 6.35 | 2.38 | 0.40 | TCGT110204 |
| | TC..16T3.. | 9.53 | 3.97 | 0.40 | TCGT16T304 |



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS



EXTEND YOUR BORING RANGE

Large Cri-Bore[®] Finish Boring / OD Turning System

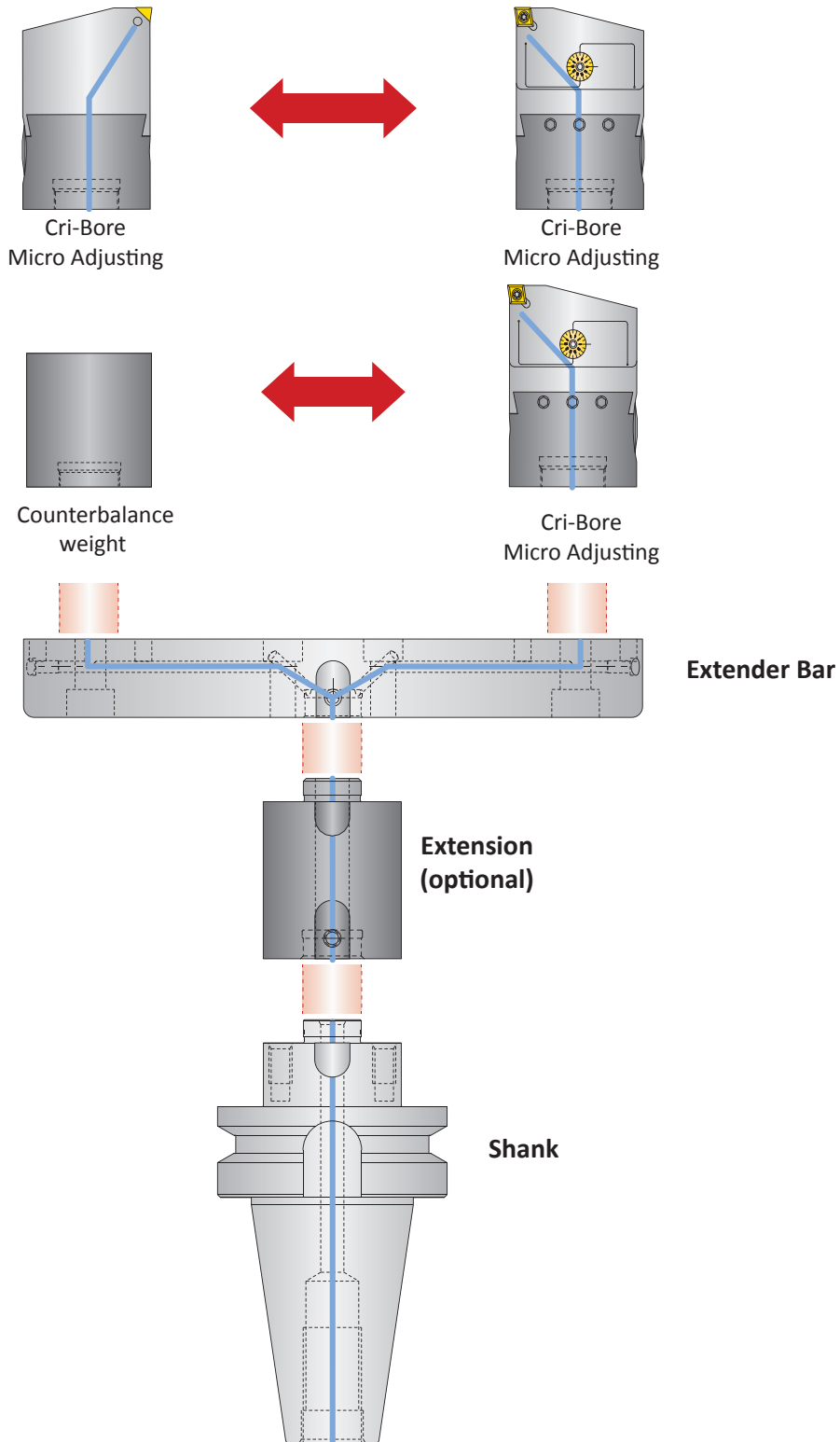
Extend the diameter range for internal and external boring

Modular tooling system allows for CAT, BT, or HSK shanks

Allows for 0.00005" (0.001 mm) on diameter bore increments

Large Cri-Bore Finish Boring / OD Turning System

Cri-Bore Boring Head / Optional Component Combinations



⚠ WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Refer to page B20: 57 to see formula for calculating weight of tool assembly.
- Consult machine tool builder for machine's weight limitations.

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

⚠ WARNING Tool failure can cause serious injury. To prevent:

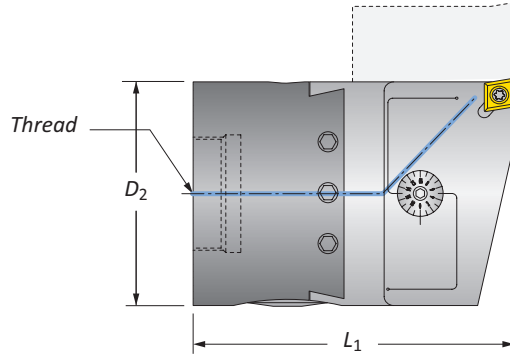
- Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
- Refer to example on page B20: 56 for calculating length to diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Cri-Bore Micro Adjusting Finish Boring Heads | Counter Weights

Bore ID Range: 5.000" - 12.125" (127.00 mm - 307.90 mm) | Bore OD Range: 0.710" - 7.830" (18.10 mm - 198.80 mm)



Cri-Bore Micro Adjusting Boring Heads

| | Connection Thread | Boring Head | | Weight | Insert Form | Part No. |
|---|-------------------|-------------|-------|-------------|-------------|----------|
| | | L_1 | D_2 | | | |
| i | 7/8 - 20 | 3.200 | 1.500 | 1.300 (lbs) | CC..325.. | CB1500CC |
| | 7/8 - 20 | 3.200 | 1.500 | 1.300 (lbs) | TC..325.. | CB1500TC |
| m | 7/8 - 20 | 81.25 | 38.00 | 0.59 (kg) | CC..09T3.. | CB038MCC |
| | 7/8 - 20 | 81.25 | 38.00 | 0.59 (kg) | TC..16T3.. | CB038MTC |

IMPORTANT: Wax covered gib screws are factory set and should not be removed. Adjustment of these screws will cause performance issues.

Imperial (in) = 0.00005" adjustment on diameter

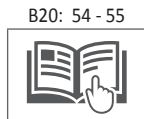
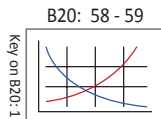
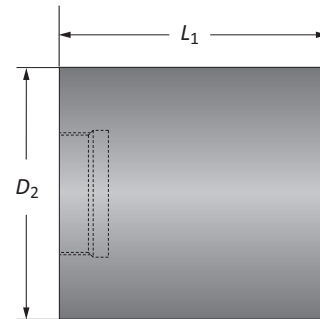
Metric (mm) = 0.001 mm adjustment on diameter

NOTE: Max spindle speed ID boring: 1,000 SFM (305 M/Min) at 0 radial offset and used with counter weight or additional boring head

NOTE: Max spindle speed OD boring: Contact our Application Engineering department

Large Cri-Bore Counter Weights

| | Counter Weight | | Weight | Part No. |
|---|----------------|-------|-------------|----------------|
| | D_2 | L_1 | | |
| i | 1.500 | 2.580 | 1.250 (lbs) | LCB1500-CBWT A |
| m | 38.10 | 65.53 | 0.57 (kg) | LCB1500-CBWT A |



i = Imperial (in)

m = Metric (mm)

Inserts sold separately

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

1. WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Refer to page B20: 57 to see formula for calculating weight of tool assembly.
- Consult machine tool builder for machine's weight limitations.

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

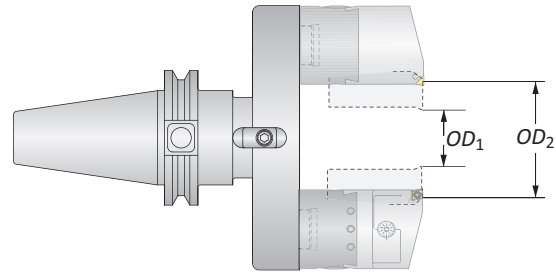
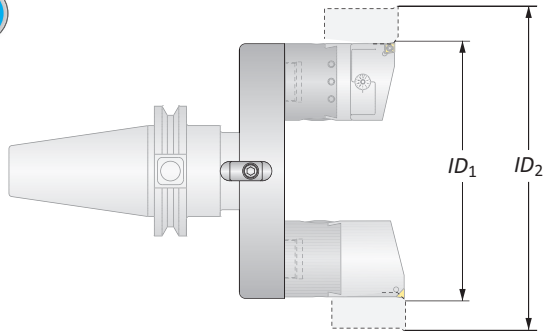
1. WARNING Tool failure can cause serious injury. To prevent:

- Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
- Refer to example on page B20: 56 for calculating length to diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Large Cri-Bore Finish Boring / OD Turning System Extender Bars | Extensions

Bore ID Range: 5.000" - 12.125" (127.00 mm - 307.90 mm) | Bore OD Range: 0.710" - 7.830" (18.10 mm - 198.80 mm)



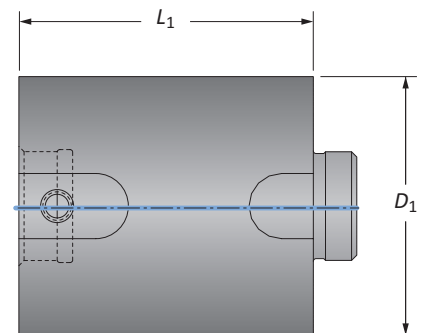
Large Cri-Bore Extender Bars

| Extender Bar | | | | | | |
|--------------|--------|--------|--------|--------|-------------|-----------------|
| | ID_1 | ID_2 | OD_1 | OD_2 | Weight | Part No. |
| i | 5.000 | 6.125 | 0.710 | 1.830 | 1.560 (lbs) | LCB1500-56EBK |
| | 6.000 | 7.125 | 1.710 | 2.830 | 1.920 (lbs) | LCB1500-67EBK |
| | 7.000 | 8.125 | 2.710 | 3.830 | 2.290 (lbs) | LCB1500-78EBK |
| | 8.000 | 9.125 | 3.710 | 4.830 | 2.650 (lbs) | LCB1500-89EBK |
| | 9.000 | 10.125 | 4.710 | 5.830 | 3.010 (lbs) | LCB1500-910EBK |
| | 10.000 | 11.125 | 5.710 | 6.830 | 3.370 (lbs) | LCB1500-1011EBK |
| | 11.000 | 12.125 | 6.710 | 7.830 | 3.730 (lbs) | LCB1500-1112EBK |
| m | 127.00 | 155.50 | 18.10 | 46.40 | 0.71 (kg) | LCB1500-56EBK |
| | 152.40 | 180.90 | 43.50 | 71.80 | 0.87 (kg) | LCB1500-67EBK |
| | 177.80 | 206.30 | 68.90 | 97.20 | 1.04 (kg) | LCB1500-78EBK |
| | 203.20 | 231.70 | 94.30 | 122.60 | 1.20 (kg) | LCB1500-89EBK |
| | 228.60 | 257.10 | 119.70 | 148.00 | 1.37 (kg) | LCB1500-910EBK |
| | 254.00 | 282.50 | 145.10 | 173.40 | 1.53 (kg) | LCB1500-1011EBK |
| | 279.40 | 307.90 | 170.50 | 198.80 | 1.69 (kg) | LCB1500-1112EBK |



Large Cri-Bore Extensions

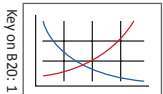
| Extension | | | | |
|-----------|-------|--------|-------------|----------------|
| | D_1 | L_1 | Weight | Part No. |
| i | 1.500 | 1.500 | 0.660 (lbs) | LCB1500-IA1500 |
| | 1.500 | 3.000 | 1.330 (lbs) | LCB1500-IA3000 |
| | 1.500 | 4.500 | 1.980 (lbs) | LCB1500-IA4500 |
| m | 38.10 | 38.10 | 0.30 (kg) | LCB1500-IA1500 |
| | 38.10 | 76.20 | 0.60 (kg) | LCB1500-IA3000 |
| | 38.10 | 114.30 | 0.90 (kg) | LCB1500-IA4500 |



NOTE: Only one extension can be used per boring assembly. Extensions cannot be combined.

B20: 58 - 59

B20: 54 - 55



i = Imperial (in)
m = Metric (mm)

Inserts sold separately

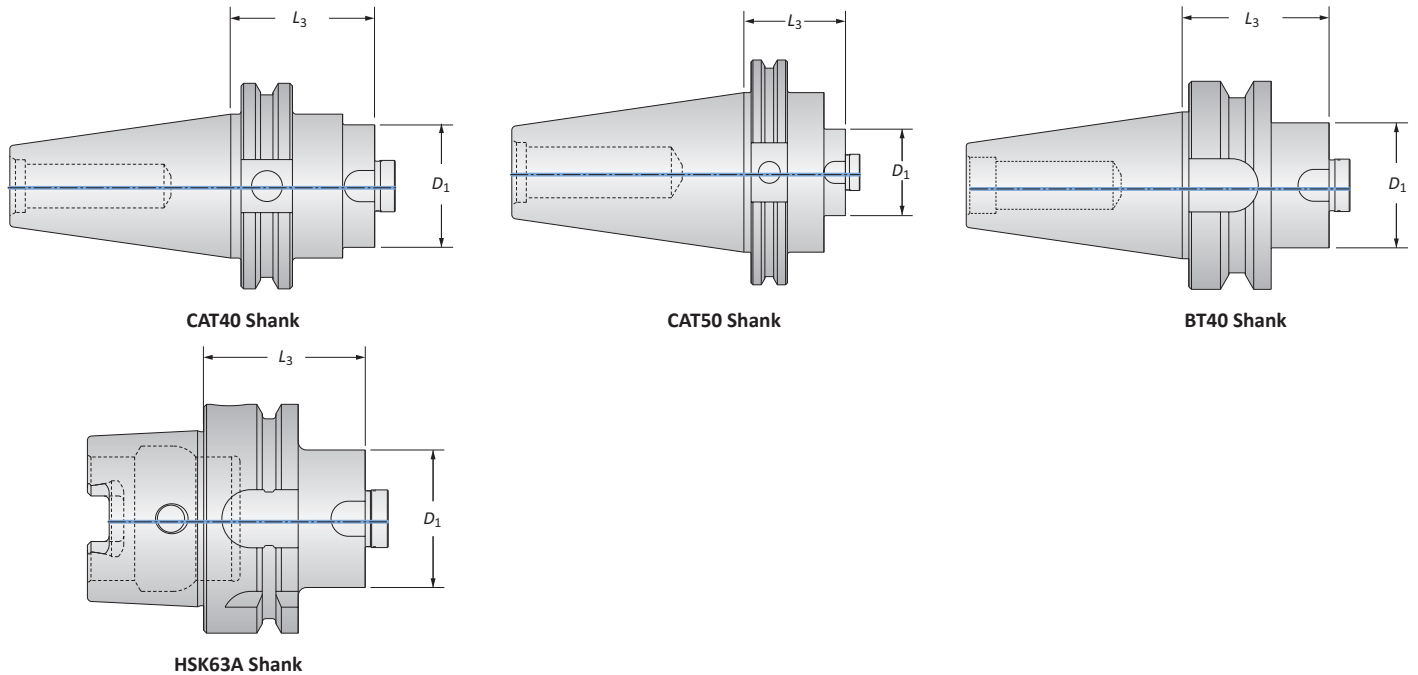
WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:
 - Refer to page B20: 57 to see formula for calculating weight of tool assembly.
 - Consult machine tool builder for machine's weight limitations.
 Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

WARNING Tool failure can cause serious injury. To prevent:
 - Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
 - Refer to example on page B20: 56 for calculating length to diameter ratio
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

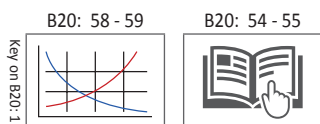
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Large Cri-Bore Finish Boring / OD Turning System Shanks

Bore ID Range: 5.000" - 12.125" (127.00 mm - 307.90 mm) | Bore OD Range: 0.710" - 7.830" (18.10 mm - 198.80 mm)



| | | Shank | | | | |
|----------|--|-------|-------|--------|-------------|-----------------------|
| | | L_3 | D_1 | Taper | Weight | Part No. |
| i | | 1.750 | 1.500 | CAT40 | 2.410 (lbs) | LCB1500-CV40 |
| | | 1.750 | 1.500 | CAT50 | 6.960 (lbs) | LCB1500-CV50 |
| | | 1.750 | 1.500 | BT40 | 2.460 (lbs) | LCB1500-BT40 |
| | | 1.750 | 1.500 | HSK63A | 1.750 (lbs) | LCB1500-HSK63A |
| m | | 44.45 | 38.10 | CAT40 | 1.09 (kg) | LCB1500-CV40 |
| | | 44.45 | 38.10 | CAT50 | 3.16 (kg) | LCB1500-CV50 |
| | | 44.45 | 38.10 | BT40 | 1.12 (kg) | LCB1500-BT40 |
| | | 44.45 | 38.10 | HSK63A | 0.79 (kg) | LCB1500-HSK63A |



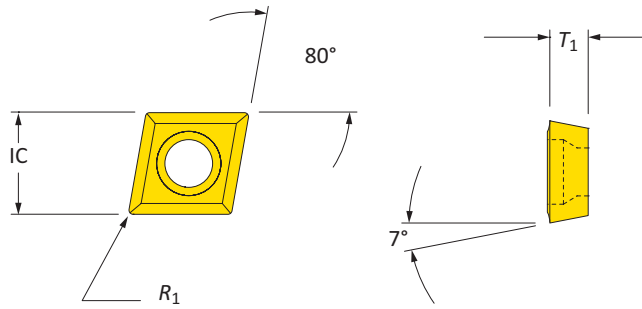
i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

1. WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:
 - Refer to page B20: 57 to see formula for calculating weight of tool assembly.
 - Consult machine tool builder for machine's weight limitations.
 Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

1. WARNING Tool failure can cause serious injury. To prevent:
 - Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
 - Refer to example on page B20: 56 for calculating length to diameter ratio
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

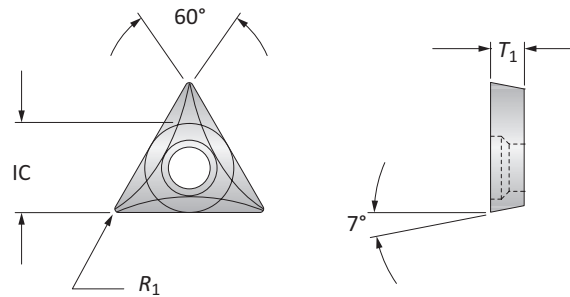
Boring Inserts

80° Diamond Insert | 60° Triangle Insert



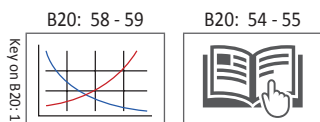
Coated 80° Diamond Inserts

| | Insert Form | Insert | | | Part No. |
|----------|-------------|--------|----------------|----------------|------------|
| | | IC | T ₁ | R ₁ | |
| i | CC..325.. | 0.375 | 0.156 | 0.008 | CCMT09T302 |
| | CC..325.. | 0.375 | 0.156 | 0.016 | CCMT09T304 |
| | CC..325.. | 0.375 | 0.156 | 0.031 | CCMT09T308 |
| m | CC..09T3.. | 9.53 | 3.97 | 0.20 | CCMT09T302 |
| | CC..09T3.. | 9.53 | 3.97 | 0.40 | CCMT09T304 |
| | CC..09T3.. | 9.53 | 3.97 | 0.80 | CCMT09T308 |



Coated 60° Triangle Inserts

| | Insert Form | Insert | | | Part No. |
|----------|-------------|--------|----------------|----------------|------------|
| | | IC | T ₁ | R ₁ | |
| i | TC..325.. | 0.375 | 0.156 | 0.016 | TCGT16T304 |
| m | TC..16T3.. | 9.53 | 3.97 | 0.40 | TCGT16T304 |



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately



NEED VERSATILITY? NO PROBLEM.

CB Style Versatile Boring

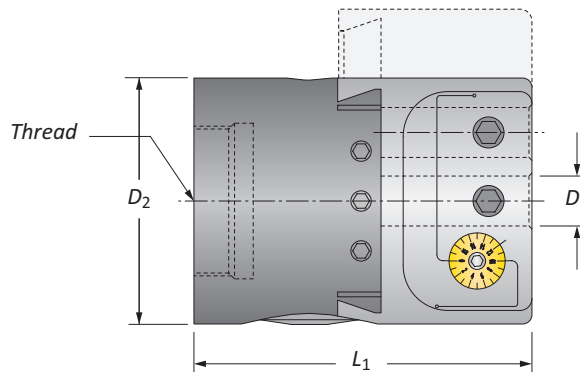
Wide range of diameters produced with
a single boring head

Allows for 0.001" adjustment on bore diameter and
0.000050" with CB2500BMA

Maximum toughness and maximum versatility

CB2500BMA Micro Adjusting Versatile Boring Head

Bore Diameter Range: 0.250" - 3.125"



| | Boring Range | Thread Connection | Boring Head | | | Weight | Part No. |
|----------|---------------|-------------------|-------------|-------|-------|-------------|------------------|
| | | | L_1 | D_2 | D_3 | | |
| i | 0.250 - 3.125 | 1½ - 18 | 3.375 | 2.500 | 0.500 | 3.400 (lbs) | CB2500BMA |

IMPORTANT: Wax covered gib screws are factory set and should not be removed. Adjustment of these screws will cause performance issues.

Imperial (in) = 0.00005" adjustment on diameter

NOTE: Max spindle speed: 2,000 RPM at 0 radial offset

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

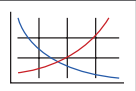
E

THREADING

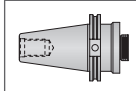
X

SPECIALS

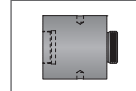
B20: 58 - 59




B20: 46 - 50



B20: 44 - 45



B20: 54 - 55



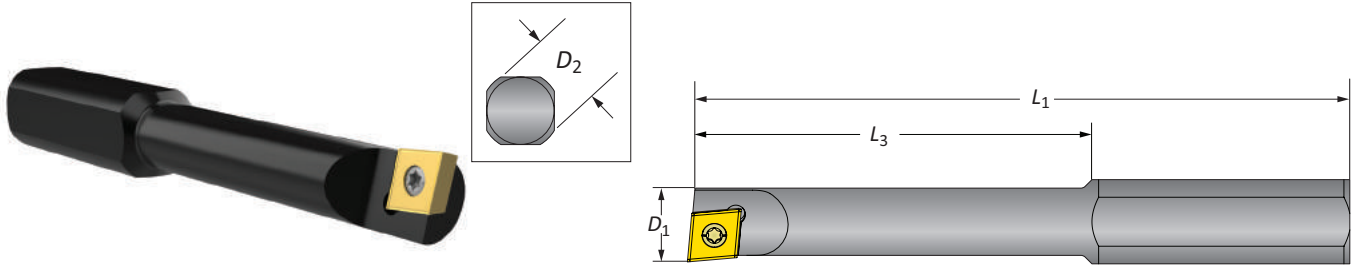
i = Imperial (in)
m = Metric (mm)

Inserts sold separately

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

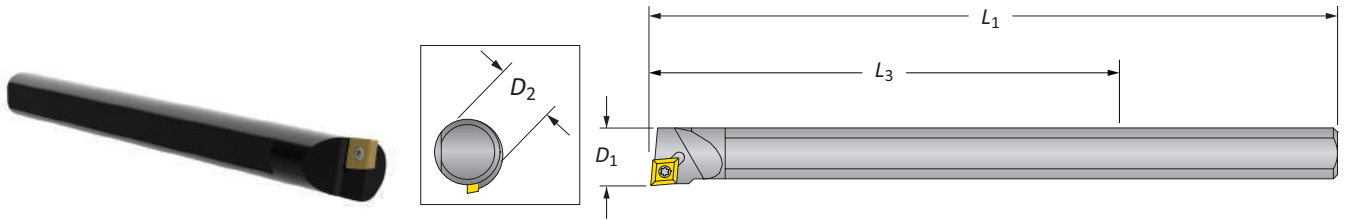
Boring Bars

Bore Diameter Range: 0.250" - 3.125"



Steel Boring Bars | Bore Diameter Range: 0.250" - 3.125"

| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|-------|-------------|------------|--------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| 0.250 | 1.062 | 2.500 | 0.500 | 0.080 (lbs) | WBGX0301.. | 0250B | |
| 0.312 | 1.437 | 2.750 | 0.500 | 0.080 (lbs) | WBGX0301.. | 0312B | |
| i 0.375 | 1.750 | 3.062 | 0.500 | 0.100 (lbs) | WBGX0301.. | 0375B | |
| 0.437 | 2.062 | 3.375 | 0.500 | 0.110 (lbs) | CC..215.. | 0437B | |
| 0.500 | 2.187 | 3.500 | 0.500 | 0.140 (lbs) | CC..215.. | 0500B | |



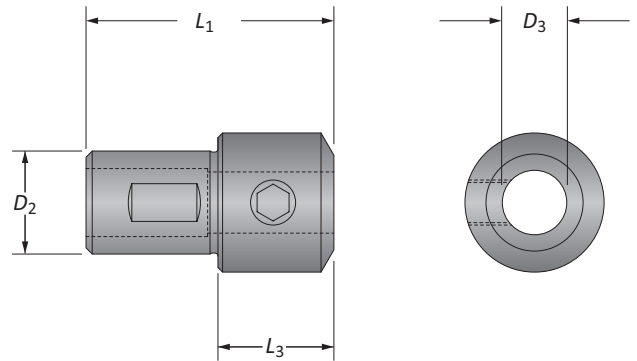
Heavy Metal Boring Bars | Bore Diameter Range: 0.365" - 3.125"

| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|--------|-------------|-----------|----------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i 0.365 | 2.250 | 4.000 | 0.312* | 0.080 (lbs) | CC..215.. | 0365HM | |
| 0.550 | 3.250 | 6.000 | 0.500 | 0.300 (lbs) | CC..215.. | 0550BHM | |

*Reducing sleeve required

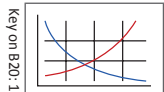
Reducing Sleeves

| Reducing Sleeve | | | | | Weight | Part No. |
|-----------------|-------|-------|-------|-------------|---------------------|----------|
| | D_3 | D_2 | L_1 | L_3 | | |
| i 0.312 | 0.500 | 1.312 | - | 0.040 (lbs) | BTH-03120500 | |
| 0.375 | 0.500 | 1.312 | - | 0.030 (lbs) | BTH-03750500 | |



B20: 58 - 59

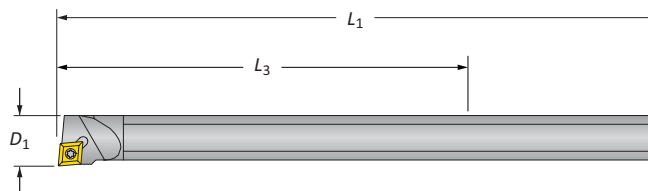
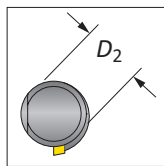
B20: 54 - 55



i = Imperial (in)
m = Metric (mm)

Boring Bar | Boring Inserts

Bore Diameter Range: 0.625" - 3.125"

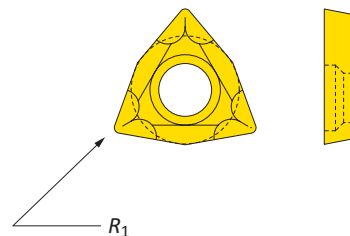


Carbide Boring Bar

| | Min. Boring Diameter | Boring Bar | | | Weight | Insert Form | Part No. |
|----------|----------------------|------------|-------|-------|-------------|-------------|----------------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i | 0.625 | 4.500 | 8.000 | 0.500 | 0.410 (lbs) | CC..215.. | 0625BCS |

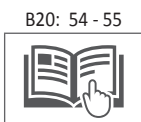
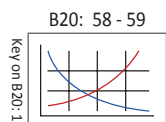
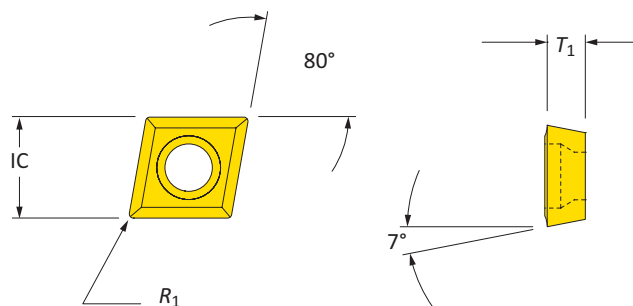
Coated Trigon Insert

| | Insert Form | Insert | Part No. |
|----------|-------------|--------|-------------------|
| | | R_1 | |
| i | WBGX0301.. | 0.004 | WBGX030101 |



Coated 80° Diamond Inserts

| | Insert Form | Insert | | | Part No. |
|----------|-------------|--------|-------|-------|-------------------|
| | | IC | T_1 | R_1 | |
| i | CC..215.. | 0.250 | 0.094 | 0.008 | CCMT060202 |
| | CC..215.. | 0.250 | 0.094 | 0.016 | CCMT060204 |
| | CC..215.. | 0.250 | 0.094 | 0.031 | CCMT060208 |



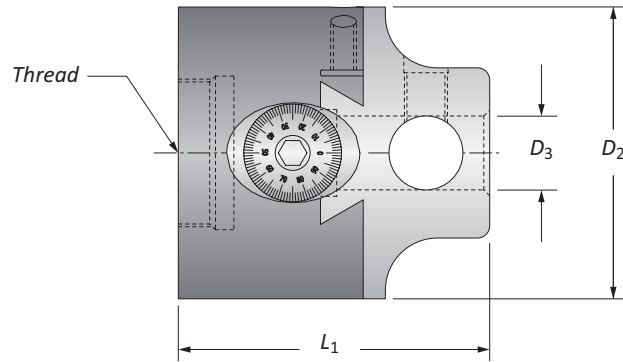
Key on B20-1

i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

CB202B Versatile Boring Head

Bore Diameter Range: 0.250" - 6.687"



| | Boring Range | Thread Connection | Boring Head | | | Weight | Part No. |
|----------|---------------|--------------------|-------------|-------|-------|-------------|---------------|
| | | | L_1 | D_2 | D_3 | | |
| i | 0.250 - 6.687 | $\frac{7}{8}$ - 20 | 2.435 | 2.000 | 0.500 | 1.600 (lbs) | CB202B |

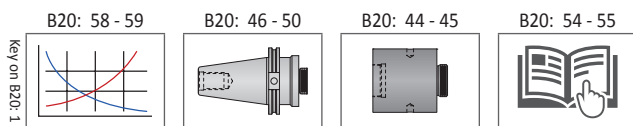
IMPORTANT: Wax covered gib screws are factory set and should not be removed. Adjustment of these screws will cause performance issues.

NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws

Imperial (in) = 0.001" adjustment on diameter

NOTE: Max spindle speed: 2,500 RPM at 0 radial offset

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

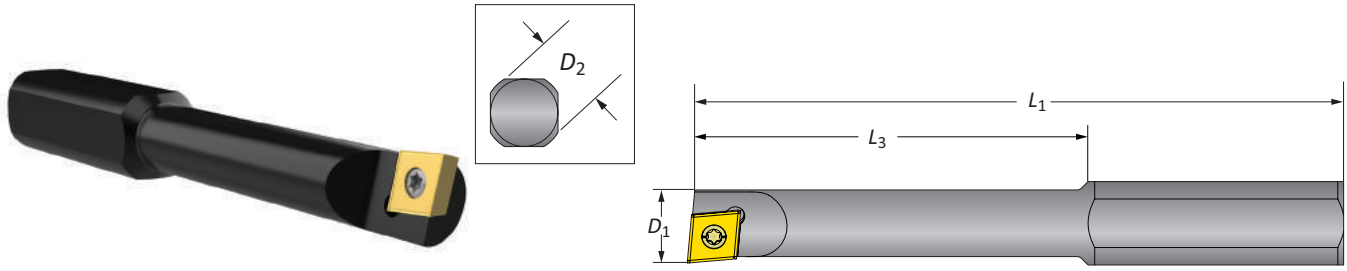


i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

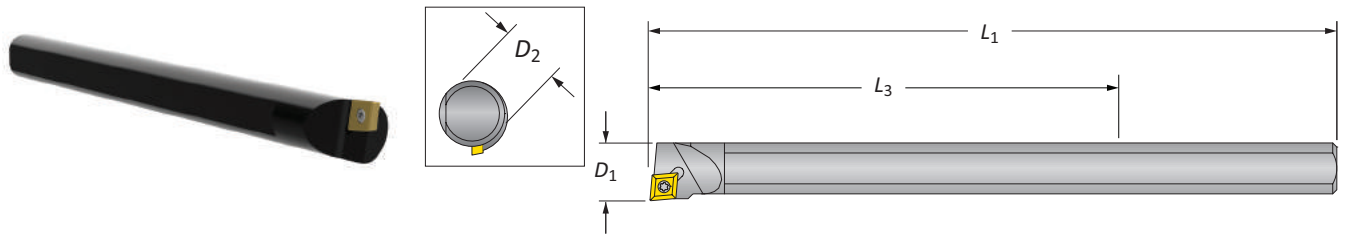
Boring Bars

Bore Diameter Range: 0.250" - 3.000"



Steel Boring Bars | Bore Diameter Range: 0.250" - 3.000"

| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|-------|-------------|------------|--------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i 0.250 | 1.062 | 2.500 | 0.500 | 0.080 (lbs) | WBGX0301.. | 0250B | |
| 0.312 | 1.437 | 2.750 | 0.500 | 0.080 (lbs) | WBGX0301.. | 0312B | |
| 0.375 | 1.750 | 3.062 | 0.500 | 0.100 (lbs) | WBGX0301.. | 0375B | |
| 0.437 | 2.062 | 3.375 | 0.500 | 0.110 (lbs) | CC..215.. | 0437B | |
| 0.500 | 2.187 | 3.500 | 0.500 | 0.140 (lbs) | CC..215.. | 0500B | |



Heavy Metal Boring Bars | Bore Diameter Range: 0.365" - 3.000"

| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|--------|-------------|-----------|----------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i 0.365 | 2.250 | 4.000 | 0.312* | 0.080 (lbs) | CC..215.. | 0365HM | |
| 0.550 | 3.250 | 6.000 | 0.500 | 0.300 (lbs) | CC..215.. | 0550BHM | |

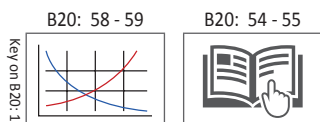
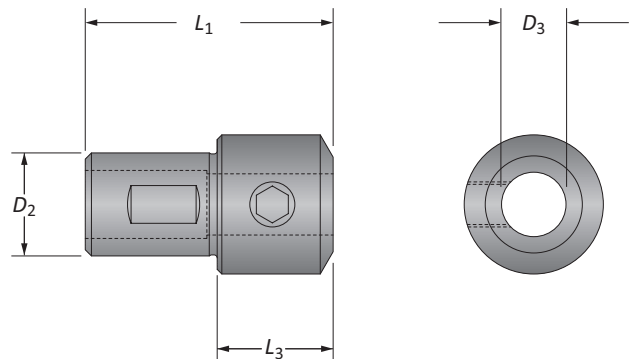
*Reducing sleeve required

Carbide Boring Bar | Bore Diameter Range: 0.625" - 3.000"

| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|-------|-------------|-----------|----------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i 0.625 | 4.500 | 8.000 | 0.500 | 0.410 (lbs) | CC..215.. | 0625BCS | |

Reducing Sleeves

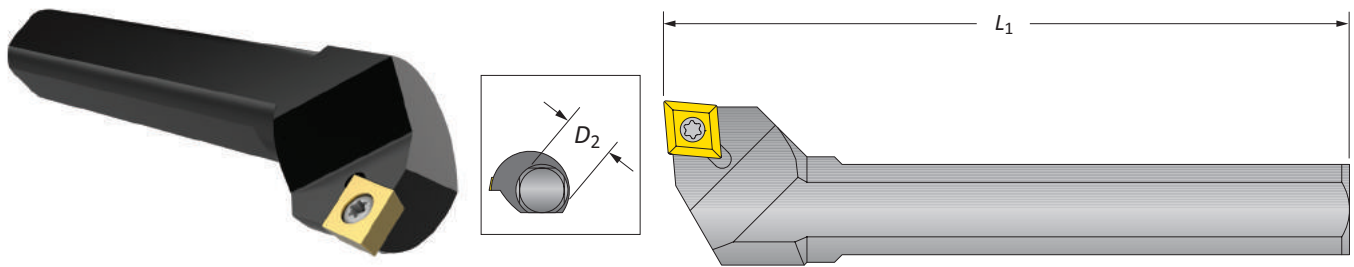
| Min. Boring Diameter | Reducing Sleeve | | | | Weight | Part No. |
|----------------------|-----------------|-------|-------|-------------|---------------------|----------|
| | D_3 | D_2 | L_1 | L_3 | | |
| i 0.312 | 0.500 | 1.312 | - | 0.040 (lbs) | BTH-03120500 | |
| 0.375 | 0.500 | 1.312 | - | 0.030 (lbs) | BTH-03750500 | |



i = Imperial (in)
m = Metric (mm)

Boring Bar

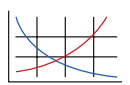
Bore Diameter Range: 2.875" - 6.687"




| Min. Boring Diameter | Boring Bar* | | Weight | Insert Form | Part No. |
|----------------------|-------------|-------|-------------|-------------|----------|
| | L_1 | D_2 | | | |
| i 2.875 | 2.750 | 0.500 | 0.140 (lbs) | CC..215.. | 0500BCH |

*NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

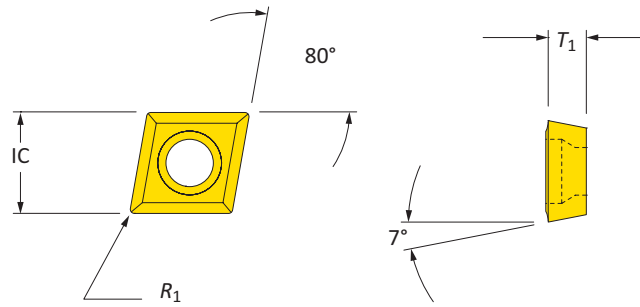
B20: 58 - 59  **Key on B20: 1**

B20: 54 - 55 

i = Imperial (in)
m = Metric (mm)
Inserts sold separately

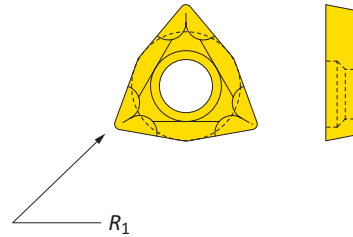
Boring Inserts

80° Diamond Insert | 60° Triangle Insert



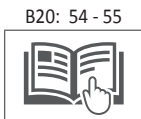
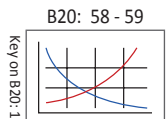
Coated 80° Diamond Inserts

| | Insert Form | Insert | | | Part No. |
|---|-------------|--------|----------------|----------------|------------|
| | | IC | T ₁ | R ₁ | |
| i | CC..215.. | 0.250 | 0.094 | 0.008 | CCMT060202 |
| | CC..215.. | 0.250 | 0.094 | 0.016 | CCMT060204 |
| | CC..215.. | 0.250 | 0.094 | 0.031 | CCMT060208 |



Coated Trigon Insert

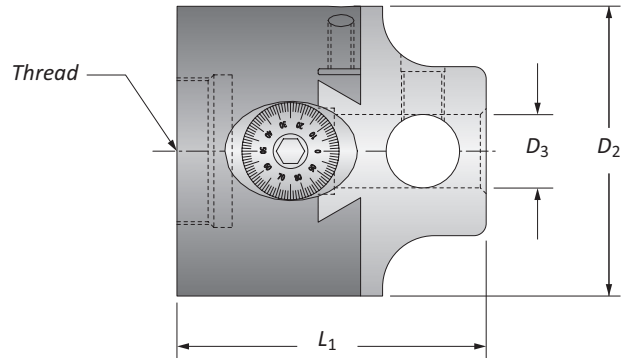
| | Insert Form | Insert | | Part No. |
|---|-------------|----------------|--|------------|
| | | R ₁ | | |
| i | WBGX0301.. | 0.004 | | WBGX030101 |



i = Imperial (in)
m = Metric (mm)
Inserts sold separately

CB203D Versatile Boring Head

Bore Diameter Range: 0.250" - 11.000"



| | Boring Range | Thread Connection | Boring Head | | | Weight | Part No. |
|----------|----------------|-------------------|-------------|-------|-------|-------------|---------------|
| | | | L_1 | D_2 | D_3 | | |
| i | 0.250 - 11.000 | 1½ - 18 | 3.166 | 3.000 | 0.750 | 4.700 (lbs) | CB203D |

IMPORTANT: Wax covered gib screws are factory set and should not be removed. Adjustment of these screws will cause performance issues.

NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws

Imperial (in) = 0.001" adjustment on diameter

NOTE: Max spindle speed: 1,750 RPM at 0 radial offset

Key on B20: 1

B20: 58 - 59

B20: 46 - 50

B20: 44 - 45

B20: 54 - 55

i = Imperial (in)
m = Metric (mm)

Inserts sold separately

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
 ext: 7611 | email: appeng@alliedmachine.com

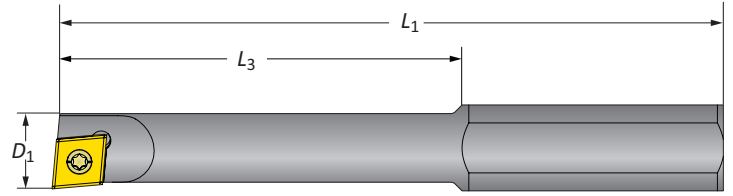
WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Refer to page B20: 57 to see formula for calculating weight of tool assembly.
- Consult machine tool builder for machine's weight limitations.

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Boring Bars

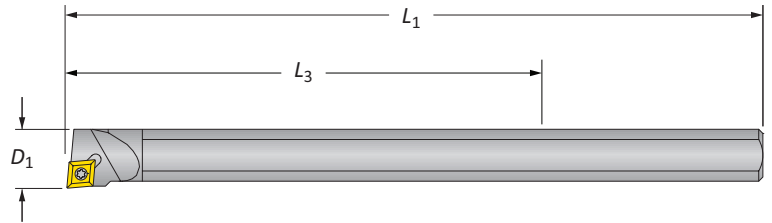
Bore Diameter Range: 0.250" - 5.125"



Steel Boring Bars | Bore Diameter Range: 0.250" - 5.125"

| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|-------|--------|-------------|-------------|--------------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i | 0.250 | 1.062 | 2.500 | 0.500* | 0.080 (lbs) | WBGX0301.. | 0250B |
| | 0.312 | 1.437 | 2.570 | 0.500* | 0.080 (lbs) | WBGX0301.. | 0312B |
| | 0.375 | 1.750 | 3.062 | 0.500* | 0.100 (lbs) | WBGX0301.. | 0375B |
| | 0.437 | 2.062 | 3.375 | 0.500* | 0.110 (lbs) | CC..215.. | 0437B |
| | 0.500 | 2.500 | 4.250 | 0.750 | 0.280 (lbs) | CC..215.. | 0500D |
| | 0.750 | 3.000 | 4.687 | 0.750 | 0.430 (lbs) | CC..325.. | 0750D |
| | 1.000 | 3.500 | 5.125 | 0.750 | 0.570 (lbs) | CC..325.. | 1000D |
| | 1.250 | 4.000 | 5.562 | 0.750 | 0.570 (lbs) | CC..325.. | 1250D |

*Reducing sleeve required



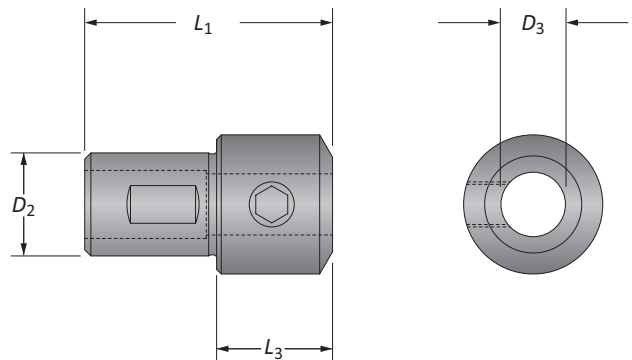
Heavy Metal Boring Bars | Bore Diameter Range: 0.425" - 4.250"

| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|--------|--------|-------------|-------------|----------------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i | 0.425 | 2.250 | 4.000 | 0.375* | 0.110 (lbs) | CC..215.. | 0425BHM |
| | 0.550 | 3.250 | 6.000 | 0.500* | 0.300 (lbs) | CC..215.. | 0550BHM |
| | 0.688 | 4.250 | 8.000 | 0.625* | 0.630 (lbs) | CC..325.. | 0688CHM |
| | 0.832 | 4.750 | 10.000 | 0.750 | 1.150 (lbs) | CC..325.. | 0832DHM |

*Reducing sleeve required

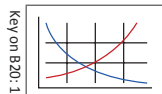
Reducing Sleeves

| Reducing Sleeve | | | | | Weight | Part No. |
|-----------------|-------|-------|-------|-------|-------------|---------------------|
| | D_3 | D_2 | L_1 | L_3 | | |
| i | 0.375 | 0.750 | 2.406 | - | 0.190 (lbs) | BTH-03750750 |
| | 0.500 | 0.750 | 2.406 | 0.910 | 0.040 (lbs) | BTH-05000750 |
| | 0.625 | 0.750 | 1.500 | - | 0.060 (lbs) | BTH-06250750 |



B20: 58 - 59

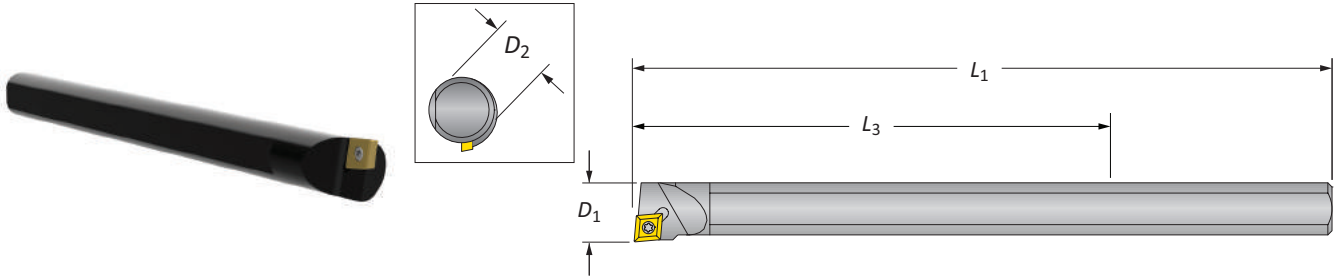
B20: 54 - 55



i = Imperial (in)
m = Metric (mm)
Inserts sold separately

Carbide Boring Bars

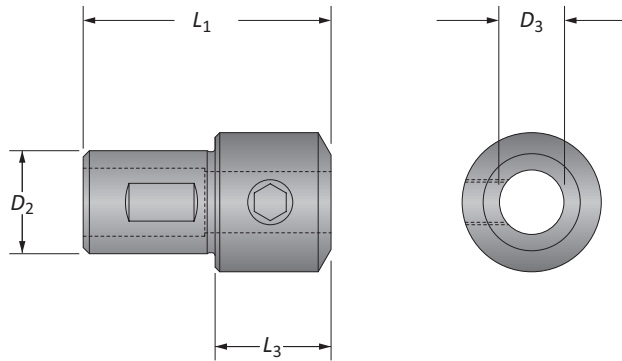
Bore Diameter Range: 0.625" - 4.250"



Carbide Boring Bars

| | Min. Boring Diameter | Boring Bar | | | Weight | Insert Form | Part No. |
|----------|----------------------|------------|--------|--------|-------------|-------------|----------------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i | 0.625 | 4.500 | 8.000 | 0.500* | 0.410 (lbs) | CC..215.. | 0625BCS |
| | 0.875 | 6.000 | 10.000 | 0.750 | 1.130 (lbs) | CC..325.. | 0875DCS |

*Reducing sleeve required

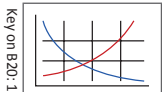


Reducing Sleeve

| | Reducing Sleeve | | | | Weight | Part No. |
|----------|-----------------|-------|-------|-------|-------------|---------------------|
| | D_3 | D_2 | L_1 | L_3 | | |
| i | 0.500 | 0.750 | 2.406 | 0.910 | 0.040 (lbs) | BTH-05000750 |

B20: 58 - 59

B20: 54 - 55

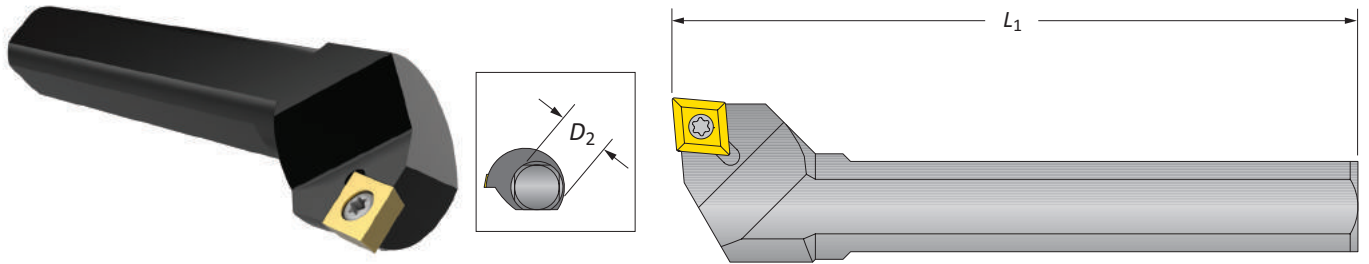


i = Imperial (in)
m = Metric (mm)

Inserts sold separately

Cross Hole Boring Bar | Boring Inserts

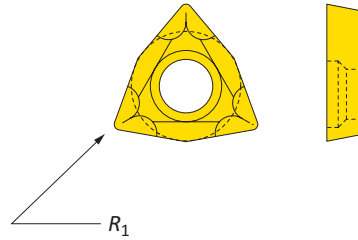
Bore Diameter Range: 4.937" - 11.000"



Cross Hole Boring Bar

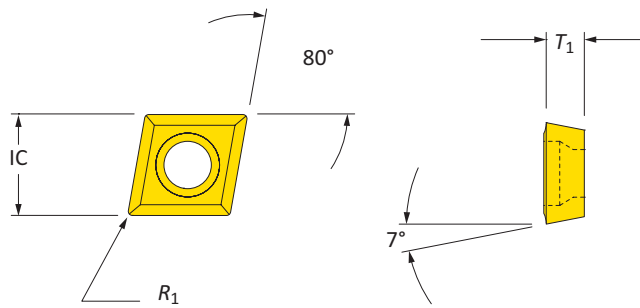
| Min. Bore Diameter | Boring Bar* | | Weight | Insert Form | Part No. |
|--------------------|-------------|-------|-------------|-------------|----------------|
| | L_1 | D_2 | | | |
| i 4.937 | 4.750 | 0.750 | 0.550 (lbs) | CC..325.. | 0750DCH |

*NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws



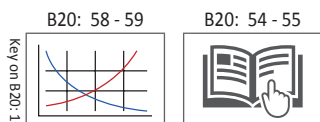
Coated Trigon Insert

| Insert Form | Insert R_1 | Part No. |
|----------------------|--------------|-------------------|
| i WBGX0301... | 0.004 | WBGX030101 |



Coated 80° Diamond Inserts

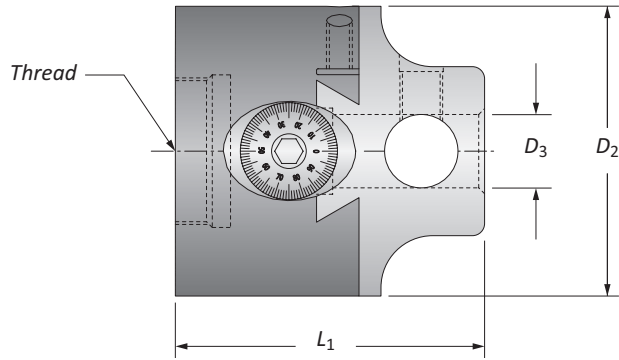
| Insert Form | Insert | | | Part No. |
|--------------------|--------|-------|-------|-------------------|
| | IC | T_1 | R_1 | |
| i CC..215.. | 0.250 | 0.094 | 0.008 | CCMT060202 |
| CC..215.. | 0.250 | 0.094 | 0.016 | CCMT060204 |
| CC..215. | 0.250 | 0.094 | 0.031 | CCMT060208 |
| CC..325... | 0.375 | 0.156 | 0.008 | CCMT09T302 |
| CC..325.. | 0.375 | 0.156 | 0.016 | CCMT09T304 |
| CC..325.. | 0.375 | 0.156 | 0.031 | CCMT09T308 |



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

CB204E Versatile Boring Head

Bore Diameter Range: 0.500" - 13.437"



| | Boring Range | Thread Connection | Boring Head | | | Weight | Part No. |
|----------|----------------|-------------------|-------------|-------|-------|-------------|---------------|
| | | | L_1 | D_2 | D_3 | | |
| i | 0.500 - 13.437 | 1½ - 18 | 3.715 | 4.000 | 1.000 | 9,300 (lbs) | CB204E |

IMPORTANT: Wax covered gib screws are factory set and should not be removed. Adjustment of these screws will cause performance issues.

NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws

Imperial (in) = 0.001" adjustment on diameter

NOTE: Max spindle speed: 800 RPM at 0 radial offset

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Key on B20: 1

B20: 58 - 59

B20: 46 - 50

B20: 44 - 45

B20: 54 - 55

i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

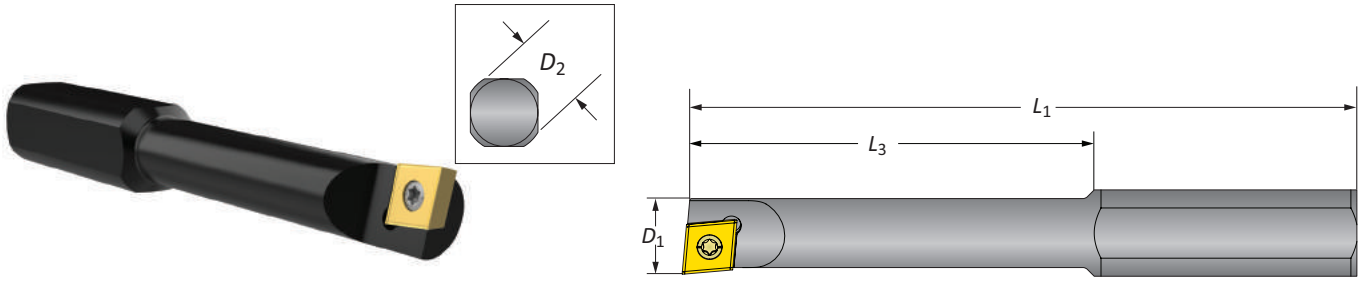
WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Refer to page B20: 57 to see formula for calculating weight of tool assembly.
- Consult machine tool builder for machine's weight limitations.

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Boring Bars

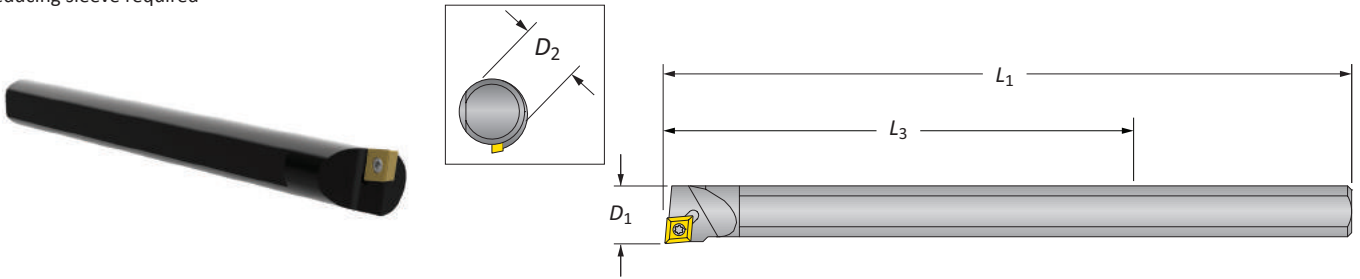
Bore Diameter Range: 0.500" - 5.750"



Steel Boring Bars | Bore Diameter Range: 0.500" - 5.750"

| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|--------|-------------|-----------|--------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i 0.500 | 2.500 | 4.250 | 0.750* | 0.280 (lbs) | CC..215.. | 0500D | |
| 0.750 | 3.000 | 4.687 | 0.750* | 0.430 (lbs) | CC..325.. | 0750D | |
| 1.000 | 3.500 | 5.125 | 0.750* | 0.510 (lbs) | CC..325.. | 1000D | |
| 1.250 | 4.000 | 5.562 | 0.750* | 0.570 (lbs) | CC..325.. | 1250D | |

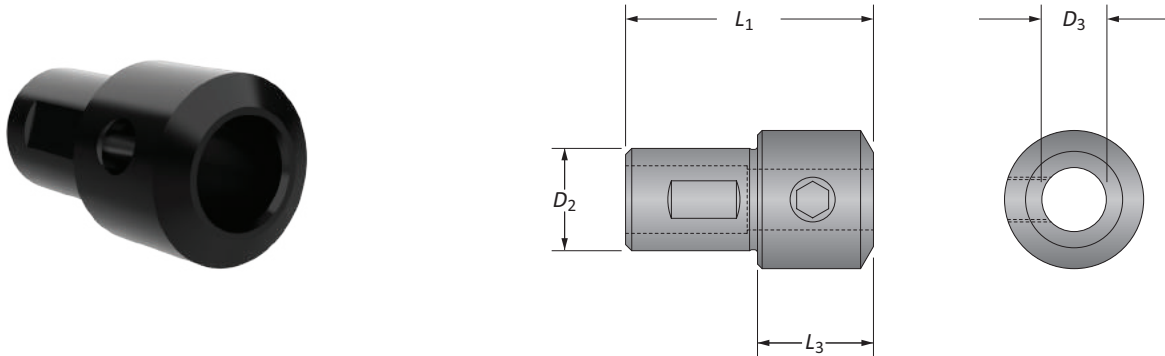
*Reducing sleeve required



Heavy Metal Boring Bar | Bore Diameter Range: 0.832" - 5.125"

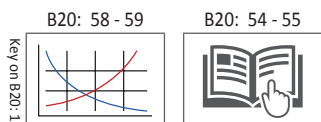
| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|--------|--------|-------------|-----------|----------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i 0.832 | 4.750 | 10.000 | 0.750* | 1.150 (lbs) | CC..325.. | 0832DHM | |

*Reducing sleeve required



Reducing Sleeve

| Min. Boring Diameter | Reducing Sleeve | | | | Weight | Part No. |
|----------------------|-----------------|-------|-------|-------------|---------------------|----------|
| | D_3 | D_2 | L_1 | L_3 | | |
| i 0.750 | 1.000 | 2.405 | 1.125 | 0.400 (lbs) | BTH-07501000 | |

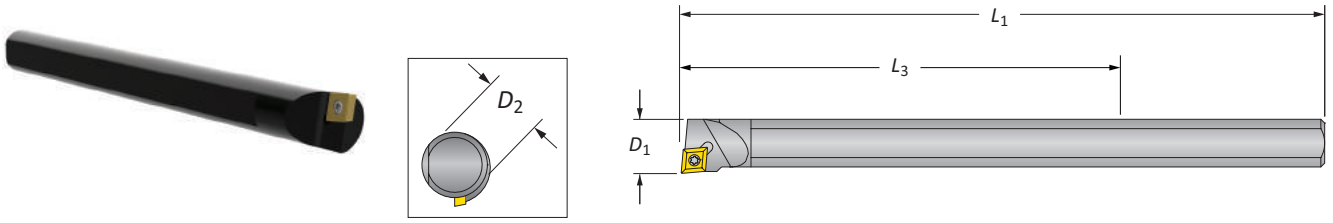


i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

Boring Bars

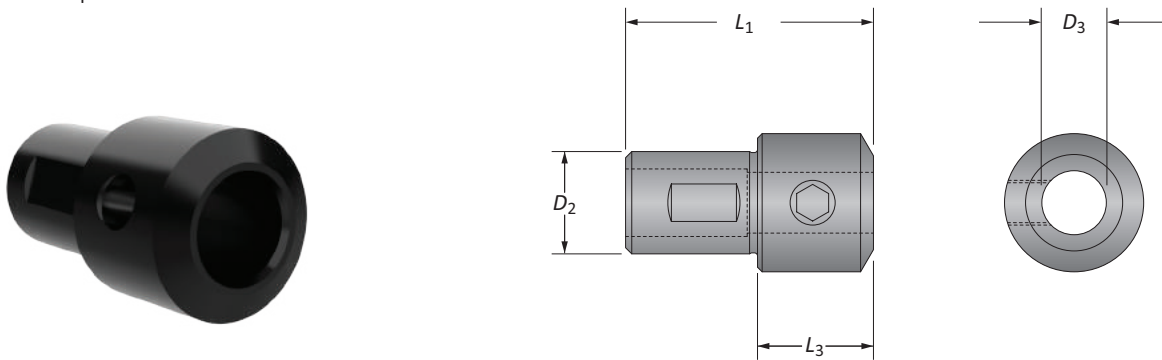
Bore Diameter Range: 0.875" - 5.125"



Carbide Boring Bar

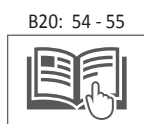
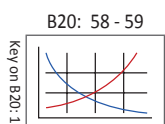
| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|--------|--------|-------------|-----------|----------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i 0.875 | 6.000 | 10.000 | 0.750* | 1.130 (lbs) | CC..325.. | 0875DCS | |

*Reducing sleeve required



Reducing Sleeve

| Min. Boring Diameter | Reducing Sleeve | | | | Weight | Part No. |
|----------------------|-----------------|-------|-------|-------------|---------------------|----------|
| | D_3 | D_2 | L_1 | L_3 | | |
| i 0.750 | 1.000 | 2.405 | 1.125 | 0.400 (lbs) | BTH-07501000 | |

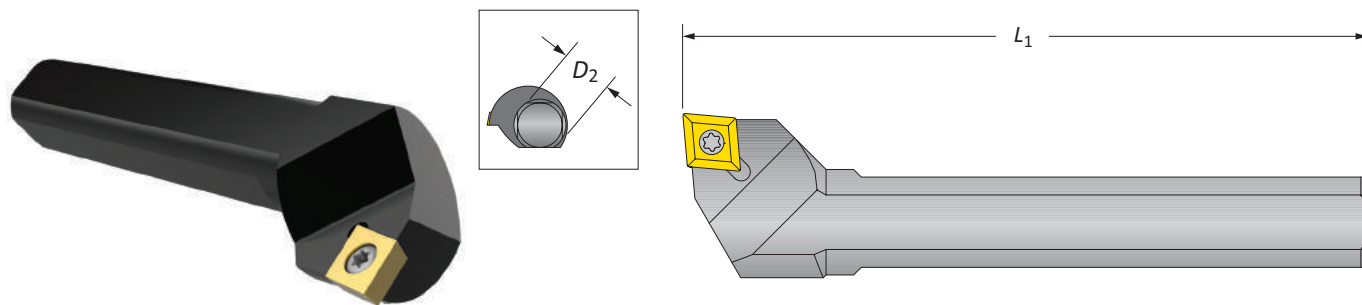


i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

Cross Hole Boring Bar | Boring Inserts

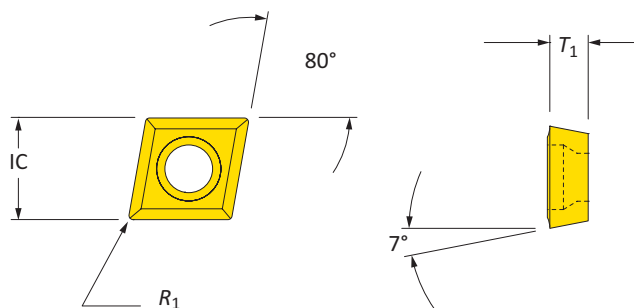
Bore Diameter Range: 5.625" - 13.437"



Cross Hole Boring Bar

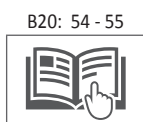
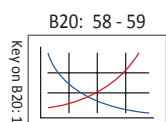
| | Boring Bar* | | | Weight | Insert Form | Part No. |
|----------|---------------------|-------|-------|-------------|-------------|----------|
| | Min Boring Diameter | L_1 | D_2 | | | |
| i | 5.625 | 5.310 | 1.000 | 1.020 (lbs) | CC..325.. | 1000ECH |

*NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws



Coated 80° Diamond Inserts

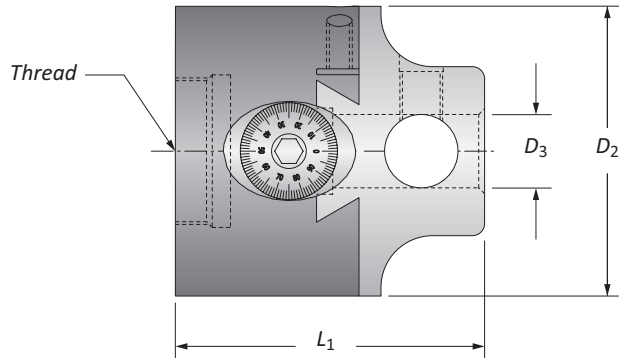
| | Insert Form | Insert | | | Part No. |
|----------|-------------|--------|-------|-------|------------|
| | | IC | T_1 | R_1 | |
| i | CC..215.. | 0.250 | 0.094 | 0.008 | CCMT060202 |
| | CC..215.. | 0.250 | 0.094 | 0.016 | CCMT060204 |
| | CC..215.. | 0.250 | 0.094 | 0.031 | CCMT060208 |
| | CC..325.. | 0.375 | 0.156 | 0.008 | CCMT09T302 |
| | CC..325.. | 0.375 | 0.156 | 0.016 | CCMT09T304 |
| | CC..325.. | 0.375 | 0.156 | 0.031 | CCMT09T308 |



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

CB206F Versatile Boring Head

Bore Diameter Range: 0.500" - 21.500"



| | Boring Range | Thread Connection | Boring Head | | | Weight | Part No. |
|----------|----------------|-------------------|-------------|-------|-------|--------------|---------------|
| | | | L_1 | D_2 | D_3 | | |
| i | 0.500 - 21.500 | 2 ¼ - 10 | 5.475 | 6.000 | 1.500 | 26.400 (lbs) | CB206F |

IMPORTANT: Wax covered gib screws are factory set and should not be removed. Adjustment of these screws will cause performance issues.

NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws

Imperial (in) = 0.001" adjustment on diameter

NOTE: Max spindle speed: 500 RPM at 0 radial offset

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Key on B20: 1

B20: 58 - 59

B20: 46 - 50

B20: 44 - 45

B20: 54 - 55

i = Imperial (in)
m = Metric (mm)

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

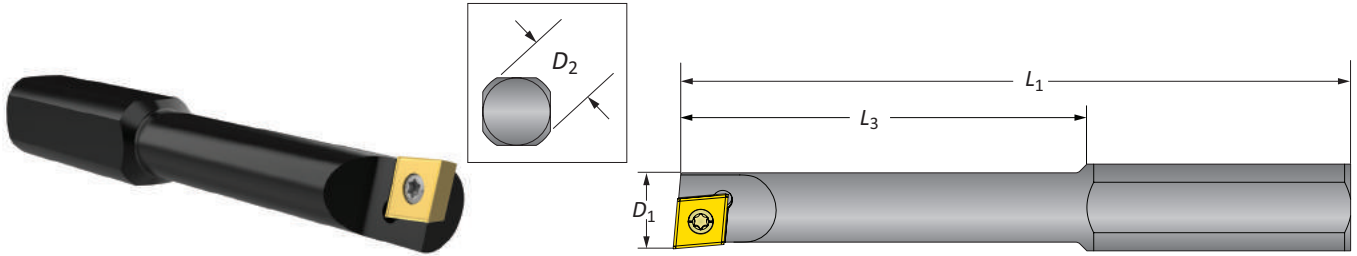
WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Refer to page B20: 57 to see formula for calculating weight of tool assembly.
- Consult machine tool builder for machine's weight limitations.

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Boring Bars

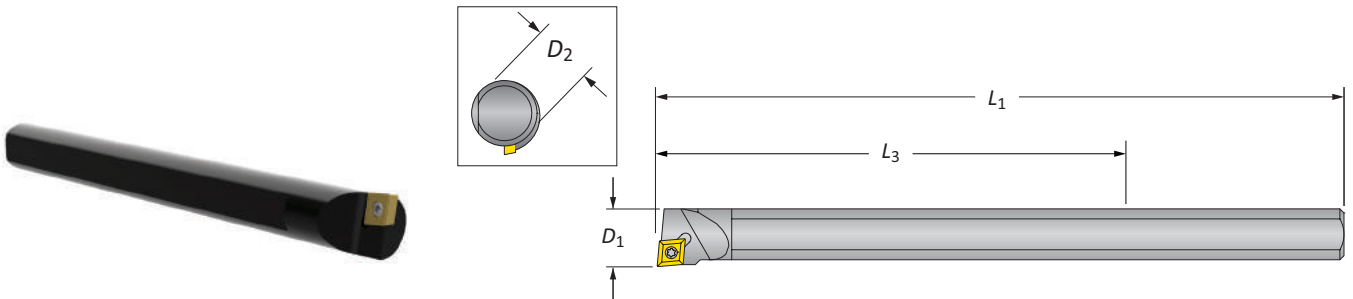
Bore Diameter Range: 0.500" - 9.125"



Steel Boring Bars | Bore Diameter Range: 0.500" - 9.125"

| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|-------|--------|-------------|-----------|--------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i 0.500 | 2.500 | 4.250 | 0.750* | 0.280 (lbs) | CC..215.. | 0500D | |
| 0.750 | 3.000 | 4.687 | 0.750* | 0.430 (lbs) | CC..325.. | 0750D | |
| 1.000 | 3.500 | 5.125 | 0.750* | 0.510 (lbs) | CC..325.. | 1000D | |
| 1.250 | 4.000 | 5.562 | 0.750* | 0.570 (lbs) | CC..325.. | 1250D | |

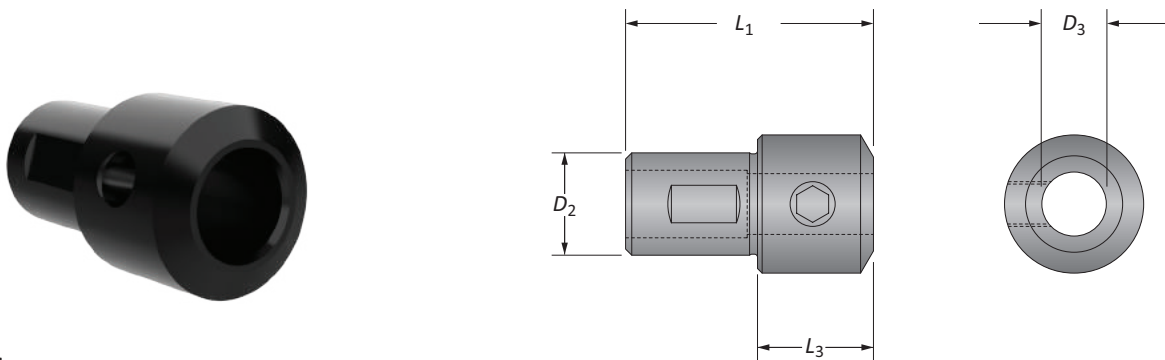
*Reducing sleeve required



Heavy Metal Boring Bar | Bore Diameter Range: 0.832" - 7.125"

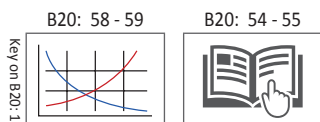
| Min. Boring Diameter | Boring Bar | | | | Weight | Insert Form | Part No. |
|----------------------|------------|--------|--------|-------------|-----------|----------------|----------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i 0.832 | 4.750 | 10.000 | 0.750* | 1.150 (lbs) | CC..325.. | 0832DHM | |

*Reducing sleeve required



Reducing Sleeve

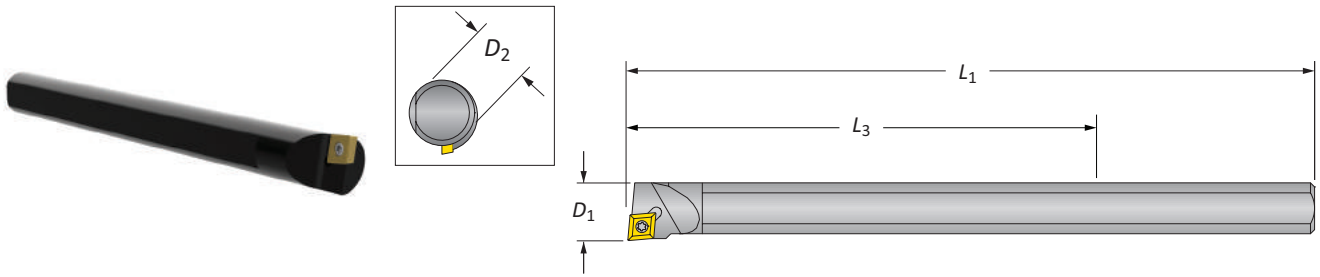
| Min. Boring Diameter | Reducing Sleeve | | | | Weight | Part No. |
|----------------------|-----------------|-------|-------|-------------|---------------------|----------|
| | D_3 | D_2 | L_1 | L_3 | | |
| i 0.750 | 1.500 | 3.000 | 1.000 | 1.400 (lbs) | BTH-07501500 | |



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

Carbide Boring Bar

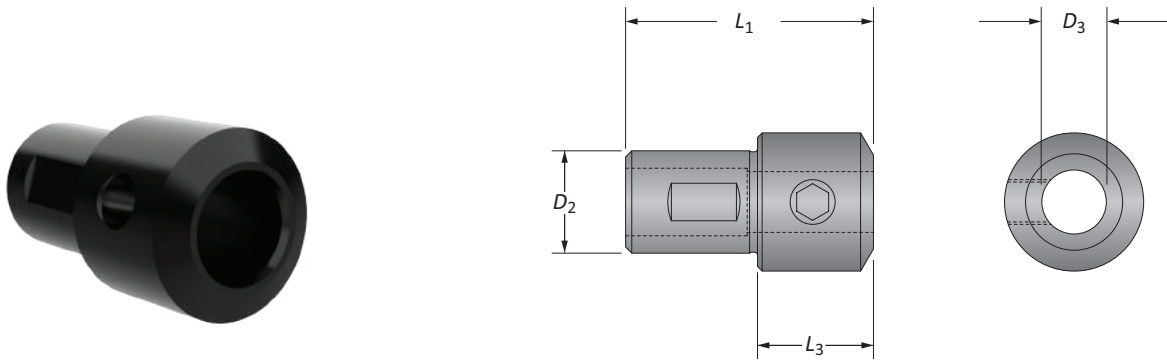
Bore Diameter Range: 0.875" - 7.125"



Carbide Boring Bar

| | Min. Boring Diameter | Boring Bar | | | Weight | Insert Form | Part No. |
|----------|----------------------|------------|--------|--------|-------------|-------------|----------------|
| | D_1 | L_3 | L_1 | D_2 | | | |
| i | 0.875 | 6.000 | 10.000 | 0.750* | 1.130 (lbs) | CC..325.. | 0875DCS |

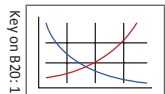
*Reducing sleeve required



Reducing Sleeve

| | Reducing Sleeve | | | | Weight | Part No. |
|----------|-----------------|-------|-------|-------|-------------|---------------------|
| | D_3 | D_2 | L_1 | L_3 | | |
| i | 0.750 | 1.500 | 3.000 | 1.000 | 1.400 (lbs) | BTH-07501500 |

B20: 58 - 59



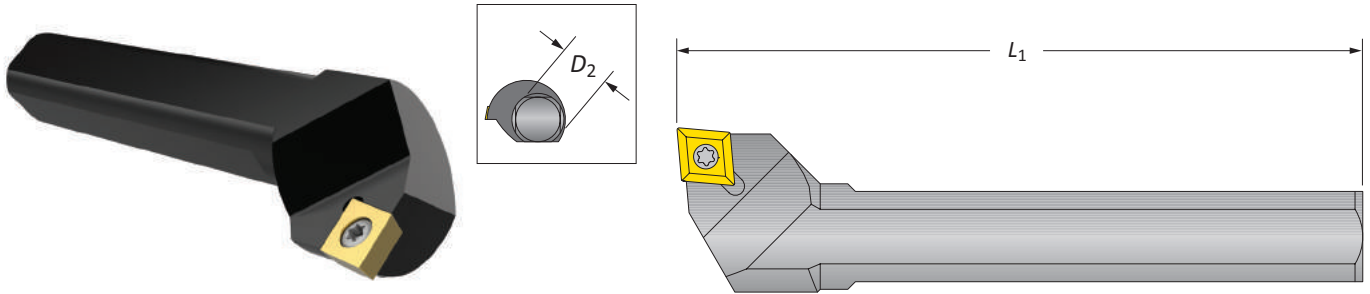
B20: 54 - 55



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

Cross Hole Boring Bar | Boring Inserts

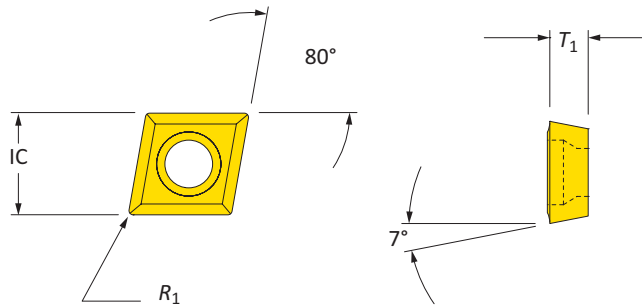
Bore Diameter Range: 9.093" - 21.500"



Cross Hole Boring Bar

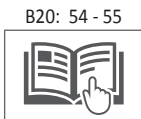
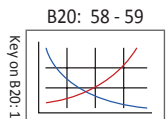
| Min. Boring Diameter | Boring Bar* | | Weight | Insert Form | Part No. |
|----------------------|-------------|-------|-------------|-------------|----------|
| | L_1 | D_2 | | | |
| i 9.093 | 9.125 | 1.500 | 4.130 (lbs) | CC..43.. | 1500FCH |

*NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws



Coated 80° Diamond Inserts

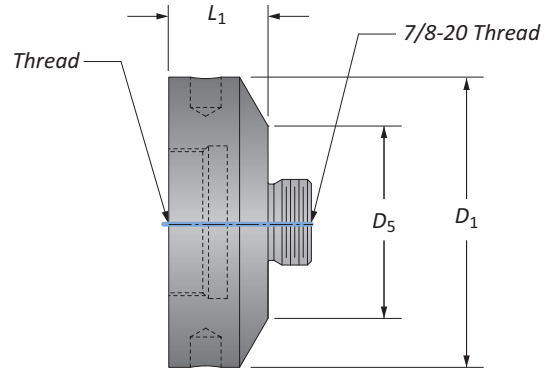
| Insert Form | Insert | | | Part No. |
|--------------------|--------|-------|-------|------------|
| | IC | T_1 | R_1 | |
| i CC..215.. | 0.250 | 0.094 | 0.008 | CCMT060202 |
| CC..215.. | 0.250 | 0.091 | 0.016 | CCMT060204 |
| CC..215.. | 0.250 | 0.094 | 0.031 | CCMT060208 |
| CC..325.. | 0.375 | 0.156 | 0.008 | CCMT09T302 |
| CC..325.. | 0.375 | 0.156 | 0.016 | CCMT09T304 |
| CC..325.. | 0.375 | 0.156 | 0.031 | CCMT09T308 |
| CC..43.. | 0.500 | 0.188 | 0.031 | CCMT120408 |



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

Intermediate Modules

Reducers



| Reducer | | | | | |
|----------------|-------|-------|-------------|--------------------|-----------------|
| D_1 | D_5 | L_1 | Weight | Thread | Part No. |
| 1.500 | 1.000 | 1.000 | 0.440 (lbs) | $\frac{7}{8}$ - 20 | CB1500-IRCB1000 |
| 1.500 | 1.250 | 1.000 | 0.450 (lbs) | $\frac{7}{8}$ - 20 | CB1500-IRCB1250 |
| 2.000 | 1.000 | 1.000 | 0.720 (lbs) | $\frac{7}{8}$ - 20 | CB2000-IRCB1000 |
| 2.000 | 1.250 | 1.000 | 0.760 (lbs) | $\frac{7}{8}$ - 20 | CB2000-IRCB1250 |
| i 2.000 | 1.500 | 1.000 | 0.800 (lbs) | $\frac{7}{8}$ - 20 | CB2000-IRCB1500 |
| 3.000 | 1.000 | 1.250 | 1.610 (lbs) | 1½ - 18 | CB3000-IRCB1000 |
| 3.000 | 1.250 | 1.250 | 1.750 (lbs) | 1½ - 18 | CB3000-IRCB1250 |
| 3.000 | 1.500 | 1.250 | 1.840 (lbs) | 1½ - 18 | CB3000-IRCB1500 |
| 3.000 | 2.000 | 1.250 | 2.020 (lbs) | 1½ - 18 | CB3000-IRCB2000 |

A DRILLING

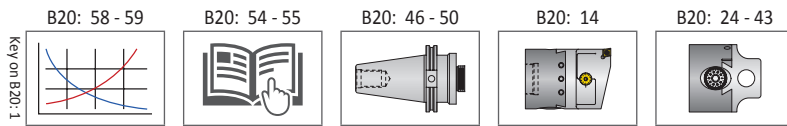
B BORING

C REAMING

D BURNISHING

F THREADING

X SPECIALS



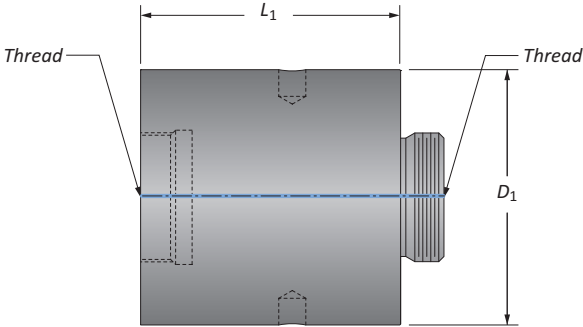
i = Imperial (in)
m = Metric (mm)

⚠ WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:
 - Refer to page B20: 57 to see formula for calculating weight of tool assembly.
 - Consult machine tool builder for machine's weight limitations.
 Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

⚠ WARNING Tool failure can cause serious injury. To prevent:
 - Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
 - Refer to example on page B20: 56 for calculating length to diameter ratio
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Intermediate Modules

Extensions



| Extension | | | | |
|-----------|-------|--------------|--------------------|---------------|
| D_1 | L_1 | Weight | Thread | Part No. |
| 1.000 | 1.000 | 0.190 (lbs) | $\frac{7}{8}$ - 20 | CB1000-IA1000 |
| 1.000 | 2.000 | 0.390 (lbs) | $\frac{7}{8}$ - 20 | CB1000-IA2000 |
| 1.250 | 1.250 | 0.390 (lbs) | $\frac{7}{8}$ - 20 | CB1250-IA1250 |
| 1.250 | 2.500 | 0.800 (lbs) | $\frac{7}{8}$ - 20 | CB1250-IA2500 |
| 1.500 | 1.500 | 0.700 (lbs) | $\frac{7}{8}$ - 20 | CB1500-IA1500 |
| 1.500 | 3.000 | 1.410 (lbs) | $\frac{7}{8}$ - 20 | CB1500-IA3000 |
| 2.000 | 2.000 | 1.660 (lbs) | $\frac{7}{8}$ - 20 | CB2000-IA2000 |
| 2.000 | 4.000 | 3.350 (lbs) | $\frac{7}{8}$ - 20 | CB2000-IA4000 |
| 3.000 | 3.000 | 5.730 (lbs) | 1½ - 18 | CB3000-IA3000 |
| 3.000 | 6.000 | 11.500 (lbs) | 1½ - 18 | CB3000-IA6000 |

i

B20: 58 - 59

Key on B20: 1

B20: 54 - 55

B20: 46 - 50

B20: 14

B20: 24 - 43

i = Imperial (in)
 m = Metric (mm)

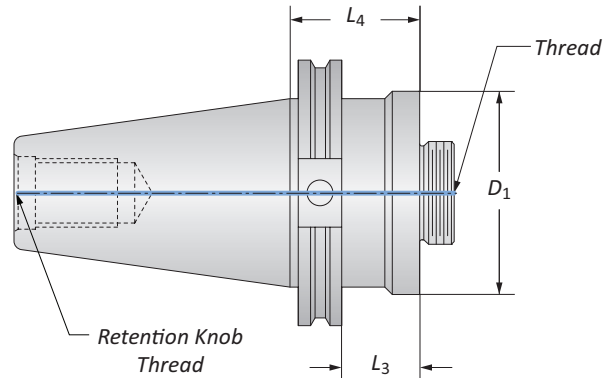
⚠ WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:
 - Refer to page B20: 57 to see formula for calculating weight of tool assembly.
 - Consult machine tool builder for machine's weight limitations.
 Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

⚠ WARNING Tool failure can cause serious injury. To prevent:
 - Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
 - Refer to example on page B20: 56 for calculating length to diameter ratio
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A
 DRILLING
 B
 BORING
 C
 REAMING
 D
 BURNISHING
 E
 THREADING
 X
 SPECIALS

Criterion Master Shanks

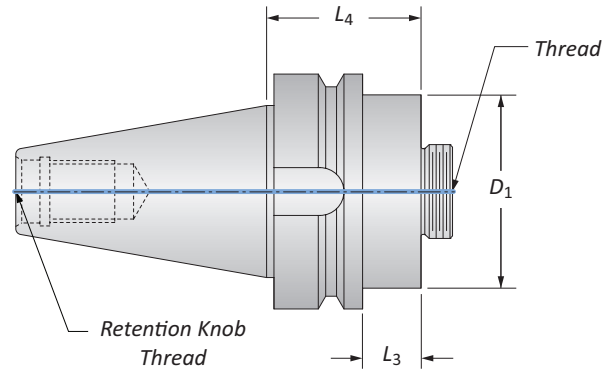
CAT 40/50 | BT Flange



CAT 40/50 Shanks

| Style | D_1 | L_3 | L_4 | Shank | | | Retention Knob Thread | Part No. |
|----------------|-------|-------|-------|-------------|--------------------|--------------------|-----------------------|----------|
| | | | | Weight | Thread | Thread | | |
| CAT40 | 1.500 | 0.370 | 1.770 | 2.490 (lbs) | $\frac{7}{8}$ - 20 | $\frac{7}{8}$ - 11 | CB1500-CV40 | |
| CAT40 | 2.000 | 1.130 | 1.880 | 2.700 (lbs) | $\frac{7}{8}$ - 20 | $\frac{7}{8}$ - 11 | CB2000-CV40 | |
| CAT40 | 2.500 | 1.130 | 1.880 | 3.120 (lbs) | 1½ - 18 | $\frac{7}{8}$ - 11 | CB2500-CV40 | |
| CAT40 | 3.000 | 1.180 | 1.880 | 3.410 (lbs) | 1½ - 18 | $\frac{7}{8}$ - 11 | CB3000-CV40 | |
| i CAT50 | 1.500 | 0.370 | 1.770 | 7.120 (lbs) | $\frac{7}{8}$ - 20 | 1 - 8 | CB1500-CV50 | |
| CAT50 | 2.000 | 1.130 | 1.880 | 7.330 (lbs) | $\frac{7}{8}$ - 20 | 1 - 8 | CB2000-CV50 | |
| CAT50 | 2.500 | 1.130 | 1.880 | 7.740 (lbs) | 1½ - 18 | 1 - 8 | CB2500-CV50 | |
| CAT50 | 3.000 | 1.130 | 1.880 | 8.030 (lbs) | 1½ - 18 | 1 - 8 | CB3000-CV50 | |
| CAT50 | 3.380 | 1.380 | 2.130 | 9.440 (lbs) | 2¼ - 10 | 1 - 8 | CB6000-CV50 | |

NOTE: Taper ground to AT3 tolerance



BT Flange Shanks

| Style | D_1 | L_3 | L_4 | Shank | | | Retention Knob Thread | Part No. |
|---------------|-------|-------|-------|--------------|--------------------|------------|-----------------------|----------|
| | | | | Weight | Thread | Thread | | |
| BT30 | 1.500 | 0.900 | 1.770 | 1.360 (lbs) | $\frac{7}{8}$ - 20 | M12 x 1.75 | CB1500-BT30 | |
| BT40 | 1.500 | 0.710 | 1.770 | 2.540 (lbs) | $\frac{7}{8}$ - 20 | M16 x 2 | CB1500-BT40 | |
| BT40 | 2.000 | 0.500 | 1.560 | 2.620 (lbs) | $\frac{7}{8}$ - 20 | M16 x 2 | CB2000-BT40 | |
| BT40 | 2.500 | 0.870 | 2.060 | 3.690 (lbs) | 1½ - 18 | M16 x 2 | CB2500-BT40 | |
| i BT40 | 3.000 | 1.000 | 2.060 | 3.980 (lbs) | 1½ - 18 | M16 x 2 | CB3000-BT40 | |
| BT50 | 1.500 | 0.270 | 1.770 | 8.220 (lbs) | $\frac{7}{8}$ - 20 | M24 x 3 | CB1500-BT50 | |
| BT50 | 2.000 | 0.060 | 1.560 | 8.250 (lbs) | $\frac{7}{8}$ - 20 | M24 x 3 | CB2000-BT50 | |
| BT50 | 3.000 | 0.500 | 2.060 | 9.410 (lbs) | 1½ - 18 | M24 x 3 | CB3000-BT50 | |
| BT50 | 3.380 | 0.630 | 2.130 | 10.500 (lbs) | 2¼ - 10 | M24 x 3 | CB6000-BT50 | |

NOTE: Taper ground to AT3 tolerance

WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Refer to page B20: 57 to see formula for calculating weight of tool assembly.
- Consult machine tool builder for machine's weight limitations.

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

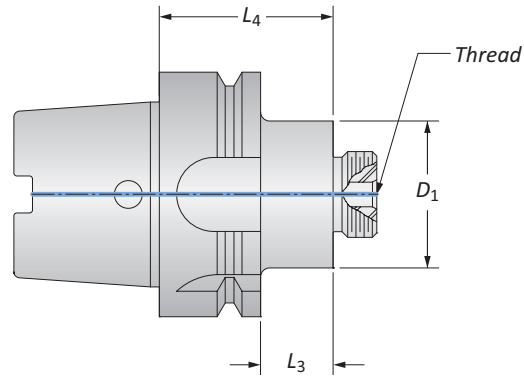
WARNING Tool failure can cause serious injury. To prevent:

- Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
- Refer to example on page B20: 56 for calculating length to diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

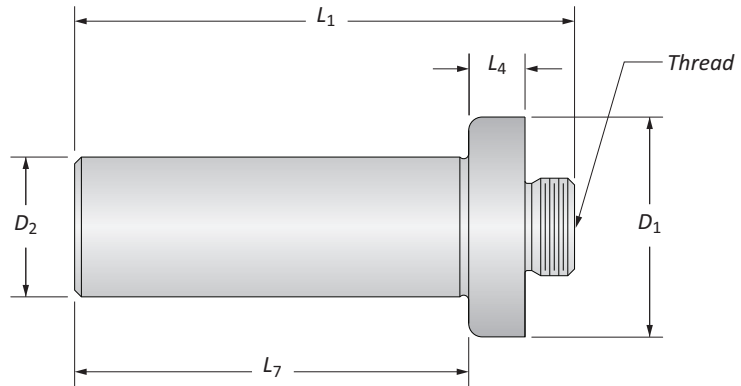
Criterion Master Shanks

HSK | Straight Shank



HSK Shanks

| Style | D ₁ | Shank | | | Weight | Thread | Part No. |
|--------|----------------|----------------|----------------|-------------|----------|----------------|----------|
| | | L ₃ | L ₄ | | | | |
| HSK63 | 1.500 | 0.730 | 1.750 | 1.820 (lbs) | 7/8 - 20 | CB1500-HSK63A | |
| HSK63 | 2.000 | 0.730 | 1.750 | 2.090 (lbs) | 7/8 - 20 | CB2000-HSK63A | |
| HSK63 | 3.000 | 0.500 | 2.150 | 3.200 (lbs) | 1½ - 18 | CB3000-HSK63A | |
| HSK100 | 1.500 | 0.500 | 2.270 | 6.300 (lbs) | 7/8 - 20 | CB1500-HSK100A | |
| HSK100 | 2.000 | 0.500 | 2.270 | 6.470 (lbs) | 7/8 - 20 | CB2000-HSK100A | |
| HSK100 | 3.000 | 0.500 | 2.270 | 7.180 (lbs) | 1½ - 18 | CB3000-HSK100A | |



Straight Shanks

| D ₁ | D ₂ | Shank | | | Weight | Thread | Part No. |
|----------------|----------------|----------------|----------------|----------------|----------|---------------|----------|
| | | L ₄ | L ₇ | L ₁ | | | |
| 1.110 | 0.500 | 0.250 | 2.000 | 0.240 (lbs) | 7/8 - 20 | SS0500-087520 | |
| 1.110 | 0.625 | 0.250 | 2.370 | 0.340 (lbs) | 7/8 - 20 | SS0625-087520 | |
| 1.110 | 0.750 | 0.250 | 2.750 | 0.480 (lbs) | 7/8 - 20 | SS0750-087520 | |
| 1.110 | 1.000 | 0.250 | 3.120 | 0.820 (lbs) | 7/8 - 20 | SS1000-087520 | |
| 1.860 | 0.750 | 0.250 | 3.120 | 0.810 (lbs) | 1½ - 18 | SS0750-150018 | |
| 1.860 | 1.000 | 0.250 | 3.120 | 1.110 (lbs) | 1½ - 18 | SS1000-150018 | |
| 1.860 | 1.250 | 0.250 | 3.880 | 1.760 (lbs) | 1½ - 18 | SS1250-150018 | |
| 1.860 | 1.500 | 0.250 | 4.630 | 2.720 (lbs) | 1½ - 18 | SS1500-150018 | |
| 2.000 | 2.000 | - | 6.380 | 5.850 (lbs) | 1½ - 18 | SS2000-150018 | |

⚠ WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Refer to page B20: 57 to see formula for calculating weight of tool assembly.
- Consult machine tool builder for machine's weight limitations.

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

⚠ WARNING Tool failure can cause serious injury. To prevent:

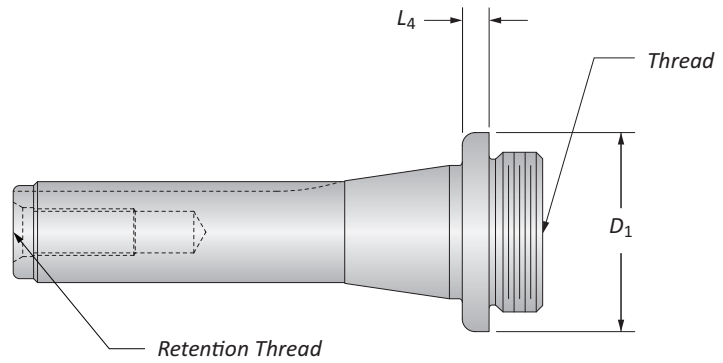
- Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
- Refer to example on page B20: 56 for calculating length to diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

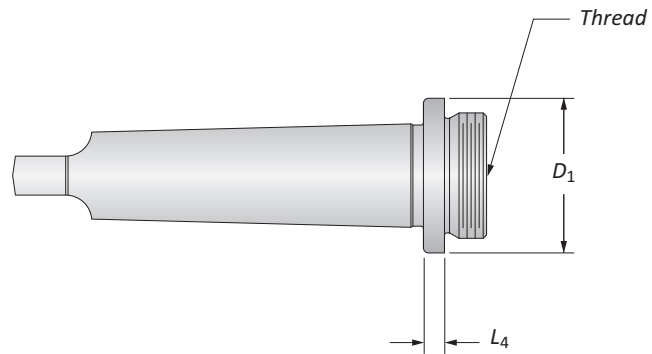
Criterion Shanks

R-8 | Morse Taper



R-8 Shanks

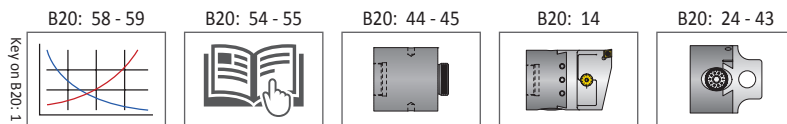
| | Shank | | | | | Part No. |
|----------|-------|-------|-------------|-----------------------|---------------------|------------------|
| | D_1 | L_4 | Weight | Thread | Retention Thread | |
| i | 1.110 | 0.470 | 0.990 (lbs) | $\frac{7}{8}$ - 20 | $\frac{7}{16}$ - 20 | R8-087520 |
| | 1.860 | 0.370 | 1.270 (lbs) | 1- $\frac{1}{2}$ - 18 | $\frac{7}{16}$ - 20 | R8-150018 |



Morse Taper Shanks

| | Style | Shank | | | | Part No. |
|----------|---------|-------|-------|-------------|-----------------------|-------------------------|
| | | D_1 | L_4 | Weight | Thread | |
| | 2 Taper | 1.110 | 0.250 | 0.380 (lbs) | $\frac{7}{8}$ - 20 | MT2-375THD87520* |
| | 2 Taper | 1.110 | 0.250 | 0.390 (lbs) | $\frac{7}{8}$ - 20 | MT2-087520 |
| | 3 Taper | 1.110 | 0.250 | 0.710 (lbs) | $\frac{7}{8}$ - 20 | MT3-087520 |
| i | 3 Taper | 1.860 | 0.250 | 1.000 (lbs) | 1- $\frac{1}{2}$ - 18 | MT3-150018 |
| | 4 Taper | 1.230 | 0.250 | 1.350 (lbs) | $\frac{7}{8}$ - 20 | MT4-087520 |
| | 4 Taper | 1.860 | 0.250 | 1.700 (lbs) | 1- $\frac{1}{2}$ - 18 | MT4-150018 |
| | 5 Taper | 1.860 | 0.250 | 3.770 (lbs) | 1- $\frac{1}{2}$ - 18 | MT5-150018 |

*Item features a $\frac{3}{8}$ - 16 thread instead of tang



i = Imperial (in)
m = Metric (mm)

⚠ WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:

- Refer to page B20: 57 to see formula for calculating weight of tool assembly.
- Consult machine tool builder for machine's weight limitations.

Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

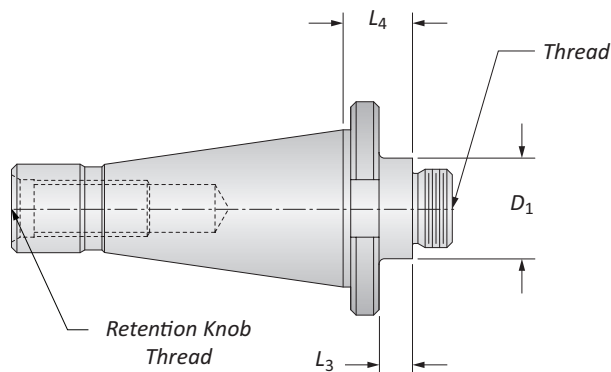
⚠ WARNING Tool failure can cause serious injury. To prevent:

- Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
- Refer to example on page B20: 56 for calculating length to diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

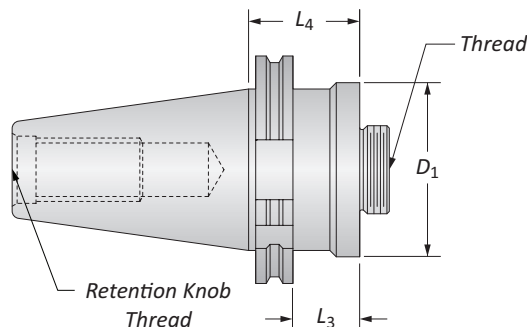
Criterion Master Shanks

NMTB Taper | DIN69871A



NMTB Taper Shanks

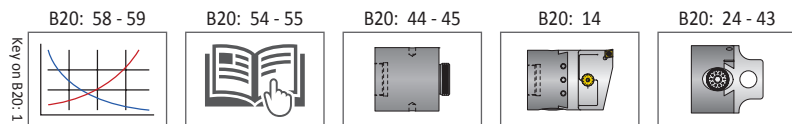
| Style | D_1 | L_3 | L_4 | Shank | | | Part No. |
|---------|-------|-------|-------|-------------|---------------------|--------------------|---------------|
| | | | | Weight | Thread | Retention Thread | |
| NMTB 30 | 1.120 | 0.370 | 0.790 | 0.810 (lbs) | $\frac{7}{8}$ - 20 | $\frac{1}{2}$ - 13 | NMTB30-087520 |
| NMTB 30 | 1.850 | 0.630 | 1.050 | 1.190 (lbs) | $1\frac{1}{2}$ - 18 | $\frac{1}{2}$ - 13 | NMTB30-150018 |
| NMTB 40 | 1.120 | 0.370 | 0.770 | 1.780 (lbs) | $\frac{7}{8}$ - 20 | $\frac{5}{8}$ - 11 | NMTB40-087520 |
| NMTB 40 | 1.850 | 0.630 | 1.020 | 2.310 (lbs) | $1\frac{1}{2}$ - 18 | $\frac{5}{8}$ - 11 | NMTB40-150018 |
| NMTB 50 | 1.970 | 0.510 | 1.250 | 6.750 (lbs) | $\frac{7}{8}$ - 20 | 1 - 8 | NMTB50-087520 |
| NMTB 50 | 1.870 | 0.400 | 1.210 | 6.870 (lbs) | $1\frac{1}{2}$ - 18 | 1 - 8 | NMTB50-150018 |
| NMTB 50 | 3.380 | 0.500 | 1.250 | 8.320 (lbs) | $2\frac{1}{4}$ - 10 | 1 - 8 | NMTB50-225010 |



DIN 69871A

| D_1 | L_3 | L_4 | Shank | | | Part No. |
|-------|-------|-------|-----------|---------------------|------------------|--------------|
| | | | Weight | Thread | Retention Thread | |
| 38.00 | 19.00 | 38.40 | 1.18 (kg) | $\frac{7}{8}$ - 20 | M16 x 2.0 | CB038M-DIN40 |
| 50.00 | 22.00 | 41.50 | 1.18 (kg) | $\frac{7}{8}$ - 20 | M16 x 2.0 | CB050M-DIN40 |
| 76.00 | 45.00 | 48.00 | 1.68 (kg) | $1\frac{1}{2}$ - 18 | M16 x 2.0 | CB076M-DIN40 |
| 38.00 | 19.00 | 38.40 | 3.36 (kg) | $\frac{7}{8}$ - 20 | M24 x 3.0 | CB038M-DIN50 |
| 50.00 | 22.00 | 41.50 | 3.45 (kg) | $\frac{7}{8}$ - 20 | M24 x 3.0 | CB050M-DIN50 |
| 76.00 | 22.00 | 48.00 | 3.66 (kg) | $1\frac{1}{2}$ - 18 | M24 x 3.0 | CB076M-DIN50 |

NOTE: Taper ground to AT3 tolerance



i = Imperial (in)
m = Metric (mm)

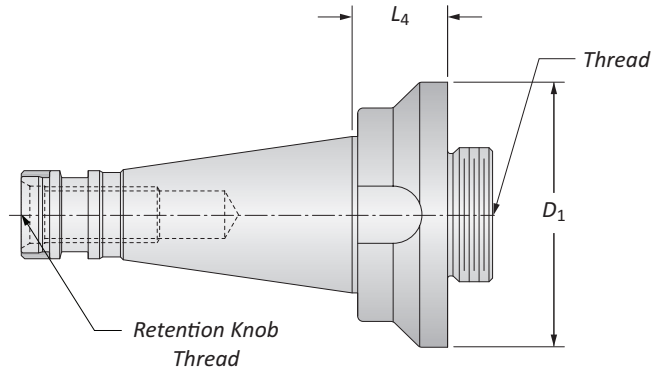
WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:
 - Refer to page B20: 57 to see formula for calculating weight of tool assembly.
 - Consult machine tool builder for machine's weight limitations.
 Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

WARNING Tool failure can cause serious injury. To prevent:
 - Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
 - Refer to example on page B20: 56 for calculating length to diameter ratio
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Criterion Shanks

DIN 2080



DIN 2080

| | | Shank | | | | | Part No. | |
|---|--|-------|-------|-------|-----------|--------------------|------------------|--------------|
| | | D_1 | L_3 | L_4 | Weight | Thread | Retention Thread | |
| m | | 50.00 | 17.00 | 25.70 | 0.45 (kg) | $\frac{7}{8}$ - 20 | M12 | CB050M-ISO30 |
| | | 50.00 | 11.00 | 27.70 | 0.91 (kg) | $\frac{7}{8}$ - 20 | M16 | CB050M-ISO40 |
| | | 76.00 | 22.00 | 27.70 | 1.32 (kg) | 1½ - 18 | M16 | CB076M-ISO40 |
| | | 50.00 | 11.00 | 39.40 | 2.88 (kg) | $\frac{7}{8}$ - 20 | M24 | CB038M-ISO50 |
| | | 76.00 | 36.00 | 39.40 | 3.36 (kg) | 1½ - 18 | M24 | CB076M-ISO50 |

A DRILLING

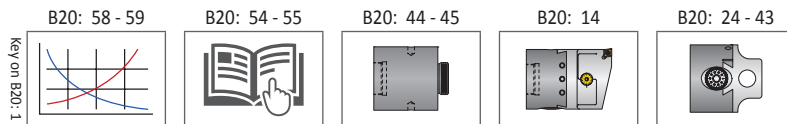
B BORING

C REAMING

D BURNISHING

E THREADING

X SPECIALS



i = Imperial (in)
m = Metric (mm)





WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:
 - Refer to page B20: 57 to see formula for calculating weight of tool assembly.
 - Consult machine tool builder for machine's weight limitations.
 Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

WARNING Tool failure can cause serious injury. To prevent:
 - Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
 - Refer to example on page B20: 56 for calculating length to diameter ratio
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com



Criterion Accessories

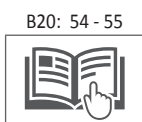
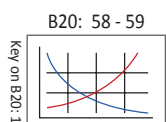
Insert Screws | Drivers | Pin Spanner Wrenches

Insert Screws & Drivers

|  Insert Form | Insert Screws  Part No. |  Thread | Insert Driver  Part No. | Technical Information | |
|--|--|---|---|-----------------------|----------|
| | | | | Torque Specs | Key Size |
| WBGX0301.. | 215377 | M2x4 | 115537 | 0.6 (Nm) | T6 |
| CC..215.. CC..0602.. | 115676 | M2.5x5 | 115590 | 1.2 (Nm) | T8 |
| CC..32500 CC..09T3 (<Ø37mm) | 115672 | M3.5x7.5 | 115664 | 3.0 (Nm) | T15 |
| CC..32500 CC..09T3 (<Ø36mm) | 115673 | M3.5x9 | 115664 | 3.0 (Nm) | T15 |
| CC..43.. CC..1204.. | 215149 | M4.5x11.5 | 215150 | 5.0 (Nm) | T20 |
| TC..215.. TC..1102.. | 115676 | M2.5x5 | 115590 | 1.2 (Nm) | T8 |
| TC..325.. TC..16T3 | 115673 | M3.5x9 | 115664 | 3.0 (Nm) | T15 |

Pin Spanner Wrenches

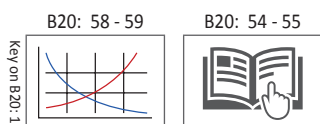
|  Body Diameter | Pin Spanner Wrench  Part No. |
|--|---|
| 1.000" (25.00mm) | CB1000-PSW |
| 1.250" (32.00mm) | CB1250-PSW |
| 1.500" (38.00mm) | CB1500-PSW |
| 2.000" (38.00mm) | CB2000-PSW |
| 2.500" (63.50mm) | CB2500-PSW |
| 3.000" (76.00mm) | CB3000-PSW |
| 4.000" (101.00mm) | CB4000-PSW |



Criterion Hardware Kits

| Corresponding Boring Head Item Number | Hardware Kit Part No. |
|--|-----------------------|
| CBR-0625CP, CBR-0628TP, CBR-0625SG, CBS-0625CP, CBS-0625TP, CBS-0625SG, CBER16S-SG, CBER16-SG, CBER20S-SG, CBER20-SG, CBER16MS-CP, CBER16M-CP, CBER16MS-TP, CBER16M-TP, CBER20MS-CP, CBER20M-CP, CBER20MS-TP, CBER20M-TP, CBER16S-CP, CBER16-CP, CBER16S-TP, CBER16-TP, CBER20S-CP, CBER20-CP, CBER20S-TP, CBER20-TP | CB0625-HDW |
| CBS-0750CP, CBS-0750TP, CBS-0750SH, CBR-0750CP, CBR-0750TP, CBR-0750SH, CBER25S-SH, CBER25-SH, CBER25S-CP, CBER25-CP, CBER25S-TP, CBER25-TP, CBER25-TP, CBER25MS-CP, CBER25M-CP, CBER25MS-TP | CB0750-HDW |
| TMT-0750H, TMT-1000H | TMT0750-HDW |
| CB1000CC, CB1000TC CBS-1000CP, CBS-1000TP, CBS-1000CPMA, CBS-1000TPMA, CBS-1000SA, CBR-1000CP, CBR-1000TP, CBR-1000CPMA, CBR-1000TPMA, CBR-1000SA, CBER32S-CPMA, CBER32-CPMA, CBER32S-TPMA, CBER32-TPMA, CBER32MS-CPMA, CBER32M-CPMA, CBER32MS-TPMA, CBER32M-TPMA, CBER32S-SA, CBER32-SA, CBER32S-CP, CBER32-CP, CBER32S-TP, CBER32-TP, CBER32MS-CP, CBER32M-CP, CBER32MS-TP, CBER32M-TP, CB1000-TPMA, CB1000-CPMA, CB1000-TP, CB1000-CP | CB1000-HDW |
| CT1000-0, CT1000-1, CT1000-2 | CT1000-HDW |
| CB025MCC, CB025MTC, CB025M-TPMA, CB025M-CPMA, CB025M-TP, CB025M-CP | CB025M-HDW |
| CT025M-0, CT025M-1, CT025M-2 | CT025M-HDW |
| CBS1250B, CB1250CC, CB1250TC, CBS-1250CP, CBS-1250TP, CBS-1250CPMA, CBS-1250TPMA, CBS-1250SB, CBR-1250CP, CBR-1250TP, CBR-1250CPMA, CBR-1250TPMA, CBR-1250SB, CBER40S-CPMA, CBER40-CPMA, CBER40S-TPMA, CBER40-TPMA, CBER40S-CPMA, CBER40M-CPMA, CBER40MS-TPMA, CBER40M-TPMA, CBER40S-SB, CBER40-SB, CBER40S-CP, CBER40-CP, CBER40S-TP, CBER40-TP, CBER40MS-CP, CBER40M-CP, CBER40MS-TP, CBER40M-TP, CB1250-TPMA, CB1250-CPMA, CB1250-TP, CB1250-CP | CB1250-HDW |
| CT1250-0, CT1250-1, CT1250-2 | CT1250-HDW |
| CB032MCC, CB032MTC, CB032M-TPMA, CB032M-CPMA, CB032M-TP, CBO32M-CP | CB032M-HDW |
| CT032M-0, CT032M-1, CT032M-2 | CT032M-HDW |
| MBS0500B, CB1500CC, CB1500TC, MB002-500, MB002-625, MB002-750, MB152-500, MB152-625, MB152-750, CB-2375A, CB-1500B, CB-1500AMA, CB1500-TPMA, CB1500-CPMA, CB1500-TP, CB1500-CP | CB1500-HDW |
| CT1500-0, CT1500-1, CT1500-2 | CT1500-HDW |
| SQ-1500B | S1500-HDW |
| CB038MCC, CB038MTC, CB-038MA, CB-038MB, CB038M-TPMA, CB038M-CPMA, CB038M-TP, CB038M-CP | CB038-HDW |
| CT038M-0, CT038M-1, CT038-2 | CT038M-HDW |
| SQ-2000B | S2000-HDW |
| CB2000CC, CB2000TC, CB202B, CB2500BMA CSL-202, CB-202A, CB-202B, CB-2500BMA, CB2000-TPMA, CB2000-CPMA, CB050M-TP, CB050M-CP | CB2000-HDW |
| CT2000-0, CT2000-1, CT2000-2 | CT2000-HDW |
| CB050MCC, CB050MTC, CB-050MA, CB-050MB, CB-064MBMA, CB050M-TPMA, CB050M-TPMA, CB050M-TPMA, CB050M-CPMA, CB050M-TP, CP050M-CP | CB050M-HDW |
| CT050M-0, CT050M-1, CT050M-2 | CT050M-HDW |
| SQ-3000D, SQ-3000E | S3000-HDW |
| CB3000CC, CB3000TC, CB203D, CSL-203, CB-203D, CB-3000DMA, CB3000-TPMA, CB3000-CPMA, CB3000-TP, CB3000-CP | CB3000-HDW |
| CT3000-0, CT3000-1, CT3000-2 | CT3000-HDW |
| CB076MCC, CB076MTC, CB-076MD, CB-076MDMA, CB076M-TPMA, CB076M-CPMA, CBO76M-TP, CB076M-CP | CB076M-HDW |
| CT076M-0, CT076M-1, CT076M-2 | CT076M-HDW |
| CB204E, CSL-204, CB-204E, CB4000-TP, CB4000-TP, CB4000-TP, CB4000-CP | CB4000-HDW |
| CB-101ME, CB101M-TP, CB101-CP | CB101M-HDW |
| CB206F, CB-206F | CB6000-HDW |

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



Technical Information

| Assembly Item Number | Torque Specs | | | | | |
|----------------------|--------------|------------------------------|----------------------------|-------------------------------------|-------------------------------|--------------------------------|
| | Lock Screw | Locking Screw Allen Key Size | Dial Adjust Allen Key Size | Micro Adjusting Dial Allen Key Size | Clamping Screw Allen Key Size | Insert Torx® Screw Driver Size |
| MBS0500B | 1.4 (Nm) | 5/64 | 5/32 | - | 1/8 | - |
| CBS1250B | 0.7 (Nm) | 1/16 | 5/32 | - | 1/8 | - |
| MDS0625 | 1.4 (Nm) | 9/64 | 7/64 | - | - | T8 |
| MDS0750 | 1.5 (Nm) | 5/32 | 7/64 | - | - | T15 |
| MDS16M | 1.4 (Nm) | 2.5 mm | 2.5 mm | - | - | T8 |
| MDS20M | 1.5 (Nm) | 3.0 mm | 2.5 mm | - | - | T15 |
| CB1000CC | 0.6 (Nm) | 0.050 | 5/32 | 3/32 | - | T8 |
| CB1000TC | 0.6 (Nm) | 0.050 | 5/32 | 3/32 | - | T8 |
| CB1250CC | 0.7 (Nm) | 1/16 | 5/32 | 3/32 | - | T8 |
| CB1250TC | 0.7 (Nm) | 1/16 | 5/32 | 3/32 | - | T8 |
| CB1500CC | 1.4 (Nm) | 5/64 | 5/32 | 7/64 | - | T15 |
| CB1500TC | 1.4 (Nm) | 5/64 | 5/32 | 7/64 | - | T15 |
| CB2000CC | 2.3 (Nm) | 3/32 | 5/32 | 7/64 | - | T15 |
| CB2000TC | 2.3 (Nm) | 3/32 | 5/32 | 7/64 | - | T15 |
| CB3000CC | 5.3 (Nm) | 1/8 | 1/4 | 7/64 | - | T15 |
| CB3000TC | 5.3 (Nm) | 1/8 | 1/4 | 7/64 | - | T15 |
| CB025MCC | 0.6 (Nm) | 1.5 mm | 4.0 mm | 2.5 mm | - | T8 |
| CB025MTC | 0.6 (Nm) | 1.5 mm | 4.0 mm | 2.5 mm | - | T8 |
| CB032MCC | 0.7 (Nm) | 2.0 mm | 4.0 mm | 2.5 mm | - | T8 |
| CB032MTC | 0.7 (Nm) | 2.0 mm | 4.0 mm | 2.5 mm | - | T8 |
| CB038MCC | 1.4 (Nm) | 2.0 mm | 4.0 mm | 3.0 mm | - | T15 |
| CB038MTC | 1.4 (Nm) | 2.0 mm | 4.0 mm | 3.0 mm | - | T15 |
| CB050MCC | 2.3 (Nm) | 2.5 mm | 4.0 mm | 3.0 mm | - | T15 |
| CB050MTC | 2.3 (Nm) | 2.5 mm | 4.0 mm | 3.0 mm | - | T15 |
| CB076MCC | 5.3 (Nm) | 3.0 mm | 6.0 mm | 3.0 mm | - | T15 |
| CB076MTC | 5.3 (Nm) | 3.0 mm | 6.0 mm | 3.0 mm | - | T15 |
| CB2500BMA | 2.3 (Nm) | 3/32 | 1/4 | 7/64 | 7/32 | - |
| CB202B | 2.3 (Nm) | 3/32 | 5/32 | - | 5/32 | - |
| CB203D | 5.3 (Nm) | 1/8 | 1/4 | - | 7/32 | - |
| CB204E | 12.4 (Nm) | 5/32 | 1/4 | - | 7/32 | - |
| CB206F | 12.4 (Nm) | 5/32 | 5/16 | - | 1/4 | - |

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

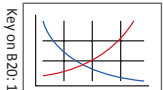
THREADING

X

SPECIALS

B20: 58 - 59

B20: 54 - 55



Setup Instructions | Standard Adjusting Boring Heads

Adjusting Standard Adjusting Boring Heads (see figure B1)

1. Loosen locking screw (6).
2. Turn dial screw (3) to desired graduation.
3. Tighten locking screw (6) to proper torque spec (laser marked on tool).

IMPORTANT: Do not loosen the gib screws (5). It can cause poor performance.

NOTE: To machine smaller bore diameters, turn dial screw (3) counterclockwise one full rotation to remove any backlash. Once backlash is mitigated, turn dial screw (3) clockwise to desired graduation.

| No. | Part |
|-----|----------------------------|
| 1 | Bar holder |
| 2 | Boring head body |
| 3 | Dial screw |
| 4 | Bar holder set screws |
| 5 | Gib screws (DO NOT ADJUST) |
| 6 | Locking screw |

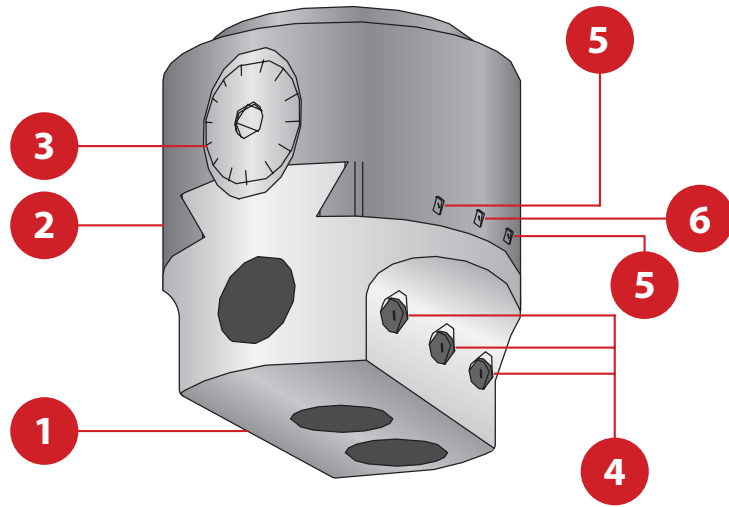
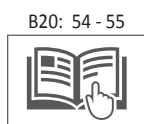
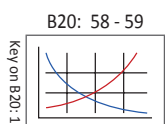


Figure B1



Setup Instructions | Micro Adjusting Boring Heads

Setting Up Micro Adjusting Boring Heads (see figure B2)

Set the microadjusting dial screw range

1. The microadjusting dial screws (4) only have a total range of 0.006" (0.152 mm) on diameter. To zero, turn dial (4) clockwise until dial screw bottoms out. Turn the dial (4) two complete turns counterclockwise. Turn dial (4) one half turn clockwise. Dial is now centered for 0.003" (0.076 mm) positive or negative travel.

Setting the diameter of the boring head

2. Loosen locking screw (6).
3. Turn dial screw (3) to adjust to the desired diameter using a presetter or plunge indicator or the dial screw (3).
4. Tighten the locking screw (6) to the proper torque spec (laser marked on the tool).
 - Microadjustments will be made at the machine.
5. Make a shallow test cut (roughly 0.250" deep) to determine the actual diameter.
6. Use the microadjusting dial (4) to adjust to the finish diameter. Do not release the locking screw (6) for microadjustments.
 - If the hole diameter is more than 0.002" from the target hole size return to step two.

IMPORTANT: Do not loosen the gib screws (5). It can cause poor performance.

NOTE: Backlash occurs when the diameter of the boring head needs to be decreased. To remove backlash, turn the dial (3) counterclockwise at least one half of a full rotation past the desired adjustment. Once backlash is mitigated, turn dial screw (3) clockwise to the desired adjustment.

| No. | Part |
|-----|----------------------------|
| 1 | Insert holder |
| 2 | Boring head body |
| 3 | Dial screw |
| 4 | Microadjusting dial screw |
| 5 | Gib screws (DO NOT ADJUST) |
| 6 | Locking screw |

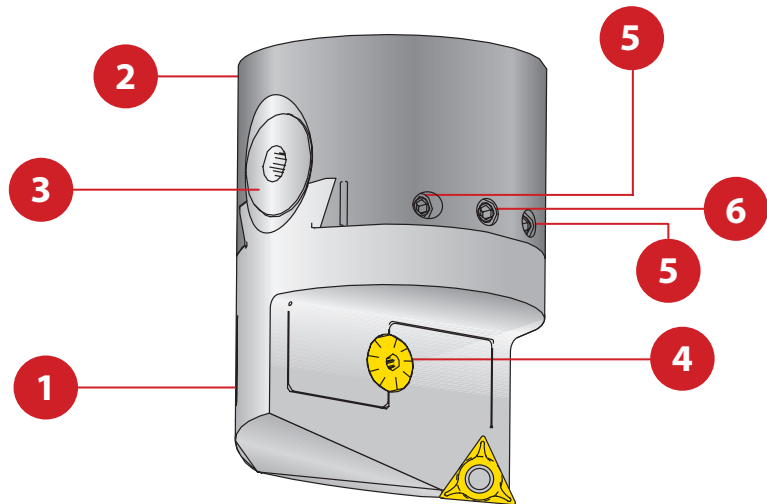
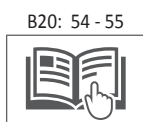
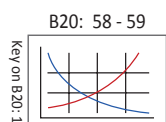
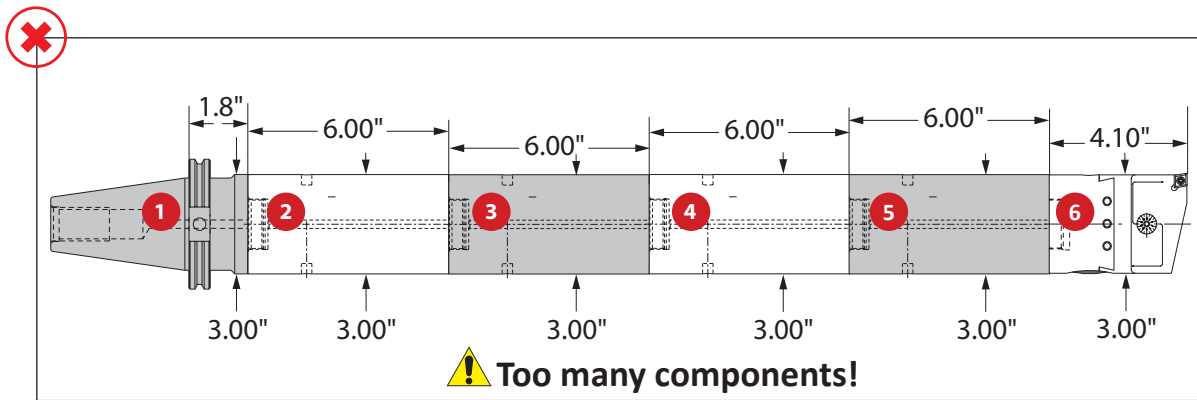


Figure B2



Guidelines for Not Exceeding Recommended Length-to-Diameter Ratio

To calculate, see graphics below:



*Length to diameter ratio is calculated using body diameters, not cutting diameter.

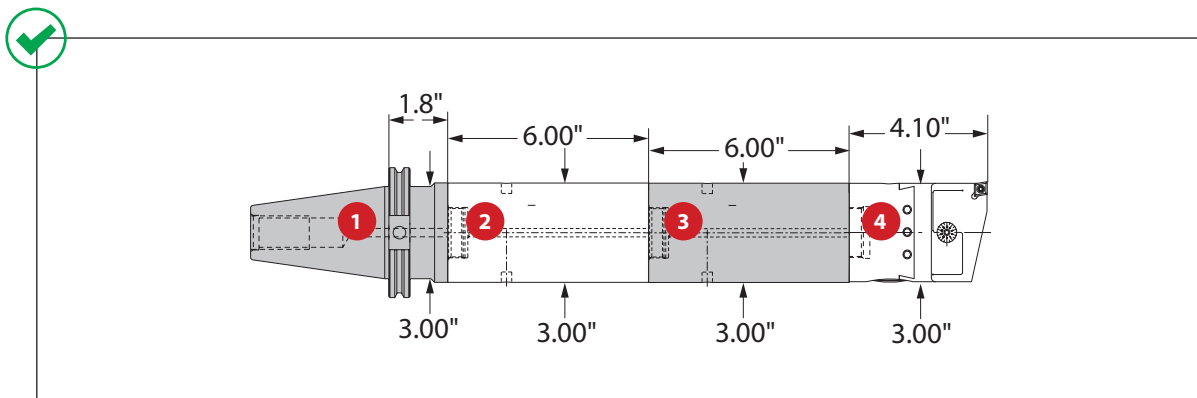
Step 1: Find L : D by component

- 1 $0.6 = 1.88/3.00$
- 2 $2.0 = 6.00/3.00$
- 3 $2.0 = 6.00/3.00$
- 4 $2.0 = 6.00/3.00$
- 5 $2.0 = 6.00/3.00$
- 6 $1.4 = 4.10/3.00$

Step 2: Add each L : D Average

| | |
|--|---------------------------|
| | 0.6 |
| | 2.0 |
| | 2.0 |
| | 2.0 |
| | 2.0 |
| | + 1.4 |
| | 10.0 = L : D ratio |

⚠ Too Long!



*Length-to-diameter ratio is calculated using body diameters, not cutting diameter.

Step 1: Find L : D by component

- 1 $0.6 = 1.88/3.00$
- 2 $2.0 = 6.00/3.00$
- 3 $2.0 = 6.00/3.00$
- 4 $1.4 = 4.10/3.00$

Step 2: Add each L : D Average

| | |
|--|--------------------------|
| | 0.6 |
| | 2.0 |
| | 2.0 |
| | + 1.4 |
| | 6.0 = L : D ratio |

✓

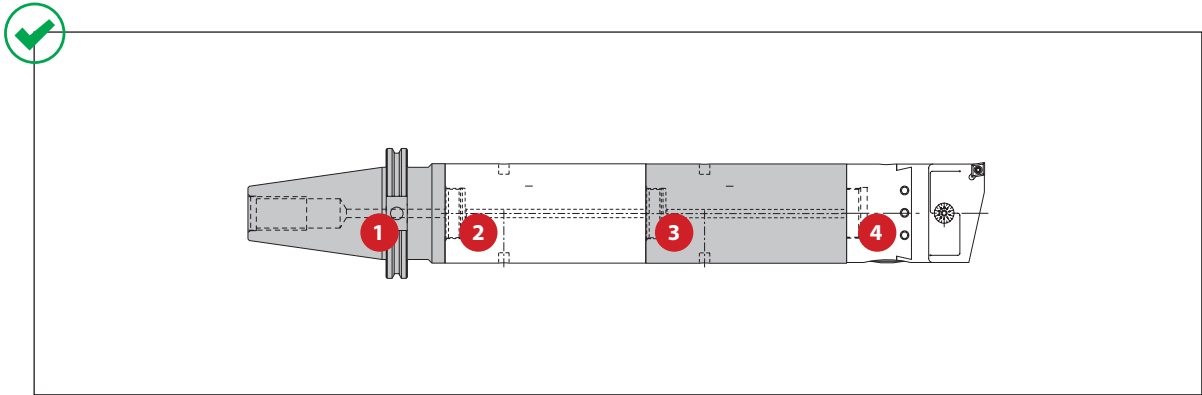
⚠ WARNING Tool failure can cause serious injury. To prevent:

- Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Calculating Tool Assembly Weight

To calculate, see graphics below:



Step 1: Find weight for each component

Example:

| Boring Range | D_1 | Thread Connection | 4 Boring Head | | Weight | Insert Form | Order Number |
|--------------|----------------|-------------------|---------------|-------|------------|-------------|--------------|
| | | | L_1 | D_2 | | | |
| i | 1.050 - 1.320 | ¾ - 20 | 2.690 | 1.000 | 0.50 (lbs) | CC..215... | CB1000CC |
| | 1.050 - 1.320 | ¾ - 20 | 2.690 | 1.000 | 0.50 (lbs) | TC..215... | CB1000TC |
| | 1.300 - 1.600 | ¾ - 20 | 2.900 | 1.250 | 0.80 (lbs) | CC..215... | CB1250CC |
| | 1.300 - 1.600 | ¾ - 20 | 2.900 | 1.250 | 0.80 (lbs) | TC..215... | CB1250TC |
| | 1.585 - 2.700 | ¾ - 20 | 3.200 | 1.500 | 1.30 (lbs) | CC..325... | CB1500CC |
| | 1.585 - 2.700 | ¾ - 20 | 3.200 | 1.500 | 1.30 (lbs) | TC..325... | CB1500TC |
| | 2.060 - 3.320 | ¾ - 20 | 3.590 | 2.000 | 2.40 (lbs) | CC..325... | CB2000CC |
| | 2.060 - 3.320 | ¾ - 20 | 3.590 | 2.000 | 2.40 (lbs) | TC..325... | CB2000TC |
| | 3.065 - 5.065 | 1½ - 18 | 4.100 | 3.000 | 5.80 (lbs) | CC..325... | CB3000CC |
| | 3.065 - 5.065 | 1½ - 18 | 4.100 | 3.000 | 5.80 (lbs) | TC..325... | CB3000TC |
| m | 27.00 - 33.00 | ¾ - 20 | 68.35 | 25 | 0.23 (kg) | CC..0602... | CB025MCC |
| | 27.00 - 33.00 | ¾ - 20 | 68.35 | 25 | 0.23 (kg) | TC..1102... | CB025MTC |
| | 33.00 - 41.00 | ¾ - 20 | 73.65 | 32 | 0.36 (kg) | CC..0602... | CB032MCC |
| | 33.00 - 41.00 | ¾ - 20 | 73.65 | 32 | 0.36 (kg) | TC..1102... | CB032MTC |
| | 41.00 - 68.00 | ¾ - 20 | 81.25 | 38 | 0.59 (kg) | CC..09T3... | CB038MCC |
| | 41.00 - 68.00 | ¾ - 20 | 81.25 | 38 | 0.59 (kg) | TC..16T3... | CB038MTC |
| | 53.00 - 84.00 | ¾ - 20 | 91.30 | 50 | 1.09 (kg) | CC..09T3... | CB050MCC |
| | 53.00 - 84.00 | ¾ - 20 | 91.30 | 50 | 1.09 (kg) | TC..16T3... | CB050MTC |
| | 78.00 - 128.00 | 1½ - 18 | 104.25 | 76 | 2.36 (kg) | CC..09T3... | CB076MCC |
| | 78.00 - 128.00 | 1½ - 18 | 104.25 | 76 | 2.36 (kg) | TC..16T3... | CB076MTC |

Imperial (in) = 0.00005" adjustment on diameter
 Metric (mm) = 0.001 mm adjustment on diameter

Step 2: Calculate total assembly weight

$$\begin{array}{r}
 1 \quad 8.03 \text{ lbs} \\
 2 \quad 11.50 \text{ lbs} \\
 3 \quad 11.50 \text{ lbs} \\
 + 4 \quad 5.80 \text{ lbs} \\
 \hline
 36.83 \text{ lbs}
 \end{array}$$

Step 3: Consult machine tool builder to ensure tool assembly weight does not exceed machine capabilities.

⚠ WARNING Exceeding weight capacity for machine tool spindle and tool changer can cause machine damage and/or serious injury. To prevent:
 - Consult machine tool builder for machine's weight limitations.
 Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Recommended Cutting Data | Imperial (inch)

| ISO | Material | (BHN) Hardness | Grade | *Speed SFM | Recommended Feed (inch / tooth) | | | |
|-----|--|----------------|---------|---------------|---------------------------------|---------------|---------------|---------------|
| | | | | | Nose Radius | | | |
| | | | | | 0.004" | 0.008" | 0.016" | 0.031" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 250 | Carbide | 525 - 975 | 0.001 - 0.003 | 0.002 - 0.005 | 0.004 - 0.006 | 0.006 - 0.009 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 275 | Carbide | 475 - 925 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.005 | 0.005 - 0.008 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 325 | Carbide | 475 - 825 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.005 | 0.005 - 0.008 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 375 | Carbide | 400 - 700 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.005 | 0.005 - 0.008 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 400 | Carbide | 325 - 600 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.005 | 0.005 - 0.008 |
| | Structural Steel A36, A285, A516, etc. | 100 - 350 | Carbide | 475 - 925 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.005 | 0.005 - 0.008 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | Carbide | 325 - 600 | 0.001 - 0.002 | 0.002 - 0.003 | 0.003 - 0.004 | 0.004 - 0.006 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | Carbide | 100 - 225 | 0.001 - 0.002 | 0.002 - 0.003 | 0.003 - 0.005 | 0.004 - 0.006 |
| | Titanium Alloy | 140 - 310 | Carbide | 125 - 300 | 0.001 - 0.002 | 0.002 - 0.003 | 0.003 - 0.005 | 0.004 - 0.006 |
| | Aerospace Alloy S82 | 185 - 350 | Carbide | 125 - 300 | 0.001 - 0.002 | 0.002 - 0.003 | 0.003 - 0.005 | 0.004 - 0.006 |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 350 | Carbide | 300 - 525 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.004 | 0.004 - 0.006 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | Carbide | 300 - 525 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.004 | 0.004 - 0.006 |
| | Super Duplex Stainless Steel | 135 - 275 | Carbide | 300 - 525 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.004 | 0.004 - 0.006 |
| H | Wear Plate | 400 - 600 | Carbide | 100 - 200 | 0.001 - 0.002 | 0.002 - 0.003 | 0.003 - 0.004 | 0.004 - 0.006 |
| | Hardened Steel | 300 - 500 | Carbide | 125 - 275 | 0.001 - 0.002 | 0.002 - 0.003 | 0.003 - 0.004 | 0.004 - 0.006 |
| K | SG / Nodular Cast Iron | 120 - 320 | Carbide | 475 - 850 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.005 | 0.005 - 0.008 |
| | Grey / White Iron | 180 - 320 | Carbide | 600 - 1000 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.005 | 0.005 - 0.008 |
| N | Cast Aluminum | 30 - 180 | Carbide | 850 - 1000 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.005 | 0.005 - 0.008 |
| | Wrought Aluminum | 30 - 180 | Carbide | 675 - 1000 | 0.001 - 0.003 | 0.002 - 0.005 | 0.004 - 0.006 | 0.006 - 0.009 |
| | Aluminum Bronze | 100 - 250 | Carbide | 475 - 925 | 0.001 - 0.002 | 0.002 - 0.004 | 0.004 - 0.005 | 0.005 - 0.008 |
| | Brass | 100 | Carbide | 675 - 1000 | 0.001 - 0.002 | 0.002 - 0.004 | 0.003 - 0.005 | 0.005 - 0.008 |
| | Copper | 60 | Carbide | 325 - 600 | 0.001 - 0.002 | 0.002 - 0.003 | 0.003 - 0.004 | 0.004 - 0.005 |

*Not to exceed max recommended RPM for boring head

Deep Hole Boring Speed Adjustment

| ⚠ For Dynamic Boring Tool Length | | | |
|----------------------------------|------|------|------|
| Boring Type | 7xD | 8xD | 9xD |
| Finishing | 0.70 | 0.50 | 0.30 |

Recommended Speed Example

If the recommended speed for a finish boring assembly under 5xD is 400 SFM, then the speed for an 8xD finish boring assembly in the same application would be 200 SFM. (400 SFM x 0.50 = 200 SFM)

| | |
|---------------|---------------|
| 5xD = 400 SFM | 8xD = 200 SFM |
|---------------|---------------|

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

⚠ WARNING Tool failure can cause serious injury. To prevent:

- Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
- Refer to example on page B20: 56 for calculating length to diameter ratio

Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Recommended Cutting Data | Metric (mm)

| ISO | Material | (BHN) Hardness | Grade | *Speed M/min | Recommended Feed (mm / tooth) Nose Radius | | | |
|-----|--|-------------------|---------|-----------------|--|-------------|-------------|-------------|
| | | | | | 0.1 mm | 0.2 mm | 0.4 mm | 0.8 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 250 | Carbide | 160 - 300 | 0.02 - 0.07 | 0.05 - 0.13 | 0.10 - 0.15 | 0.15 - 0.23 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 275 | Carbide | 145 - 280 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.13 | 0.13 - 0.20 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 325 | Carbide | 145 - 250 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.13 | 0.13 - 0.20 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 375 | Carbide | 120 - 210 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.13 | 0.13 - 0.20 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 400 | Carbide | 100 - 180 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.13 | 0.13 - 0.20 |
| | Structural Steel A36, A285, A516, etc. | 100 - 350 | Carbide | 145 - 280 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.13 | 0.13 - 0.20 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 250 | Carbide | 100 - 180 | 0.02 - 0.05 | 0.05 - 0.07 | 0.07 - 0.10 | 0.10 - 0.15 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | Carbide | 30 - 70 | 0.02 - 0.05 | 0.05 - 0.07 | 0.07 - 0.13 | 0.10 - 0.15 |
| | Titanium Alloy | 140 - 310 | Carbide | 40 - 90 | 0.02 - 0.05 | 0.05 - 0.07 | 0.07 - 0.13 | 0.10 - 0.15 |
| | Aerospace Alloy S82 | 185 - 350 | Carbide | 40 - 90 | 0.02 - 0.05 | 0.05 - 0.07 | 0.07 - 0.13 | 0.10 - 0.15 |
| M | Stainless Steel 400 Series 416, 420, etc. | 185 - 350 | Carbide | 90 - 160 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.10 | 0.10 - 0.15 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | Carbide | 90 - 160 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.10 | 0.10 - 0.15 |
| | Super Duplex Stainless Steel | 135 - 275 | Carbide | 90 - 160 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.10 | 0.10 - 0.15 |
| H | Wear Plate | 400 - 600 | Carbide | 30 - 60 | 0.02 - 0.05 | 0.05 - 0.07 | 0.07 - 0.10 | 0.10 - 0.15 |
| | Hardened Steel | 300 - 500 | Carbide | 40 - 80 | 0.02 - 0.05 | 0.05 - 0.07 | 0.07 - 0.10 | 0.10 - 0.15 |
| K | SG / Nodular Cast Iron | 120 - 320 | Carbide | 145 - 260 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.13 | 0.13 - 0.20 |
| | Grey / White Iron | 180 - 320 | Carbide | 180 - 306 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.13 | 0.13 - 0.20 |
| N | Cast Aluminum | 30 - 180 | Carbide | 260 - 306 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.13 | 0.13 - 0.20 |
| | Wrought Aluminum | 30 - 180 | Carbide | 205 - 305 | 0.02 - 0.07 | 0.05 - 0.13 | 0.10 - 0.15 | 0.15 - 0.23 |
| | Aluminum Bronze | 100 - 250 | Carbide | 145 - 280 | 0.02 - 0.05 | 0.05 - 0.10 | 0.10 - 0.13 | 0.13 - 0.20 |
| | Brass | 100 | Carbide | 205 - 305 | 0.02 - 0.05 | 0.05 - 0.10 | 0.07 - 0.13 | 0.13 - 0.20 |
| | Copper | 60 | Carbide | 100 - 180 | 0.02 - 0.05 | 0.05 - 0.07 | 0.07 - 0.10 | 0.10 - 0.13 |

*Not to exceed max recommended RPM for boring head

Deep Hole Boring Speed Adjustment

| ▲ For Dynamic Boring Tool Length | | | |
|----------------------------------|------|------|------|
| Boring Type | 7xD | 8xD | 9xD |
| Finishing | 0.70 | 0.50 | 0.30 |

Recommended Speed Example

| | |
|---|-----------------|
| If the recommended speed for a finish boring assembly under 5xD is 260 M/min, then the speed for an 8xD finish boring assembly in the same application would be 260 M/min. (260 M/min x 0.50 = 130 M/min) | |
| 5xD = 260 M/min | 8xD = 130 M/min |

IMPORTANT: Max spindle speed refers to maximum possible speed for individual boring head and is not a recommended parameter. Refer to page B20: 58 for recommended application specific parameters. Factory technical assistance is available for your specific applications through our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

⚠ WARNING Tool failure can cause serious injury. To prevent:
 - Do not exceed recommended 9xD length-to-diameter ratio or exceed 4 total components (including shank)
 - Refer to example on page B20: 56 for calculating length to diameter ratio
 Factory technical assistance is available for your specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



S.C.A.M.I.®

ROLLER BURNISHING

When your mirror finish still isn't shiny enough, follow your Criterion® boring tool with a S.C.A.M.I. roller burnisher. Contact your local Allied Machine & Engineering representative for more details.



SECTION

C

Reaming

ALVAN® Reamers

Replaceable Head Style | Monobloc Style | Cutting Ring Style



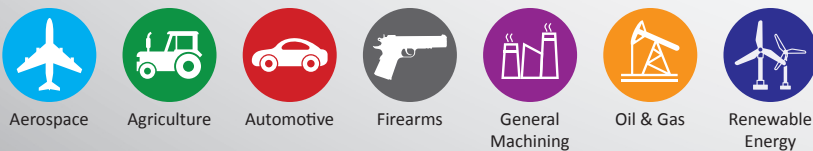
Every Option for Every Application

Allied Machine & Engineering is pleased to offer ALVAN® Reamers through an exclusive supply agreement with S.C.A.M.I. s.n.c., an Italian manufacturer that provides high-quality cutting tools.

In addition to producing close tolerances and dimensional accuracy of machined holes, these high performance reaming products provide lower costs per hole through high-penetration rates, making them the ideal choice for finishing holes in a production environment. It can also prove to be an alternative to finish boring by providing more consistent hole sizes and lower cycle times.

| | | |
|---------------------------|--|---|
| Excellent hole tolerances | Improves hole quality and surface finish | Expandable design accommodates for wear |
|---------------------------|--|---|

Applicable Industries



Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

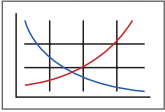
Visit www.alliedmachine.com for the most up-to-date information and procedures.

Reference Icons

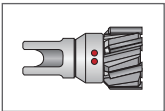
The following icons will appear throughout the catalog to help you navigate between products.



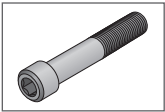
Setup / Assembly Information
Detailed instructions and information regarding the corresponding part(s)



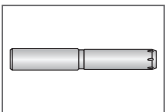
Recommended Cutting Data
Speed and feed recommendations for optimum and safe reaming



Replaceable Reamer Heads
Refers to the reamer head options that connect to the reamer mandrels



Replaceable Reamer Screws
Refers to the reamer head screw options that connect the head to the reamer mandrels



Replaceable Reamer Mandrels
Refers to the reamer mandrel options that connect with the head and screw



Cutting Rings
Refers to the available cutting ring options



Coolant-Through Option
Indicates that the product is coolant through



Allied Machine & Engineering offers ALVAN® Reamers through an exclusive supply agreement with S.C.A.M.I. s.n.c.

S.C.A.M.I. is an Italian manufacturer that has been producing high-quality cutting tools for over 40 years. In addition to producing close tolerances and dimensional accuracy of machined holes, this high-performance reaming product provides a lower cost per hole through its high penetration rates. This makes the ALVAN Reamer product line an ideal choice for finishing holes in a production environment. It can also prove to be an alternative to finish boring by providing more consistent hole sizes and lower cycle times.

For additional information about all Allied Machine products, visit www.alliedmachine.com. For technical assistance, contact our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

Introduction Information

Case Study Example 2
Reconditioning Service 3
Reaming Overview and Selection 4 - 7
Lead-ins, Coatings, Materials, and Dimples 8 - 9

Replaceable Head Reamers

Product Overview 10
Product Nomenclature 11
 Heads 12 - 13
 Screws 14 - 15
 Mandrels 16 - 19

Monobloc Reamers

Product Overview 20
Product Nomenclature 21
Monobloc Reamers 22 - 27

Ring Style Reamers

Product Overview 28
Product Nomenclature 29
 Cutting Rings 30 - 31
 Mandrels 32 - 51

Shanks

Radial Adjusting Shanks 52 - 57
Radial Adjusting Adapters 58 - 59

Recommended Cutting Data

| | | |
|--------------------|---|--|
| Imperial (inch) | [| Replaceable Head Style 60 - 61 |
| | | Monobloc Style 62 - 63 |
| | | Cutting Ring Style 64 - 65 |
| Metric (mm) | [| Replaceable Head Style 66 - 67 |
| | | Monobloc Style 68 - 69 |
| | | Cutting Ring Style 70 - 71 |

Technical Information

Setup: Replaceable Head Style 72
Setup: Monobloc Style 73
Setup: Cutting Ring Style 74
Diameter Measurement 75
TIR Measurement and Adjustment 76 - 77
Troubleshooting Guide 78

Case Study Example

A DRILLING
B BORING
C REAMING
D BURISHING
E THREADING
X SPECIALS

CASE STUDY



The **PROOF** is in the **NUMBERS**

Project Profile: Grey Cast Iron Hydraulic Transmission Component
Tooling Solution: ALVAN® Reamer - Monobloc Style

The Problem:

Previously, the customer was using a competitor boring tool running at the following parameters:

- 3802 RPM
- 500 SFM
- 0.003 IPR
- 11.41 IPM

With 2 passes, the tool made a 0.5023" diameter hole to a 1.20" depth.

- Cycle time = 12.6 seconds
- Tool life = 75 parts

Seeking to streamline the production process, the customer needed to increase tool life and lower the cost of production.

The Solution:

Allied Machine recommended the ALVAN® monobloc style reamer.

- **Reamer** = 92440 series carbide, uncoated, V lead

The tool ran at the following parameters:

- 2200 RPM
- 289 SFM
- 0.019 IPR
- 41.80 IPM

The tool achieved the desired diameter and depth, and the results achieved the customer's goals.

- Cycle time = 1.7 seconds
- Tool life = 3,176 parts

The Advantages:

The customer was able to lower the cost of production and increase the tool life.

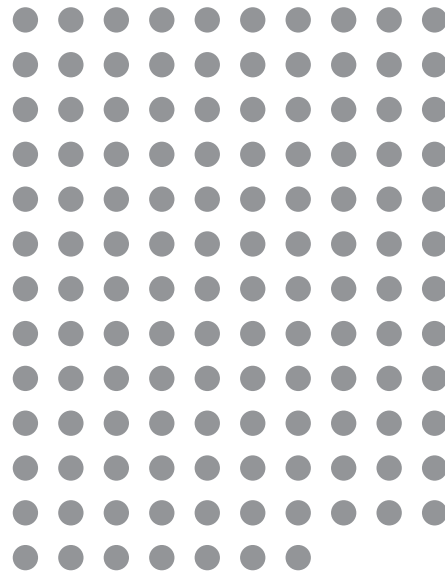
- Reduced cycle time *from 12.6 seconds to 1.7 seconds*
- Increased tool life *from 75 parts to an incredible 3,176 parts*
- Total cost savings = **\$2,407 (or 52%)**



Tool Life: Competitor Boring
(number of parts = 75)



Tool Life: ALVAN® Monobloc Style Reamer
(number of parts = 3,176)

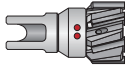




Overall **SAVINGS** of **52%**



Reconditioning Service

All ALVAN Reamers can be reconditioned to help reduce your overall tooling costs. This service is provided through Allied Machine & Engineering by utilizing the expertise of S.C.A.M.I. We will process the tools with a 25-35 work day lead time, depending on the style, the date we receive the tools, and the purchase order.

| Reamer Style | Lead Time (work days) | Part No. | Reconditioned Part No. |
|--|-----------------------|-----------------|-------------------------|
|  Replaceable Head | 25 | I7405-SVG-10000 | RI7405SVG10000 |
|  Monobloc | 35 | AL3620I04853 | AL3620I04853 RP1 |
|  Cutting Ring | 35 | AL2TIAI05820 | AL2TIAI05820 RP1 |



Parts to be Reconditioned
(packaged safely)



Purchase Order



Allied Machine & Engineering
Attn: Regrind Department
120 Deeds Drive
Dover, OH 44622
United States

Reaming Overview

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

REAMER STYLES



Replaceable Head
Pages C: 10 - 19

- Diameter range: 11.80 mm - 60.60 mm
- Heads are available as fixed or expanding for improved productivity
- Straight, left-hand, or right-hand helical flutes provide solutions for both through and blind holes
- Cylindrical or modular shanks improve concentricity



Monobloc
Pages C: 20 - 29

- Diameter range: 5.80 mm - 32.10 mm
- Available with central or radial through coolant
- Can be used for through or blind holes
- Cylindrical shanks improve concentricity
- Expandable to accommodate for wear



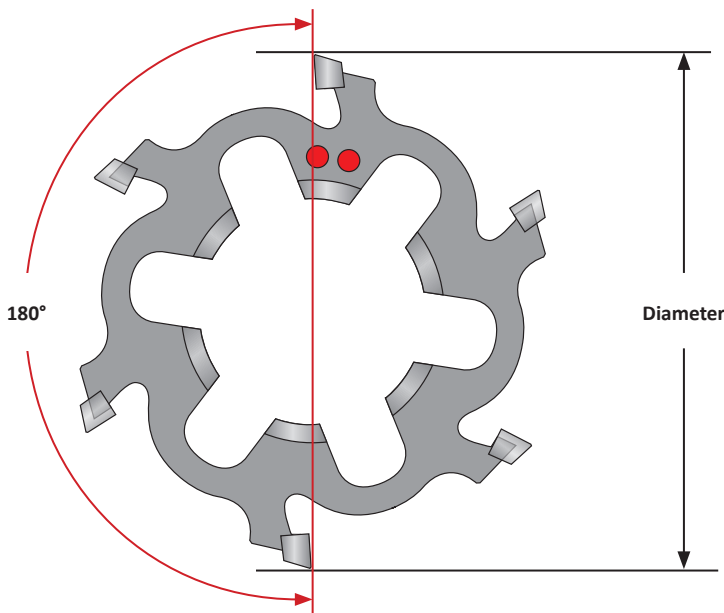
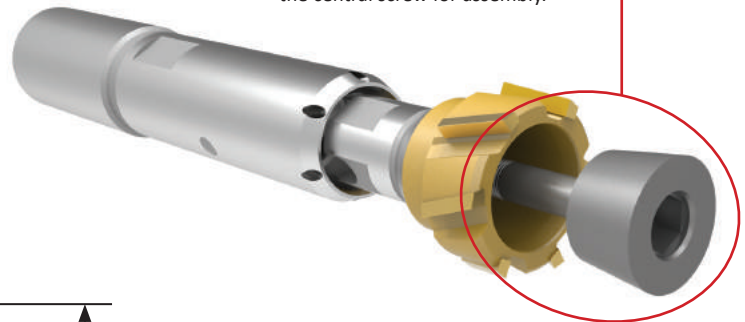
Cutting Ring
Pages C: 30 - 53

- Diameter range: 17.60 mm - 200.60 mm
- The cutting edges are positioned asymmetrically to assure the best roundness of the hole
- Holes with tight tolerances can be accommodated, and the expansion ensures a perfect holding of the reaming diameter

General Reaming Notes

- If the depth is over 9xD, use a short length reamer to pilot the hole. Then finish with the longer length ⚠.
- For blind hole applications, always use central coolant. If in doubt, contact Allied's Application Engineering department.
- More stock allowance can be taken in softer materials. Less stock allowance should be taken in harder materials.
- A common practice to rapid out of the cut on through holes and to breakout only 2mm past the reaming depth.

IMPORTANT: Always use Molykote® (anti-seize applicant) on the conical seat and the threads on the central screw for assembly.



NOTE: The position of the dimples indicates which two cutting teeth are 180° opposed. Diameter measurements should be taken from these two cutting teeth.

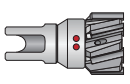
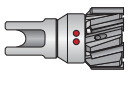

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a shorter reamer to establish the initial hole diameter that is a minimum of 2 diameters deep.
- Do not rotate reamers more than 50 RPM unless it is engaged with the workpiece or fixture.

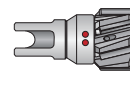
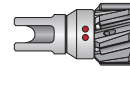


Factory technical assistance is available for your specific applications through our Application Engineering Team. ext: 7611 | email: appeng@alliedmachine.com

Quick Selection Guide

Breakdown by Diameter

| Reamer Style | 0.2283" 5.79 mm | 0.4656" 11.80 mm | 0.6929" 17.60 mm | 1.1024" 28.00 mm | 1.2638" 32.10 mm | 1.7717" 45.00 mm | 2.3858" 60.60 mm | 3.7402" 95.00 mm | 5.1181" 130.00 mm | 6.4961" 165.00 mm | 7.8975" 200.60 mm |
|---|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
|  Replaceable Head (Fixed) | | [Red bar] | | | | | | | | | |
|  Replaceable Head (Expandable) | | [Red bar] | | | | | | | | | |
|  Monobloc | [Red bar] | | | | | | | | | | |
|  Cutting Ring | | [Red bar] | | | | | | | | | |

Breakdown by Features

| Reamer Style | Capable Tolerance | Fastest Setup | Replaceable Cutting Head | Expandable to Adjust for Wear | Recondition Available | Cylindrical Shanks | Modular Shanks | Through-Coolant Options |
|---|-------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
|  Replaceable Head (fixed) | H7 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
|  Replaceable Head (expandable) | H6 | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
|  Monobloc | H6 | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> |
|  Cutting Ring | H6 | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

For more details on how to select a reamer, see the following pages.

How the Reamer Works

How the Reamer Works

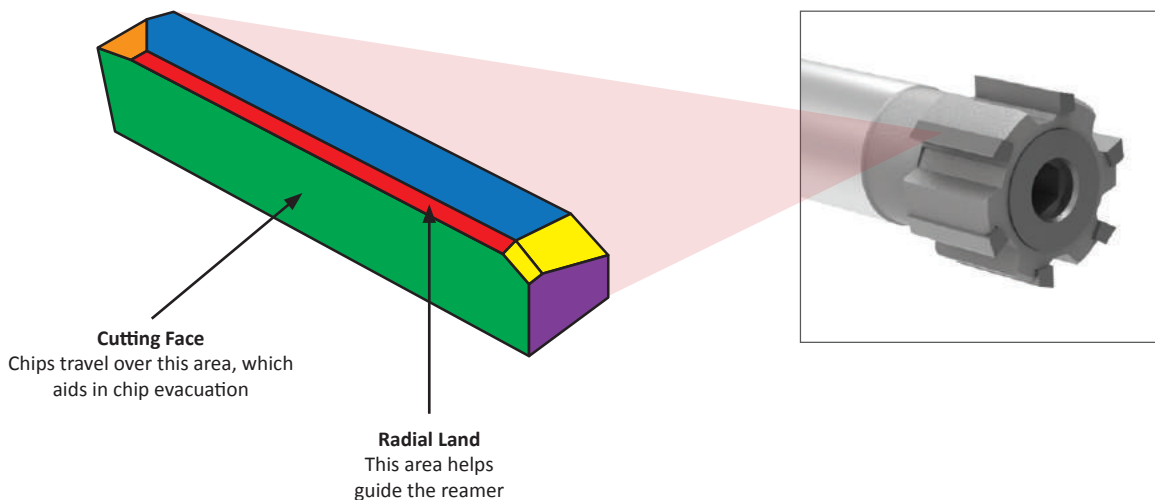
- The cut is made in the lead-in zone (3), and the chip is made on the cutting face (1). The chip is removed by coolant.
- The lead-in (3) is defined depending on the application, the workpiece material, and the stock allowance.
- The radial land (2) is important for holding a good alignment, improving the surface roughness, and giving an effect similar to burnishing. The dimension of the radial land depends on the diameter.
- The radial land (2) is manufactured to be tapered on the rear.
- Fixed reamers are manufactured at the exact tapered value. Expandable reamers must be adjusted to the exact diameter. Both are already supplied at the nominal diameter by the manufacturer.
- The undercut of the cutting edge (5) avoids retract marks on the piece when the reamer is retracted from the cut.
- The front of the cutting edge (6) does not cut; if this feature is needed, a frontal lead must be supplied.

When to Apply a Reamer

- When the requested tolerance on diameter is IT8 or less
- When the requested finish is 63 µin (1.6 µmm) Ra or greater
- When the critical geometry characteristics of the hole are the roundness and straightness
- When parts are being mass produced
- When the parts are large and expensive

Elements of the Cutting Tooth

- (1) Cutting Face
- (2) Radial Land
- (3) Lead-in / Primary Face / Secondary Face
- (4) Rear Face
- (5) Undercut of Cutting Edge
- (6) Front of Cutting Edge



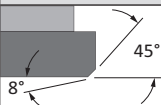

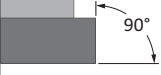



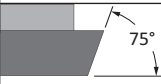

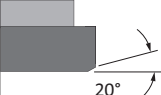



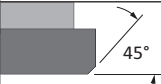

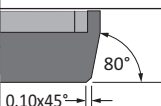

Reamer Recommendation Guide

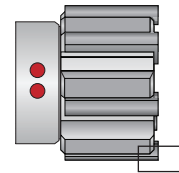
| ISO | Material | Hardness (BHN) | Through Hole | | | | Blind Hole | | | |
|------------|--|----------------|---------------|---------------------------|---------------|---------------------------|---------------|---------------------------|---------------|---------------------------|
| | | | Uninterrupted | | Interrupted | | Uninterrupted | | Interrupted | |
| | | | Lead | Substrate & Coating | Lead | Substrate & Coating | Lead | Substrate & Coating | Lead | Substrate & Coating |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | Below 150 | N or E | Cermet Uncoated | E | Cermet Uncoated | K | Cermet Uncoated | V | Cermet Uncoated |
| | | 150 Above | | | | | | | | |
| | Low-Carbon Steel 1010, 1020, 1522, 1144, etc. | Below 250 | N or E | Cermet Uncoated | E | Cermet Uncoated | K | Cermet Uncoated | V | Cermet Uncoated |
| | Medium-Carbon Steel 1030, 1040, 1050, 1140, 1151, etc. | Below 300 | N or E | Cermet Uncoated | E | Cermet Uncoated | K* | Cermet Uncoated | V | Cermet Uncoated |
| | Alloy Steel 4140, 5140, 8640, etc. | Below 350 | G or M* | Cermet Uncoated | M* | Cermet Uncoated | K* | Cermet Uncoated | G* | Cermet Uncoated |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | G or M* | Carbide Alcrona | M* | Carbide Alcrona | K* | Carbide Alcrona | G* | Carbide Alcrona |
| | Structural Steel | – | E | Cermet | M | Carbide TiAlN | K | Cermet | G | Carbide TiAlN |
| Tool Steel | – | M* | Carbide TiAlN | M* | Carbide TiAlN | K* | Carbide TiAlN | G* | Carbide TiAlN | |
| S | High-Temp Alloy | – | G* | Carbide TiAlN | G* | Carbide TiAlN | K* | Carbide TiAlN | G* | Carbide TiAlN |
| | Titanium Alloys | – | T | Carbide TiAlN | T | Carbide TiAlN | T | Carbide TiAlN | T | Carbide TiAlN |
| M | Austenitic Stainless Steel 304, 316, etc. | – | E | Carbide Alcrona | E | Carbide Alcrona | K | Carbide Alcrona | G* | Carbide Alcrona |
| | Ferritic Martensitic Stainless Steel 416, 420, 17-4PH, 15-5PH, etc. | – | N or E | Cermet or Carbide Alcrona | E | Cermet or Carbide Alcrona | K | Cermet or Carbide Alcrona | G | Cermet or Carbide Alcrona |
| K | Ductile Cast Iron Spheroidal - GS500 | Below 130 | V | Carbide Alcrona | V | Carbide Alcrona | K | Carbide Alcrona | V | Carbide Alcrona |
| | | 130 Above | | Cermet Alcrona | | Cermet Alcrona | | Cermet Alcrona | | |
| | Grey Cast Iron GC15 - GC20 - GC25 - GC35 | – | V | Carbide TiAlN | V | Carbide TiAlN | K | Carbide TiAlN | V | Carbide TiAlN |
| N | Bronze Brass Copper | Below 300 | E | Carbide Uncoated | E | Carbide Uncoated | K | Carbide Uncoated | G | Carbide Uncoated |
| | Aluminum | Below 7% Si | V | Carbide Uncoated | V | Carbide Uncoated | V | Carbide Uncoated | G | Carbide Uncoated |
| | | Above 7% Si | G | PCD Uncoated | G | PCD Uncoated | G | PCD Uncoated | | PCD Uncoated |

*Contact our Application Engineering department for special geometries to improve tool life.

Lead-in Angle Information

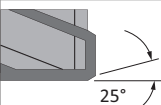

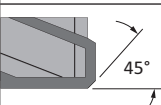

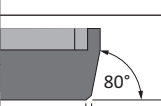

Straight Flute

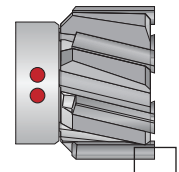
| Lead-in | Angles | Chip Evacuation | Description |
|----------|--|---|--|
| A |  |  | Lead-in can be used to improve finish. |
| F |  |  | Can be used for stock removal at the bottom of the hole. Reduce the feed by 40% of the values on the recommended cutting data pages. |
| G |  |  | Standard and suitable for most materials. |
| L |  |  | May provide improved straightness. Reduce the feed by 40% of the values on the recommended cutting data pages. |
| N |  |  | Ideal for through holes. It is possible to increase the feed up to 100% of the values on the recommended cutting data pages. |
| T |  |  | Suitable for titanium based alloys. |
| V |  |  | Suitable for most materials and increases tool life |
| K |  |  | Excellent at breaking small chips that are easy to evacuate in blind hole applications. Requires 50% increased feed rate, which will result in reduced tool life when compared to other leads. |



Straight

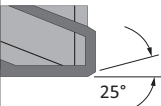

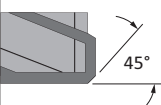

Helical Flute (Right-Hand) - Blind Hole Applications Only

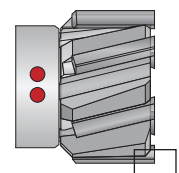
| Lead-in | Angles | Chip Evacuation | Description |
|----------|---|---|--|
| E |  |  | Standard and suitable for most materials. |
| M |  |  | May provide better penetration rates in steels over 200 BHN. |
| K |  |  | Excellent at breaking small chips that are easy to evacuate in blind hole applications. Requires 50% increased feed rate, which will result in reduced tool life when compared to other leads. |



Helical

Helical Flute (Left-Hand) - Through Hole Applications Only

| Lead-in | Angles | Chip Evacuation | Description |
|----------|---|---|--|
| E |  |  | Standard and suitable for most materials. NOTE: Through hole applications only. |
| M |  |  | May provide better penetration rates in steels over 200 BHN. NOTE: Through hole applications only. |



Helical

A DRILLING

B BORING

C REAMING

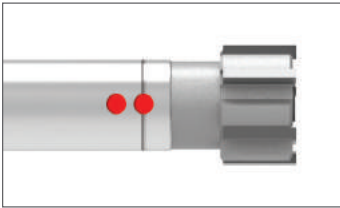
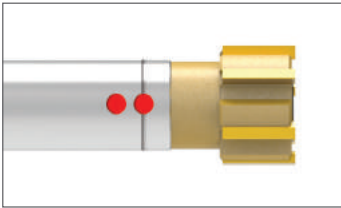
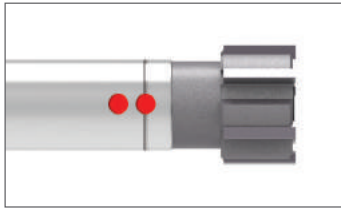
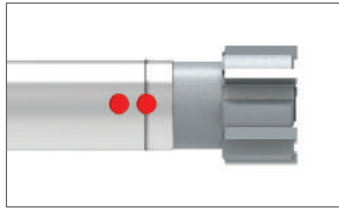
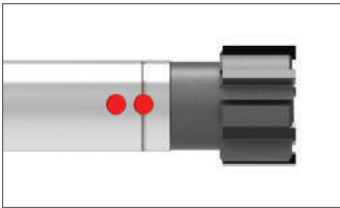
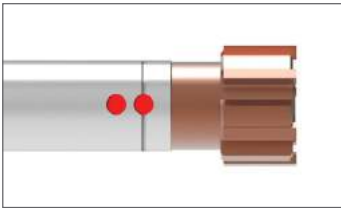
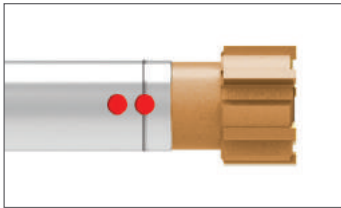
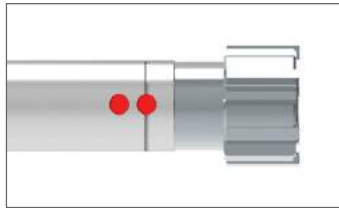
D BURNISHING

E THREADING

X SPECIALS

Coatings, Cutting Materials, and Dimple Indicators







Coating Information

| | | | |
|---|---|--|---|
|  |  |  |  |
| Uncoated Ideal for nonferrous applications | TiN (N) Ideal for general purpose applications | TiAlN (A) Provides higher heat resistance to improve tool life | TiCN (C) Provides improved surface finish |
|  |  |  |  |
| Alcrona (K) Provides excellent wear resistance and can help increase cutting speeds | Hardcut (H) Ideal for cast iron and hardened steel applications | R Coating (R) Improved tool life in cast iron materials | T Coating (T) Optimized tool life in Titanium and very hard materials |

Cutting Material Information

| Material | Indicator | Details |
|----------|-----------|---|
| Carbide | K | A fine-grain carbide suitable for all conventional reaming applications. Recommended where rigidity is not excellent and speeds must be reduced. |
| Cermet | S | Cermet provides high wear resistance and is recommended for abrasive and increased speed applications. Not recommended for poor rigidity or interrupted cuts. |

Dimple Indicators

| Material | Indicator | Replaceable Head Style | Monobloc Style | Cutting Ring Style |
|----------|-----------------------|---|--|---|
| Carbide | Two Dimples |  |  |  |
| Cermet | Two Dimples with Line |  |  |  |

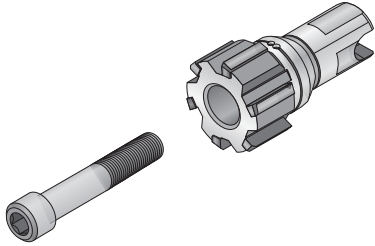
NOTE: The dimple location also indicates which 2 cutting teeth are 180° opposed

Replaceable Head Reamers

Product Overview

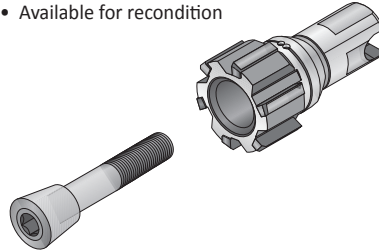
Fixed Heads

- Nonexpanding diameter
- Locking screw is straight (no taper)
- Allows for on-machine replacement
- Capable of H7 tolerance on diameter
- Available in straight, left-hand, and right-hand helical flutes
- Available for recondition



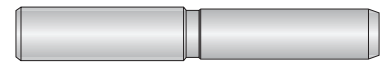
Expandable Heads

- Expandable diameter (1% of nominal diameter) to accommodate for wear
- Conical locking screw
- Requires setup for diameter
- Capable of tight diameter tolerance ($\pm 0.0002''$ (0.005 mm))
- Available in straight, left-hand, and right-hand helical flutes
- Available for recondition



Mandrels

- Available in short, standard, and long lengths
- Reamer head design allows multiple diameters to be used within the same mandrel, **which reduces inventory requirements**
- The same mandrel can use both fixed and expandable heads
- Coolant options are offered for both through and blind hole scenarios



Uncoated



TiN Coated



TiAlN Coated



TiCN Coated



Alcrona Coated



Hardcut Coated



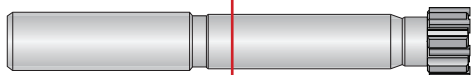
R Coated



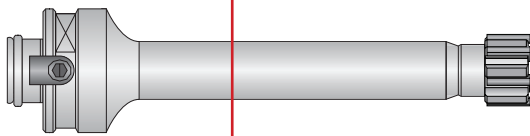
T Coated

Mandrel Shanks Available:

- Cylindrical
- Modular Connection



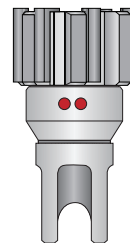
Short Length



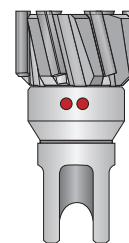
Standard Length



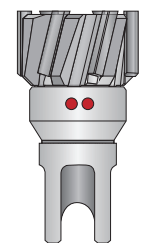
Long Length



Straight Flute



Left-Hand Helical Flute



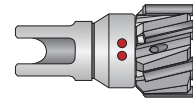
Right-Hand Helical Flute

| Type of Head | Coated/Uncoated | Lead Time in Work Days (based on number of pieces) | | |
|--------------|-----------------|--|--------|-----|
| | | Up to 5 | 6 - 19 | 20+ |
| Fixed | Coated | 20 | 25 | 25 |
| | Uncoated | 15 | 20 | 20 |
| Expandable | Coated | 20 | 25 | 30 |
| | Uncoated | 15 | 20 | 25 |

Product Nomenclature

Replaceable Head Style Reamer Heads

| | | | | | | | | |
|----------|-----------|-----------|---|----------|----------|----------|---|--------------|
| I | 77 | 00 | - | K | N | G | - | 18000 |
| 1 | 2 | 3 | | 4 | 5 | 6 | | 7 |

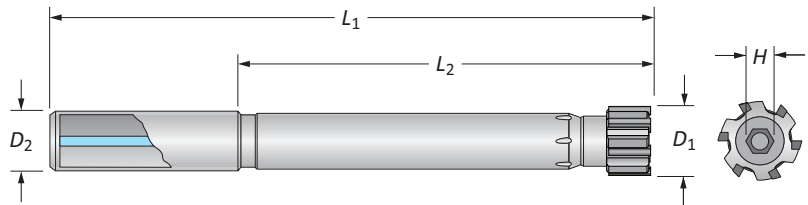


NOTE: For reconditions, put an "R" at the beginning of the item number

| 1. Diameter Unit of Measure | 2. Flute Style | 3. Head Style | 4. Substrate | 5. Coating |
|---|---|---|---|--|
| Blank = Metric diameter (mm) I = Imperial diameter (in) | 74 = Straight 76 = Right-hand helical 77 = Left-hand helical | 00 = Fixed head 05 = Expandable head | K = Carbide S = Cermet | L = Uncoated carbide V = Uncoated cermet N = TiN C = TiCN A = TiAlN K = Alcrona H = Hardcut R = R Coating T = T Coating |
| 6. Lead-in | 7. Diameter | | | |
| E, M = Right-hand and left-hand helical flute A, F, G, L, N, T, V = Straight flute K = Chipbreaker geometry for straight or right-hand helical flute | X.XXXX = Imperial (inch) XX.XXX = Metric (mm) | | | |

Reference Key

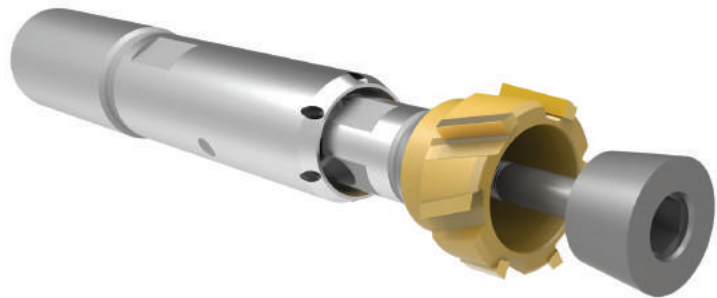
| Symbol | Attribute |
|--------|------------------------------|
| D_1 | Reamer head diameter |
| D_2 | Shank diameter |
| L_1 | Overall length |
| L_2 | Length of cut |
| H | Hex key (listed with screws) |



Building Your Complete Tool

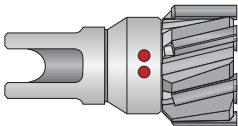
You will need all three pieces to complete your replaceable head reamer assembly. The item numbers for the screws and the mandrels are listed on their respective pages. However, there is a guide on the pages where the heads are located. You must follow the guide to build the item number for the reamer head that you need.

The complete mandrel item numbers are listed on their respective pages. You do not need to build the mandrel numbers.



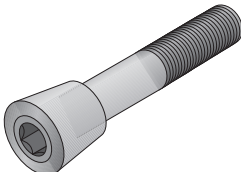
1

Select Your Head




2

Select Your Screw



3

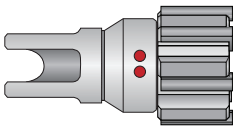
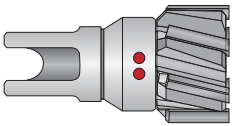
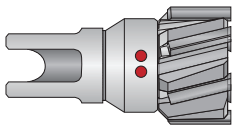

Select Your Mandrel



Replaceable Heads

Fixed

Build Your Part No.

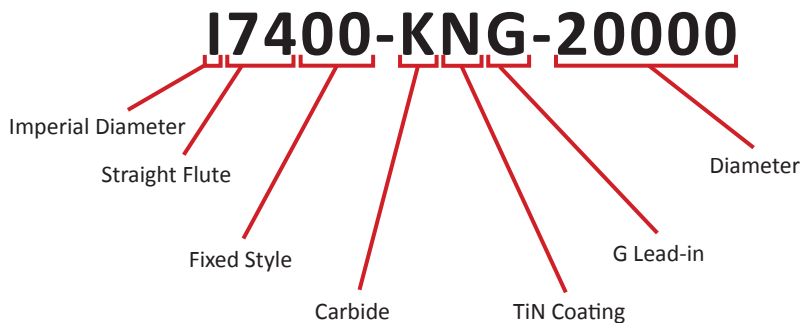
| 1 Series | 7400 Series | 7600 Series | 7700 Series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|--|---------------|----------|-------------|-----------|----------------------|---------------------|----------------------|---------------------|-----------------|--------------|-----------------|-------------|-----------------|--------------|-----------------|-------------|-----------------|--------------|-----------------|-------------|-----------------|--------------|-----------------|-------------|----|----|----|--|---|---|--|--|--|---|---|--|--|---|---|--|--|--|--|---|--|--|--|---|--|--|---|---|---|--|--|--|---|--|--|---|--|--|--|---|---|---|---|---|--|---|---|---|---|--|---|---|--|---|---|---|---|--|---|---|---|---|---|---|---|--|--|--|---|---|---|---|--|---|---|---|---|---|--|---|---|---|---|---|---|---|---|---|
| 2 Flute Style Your flute style is based on your series selection (above) | Straight Flute  | Helical Flute (Right-Hand)  | Helical Flute (Left-Hand)  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 Carbide Grade and Coating Codes These are the combinations of grades and coatings you can choose from |  <table border="1"> <thead> <tr> <th></th> <th>Uncoated</th> <th>TiN</th> <th>TiCN</th> <th>TiAlN</th> <th>Alcrona</th> <th>Hardcut</th> <th>R Coating</th> <th>T Coating</th> </tr> </thead> <tbody> <tr> <th>Carbide</th> <td>KL</td> <td>KN</td> <td>KC</td> <td>KA</td> <td>KK</td> <td>KH</td> <td>KR</td> <td>KT</td> </tr> <tr> <th>Cermet</th> <td>SV</td> <td>SN</td> <td>SC</td> <td>SA</td> <td>SK</td> <td>SH</td> <td>SR</td> <td>ST</td> </tr> </tbody> </table> | | | | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating | Carbide | KL | KN | KC | KA | KK | KH | KR | KT | Cermet | SV | SN | SC | SA | SK | SH | SR | ST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbide | KL | KN | KC | KA | KK | KH | KR | KT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cermet | SV | SN | SC | SA | SK | SH | SR | ST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 Lead-in Recommendations | <table border="1"> <thead> <tr> <th></th> <th>T</th> <th>F</th> <th>N</th> <th>G</th> <th>L</th> <th>A</th> <th>V</th> <th>K</th> </tr> </thead> <tbody> <tr> <th>P</th> <td></td> <td></td> <td>●</td> <td>●</td> <td></td> <td>○</td> <td>○</td> <td>○</td> </tr> <tr> <th>S</th> <td>●</td> <td></td> <td></td> <td>○</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>M</th> <td></td> <td></td> <td>○</td> <td>●</td> <td></td> <td></td> <td></td> <td>○</td> </tr> <tr> <th>H</th> <td></td> <td></td> <td>○</td> <td>●</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>K</th> <td></td> <td></td> <td></td> <td>○</td> <td></td> <td></td> <td>●</td> <td>○</td> </tr> <tr> <th>N</th> <td></td> <td></td> <td></td> <td>●</td> <td></td> <td></td> <td>○</td> <td></td> </tr> </tbody> </table> | | T | F | N | G | L | A | V | K | P | | | ● | ● | | ○ | ○ | ○ | S | ● | | | ○ | | | | | M | | | ○ | ● | | | | ○ | H | | | ○ | ● | | | | | K | | | | ○ | | | ● | ○ | N | | | | ● | | | ○ | | <table border="1"> <thead> <tr> <th></th> <th>E</th> <th>M</th> <th>K</th> </tr> </thead> <tbody> <tr> <th>P</th> <td>●</td> <td></td> <td>○</td> </tr> <tr> <th>S</th> <td>●</td> <td>○</td> <td></td> </tr> <tr> <th>M</th> <td>●</td> <td></td> <td>○</td> </tr> <tr> <th>H</th> <td>○</td> <td>●</td> <td></td> </tr> <tr> <th>K</th> <td>○</td> <td>●</td> <td>○</td> </tr> <tr> <th>N</th> <td>●</td> <td>○</td> <td></td> </tr> </tbody> </table> | | E | M | K | P | ● | | ○ | S | ● | ○ | | M | ● | | ○ | H | ○ | ● | | K | ○ | ● | ○ | N | ● | ○ | | <table border="1"> <thead> <tr> <th></th> <th>E</th> <th>M</th> </tr> </thead> <tbody> <tr> <th>P</th> <td>●</td> <td></td> </tr> <tr> <th>S</th> <td>●</td> <td>○</td> </tr> <tr> <th>M</th> <td>●</td> <td></td> </tr> <tr> <th>H</th> <td>○</td> <td>●</td> </tr> <tr> <th>K</th> <td>○</td> <td>●</td> </tr> <tr> <th>N</th> <td>●</td> <td>○</td> </tr> </tbody> </table> | | E | M | P | ● | | S | ● | ○ | M | ● | | H | ○ | ● | K | ○ | ● | N | ● | ○ |
| | T | F | N | G | L | A | V | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P | | | ● | ● | | ○ | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | ● | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | | | ○ | ● | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | | | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K | | | | ○ | | | ● | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | | | | ● | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | E | M | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P | ● | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | ● | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | ● | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K | ○ | ● | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | ● | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | E | M | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | ● | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K | ○ | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | ● | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 Diameter (H7 Tolerance) For the diameter portion of the item number, refer to the following tables: | <table border="1"> <thead> <tr> <th colspan="2">Imperial (in)</th> <th colspan="2">Metric (mm)</th> </tr> <tr> <th>D₁ Range</th> <th>Tolerance (min/max)</th> <th>D₁ Range</th> <th>Tolerance (min/max)</th> </tr> </thead> <tbody> <tr> <td>0.4656 - 0.7086</td> <td>+0 / +0.0007</td> <td>11.800 - 18.000</td> <td>+0 / +0.018</td> </tr> <tr> <td>0.7087 - 1.1811</td> <td>+0 / +0.0008</td> <td>18.001 - 30.000</td> <td>+0 / +0.021</td> </tr> <tr> <td>1.1812 - 1.9685</td> <td>+0 / +0.0010</td> <td>30.001 - 50.000</td> <td>+0 / +0.025</td> </tr> <tr> <td>1.9686 - 2.3858</td> <td>+0 / +0.0012</td> <td>50.001 - 60.600</td> <td>+0 / +0.030</td> </tr> </tbody> </table> | | | Imperial (in) | | Metric (mm) | | D ₁ Range | Tolerance (min/max) | D ₁ Range | Tolerance (min/max) | 0.4656 - 0.7086 | +0 / +0.0007 | 11.800 - 18.000 | +0 / +0.018 | 0.7087 - 1.1811 | +0 / +0.0008 | 18.001 - 30.000 | +0 / +0.021 | 1.1812 - 1.9685 | +0 / +0.0010 | 30.001 - 50.000 | +0 / +0.025 | 1.9686 - 2.3858 | +0 / +0.0012 | 50.001 - 60.600 | +0 / +0.030 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Imperial (in) | | Metric (mm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D ₁ Range | Tolerance (min/max) | D ₁ Range | Tolerance (min/max) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.4656 - 0.7086 | +0 / +0.0007 | 11.800 - 18.000 | +0 / +0.018 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.7087 - 1.1811 | +0 / +0.0008 | 18.001 - 30.000 | +0 / +0.021 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.1812 - 1.9685 | +0 / +0.0010 | 30.001 - 50.000 | +0 / +0.025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.9686 - 2.3858 | +0 / +0.0012 | 50.001 - 60.600 | +0 / +0.030 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

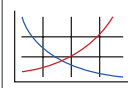
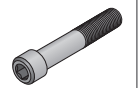

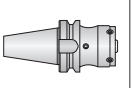

● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Straight fluted reamer head
- Fixed style
- Carbide
- TiN coating
- G lead-in
- 2.0000" diameter
- H7 tolerance +0/ +0.0012" for 2.0000" diameter



| | | | | |
|---|---|---|---|--|
| C: 60 - 71  | C: 14 - 15  | C: 16 - 19  | C: 52 - 57  | C: 72  |
|---|---|---|---|--|

Key on C: 1



Replaceable Heads

Expandable

Build Your Part No.

| 1 Series | 7405 Series | 7605 Series | 7705 Series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--------------------------------|-------------------------------|---------------|----------|-------------|-----------|----------------------|---------------------|----------------------|---------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----|----|----|----|----|----|----|--|---|---|--|--|--|---|---|--|--|---|---|--|--|--|--|---|--|--|--|---|--|--|---|---|---|--|--|--|---|--|--|---|--|--|--|---|---|---|---|---|--|---|---|---|---|--|---|---|--|---|---|---|---|--|---|---|---|---|---|---|---|--|--|--|---|---|---|---|--|---|---|---|---|---|--|---|---|---|---|---|---|---|---|---|
| 2 Flute Style Your flute style is based on your series selection (above) | Straight Flute | Helical Flute (Right-Hand) | Helical Flute (Left-Hand) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 Carbide Grade and Coating Codes These are the combinations of grades and coatings you can choose from | <table border="1"> <thead> <tr> <th></th> <th>Uncoated</th> <th>TiN</th> <th>TiCN</th> <th>TiAlN</th> <th>Alcrona</th> <th>Hardcut</th> <th>R Coating</th> <th>T Coating</th> </tr> </thead> <tbody> <tr> <th>Carbide</th> <td>KL</td> <td>KN</td> <td>KC</td> <td>KA</td> <td>KK</td> <td>KH</td> <td>KR</td> <td>KT</td> </tr> <tr> <th>Cermet</th> <td>SV</td> <td>SN</td> <td>SC</td> <td>SA</td> <td>SK</td> <td>SH</td> <td>SR</td> <td>ST</td> </tr> </tbody> </table> | | | | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating | Carbide | KL | KN | KC | KA | KK | KH | KR | KT | Cermet | SV | SN | SC | SA | SK | SH | SR | ST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbide | KL | KN | KC | KA | KK | KH | KR | KT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cermet | SV | SN | SC | SA | SK | SH | SR | ST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 Lead-in Recommendations | <table border="1"> <thead> <tr> <th></th> <th>T</th> <th>F</th> <th>N</th> <th>G</th> <th>L</th> <th>A</th> <th>V</th> <th>K</th> </tr> </thead> <tbody> <tr> <th>P</th> <td></td> <td></td> <td>●</td> <td>●</td> <td></td> <td>◐</td> <td>○</td> <td>◐</td> </tr> <tr> <th>S</th> <td>●</td> <td></td> <td></td> <td>◐</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>M</th> <td></td> <td></td> <td>◐</td> <td>●</td> <td></td> <td></td> <td></td> <td>◐</td> </tr> <tr> <th>H</th> <td></td> <td></td> <td>◐</td> <td>●</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>K</th> <td></td> <td></td> <td></td> <td>◐</td> <td></td> <td></td> <td>●</td> <td>◐</td> </tr> <tr> <th>N</th> <td></td> <td></td> <td></td> <td>●</td> <td></td> <td></td> <td>◐</td> <td></td> </tr> </tbody> </table> | | T | F | N | G | L | A | V | K | P | | | ● | ● | | ◐ | ○ | ◐ | S | ● | | | ◐ | | | | | M | | | ◐ | ● | | | | ◐ | H | | | ◐ | ● | | | | | K | | | | ◐ | | | ● | ◐ | N | | | | ● | | | ◐ | | <table border="1"> <thead> <tr> <th></th> <th>E</th> <th>M</th> <th>K</th> </tr> </thead> <tbody> <tr> <th>P</th> <td>●</td> <td></td> <td>◐</td> </tr> <tr> <th>S</th> <td>●</td> <td>◐</td> <td></td> </tr> <tr> <th>M</th> <td>●</td> <td></td> <td>◐</td> </tr> <tr> <th>H</th> <td>◐</td> <td>●</td> <td></td> </tr> <tr> <th>K</th> <td>◐</td> <td>●</td> <td>◐</td> </tr> <tr> <th>N</th> <td>●</td> <td>◐</td> <td></td> </tr> </tbody> </table> | | E | M | K | P | ● | | ◐ | S | ● | ◐ | | M | ● | | ◐ | H | ◐ | ● | | K | ◐ | ● | ◐ | N | ● | ◐ | | <table border="1"> <thead> <tr> <th></th> <th>E</th> <th>M</th> </tr> </thead> <tbody> <tr> <th>P</th> <td>●</td> <td></td> </tr> <tr> <th>S</th> <td>●</td> <td>◐</td> </tr> <tr> <th>M</th> <td>●</td> <td></td> </tr> <tr> <th>H</th> <td>◐</td> <td>●</td> </tr> <tr> <th>K</th> <td>◐</td> <td>●</td> </tr> <tr> <th>N</th> <td>●</td> <td>◐</td> </tr> </tbody> </table> | | E | M | P | ● | | S | ● | ◐ | M | ● | | H | ◐ | ● | K | ◐ | ● | N | ● | ◐ |
| | T | F | N | G | L | A | V | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P | | | ● | ● | | ◐ | ○ | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | ● | | | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | | | ◐ | ● | | | | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | | | ◐ | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K | | | | ◐ | | | ● | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | | | | ● | | | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | E | M | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P | ● | | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | ● | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | ● | | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | ◐ | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K | ◐ | ● | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | ● | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | E | M | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | ● | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | ◐ | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K | ◐ | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | ● | ◐ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 Diameter For the diameter portion of the item number, refer to the following tables: | <table border="1"> <thead> <tr> <th colspan="2">Imperial (in)</th> <th colspan="2">Metric (mm)</th> </tr> <tr> <th>D₁ Range</th> <th>Tolerance (min/max)</th> <th>D₁ Range</th> <th>Tolerance (min/max)</th> </tr> </thead> <tbody> <tr> <td>0.4656 - 0.7086</td> <td rowspan="5">-0.0002 / +0.0002</td> <td>11.800 - 18.000</td> <td rowspan="5">-0.005 / +0.005</td> </tr> <tr> <td>0.7087 - 1.1811</td> <td>18.001 - 30.000</td> </tr> <tr> <td>1.1812 - 1.5748</td> <td>30.001 - 40.000</td> </tr> <tr> <td>1.5749 - 1.9685</td> <td>40.001 - 50.000</td> </tr> <tr> <td>1.9686 - 2.3858</td> <td>50.001 - 60.600</td> </tr> </tbody> </table> | | | Imperial (in) | | Metric (mm) | | D ₁ Range | Tolerance (min/max) | D ₁ Range | Tolerance (min/max) | 0.4656 - 0.7086 | -0.0002 / +0.0002 | 11.800 - 18.000 | -0.005 / +0.005 | 0.7087 - 1.1811 | 18.001 - 30.000 | 1.1812 - 1.5748 | 30.001 - 40.000 | 1.5749 - 1.9685 | 40.001 - 50.000 | 1.9686 - 2.3858 | 50.001 - 60.600 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Imperial (in) | | Metric (mm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D ₁ Range | Tolerance (min/max) | D ₁ Range | Tolerance (min/max) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.4656 - 0.7086 | -0.0002 / +0.0002 | 11.800 - 18.000 | -0.005 / +0.005 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.7087 - 1.1811 | | 18.001 - 30.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.1812 - 1.5748 | | 30.001 - 40.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.5749 - 1.9685 | | 40.001 - 50.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.9686 - 2.3858 | | 50.001 - 60.600 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

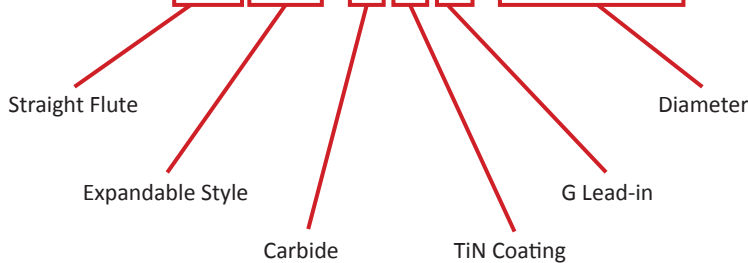
● Best ◐ Better ○ Good

Ordering Example:

The customer needs the following:

- Straight fluted reamer head
- Expandable style
- Carbide
- TiN coating
- G lead-in
- 50.000 mm diameter

7405-KNG-50000

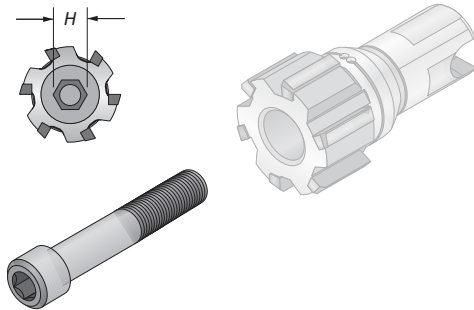


C: 60 - 71 C: 14 - 15 C: 16 - 19 C: 52 - 57 C: 72

Key on C: 1

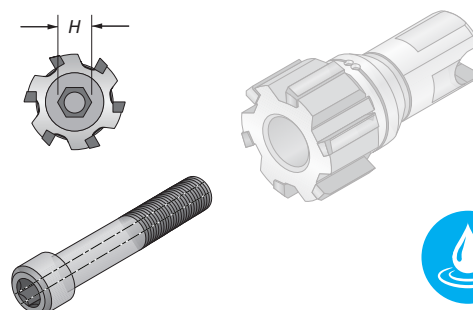
Replaceable Head Screws

Fixed



7000 Series

| D_1 Range (inch) | D_1 Range (mm) | Part No. | H (mm) |
|--------------------|------------------|--------------------|----------|
| 0.4646 - 0.5751 | 11.800 - 14.609 | 7000-VI-001 | 2.5 |
| 0.5752 - 0.6932 | 14.610 - 17.609 | 7000-VI-002 | 3 |
| 0.6933 - 0.8507 | 17.610 - 21.609 | 7000-VI-003 | 4 |
| 0.8508 - 1.0475 | 21.610 - 26.609 | 7000-VI-004 | 5 |
| 1.0476 - 1.2838 | 26.610 - 32.609 | 7000-VI-005 | 6 |
| 1.2839 - 1.5987 | 32.610 - 40.609 | 7000-VI-006 | 6 |
| 1.5988 - 1.9924 | 40.610 - 50.609 | 7000-VI-007 | 8 |
| 1.9925 - 2.3858 | 50.610 - 60.600 | 7000-VI-008 | 10 |

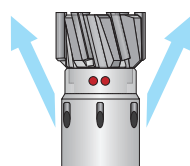


7001 Series

| D_1 Range (inch) | D_1 Range (mm) | Part No. | H (mm) |
|--------------------|------------------|--------------------|----------|
| 0.4646 - 0.5751 | 11.800 - 14.609 | 7001-VI-001 | 2.5 |
| 0.5752 - 0.6932 | 14.610 - 17.609 | 7001-VI-002 | 3 |
| 0.6933 - 0.8507 | 17.610 - 21.609 | 7001-VI-003 | 4 |
| 0.8508 - 1.0475 | 21.610 - 26.609 | 7001-VI-004 | 5 |
| 1.0476 - 1.2838 | 26.610 - 32.609 | 7001-VI-005 | 6 |
| 1.2839 - 1.5987 | 32.610 - 40.609 | 7001-VI-006 | 6 |
| 1.5988 - 1.9924 | 40.610 - 50.609 | 7001-VI-007 | 8 |
| 1.9925 - 2.3858 | 50.610 - 60.600 | 7001-VI-008 | 10 |

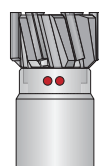
7000 Series Locking Screws

Radial Coolant Only



7000 Series Mandrels

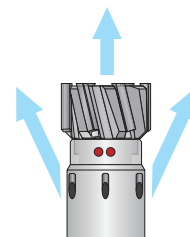
No Coolant



7001 Series Mandrels

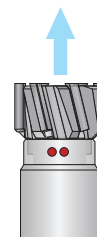
7001 Series Locking Screws

Radial and Central Coolant



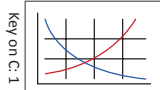
7000 Series Mandrels

Central Coolant Only



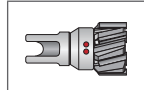
7001 Series Mandrels

C: 60 - 71



Key on C: 1

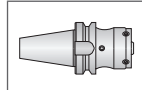
C: 12 - 13



C: 16 - 19



C: 52 - 57

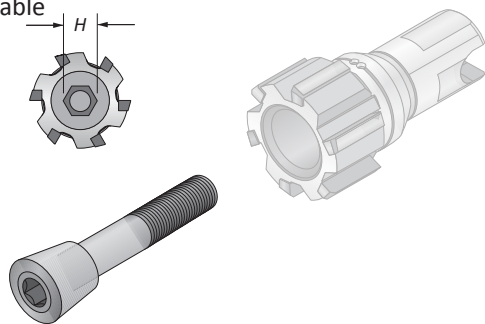


C: 72

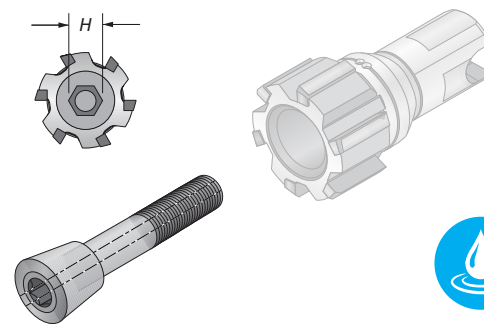


Replaceable Head Screws

Expandable



7000 Series




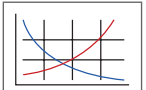
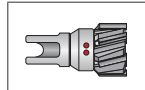
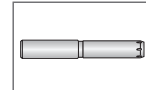
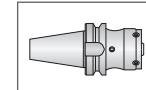

7001 Series



| D ₁ Range (inch) | D ₁ Range (mm) | Part No. | H (mm) |
|-----------------------------|---------------------------|-------------|--------|
| 0.4646 - 0.4964 | 11.800 - 12.609 | 7000-VI-012 | 3.5 |
| 0.4965 - 0.5357 | 12.610 - 13.609 | 7000-VI-013 | 3.5 |
| 0.5358 - 0.5751 | 13.610 - 14.609 | 7000-VI-014 | 3.5 |
| 0.5752 - 0.6145 | 14.610 - 15.609 | 7000-VI-015 | 4 |
| 0.6146 - 0.6538 | 15.610 - 16.609 | 7000-VI-016 | 4 |
| 0.6539 - 0.6932 | 16.610 - 17.609 | 7000-VI-017 | 4 |
| 0.6933 - 0.7326 | 17.610 - 18.609 | 7000-VI-018 | 5 |
| 0.7327 - 0.7719 | 18.610 - 19.609 | 7000-VI-019 | 5 |
| 0.7720 - 0.8113 | 19.610 - 20.609 | 7000-VI-020 | 5 |
| 0.8114 - 0.8507 | 20.610 - 21.609 | 7000-VI-021 | 5 |
| 0.8508 - 0.8901 | 21.610 - 22.609 | 7000-VI-022 | 6 |
| 0.8902 - 0.9294 | 22.610 - 23.609 | 7000-VI-023 | 6 |
| 0.9295 - 0.9688 | 23.610 - 24.609 | 7000-VI-024 | 6 |
| 0.9689 - 1.0082 | 24.610 - 25.609 | 7000-VI-025 | 6 |
| 1.0083 - 1.0475 | 25.610 - 26.609 | 7000-VI-026 | 6 |
| 1.0476 - 1.0869 | 26.610 - 27.609 | 7000-VI-027 | 8 |
| 1.0870 - 1.1263 | 27.610 - 28.609 | 7000-VI-028 | 8 |
| 1.1264 - 1.1656 | 28.610 - 29.609 | 7000-VI-029 | 8 |
| 1.1657 - 1.2050 | 29.610 - 30.609 | 7000-VI-030 | 8 |
| 1.2051 - 1.2444 | 30.610 - 31.609 | 7000-VI-031 | 8 |
| 1.2445 - 1.2838 | 31.610 - 32.609 | 7000-VI-032 | 8 |
| 1.2839 - 1.3231 | 32.610 - 33.609 | 7000-VI-033 | 8 |
| 1.3232 - 1.3625 | 33.610 - 34.609 | 7000-VI-034 | 10 |
| 1.3626 - 1.4019 | 34.610 - 35.609 | 7000-VI-035 | 10 |
| 1.4020 - 1.4412 | 35.610 - 36.609 | 7000-VI-036 | 10 |
| 1.4413 - 1.4806 | 36.610 - 37.609 | 7000-VI-037 | 10 |
| 1.4807 - 1.5200 | 37.610 - 38.609 | 7000-VI-038 | 10 |
| 1.5201 - 1.5593 | 38.610 - 39.609 | 7000-VI-039 | 10 |
| 1.5594 - 1.5987 | 39.610 - 40.609 | 7000-VI-040 | 10 |
| 1.5988 - 1.6381 | 40.610 - 41.609 | 7000-VI-041 | 12 |
| 1.6382 - 1.6775 | 41.610 - 42.609 | 7000-VI-042 | 12 |
| 1.6776 - 1.7168 | 42.610 - 43.609 | 7000-VI-043 | 12 |
| 1.7169 - 1.7562 | 43.610 - 44.609 | 7000-VI-044 | 12 |
| 1.7563 - 1.7956 | 44.610 - 45.609 | 7000-VI-045 | 12 |
| 1.7957 - 1.8349 | 45.610 - 46.609 | 7000-VI-046 | 12 |
| 1.8350 - 1.8743 | 46.610 - 47.609 | 7000-VI-047 | 12 |
| 1.8744 - 1.9137 | 47.610 - 48.609 | 7000-VI-048 | 12 |
| 1.9138 - 1.9530 | 48.610 - 49.609 | 7000-VI-049 | 12 |
| 1.9531 - 1.9924 | 49.610 - 50.609 | 7000-VI-050 | 12 |
| 1.9925 - 2.0318 | 50.610 - 51.609 | 7000-VI-051 | 12 |
| 2.0319 - 2.0712 | 51.610 - 52.609 | 7000-VI-052 | 12 |
| 2.0713 - 2.1105 | 52.610 - 53.609 | 7000-VI-053 | 12 |
| 2.1106 - 2.1499 | 53.610 - 54.609 | 7000-VI-054 | 12 |
| 2.1500 - 2.1893 | 54.610 - 55.609 | 7000-VI-055 | 12 |
| 2.1894 - 2.2286 | 55.610 - 56.609 | 7000-VI-056 | 12 |
| 2.2287 - 2.2680 | 56.610 - 57.609 | 7000-VI-057 | 12 |
| 2.2681 - 2.3074 | 57.610 - 58.609 | 7000-VI-058 | 12 |
| 2.3075 - 2.3468 | 58.610 - 59.609 | 7000-VI-059 | 12 |
| 2.3469 - 2.3858 | 59.610 - 60.609 | 7000-VI-060 | 12 |

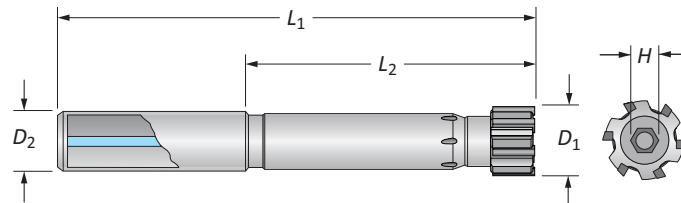
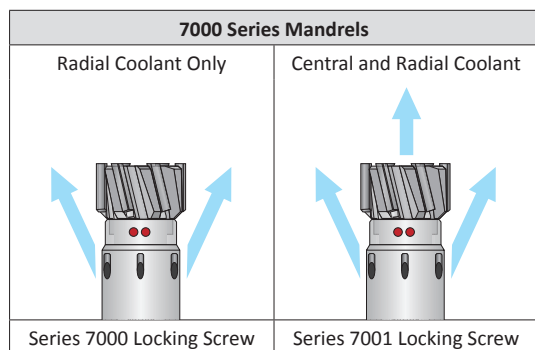
| D ₁ Range (inch) | D ₁ Range (mm) | Part No. | H (mm) |
|-----------------------------|---------------------------|-------------|--------|
| 0.4646 - 0.4964 | 11.800 - 12.609 | 7001-VI-012 | 3.5 |
| 0.4965 - 0.5357 | 12.610 - 13.609 | 7001-VI-013 | 3.5 |
| 0.5358 - 0.5751 | 13.610 - 14.609 | 7001-VI-014 | 3.5 |
| 0.5752 - 0.6145 | 14.610 - 15.609 | 7001-VI-015 | 4 |
| 0.6146 - 0.6538 | 15.610 - 16.609 | 7001-VI-016 | 4 |
| 0.6539 - 0.6932 | 16.610 - 17.609 | 7001-VI-017 | 4 |
| 0.6933 - 0.7326 | 17.610 - 18.609 | 7001-VI-018 | 5 |
| 0.7327 - 0.7719 | 18.610 - 19.609 | 7001-VI-019 | 5 |
| 0.7720 - 0.8113 | 19.610 - 20.609 | 7001-VI-020 | 5 |
| 0.8114 - 0.8507 | 20.610 - 21.609 | 7001-VI-021 | 5 |
| 0.8508 - 0.8901 | 21.610 - 22.609 | 7001-VI-022 | 6 |
| 0.8902 - 0.9294 | 22.610 - 23.609 | 7001-VI-023 | 6 |
| 0.9295 - 0.9688 | 23.610 - 24.609 | 7001-VI-024 | 6 |
| 0.9689 - 1.0082 | 24.610 - 25.609 | 7001-VI-025 | 6 |
| 1.0083 - 1.0475 | 25.610 - 26.609 | 7001-VI-026 | 6 |
| 1.0476 - 1.0869 | 26.610 - 27.609 | 7001-VI-027 | 8 |
| 1.0870 - 1.1263 | 27.610 - 28.609 | 7001-VI-028 | 8 |
| 1.1264 - 1.1656 | 28.610 - 29.609 | 7001-VI-029 | 8 |
| 1.1657 - 1.2050 | 29.610 - 30.609 | 7001-VI-030 | 8 |
| 1.2051 - 1.2444 | 30.610 - 31.609 | 7001-VI-031 | 8 |
| 1.2445 - 1.2838 | 31.610 - 32.609 | 7001-VI-032 | 8 |
| 1.2839 - 1.3231 | 32.610 - 33.609 | 7001-VI-033 | 8 |
| 1.3232 - 1.3625 | 33.610 - 34.609 | 7001-VI-034 | 10 |
| 1.3626 - 1.4019 | 34.610 - 35.609 | 7001-VI-035 | 10 |
| 1.4020 - 1.4412 | 35.610 - 36.609 | 7001-VI-036 | 10 |
| 1.4413 - 1.4806 | 36.610 - 37.609 | 7001-VI-037 | 10 |
| 1.4807 - 1.5200 | 37.610 - 38.609 | 7001-VI-038 | 10 |
| 1.5201 - 1.5593 | 38.610 - 39.609 | 7001-VI-039 | 10 |
| 1.5594 - 1.5987 | 39.610 - 40.609 | 7001-VI-040 | 10 |
| 1.5988 - 1.6381 | 40.610 - 41.609 | 7001-VI-041 | 12 |
| 1.6382 - 1.6775 | 41.610 - 42.609 | 7001-VI-042 | 12 |
| 1.6776 - 1.7168 | 42.610 - 43.609 | 7001-VI-043 | 12 |
| 1.7169 - 1.7562 | 43.610 - 44.609 | 7001-VI-044 | 12 |
| 1.7563 - 1.7956 | 44.610 - 45.609 | 7001-VI-045 | 12 |
| 1.7957 - 1.8349 | 45.610 - 46.609 | 7001-VI-046 | 12 |
| 1.8350 - 1.8743 | 46.610 - 47.609 | 7001-VI-047 | 12 |
| 1.8744 - 1.9137 | 47.610 - 48.609 | 7001-VI-048 | 12 |
| 1.9138 - 1.9530 | 48.610 - 49.609 | 7001-VI-049 | 12 |
| 1.9531 - 1.9924 | 49.610 - 50.609 | 7001-VI-050 | 12 |
| 1.9925 - 2.0318 | 50.610 - 51.609 | 7001-VI-051 | 12 |
| 2.0319 - 2.0712 | 51.610 - 52.609 | 7001-VI-052 | 12 |
| 2.0713 - 2.1105 | 52.610 - 53.609 | 7001-VI-053 | 12 |
| 2.1106 - 2.1499 | 53.610 - 54.609 | 7001-VI-054 | 12 |
| 2.1500 - 2.1893 | 54.610 - 55.609 | 7001-VI-055 | 12 |
| 2.1894 - 2.2286 | 55.610 - 56.609 | 7001-VI-056 | 12 |
| 2.2287 - 2.2680 | 56.610 - 57.609 | 7001-VI-057 | 12 |
| 2.2681 - 2.3074 | 57.610 - 58.609 | 7001-VI-058 | 12 |
| 2.3075 - 2.3468 | 58.610 - 59.609 | 7001-VI-059 | 12 |
| 2.3469 - 2.3858 | 59.610 - 60.609 | 7001-VI-060 | 12 |

C: 60 - 71 C: 12 - 13 C: 16 - 19 C: 52 - 57 C: 72

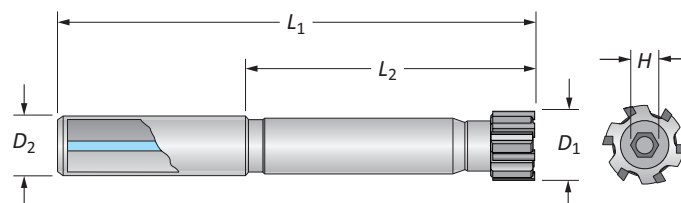
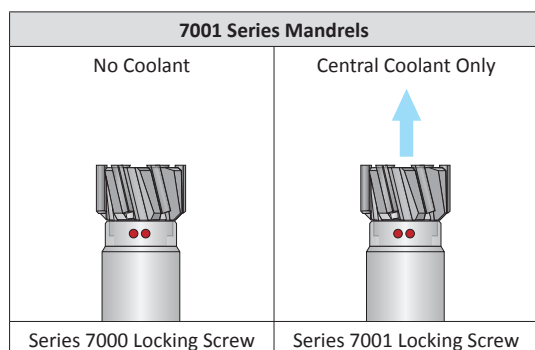







Replaceable Head Mandrels

Short Length | Cylindrical Shank | Diameter Range: 0.4646" - 2.3858" (11.80 mm - 60.60 mm)



| D_1 Range | | Mandrel | | | No. of Teeth | Part No. |
|-----------------|-----------------|------------|------------|------------|--------------|-------------|
| Imperial (in) | Metric (mm) | L_2 (mm) | L_1 (mm) | D_2 (mm) | | |
| 0.4646 - 0.5751 | 11.800 - 14.609 | 50 | 95 | 12 | 6 | 7000-MC-001 |
| 0.5752 - 0.6932 | 14.610 - 17.609 | 65 | 113 | 16 | 6 | 7000-MC-002 |
| 0.6933 - 0.8507 | 17.610 - 21.609 | 75 | 125 | 20 | 6 | 7000-MC-003 |
| 0.8508 - 1.0475 | 21.610 - 26.609 | 85 | 135 | 20 | 6 | 7000-MC-004 |
| 1.0476 - 1.2838 | 26.610 - 32.609 | 105 | 161 | 25 | 6 | 7000-MC-005 |
| 1.2839 - 1.5987 | 32.610 - 40.609 | 120 | 180 | 32 | 6 | 7000-MC-006 |
| 1.5988 - 1.7956 | 40.610 - 45.600 | 120 | 180 | 32 | 6 | 7000-MC-007 |
| 1.7957 - 1.9924 | 45.610 - 50.600 | 120 | 180 | 32 | 8 | 7000-MC-075 |
| 1.9925 - 2.3858 | 50.610 - 60.600 | 120 | 190 | 32 | 8 | 7000-MC-008 |



| D_1 Range | | Mandrel | | | No. of Teeth | Part No. |
|-----------------|-----------------|------------|------------|------------|--------------|-------------|
| Imperial (in) | Metric (mm) | L_2 (mm) | L_1 (mm) | D_2 (mm) | | |
| 0.4646 - 0.5751 | 11.800 - 14.609 | 50 | 95 | 12 | 6 | 7001-MC-001 |
| 0.5752 - 0.6932 | 14.610 - 17.609 | 65 | 113 | 16 | 6 | 7001-MC-002 |
| 0.6933 - 0.8507 | 17.610 - 21.609 | 75 | 125 | 20 | 6 | 7001-MC-003 |
| 0.8508 - 1.0475 | 21.610 - 26.609 | 85 | 135 | 20 | 6 | 7001-MC-004 |
| 1.0476 - 1.2838 | 26.610 - 32.609 | 105 | 161 | 25 | 6 | 7001-MC-005 |
| 1.2839 - 1.5987 | 32.610 - 40.609 | 120 | 180 | 32 | 6 | 7001-MC-006 |
| 1.5988 - 1.7956 | 40.610 - 45.600 | 120 | 180 | 32 | 6 | 7001-MC-007 |
| 1.7957 - 1.9924 | 45.610 - 50.600 | 120 | 180 | 32 | 8 | 7001-MC-075 |
| 1.9925 - 2.3858 | 50.610 - 60.600 | 120 | 190 | 32 | 8 | 7001-MC-008 |

C: 60 - 71

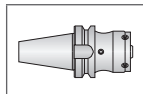
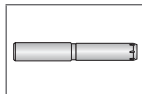
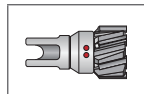
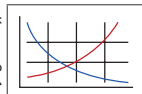
C: 12 - 13

C: 16 - 19

C: 52 - 57

C: 72

Key on C: 1



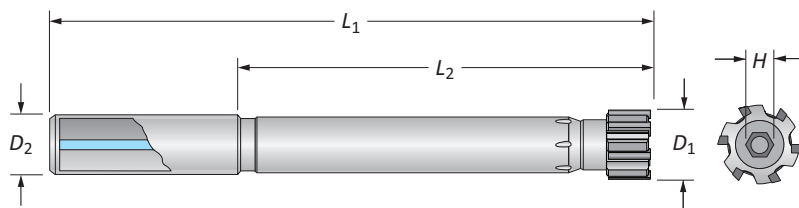
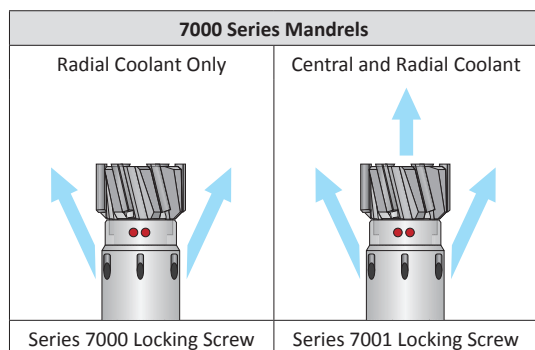
Application recommendation:

- Through hole application = radial coolant
- Blind hole application = central coolant

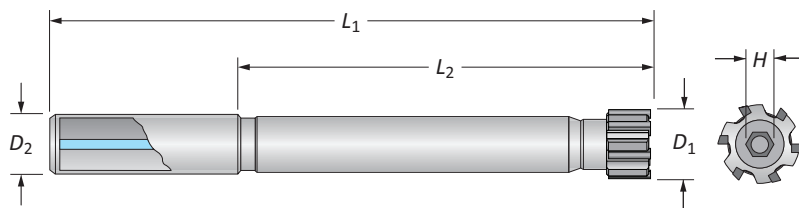
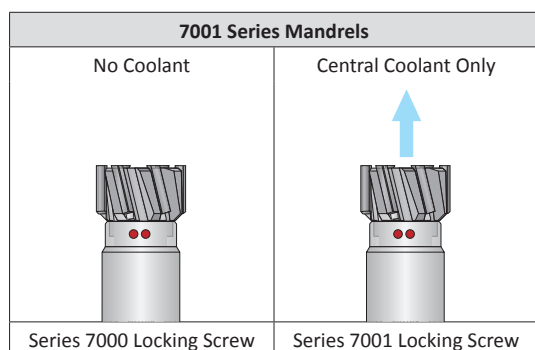


Replaceable Head Mandrels

Long Length | Cylindrical Shank | Diameter Range: 0.4646" - 2.3858" (11.80 mm - 60.60 mm)



| D ₁ Range | | Mandrel | | | No. of Teeth | Part No. |
|----------------------|-----------------|---------------------|---------------------|---------------------|--------------|-------------|
| Imperial (in) | Metric (mm) | L ₂ (mm) | L ₁ (mm) | D ₂ (mm) | | |
| 0.4646 - 0.5751 | 11.800 - 14.609 | 95 | 140 | 12 | 6 | 7000-ML-001 |
| 0.5752 - 0.6932 | 14.610 - 17.609 | 105 | 153 | 16 | 6 | 7000-ML-002 |
| 0.6933 - 0.8507 | 17.610 - 21.609 | 125 | 175 | 20 | 6 | 7000-ML-003 |
| 0.8508 - 1.0475 | 21.610 - 26.609 | 145 | 195 | 20 | 6 | 7000-ML-004 |
| 1.0476 - 1.2838 | 26.610 - 32.609 | 165 | 221 | 25 | 6 | 7000-ML-005 |
| 1.2839 - 1.5987 | 32.610 - 40.609 | 185 | 245 | 32 | 6 | 7000-ML-006 |
| 1.5988 - 1.7956 | 40.610 - 45.600 | 185 | 245 | 32 | 6 | 7000-ML-007 |
| 1.7957 - 1.9924 | 45.610 - 50.600 | 185 | 245 | 32 | 8 | 7000-ML-075 |
| 1.9925 - 2.3858 | 50.610 - 60.600 | 185 | 255 | 32 | 8 | 7000-ML-008 |



| D ₁ Range | | Mandrel | | | No. of Teeth | Part No. |
|----------------------|-----------------|---------------------|---------------------|---------------------|--------------|-------------|
| Imperial (in) | Metric (mm) | L ₂ (mm) | L ₁ (mm) | D ₂ (mm) | | |
| 0.4646 - 0.5751 | 11.800 - 14.609 | 95 | 140 | 12 | 6 | 7001-ML-001 |
| 0.5752 - 0.6932 | 14.610 - 17.609 | 105 | 153 | 16 | 6 | 7001-ML-002 |
| 0.6933 - 0.8507 | 17.610 - 21.609 | 125 | 175 | 20 | 6 | 7001-ML-003 |
| 0.8508 - 1.0475 | 21.610 - 26.609 | 145 | 195 | 20 | 6 | 7001-ML-004 |
| 1.0476 - 1.2838 | 26.610 - 32.609 | 165 | 221 | 25 | 6 | 7001-ML-005 |
| 1.2839 - 1.5987 | 32.610 - 40.609 | 185 | 245 | 32 | 6 | 7001-ML-006 |
| 1.5988 - 1.7956 | 40.610 - 45.600 | 185 | 245 | 32 | 6 | 7001-ML-007 |
| 1.7957 - 1.9924 | 45.610 - 50.600 | 185 | 245 | 32 | 8 | 7001-ML-075 |
| 1.9925 - 2.3858 | 50.610 - 60.600 | 185 | 255 | 32 | 8 | 7001-ML-008 |

Key on C-1

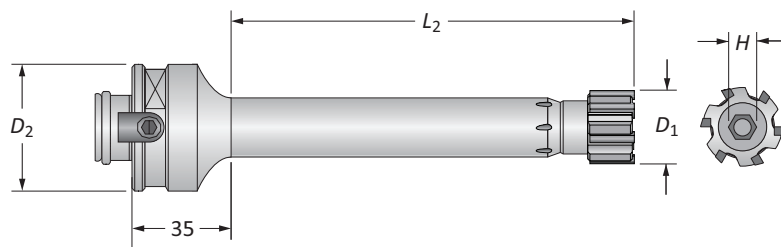
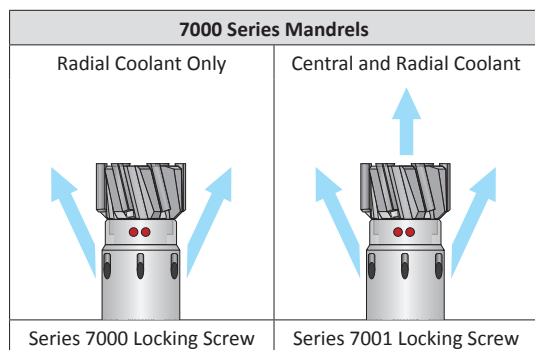
| | | | | |
|------------|------------|------------|------------|-------|
| C: 60 - 71 | C: 12 - 13 | C: 16 - 19 | C: 52 - 57 | C: 72 |
| | | | | |

Application recommendation:

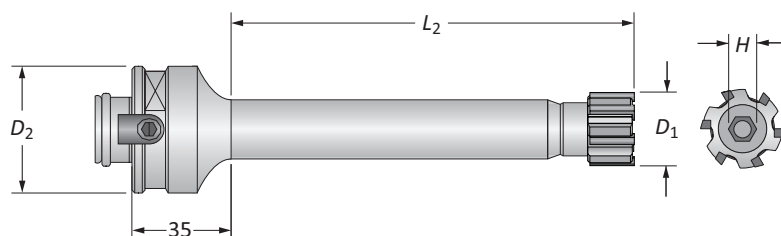
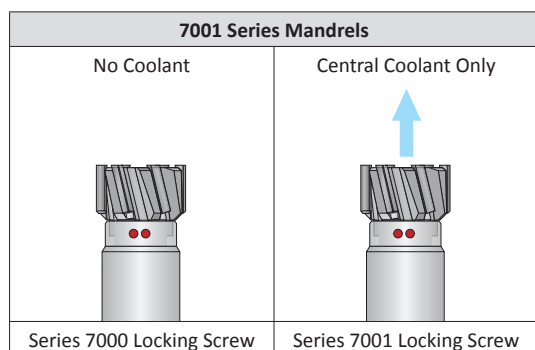
- Through hole application = radial coolant
- Blind hole application = central coolant

Replaceable Head Mandrels

Standard Length | Modular Shank | Diameter Range: 0.4646" - 2.3858" (11.80 mm - 60.60 mm)



| D ₁ Range | | Mandrel | | No. of Teeth | Part No. |
|----------------------|-----------------|---------------------|---------------------|--------------|-------------|
| Imperial (in) | Metric (mm) | L ₂ (mm) | D ₂ (mm) | | |
| 0.4646 - 0.5751 | 11.800 - 14.609 | 65 | 50 | 6 | 7000-MM-001 |
| 0.5752 - 0.6932 | 14.610 - 17.609 | 80 | 50 | 6 | 7000-MM-002 |
| 0.6933 - 0.8507 | 17.610 - 21.609 | 90 | 50 | 6 | 7000-MM-003 |
| 0.8508 - 1.0475 | 21.610 - 26.609 | 100 | 50 | 6 | 7000-MM-004 |
| 1.0476 - 1.2838 | 26.610 - 32.609 | 110 | 50 | 6 | 7000-MM-005 |
| 1.2839 - 1.5987 | 32.610 - 40.609 | 120 | 50 | 6 | 7000-MM-006 |
| 1.5988 - 1.7956 | 40.610 - 45.600 | 120 | 50 | 6 | 7000-MM-007 |
| 1.7957 - 1.9924 | 45.610 - 50.600 | 120 | 50 | 8 | 7000-MM-075 |
| 1.9925 - 2.3858 | 50.610 - 60.600 | 120 | 50 | 8 | 7000-MM-008 |



| D ₁ Range | | Mandrel | | No. of Teeth | Part No. |
|----------------------|-----------------|---------------------|---------------------|--------------|-------------|
| Imperial (in) | Metric (mm) | L ₂ (mm) | D ₂ (mm) | | |
| 0.4646 - 0.5751 | 11.800 - 14.609 | 65 | 50 | 6 | 7001-MM-001 |
| 0.5752 - 0.6932 | 14.610 - 17.609 | 80 | 50 | 6 | 7001-MM-002 |
| 0.6933 - 0.8507 | 17.610 - 21.609 | 90 | 50 | 6 | 7001-MM-003 |
| 0.8508 - 1.0475 | 21.610 - 26.609 | 100 | 50 | 6 | 7001-MM-004 |
| 1.0476 - 1.2838 | 26.610 - 32.609 | 110 | 50 | 6 | 7001-MM-005 |
| 1.2839 - 1.5987 | 32.610 - 40.609 | 120 | 50 | 6 | 7001-MM-006 |
| 1.5988 - 1.7956 | 40.610 - 45.600 | 120 | 50 | 6 | 7001-MM-007 |
| 1.7957 - 1.9924 | 45.610 - 50.600 | 120 | 50 | 8 | 7001-MM-075 |
| 1.9925 - 2.3858 | 50.610 - 60.600 | 120 | 50 | 8 | 7001-MM-008 |

C: 60 - 71

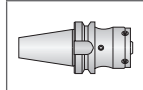
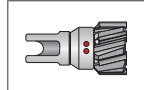
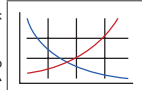
C: 12 - 13

C: 16 - 19

C: 52 - 57

C: 72

Key on C: 1



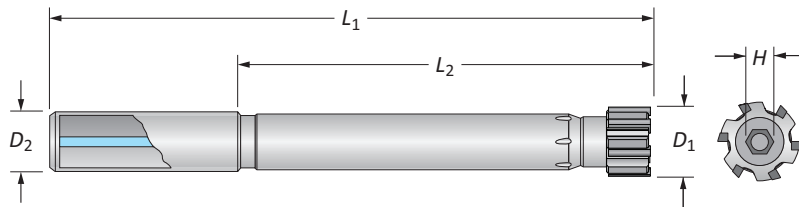
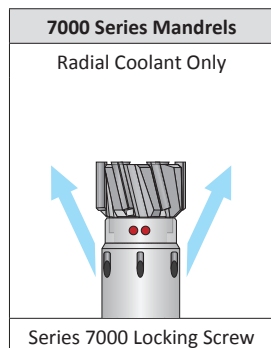
Application recommendation:

- Through hole application = radial coolant
- Blind hole application = central coolant



Replaceable Head Mandrels

AR Upper Receiver | Cylindrical Shank | Diameter Range: 1.0000" - 1.1875" (25.40 mm - 30.16 mm)



| D ₁ | | Mandrel | | | No. of Teeth | Part No. |
|----------------|-------------|---------------------|---------------------|---------------------|--------------|--------------|
| Imperial (in) | Metric (mm) | L ₂ (in) | L ₁ (in) | D ₂ (in) | | |
| 1.1875 | 30.16 | 9.65 | 11.65 | 0.750 | 6 | 7000-MC-AR10 |
| 1.0000 | 25.40 | 8.66 | 10.63 | 0.750 | 6 | 7000-MC-AR15 |

Achieve the **long length of cut** and **surface finish** you need.



CASE STUDY | AR15 Upper Receiver

Material: 6061 T6 Aluminum

| Measure | Carbide-Tipped Chucking Reamer | ALVAN® Replaceable Head Reamer |
|-------------------|--------------------------------|--------------------------------|
| RPM | 1146 | 2559 |
| Speed | 300 SFM | 670 SFM |
| Feed In | 0.018 IPR (20.6 IPM) | 0.045 IPR (115 IPM) |
| Feed Out | 0.018 IPR (20.6 IPM) | 0.090 IPR (230.3 IPM) |
| Finish | 63 Ra | 32 Ra |
| Follow-Up Process | Roller Burnish | None |
| Cycle Time | 0:00:55 | 0:00:09 |
| Cost Per Hole | \$0.77 | \$0.26 |
| Total Parts | 3,500 | 3,500 |
| Total Cost | \$2,691.18 | \$933.84 |

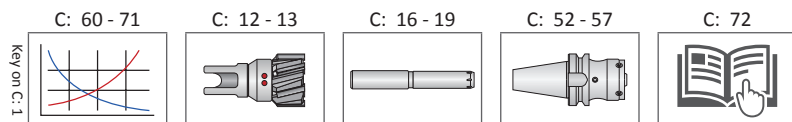
SURFACE FINISH $\sqrt{32}$ Ra
no burnishing required

123% ↑ SPEED

150% ↑ FEED

84% ↓ CYCLE TIME

65% ↓ TOTAL COSTS



Application recommendation:

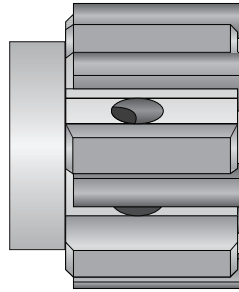
- Through hole application = radial coolant
- Blind hole application = central coolant

Monobloc Style Reamers

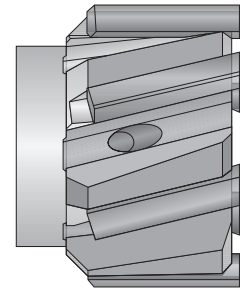
Product Overview

Monobloc Reamer Features

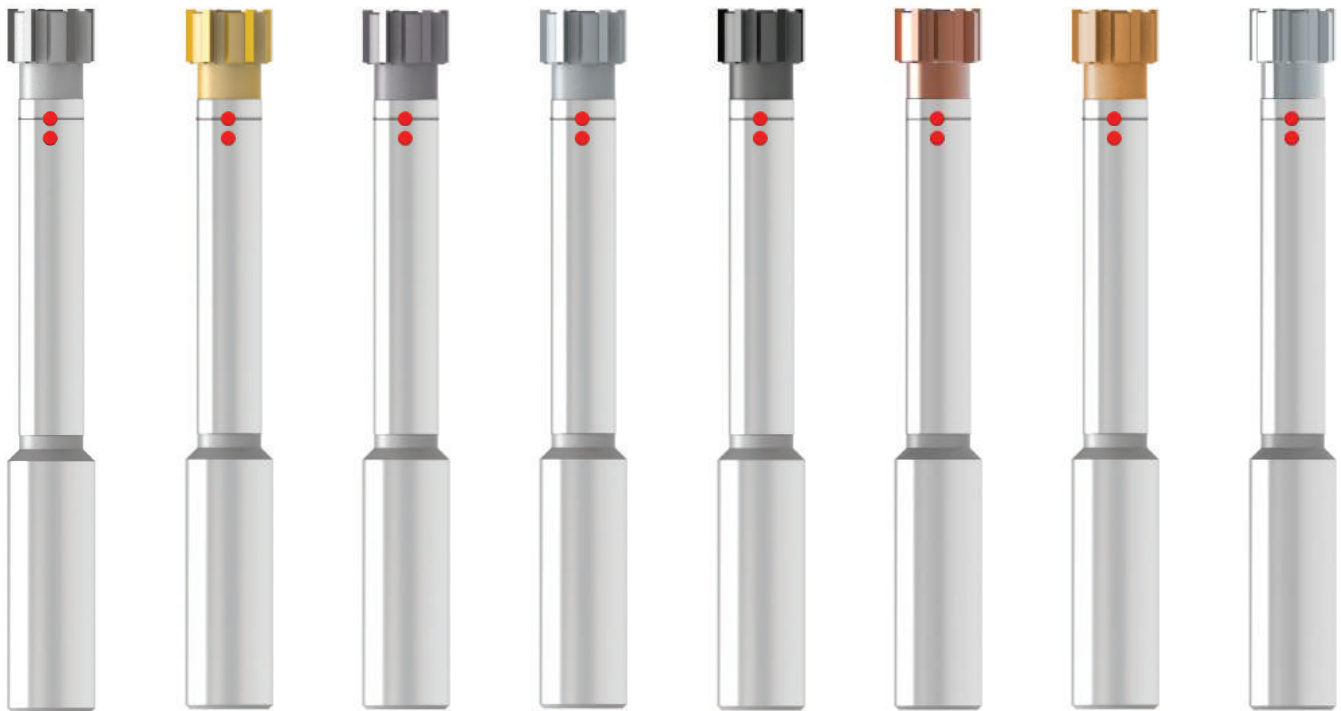
- Diameter range: 0.2283" - 1.2638" (5.80 mm - 32.10 mm)
- Available with straight or left-hand helical flutes
- Expandable up to 1% of nominal diameter
- Available with cylindrical shanks only
- Work day lead time 15 - 25 days (quantity dependent)
- Available for recondition



Straight Flute



Left-Hand Helical Flute



Uncoated

TiN Coated

TiAlN Coated

TiCN Coated

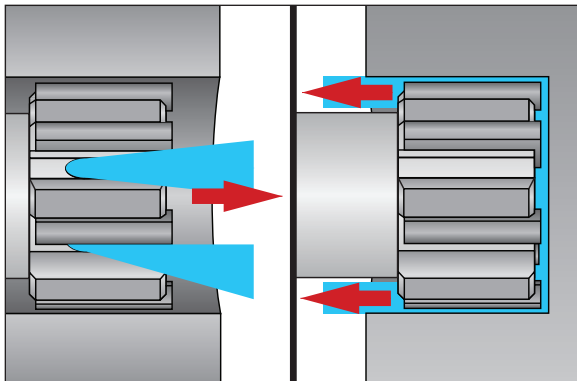
Alcrona Coated

Hardcut Coated

R Coated

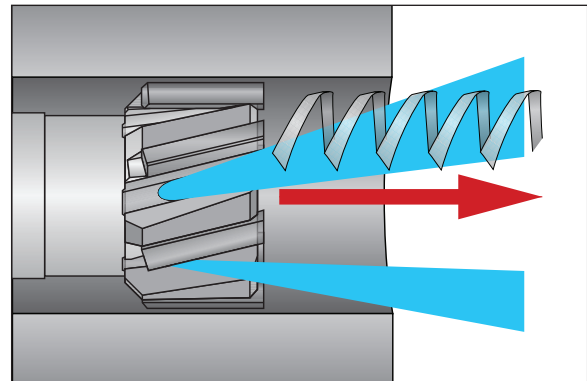
T Coated

Straight Flute - Through or Blind Holes



Use for either through hole or blind hole applications. The coolant flow determines the direction of the chip evacuation.

Left-Hand Helical Flute - Through Holes Only



Use when reaming through hole applications. The cutting action of the helical flutes forces the chips forward for evacuation.

Product Nomenclature

Monobloc Style Reamers

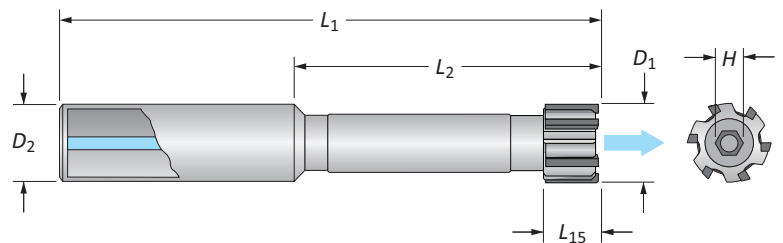
| | | | | | | | | | | | |
|----------|----------|-------------|---|-----------|----------|---|---------------|---|-------------|---|-------------|
| I | 9 | 3627 | - | KL | E | - | 006250 | + | 0000 | - | 0005 |
| 1 | 2 | 3 | | 4 | 5 | | 6 | | 7 | | |

NOTE: If diameter and tolerance are specified in inch units, put an "I" at the beginning of the item number

| | | |
|--|--|--|
| <p>1. Diameter Unit of Measure</p> <p>Blank = Metric diameter (mm) I = Imperial diameter (in)</p> | <p>2. Shank Measure</p> <p>Blank = Metric 9 = Inch</p> | <p>3. Series</p> <p>2441 = Short length, straight flute - central coolant (blind holes) 3620 = Short length, straight flute - radial coolant (through holes) 3627 = Short length, helical flute - radial coolant (through holes)</p> <p>2431 = Long length, straight flute - central coolant (blind holes) 3610 = Long length, straight flute - radial coolant (through holes) 3617 = Long length, helical flute - radial coolant (through holes)</p> |
| <p>4. Coating and Substrate</p> <p>KL = Uncoated carbide SV = Uncoated cermet KN = TiN coated carbide SN = TiN coated cermet KC = TiCN coated carbide SC = TiCN coated cermet KA = TiAlN coated carbide SA = TiAlN coated cermet KK = Alcrona coated carbide SK = Alcrona coated cermet KH = Hardcut coated carbide KH = Hardcut coated cermet KR = R coated carbide KR = R coated cermet KT = T coated carbide KT = T coated cermet</p> | <p>5. Lead-in</p> <p>E, M = Left-hand helical flute A, F, G, L, N, T, V, K = Straight flute K = Chipbreaker geometry for straight or helical flute</p> | |
| <p>6. Diameter</p> <p>XX.XXXX = Imperial (inch) XXX.XXX = Metric (mm)</p> | <p>7. Tolerance*</p> <p>4 decimal places = inch tolerance 3 decimal places = mm tolerance</p> <p>*The total tolerance capable is 0.0002" (0.005 mm)</p> | |

Reference Key

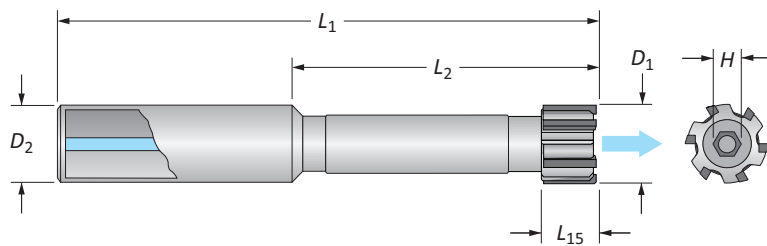
| Symbol | Attribute |
|----------|---------------------|
| D_1 | Reamer diameter |
| D_2 | Shank diameter |
| L_1 | Overall length |
| L_2 | Body length |
| L_{15} | Cutting edge length |
| H | Hex key |



Monobloc Reamers

2441 Series | Short Length | Diameter Range: 0.2283" - 1.2638" (5.80 mm - 32.10 mm)

| | |
|---------|-------------|
| Series | 2441 |
| Flute | Straight |
| Type | Blind Holes |
| Coolant | Central |



| Inch Shank Part No. 92441-CGL-D ₁ | | | | | Metric Shank Part No. 2441-CGL-D ₁ | | | | | No. of Teeth | H (mm) |
|---|-----------------|----------------|----------------|----------------|--|-----------------|----------------|----------------|----------------|--------------|--------|
| D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | | |
| 0.2283 - 0.2598 | 0.315 | 1.575 | 3.071 | 0.500 | 5.80 - 6.60 | 8 | 40 | 80 | 12 | 4 | 1.5 |
| 0.2599 - 0.2992 | 0.315 | 1.575 | 3.071 | 0.500 | 6.61 - 7.60 | 8 | 40 | 80 | 12 | 4 | 2 |
| 0.2993 - 0.3386 | 0.394 | 1.575 | 3.071 | 0.500 | 7.61 - 8.60 | 10 | 40 | 80 | 12 | 4 | 2.5 |
| 0.3387 - 0.3780 | 0.394 | 1.969 | 3.465 | 0.500 | 8.61 - 9.60 | 10 | 50 | 90 | 12 | 4 | 2.5 |
| 0.3781 - 0.4173 | 0.394 | 1.969 | 3.740 | 0.500 | 9.61 - 10.60 | 10 | 50 | 95 | 12 | 6 | 3 |
| 0.4174 - 0.4567 | 0.394 | 1.969 | 3.740 | 0.500 | 10.61 - 11.60 | 10 | 60 | 105 | 12 | 6 | 3 |
| 0.4568 - 0.4961 | 0.394 | 1.969 | 3.740 | 0.500 | 11.61 - 12.60 | 10 | 60 | 105 | 12 | 6 | 3 |
| 0.4962 - 0.5354 | 0.394 | 1.969 | 3.740 | 0.500 | 12.61 - 13.60 | 10 | 60 | 105 | 12 | 6 | 4 |
| 0.5355 - 0.5748 | 0.394 | 1.969 | 3.740 | 0.500 | 13.61 - 14.60 | 10 | 70 | 115 | 12 | 6 | 4 |
| 0.5749 - 0.6142 | 0.394 | 1.969 | 3.740 | 0.500 | 14.61 - 15.60 | 10 | 70 | 115 | 12 | 6 | 4 |
| 0.6143 - 0.6535 | 0.394 | 1.969 | 3.937 | 0.625 | 15.61 - 16.60 | 10 | 80 | 130 | 16 | 6 | 4 |
| 0.6536 - 0.6929 | 0.394 | 1.969 | 3.937 | 0.625 | 16.61 - 17.60 | 10 | 80 | 130 | 16 | 6 | 5 |
| 0.6930 - 0.7323 | 0.472 | 1.969 | 3.937 | 0.625 | 17.61 - 18.60 | 12 | 90 | 140 | 16 | 6 | 5 |
| 0.7324 - 0.7520 | 0.472 | 2.362 | 4.724 | 0.750 | 18.61 - 19.10 | 12 | 90 | 150 | 20 | 6 | 5 |
| 0.7521 - 0.7913 | 0.472 | 2.362 | 4.724 | 0.750 | 19.11 - 20.10 | 12 | 100 | 160 | 20 | 6 | 5 |
| 0.7914 - 0.8307 | 0.472 | 2.362 | 4.724 | 0.750 | 20.11 - 21.10 | 12 | 100 | 160 | 20 | 6 | 5 |
| 0.8308 - 0.8701 | 0.472 | 2.362 | 4.724 | 0.750 | 21.11 - 22.10 | 12 | 100 | 160 | 20 | 6 | 6 |
| 0.8702 - 0.9094 | 0.472 | 2.362 | 4.724 | 0.750 | 22.11 - 23.10 | 12 | 100 | 160 | 20 | 6 | 6 |
| 0.9095 - 0.9488 | 0.472 | 2.362 | 4.724 | 0.750 | 23.11 - 24.10 | 12 | 100 | 160 | 20 | 6 | 6 |
| 0.9489 - 0.9882 | 0.472 | 2.362 | 4.724 | 0.750 | 24.11 - 25.10 | 12 | 100 | 160 | 20 | 6 | 6 |
| 0.9883 - 1.0276 | 0.472 | 2.953 | 5.315 | 1.000 | 25.11 - 26.10 | 16 | 110 | 170 | 25 | 6 | 6 |
| 1.0277 - 1.0669 | 0.551 | 2.953 | 5.315 | 1.000 | 26.11 - 27.10 | 16 | 110 | 170 | 25 | 6 | 6 |
| 1.0670 - 1.1063 | 0.551 | 2.953 | 5.315 | 1.000 | 27.11 - 28.10 | 16 | 110 | 170 | 25 | 6 | 8 |
| 1.1064 - 1.1457 | 0.551 | 2.953 | 5.315 | 1.000 | 28.11 - 29.10 | 16 | 110 | 170 | 25 | 6 | 8 |
| 1.1458 - 1.1850 | 0.551 | 2.953 | 5.315 | 1.000 | 29.11 - 30.10 | 16 | 110 | 170 | 25 | 6 | 8 |
| 1.1851 - 1.2244 | 0.551 | 2.953 | 5.315 | 1.000 | 30.11 - 31.10 | 16 | 110 | 170 | 25 | 6 | 8 |
| 1.2245 - 1.2638 | 0.551 | 2.953 | 5.315 | 1.000 | 31.11 - 32.10 | 16 | 110 | 170 | 25 | 6 | 8 |

"CG" Portion of Item No. (Coating and Substrate Code)

| Grade | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating |
|---------|----------|-----|------|-------|---------|---------|-----------|-----------|
| Carbide | KL | KN | KC | KA | KK | KH | KR | KT |
| Cermet | SV | SN | SC | SA | SK | SH | SR | ST |

"L" Portion of Item No. (Lead-in Recommendation)

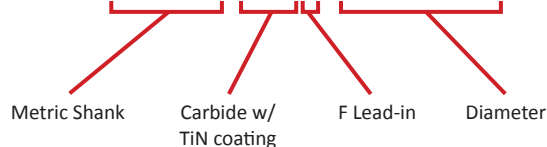
| ISO Material | T | F | N | G | L | A | V | K |
|--------------|---|---|---|---|---|---|---|---|
| P | | | ● | ● | | ○ | ○ | ○ |
| S | ● | | | ○ | | | | |
| M | | | ○ | ● | | | | ○ |
| H | | | ○ | ● | | | | |
| K | | | | ○ | | | ● | ○ |
| N | | | | ● | | | ○ | |

● Best ○ Better ○ Good

Ordering Example:
The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60 mm diameter
- Blind hole

2441-KNF-030600



Key on C: 1

C: 60 - 71

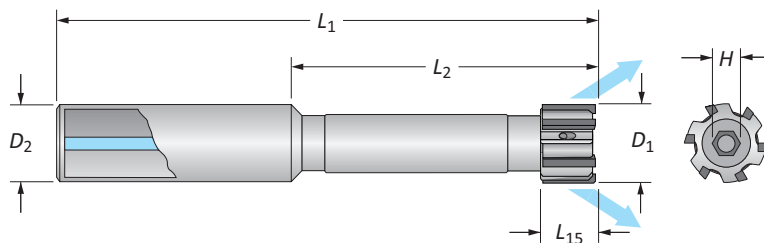
C: 52 - 59

C: 72

Monobloc Reamers






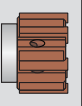

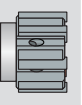
3620 Series | Short Length | Diameter Range: 0.2283" - 1.2638" (5.80 mm - 32.10 mm)

| | |
|---------|---------------|
| Series | 3620 |
| Flute | Straight |
| Type | Through Holes |
| Coolant | Radial |



| Inch Shank Part No. 93620-CGL-D ₁ | | | | | Metric Shank Part No. 3620-CGL-D ₁ | | | | | No. of Teeth | H (mm) |
|---|-----------------|----------------|----------------|----------------|--|-----------------|----------------|----------------|----------------|--------------|--------|
| D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | | |
| 0.2283 - 0.2598 | 0.315 | 1.575 | 3.071 | 0.500 | 5.80 - 6.60 | 8 | 40 | 78 | 12 | 4 | 1.5 |
| 0.2599 - 0.2992 | 0.315 | 1.575 | 3.071 | 0.500 | 6.61 - 7.60 | 8 | 40 | 78 | 12 | 4 | 2 |
| 0.2993 - 0.3386 | 0.394 | 1.575 | 3.071 | 0.500 | 7.61 - 8.60 | 10 | 40 | 78 | 12 | 4 | 2.5 |
| 0.3387 - 0.3780 | 0.394 | 1.969 | 3.465 | 0.500 | 8.61 - 9.60 | 10 | 50 | 88 | 12 | 4 | 2.5 |
| 0.3781 - 0.4173 | 0.394 | 1.969 | 3.740 | 0.500 | 9.61 - 10.60 | 10 | 50 | 95 | 12 | 6 | 3 |
| 0.4174 - 0.4567 | 0.394 | 1.969 | 3.740 | 0.500 | 10.61 - 11.60 | 10 | 50 | 95 | 12 | 6 | 3 |
| 0.4568 - 0.4961 | 0.394 | 1.969 | 3.740 | 0.500 | 11.61 - 12.60 | 10 | 50 | 95 | 12 | 6 | 3 |
| 0.4962 - 0.5354 | 0.394 | 1.969 | 3.740 | 0.500 | 12.61 - 13.60 | 10 | 50 | 95 | 12 | 6 | 4 |
| 0.5355 - 0.5748 | 0.394 | 1.969 | 3.740 | 0.500 | 13.61 - 14.60 | 10 | 50 | 95 | 12 | 6 | 4 |
| 0.5749 - 0.6142 | 0.394 | 1.969 | 3.740 | 0.500 | 14.61 - 15.60 | 10 | 50 | 95 | 12 | 6 | 4 |
| 0.6143 - 0.6535 | 0.394 | 1.969 | 3.937 | 0.625 | 15.61 - 16.60 | 10 | 50 | 100 | 16 | 6 | 4 |
| 0.6536 - 0.6929 | 0.394 | 1.969 | 3.937 | 0.625 | 16.61 - 17.60 | 10 | 50 | 100 | 16 | 6 | 5 |
| 0.6930 - 0.7323 | 0.472 | 1.969 | 3.937 | 0.625 | 17.61 - 18.60 | 12 | 50 | 100 | 16 | 6 | 5 |
| 0.7324 - 0.7520 | 0.472 | 2.362 | 4.724 | 0.750 | 18.61 - 19.10 | 12 | 60 | 120 | 20 | 6 | 5 |
| 0.7521 - 0.7913 | 0.472 | 2.362 | 4.724 | 0.750 | 19.11 - 20.10 | 12 | 60 | 120 | 20 | 6 | 5 |
| 0.7914 - 0.8307 | 0.472 | 2.362 | 4.724 | 0.750 | 20.11 - 21.10 | 12 | 60 | 120 | 20 | 6 | 5 |
| 0.8308 - 0.8701 | 0.472 | 2.362 | 4.724 | 0.750 | 21.11 - 22.10 | 12 | 60 | 120 | 20 | 6 | 6 |
| 0.8702 - 0.9094 | 0.472 | 2.362 | 4.724 | 0.750 | 22.11 - 23.10 | 12 | 60 | 120 | 20 | 6 | 6 |
| 0.9095 - 0.9488 | 0.472 | 2.362 | 4.724 | 0.750 | 23.11 - 24.10 | 12 | 60 | 120 | 20 | 6 | 6 |
| 0.9489 - 0.9882 | 0.472 | 2.362 | 4.724 | 0.750 | 24.11 - 25.10 | 12 | 60 | 120 | 20 | 6 | 6 |
| 0.9883 - 1.0276 | 0.472 | 2.953 | 5.315 | 1.000 | 25.11 - 26.10 | 16 | 70 | 135 | 25 | 6 | 6 |
| 1.0277 - 1.0669 | 0.551 | 2.953 | 5.315 | 1.000 | 26.11 - 27.10 | 16 | 70 | 135 | 25 | 6 | 6 |
| 1.0670 - 1.1063 | 0.551 | 2.953 | 5.315 | 1.000 | 27.11 - 28.10 | 16 | 70 | 135 | 25 | 6 | 8 |
| 1.1064 - 1.1457 | 0.551 | 2.953 | 5.315 | 1.000 | 28.11 - 29.10 | 16 | 70 | 135 | 25 | 6 | 8 |
| 1.1458 - 1.1850 | 0.551 | 2.953 | 5.315 | 1.000 | 29.11 - 30.10 | 16 | 70 | 135 | 25 | 6 | 8 |
| 1.1851 - 1.2244 | 0.551 | 2.953 | 5.315 | 1.000 | 30.11 - 31.10 | 16 | 70 | 135 | 25 | 6 | 8 |
| 1.2245 - 1.2638 | 0.551 | 2.953 | 5.315 | 1.000 | 31.11 - 32.10 | 16 | 70 | 135 | 25 | 6 | 8 |

"CG" Portion of Item No. (Coating and Substrate Code)

| |  |  |  |  |  |  |  |  |
|---------|---|---|---|---|---|---|---|---|
| Grade | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating |
| Carbide | KL | KN | KC | KA | KK | KH | KR | KT |
| Cermet | SV | SN | SC | SA | SK | SH | SR | ST |

"L" Portion of Item No. (Lead-in Recommendation)

| ISO Material | T | F | N | G | L | A | V | K |
|--------------|---|---|---|---|---|---|---|---|
| P | | | ● | ● | | ○ | ○ | ○ |
| S | ● | | | ○ | | | | |
| M | | | ○ | ● | | | | ○ |
| H | | | ○ | ● | | | | |
| K | | | | ○ | | | ● | ○ |
| N | | | | ● | | | ○ | |

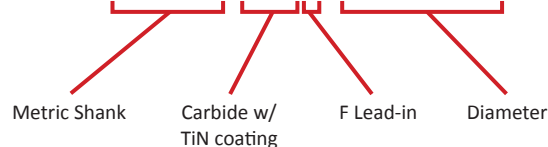
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

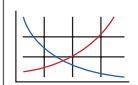
- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60 mm diameter
- Through hole

3620-KNF-030600

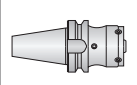


Key on C-1


C: 60 - 71



C: 52 - 59



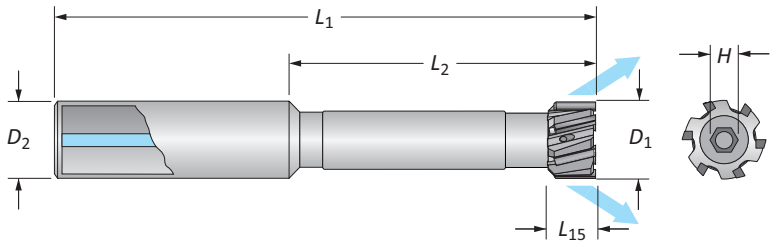
C: 72



Monobloc Reamers

3627 Series | Short Length | Diameter Range: 0.2283" - 1.2638" (5.80 mm - 32.10 mm)

| | |
|---------|---------------|
| Series | 3627 |
| Flute | Helical |
| Type | Through Holes |
| Coolant | Radial |



| Inch Shank Part No. 93627-CGL-D ₁ | | | | | Metric Shank Part No. 3627-CGL-D ₁ | | | | | No. of Teeth | H (mm) |
|---|-----------------|----------------|----------------|----------------|--|-----------------|----------------|----------------|----------------|--------------|--------|
| D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | | |
| 0.2283 - 0.2598 | 0.315 | 1.575 | 3.150 | 0.500 | 5.80 - 6.60 | 8 | 40 | 80 | 12 | 4 | 1.5 |
| 0.2599 - 0.2992 | 0.315 | 1.575 | 3.150 | 0.500 | 6.61 - 7.60 | 8 | 40 | 80 | 12 | 4 | 2 |
| 0.2993 - 0.3386 | 0.394 | 1.575 | 3.150 | 0.500 | 7.61 - 8.60 | 10 | 40 | 80 | 12 | 4 | 2.5 |
| 0.3387 - 0.3780 | 0.394 | 1.969 | 3.543 | 0.500 | 8.61 - 9.60 | 10 | 50 | 90 | 12 | 4 | 2.5 |
| 0.3781 - 0.4173 | 0.394 | 1.969 | 3.740 | 0.500 | 9.61 - 10.60 | 10 | 50 | 95 | 12 | 6 | 3 |
| 0.4174 - 0.4567 | 0.394 | 2.362 | 4.134 | 0.500 | 10.61 - 11.60 | 10 | 60 | 105 | 12 | 6 | 3 |
| 0.4568 - 0.4961 | 0.394 | 2.362 | 4.134 | 0.500 | 11.61 - 12.60 | 10 | 60 | 105 | 12 | 6 | 3 |
| 0.4962 - 0.5354 | 0.394 | 2.362 | 4.134 | 0.500 | 12.61 - 13.60 | 10 | 60 | 105 | 12 | 6 | 4 |
| 0.5355 - 0.5748 | 0.394 | 2.756 | 4.528 | 0.500 | 13.61 - 14.60 | 10 | 70 | 115 | 12 | 6 | 4 |
| 0.5749 - 0.6142 | 0.394 | 2.756 | 4.528 | 0.500 | 14.61 - 15.60 | 10 | 70 | 115 | 12 | 6 | 4 |
| 0.6143 - 0.6535 | 0.394 | 3.150 | 5.118 | 0.625 | 15.61 - 16.60 | 10 | 80 | 130 | 16 | 6 | 4 |
| 0.6536 - 0.6929 | 0.394 | 3.150 | 5.118 | 0.625 | 16.61 - 17.60 | 10 | 80 | 130 | 16 | 6 | 5 |
| 0.6930 - 0.7323 | 0.472 | 3.543 | 5.512 | 0.625 | 17.61 - 18.60 | 12 | 90 | 140 | 16 | 6 | 5 |
| 0.7324 - 0.7520 | 0.472 | 3.543 | 5.906 | 0.750 | 18.61 - 19.10 | 12 | 90 | 150 | 20 | 6 | 5 |
| 0.7521 - 0.7913 | 0.472 | 3.937 | 6.299 | 0.750 | 19.11 - 20.10 | 12 | 100 | 160 | 20 | 6 | 5 |
| 0.7914 - 0.8307 | 0.472 | 3.937 | 6.299 | 0.750 | 20.11 - 21.10 | 12 | 100 | 160 | 20 | 6 | 5 |
| 0.8308 - 0.8701 | 0.472 | 3.937 | 6.299 | 0.750 | 21.11 - 22.10 | 12 | 100 | 160 | 20 | 6 | 6 |
| 0.8702 - 0.9094 | 0.472 | 3.937 | 6.299 | 0.750 | 22.11 - 23.10 | 12 | 100 | 160 | 20 | 6 | 6 |
| 0.9095 - 0.9488 | 0.472 | 3.937 | 6.299 | 0.750 | 23.11 - 24.10 | 12 | 100 | 160 | 20 | 6 | 6 |
| 0.9489 - 0.9882 | 0.472 | 3.937 | 6.299 | 0.750 | 24.11 - 25.10 | 12 | 100 | 160 | 20 | 6 | 6 |
| 0.9883 - 1.0276 | 0.472 | 4.331 | 6.693 | 1.000 | 25.11 - 26.10 | 16 | 110 | 170 | 25 | 6 | 6 |
| 1.0277 - 1.0669 | 0.551 | 4.331 | 6.693 | 1.000 | 26.11 - 27.10 | 16 | 110 | 170 | 25 | 6 | 6 |
| 1.0670 - 1.1063 | 0.551 | 4.331 | 6.693 | 1.000 | 27.11 - 28.10 | 16 | 110 | 170 | 25 | 6 | 8 |
| 1.1064 - 1.1457 | 0.551 | 4.331 | 6.693 | 1.000 | 28.11 - 29.10 | 16 | 110 | 170 | 25 | 6 | 8 |
| 1.1458 - 1.1850 | 0.551 | 4.331 | 6.693 | 1.000 | 29.11 - 30.10 | 16 | 110 | 170 | 25 | 6 | 8 |
| 1.1851 - 1.2244 | 0.551 | 4.331 | 6.693 | 1.000 | 30.11 - 31.10 | 16 | 110 | 170 | 25 | 6 | 8 |
| 1.2245 - 1.2638 | 0.551 | 4.331 | 6.693 | 1.000 | 31.11 - 32.10 | 16 | 110 | 170 | 25 | 6 | 8 |

"CG" Portion of Item No. (Coating and Substrate Code)

| Grade | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating |
|---------|----------|-----|------|-------|---------|---------|-----------|-----------|
| Carbide | KL | KN | KC | KA | KK | KH | KR | KT |
| Cermet | SV | SN | SC | SA | SK | SH | SR | ST |

"L" Portion of Item No. (Lead-in Recommendation)

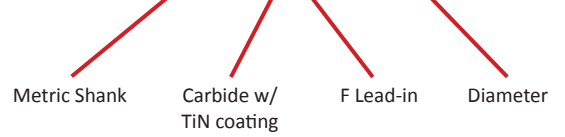
| ISO Material | E | M |
|--------------|---|---|
| P | ● | |
| S | ● | ⊙ |
| M | ● | |
| H | ⊙ | ● |
| K | ⊙ | ● |
| N | ● | ⊙ |

● Best ⊙ Better ○ Good

Ordering Example:
The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60 mm diameter
- Through hole

3627-KNF-030600



Key on C-1

C: 60 - 71

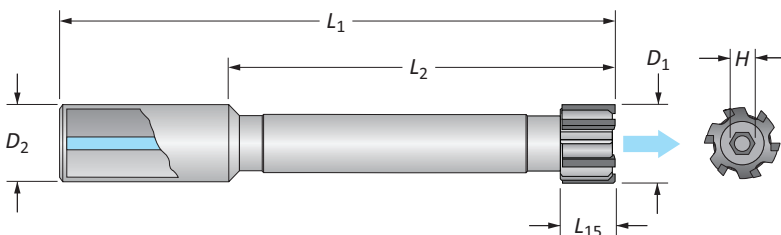
C: 52 - 59

C: 72

Monobloc Reamers



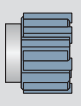
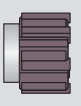
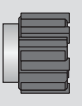
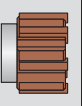
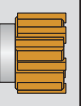
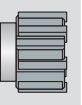
2431 Series | Long Length | Diameter Range: 0.2283" - 1.2638" (5.80 mm - 32.10 mm)

| | |
|---------|-------------|
| Series | 2431 |
| Flute | Straight |
| Type | Blind Holes |
| Coolant | Central |



| Inch Shank Part No. 92431-CGL-D ₁ | | | | | Metric Shank Part No. 2431-CGL-D ₁ | | | | | No. of Teeth | H (mm) |
|---|-----------------|----------------|----------------|----------------|--|-----------------|----------------|----------------|----------------|--------------|--------|
| D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | | |
| 0.2283 - 0.2598 | 0.315 | 3.346 | 4.843 | 0.500 | 5.80 - 6.60 | 8 | 85 | 123 | 12 | 4 | 1.5 |
| 0.2599 - 0.2992 | 0.315 | 3.346 | 4.843 | 0.500 | 6.61 - 7.60 | 8 | 85 | 123 | 12 | 4 | 2 |
| 0.2993 - 0.3386 | 0.394 | 3.346 | 4.843 | 0.500 | 7.61 - 8.60 | 10 | 85 | 123 | 12 | 4 | 2.5 |
| 0.3387 - 0.3780 | 0.394 | 3.346 | 4.843 | 0.500 | 8.61 - 9.60 | 10 | 85 | 123 | 12 | 4 | 2.5 |
| 0.3781 - 0.4173 | 0.394 | 4.528 | 6.299 | 0.500 | 9.61 - 10.60 | 10 | 115 | 160 | 12 | 6 | 3 |
| 0.4174 - 0.4567 | 0.394 | 4.528 | 6.299 | 0.500 | 10.61 - 11.60 | 10 | 115 | 160 | 12 | 6 | 3 |
| 0.4568 - 0.4961 | 0.394 | 4.528 | 6.299 | 0.500 | 11.61 - 12.60 | 10 | 115 | 160 | 12 | 6 | 3 |
| 0.4962 - 0.5354 | 0.394 | 4.528 | 6.299 | 0.500 | 12.61 - 13.60 | 10 | 115 | 160 | 12 | 6 | 4 |
| 0.5355 - 0.5748 | 0.394 | 4.528 | 6.299 | 0.500 | 13.61 - 14.60 | 10 | 115 | 160 | 12 | 6 | 4 |
| 0.5749 - 0.6142 | 0.394 | 4.528 | 6.299 | 0.500 | 14.61 - 15.60 | 10 | 115 | 160 | 12 | 6 | 4 |
| 0.6143 - 0.6535 | 0.394 | 5.118 | 7.087 | 0.625 | 15.61 - 16.60 | 10 | 130 | 180 | 16 | 6 | 4 |
| 0.6536 - 0.6929 | 0.394 | 5.118 | 7.087 | 0.625 | 16.61 - 17.60 | 10 | 130 | 180 | 16 | 6 | 5 |
| 0.6930 - 0.7323 | 0.472 | 5.118 | 7.087 | 0.625 | 17.61 - 18.60 | 12 | 130 | 180 | 16 | 6 | 5 |
| 0.7324 - 0.7520 | 0.472 | 5.512 | 7.874 | 0.750 | 18.61 - 19.10 | 12 | 140 | 200 | 20 | 6 | 5 |
| 0.7521 - 0.7913 | 0.472 | 5.512 | 7.874 | 0.750 | 19.11 - 20.10 | 12 | 140 | 200 | 20 | 6 | 5 |
| 0.7914 - 0.8307 | 0.472 | 5.512 | 7.874 | 0.750 | 20.11 - 21.10 | 12 | 140 | 200 | 20 | 6 | 5 |
| 0.8308 - 0.8701 | 0.472 | 5.512 | 7.874 | 0.750 | 21.11 - 22.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.8702 - 0.9094 | 0.472 | 5.512 | 7.874 | 0.750 | 22.11 - 23.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.9095 - 0.9488 | 0.472 | 5.512 | 7.874 | 0.750 | 23.11 - 24.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.9489 - 0.9882 | 0.472 | 5.512 | 7.874 | 0.750 | 24.11 - 25.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.9883 - 1.0276 | 0.472 | 5.906 | 8.268 | 1.000 | 25.11 - 26.10 | 16 | 150 | 210 | 25 | 6 | 6 |
| 1.0277 - 1.0669 | 0.551 | 5.906 | 8.268 | 1.000 | 26.11 - 27.10 | 16 | 150 | 210 | 25 | 6 | 6 |
| 1.0670 - 1.1063 | 0.551 | 5.906 | 8.268 | 1.000 | 27.11 - 28.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.1064 - 1.1457 | 0.551 | 5.906 | 8.268 | 1.000 | 28.11 - 29.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.1458 - 1.1850 | 0.551 | 5.906 | 8.268 | 1.000 | 29.11 - 30.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.1851 - 1.2244 | 0.551 | 5.906 | 8.268 | 1.000 | 30.11 - 31.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.2245 - 1.2638 | 0.551 | 5.906 | 8.268 | 1.000 | 31.11 - 32.10 | 16 | 150 | 210 | 25 | 6 | 8 |

"CG" Portion of Item No. (Coating and Substrate Code)

| | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |
| Grade | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating |
| Carbide | KL | KN | KC | KA | KK | KH | KR | KT |
| Cermet | SV | SN | SC | SA | SK | SH | SR | ST |

"L" Portion of Item No. (Lead-in Recommendation)

| ISO Material | T | F | N | G | L | A | V | K |
|--------------|---|---|---|---|---|---|---|---|
| P | | | ● | ● | | ○ | ○ | ○ |
| S | ● | | | ○ | | | | |
| M | | | ○ | ● | | | | ○ |
| H | | | ○ | ● | | | | |
| K | | | | ○ | | | ● | ○ |
| N | | | | ● | | | ○ | |

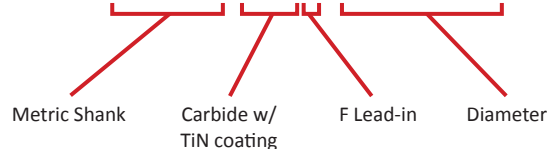
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

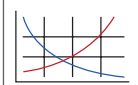
- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60 mm diameter
- Blind hole

2431-KNF-030600

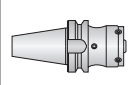


Key on C-1


C: 60 - 71



C: 52 - 59



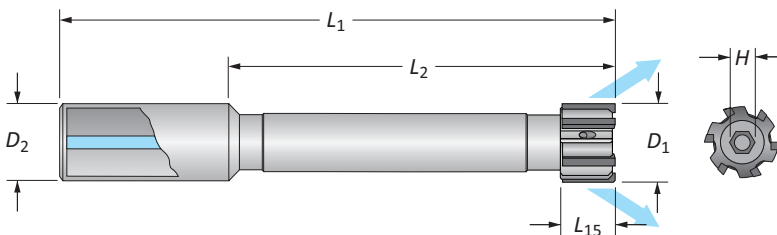
C: 72



Monobloc Reamers

3610 Series | Long Length | Diameter Range: 0.2283" - 1.2638" (5.80 mm - 32.10 mm)

| | |
|---------|---------------|
| Series | 3610 |
| Flute | Straight |
| Type | Through Holes |
| Coolant | Radial |



| Inch Shank Part No. 93610-CGL-D ₁ | | | | | Metric Shank Part No. 3610-CGL-D ₁ | | | | | No. of Teeth | H (mm) |
|---|-----------------|----------------|----------------|----------------|--|-----------------|----------------|----------------|----------------|--------------|--------|
| D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | | |
| 0.2283 - 0.2598 | 0.315 | 3.346 | 4.843 | 0.500 | 5.80 - 6.60 | 8 | 85 | 123 | 12 | 4 | 1.5 |
| 0.2599 - 0.2992 | 0.315 | 3.346 | 4.843 | 0.500 | 6.61 - 7.60 | 8 | 85 | 123 | 12 | 4 | 2 |
| 0.2993 - 0.3386 | 0.394 | 3.346 | 4.843 | 0.500 | 7.61 - 8.60 | 10 | 85 | 123 | 12 | 4 | 2.5 |
| 0.3387 - 0.3780 | 0.394 | 3.346 | 4.843 | 0.500 | 8.61 - 9.60 | 10 | 85 | 123 | 12 | 4 | 2.5 |
| 0.3781 - 0.4173 | 0.394 | 4.528 | 6.299 | 0.500 | 9.61 - 10.60 | 10 | 115 | 160 | 12 | 6 | 3 |
| 0.4174 - 0.4567 | 0.394 | 4.528 | 6.299 | 0.500 | 10.61 - 11.60 | 10 | 115 | 160 | 12 | 6 | 3 |
| 0.4568 - 0.4961 | 0.394 | 4.528 | 6.299 | 0.500 | 11.61 - 12.60 | 10 | 115 | 160 | 12 | 6 | 3 |
| 0.4962 - 0.5354 | 0.394 | 4.528 | 6.299 | 0.500 | 12.61 - 13.60 | 10 | 115 | 160 | 12 | 6 | 4 |
| 0.5355 - 0.5748 | 0.394 | 4.528 | 6.299 | 0.500 | 13.61 - 14.60 | 10 | 115 | 160 | 12 | 6 | 4 |
| 0.5749 - 0.6142 | 0.394 | 4.528 | 6.299 | 0.500 | 14.61 - 15.60 | 10 | 115 | 160 | 12 | 6 | 4 |
| 0.6143 - 0.6535 | 0.394 | 5.118 | 7.087 | 0.625 | 15.61 - 16.60 | 10 | 130 | 180 | 16 | 6 | 4 |
| 0.6536 - 0.6929 | 0.394 | 5.118 | 7.087 | 0.625 | 16.61 - 17.60 | 10 | 130 | 180 | 16 | 6 | 5 |
| 0.6930 - 0.7323 | 0.472 | 5.118 | 7.087 | 0.625 | 17.61 - 18.60 | 12 | 130 | 180 | 16 | 6 | 5 |
| 0.7324 - 0.7520 | 0.472 | 5.512 | 7.874 | 0.750 | 18.61 - 19.10 | 12 | 140 | 200 | 20 | 6 | 5 |
| 0.7521 - 0.7913 | 0.472 | 5.512 | 7.874 | 0.750 | 19.11 - 20.10 | 12 | 140 | 200 | 20 | 6 | 5 |
| 0.7914 - 0.8307 | 0.472 | 5.512 | 7.874 | 0.750 | 20.11 - 21.10 | 12 | 140 | 200 | 20 | 6 | 5 |
| 0.8308 - 0.8701 | 0.472 | 5.512 | 7.874 | 0.750 | 21.11 - 22.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.8702 - 0.9094 | 0.472 | 5.512 | 7.874 | 0.750 | 22.11 - 23.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.9095 - 0.9488 | 0.472 | 5.512 | 7.874 | 0.750 | 23.11 - 24.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.9489 - 0.9882 | 0.472 | 5.512 | 7.874 | 0.750 | 24.11 - 25.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.9883 - 1.0276 | 0.472 | 5.906 | 8.268 | 1.000 | 25.11 - 26.10 | 16 | 150 | 210 | 25 | 6 | 6 |
| 1.0277 - 1.0669 | 0.551 | 5.906 | 8.268 | 1.000 | 26.11 - 27.10 | 16 | 150 | 210 | 25 | 6 | 6 |
| 1.0670 - 1.1063 | 0.551 | 5.906 | 8.268 | 1.000 | 27.11 - 28.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.1064 - 1.1457 | 0.551 | 5.906 | 8.268 | 1.000 | 28.11 - 29.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.1458 - 1.1850 | 0.551 | 5.906 | 8.268 | 1.000 | 29.11 - 30.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.1851 - 1.2244 | 0.551 | 5.906 | 8.268 | 1.000 | 30.11 - 31.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.2245 - 1.2638 | 0.551 | 5.906 | 8.268 | 1.000 | 31.11 - 32.10 | 16 | 150 | 210 | 25 | 6 | 8 |

"CG" Portion of Item No. (Coating and Substrate Code)

| | | | | | | | | |
|---------|----------|-----|------|-------|---------|---------|-----------|-----------|
| | | | | | | | | |
| Grade | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating |
| Carbide | KL | KN | KC | KA | KK | KH | KR | KT |
| Cermet | SV | SN | SC | SA | SK | SH | SR | ST |

"L" Portion of Item No. (Lead-in Recommendation)

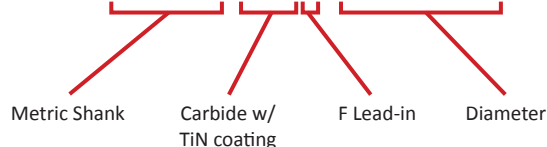
| ISO Material | T | F | N | G | L | A | V | K |
|--------------|---|---|---|---|---|---|---|---|
| P | | | ● | ● | | ○ | | ○ |
| S | ● | | | ○ | | | | |
| M | | | ○ | ● | | | | ○ |
| H | | | ○ | ● | | | | |
| K | | | | ○ | | | ● | ○ |
| N | | | | ● | | | ○ | |

● Best ○ Better ○ Good

Ordering Example:
The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60 mm diameter
- Through hole

3610-KNF-030600



Key on C: 1

C: 60 - 71

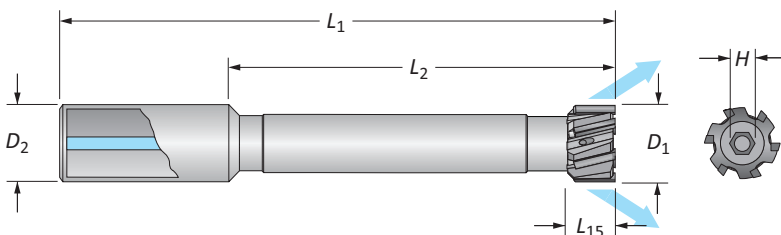
C: 52 - 59

C: 72

Monobloc Reamers

3617 Series | Long Length | Diameter Range: 0.2283" - 1.2638" (5.80 mm - 32.10 mm)

| | |
|---------|---------------|
| Series | 3617 |
| Flute | Helical |
| Type | Through Holes |
| Coolant | Radial |



| Inch Shank Part No. 93617-CGL-D ₁ | | | | | Metric Shank Part No. 3617-CGL-D ₁ | | | | | No. of Teeth | H (mm) |
|---|-----------------|----------------|----------------|----------------|--|-----------------|----------------|----------------|----------------|--------------|--------|
| D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | D ₁ Range | L ₁₅ | L ₂ | L ₁ | D ₂ | | |
| 0.2283 - 0.2598 | 0.315 | 3.346 | 4.843 | 0.500 | 5.80 - 6.60 | 8 | 85 | 123 | 12 | 4 | 1.5 |
| 0.2599 - 0.2992 | 0.315 | 3.346 | 4.843 | 0.500 | 6.61 - 7.60 | 8 | 85 | 123 | 12 | 4 | 2 |
| 0.2993 - 0.3386 | 0.394 | 3.346 | 4.843 | 0.500 | 7.61 - 8.60 | 10 | 85 | 123 | 12 | 4 | 2.5 |
| 0.3387 - 0.3780 | 0.394 | 3.346 | 4.843 | 0.500 | 8.61 - 9.60 | 10 | 85 | 123 | 12 | 4 | 2.5 |
| 0.3781 - 0.4173 | 0.394 | 4.528 | 6.299 | 0.500 | 9.61 - 10.60 | 10 | 115 | 160 | 12 | 6 | 3 |
| 0.4174 - 0.4567 | 0.394 | 4.528 | 6.299 | 0.500 | 10.61 - 11.60 | 10 | 115 | 160 | 12 | 6 | 3 |
| 0.4568 - 0.4961 | 0.394 | 4.528 | 6.299 | 0.500 | 11.61 - 12.60 | 10 | 115 | 160 | 12 | 6 | 3 |
| 0.4962 - 0.5354 | 0.394 | 4.528 | 6.299 | 0.500 | 12.61 - 13.60 | 10 | 115 | 160 | 12 | 6 | 4 |
| 0.5355 - 0.5748 | 0.394 | 4.528 | 6.299 | 0.500 | 13.61 - 14.60 | 10 | 115 | 160 | 12 | 6 | 4 |
| 0.5749 - 0.6142 | 0.394 | 4.528 | 6.299 | 0.500 | 14.61 - 15.60 | 10 | 115 | 160 | 12 | 6 | 4 |
| 0.6143 - 0.6535 | 0.394 | 5.118 | 7.087 | 0.625 | 15.61 - 16.60 | 10 | 130 | 180 | 16 | 6 | 4 |
| 0.6536 - 0.6929 | 0.394 | 5.118 | 7.087 | 0.625 | 16.61 - 17.60 | 10 | 130 | 180 | 16 | 6 | 5 |
| 0.6930 - 0.7323 | 0.472 | 5.118 | 7.087 | 0.625 | 17.61 - 18.60 | 12 | 130 | 180 | 16 | 6 | 5 |
| 0.7324 - 0.7520 | 0.472 | 5.512 | 7.874 | 0.750 | 18.61 - 19.10 | 12 | 140 | 200 | 20 | 6 | 5 |
| 0.7521 - 0.7913 | 0.472 | 5.512 | 7.874 | 0.750 | 19.11 - 20.10 | 12 | 140 | 200 | 20 | 6 | 5 |
| 0.7914 - 0.8307 | 0.472 | 5.512 | 7.874 | 0.750 | 20.11 - 21.10 | 12 | 140 | 200 | 20 | 6 | 5 |
| 0.8308 - 0.8701 | 0.472 | 5.512 | 7.874 | 0.750 | 21.11 - 22.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.8702 - 0.9094 | 0.472 | 5.512 | 7.874 | 0.750 | 22.11 - 23.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.9095 - 0.9488 | 0.472 | 5.512 | 7.874 | 0.750 | 23.11 - 24.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.9489 - 0.9882 | 0.472 | 5.512 | 7.874 | 0.750 | 24.11 - 25.10 | 12 | 140 | 200 | 20 | 6 | 6 |
| 0.9883 - 1.0276 | 0.472 | 5.906 | 8.268 | 1.000 | 25.11 - 26.10 | 16 | 150 | 210 | 25 | 6 | 6 |
| 1.0277 - 1.0669 | 0.551 | 5.906 | 8.268 | 1.000 | 26.11 - 27.10 | 16 | 150 | 210 | 25 | 6 | 6 |
| 1.0670 - 1.1063 | 0.551 | 5.906 | 8.268 | 1.000 | 27.11 - 28.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.1064 - 1.1457 | 0.551 | 5.906 | 8.268 | 1.000 | 28.11 - 29.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.1458 - 1.1850 | 0.551 | 5.906 | 8.268 | 1.000 | 29.11 - 30.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.1851 - 1.2244 | 0.551 | 5.906 | 8.268 | 1.000 | 30.11 - 31.10 | 16 | 150 | 210 | 25 | 6 | 8 |
| 1.2245 - 1.2638 | 0.551 | 5.906 | 8.268 | 1.000 | 31.11 - 32.10 | 16 | 150 | 210 | 25 | 6 | 8 |

"CG" Portion of Item No. (Coating and Substrate Code)

| Grade | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating |
|---------|----------|-----|------|-------|---------|---------|-----------|-----------|
| Carbide | KL | KN | KC | KA | KK | KH | KR | KT |
| Cermet | SV | SN | SC | SA | SK | SH | SR | ST |

"L" Portion of Item No. (Lead-in Recommendation)

| ISO Material | E | M |
|--------------|---|---|
| P | ● | |
| S | ● | ○ |
| M | ● | |
| H | ○ | ● |
| K | ○ | ● |
| N | ● | ○ |

● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60 mm diameter
- Through hole

Key on C-1

C: 60 - 71

C: 52 - 59

C: 72

3617-KNF-030600

Metric Shank

Carbide w/
TiN coating

F Lead-in

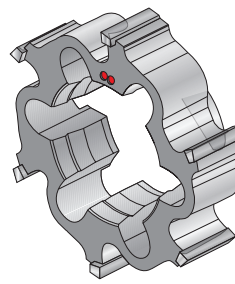
Diameter

Cutting Ring Style Reamers

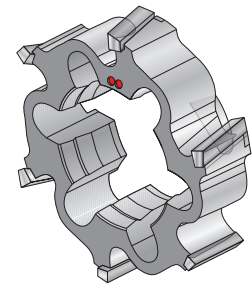
Product Overview

Cutting Ring Reamer Features

- Diameter range: 0.6929" - 7.8972" (17.60 mm - 200.59 mm)
- Available with straight or left-hand helical flutes
- Expandable up to 4% of nominal diameter
- Mandrels are available for both through holes or blind holes
- Work day lead time 20 - 25 days
- Available for recondition



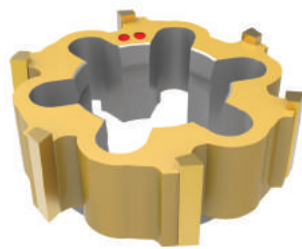
Straight Flute



Left-Hand Helical Flute



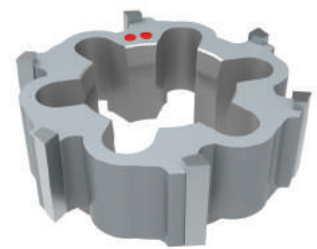
Uncoated



TiN Coated



TiAlN Coated



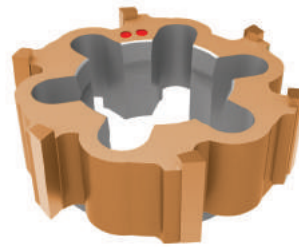
TiCN Coated



Alcrona Coated



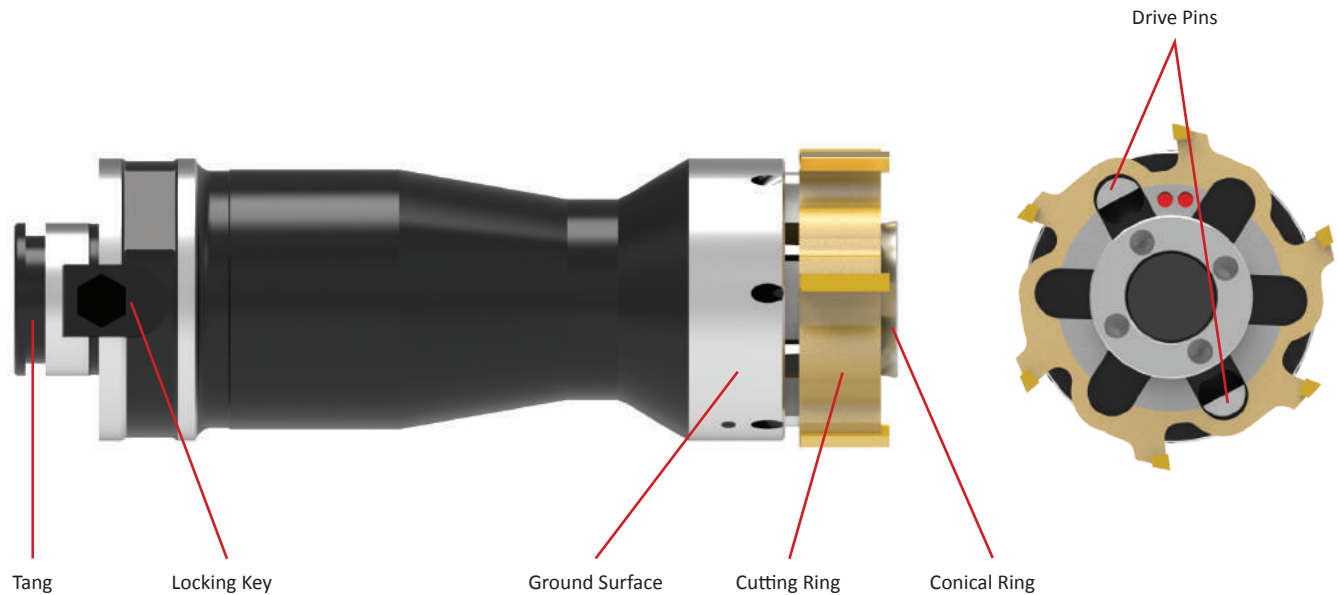
Hardcut Coated



R Coated



T Coated



Product Nomenclature

Cutting Rings

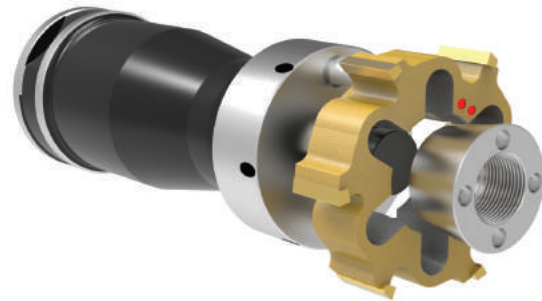
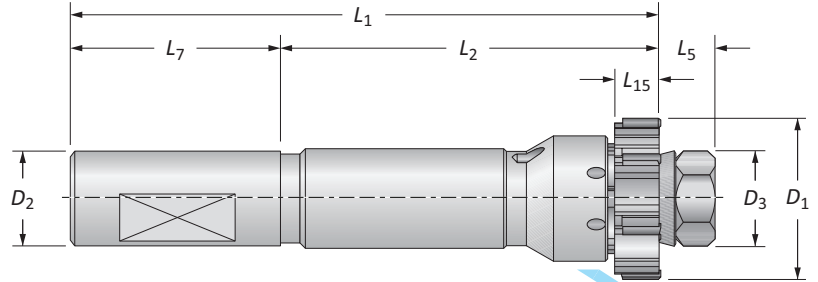
| | | | | | | | | |
|----------|----------------|----------|---|---------------|---|-------------|---|-------------|
| I | 2ANC-ST | F | - | 019686 | + | 0000 | - | 0005 |
| 1 | 2 | 3 | | 4 | | 5 | | |

NOTE: If diameter and tolerance are specified in inch units, put an "I" at the beginning of the item number

| | | | | | | | | | | | | | | | | | |
|--|--|--|----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|-------------------------------------|---------------------------------------|--------------------------------------|---|--|---|--|-----------------------------------|----------------------------------|-----------------------------------|----------------------------------|
| <p>1. Diameter Unit of Measure</p> <p>Blank = Metric diameter (mm) I = Imperial diameter (in)</p> | <p>2. Coating and Substrate</p> <table border="0"> <tr> <td>2000-KT = Uncoated carbide</td> <td>2AVC-ST = Uncoated cermet</td> </tr> <tr> <td>2TIN-KT = TiN coated carbide</td> <td>2ANC-ST = TiN coated cermet</td> </tr> <tr> <td>2TIC-KT = TiCN coated carbide</td> <td>2ACC-ST = TiCN coated cermet</td> </tr> <tr> <td>2TIA-KT = TiAlN coated carbide</td> <td>2AAC-ST = TiAlN coated cermet</td> </tr> <tr> <td>2TLK-KT = Alcrona coated carbide</td> <td>2ALK-ST = Alcrona coated cermet</td> </tr> <tr> <td>2TLH-KT = Hardcut coated carbide</td> <td>2TLH-ST = Hardcut coated cermet</td> </tr> <tr> <td>2TLR-KT = R coated carbide</td> <td>2TLR-ST = R coated cermet</td> </tr> <tr> <td>2TLT-KT = T coated carbide</td> <td>2TLT-ST = T coated cermet</td> </tr> </table> | 2000-KT = Uncoated carbide | 2AVC-ST = Uncoated cermet | 2TIN-KT = TiN coated carbide | 2ANC-ST = TiN coated cermet | 2TIC-KT = TiCN coated carbide | 2ACC-ST = TiCN coated cermet | 2TIA-KT = TiAlN coated carbide | 2AAC-ST = TiAlN coated cermet | 2TLK-KT = Alcrona coated carbide | 2ALK-ST = Alcrona coated cermet | 2TLH-KT = Hardcut coated carbide | 2TLH-ST = Hardcut coated cermet | 2TLR-KT = R coated carbide | 2TLR-ST = R coated cermet | 2TLT-KT = T coated carbide | 2TLT-ST = T coated cermet |
| 2000-KT = Uncoated carbide | 2AVC-ST = Uncoated cermet | | | | | | | | | | | | | | | | |
| 2TIN-KT = TiN coated carbide | 2ANC-ST = TiN coated cermet | | | | | | | | | | | | | | | | |
| 2TIC-KT = TiCN coated carbide | 2ACC-ST = TiCN coated cermet | | | | | | | | | | | | | | | | |
| 2TIA-KT = TiAlN coated carbide | 2AAC-ST = TiAlN coated cermet | | | | | | | | | | | | | | | | |
| 2TLK-KT = Alcrona coated carbide | 2ALK-ST = Alcrona coated cermet | | | | | | | | | | | | | | | | |
| 2TLH-KT = Hardcut coated carbide | 2TLH-ST = Hardcut coated cermet | | | | | | | | | | | | | | | | |
| 2TLR-KT = R coated carbide | 2TLR-ST = R coated cermet | | | | | | | | | | | | | | | | |
| 2TLT-KT = T coated carbide | 2TLT-ST = T coated cermet | | | | | | | | | | | | | | | | |
| <p>3. Lead-in</p> <p>E, M = Left-hand helical flute A, F, G, L, N, T, V, K = Straight flute K = Chipbreaker geometry for straight or helical flute</p> | <p>4. Diameter</p> <p>XX.XXXX = Imperial (inch) XXX.XXX = Metric (mm)</p> | <p>5. Tolerance</p> <p>4 decimal places = inch tolerance 3 decimal places = mm tolerance</p> <p>*The total tolerance capable is 0.0002" (0.005 mm)</p> | | | | | | | | | | | | | | | |

Reference Key


| Symbol | Attribute |
|----------|-------------------------------|
| D_1 | Reamer diameter |
| D_2 | Shank diameter |
| D_3 | Maximum conical ring diameter |
| L_1 | Overall length |
| L_2 | Length of cut |
| L_5 | Maximum overhang |
| L_7 | Shank length |
| L_{15} | Flute length |



Building Your Complete Tool

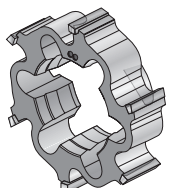
You will need both pieces to complete your ring style reamer assembly. There is a guide on the page where the rings are located. You must follow the guide to build the item number for the reamer ring that you need.


However, the complete mandrel item numbers are listed on their respective pages. You do not need to build the mandrel numbers.



1


Select Your Ring





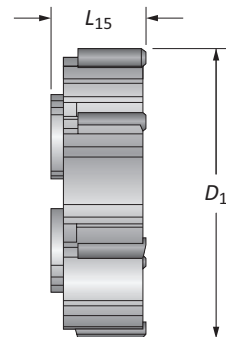
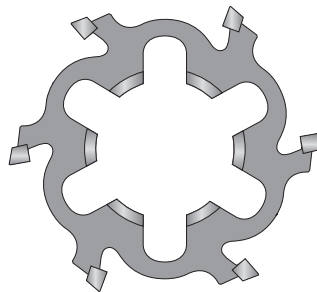
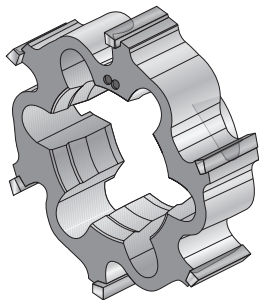
2

Select Your Mandrel



Cutting Rings

Imperial (inch) | Diameter Range: 0.6929" - 7.8976"



| D_1 Range | L_{15} | | Number of Teeth |
|-----------------|-----------------|----------------|-----------------|
| | Imperial (inch) | Straight Flute | |
| 0.6929 - 0.8503 | 0.433 | – | 6 |
| 0.8504 - 1.0078 | 0.472 | – | 6 |
| 1.0079 - 1.2834 | 0.551 | – | 6 |
| 1.2835 - 1.7952 | 0.630 | 0.630 | 6 |
| 1.7953 - 3.1338 | 0.728 | 0.728 | 6 |
| 3.1339 - 3.9605 | 0.728 | 0.728 | 8 |
| 3.9606 - 4.3542 | 0.728 | 0.728 | 10 |
| 4.3543 - 7.8976 | 0.728 | 0.728 | 12 |

I 2ANC-STF-019686+0002-0002

Imperial Item

Cermet w/
TiN Coating

F Lead-in

Diameter (1.9686") (D_1)Tolerance (± 0.0002 "

Coating and Substrate Codes

| Grade | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating |
|---------|----------|---------|---------|---------|---------|---------|-----------|-----------|
| Carbide | 2000-KT | 2TIN-KT | 2TIC-KT | 2TIA-KT | 2TLK-KT | 2TLH-KT | 2TLR-KT | 2TTL-KT |
| Cermet | 2AVC-ST | 2ANC-ST | 2ACC-ST | 2AAC-ST | 2ALK-ST | 2ALH-ST | 2ALR-ST | 2ALT-ST |

Lead-in Recommendation (Straight Flute)

| ISO Material | T | F | N | G | L | A | V | K |
|--------------|---|---|---|---|---|---|---|---|
| P | | | ● | ● | | ○ | ○ | ○ |
| S | ● | | | ○ | | | | |
| M | | | ○ | ● | | | | ○ |
| H | | | ○ | ● | | | | |
| K | | | | ○ | | | ● | ○ |
| N | | | | ● | | | ○ | |

● Best ○ Better ○ Good

Lead-in Recommendation (Helical Flute)

| ISO Material | E | M |
|--------------|---|---|
| P | ● | |
| S | ● | ○ |
| M | ● | |
| H | ○ | ● |
| K | ○ | ● |
| N | ● | ○ |

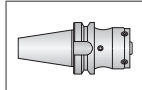
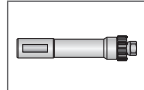
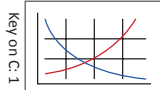
● Best ○ Better ○ Good

C: 60 - 71

C: 32 - 51

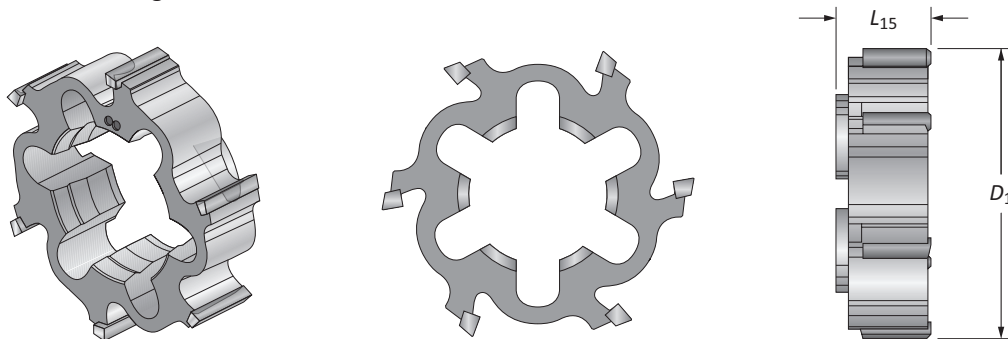
C: 52 - 59

C: 72



Cutting Rings

Metric (mm) | Diameter Range: 17.600 mm - 200.60 mm



| D_1 Range Metric (mm) | L_{15} | | Number of Teeth |
|----------------------------|----------------|---------------|-----------------|
| | Straight Flute | Helical Flute | |
| 17.600 - 21.599 | 11.00 | - | 6 |
| 21.600 - 25.599 | 12.00 | - | 6 |
| 25.600 - 32.599 | 14.00 | - | 6 |
| 32.600 - 45.599 | 16.00 | 16.00 | 6 |
| 45.600 - 79.599 | 18.50 | 18.50 | 6 |
| 79.600 - 100.599 | 18.50 | 18.50 | 8 |
| 100.600 - 110.599 | 18.50 | 18.50 | 10 |
| 110.600 - 200.600 | 18.50 | 18.50 | 12 |

2ANC-STF-055298+003-003

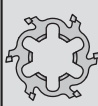



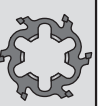
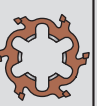
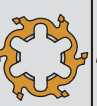

Cermet w/
TiN Coating

F Lead-in

Diameter (55.298 mm) (D_1)

Tolerance (± 0.003 mm)

Coating and Substrate Codes

| |  |  |  |  |  |  |  |  |
|----------------|---|---|---|---|---|---|---|--|
| Grade | Uncoated | TiN | TiCN | TiAlN | Alcrona | Hardcut | R Coating | T Coating |
| Carbide | 2000-KT | 2TIN-KT | 2TIC-KT | 2TIA-KT | 2TLK-KT | 2TLH-KT | 2TLR-KT | 2TLT-KT |
| Cermet | 2AVC-ST | 2ANC-ST | 2ACC-ST | 2AAC-ST | 2ALK-ST | 2ALH-ST | 2ALR-ST | 2ALT-ST |

Lead-in Recommendation (Straight Flute)

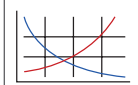
| ISO Material | T | F | N | G | L | A | V | K |
|--------------|---|---|---|---|---|---|---|---|
| P | | | ● | ● | | ○ | ○ | ○ |
| S | ● | | | ○ | | | | |
| M | | | ○ | ● | | | | ○ |
| H | | | ○ | ● | | | | |
| K | | | | ○ | | | ● | ○ |
| N | | | | ● | | | ○ | |


● Best ○ Better ○ Good

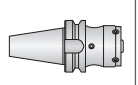
Lead-in Recommendation (Helical Flute)


| ISO Material | E | M |
|--------------|---|---|
| P | ● | |
| S | ● | ○ |
| M | ● | |
| H | ○ | ● |
| K | ○ | ● |
| N | ● | ○ |

● Best ○ Better ○ Good

C: 60 - 71  Key on C-1

C: 32 - 51 

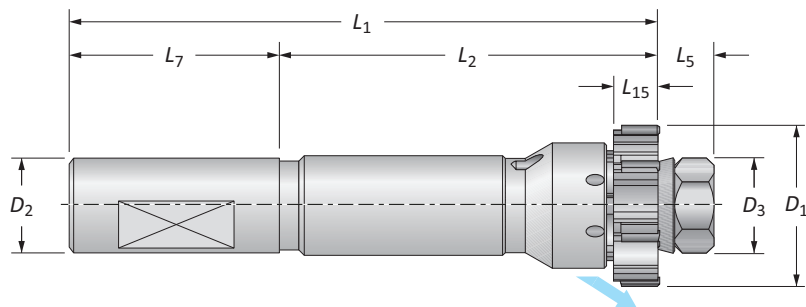
C: 52 - 59 

C: 72 

Ring Style Mandrels

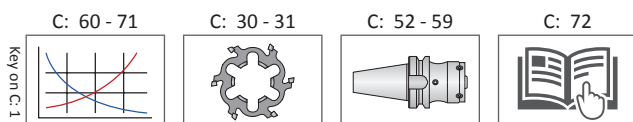
4550 Series | Short Length | Diameter Range: 0.6929" - 3.9602" (17.60 mm - 100.59 mm)

| | |
|-------------|---------------|
| Series | 4550 |
| Shank Type | Cylindrical |
| Application | Through Holes |
| Coolant | Radial |



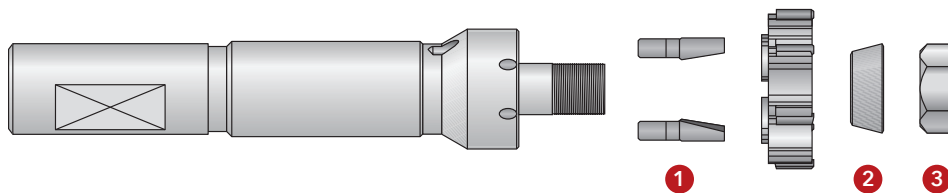
| | Mandrel | | | | | | Shank | | Teeth | Part No. (Complete Mandrel*) | |
|-----------------|----------------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|--------------|---------------------------------|---------------|
| | D ₁ Range | D ₃ | L ₅ | L ₁₅ | L ₂ | L ₁ | L ₇ | D ₂ | | With Flat | Without Flat |
| i | 0.6929 - 0.8503 | 0.472 | 0.433 | 0.433 | 3.189 | 5.591 | 1.969 | 0.750 | 6 | 94550-MC-010 | 94550A-MC-010 |
| | 0.8504 - 1.0078 | 0.472 | 0.433 | 0.472 | 3.189 | 5.591 | 1.969 | 0.750 | 6 | 94550-MC-020 | 94550A-MC-020 |
| | 1.0079 - 1.2834 | 0.614 | 0.433 | 0.551 | 4.016 | 6.417 | 1.969 | 0.750 | 6 | 94550-MC-030 | 94550A-MC-030 |
| | 1.2835 - 1.5983 | 0.866 | 0.551 | 0.630 | 4.016 | 6.772 | 2.205 | 1.000 | 6 | 94550-MC-040 | 94550A-MC-040 |
| | 1.5984 - 1.7952 | 1.000 | 0.591 | 0.630 | 4.016 | 6.811 | 2.205 | 1.000 | 6 | 94550-MC-050 | 94550A-MC-050 |
| | 1.7953 - 1.9527 | 1.181 | 0.807 | 0.728 | 4.134 | 7.303 | 2.362 | 1.250 | 6 | 94550-MC-060 | 94550A-MC-060 |
| | 1.9528 - 2.3857 | 1.181 | 0.807 | 0.728 | 4.134 | 7.303 | 2.362 | 1.250 | 6 | 94550-MC-070 | 94550A-MC-070 |
| | 2.3858 - 2.7794 | 1.575 | 0.965 | 0.728 | 4.134 | 7.461 | 2.362 | 1.250 | 6 | 94550-MC-080 | 94550A-MC-080 |
| | 2.7795 - 3.1338 | 1.575 | 0.965 | 0.728 | 4.134 | 7.461 | 2.362 | 1.250 | 6 | 94550-MC-090 | 94550A-MC-090 |
| | 3.1339 - 3.5668 | 2.205 | 1.122 | 0.728 | 4.134 | 8.012 | 2.756 | 1.500 | 8 | 94550-MC-100 | 94550A-MC-100 |
| 3.5669 - 3.9602 | 2.205 | 1.122 | 0.728 | 4.134 | 8.012 | 2.756 | 1.500 | 8 | 94550-MC-110 | 94550A-MC-110 | |
| m | 17.60 - 21.59 | 12 | 11 | 11 | 81 | 142 | 50 | 20 | 6 | 4550-MC-010 | 4550A-MC-010 |
| | 21.60 - 25.59 | 12 | 11 | 12 | 81 | 142 | 50 | 20 | 6 | 4550-MC-020 | 4550A-MC-020 |
| | 25.60 - 32.59 | 15.6 | 11 | 14 | 102 | 163 | 50 | 20 | 6 | 4550-MC-030 | 4550A-MC-030 |
| | 32.60 - 40.59 | 22 | 14 | 16 | 102 | 172 | 56 | 25 | 6 | 4550-MC-040 | 4550A-MC-040 |
| | 40.60 - 45.59 | 25.4 | 15 | 16 | 102 | 173 | 56 | 25 | 6 | 4550-MC-050 | 4550A-MC-050 |
| | 45.60 - 49.59 | 30 | 20.5 | 18.5 | 105 | 185.5 | 60 | 32 | 6 | 4550-MC-060 | 4550A-MC-060 |
| | 49.60 - 60.59 | 30 | 20.5 | 18.5 | 105 | 185.5 | 60 | 32 | 6 | 4550-MC-070 | 4550A-MC-070 |
| | 60.60 - 70.59 | 40 | 24.5 | 18.5 | 105 | 189.5 | 60 | 32 | 6 | 4550-MC-080 | 4550A-MC-080 |
| | 70.60 - 79.59 | 40 | 24.5 | 18.5 | 105 | 189.5 | 60 | 32 | 6 | 4550-MC-090 | 4550A-MC-090 |
| | 79.60 - 90.59 | 56 | 28.5 | 18.5 | 105 | 203.5 | 70 | 40 | 8 | 4550-MC-100 | 4550A-MC-100 |
| 90.60 - 100.59 | 56 | 28.5 | 18.5 | 105 | 203.5 | 70 | 40 | 8 | 4550-MC-110 | 4550A-MC-110 | |

*Complete mandrel does not include cutting ring.


 i = Imperial (in)
 m = Metric (mm)

Ring Style Mandrels

4550 Series | Short Length | Spare Parts



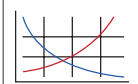
| | Part No. (Complete Mandrel*) | | Spare Parts | | | | |
|----|---------------------------------|---------------|-----------------|------------------------------|-------------------|---------------------|------|
| | With Flat | Without Flat | 1 Drive Pins | 2 Number of Drive Pins | 3 Conical Ring | Wrench Size (mm) | |
| i | 94550-MC-010 | 94550A-MC-010 | 2000-CO-010 | 3 | 2010-AC-010 | 2000-DA-010 | 10 |
| | 94550-MC-020 | 94550A-MC-020 | 2000-CO-020 | 3 | 2010-AC-010 | 2000-DA-010 | 10 |
| | 94550-MC-030 | 94550A-MC-030 | 2000-CO-030 | 3 | 2010-AC-020 | 2000-DA-020 | 13 |
| | 94550-MC-040 | 94550A-MC-040 | 2000-CO-040 | 2 | 2010-AC-030 | 2000-DA-060 | 19 |
| | 94550-MC-050 | 94550A-MC-050 | 2000-CO-060 | 2 | 2010-AC-040 | 2000-DA-090 | 22 |
| | 94550-MC-060 | 94550A-MC-060 | 2000-CO-060 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ |
| | 94550-MC-070 | 94550A-MC-070 | 2000-CO-070 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ |
| | 94550-MC-080 | 94550A-MC-080 | 2000-CO-080 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ |
| | 94550-MC-090 | 94550A-MC-090 | 2000-CO-090 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ |
| | 94550-MC-100 | 94550A-MC-100 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ |
| | 94550-MC-110 | 94550A-MC-110 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ |
| ii | 4550-MC-010 | 4550A-MC-010 | 2000-CO-010 | 3 | 2010-AC-010 | 2000-DA-010 | 10 |
| | 4550-MC-020 | 4550A-MC-020 | 2000-CO-020 | 3 | 2010-AC-010 | 2000-DA-010 | 10 |
| | 4550-MC-030 | 4550A-MC-030 | 2000-CO-030 | 3 | 2010-AC-020 | 2000-DA-020 | 13 |
| | 4550-MC-040 | 4550A-MC-040 | 2000-CO-040 | 2 | 2010-AC-030 | 2000-DA-060 | 19 |
| | 4550-MC-050 | 4550A-MC-050 | 2000-CO-060 | 2 | 2010-AC-040 | 2000-DA-090 | 22 |
| | 4550-MC-060 | 4550A-MC-060 | 2000-CO-060 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ |
| | 4550-MC-070 | 4550A-MC-070 | 2000-CO-070 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ |
| | 4550-MC-080 | 4550A-MC-080 | 2000-CO-080 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ |
| | 4550-MC-090 | 4550A-MC-090 | 2000-CO-090 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ |
| | 4550-MC-100 | 4550A-MC-100 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ |
| | 4550-MC-110 | 4550A-MC-110 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ |

*Complete mandrel does not include cutting ring.


♦ Spanner wrench

Key on C: 1

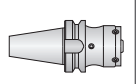
C: 60 - 71




C: 30 - 31



C: 52 - 59



C: 72

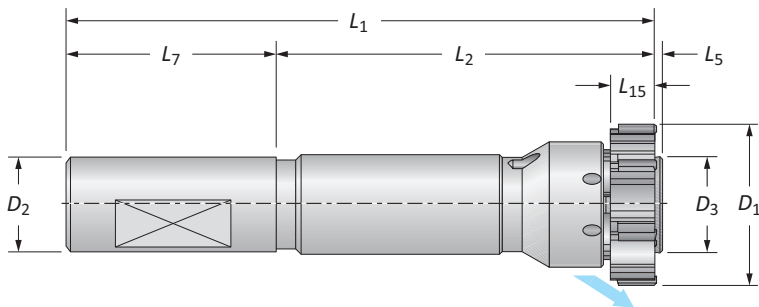


i = Imperial (in)
ii = Metric (mm)

Ring Style Mandrels

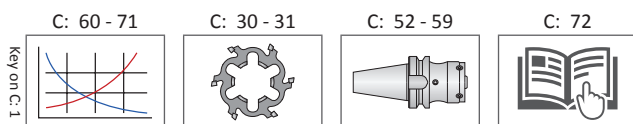
4555 Series | Short Length | Diameter Range: 0.6929" - 3.9602" (17.60 mm - 100.59 mm)

| | |
|-------------|-------------|
| Series | 4555 |
| Shank Type | Cylindrical |
| Application | Blind Holes |
| Coolant | Radial |



| | Mandrel | | | | | | Shank | | Teeth | Part No. (Complete Mandrel*) | |
|-----------------|----------------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|--------------|---------------------------------|---------------|
| | D ₁ Range | D ₃ | L ₅ | L ₁₅ | L ₂ | L ₁ | L ₇ | D ₂ | | With Flat | Without Flat |
| i | 0.6929 - 0.8503 | 0.441 | 0.039 | 0.433 | 3.189 | 5.197 | 1.969 | 0.750 | 6 | 94555-MC-010 | 94555A-MC-010 |
| | 0.8504 - 1.0078 | 0.441 | 0.039 | 0.472 | 3.189 | 5.197 | 1.969 | 0.750 | 6 | 94555-MC-020 | 94555A-MC-020 |
| | 1.0079 - 1.1653 | 0.594 | 0.039 | 0.551 | 4.016 | 6.024 | 1.969 | 0.750 | 6 | 94555-MC-030 | 94555A-MC-030 |
| | 1.1654 - 1.2834 | 0.594 | 0.039 | 0.551 | 4.016 | 6.024 | 1.969 | 0.750 | 6 | 94555-MC-035 | 94555A-MC-035 |
| | 1.2835 - 1.4408 | 0.799 | 0.039 | 0.630 | 4.016 | 6.260 | 2.205 | 1.000 | 6 | 94555-MC-040 | 94555A-MC-040 |
| | 1.4409 - 1.5983 | 0.799 | 0.039 | 0.630 | 4.016 | 6.260 | 2.205 | 1.000 | 6 | 94555-MC-045 | 94555A-MC-045 |
| | 1.5984 - 1.7952 | 0.949 | 0.039 | 0.630 | 4.016 | 6.260 | 2.205 | 1.000 | 6 | 94555-MC-050 | 94555A-MC-050 |
| | 1.7953 - 1.9527 | 1.098 | 0.059 | 0.728 | 4.134 | 6.555 | 2.362 | 1.250 | 6 | 94555-MC-060 | 94555A-MC-060 |
| | 1.9528 - 2.1889 | 1.098 | 0.059 | 0.728 | 4.134 | 6.555 | 2.362 | 1.250 | 6 | 94555-MC-070 | 94555A-MC-070 |
| | 2.1890 - 2.3857 | 1.098 | 0.059 | 0.728 | 4.134 | 6.555 | 2.362 | 1.250 | 6 | 94555-MC-075 | 94555A-MC-075 |
| | 2.3858 - 2.5826 | 1.461 | 0.059 | 0.728 | 4.134 | 6.555 | 2.362 | 1.250 | 6 | 94555-MC-080 | 94555A-MC-080 |
| 2.5827 - 2.7794 | 1.461 | 0.059 | 0.728 | 4.134 | 6.555 | 2.362 | 1.250 | 6 | 94555-MC-085 | 94555A-MC-085 | |
| 2.7795 - 3.1338 | 1.461 | 0.059 | 0.728 | 4.134 | 6.555 | 2.362 | 1.250 | 6 | 94555-MC-090 | 94555A-MC-090 | |
| 3.1339 - 3.5668 | 2.091 | 0.059 | 0.728 | 4.134 | 6.949 | 2.756 | 1.500 | 8 | 94555-MC-100 | 94555A-MC-100 | |
| 3.5669 - 3.9602 | 2.091 | 0.059 | 0.728 | 4.134 | 6.949 | 2.756 | 1.500 | 8 | 94555-MC-110 | 94555A-MC-110 | |
| m | 17.60 - 21.59 | 11.2 | 1 | 11 | 81 | 132 | 50 | 20 | 6 | 4555-MC-010 | 4555A-MC-010 |
| | 21.60 - 25.59 | 11.2 | 1 | 12 | 81 | 132 | 50 | 20 | 6 | 4555-MC-020 | 4555A-MC-020 |
| | 25.60 - 29.59 | 15.1 | 1 | 14 | 102 | 153 | 50 | 20 | 6 | 4555-MC-030 | 4555A-MC-030 |
| | 29.60 - 32.59 | 15.1 | 1 | 14 | 102 | 153 | 50 | 20 | 6 | 4555-MC-035 | 4555A-MC-035 |
| | 32.60 - 36.59 | 20.3 | 1 | 16 | 102 | 159 | 56 | 25 | 6 | 4555-MC-040 | 4555A-MC-040 |
| | 36.60 - 40.59 | 20.3 | 1 | 16 | 102 | 159 | 56 | 25 | 6 | 4555-MC-045 | 4555A-MC-045 |
| | 40.60 - 45.59 | 24.1 | 1 | 16 | 102 | 159 | 56 | 25 | 6 | 4555-MC-050 | 4555A-MC-050 |
| | 45.60 - 49.59 | 27.9 | 1.5 | 18.5 | 105 | 166.5 | 60 | 32 | 6 | 4555-MC-060 | 4555A-MC-060 |
| | 49.60 - 55.59 | 27.9 | 1.5 | 18.5 | 105 | 166.5 | 60 | 32 | 6 | 4555-MC-070 | 4555A-MC-070 |
| | 55.60 - 60.59 | 27.9 | 1.5 | 18.5 | 105 | 166.5 | 60 | 32 | 6 | 4555-MC-075 | 4555A-MC-075 |
| | 60.60 - 65.59 | 37.1 | 1.5 | 18.5 | 105 | 166.5 | 60 | 32 | 6 | 4555-MC-080 | 4555A-MC-080 |
| 65.60 - 70.59 | 37.1 | 1.5 | 18.5 | 105 | 166.5 | 60 | 32 | 6 | 4555-MC-085 | 4555A-MC-085 | |
| 70.60 - 79.59 | 37.1 | 1.5 | 18.5 | 105 | 166.5 | 60 | 32 | 6 | 4555-MC-090 | 4555A-MC-090 | |
| 79.60 - 90.59 | 53.1 | 1.5 | 18.5 | 105 | 176.5 | 70 | 40 | 8 | 4555-MC-100 | 4555A-MC-100 | |
| 90.60 - 100.59 | 53.1 | 1.5 | 18.5 | 105 | 176.5 | 70 | 40 | 8 | 4555-MC-110 | 4555A-MC-110 | |

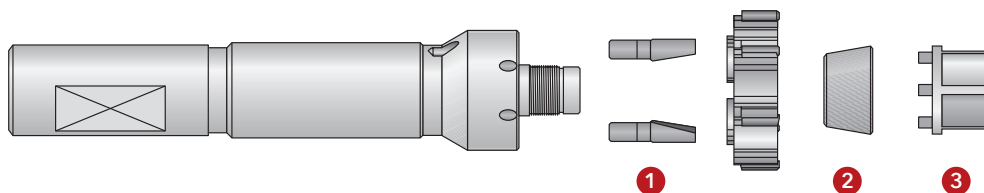
*Complete mandrel does not include cutting ring.



i = Imperial (in)
m = Metric (mm)

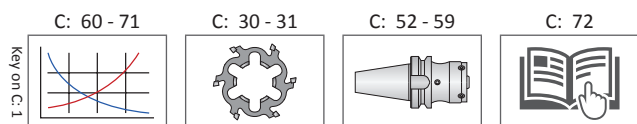
Ring Style Mandrels

4555 Series | Short Length | Spare Parts



| Part No. (Complete Mandrel*) | | Spare Parts | | | | | | | Wrench Size (mm) |
|---------------------------------|---------------|-----------------|-------------------------|-------------------|---------------------------------|---------------------------------|--------------------|----|------------------------|
| With Flat | Without Flat | 1 Drive Pins | Number of Drive Pins | 2 Conical Ring | Conical Ring (2nd Expansion) | Conical Ring (3rd Expansion) | 3 Adjusting Key | | |
| 94555-MC-010 | 94555A-MC-010 | 2000-CO-010 | 3 | 4001-AC-115 | 4001-AC-215 | - | 4001-CH-015 | 10 | |
| 94555-MC-020 | 94555A-MC-020 | 2000-CO-020 | 3 | 4001-AC-115 | 4001-AC-215 | - | 4001-CH-015 | 10 | |
| 94555-MC-030 | 94555A-MC-030 | 2000-CO-030 | 3 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 94555-MC-035 | 94555A-MC-035 | 2000-CO-040 | 2 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 94555-MC-040 | 94555A-MC-040 | 2000-CO-040 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 94555-MC-045 | 94555A-MC-045 | 2000-CO-050 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 94555-MC-050 | 94555A-MC-050 | 2000-CO-060 | 2 | 4001-AC-145 | 4001-AC-245 | 4001-AC-345 | 4001-CH-045 | 22 | |
| 94555-MC-060 | 94555A-MC-060 | 2000-CO-060 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 94555-MC-070 | 94555A-MC-070 | 2000-CO-070 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 94555-MC-075 | 94555A-MC-075 | 2000-CO-080 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 94555-MC-080 | 94555A-MC-080 | 2000-CO-080 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 94555-MC-085 | 94555A-MC-085 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 94555-MC-090 | 94555A-MC-090 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 94555-MC-100 | 94555A-MC-100 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |
| 94555-MC-110 | 94555A-MC-110 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |
| 4555-MC-010 | 4555A-MC-010 | 2000-CO-010 | 3 | 4001-AC-115 | 4001-AC-215 | - | 4001-CH-015 | 10 | |
| 4555-MC-020 | 4555A-MC-020 | 2000-CO-020 | 3 | 4001-AC-115 | 4001-AC-215 | - | 4001-CH-015 | 10 | |
| 4555-MC-030 | 4555A-MC-030 | 2000-CO-030 | 3 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 4555-MC-035 | 4555A-MC-035 | 2000-CO-040 | 2 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 4555-MC-040 | 4555A-MC-040 | 2000-CO-040 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 4555-MC-045 | 4555A-MC-045 | 2000-CO-050 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 4555-MC-050 | 4555A-MC-050 | 2000-CO-060 | 2 | 4001-AC-145 | 4001-AC-245 | 4001-AC-345 | 4001-CH-045 | 22 | |
| 4555-MC-060 | 4555A-MC-060 | 2000-CO-060 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4555-MC-070 | 4555A-MC-070 | 2000-CO-070 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4555-MC-075 | 4555A-MC-075 | 2000-CO-080 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4555-MC-080 | 4555A-MC-080 | 2000-CO-080 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4555-MC-085 | 4555A-MC-085 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4555-MC-090 | 4555A-MC-090 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4555-MC-100 | 4555A-MC-100 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |
| 4555-MC-110 | 4555A-MC-110 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |

*Complete mandrel does not include cutting ring.

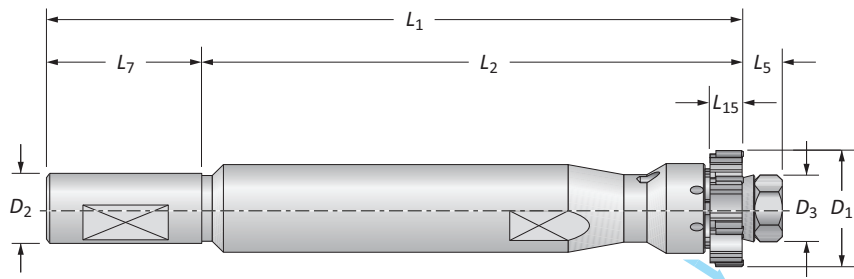


ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Ring Style Mandrels

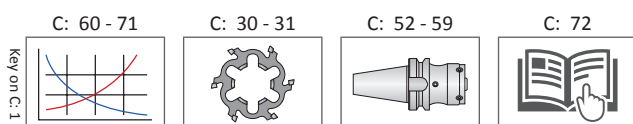
4500 Series | Long Length | Diameter Range: 0.6929" - 3.9602" (17.60 mm - 100.59 mm)

| | |
|-------------|---------------|
| Series | 4500 |
| Shank Type | Cylindrical |
| Application | Through Holes |
| Coolant | Radial |



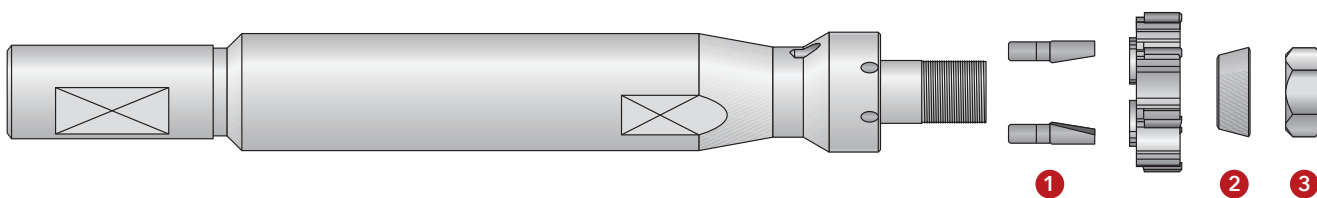
| | Mandrel | | | | | | Shank | | Teeth | Part No. (Complete Mandrel*) | |
|-----------------|----------------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|--------------|---------------------------------|---------------|
| | D ₁ Range | D ₃ | L ₅ | L ₁₅ | L ₂ | L ₁ | L ₇ | D ₂ | | With Flat | Without Flat |
| i | 0.6929 - 0.8503 | 0.472 | 0.433 | 0.433 | 4.764 | 7.165 | 1.969 | 0.750 | 6 | 94500-MC-010 | 94500A-MC-010 |
| | 0.8504 - 1.0078 | 0.472 | 0.433 | 0.472 | 4.764 | 7.165 | 1.969 | 0.750 | 6 | 94500-MC-020 | 94500A-MC-020 |
| | 1.0079 - 1.2834 | 0.614 | 0.433 | 0.551 | 6.024 | 8.425 | 1.969 | 0.750 | 6 | 94500-MC-030 | 94500A-MC-030 |
| | 1.2835 - 1.5983 | 0.866 | 0.551 | 0.630 | 7.047 | 9.803 | 2.205 | 1.000 | 6 | 94500-MC-040 | 94500A-MC-040 |
| | 1.5984 - 1.7952 | 0.866 | 0.551 | 0.630 | 7.047 | 9.803 | 2.205 | 1.000 | 6 | 94500-MC-050 | 94500A-MC-050 |
| | 1.7953 - 1.9527 | 1.000 | 0.591 | 0.630 | 7.913 | 10.709 | 2.205 | 1.000 | 6 | 94500-MC-060 | 94500A-MC-060 |
| | 1.9528 - 2.3857 | 1.181 | 0.807 | 0.728 | 8.425 | 11.594 | 2.362 | 1.250 | 6 | 94500-MC-070 | 94500A-MC-070 |
| | 2.3858 - 2.7794 | 1.575 | 0.965 | 0.728 | 9.331 | 12.657 | 2.362 | 1.250 | 6 | 94500-MC-080 | 94500A-MC-080 |
| | 2.7795 - 3.1338 | 1.575 | 0.965 | 0.728 | 9.331 | 12.657 | 2.362 | 1.250 | 6 | 94500-MC-090 | 94500A-MC-090 |
| | 3.1339 - 3.5668 | 2.205 | 1.122 | 0.728 | 9.646 | 13.524 | 2.756 | 1.500 | 6 | 94500-MC-100 | 94500A-MC-100 |
| 3.5669 - 3.9602 | 2.205 | 1.122 | 0.728 | 9.646 | 13.524 | 2.756 | 1.500 | 8 | 94500-MC-110 | 94500A-MC-110 | |
| m | 17.60 - 21.59 | 12 | 11 | 11 | 121 | 182 | 50 | 20 | 6 | 4500-MC-010 | 4500A-MC-010 |
| | 21.60 - 25.59 | 12 | 11 | 12 | 121 | 182 | 50 | 20 | 6 | 4500-MC-020 | 4500A-MC-020 |
| | 25.60 - 32.59 | 15.6 | 11 | 14 | 153 | 214 | 50 | 20 | 6 | 4500-MC-030 | 4500A-MC-030 |
| | 32.60 - 40.59 | 22 | 14 | 16 | 179 | 249 | 56 | 25 | 6 | 4500-MC-040 | 4500A-MC-040 |
| | 40.60 - 45.59 | 25.4 | 15 | 16 | 201 | 272 | 56 | 25 | 6 | 4500-MC-050 | 4500A-MC-050 |
| | 45.60 - 49.59 | 30 | 20.5 | 18.5 | 214 | 294.5 | 60 | 32 | 6 | 4500-MC-060 | 4500A-MC-060 |
| | 49.60 - 60.59 | 30 | 20.5 | 18.5 | 214 | 294.5 | 60 | 32 | 6 | 4500-MC-070 | 4500A-MC-070 |
| | 60.60 - 70.59 | 40 | 24.5 | 18.5 | 237 | 321.5 | 60 | 32 | 6 | 4500-MC-080 | 4500A-MC-080 |
| | 70.60 - 79.59 | 40 | 24.5 | 18.5 | 237 | 321.5 | 60 | 32 | 6 | 4500-MC-090 | 4500A-MC-090 |
| | 79.60 - 90.59 | 56 | 28.5 | 18.5 | 245 | 343.5 | 70 | 40 | 6 | 4500-MC-100 | 4500A-MC-100 |
| 90.60 - 100.59 | 56 | 28.5 | 18.5 | 245 | 343.5 | 70 | 40 | 8 | 4500-MC-110 | 4500A-MC-110 | |

*Complete mandrel does not include cutting ring.


 i = Imperial (in)
 m = Metric (mm)

Ring Style Mandrels

4500 Series | Long Length | Spare Parts



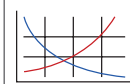
| | Part No. (Complete Mandrel*) | | Spare Parts | | | | |
|----|---------------------------------|---------------|-----------------|-------------------------|-------------------|-------------|---------------------|
| | With Flat | Without Flat | 1 Drive Pins | Number of Drive Pins | 2 Conical Ring | 3 Nut | Wrench Size (mm) |
| i | 94500-MC-010 | 94500A-MC-010 | 2000-CO-010 | 3 | 2010-AC-010 | 2000-DA-010 | 10 |
| | 94500-MC-020 | 94500A-MC-020 | 2000-CO-020 | 3 | 2010-AC-010 | 2000-DA-010 | 10 |
| | 94500-MC-030 | 94500A-MC-030 | 2000-CO-030 | 3 | 2010-AC-020 | 2000-DA-020 | 13 |
| | 94500-MC-040 | 94500A-MC-040 | 2000-CO-040 | 2 | 2010-AC-030 | 2000-DA-060 | 19 |
| | 94500-MC-050 | 94500A-MC-050 | 2000-CO-060 | 2 | 2010-AC-040 | 2000-DA-090 | 22 |
| | 94500-MC-060 | 94500A-MC-060 | 2000-CO-060 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ |
| | 94500-MC-070 | 94500A-MC-070 | 2000-CO-070 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ |
| | 94500-MC-080 | 94500A-MC-080 | 2000-CO-080 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ |
| | 94500-MC-090 | 94500A-MC-090 | 2000-CO-090 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ |
| | 94500-MC-100 | 94500A-MC-100 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ |
| | 94500-MC-110 | 94500A-MC-110 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ |
| ii | 4500-MC-010 | 4500A-MC-010 | 2000-CO-010 | 3 | 2010-AC-010 | 2000-DA-010 | 10 |
| | 4500-MC-020 | 4500A-MC-020 | 2000-CO-020 | 3 | 2010-AC-010 | 2000-DA-010 | 10 |
| | 4500-MC-030 | 4500A-MC-030 | 2000-CO-030 | 3 | 2010-AC-020 | 2000-DA-020 | 13 |
| | 4500-MC-040 | 4500A-MC-040 | 2000-CO-040 | 2 | 2010-AC-030 | 2000-DA-060 | 19 |
| | 4500-MC-050 | 4500A-MC-050 | 2000-CO-060 | 2 | 2010-AC-040 | 2000-DA-090 | 22 |
| | 4500-MC-060 | 4500A-MC-060 | 2000-CO-060 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ |
| | 4500-MC-070 | 4500A-MC-070 | 2000-CO-070 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ |
| | 4500-MC-080 | 4500A-MC-080 | 2000-CO-080 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ |
| | 4500-MC-090 | 4500A-MC-090 | 2000-CO-090 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ |
| | 4500-MC-100 | 4500A-MC-100 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ |
| | 4500-MC-110 | 4500A-MC-110 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ |

*Complete mandrel does not include cutting ring.


♦ Spanner wrench

Key on C: 1

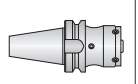
C: 60 - 71




C: 30 - 31



C: 52 - 59



C: 72



i = Imperial (in)
ii = Metric (mm)

R


 REAMING | ALVAN® Reaming Systems by S.C.A.M.I.

A

Ring Style Mandrels

4505 Series | Long Length | Diameter Range: 0.6929" - 3.9602" (17.60 mm - 100.59 mm)

DRILLING

| | |
|-------------|-------------|
| Series | 4505 |
| Shank Type | Cylindrical |
| Application | Blind Holes |
| Coolant | Radial |

Technical drawing of a ring style mandrel. Dimensions are labeled as follows: L₁ (total length), L₂ (length of the main body), L₅ (length of the cutting ring), L₇ (length of the shank), L₁₅ (length of the cutting edge), D₁ (outer diameter), D₂ (inner diameter), and D₃ (cutting ring diameter).

B

BORING

| D ₁ Range | Mandrel | | | | | Shank | | | Teeth | Part No. (Complete Mandrel*) | |
|----------------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|-----------|--------------|---------------------------------|--|
| | D ₃ | L ₅ | L ₁₅ | L ₂ | L ₁ | L ₇ | D ₂ | With Flat | | Without Flat | |
| 0.6929 - 0.8503 | 0.441 | 0.039 | 0.433 | 4.764 | 6.772 | 1.969 | 0.750 | 6 | 94505-MC-010 | 94505A-MC-010 | |
| 0.8504 - 1.0078 | 0.441 | 0.039 | 0.472 | 4.764 | 6.772 | 1.969 | 0.750 | 6 | 94505-MC-020 | 94505A-MC-020 | |
| 1.0079 - 1.1653 | 0.594 | 0.039 | 0.551 | 6.024 | 8.031 | 1.969 | 0.750 | 6 | 94505-MC-030 | 94505A-MC-030 | |
| 1.1654 - 1.2834 | 0.594 | 0.039 | 0.551 | 6.024 | 8.031 | 1.969 | 0.750 | 6 | 94505-MC-035 | 94505A-MC-035 | |
| 1.2835 - 1.4408 | 0.799 | 0.039 | 0.630 | 7.047 | 9.291 | 2.205 | 1.000 | 6 | 94505-MC-040 | 94505A-MC-040 | |
| 1.4409 - 1.5983 | 0.799 | 0.039 | 0.630 | 7.047 | 9.291 | 2.205 | 1.000 | 6 | 94505-MC-045 | 94505A-MC-045 | |
| 1.5984 - 1.7952 | 0.949 | 0.039 | 0.630 | 7.913 | 10.157 | 2.205 | 1.000 | 6 | 94505-MC-050 | 94505A-MC-050 | |
| 1.7953 - 1.9527 | 1.098 | 0.059 | 0.728 | 8.425 | 10.846 | 2.362 | 1.250 | 6 | 94505-MC-060 | 94505A-MC-060 | |
| 1.9528 - 2.1889 | 1.098 | 0.059 | 0.728 | 8.425 | 10.846 | 2.362 | 1.250 | 6 | 94505-MC-070 | 94505A-MC-070 | |
| 2.1890 - 2.3857 | 1.098 | 0.059 | 0.728 | 8.425 | 10.846 | 2.362 | 1.250 | 6 | 94505-MC-075 | 94505A-MC-075 | |
| 2.3858 - 2.5826 | 1.461 | 0.059 | 0.728 | 9.331 | 11.752 | 2.362 | 1.250 | 6 | 94505-MC-080 | 94505A-MC-080 | |
| 2.5827 - 2.7794 | 1.461 | 0.059 | 0.728 | 9.331 | 11.752 | 2.362 | 1.250 | 6 | 94505-MC-085 | 94505A-MC-085 | |
| 2.7795 - 3.1338 | 1.461 | 0.059 | 0.728 | 9.331 | 11.752 | 2.362 | 1.250 | 6 | 94505-MC-090 | 94505A-MC-090 | |
| 3.1339 - 3.5668 | 2.091 | 0.059 | 0.728 | 9.646 | 12.461 | 2.756 | 1.500 | 8 | 94505-MC-100 | 94505A-MC-100 | |
| 3.5669 - 3.9602 | 2.091 | 0.059 | 0.728 | 9.646 | 12.461 | 2.756 | 1.500 | 8 | 94505-MC-110 | 94505A-MC-110 | |
| <hr/> | | | | | | | | | | | |
| 17.60 - 21.59 | 11.2 | 1 | 11 | 121 | 172 | 50 | 20 | 6 | 4505-MC-010 | 4505A-MC-010 | |
| 21.60 - 25.59 | 11.2 | 1 | 12 | 121 | 172 | 50 | 20 | 6 | 4505-MC-020 | 4505A-MC-020 | |
| 25.60 - 29.59 | 15.1 | 1 | 14 | 153 | 204 | 50 | 20 | 6 | 4505-MC-030 | 4505A-MC-030 | |
| 29.60 - 32.59 | 15.1 | 1 | 14 | 153 | 204 | 50 | 20 | 6 | 4505-MC-035 | 4505A-MC-035 | |
| 32.60 - 36.59 | 20.3 | 1 | 16 | 179 | 236 | 56 | 25 | 6 | 4505-MC-040 | 4505A-MC-040 | |
| 36.60 - 40.59 | 20.3 | 1 | 16 | 179 | 236 | 56 | 25 | 6 | 4505-MC-045 | 4505A-MC-045 | |
| 40.60 - 45.59 | 24.1 | 1 | 16 | 201 | 258 | 56 | 25 | 6 | 4505-MC-050 | 4505A-MC-050 | |
| 45.60 - 49.59 | 27.9 | 1.5 | 18.5 | 214 | 275.5 | 60 | 32 | 6 | 4505-MC-060 | 4505A-MC-060 | |
| 49.60 - 55.59 | 27.9 | 1.5 | 18.5 | 214 | 275.5 | 60 | 32 | 6 | 4505-MC-070 | 4505A-MC-070 | |
| 55.60 - 60.59 | 27.9 | 1.5 | 18.5 | 214 | 275.5 | 60 | 32 | 6 | 4505-MC-075 | 4505A-MC-075 | |
| 60.60 - 65.59 | 37.1 | 1.5 | 18.5 | 237 | 298.5 | 60 | 32 | 6 | 4505-MC-080 | 4505A-MC-080 | |
| 65.60 - 70.59 | 37.1 | 1.5 | 18.5 | 237 | 298.5 | 60 | 32 | 6 | 4505-MC-085 | 4505A-MC-085 | |
| 70.60 - 79.59 | 37.1 | 1.5 | 18.5 | 237 | 298.5 | 60 | 32 | 6 | 4505-MC-090 | 4505A-MC-090 | |
| 79.60 - 90.59 | 53.1 | 1.5 | 18.5 | 245 | 316.5 | 70 | 40 | 8 | 4505-MC-100 | 4505A-MC-100 | |
| 90.60 - 100.59 | 53.1 | 1.5 | 18.5 | 245 | 316.5 | 70 | 40 | 8 | 4505-MC-110 | 4505A-MC-110 | |

C

REAMING

D

BURNISHING

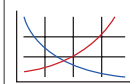

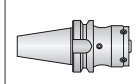

E

THREADING

X

SPECIALS

Key on C. 1

| | | | |
|---|---|---|---|
| C: 60 - 71 | C: 30 - 31 | C: 52 - 59 | C: 72 |
|  |  |  |  |

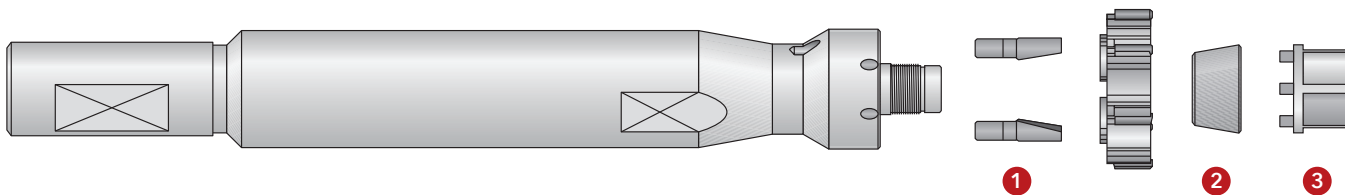
 i = Imperial (in)
 m = Metric (mm)

C: 38

www.alliedmachine.com | 1.330.343.4283

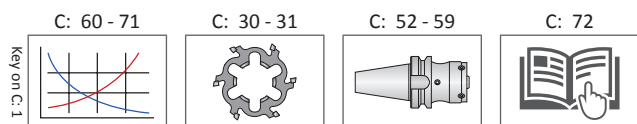
Ring Style Mandrels

4505 Series | Long Length | Spare Parts



| Part No. (Complete Mandrel*) | | Spare Parts | | | | | | | Wrench Size (mm) |
|---------------------------------|---------------|-----------------|-------------------------|-------------------|---------------------------------|---------------------------------|--------------------|----|------------------------|
| With Flat | Without Flat | 1 Drive Pins | Number of Drive Pins | 2 Conical Ring | Conical Ring (2nd Expansion) | Conical Ring (3rd Expansion) | 3 Adjusting Key | | |
| 94505-MC-010 | 94505A-MC-010 | 2000-CO-010 | 3 | 4001-AC-115 | 4001-AC-215 | – | 4001-CH-015 | 10 | |
| 94505-MC-020 | 94505A-MC-020 | 2000-CO-020 | 3 | 4001-AC-115 | 4001-AC-215 | – | 4001-CH-015 | 10 | |
| 94505-MC-030 | 94505A-MC-030 | 2000-CO-030 | 3 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 94505-MC-035 | 94505A-MC-035 | 2000-CO-040 | 2 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 94505-MC-040 | 94505A-MC-040 | 2000-CO-040 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 94505-MC-045 | 94505A-MC-045 | 2000-CO-050 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 94505-MC-050 | 94505A-MC-050 | 2000-CO-060 | 2 | 4001-AC-145 | 4001-AC-245 | 4001-AC-345 | 4001-CH-045 | 22 | |
| 94505-MC-060 | 94505A-MC-060 | 2000-CO-060 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 94505-MC-070 | 94505A-MC-070 | 2000-CO-070 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 94505-MC-075 | 94505A-MC-075 | 2000-CO-080 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 94505-MC-080 | 94505A-MC-080 | 2000-CO-080 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 94505-MC-085 | 94505A-MC-085 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 94505-MC-090 | 94505A-MC-090 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 94505-MC-100 | 94505A-MC-100 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |
| 94505-MC-110 | 94505A-MC-110 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |
| 4505-MC-010 | 4505A-MC-010 | 2000-CO-010 | 3 | 4001-AC-115 | 4001-AC-215 | – | 4001-CH-015 | 10 | |
| 4505-MC-020 | 4505A-MC-020 | 2000-CO-020 | 3 | 4001-AC-115 | 4001-AC-215 | – | 4001-CH-015 | 10 | |
| 4505-MC-030 | 4505A-MC-030 | 2000-CO-030 | 3 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 4505-MC-035 | 4505A-MC-035 | 2000-CO-040 | 2 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 4505-MC-040 | 4505A-MC-040 | 2000-CO-040 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 4505-MC-045 | 4505A-MC-045 | 2000-CO-050 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 4505-MC-050 | 4505A-MC-050 | 2000-CO-060 | 2 | 4001-AC-145 | 4001-AC-245 | 4001-AC-345 | 4001-CH-045 | 22 | |
| 4505-MC-060 | 4505A-MC-060 | 2000-CO-060 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4505-MC-070 | 4505A-MC-070 | 2000-CO-070 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4505-MC-075 | 4505A-MC-075 | 2000-CO-080 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4505-MC-080 | 4505A-MC-080 | 2000-CO-080 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4505-MC-085 | 4505A-MC-085 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4505-MC-090 | 4505A-MC-090 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4505-MC-100 | 4505A-MC-100 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |
| 4505-MC-110 | 4505A-MC-110 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |

*Complete mandrel does not include cutting ring.

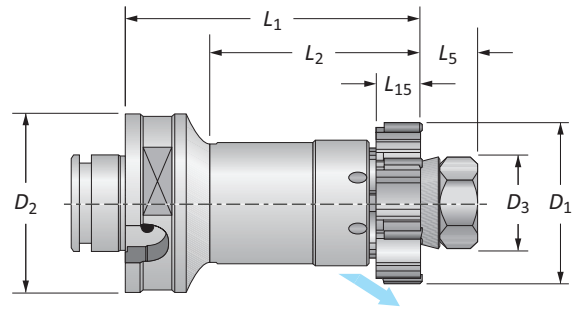


ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Ring Style Mandrels

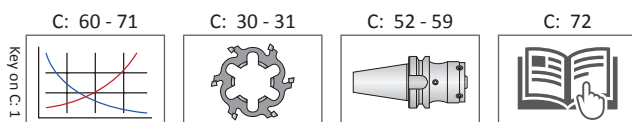
4330 Series | Short Length | Diameter Range: 0.6929" - 3.9602" (17.60 mm - 100.59 mm)

| | |
|-------------|---------------|
| Series | 4330 |
| Shank Type | Modular |
| Application | Through Holes |
| Coolant | Radial |



| D_1 Range | | Mandrel | | | | | Shank | Teeth | Part No. (Complete Mandrel*) |
|--------------------------|----------------|---------|-------|----------|-------|-------|-------|-------|---------------------------------|
| Imperial (inch) | Metric (mm) | D_3 | L_5 | L_{15} | L_2 | L_1 | D_2 | | |
| 0.6929 - 0.8503 | 17.60 - 21.59 | 12 | 11 | 11 | 55 | 75 | 50 | 6 | 4330-MC-010 |
| 0.8504 - 1.0078 | 21.60 - 25.59 | 12 | 11 | 12 | 55 | 75 | 50 | 6 | 4330-MC-020 |
| 1.0079 - 1.2834 | 25.60 - 32.59 | 15.6 | 11 | 14 | 60 | 80 | 50 | 6 | 4330-MC-030 |
| 1.2835 - 1.5983 | 32.60 - 40.59 | 22 | 14 | 16 | 60 | 80 | 50 | 6 | 4330-MC-040 |
| 1.5984 - 1.7952 | 40.60 - 45.59 | 25.4 | 15 | 16 | 60 | 80 | 50 | 6 | 4330-MC-050 |
| m 1.7953 - 1.9527 | 45.60 - 49.59 | 30 | 20.5 | 18.5 | 60 | 80 | 50 | 6 | 4330-MC-060 |
| 1.9528 - 2.3857 | 49.60 - 60.59 | 30 | 20.5 | 18.5 | 60 | 80 | 50 | 6 | 4330-MC-070 |
| 2.3858 - 2.7794 | 60.60 - 70.59 | 40 | 24.5 | 18.5 | 65 | 90 | 63 | 6 | 4330-MC-080 |
| 2.7795 - 3.1338 | 70.60 - 79.59 | 40 | 24.5 | 18.5 | 65 | 90 | 63 | 6 | 4330-MC-090 |
| 3.1339 - 3.5668 | 79.60 - 90.59 | 56 | 28.5 | 18.5 | 65 | 90 | 63 | 8 | 4330-MC-100 |
| 3.5669 - 3.9602 | 90.60 - 100.59 | 56 | 28.5 | 18.5 | 65 | 90 | 63 | 8 | 4330-MC-110 |

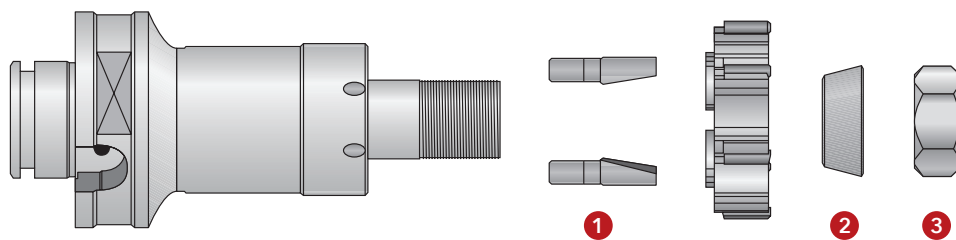
*Complete mandrel does not include cutting ring.



i = Imperial (in)
m = Metric (mm)

Ring Style Mandrels

4330 Series | Short Length | Spare Parts

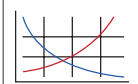


| Part No. (Complete Mandrel*) | Spare Parts | | | | | Wrench Size (mm) |
|---------------------------------|-----------------|----------------------|-------------------|-------------|------|---------------------|
| | 1 Drive Pins | Number of Drive Pins | 2 Conical Ring | 3 Nut | | |
| 4330-MC-010 | 2000-CO-010 | 3 | 2010-AC-010 | 2000-DA-010 | 10 | |
| 4330-MC-020 | 2000-CO-020 | 3 | 2010-AC-010 | 2000-DA-010 | 10 | |
| 4330-MC-030 | 2000-CO-030 | 3 | 2010-AC-020 | 2000-DA-020 | 13 | |
| 4330-MC-040 | 2000-CO-040 | 2 | 2010-AC-030 | 2000-DA-060 | 19 | |
| 4330-MC-050 | 2000-CO-060 | 2 | 2010-AC-040 | 2000-DA-090 | 22 | |
| 4330-MC-060 | 2000-CO-060 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ | |
| 4330-MC-070 | 2000-CO-070 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ | |
| 4330-MC-080 | 2000-CO-080 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ | |
| 4330-MC-090 | 2000-CO-090 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ | |
| 4330-MC-100 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ | |
| 4330-MC-110 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ | |


*Complete mandrel does not include cutting ring.

♦ Spanner wrench

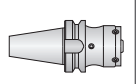
C: 60 - 71




C: 30 - 31



C: 52 - 59



C: 72

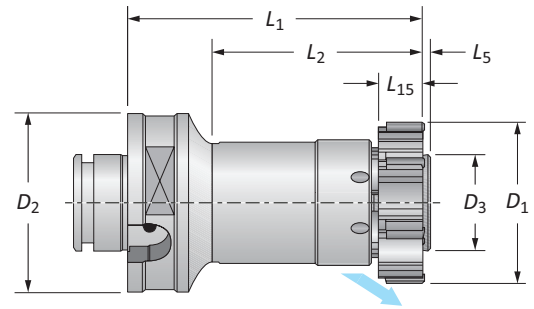


ⓘ = Imperial (in)
 Ⓜ = Metric (mm)

Ring Style Mandrels

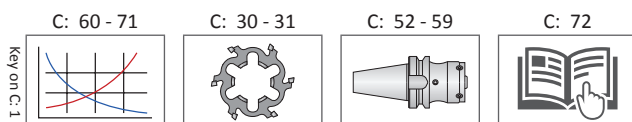
4335 Series | Short Length | Diameter Range: 0.6929" - 3.9602" (17.60 mm - 100.59 mm)

| | |
|-------------|-------------|
| Series | 4335 |
| Shank Type | Modular |
| Application | Blind Holes |
| Coolant | Radial |



| D_1 Range | | Mandrel | | | | | Shank | | Teeth | Part No. (Complete Mandrel*) |
|--------------------------|----------------|---------|-------|----------|-------|-------|-------|---|--------------------|---------------------------------|
| Imperial (inch) | Metric (mm) | D_3 | L_5 | L_{15} | L_2 | L_1 | D_2 | | | |
| 0.6929 - 0.8503 | 17.60 - 21.59 | 11.2 | 1 | 11 | 55 | 75 | 50 | 6 | 4335-MC-010 | |
| 0.8504 - 1.0078 | 21.60 - 25.59 | 11.2 | 1 | 12 | 55 | 75 | 50 | 6 | 4335-MC-020 | |
| 1.0079 - 1.1653 | 25.60 - 29.59 | 15.1 | 1 | 14 | 60 | 80 | 50 | 6 | 4335-MC-030 | |
| 1.1654 - 1.2834 | 29.60 - 32.59 | 15.1 | 1 | 14 | 60 | 80 | 50 | 6 | 4335-MC-035 | |
| 1.2835 - 1.4408 | 32.60 - 36.59 | 20.3 | 1 | 16 | 60 | 80 | 50 | 6 | 4335-MC-040 | |
| 1.4409 - 1.5983 | 36.60 - 40.59 | 20.3 | 1 | 16 | 60 | 80 | 50 | 6 | 4335-MC-045 | |
| 1.5984 - 1.7952 | 40.60 - 45.59 | 24.1 | 1 | 16 | 60 | 80 | 50 | 6 | 4335-MC-050 | |
| m 1.7953 - 1.9527 | 45.60 - 49.59 | 27.9 | 1.5 | 18.5 | 60 | 80 | 50 | 6 | 4335-MC-060 | |
| 1.9528 - 2.1889 | 49.60 - 55.59 | 27.9 | 1.5 | 18.5 | 60 | 80 | 50 | 6 | 4335-MC-070 | |
| 2.1890 - 2.3857 | 55.60 - 60.59 | 27.9 | 1.5 | 18.5 | 60 | 80 | 50 | 6 | 4335-MC-075 | |
| 2.3858 - 2.5826 | 60.60 - 65.59 | 37.1 | 1.5 | 18.5 | 65 | 90 | 63 | 6 | 4335-MC-080 | |
| 2.5827 - 2.7794 | 65.60 - 70.59 | 37.1 | 1.5 | 18.5 | 65 | 90 | 63 | 6 | 4335-MC-085 | |
| 2.7795 - 3.1338 | 70.60 - 79.59 | 37.1 | 1.5 | 18.5 | 65 | 90 | 63 | 6 | 4335-MC-090 | |
| 3.1339 - 3.5668 | 79.60 - 90.59 | 53.1 | 1.5 | 18.5 | 65 | 90 | 63 | 8 | 4335-MC-100 | |
| 3.5669 - 3.9602 | 90.60 - 100.59 | 53.1 | 1.5 | 18.5 | 65 | 90 | 63 | 8 | 4335-MC-110 | |

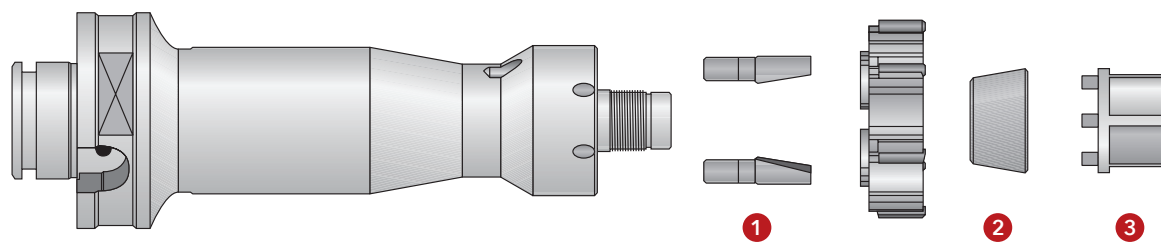
*Complete mandrel does not include cutting ring.



i = Imperial (in)
m = Metric (mm)

Ring Style Mandrels

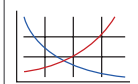
4335 Series | Short Length | Spare Parts




| Part No. (Complete Mandrel*) | Spare Parts | | | | | | | Wrench Size (mm) |
|---------------------------------|-----------------|-------------------------|-------------------|---------------------------------|---------------------------------|--------------------|----|---------------------|
| | 1 Drive Pins | Number of Drive Pins | 2 Conical Ring | Conical Ring (2nd Expansion) | Conical Ring (3rd Expansion) | 3 Adjusting Key | | |
| 4335-MC-010 | 2000-CO-010 | 3 | 4001-AC-115 | 4001-AC-215 | - | 4001-CH-015 | 10 | |
| 4335-MC-020 | 2000-CO-020 | 3 | 4001-AC-115 | 4001-AC-215 | - | 4001-CH-015 | 10 | |
| 4335-MC-030 | 2000-CO-030 | 3 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 4335-MC-035 | 2000-CO-040 | 2 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 4335-MC-040 | 2000-CO-040 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 4335-MC-045 | 2000-CO-050 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 4335-MC-050 | 2000-CO-060 | 2 | 4001-AC-145 | 4001-AC-245 | 4001-AC-345 | 4001-CH-045 | 22 | |
| M 4335-MC-060 | 2000-CO-060 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4335-MC-070 | 2000-CO-070 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4335-MC-075 | 2000-CO-080 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4335-MC-080 | 2000-CO-080 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4335-MC-085 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4335-MC-090 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4335-MC-100 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |
| 4335-MC-110 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |

*Complete mandrel does not include cutting ring.

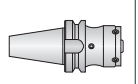
C: 60 - 71




C: 30 - 31



C: 52 - 59



C: 72

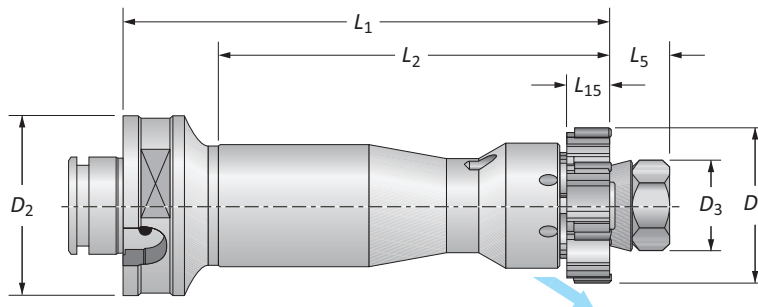


I = Imperial (in)
M = Metric (mm)

Ring Style Mandrels

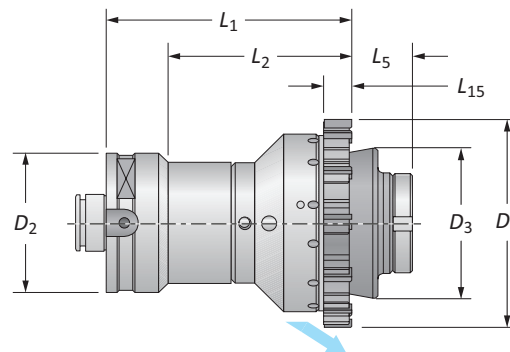
4350 Series | Standard Length | Diameter Range: 0.6929" - 7.8972" (17.60 mm - 200.59 mm)

| | |
|-------------|---------------|
| Series | 4350 |
| Shank Type | Modular |
| Application | Through Holes |
| Coolant | Radial |



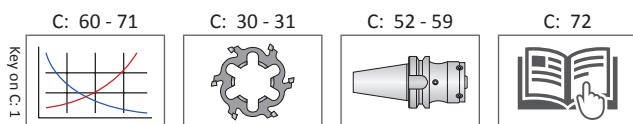
| D_1 Range | | Mandrel | | | | | Shank | | Teeth | Part No. (Complete Mandrel*) |
|--------------------|----------------|---------|-------|----------|-------|-------|-------|---|--------------------|---------------------------------|
| Imperial (inch) | Metric (mm) | D_3 | L_5 | L_{15} | L_2 | L_1 | D_2 | | | |
| 0.6929 - 0.8503 | 17.60 - 21.59 | 12 | 11 | 11 | 81 | 116 | 50 | 6 | 4350-MC-010 | |
| 0.8504 - 1.0078 | 21.60 - 25.59 | 12 | 11 | 12 | 81 | 116 | 50 | 6 | 4350-MC-020 | |
| 1.0079 - 1.2834 | 25.60 - 32.59 | 15.6 | 11 | 14 | 102 | 137 | 50 | 6 | 4350-MC-030 | |
| 1.2835 - 1.5983 | 32.60 - 40.59 | 22 | 14 | 16 | 102 | 137 | 50 | 6 | 4350-MC-040 | |
| 1.5984 - 1.7952 | 40.60 - 45.59 | 25.4 | 15 | 16 | 102 | 137 | 50 | 6 | 4350-MC-050 | |
| 1.7953 - 1.9527 | 45.60 - 49.59 | 30 | 20.5 | 18.5 | 105 | 140 | 50 | 6 | 4350-MC-060 | |
| 1.9528 - 2.3857 | 49.60 - 60.59 | 30 | 20.5 | 18.5 | 105 | 140 | 50 | 6 | 4350-MC-070 | |
| 2.3858 - 2.7794 | 60.60 - 70.59 | 40 | 24.5 | 18.5 | 105 | 140 | 63 | 6 | 4350-MC-080 | |
| 2.7795 - 3.1338 | 70.60 - 79.59 | 40 | 24.5 | 18.5 | 105 | 140 | 63 | 6 | 4350-MC-090 | |
| 3.1339 - 3.5668 | 79.60 - 90.59 | 56 | 28.5 | 18.5 | 105 | 140 | 63 | 8 | 4350-MC-100 | |
| 3.5669 - 3.9602 | 90.60 - 100.59 | 56 | 28.5 | 18.5 | 105 | 140 | 63 | 8 | 4350-MC-110 | |

*Complete mandrel does not include cutting ring.



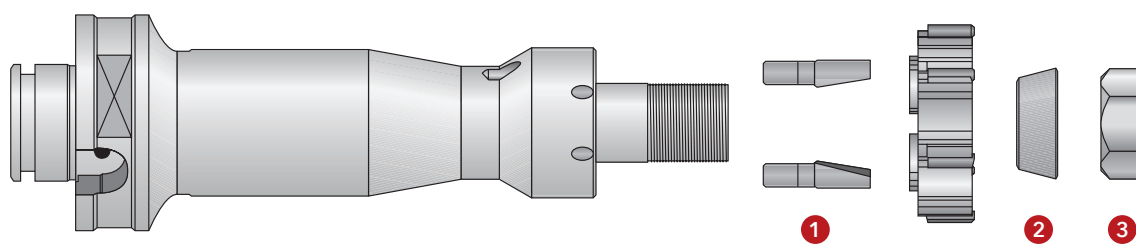
| D_1 Range | | Mandrel | | | | | Shank | | Teeth | Part No. (Complete Mandrel*) |
|--------------------|-----------------|---------|-------|----------|-------|-------|-------|----|--------------------|---------------------------------|
| Imperial (inch) | Metric (mm) | D_3 | L_5 | L_{15} | L_2 | L_1 | D_2 | | | |
| 3.9603 - 4.3539 | 100.60 - 110.59 | 73.8 | 35.5 | 18.5 | - | 140 | 80 | 10 | 4350-MC-120 | |
| 4.3540 - 4.5508 | 110.60 - 115.59 | 80.8 | 35.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-130 | |
| 4.5509 - 4.7476 | 115.60 - 120.59 | 86.8 | 35.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-140 | |
| 4.7477 - 4.9445 | 120.60 - 125.59 | 86.8 | 35.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-150 | |
| 4.9446 - 5.2201 | 125.60 - 132.59 | 90.8 | 35.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-160 | |
| 5.2202 - 5.4957 | 132.60 - 139.59 | 90.8 | 35.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-170 | |
| 5.4958 - 5.7319 | 139.60 - 145.59 | 102.8 | 35.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-180 | |
| 5.7320 - 6.1256 | 145.60 - 155.59 | 107.8 | 35.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-190 | |
| 6.1257 - 6.5193 | 155.60 - 165.59 | 107.8 | 48.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-200 | |
| 6.5194 - 6.9130 | 165.60 - 175.59 | 117.8 | 48.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-210 | |
| 6.9131 - 7.3067 | 175.60 - 185.59 | 127.8 | 48.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-220 | |
| 7.3068 - 7.7004 | 185.60 - 195.59 | 137.8 | 48.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-230 | |
| 7.7005 - 7.8972 | 195.60 - 200.59 | 145.8 | 48.5 | 18.5 | - | 140 | 80 | 12 | 4350-MC-240 | |

*Complete mandrel does not include cutting ring.


 i = Imperial (in)
 m = Metric (mm)

Ring Style Mandrels

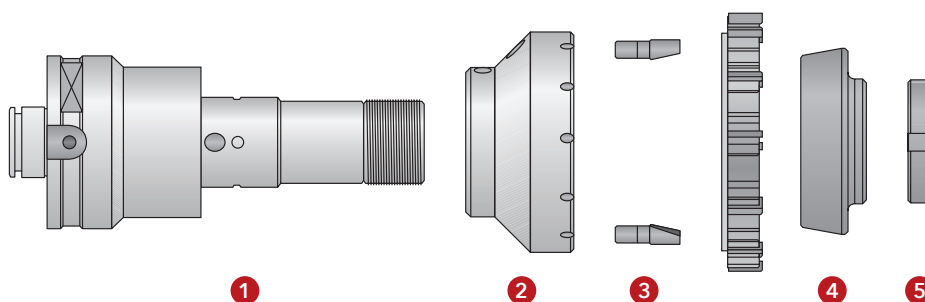
4350 Series | Standard Length | Spare Parts



| Part No. (Complete Mandrel*) | Spare Parts | | | | | Wrench Size (mm) |
|---------------------------------|-------------|----------------------|--------------|-------------|------|---------------------|
| | Drive Pins | Number of Drive Pins | Conical Ring | Nut | | |
| 4350-MC-010 | 2000-CO-010 | 3 | 2010-AC-010 | 2000-DA-010 | 10 | |
| 4350-MC-020 | 2000-CO-020 | 3 | 2010-AC-010 | 2000-DA-010 | 10 | |
| 4350-MC-030 | 2000-CO-030 | 3 | 2010-AC-020 | 2000-DA-020 | 13 | |
| 4350-MC-040 | 2000-CO-040 | 2 | 2010-AC-030 | 2000-DA-060 | 19 | |
| 4350-MC-050 | 2000-CO-060 | 2 | 2010-AC-040 | 2000-DA-090 | 22 | |
| 4350-MC-060 | 2000-CO-060 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ | |
| 4350-MC-070 | 2000-CO-070 | 2 | 2010-AC-050 | 2000-GH-880 | 30 ♦ | |
| 4350-MC-080 | 2000-CO-080 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ | |
| 4350-MC-090 | 2000-CO-090 | 2 | 2010-AC-060 | 2000-GH-900 | 40 ♦ | |
| 4350-MC-100 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ | |
| 4350-MC-110 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 ♦ | |

*Complete mandrel does not include cutting ring.

♦ Spanner wrench



| Part No. (Complete Mandrel*) | Spare Parts | | | | | | |
|---------------------------------|-------------|-------------|-------------|----------------------|--------------|-------------|------------------|
| | Mandrel | Flange | Drive Pins | Number of Drive Pins | Conical Ring | Nut | Wrench Size (mm) |
| 4350-MC-120 | 4350-MA-120 | 4355-FL-035 | 2000-CO-090 | 2 | 2060-BU-010 | 2000-GH-095 | 58 ♦ |
| 4350-MC-130 | 4350-MA-120 | 4355-FL-045 | 2000-CO-090 | 2 | 2060-BU-020 | 2000-GH-095 | 58 ♦ |
| 4350-MC-140 | 4350-MA-120 | 4355-FL-055 | 2000-CO-090 | 2 | 2060-BU-030 | 2000-GH-095 | 58 ♦ |
| 4350-MC-150 | 4350-MA-120 | 4355-FL-065 | 2000-CO-090 | 2 | 2060-BU-030 | 2000-GH-095 | 58 ♦ |
| 4350-MC-160 | 4350-MA-120 | 4355-FL-075 | 2000-CO-100 | 2 | 2060-BU-040 | 2000-GH-095 | 58 ♦ |
| 4350-MC-170 | 4350-MA-120 | 4355-FL-085 | 2000-CO-100 | 2 | 2060-BU-040 | 2000-GH-095 | 58 ♦ |
| 4350-MC-180 | 4350-MA-120 | 4355-FL-095 | 2000-CO-100 | 2 | 2060-BU-050 | 2000-GH-095 | 58 ♦ |
| 4350-MC-190 | 4350-MA-120 | 4355-FL-105 | 2000-CO-110 | 2 | 2060-BU-060 | 2000-GH-095 | 58 ♦ |
| 4350-MC-200 | 4350-MA-200 | 4355-FL-115 | 2000-CO-110 | 2 | 2060-BU-070 | 2000-GH-120 | 90 ♦ |
| 4350-MC-210 | 4350-MA-200 | 4355-FL-125 | 2000-CO-110 | 2 | 2060-BU-080 | 2000-GH-120 | 90 ♦ |
| 4350-MC-220 | 4350-MA-200 | 4355-FL-135 | 2000-CO-120 | 2 | 2060-BU-090 | 2000-GH-120 | 90 ♦ |
| 4350-MC-230 | 4350-MA-200 | 4355-FL-145 | 2000-CO-120 | 2 | 2060-BU-100 | 2000-GH-120 | 90 ♦ |
| 4350-MC-240 | 4350-MA-200 | 4355-FL-155 | 2000-CO-120 | 2 | 2060-BU-110 | 2000-GH-120 | 90 ♦ |

*Complete mandrel does not include cutting ring.

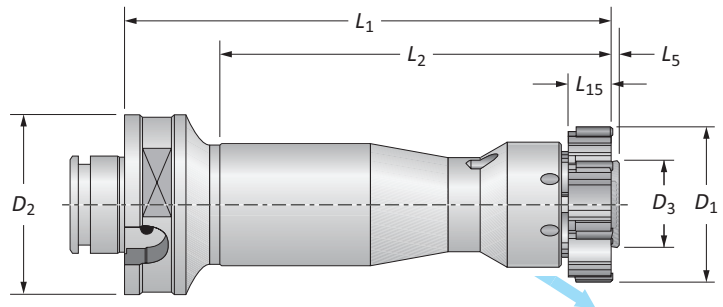
♦ Spanner wrench

1 = Imperial (in)
M = Metric (mm)

Ring Style Mandrels

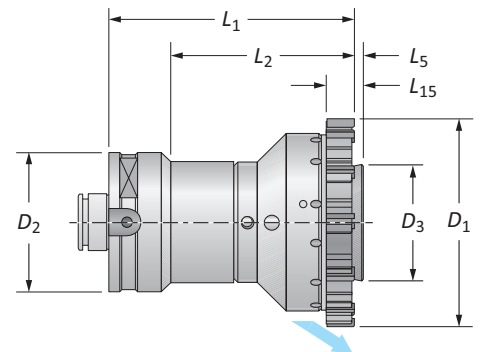
4355 Series | Standard Length | Diameter Range: 0.6929" - 7.8972" (17.60 mm - 200.59 mm)

| | |
|-------------|-------------|
| Series | 4355 |
| Shank Type | Modular |
| Application | Blind Holes |
| Coolant | Radial |



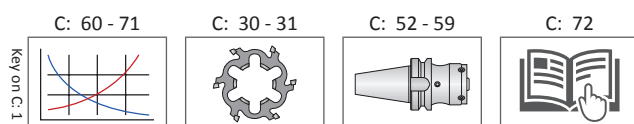
| D_1 Range | | Mandrel | | | | | Shank | | Teeth | Part No. (Complete Mandrel*) |
|--------------------------|----------------|---------|-------|----------|-------|-------|-------|---|--------------------|---------------------------------|
| Imperial (inch) | Metric (mm) | D_3 | L_5 | L_{15} | L_2 | L_1 | D_2 | | | |
| 0.6929 - 0.8503 | 17.60 - 21.59 | 11.2 | 1 | 11 | 81 | 116 | 50 | 6 | 4355-MC-010 | |
| 0.8504 - 1.0078 | 21.60 - 25.59 | 11.2 | 1 | 12 | 81 | 116 | 50 | 6 | 4355-MC-020 | |
| 1.0079 - 1.1653 | 25.60 - 29.59 | 15.1 | 1 | 14 | 102 | 137 | 50 | 6 | 4355-MC-030 | |
| 1.1654 - 1.2834 | 29.60 - 32.59 | 15.1 | 1 | 14 | 102 | 137 | 50 | 6 | 4355-MC-035 | |
| 1.2835 - 1.4408 | 32.60 - 36.59 | 20.3 | 1 | 16 | 102 | 137 | 50 | 6 | 4355-MC-040 | |
| 1.4409 - 1.5983 | 36.60 - 40.59 | 20.3 | 1 | 16 | 102 | 137 | 50 | 6 | 4355-MC-045 | |
| 1.5984 - 1.7952 | 40.60 - 45.59 | 24.1 | 1 | 16 | 102 | 137 | 50 | 6 | 4355-MC-050 | |
| m 1.7953 - 1.9527 | 45.60 - 49.59 | 27.9 | 1.5 | 18.5 | 105 | 140 | 50 | 6 | 4355-MC-060 | |
| 1.9528 - 2.1889 | 49.60 - 55.59 | 27.9 | 1.5 | 18.5 | 105 | 140 | 50 | 6 | 4355-MC-070 | |
| 2.1890 - 2.3857 | 55.60 - 60.59 | 27.9 | 1.5 | 18.5 | 105 | 140 | 50 | 6 | 4355-MC-075 | |
| 2.3858 - 2.5826 | 60.60 - 65.59 | 37.1 | 1.5 | 18.5 | 105 | 140 | 63 | 6 | 4355-MC-080 | |
| 2.5827 - 2.7794 | 65.60 - 70.59 | 37.1 | 1.5 | 18.5 | 105 | 140 | 63 | 6 | 4355-MC-085 | |
| 2.7795 - 3.1338 | 70.60 - 79.59 | 37.1 | 1.5 | 18.5 | 105 | 140 | 63 | 6 | 4355-MC-090 | |
| 3.1339 - 3.5668 | 79.60 - 90.59 | 53.1 | 1.5 | 18.5 | 105 | 140 | 63 | 8 | 4355-MC-100 | |
| 3.5669 - 3.9602 | 90.60 - 100.59 | 53.1 | 1.5 | 18.5 | 105 | 140 | 63 | 8 | 4355-MC-110 | |

*Complete mandrel does not include cutting ring.



| D_1 Range | | Mandrel | | | | | Shank | | Teeth | Part No. (Complete Mandrel*) |
|--------------------------|-----------------|---------|-------|----------|-------|-------|-------|----|--------------------|---------------------------------|
| Imperial (inch) | Metric (mm) | D_3 | L_5 | L_{15} | L_2 | L_1 | D_2 | | | |
| 3.9603 - 4.3539 | 100.60 - 110.59 | 70.3 | 1.5 | 18.5 | - | 140 | 80 | 10 | 4355-MC-120 | |
| 4.3540 - 4.5508 | 110.60 - 115.59 | 76.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-130 | |
| 4.5509 - 4.7476 | 115.60 - 120.59 | 83.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-140 | |
| 4.7477 - 4.9445 | 120.60 - 125.59 | 87.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-150 | |
| 4.9446 - 5.2201 | 125.60 - 132.59 | 87.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-160 | |
| 5.2202 - 5.4957 | 132.60 - 139.59 | 87.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-170 | |
| m 5.4958 - 5.7319 | 139.60 - 145.59 | 99.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-180 | |
| 5.7320 - 6.1256 | 145.60 - 155.59 | 104.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-190 | |
| 6.1257 - 6.5193 | 155.60 - 165.59 | 104.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-200 | |
| 6.5194 - 6.9130 | 165.60 - 175.59 | 114.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-210 | |
| 6.9131 - 7.3067 | 175.60 - 185.59 | 124.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-220 | |
| 7.3068 - 7.7004 | 185.60 - 195.59 | 134.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-230 | |
| 7.7005 - 7.8972 | 195.60 - 200.59 | 142.3 | 1.5 | 18.5 | - | 140 | 80 | 12 | 4355-MC-240 | |

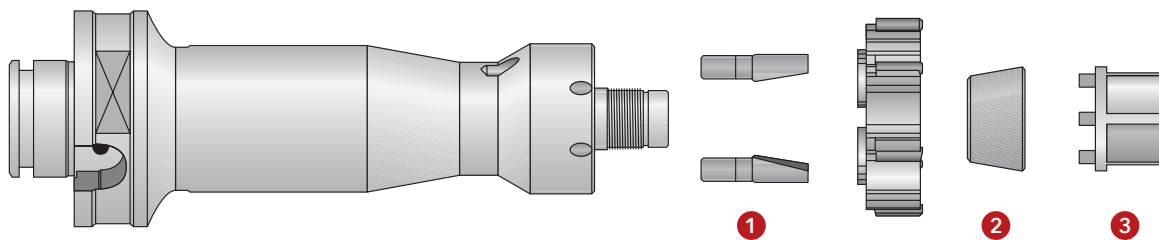
*Complete mandrel does not include cutting ring.



i = Imperial (in)
m = Metric (mm)

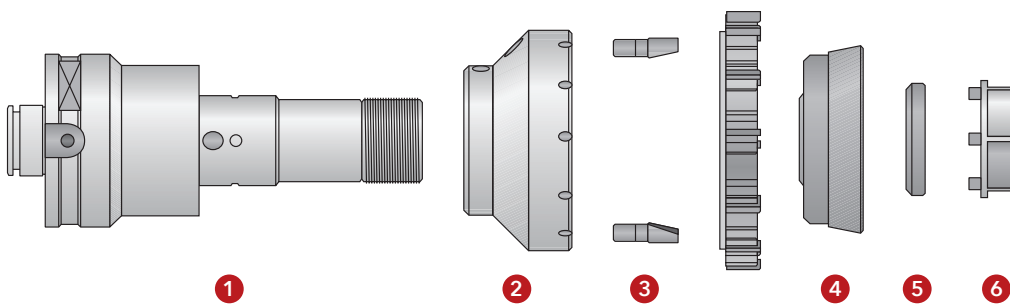
Ring Style Mandrels

4355 Series | Standard Length | Spare Parts



| Part No. (Complete Mandrel*) | Spare Parts | | | | | | | Wrench Size (mm) |
|---------------------------------|-----------------|-------------------------|--------------------------------------|--------------------------------------|---------------|-------------|----|---------------------|
| | 1 Drive Pins | Number of Drive Pins | 2 Conical Ring (2nd Expansion) | 3 Conical Ring (3rd Expansion) | Adjusting Key | | | |
| 4355-MC-010 | 2000-CO-010 | 3 | 4001-AC-115 | 4001-AC-215 | - | 4001-CH-015 | 10 | |
| 4355-MC-020 | 2000-CO-020 | 3 | 4001-AC-115 | 4001-AC-215 | - | 4001-CH-015 | 10 | |
| 4355-MC-030 | 2000-CO-030 | 3 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 4355-MC-035 | 2000-CO-040 | 2 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 4355-MC-040 | 2000-CO-040 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 4355-MC-045 | 2000-CO-050 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 4355-MC-050 | 2000-CO-060 | 2 | 4001-AC-145 | 4001-AC-245 | 4001-AC-345 | 4001-CH-045 | 22 | |
| 4355-MC-060 | 2000-CO-060 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4355-MC-070 | 2000-CO-070 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4355-MC-075 | 2000-CO-080 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4355-MC-080 | 2000-CO-080 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4355-MC-085 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4355-MC-090 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4355-MC-100 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |
| 4355-MC-110 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |

*Complete mandrel does not include cutting ring.



| Part No. (Complete Mandrel*) | Spare Parts | | | | | | | Wrench Size (mm) |
|---------------------------------|--------------|-------------|-----------------|-------------------------|-------------------|-------------|--------------------|---------------------|
| | 1 Mandrel | 2 Flange | 3 Drive Pins | Number of Drive Pins | 4 Conical Ring | 5 Nut | 6 Adjusting Key | |
| 4355-MC-120 | 4355-MA-120 | 4355-FL-035 | 2000-CO-090 | 2 | 4001-AC-116 | 4001-GH-035 | 4001-CH-135 | 46 |
| 4355-MC-130 | 4355-MA-120 | 4355-FL-045 | 2000-CO-090 | 2 | 4001-AC-126 | 4001-GH-035 | 4001-CH-135 | 46 |
| 4355-MC-140 | 4355-MA-120 | 4355-FL-055 | 2000-CO-090 | 2 | 4001-AC-136 | 4001-GH-035 | 4001-CH-135 | 46 |
| 4355-MC-150 | 4355-MA-120 | 4355-FL-065 | 2000-CO-090 | 2 | 4001-AC-136 | 4001-GH-035 | 4001-CH-135 | 46 |
| 4355-MC-160 | 4355-MA-120 | 4355-FL-075 | 2000-CO-100 | 2 | 4001-AC-146 | 4001-GH-035 | 4001-CH-135 | 46 |
| 4355-MC-170 | 4355-MA-120 | 4355-FL-085 | 2000-CO-100 | 2 | 4001-AC-146 | 4001-GH-035 | 4001-CH-135 | 46 |
| 4355-MC-180 | 4355-MA-120 | 4355-FL-095 | 2000-CO-100 | 2 | 4001-AC-156 | 4001-GH-035 | 4001-CH-135 | 46 |
| 4355-MC-190 | 4355-MA-120 | 4355-FL-105 | 2000-CO-110 | 2 | 4001-AC-166 | 4001-GH-035 | 4001-CH-135 | 46 |
| 4355-MC-200 | 4355-MA-200 | 4355-FL-115 | 2000-CO-110 | 2 | 4001-AC-176 | 4001-GH-115 | 4001-CH-115 | 46 |
| 4355-MC-210 | 4355-MA-200 | 4355-FL-125 | 2000-CO-110 | 2 | 4001-AC-186 | 4001-GH-115 | 4001-CH-115 | 46 |
| 4355-MC-220 | 4355-MA-200 | 4355-FL-135 | 2000-CO-120 | 2 | 4001-AC-196 | 4001-GH-115 | 4001-CH-115 | 46 |
| 4355-MC-230 | 4355-MA-200 | 4355-FL-145 | 2000-CO-120 | 2 | 4001-AC-117 | 4001-GH-115 | 4001-CH-115 | 46 |
| 4355-MC-240 | 4355-MA-200 | 4355-FL-155 | 2000-CO-120 | 2 | 4001-AC-127 | 4001-GH-115 | 4001-CH-115 | 46 |

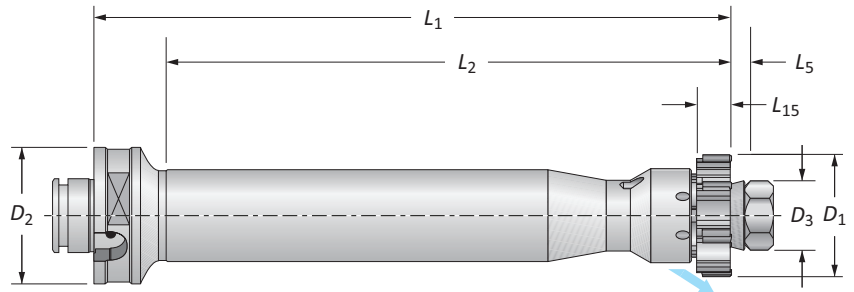
*Complete mandrel does not include cutting ring.

ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Ring Style Mandrels

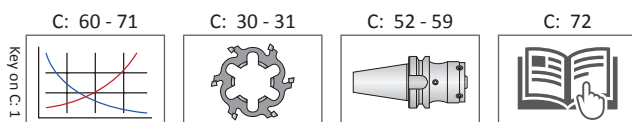
4300 Series | Long Length | Diameter Range: 0.6929" - 3.9602" (17.60 mm - 100.59 mm)

| | |
|-------------|---------------|
| Series | 4300 |
| Shank Type | Modular |
| Application | Through Holes |
| Coolant | Radial |



| D ₁ Range | | Mandrel | | | | | | | Teeth | Part No. (Complete Mandrel*) |
|--------------------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|---|--------------------|---------------------------------|
| Imperial (inch) | Metric (mm) | D ₃ | L ₅ | L ₁₅ | L ₂ | L ₁ | D ₂ | | | |
| 0.6929 - 0.8503 | 17.60 - 21.59 | 12 | 11 | 11 | 121 | 156 | 50 | 6 | 4300-MC-010 | |
| 0.8504 - 1.0078 | 21.60 - 25.59 | 12 | 11 | 12 | 121 | 156 | 50 | 6 | 4300-MC-020 | |
| 1.0079 - 1.2834 | 25.60 - 32.59 | 15.6 | 11 | 14 | 153 | 188 | 50 | 6 | 4300-MC-030 | |
| 1.2835 - 1.5983 | 32.60 - 40.59 | 22 | 14 | 16 | 179 | 214 | 50 | 6 | 4300-MC-040 | |
| 1.5984 - 1.7952 | 40.60 - 45.59 | 25.4 | 15 | 16 | 201 | 236 | 50 | 6 | 4300-MC-050 | |
| m 1.7953 - 1.9527 | 45.60 - 49.59 | 30 | 20.5 | 18.5 | 214 | 249 | 50 | 6 | 4300-MC-060 | |
| 1.9528 - 2.3857 | 49.60 - 60.59 | 30 | 20.5 | 18.5 | 214 | 249 | 50 | 6 | 4300-MC-070 | |
| 2.3858 - 2.7794 | 60.60 - 70.59 | 40 | 24.5 | 18.5 | 237 | 272 | 63 | 6 | 4300-MC-080 | |
| 2.7795 - 3.1338 | 70.60 - 79.59 | 40 | 24.5 | 18.5 | 237 | 272 | 63 | 6 | 4300-MC-090 | |
| 3.1339 - 3.5668 | 79.60 - 90.59 | 56 | 28.5 | 18.5 | 245 | 280 | 63 | 8 | 4300-MC-100 | |
| 3.5669 - 3.9602 | 90.60 - 100.59 | 56 | 28.5 | 18.5 | 245 | 280 | 63 | 8 | 4300-MC-110 | |

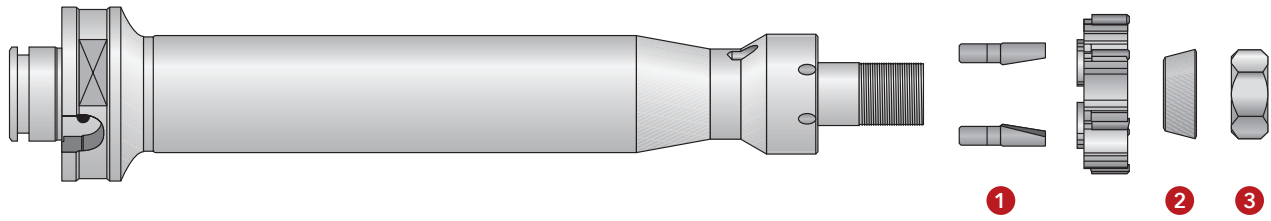
*Complete mandrel does not include cutting ring.



i = Imperial (in)
m = Metric (mm)

Ring Style Mandrels

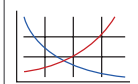
4300 Series | Long Length | Spare Parts




| Part No. (Complete Mandrel*) | Spare Parts | | | | | Wrench Size (mm) |
|---------------------------------|-----------------|----------------------|-------------------|-------------|----|---------------------|
| | 1 Drive Pins | Number of Drive Pins | 2 Conical Ring | 3 Nut | | |
| 4300-MC-010 | 2000-CO-010 | 3 | 2010-AC-010 | 2000-DA-010 | 10 | |
| 4300-MC-020 | 2000-CO-020 | 3 | 2010-AC-010 | 2000-DA-010 | 10 | |
| 4300-MC-030 | 2000-CO-030 | 3 | 2010-AC-020 | 2000-DA-020 | 13 | |
| 4300-MC-040 | 2000-CO-040 | 2 | 2010-AC-030 | 2000-DA-060 | 19 | |
| 4300-MC-050 | 2000-CO-060 | 2 | 2010-AC-040 | 2000-DA-090 | 22 | |
| 4300-MC-060 | 2000-CO-060 | 2 | 2010-AC-050 | 2000-GH-880 | 30 | |
| 4300-MC-070 | 2000-CO-070 | 2 | 2010-AC-050 | 2000-GH-880 | 30 | |
| 4300-MC-080 | 2000-CO-080 | 2 | 2010-AC-060 | 2000-GH-900 | 40 | |
| 4300-MC-090 | 2000-CO-090 | 2 | 2010-AC-060 | 2000-GH-900 | 40 | |
| 4300-MC-100 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 | |
| 4300-MC-110 | 2000-CO-090 | 2 | 2010-AC-070 | 2000-GH-920 | 56 | |

*Complete mandrel does not include cutting ring.

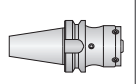
C: 60 - 71




C: 30 - 31



C: 52 - 59



C: 72

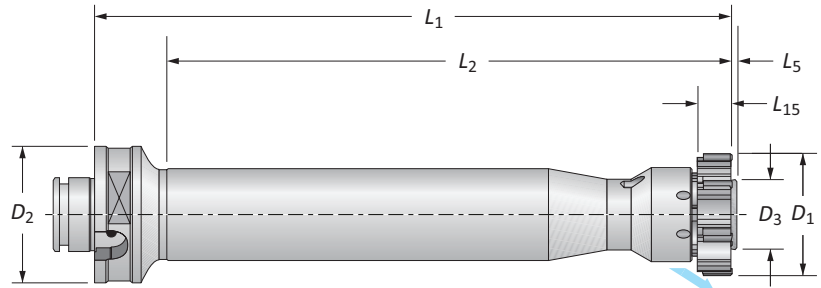


i = Imperial (in)
m = Metric (mm)

Ring Style Mandrels

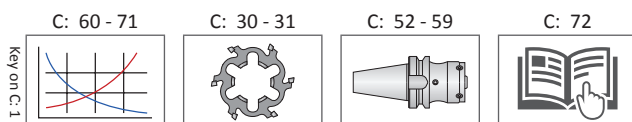
4305 Series | Long Length | Diameter Range: 0.6929" - 3.9602" (17.60 mm - 100.59 mm)

| | |
|-------------|-------------|
| Series | 4305 |
| Shank Type | Modular |
| Application | Blind Holes |
| Coolant | Radial |



| D ₁ Range | | Mandrel | | | | | | | Teeth | Part No. (Complete Mandrel*) |
|--------------------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|---|--------------------|---------------------------------|
| Imperial (inch) | Metric (mm) | D ₃ | L ₅ | L ₁₅ | L ₂ | L ₁ | D ₂ | | | |
| 0.6929 - 0.8503 | 17.60 - 21.59 | 11.2 | 1 | 11 | 121 | 156 | 50 | 6 | 4305-MC-010 | |
| 0.8504 - 1.0078 | 21.60 - 25.59 | 11.2 | 1 | 12 | 121 | 156 | 50 | 6 | 4305-MC-020 | |
| 1.0079 - 1.1653 | 25.60 - 29.59 | 15.1 | 1 | 14 | 153 | 188 | 50 | 6 | 4305-MC-030 | |
| 1.1654 - 1.2834 | 29.60 - 32.59 | 15.1 | 1 | 14 | 153 | 188 | 50 | 6 | 4305-MC-035 | |
| 1.2835 - 1.4408 | 32.60 - 36.59 | 20.3 | 1 | 16 | 179 | 214 | 50 | 6 | 4305-MC-040 | |
| 1.4409 - 1.5983 | 36.60 - 40.59 | 20.3 | 1 | 16 | 179 | 214 | 50 | 6 | 4305-MC-045 | |
| 1.5984 - 1.7952 | 40.60 - 45.59 | 24.1 | 1 | 16 | 201 | 236 | 50 | 6 | 4305-MC-050 | |
| m 1.7953 - 1.9527 | 45.60 - 49.59 | 27.9 | 1.5 | 18.5 | 214 | 249 | 50 | 6 | 4305-MC-060 | |
| 1.9528 - 2.1889 | 49.60 - 55.59 | 27.9 | 1.5 | 18.5 | 214 | 249 | 50 | 6 | 4305-MC-070 | |
| 2.1890 - 2.3857 | 55.60 - 60.59 | 27.9 | 1.5 | 18.5 | 214 | 249 | 50 | 6 | 4305-MC-075 | |
| 2.3858 - 2.5826 | 60.60 - 65.59 | 37.1 | 1 | 18.5 | 237 | 272 | 63 | 6 | 4305-MC-080 | |
| 2.5827 - 2.7794 | 65.60 - 70.59 | 37.1 | 1 | 18.5 | 237 | 272 | 63 | 6 | 4305-MC-085 | |
| 2.7795 - 3.1338 | 70.60 - 79.59 | 37.1 | 1 | 18.5 | 237 | 272 | 63 | 6 | 4305-MC-090 | |
| 3.1339 - 3.5668 | 79.60 - 90.59 | 53.1 | 1.5 | 18.5 | 245 | 280 | 63 | 8 | 4305-MC-100 | |
| 3.5669 - 3.9602 | 90.60 - 100.59 | 53.1 | 1.5 | 18.5 | 245 | 280 | 63 | 8 | 4305-MC-110 | |

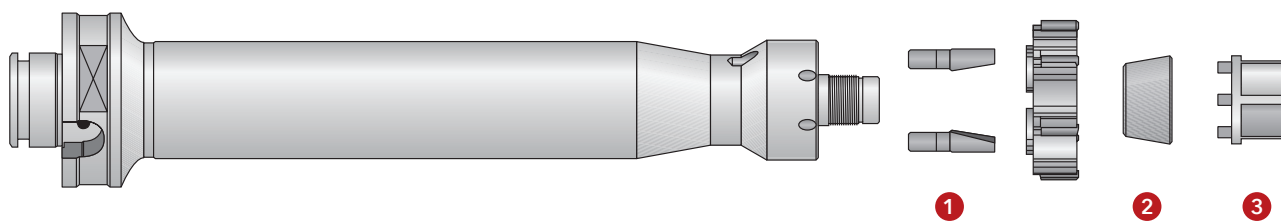
*Complete mandrel does not include cutting ring.



i = Imperial (in)
m = Metric (mm)

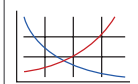
Ring Style Mandrels


4305 Series | Long Length | Spare Parts

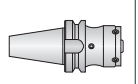



| Part No. (Complete Mandrel*) | Spare Parts | | | | | | | Wrench Size (mm) |
|---------------------------------|-----------------|-------------------------|-------------------|---------------------------------|---------------------------------|--------------------|----|---------------------|
| | 1 Drive Pins | Number of Drive Pins | 2 Conical Ring | Conical Ring (2nd Expansion) | Conical Ring (3rd Expansion) | 3 Adjusting Key | | |
| 4305-MC-010 | 2000-CO-010 | 3 | 4001-AC-115 | 4001-AC-215 | – | 4001-CH-015 | 10 | |
| 4305-MC-020 | 2000-CO-020 | 3 | 4001-AC-115 | 4001-AC-215 | – | 4001-CH-015 | 10 | |
| 4305-MC-030 | 2000-CO-030 | 3 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 4305-MC-035 | 2000-CO-040 | 2 | 4001-AC-125 | 4001-AC-225 | 4001-AC-325 | 4001-CH-025 | 13 | |
| 4305-MC-040 | 2000-CO-040 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 4305-MC-045 | 2000-CO-050 | 2 | 4001-AC-135 | 4001-AC-235 | 4001-AC-335 | 4001-CH-035 | 18 | |
| 4305-MC-050 | 2000-CO-060 | 2 | 4001-AC-145 | 4001-AC-245 | 4001-AC-345 | 4001-CH-045 | 22 | |
| 4305-MC-060 | 2000-CO-060 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4305-MC-070 | 2000-CO-070 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4305-MC-075 | 2000-CO-080 | 2 | 4001-AC-155 | 4001-AC-255 | 4001-AC-355 | 4001-CH-055 | 26 | |
| 4305-MC-080 | 2000-CO-080 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4305-MC-085 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4305-MC-090 | 2000-CO-090 | 2 | 4001-AC-165 | 4001-AC-265 | 4001-AC-365 | 4001-CH-065 | 34 | |
| 4305-MC-100 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |
| 4305-MC-110 | 2000-CO-090 | 2 | 4001-AC-185 | 4001-AC-285 | 4001-AC-385 | 4001-CH-085 | 46 | |

*Complete mandrel does not include cutting ring.

C: 60 - 71  Key on C: 1

C: 30 - 31 

C: 52 - 59 

C: 72 

I = Imperial (in)
M = Metric (mm)

Radial Adjusting Shanks



Large range of shanks for different machine types



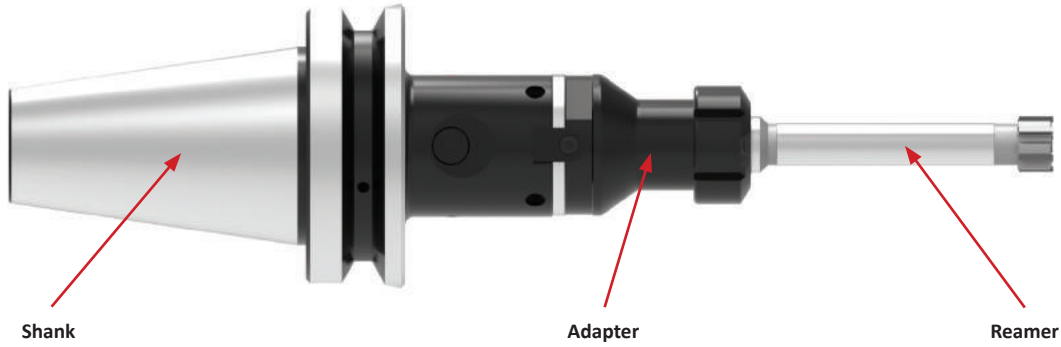
Highly adjustable for improved concentricity



All shanks are available with through coolant

All the Pieces You Need

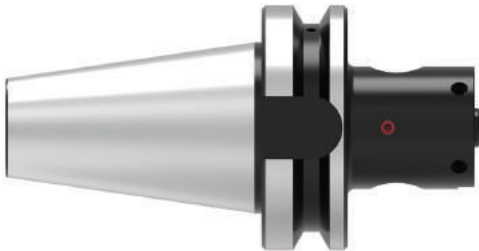
Modular System courtesy of 



DIN 69871/1 B and A



HSK-A DIN 69893/1



JMTBA MAS-403
BT B and BT



Straight



Collet Chuck Adapter



Cylindrical Shank
Adapter

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Radial Adjusting Shanks

Setup Information

Radial Adjusting Shanks and Ring Style Arbors

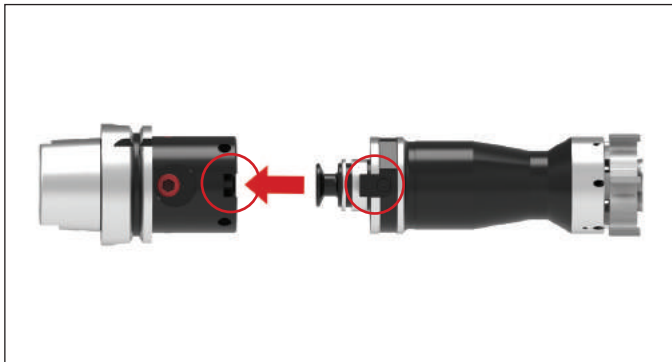
The following is a quick guide for setting up a radial adjusting shank and a ring style reamer. The ring reamer arbor does not contain the tang needed to connect to the shank. The tang must first be removed from the shank and then installed into the reamer arbor (demonstrated below).



Step 1:
The tang comes installed with the shank. Loosen the clamping screw on each side and remove the tang from the shank.



Step 2:
Thread the tang into the back end of the ring arbor. Use a bench vise and wrench to tighten.



Step 3:
Assemble the ring arbor to the shank. With the clamping screws still loosened, align the key on the arbor to the keyway on the shank.



Step 4:
Once the ring arbor is connected with the shank, tighten the clamping screws to secure the tang back into place.

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

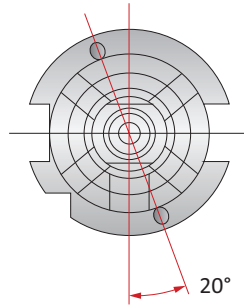
THREADING

X

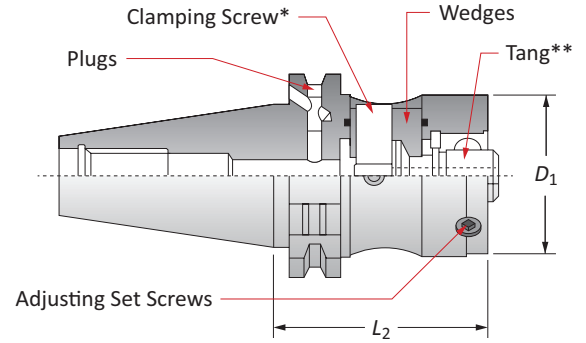
SPECIALS

Radial Adjusting Shanks

DIN 69871/1 B and A



Maximum radial adjustment is ± 0.008 " (0.20 mm) on diameter



| Shank | | | | Spare Parts | | | | | | | |
|-----------|-------|-------|----------------------------|------------------------|-----------------|-----------------|----------------------|--------|--------------------|--------------------|--|
| ISO Taper | D_1 | L_2 | Retention Knob Thread Size | Part No. | Wedges + O-Ring | Clamping Screw* | Adjusting Set Screws | Plugs | Replacement Tang** | Clamping Screw Key | |
| 40 | 50 | 65 | M16 x 2 | 02B.40.50L.65 | ATR14102.2.3 | ATR14102.1 | M8x1x10G | M5x5TG | ATT14103 | 6 mm | |
| 40 | 63 | 85 | M16 x 2 | 02B.40.63L.85 | ATR14108.2.3 | ATR14108.1 | M8x1x14G | M5x5TG | ATT14104 | 6 mm | |
| 45 | 50 | 70 | M20 x 2.5 | 02B.45.50L.70 | ATR14102.2.3 | ATR14102.1 | M8x1x10G | M5x5TG | ATT14103 | 6 mm | |
| 45 | 63 | 70 | M20 x 2.5 | 02B.45.63L.70 | ATR14108.2.3 | ATR14108.1 | M8x1x14G | M5x5TG | ATT14104 | 6 mm | |
| 50 | 50 | 70 | M24 x 3 | 02B.50.50L.70 | ATR14102.2.3 | ATR14102.1 | M8x1x10G | M5x5TG | ATT14103 | 6 mm | |
| 50 | 63 | 70 | M24 x 3 | 02B.50.63L.70 | ATR14108.2.3 | ATR14108.1 | M8x1x14G | M5x5TG | ATT14104 | 6 mm | |
| 50 | 80 | 70 | M24 x 3 | ❖ 02B.50.80L.70 | ATR18775.2.3 | ATR18775.1 | M8x1x20G | M5x5TG | ATT14104 | 6 mm | |

* Light torque exerted on the clamping screw transmits high axial forces, which provide stiffness and extreme accuracy to the assembly.


** Tang must be fitted to all reamer arbors and adapters prior to assembly.

❖ Could cause interference with tool changer mechanism.

NOTE: Shanks can be converted into DIN 69871/1A coolant by screwing the two plugs clockwise to the end of their stroke.

C: 53



Modular System courtesy of 

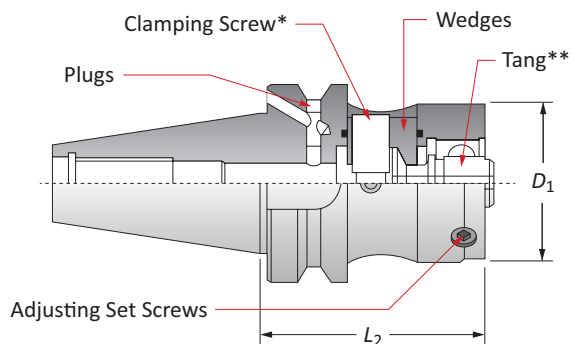
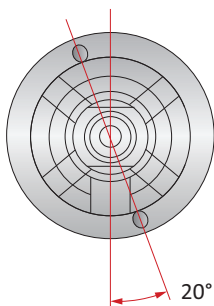
Reference Key

| Symbol | Attribute |
|--------|--------------------|
| D_1 | Modular shank size |
| L_2 | Gage length |

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Radial Adjusting Shanks

JMTBA MAS-403 BT B and BT



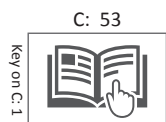
Maximum radial adjustment is $\pm 0.008''$ (0.20 mm) on diameter.

| Shank | | | | Spare Parts | | | | | | | |
|----------|-------|-------|----------------------------|----------------------|-----------------|-----------------|----------------------|--------|--------------------|--------------------|--|
| BT Taper | D_1 | L_2 | Retention Knob Thread Size | Part No. | Wedges + O-ring | Clamping Screw* | Adjusting Set Screws | Plugs | Replacement Tang** | Clamping Screw Key | |
| 40 | 50 | 70 | M16 x 2 | BTB.40.50L.70 | ATR14102.2.3 | ATR14102.1 | M8x1x10G | M5x5TG | ATT14103 | 6 mm | |
| 40 | 63 | 80 | M16 x 2 | BTB.40.63L.80 | ATR14108.2.3 | ATR14108.1 | M8x1x14G | M5x5TG | ATT14104 | 6 mm | |
| 50 | 50 | 90 | M24 x 3 | BTB.50.50L.90 | ATR14102.2.3 | ATR14102.1 | M8x1x10G | M5x5TG | ATT14103 | 6 mm | |
| 50 | 63 | 90 | M24 x 3 | BTB.50.63L.90 | ATR14108.2.3 | ATR14108.1 | M8x1x14G | M5x5TG | ATT14104 | 6 mm | |
| 50 | 80 | 90 | M24 x 3 | BTB.50.80L.90 | ATR18775.2.3 | ATR18775.1 | M8x1x20G | M5x5TG | ATT14104 | 6 mm | |

* Light torque exerted on the clamping screw transmits high axial forces, which provide stiffness and extreme accuracy to the assembly.

** Tang must be fitted to all ring arbors and adapters prior to assembly.

NOTE: Shanks can be converted into MAS-403 BT coolant by screwing the two plugs clockwise to the end of their stroke.



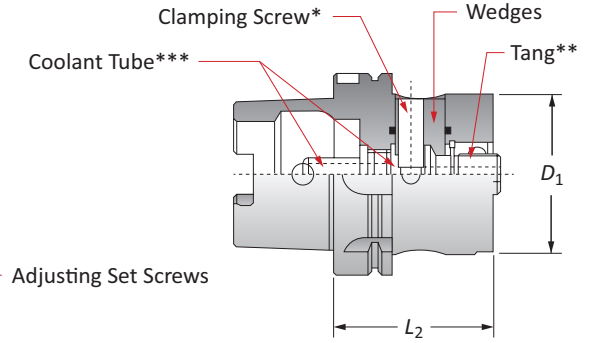
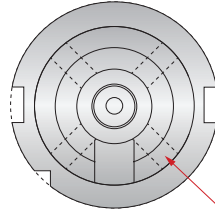
Modular System courtesy of 

| Reference Key | |
|---------------|--------------------|
| Symbol | Attribute |
| D_1 | Modular shank size |
| L_2 | Gage length |

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Radial Adjusting Shanks

HSK-A DIN 69893/1



| Shank | | | Spare Parts | | | | | | | |
|-------|-------|-------|------------------------|-----------------|-----------------|----------------------|--------------------|--------------------|------------------|-----------------|
| HSK | D_1 | L_2 | Part No. | Wedges + O-Ring | Clamping Screw* | Adjusting Set Screws | Replacement Tang** | Clamping Screw Key | Coolant Tube Key | Coolant Tube*** |
| 63 | 50 | 70 | HSKA.63.50L.70 | ATR14102.2.3 | ATR14102.1 | M8x1x10G | ATT14103 | 6 mm | ATR23856 | ATT23728 |
| 63 | 63 | 75 | HSKA.63.63L.75 | ATR.41613.4 | ATR14108.1 | M8x1x14G | ATT14104 | 6 mm | ATR23856 | ATT23728 |
| 100 | 50 | 80 | HSKA.100.50L.80 | ATR14102.2.3 | ATR14102.1 | M8x1x10G | ATT14103 | 6 mm | ATR23856 | ATT23656 |
| 100 | 63 | 80 | HSKA.100.63L.80 | ATR14108.2.3 | ATR14108.1 | M8x1x14G | ATT14104 | 6 mm | ATR23856 | ATT23656 |
| 100 | 80 | 80 | HSKA.100.80L.80 | ATR18775.2.3 | ATR18775.1 | M8x1x20G | ATT14104 | 6 mm | ATR23856 | ATT23656 |

* Light torque exerted on the clamping screw transmits high axial forces, which provide stiffness and extreme accuracy to the assembly.


** Tang must be fitted to all ring arbors and adapters prior to assembly.

*** Coolant tube sold separately.

C: 53



Key on C: 1

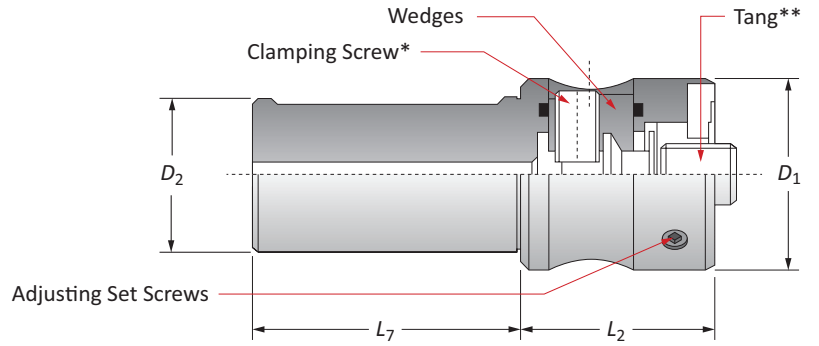
Modular System courtesy of 

Reference Key

| Symbol | Attribute |
|--------|--------------------|
| D_1 | Modular shank size |
| L_2 | Gage length |

Radial Adjusting Shanks

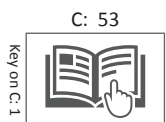
Straight




| Shank | | | | Part No. | Spare Parts | | | | |
|-------|-------|-------|-------|---------------------|-----------------|-----------------|----------------------|--------------------|--------------------|
| D_1 | D_2 | L_2 | L_7 | | Wedges + O-Ring | Clamping Screw* | Adjusting Set Screws | Replacement Tang** | Clamping Screw Key |
| 50 | 25 | 50 | 70 | CIL.25.50.50 | ATR14102.2.3 | ATR14102.1 | M8x1x10G | ATT14103 | 6 mm |
| 50 | 32 | 50 | 70 | CIL.32.50.50 | ATR14102.2.3 | ATR14102.1 | M8x1x10G | ATT14103 | 6 mm |
| 50 | 40 | 50 | 70 | CIL.40.50.50 | ATR14102.2.3 | ATR14102.1 | M8x1x10G | ATT14103 | 6 mm |

* Light torque exerted on the clamping screw transmits high axial forces, which provide stiffness and extreme accuracy to the assembly.

** Tang must be fitted to all ring arbors and adapters prior to assembly.

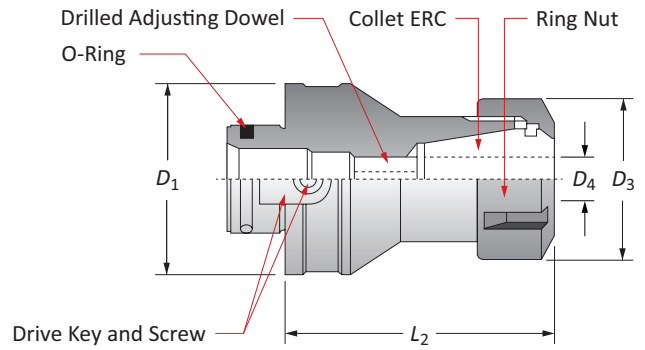


Modular System courtesy of 

| Reference Key | |
|---------------|--------------------|
| Symbol | Attribute |
| D_1 | Modular shank size |
| D_2 | Shank diameter |
| L_2 | Gage length |
| L_7 | Shank length |

Radial Adjusting Adapters

Collet Chuck Adapters



| Collet Sleeve Size* | Adapter | | | | Part No. | Spare Parts | | | | | |
|---------------------|---------|-------|------------|-------|---------------------|----------------|----------|-----------------|-----------|-----------------|---------------------|
| | D_1 | D_3 | D_4 | L_2 | | Clamping Screw | Ring Nut | Adjusting Dowel | Drive Key | Ring Nut Wrench | Adjusting Dowel Key |
| ERC25 | 50 | 42 | 0.5 - 16mm | 70 | 30.50R.25.70 | M4x8V | G25S | M12x16GF | TAB3924 | CH25S | 6 mm |
| ERC32 | 50 | 50 | 1 - 20mm | 70 | 30.50R.32.70 | M4x8V | G32S | M16x15x18GF | TAB3924 | CH32S | 8 mm |
| ERC32 | 63 | 50 | 1 - 20mm | 90 | 30.63R.32.90 | M6x12V | G32S | M12x16GF | TAB3923.1 | CH32S | 6 mm |
| ERC40 | 63 | 63 | 2 - 30mm | 90 | 30.63R.40.90 | M6x12V | G40S | M20x2x20GF | TAB3923.1 | CH40S | 10 mm |
| ERC32 | 80 | 50 | 1 - 20mm | 90 | 30.80R.32.90 | M6x16V | G32S | M12x16GF | TAB3923.2 | CH32S | 6 mm |
| ERC40 | 80 | 63 | 2 - 30mm | 90 | 30.80R.40.90 | M6x16V | G40S | M20x2x20GF | TAB3923.2 | CH40S | 10 mm |


*Collet sleeve not included

Reference Key

| Symbol | Attribute |
|--------|--------------------|
| D_1 | Modular shank size |
| D_3 | Body diameter |
| D_4 | Shank diameter |
| L_2 | Gage length |

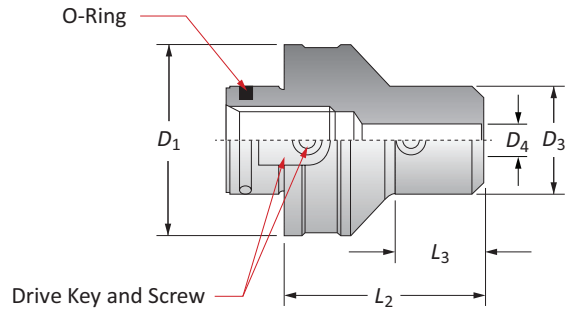
C: 53



Modular System courtesy of 

Radial Adjusting Adapters

Cylindrical Shank Adapters




| Adapter | | | | | Spare Parts | | | | |
|---------|-------|-------|-------|-------|---------------------|-----------|--------|-----------|---------------|
| D_1 | D_4 | D_3 | L_2 | L_3 | Part No. | Drive Key | Screw | Set Screw | Set Screw Key |
| 50 | 6 | 25 | 50 | 22.5 | 35.50R.06.50 | TAB3924 | M4x8V | M6x8G | 3 mm |
| 50 | 8 | 28 | 50 | 24.5 | 35.50R.08.50 | TAB3924 | M4x8V | M8x8G | 4 mm |
| 50 | 10 | 35 | 50 | 26.5 | 35.50R.10.50 | TAB3924 | M4x8V | M10x10G | 5 mm |
| 50 | 12 | 42 | 60 | 38.5 | 35.50R.12.60 | TAB3924 | M4x8V | M12x12G | 6 mm |
| 50 | 14 | 44 | 60 | 42 | 35.50R.14.60 | TAB3924 | M4x8V | M12x12G | 6 mm |
| 50 | 16 | 48 | 60 | 40 | 35.50R.16.60 | TAB3924 | M4x8V | M14x14G | 6 mm |
| 50 | 18 | 50 | 60 | - | 35.50R.18.60 | TAB3924 | M4x8V | M14x14G | 6 mm |
| 50 | 20 | 52 | 60 | 41 | 35.50R.20.60 | TAB3924 | M4x8V | M16x2x14G | 8 mm |
| 63 | 8 | 28 | 60 | 28 | 35.63R.08.60 | TAB3923.1 | M6x12V | M8x8G | 4 mm |
| 63 | 10 | 35 | 70 | 40 | 35.63R.10.70 | TAB3923.1 | M6x12V | M10x10G | 5 mm |
| 63 | 12 | 42 | 70 | 42 | 35.63R.12.70 | TAB3923.1 | M6x12V | M12x12G | 6 mm |
| 63 | 14 | 44 | 60 | 32 | 35.63R.14.60 | TAB3923.1 | M6x12V | M12x12G | 6 mm |
| 63 | 16 | 48 | 70 | 44 | 35.63R.16.70 | TAB3923.1 | M6x12V | M14x14G | 6 mm |
| 63 | 18 | 50 | 70 | 40 | 35.63R.18.70 | TAB3923.1 | M6x12V | M14x14G | 6 mm |
| 63 | 20 | 52 | 70 | 45 | 35.63R.20.70 | TAB3923.1 | M6x12V | M16x2x14G | 8 mm |
| 50 | 25 | 65 | 80 | 61 | 40.50R.25.80 | TAB3924 | M4x8V | M18x2x18G | 8 mm |
| 50 | 32 | 72 | 80 | 65 | 40.50R.32.80 | TAB3924 | M4x8V | M20x2x18G | 10 mm |
| 63 | 25 | 65 | 80 | 58 | 40.63R.25.80 | TAB3923.1 | M6x12V | M18x2x18G | 8 mm |
| 63 | 32 | 72 | 80 | - | 40.63R.32.80 | TAB3923.1 | M6x12V | M20x2x18G | 10 mm |
| 80 | 25 | 65 | 80 | 50.5 | 40.80R.25.80 | TAB3923.2 | M6x12V | M18x2x18G | 8 mm |
| 80 | 32 | 72 | 80 | 54 | 40.80R.32.80 | TAB3923.2 | M6x12V | M20x2x18G | 10 mm |

| Reference Key | |
|---------------|--------------------|
| Symbol | Attribute |
| D_1 | Modular shank size |
| D_3 | Body diameter |
| D_4 | Shank diameter |
| L_2 | Gage length |
| L_3 | Reference length |

C: 53



Modular System courtesy of 

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Recommended Cutting Data | Imperial (inch)

Replaceable Head Style

| ISO | Material | Hardness (BHN) | Speed (SFM) | | | Recommended Feed (IPR) by Reamer Diameter | | | | | |
|-----|--|----------------|------------------|----------------|-----------|---|---------------|-------------------|---------------|-------------------|---------------|
| | | | Uncoated Carbide | Coated Carbide | Cermet | 0.4646" - 0.8504" | | 0.8505" - 1.5590" | | 1.5591" - 2.3858" | |
| | | | | | | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | 35 - 65 | 200 - 260 | 300 - 980 | 0.010 - 0.024 | 0.020 - 0.024 | 0.012 - 0.031 | 0.024 - 0.047 | 0.024 - 0.039 | 0.028 - 0.059 |
| | | 180 - 250 | 25 - 50 | 130 - 230 | 260 - 600 | 0.012 - 0.024 | 0.016 - 0.031 | 0.016 - 0.031 | 0.020 - 0.039 | 0.020 - 0.035 | 0.024 - 0.047 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | 35 - 65 | 200 - 260 | 300 - 980 | 0.010 - 0.024 | 0.020 - 0.024 | 0.012 - 0.031 | 0.024 - 0.047 | 0.024 - 0.039 | 0.028 - 0.059 |
| | | 180 - 275 | 25 - 50 | 130 - 230 | 260 - 600 | 0.012 - 0.024 | 0.016 - 0.031 | 0.016 - 0.031 | 0.020 - 0.039 | 0.020 - 0.035 | 0.024 - 0.047 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | 35 - 65 | 200 - 260 | 300 - 980 | 0.010 - 0.024 | 0.020 - 0.024 | 0.012 - 0.031 | 0.024 - 0.047 | 0.024 - 0.039 | 0.028 - 0.059 |
| | | 180 - 325 | 25 - 50 | 130 - 230 | 260 - 600 | 0.012 - 0.024 | 0.016 - 0.031 | 0.016 - 0.031 | 0.020 - 0.039 | 0.020 - 0.035 | 0.024 - 0.047 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | 25 - 50 | 130 - 230 | 260 - 600 | 0.010 - 0.024 | 0.020 - 0.024 | 0.012 - 0.031 | 0.024 - 0.047 | 0.024 - 0.039 | 0.028 - 0.059 |
| | | 180 - 375 | 15 - 35 | 50 - 100 | 200 - 390 | 0.012 - 0.024 | 0.016 - 0.031 | 0.016 - 0.031 | 0.020 - 0.039 | 0.020 - 0.035 | 0.024 - 0.047 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | 15 - 35 | 50 - 100 | 200 - 390 | 0.010 - 0.020 | 0.012 - 0.024 | 0.012 - 0.024 | 0.016 - 0.031 | 0.016 - 0.028 | 0.020 - 0.039 |
| | | | | | | | | | | | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 20 - 50 | 60 - 200 | — | 0.008 - 0.016 | — | 0.012 - 0.020 | — | 0.016 - 0.024 | — |
| | Titanium Alloy | 140 - 310 | 20 - 50 | 60 - 200 | — | 0.008 - 0.016 | — | 0.012 - 0.020 | — | 0.016 - 0.024 | — |
| | | | | | | | | | | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | 20 - 35 | 100 - 160 | 200 - 490 | 0.012 - 0.024 | 0.016 - 0.031 | 0.016 - 0.031 | 0.020 - 0.039 | 0.020 - 0.035 | 0.024 - 0.047 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 20 - 35 | 100 - 160 | 200 - 490 | 0.012 - 0.024 | 0.016 - 0.031 | 0.016 - 0.031 | 0.020 - 0.039 | 0.020 - 0.035 | 0.024 - 0.047 |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | 65 - 130 | 160 - 230 | — | 0.008 - 0.024 | 0.020 - 0.039 | 0.012 - 0.028 | 0.024 - 0.047 | 0.024 - 0.051 | 0.031 - 0.063 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | 50 - 100 | 160 - 230 | — | 0.008 - 0.024 | 0.020 - 0.039 | 0.012 - 0.028 | 0.024 - 0.047 | 0.024 - 0.051 | 0.031 - 0.063 |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | 30 - 50 | 100 - 160 | 200 - 400 | 0.008 - 0.024 | 0.020 - 0.024 | 0.012 - 0.028 | 0.024 - 0.047 | 0.016 - 0.031 | 0.031 - 0.063 |
| N | Copper and Alloys | < 500 | 200 - 660 | 330 - 660 | — | 0.008 - 0.024 | — | 0.012 - 0.028 | — | 0.016 - 0.031 | — |
| | Brass | | | | | | | | | | |
| | Bronze | < 180 | 65 - 130 | 260 - 520 | 330 - 980 | 0.012 - 0.024 | 0.016 - 0.039 | 0.012 - 0.024 | 0.020 - 0.047 | 0.012 - 0.024 | 0.024 - 0.059 |
| | Bronze Phosphorous | | | | | | | | | | |
| | Aluminum and Alloys | < 150 | 65 - 660 | — | — | 0.012 - 0.024 | — | 0.016 - 0.039 | — | 0.016 - 0.039 | — |

Formulas

| | | |
|--|--|---|
| <p>1. RPM = (SFM • 3.82) / DIA</p> <p>where:</p> <p>RPM = revolutions per minute (rev/min)</p> <p>SFM = speed (ft/min)</p> <p>DIA = diameter of reamer (inch)</p> | <p>2. IPM = RPM • IPR</p> <p>where:</p> <p>IPM = inches per minute (in/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>IPR = feed rate (in/rev)</p> | <p>3. SFM = RPM • 0.262 • DIA</p> <p>where:</p> <p>SFM = speed (ft/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>DIA = diameter of reamer (inch)</p> |
|--|--|---|

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Stock Allowance and Coolant | Imperial (inch)

Replaceable Head Style

| ISO | Material | Hardness (BHN) | Coolant | Recommended Stock (inch) by Reamer Diameter* | | |
|-----|--|----------------|--------------------------------|--|-------------------|-------------------|
| | | | | 0.4646" - 0.8504" | 0.8505" - 1.5590" | 1.5591" - 2.3858" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | Water Soluble / Cutting Oil | 0.006 - 0.010 | 0.008 - 0.016 | 0.012 - 0.016 |
| | | 180 - 250 | | | | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | | | | |
| | | 180 - 275 | | | | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | | | | |
| | | 180 - 325 | | | | |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | | | | |
| | | 180 - 375 | | | | |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | | | | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | Water Soluble / Cutting Oil | 0.006 - 0.010 | 0.008 - 0.016 | 0.012 - 0.016 |
| | | 140 - 310 | | | | |
| | Titanium Alloy | 140 - 310 | | | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | Water Soluble / Cutting Oil | 0.006 - 0.010 | 0.008 - 0.016 | 0.012 - 0.016 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | | | | |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | Water Soluble / Cutting Oil | 0.006 - 0.010 | 0.008 - 0.016 | 0.012 - 0.016 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | | | | |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | | | | |
| N | Copper and Alloys | < 500 | Water Soluble | 0.006 - 0.010 | 0.008 - 0.016 | 0.012 - 0.016 |
| | Brass | | | | | |
| | Bronze | < 180 | Water Soluble / Cutting Oil | | | |
| | Bronze Phosphorous | | | | | |
| | Aluminum and Alloys | < 150 | Water Soluble / Cutting Oil | | | |

*Stock value is on diameter.

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Cutting Data | Imperial (inch)

Monobloc Style

| ISO | Material | Hardness (BHN) | Speed (SFM) | | | Recommended Feed (IPR) by Reamer Diameter | | | | | | |
|---|--|--|---------------------|------------------------|------------------------|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------|
| | | | Uncoated Carbide | Coated Carbide | Cermet | 0.2283" - 0.3940" | | 0.3941" - 0.7090" | | 0.7091" - 1.2638" | | |
| | | | | | | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M | |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 180 - 250 | 25 - 50 20 - 35 | 200 - 260 130 - 230 | 300 - 980 260 - 660 | 0.008 - 0.016 0.008 - 0.016 | 0.012 - 0.024 0.012 - 0.020 | 0.016 - 0.024 0.012 - 0.024 | 0.016 - 0.047 0.012 - 0.031 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.047 | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 180 - 275 | 25 - 50 20 - 35 | 200 - 260 130 - 230 | 300 - 980 260 - 660 | 0.008 - 0.016 0.008 - 0.016 | 0.012 - 0.024 0.012 - 0.020 | 0.016 - 0.024 0.012 - 0.024 | 0.016 - 0.047 0.012 - 0.031 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.047 | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 180 - 325 | 25 - 50 20 - 35 | 200 - 260 130 - 230 | 300 - 980 260 - 660 | 0.008 - 0.016 0.008 - 0.016 | 0.012 - 0.024 0.012 - 0.020 | 0.016 - 0.024 0.012 - 0.024 | 0.016 - 0.047 0.012 - 0.031 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.047 | |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 180 - 375 | 20 - 35 15 - 25 | 130 - 230 100 - 160 | 260 - 660 200 - 490 | 0.008 - 0.016 0.008 - 0.016 | 0.012 - 0.024 0.012 - 0.020 | 0.016 - 0.024 0.012 - 0.024 | 0.016 - 0.047 0.012 - 0.031 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.047 | |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | 10 - 20 | 50 - 100 | 200 - 390 | 0.006 - 0.012 | 0.008 - 0.016 | 0.008 - 0.020 | 0.012 - 0.024 | 0.012 - 0.024 | 0.016 - 0.031 | |
| | Structural Steel A36, A285, A516 | 125 - 180 180 - 350 | 25 - 50 20 - 35 | 200 - 260 130 - 230 | 300 - 980 260 - 660 | 0.008 - 0.016 0.008 - 0.016 | 0.012 - 0.024 0.012 - 0.020 | 0.016 - 0.024 0.012 - 0.024 | 0.016 - 0.047 0.012 - 0.031 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.047 | |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 200 - 250 | 25 - 50 20 - 35 | 200 - 260 130 - 230 | 300 - 980 260 - 660 | 0.008 - 0.016 0.008 - 0.016 | 0.012 - 0.024 0.012 - 0.020 | 0.016 - 0.024 0.012 - 0.024 | 0.016 - 0.047 0.012 - 0.031 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.047 | |
| | S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 15 - 25 | 60 - 200 | - | 0.006 - 0.012 | - | 0.008 - 0.016 | - | 0.012 - 0.020 | - |
| | | Titanium Alloy | 140 - 310 | 15 - 25 | 60 - 200 | - | 0.006 - 0.012 | - | 0.008 - 0.016 | - | 0.012 - 0.020 | - |
| | M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | 15 - 25 | 100 - 160 | 200 - 490 | 0.008 - 0.016 | 0.012 - 0.020 | 0.012 - 0.024 | 0.012 - 0.031 | 0.016 - 0.028 | 0.016 - 0.047 |
| Stainless Steel 300 Series 304, 316, 17-4PH, etc. | | 135 - 275 | 15 - 25 | 100 - 160 | 200 - 490 | 0.008 - 0.016 | 0.012 - 0.020 | 0.012 - 0.024 | 0.012 - 0.031 | 0.016 - 0.028 | 0.016 - 0.047 | |
| K | Grey Cast Iron, Ductile Cast Iron, Spheroidal Cast Iron (Pearlitic) | < 200 > 200 | 50 - 100 35 - 65 | 160 - 230 160 - 230 | - - | 0.008 - 0.016 0.008 - 0.016 | 0.012 - 0.024 0.012 - 0.024 | 0.014 - 0.024 0.014 - 0.024 | 0.020 - 0.031 0.020 - 0.031 | 0.016 - 0.047 0.016 - 0.047 | 0.024 - 0.059 0.024 - 0.059 | |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | 25 - 40 | 100 - 160 | 200 - 400 | 0.008 - 0.016 | 0.012 - 0.024 | 0.014 - 0.024 | 0.020 - 0.031 | 0.016 - 0.047 | 0.024 - 0.059 | |
| | N | Copper and Alloys Brass | < 500 | 35 - 60 | 330 - 660 | - | 0.008 - 0.016 | - | 0.016 - 0.028 | - | 0.020 - 0.031 | - |
| | Bronze Bronze Phosphorous | < 180 | 35 - 65 | 260 - 520 | 330 - 980 | 0.006 - 0.012 | - | 0.008 - 0.016 | - | 0.012 - 0.024 | - | |
| | Aluminum and Alloys | < 150 | 50 - 100 | 330 - 660 | - | 0.008 - 0.016 | - | 0.016 - 0.028 | - | 0.020 - 0.031 | - | |

Formulas

| | | |
|--|--|---|
| <p>1. RPM = (SFM • 3.82) / DIA</p> <p>where:</p> <p>RPM = revolutions per minute (rev/min)</p> <p>SFM = speed (ft/min)</p> <p>DIA = diameter of reamer (inch)</p> | <p>2. IPM = RPM • IPR</p> <p>where:</p> <p>IPM = inches per minute (in/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>IPR = feed rate (in/rev)</p> | <p>3. SFM = RPM • 0.262 • DIA</p> <p>where:</p> <p>SFM = speed (ft/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>DIA = diameter of reamer (inch)</p> |
|--|--|---|

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Stock Allowance and Coolant | Imperial (inch)

Monobloc Style

| ISO | Material | Hardness (BHN) | Coolant | Recommended Stock (inch) by Reamer Diameter* | | |
|-----|--|----------------|--------------------------------|--|-------------------|-------------------|
| | | | | 0.2283" - 0.3940" | 0.3941" - 0.7090" | 0.7091" - 1.2638" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | Water Soluble / Cutting Oil | 0.006 - 0.012 | 0.008 - 0.016 | 0.010 - 0.020 |
| | | 180 - 250 | | | | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | | | | |
| | | 180 - 275 | | | | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | | | | |
| | | 180 - 325 | | | | |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | | | | |
| | | 180 - 375 | | | | |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | | | | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | Water Soluble / Cutting Oil | 0.008 - 0.016 | 0.012 - 0.016 | 0.012 - 0.020 |
| | | 140 - 310 | | | | |
| | Titanium Alloy | 140 - 310 | | | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | Water Soluble / Cutting Oil | 0.006 - 0.012 | 0.008 - 0.016 | 0.010 - 0.020 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | | | | |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | Water Soluble / Cutting Oil | 0.006 - 0.012 | 0.008 - 0.016 | 0.010 - 0.020 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | | | | |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | | | | |
| N | Copper and Alloys | < 500 | Water Soluble / Cutting Oil | 0.006 - 0.012 | 0.008 - 0.016 | 0.010 - 0.020 |
| | Brass | | | | | |
| | Bronze | < 180 | | | | |
| | Bronze Phosphorous | | | | | |
| | Aluminum and Alloys | < 150 | Water Soluble / Cutting Oil | | | |

*Stock value is on diameter.

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Cutting Data | Imperial (inch)

Cutting Ring Style

| ISO | Material | Hardness (BHN) | Speed (SFM) | | | Recommended Feed (IPR) by Reamer Diameter | | | | | | |
|---|--|--|--------------------|------------------------|------------------------|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------|
| | | | Uncoated Carbide | Coated Carbide | Cermet | 0.6929" - 1.5750" | | 1.5751" - 3.1500" | | 3.1501" - 7.8972" | | |
| | | | | | | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M | |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 180 - 250 | 25 - 50 20 - 35 | 200 - 260 130 - 230 | 300 - 980 260 - 660 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.039 | 0.020 - 0.039 0.020 - 0.031 | 0.031 - 0.063 0.024 - 0.055 | 0.031 - 0.059 0.031 - 0.047 | 0.039 - 0.087 0.039 - 0.079 | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 180 - 275 | 25 - 50 20 - 35 | 200 - 260 130 - 230 | 300 - 980 260 - 660 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.039 | 0.020 - 0.039 0.020 - 0.031 | 0.031 - 0.063 0.024 - 0.055 | 0.031 - 0.059 0.031 - 0.047 | 0.039 - 0.087 0.039 - 0.079 | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 180 - 325 | 25 - 50 20 - 35 | 200 - 260 130 - 230 | 300 - 980 260 - 660 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.039 | 0.020 - 0.039 0.020 - 0.031 | 0.031 - 0.063 0.024 - 0.055 | 0.031 - 0.059 0.031 - 0.047 | 0.039 - 0.087 0.039 - 0.079 | |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 180 - 375 | 20 - 35 15 - 25 | 130 - 230 100 - 160 | 260 - 660 200 - 490 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.039 | 0.020 - 0.039 0.020 - 0.031 | 0.031 - 0.063 0.024 - 0.055 | 0.031 - 0.059 0.031 - 0.047 | 0.039 - 0.087 0.039 - 0.079 | |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | 10 - 20 | 50 - 100 | 200 - 390 | 0.012 - 0.024 | 0.016 - 0.031 | 0.016 - 0.031 | 0.020 - 0.039 | 0.024 - 0.039 | 0.028 - 0.055 | |
| | Structural Steel A36, A285, A516 | 125 - 180 180 - 350 | 25 - 50 20 - 35 | 200 - 260 130 - 230 | 300 - 980 260 - 660 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.039 | 0.020 - 0.039 0.020 - 0.031 | 0.031 - 0.063 0.024 - 0.055 | 0.031 - 0.059 0.031 - 0.047 | 0.039 - 0.087 0.039 - 0.079 | |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 200 - 250 | 25 - 50 20 - 35 | 200 - 260 130 - 230 | 300 - 980 260 - 660 | 0.020 - 0.031 0.016 - 0.028 | 0.024 - 0.047 0.016 - 0.039 | 0.020 - 0.039 0.020 - 0.031 | 0.031 - 0.063 0.024 - 0.055 | 0.031 - 0.059 0.031 - 0.047 | 0.039 - 0.087 0.039 - 0.079 | |
| | S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 15 - 25 | 60 - 200 | – | 0.012 - 0.020 | – | 0.016 - 0.024 | – | 0.020 - 0.028 | – |
| | | Titanium Alloy | 140 - 310 | 15 - 25 | 60 - 200 | – | 0.012 - 0.020 | – | 0.016 - 0.024 | – | 0.020 - 0.028 | – |
| | M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | 15 - 25 | 100 - 160 | 200 - 490 | 0.016 - 0.028 | 0.016 - 0.039 | 0.020 - 0.031 | 0.024 - 0.055 | 0.031 - 0.047 | 0.039 - 0.079 |
| Stainless Steel 300 Series 304, 316, 17-4PH, etc. | | 135 - 275 | 15 - 25 | 100 - 160 | 200 - 490 | 0.016 - 0.028 | 0.016 - 0.039 | 0.020 - 0.031 | 0.024 - 0.055 | 0.031 - 0.047 | 0.039 - 0.079 | |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | 50 - 100 | 160 - 230 | – | 0.016 - 0.039 | 0.024 - 0.059 | 0.024 - 0.051 | 0.031 - 0.063 | 0.031 - 0.067 | 0.039 - 0.088 | |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | 35 - 65 | 160 - 230 | – | 0.016 - 0.039 | 0.024 - 0.059 | 0.024 - 0.051 | 0.031 - 0.063 | 0.031 - 0.067 | 0.039 - 0.088 | |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | 25 - 40 | 100 - 160 | 200 - 400 | 0.016 - 0.039 | 0.024 - 0.059 | 0.024 - 0.051 | 0.031 - 0.063 | 0.031 - 0.067 | 0.039 - 0.088 | |
| N | Copper and Alloys | < 500 | 35 - 60 | 330 - 660 | – | 0.020 - 0.031 | – | 0.024 - 0.039 | – | 0.031 - 0.055 | – | |
| | Brass | < 180 | 35 - 65 | 260 - 520 | 330 - 980 | 0.012 - 0.024 | – | 0.016 - 0.031 | – | 0.024 - 0.039 | – | |
| | Bronze | < 180 | 35 - 65 | 260 - 520 | 330 - 980 | 0.012 - 0.024 | – | 0.016 - 0.031 | – | 0.024 - 0.039 | – | |
| | Bronze Phosphorous | < 150 | 50 - 100 | 330 - 660 | – | 0.020 - 0.031 | – | 0.024 - 0.039 | – | 0.031 - 0.055 | – | |

Formulas

| | | |
|--|--|---|
| <p>1. RPM = (SFM • 3.82) / DIA</p> <p>where:</p> <p>RPM = revolutions per minute (rev/min)</p> <p>SFM = speed (ft/min)</p> <p>DIA = diameter of reamer (inch)</p> | <p>2. IPM = RPM • IPR</p> <p>where:</p> <p>IPM = inches per minute (in/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>IPR = feed rate (in/rev)</p> | <p>3. SFM = RPM • 0.262 • DIA</p> <p>where:</p> <p>SFM = speed (ft/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>DIA = diameter of reamer (inch)</p> |
|--|--|---|

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Stock Allowance and Coolant | Imperial (inch)

Cutting Ring Style

| ISO | Material | Hardness (BHN) | Coolant | Recommended Stock (inch) by Reamer Diameter* | | |
|-----|--|----------------|--------------------------------|--|-------------------|-------------------|
| | | | | 0.6929" - 1.5750" | 1.5751" - 3.1500" | 3.1501" - 7.8972" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | Water Soluble / Cutting Oil | 0.006 - 0.012 | 0.008 - 0.016 | 0.010 - 0.020 |
| | | 180 - 250 | | | | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | | | | |
| | | 180 - 275 | | | | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | | | | |
| | | 180 - 325 | | | | |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | | | | |
| | | 180 - 375 | | | | |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | | | | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | Water Soluble / Cutting Oil | 0.008 - 0.016 | 0.012 - 0.016 | 0.012 - 0.020 |
| | | 140 - 310 | | | | |
| | Titanium Alloy | 140 - 310 | | | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | Water Soluble / Cutting Oil | 0.006 - 0.012 | 0.008 - 0.016 | 0.010 - 0.020 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | | | | |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | Water Soluble / Cutting Oil | 0.006 - 0.012 | 0.008 - 0.016 | 0.010 - 0.020 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | | | | |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | | | | |
| N | Copper and Alloys | < 500 | Water Soluble / Cutting Oil | 0.006 - 0.012 | 0.008 - 0.016 | 0.010 - 0.020 |
| | Brass | < 180 | | | | |
| | Bronze | < 180 | | | | |
| | Bronze Phosphorous | < 180 | | | | |
| | Aluminum and Alloys | < 150 | Water Soluble / Cutting Oil | | | |

*Stock value is on diameter.

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Cutting Data | Metric (mm)

Replaceable Head Style

| ISO | Material | Hardness (BHN) | Speed (M/min) | | | Recommended Feed (mm/rev) by Reamer Diameter | | | | | |
|-----|--|----------------|------------------|----------------|-----------|--|--------------|---------------------|--------------|---------------------|--------------|
| | | | Uncoated Carbide | Coated Carbide | Cermet | 11.80 mm - 21.60 mm | | 21.61 mm - 39.60 mm | | 39.61 mm - 60.60 mm | |
| | | | | | | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | 10 - 20 | 60 - 80 | 90 - 300 | 0.25 - 0.60 | 0.50 - 0.60 | 0.30 - 0.80 | 0.60 - 1.20 | 0.60 - 1.00 | 0.70 - 1.50 |
| | | 180 - 250 | 7 - 15 | 40 - 70 | 80 - 200 | 0.30 - 0.60 | 0.40 - 0.80 | 0.40 - 0.80 | 0.50 - 1.00 | 0.50 - 0.90 | 0.60 - 1.20 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | 10 - 20 | 60 - 80 | 90 - 300 | 0.25 - 0.60 | 0.50 - 0.60 | 0.30 - 0.80 | 0.60 - 1.20 | 0.60 - 1.00 | 0.70 - 1.50 |
| | | 180 - 275 | 7 - 15 | 40 - 70 | 80 - 200 | 0.30 - 0.60 | 0.40 - 0.80 | 0.40 - 0.80 | 0.50 - 1.00 | 0.50 - 0.90 | 0.60 - 1.20 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | 10 - 20 | 60 - 80 | 90 - 300 | 0.25 - 0.60 | 0.50 - 0.60 | 0.30 - 0.80 | 0.60 - 1.20 | 0.60 - 1.00 | 0.70 - 1.50 |
| | | 180 - 325 | 7 - 15 | 40 - 70 | 80 - 200 | 0.30 - 0.60 | 0.40 - 0.80 | 0.40 - 0.80 | 0.50 - 1.00 | 0.50 - 0.90 | 0.60 - 1.20 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | 6 - 10 | 40 - 70 | 80 - 200 | 0.25 - 0.60 | 0.50 - 0.60 | 0.30 - 0.80 | 0.60 - 1.20 | 0.60 - 1.00 | 0.70 - 1.50 |
| | | 180 - 375 | 4 - 8 | 30 - 50 | 60 - 150 | 0.30 - 0.60 | 0.40 - 0.80 | 0.40 - 0.80 | 0.50 - 1.00 | 0.50 - 0.90 | 0.60 - 1.20 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | 3 - 6 | 15 - 30 | 60 - 120 | 0.25 - 0.50 | 0.30 - 0.60 | 0.30 - 0.60 | 0.40 - 0.80 | 0.40 - 0.70 | 0.50 - 1.00 |
| | | | | | | | | | | | |
| | Structural Steel A36, A285, A516 | 125 - 180 | 10 - 20 | 60 - 80 | 90 - 300 | 0.25 - 0.60 | 0.50 - 0.60 | 0.30 - 0.80 | 0.60 - 1.20 | 0.60 - 1.00 | 0.70 - 1.50 |
| | | 180 - 350 | 7 - 15 | 40 - 70 | 80 - 200 | 0.30 - 0.60 | 0.40 - 0.80 | 0.40 - 0.80 | 0.50 - 1.00 | 0.50 - 0.90 | 0.60 - 1.20 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | 10 - 20 | 60 - 80 | 90 - 300 | 0.25 - 0.60 | 0.50 - 0.60 | 0.30 - 0.80 | 0.60 - 1.20 | 0.60 - 1.00 | 0.70 - 1.50 |
| | | 200 - 250 | 7 - 15 | 40 - 70 | 80 - 200 | 0.30 - 0.60 | 0.40 - 0.80 | 0.40 - 0.80 | 0.50 - 1.00 | 0.50 - .090 | 0.60 - 1.20 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 4 - 10 | 30 - 50 | – | 0.20 - 0.40 | – | 0.30 - 0.50 | – | 0.40 - .060 | – |
| | Titanium Alloy | 140 - 310 | 4 - 15 | 30 - 50 | – | 0.20 - 0.40 | – | 0.30 - 0.50 | – | 0.40 - 0.60 | – |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | 4 - 10 | 30 - 50 | 60 - 150 | 0.30 - 0.60 | 0.40 - 0.80 | 0.40 - 0.80 | 0.50 - 1.00 | 0.50 - 0.90 | 0.60 - 1.20 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 4 - 10 | 30 - 50 | 60 - 150 | 0.30 - 0.60 | 0.40 - 0.80 | 0.40 - 0.80 | 0.50 - 1.00 | 0.50 - 0.90 | 0.60 - 1.20 |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | 20 - 40 | 50 - 70 | – | 0.20 - 0.60 | 0.50 - 1.00 | 0.30 - 0.70 | 0.60 - 1.20 | 0.60 - 1.30 | 0.80 - 1.60 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | 15 - 30 | 50 - 70 | – | 0.20 - 0.60 | 0.50 - 1.00 | 0.30 - 0.70 | 0.60 - 1.20 | 0.60 - 1.30 | 0.80 - 1.60 |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | 10 - 15 | 30 - 50 | 60 - 120 | 0.20 - 0.60 | 0.50 - 0.60 | 0.30 - 0.70 | 0.60 - 1.20 | 0.40 - 0.80 | 0.80 - 1.60 |
| N | Copper and Alloys | < 500 | 60 - 200 | 100 - 200 | – | 0.20 - 0.60 | – | 0.30 - 0.70 | – | 0.40 - 0.80 | – |
| | Brass | | | | | | | | | | |
| | Bronze | < 180 | 20 - 40 | 80 - 160 | 100 - 300 | 0.30 - 0.60 | 0.40 - 1.00 | 0.30 - 0.60 | 0.50 - 1.20 | 0.30 - 0.60 | 0.60 - 1.50 |
| | Bronze Phosphorous | | | | | | | | | | |
| | Aluminum and Alloys | < 150 | 20 - 200 | – | – | 0.30 - 0.60 | – | 0.40 - 1.00 | – | 0.40 - 1.00 | – |

Formulas

| | | |
|--|---|---|
| 1. RPM = M/min • 3.82 • DIA where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of reamer (mm) | 2. mm/min = RPM • mm/rev where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev) | 3. M/min = RPM • 0.003 • DIA where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of reamer (mm) |
|--|---|---|

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Stock Allowance and Coolant | Metric (mm)

Replaceable Head Style

| ISO | Material | Hardness (BHN) | Coolant | Recommended Stock (mm) by Reamer Diameter* | | |
|-----|--|----------------|--------------------------------|--|---------------------|---------------------|
| | | | | 11.80 mm - 21.60 mm | 21.61 mm - 39.60 mm | 39.61 mm - 60.60 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | Water Soluble / Cutting Oil | 0.15 - 0.25 | 0.20 - 0.40 | 0.30 - 0.40 |
| | | 180 - 250 | | | | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | | | | |
| | | 180 - 275 | | | | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | | | | |
| | | 180 - 325 | | | | |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | | | | |
| | | 180 - 375 | | | | |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | | | | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | Water Soluble / Cutting Oil | 0.15 - 0.25 | 0.20 - 0.40 | 0.30 - 0.40 |
| | | 140 - 310 | | | | |
| | Titanium Alloy | 140 - 310 | | | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | Water Soluble / Cutting Oil | 0.15 - 0.25 | 0.20 - 0.40 | 0.30 - 0.40 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | | | | |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | Water Soluble / Cutting Oil | 0.15 - 0.25 | 0.20 - 0.40 | 0.30 - 0.40 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | | | | |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | | | | |
| N | Copper and Alloys | < 500 | Water Soluble / Cutting Oil | 0.15 - 0.25 | 0.20 - 0.40 | 0.30 - 0.40 |
| | Brass | < 180 | | | | |
| | Bronze | < 150 | | | | |
| | Bronze Phosphorous | < 150 | | | | |
| | Aluminum and Alloys | < 150 | | | | |

*Stock value is on diameter.

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Cutting Data | Metric (mm)

Monobloc Style

| ISO | Material | Hardness (BHN) | Speed (M/min) | | | Recommended Feed (mm/rev) by Reamer Diameter | | | | | |
|-----|--|----------------|------------------|----------------|-----------|--|--------------|---------------------|--------------|---------------------|--------------|
| | | | Uncoated Carbide | Coated Carbide | Cermet | 5.80 mm - 10.00 mm | | 10.01 mm - 22.00 mm | | 22.01 mm - 32.10 mm | |
| | | | | | | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | 7 - 15 | 60 - 80 | 90 - 300 | 0.20 - 0.40 | .30 - .60 | 0.40 - 0.60 | 0.40 - 1.00 | 0.50 - 0.80 | 0.60 - 1.20 |
| | | 180 - 250 | 6 - 10 | 40 - 70 | 80 - 200 | 0.20 - 0.40 | .30 - .50 | 0.30 - 0.60 | 0.30 - 0.80 | 0.40 - 0.70 | 0.40 - 1.00 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | 7 - 15 | 60 - 80 | 90 - 300 | 0.20 - 0.40 | .30 - .60 | 0.40 - 0.60 | 0.40 - 1.00 | 0.50 - 0.80 | 0.60 - 1.20 |
| | | 180 - 275 | 6 - 10 | 40 - 70 | 80 - 200 | 0.20 - 0.40 | .30 - .50 | 0.30 - 0.60 | 0.30 - 0.80 | 0.40 - 0.70 | 0.40 - 1.00 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | 7 - 15 | 60 - 80 | 90 - 300 | 0.20 - 0.40 | .30 - .60 | 0.40 - 0.60 | 0.40 - 1.00 | 0.50 - 0.80 | 0.60 - 1.20 |
| | | 180 - 325 | 6 - 10 | 40 - 70 | 80 - 200 | 0.20 - 0.40 | .30 - .50 | 0.30 - 0.60 | 0.30 - 0.80 | 0.40 - 0.70 | 0.40 - 1.00 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | 6 - 10 | 40 - 70 | 80 - 200 | 0.20 - 0.40 | .30 - .60 | 0.40 - 0.60 | 0.40 - 1.00 | 0.50 - 0.80 | 0.60 - 1.20 |
| | | 180 - 375 | 4 - 8 | 30 - 50 | 60 - 150 | 0.20 - 0.40 | .30 - .50 | 0.30 - 0.60 | 0.30 - 0.80 | 0.40 - 0.70 | 0.40 - 1.00 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | 3 - 6 | 15 - 30 | 60 - 120 | 0.15 - 0.30 | .20 - .40 | 0.20 - 0.50 | 0.30 - 0.60 | 0.30 - 0.60 | 0.40 - 0.80 |
| | | | | | | | | | | | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 4 - 10 | 30 - 50 | - | 0.15 - 0.30 | - | 0.20 - 0.40 | - | 0.30 - 0.50 | - |
| | Titanium Alloy | 140 - 310 | 4 - 15 | 30 - 50 | - | 0.15 - 0.30 | - | 0.20 - 0.40 | - | 0.30 - 0.50 | - |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | 4 - 10 | 30 - 50 | 60 - 150 | 0.20 - 0.40 | .30 - .50 | 0.30 - 0.60 | 0.30 - 0.80 | 0.40 - 0.70 | 0.40 - 1.00 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 4 - 10 | 30 - 50 | 60 - 150 | 0.20 - 0.40 | .30 - .50 | 0.30 - 0.60 | 0.30 - 0.80 | 0.40 - 0.70 | 0.40 - 1.00 |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | 15 - 30 | 50 - 70 | - | 0.20 - 0.40 | .30 - .60 | 0.35 - 0.60 | 0.50 - 0.80 | 0.40 - 1.00 | 0.60 - 1.50 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | 10 - 20 | 50 - 70 | - | 0.20 - 0.40 | .30 - .60 | 0.35 - 0.60 | 0.50 - 0.80 | 0.40 - 1.00 | 0.60 - 1.50 |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | 8 - 12 | 30 - 50 | 60 - 120 | 0.20 - 0.40 | .30 - .60 | 0.35 - 0.60 | 0.50 - 0.80 | 0.40 - 1.00 | 0.60 - 1.50 |
| N | Copper and Alloys | < 500 | 10 - 18 | 100 - 200 | - | 0.20 - 0.40 | - | 0.40 - 0.70 | - | 0.50 - 0.80 | - |
| | Brass | | | | | | | | | | |
| | Bronze | < 180 | 10 - 20 | 80 - 160 | 100 - 300 | 0.15 - 0.30 | - | 0.20 - 0.40 | - | 0.30 - 0.60 | - |
| | Bronze Phosphorous | | | | | | | | | | |
| | Aluminum and Alloys | < 150 | 15 - 30 | 100 - 200 | - | 0.20 - 0.40 | - | 0.40 - 0.70 | - | 0.50 - 0.80 | - |

Formulas

| | | |
|--|---|---|
| <p>1. $RPM = M/min \cdot 3.82 \cdot DIA$</p> <p>where:</p> <ul style="list-style-type: none"> RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of reamer (mm) | <p>2. $mm/min = RPM \cdot mm/rev$</p> <p>where:</p> <ul style="list-style-type: none"> mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev) | <p>3. $M/min = RPM \cdot 0.003 \cdot DIA$</p> <p>where:</p> <ul style="list-style-type: none"> M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of reamer (mm) |
|--|---|---|

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Stock Allowance and Coolant | Metric (mm)

Monobloc Style

| ISO | Material | Hardness (BHN) | Coolant | Recommended Stock (mm) by Reamer Diameter* | | |
|-----|--|----------------|--------------------------------|--|---------------------|---------------------|
| | | | | 5.80 mm - 10.00 mm | 10.01 mm - 22.00 mm | 22.01 mm - 32.10 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | Water Soluble / Cutting Oil | 0.08 - 0.15 | 0.15 - 0.25 | 0.15 - 0.30 |
| | | 180 - 250 | | | | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | | | | |
| | | 180 - 275 | | | | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | | | | |
| | | 180 - 325 | | | | |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | | | | |
| | | 180 - 375 | | | | |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | | | | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | Water Soluble / Cutting Oil | 0.10 - 0.20 | 0.15 - 0.25 | 0.20 - 0.40 |
| | | 140 - 310 | | | | |
| | Titanium Alloy | 140 - 310 | | | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | Water Soluble / Cutting Oil | 0.08 - 0.15 | 0.15 - 0.25 | 0.15 - 0.30 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | | | | |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | Water Soluble / Cutting Oil | 0.08 - 0.15 | 0.15 - 0.25 | 0.15 - 0.30 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | | | | |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | | | | |
| N | Copper and Alloys | < 500 | Water Soluble / Cutting Oil | 0.08 - 0.15 | 0.15 - 0.25 | 0.15 - 0.30 |
| | Brass | < 180 | | | | |
| | Bronze | < 180 | | | | |
| | Bronze Phosphorous | < 180 | | | | |
| | Aluminum and Alloys | < 150 | Water Soluble / Cutting Oil | | | |

*Stock value is on diameter.

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Cutting Data | Metric (mm)

Cutting Ring Style

| ISO | Material | Hardness (BHN) | Speed (M/min) | | | Recommended Feed (mm/rev) by Reamer Diameter | | | | | |
|-----|--|----------------|------------------|----------------|-----------|--|--------------|---------------------|--------------|----------------------|--------------|
| | | | Uncoated Carbide | Coated Carbide | Cermets | 17.60 mm - 40.00 mm | | 40.01 mm - 80.00 mm | | 80.01 mm - 200.00 mm | |
| | | | | | | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M | Lead A, G | Lead E, N, M |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | 7 - 15 | 60 - 80 | 90 - 300 | 0.50 - 0.80 | .60 - 1.20 | 0.50 - 1.00 | 0.80 - 1.60 | 0.80 - 1.50 | 1.00 - 2.20 |
| | | 180 - 250 | 6 - 10 | 40 - 70 | 80 - 200 | 0.40 - 0.70 | .40 - 1.00 | 0.50 - 0.80 | 0.60 - 1.40 | 0.80 - 1.20 | 1.00 - 2.00 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | 7 - 15 | 60 - 80 | 90 - 300 | 0.50 - 0.80 | .60 - 1.20 | 0.50 - 1.00 | 0.80 - 1.60 | 0.80 - 1.50 | 1.00 - 2.20 |
| | | 180 - 275 | 6 - 10 | 40 - 70 | 80 - 200 | 0.40 - 0.70 | .40 - 1.00 | 0.50 - 0.80 | 0.60 - 1.40 | 0.80 - 1.20 | 1.00 - 2.00 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | 7 - 15 | 60 - 80 | 90 - 300 | 0.50 - 0.80 | .60 - 1.20 | 0.50 - 1.00 | 0.80 - 1.60 | 0.80 - 1.50 | 1.00 - 2.20 |
| | | 180 - 325 | 6 - 10 | 40 - 70 | 80 - 200 | 0.40 - 0.70 | .40 - 1.00 | 0.50 - 0.80 | 0.60 - 1.40 | 0.80 - 1.20 | 1.00 - 2.00 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | 6 - 10 | 40 - 70 | 80 - 200 | 0.50 - 0.80 | .60 - 1.20 | 0.50 - 1.00 | 0.80 - 1.60 | 0.80 - 1.50 | 1.00 - 2.20 |
| | | 180 - 375 | 4 - 8 | 30 - 50 | 60 - 150 | 0.40 - 0.70 | .40 - 1.00 | 0.50 - 0.80 | 0.60 - 1.40 | 0.80 - 1.20 | 1.00 - 2.00 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | 3 - 6 | 15 - 30 | 60 - 120 | 0.30 - 0.60 | .40 - .80 | 0.40 - 0.80 | 0.50 - 1.00 | 0.60 - 1.00 | 0.70 - 1.40 |
| | | | | | | | | | | | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 4 - 8 | 30 - 50 | - | 0.30 - 0.50 | - | 0.40 - 0.60 | - | 0.50 - 0.70 | - |
| | Titanium Alloy | 140 - 310 | 4 - 8 | 30 - 50 | - | 0.30 - 0.50 | - | 0.40 - 0.60 | - | 0.50 - 0.70 | - |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | 4 - 8 | 30 - 50 | 60 - 150 | 0.40 - 0.70 | .40 - 1.00 | 0.50 - 0.80 | 0.60 - 1.40 | 0.80 - 1.20 | 1.00 - 2.00 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 4 - 8 | 30 - 50 | 60 - 150 | 0.40 - 0.70 | .40 - 1.00 | 0.50 - 0.80 | 0.60 - 1.40 | 0.80 - 1.20 | 1.00 - 2.00 |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | 15 - 30 | 50 - 70 | - | 0.40 - 1.00 | .60 - 1.50 | 0.60 - 1.30 | 0.80 - 1.60 | 0.80 - 1.70 | 1.00 - 2.25 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | 10 - 20 | 50 - 70 | - | 0.40 - 1.00 | .60 - 1.50 | 0.60 - 1.30 | 0.80 - 1.60 | 0.80 - 1.70 | 1.00 - 2.25 |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | 8 - 12 | 30 - 50 | 60 - 120 | 0.40 - 1.00 | .60 - 1.50 | 0.60 - 1.30 | 0.80 - 1.60 | 0.80 - 1.70 | 1.00 - 2.25 |
| N | Copper and Alloys | < 500 | 10 - 18 | 100 - 200 | - | 0.50 - 0.80 | - | 0.60 - 1.00 | - | 0.80 - 1.40 | - |
| | Brass | | | | | | | | | | |
| | Bronze | < 180 | 10 - 20 | 80 - 160 | 100 - 300 | 0.30 - 0.60 | - | 0.40 - 0.80 | - | 0.60 - 1.00 | - |
| | Bronze Phosphorous | | | | | | | | | | |
| | Aluminum and Alloys | < 150 | 15 - 30 | 100 - 200 | - | 0.50 - 0.80 | - | 0.60 - 1.00 | - | 0.80 - 1.40 | - |

Formulas

| | | |
|--|---|---|
| <p>1. $RPM = M/min \cdot 3.82 \cdot DIA$</p> <p>where:</p> <ul style="list-style-type: none"> RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of reamer (mm) | <p>2. $mm/min = RPM \cdot mm/rev$</p> <p>where:</p> <ul style="list-style-type: none"> mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev) | <p>3. $M/min = RPM \cdot 0.003 \cdot DIA$</p> <p>where:</p> <ul style="list-style-type: none"> M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of reamer (mm) |
|--|---|---|

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Stock Allowance and Coolant | Metric (mm)

Cutting Ring Style

| ISO | Material | Hardness (BHN) | Coolant | Recommended Stock (mm) by Reamer Diameter* | | |
|-----|--|----------------|--------------------------------|--|---------------------|----------------------|
| | | | | 17.60 mm - 40.00 mm | 40.01 mm - 80.00 mm | 80.01 mm - 200.00 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | Water Soluble / Cutting Oil | 0.15 - 0.30 | 0.20 - 0.40 | 0.25 - 0.50 |
| | | 180 - 250 | | | | |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | | | | |
| | | 180 - 275 | | | | |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | | | | |
| | | 180 - 325 | | | | |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | | | | |
| | | 180 - 375 | | | | |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | | | | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | Water Soluble / Cutting Oil | 0.20 - 0.40 | 0.30 - 0.40 | 0.30 - 0.50 |
| | | 140 - 310 | | | | |
| | Titanium Alloy | 140 - 310 | | | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | Water Soluble / Cutting Oil | 0.15 - 0.30 | 0.20 - 0.40 | 0.25 - 0.50 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | | | | |
| K | Grey Cast Iron, Ductile Cast Iron, | < 200 | Water Soluble / Cutting Oil | 0.15 - 0.30 | 0.20 - 0.40 | 0.25 - 0.50 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | | | | |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | | | | |
| N | Copper and Alloys | < 500 | Water Soluble / Cutting Oil | 0.15 - 0.30 | 0.20 - 0.40 | 0.25 - 0.50 |
| | Brass | | | | | |
| | Bronze | < 180 | | | | |
| | Bronze Phosphorous | | | | | |
| | Aluminum and Alloys | < 150 | Water Soluble / Cutting Oil | | | |

*Stock value is on diameter.

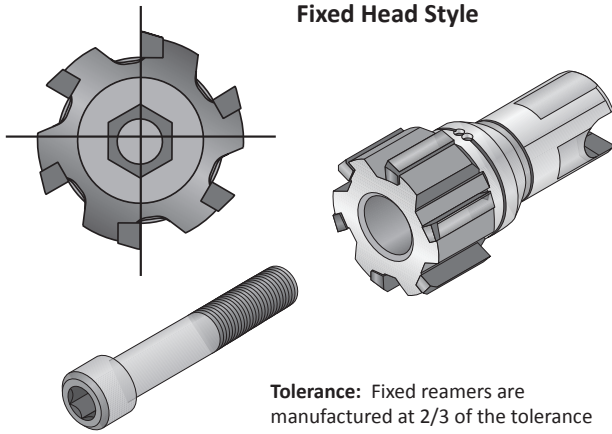
IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Setup Information

Replaceable Head Style

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Fixed Head Style

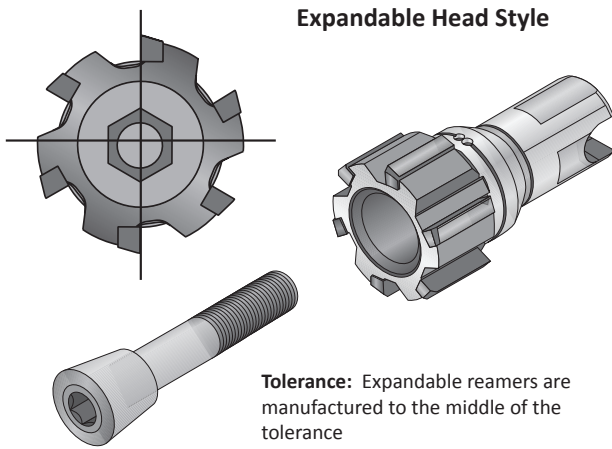


Tolerance: Fixed reamers are manufactured at 2/3 of the tolerance

Recommended Tightening Torque for Fixed Head Reamer (7400 / 7700)

| Imperial | | Metric | |
|-----------------------------|-----------------|---------------------------|--------------|
| D ₁ Range (inch) | Torque (in-lbs) | D ₁ Range (mm) | Torque (N-m) |
| 0.465 - 0.575 | 22.1 | 11.80 - 14.60 | 2.5 |
| 0.575 - 0.693 | 33.6 | 14.61 - 17.60 | 3.5 |
| 0.693 - 0.850 | 44.3 | 17.61 - 21.60 | 5.0 |
| 0.851 - 1.047 | 62.0 | 21.61 - 26.60 | 7.0 |
| 1.048 - 1.283 | 88.5 | 26.61 - 32.60 | 10.0 |
| 1.284 - 1.598 | 106.2 | 32.61 - 40.60 | 12.0 |
| 1.599 - 1.992 | 141.6 | 40.61 - 50.60 | 16.0 |
| 1.993 - 2.386 | 177.0 | 50.61 - 60.60 | 20.0 |

Expandable Head Style



Tolerance: Expandable reamers are manufactured to the middle of the tolerance

Expanding Heads Adjustment

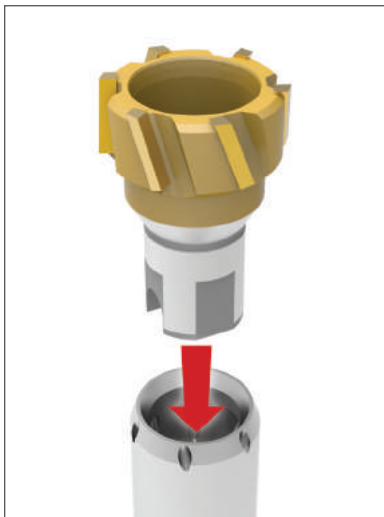
When the size reaches its lower tolerance, the head can be adjusted to compensate for wear to the cutting edges. This operation can be repeated several times until the surface finish of the hole deteriorates to an unacceptable level.

Adjustment Procedure

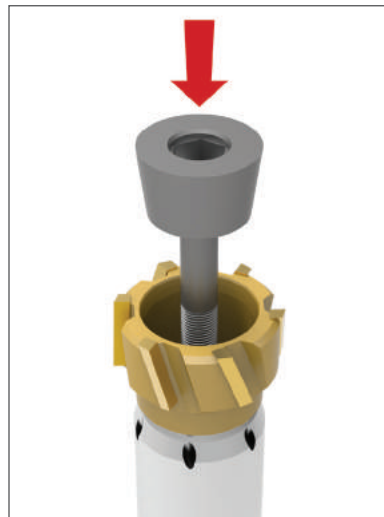
Slowly turn the right-hand threaded screw clockwise while checking the diameter setting of the reamer with a micrometer. When the required diameter is achieved, the tool is ready for use.

Replaceable Head Reamer Assembly

Fixed and Expandable Styles



Step 1: Insert the replaceable reamer head into the mandrel.



Step 2: Insert the screw into the reamer head opening to secure it to the mandrel.

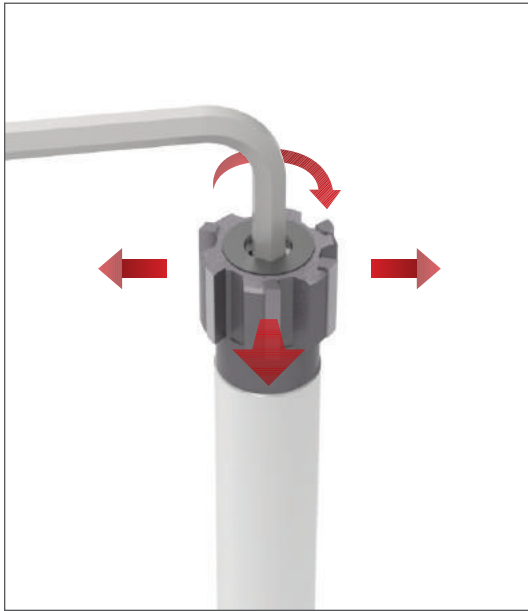


Step 3: Tighten the screw.

NOTE: We recommend lubricating the thread and the conical surface of contact between the reamer head and the screw with antifriction Molycote® grease.

Setup Information

Monobloc Style



Tolerance

All monobloc reamers are ground to the requested diameter and set in the middle of the hole tolerance ready for use.

Adjustment

The adjustment must be made to compensate for wear to the cutting edges when the size reaches its lower tolerance. This operation can be repeated several times until the surface finish of the hole deteriorates to an unacceptable level. Then the reamer must be reground. The maximum expansion is about 1% of the diameter.

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

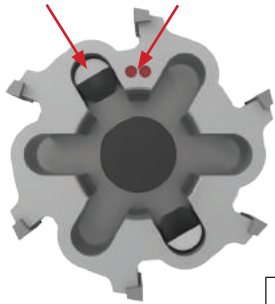
SPECIALS

Setup Information

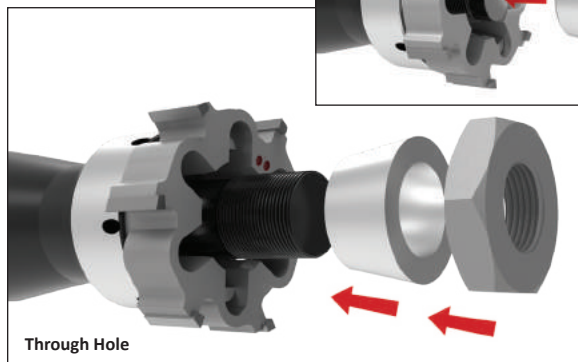
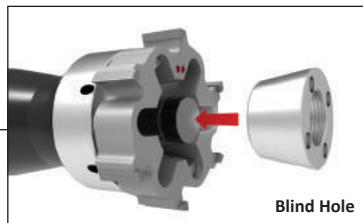
Cutting Ring Style

Drive Pin
(11:00 position)

Dimples
(12:00 position)



Step 1:
With the drive pins assembled, insert the cutting ring onto the mandrel. Make sure the dimples are at the 12:00 position with the drive pin at the 11:00 position.



Adjustment Procedure

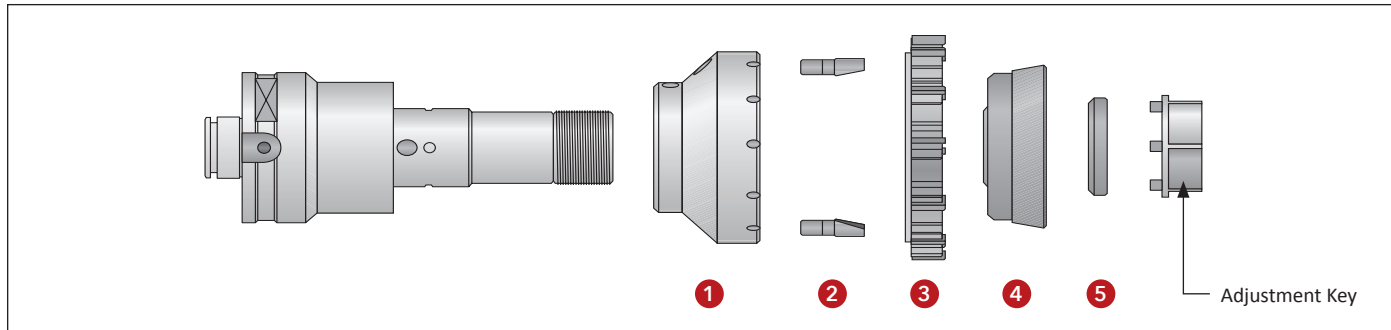
1. Turn the conical ring slowly using an adjustment key (left-hand thread). Adjustment keys are supplied with reamers from diameter 17.60 mm to 40.59 mm.
2. Check the diameter setting of the cutting ring with a micrometer.
3. When the required diameter is achieved, unscrew the conical ring until there is a click and the drive pins are in traction in the opposite direction to the cutting action of the reamer. The reamer is ready for use.

Step 2:

Insert the conical ring. Tighten the lock nut to set the desired reamer size (left-hand thread). Then loosen the lock nut slightly until it "clicks" against the drive wall.

NOTE: We recommend lubricating the thread and the conical surface of contact between the cutting ring and the conical ring with antifriction Molycote® grease.

For Diameter Range: 100.60 mm - 200.59 mm



Assembly

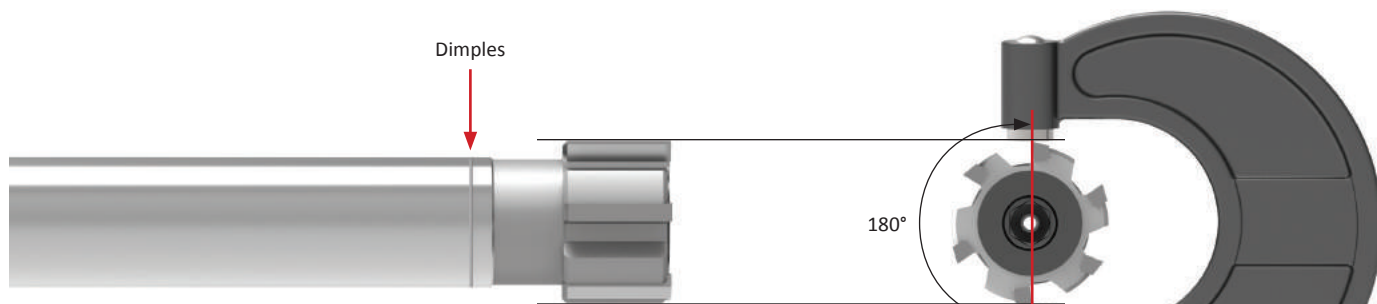
1. With the drive pins (2) assembled, mount the flange (1) onto the mandrel. Assemble the cutting ring (3) so the slot on the left side of the dimple is mounted onto the drive pins (2). Insert the conical ring (4).
2. Screw the ring nut (5) onto the mandrel and tighten manually so the conical ring (4) makes contact with the cutting ring (3). The thread is left handed.

NOTE: We recommend lubricating the thread and the conical surface of contact between the cutting ring and the conical ring with antifriction Molycote grease.

Adjustment Procedure

1. Turn the ring nut (5) slowly using a pin spanner.
2. Check the diameter setting of the cutting ring with a micrometer. Make sure the drive pins (2) are in traction and in the opposite direction of the cutting action of the reamer.
3. When the required diameter is achieved, the tool is ready to use.

Diameter Measurement

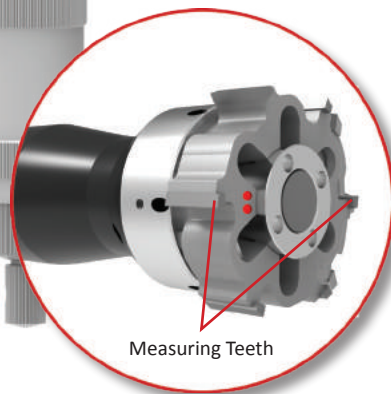
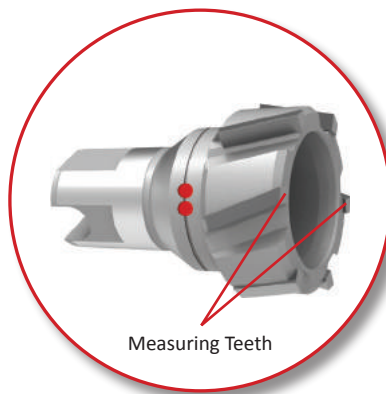
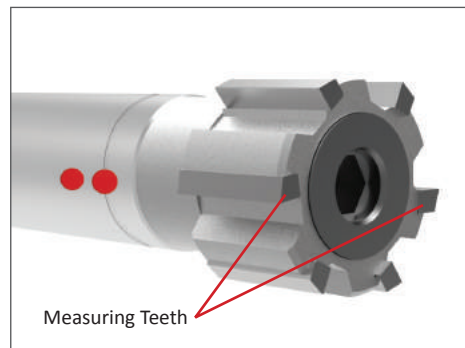


Using the Measuring Teeth

With the reamer assembled, use a presetter or micrometers to measure the reamer diameter using the opposing 180° teeth. A presetter (with at least 2 μm resolution) is preferred to avoid chipping the cutting edges.

NOTE: Only two cutting teeth are 180° opposed. The asymmetric spacing of the other cutting teeth will not induce harmonics, which prevents the tool from creating chatter.

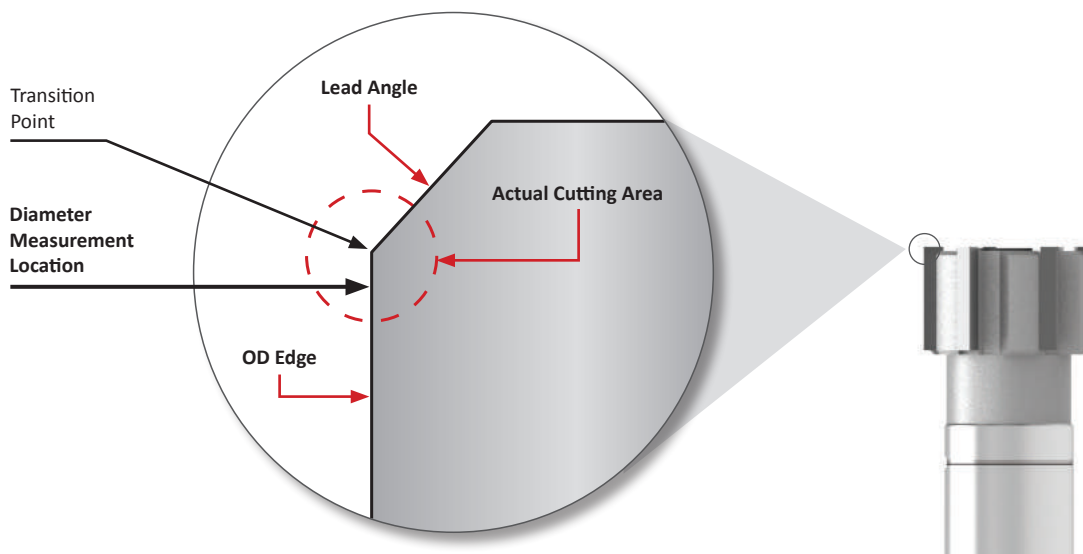
The red dimples indicate which two opposing teeth are the measuring teeth. All S.C.A.M.I. Reamers have a dimple to indicate the 180° opposing teeth.



Where to Take the Measurement

When measuring the diameter, take the measurement from the area of the cutting tooth just below the transition from the lead angle to the OD edge. See the illustration below.

The back side of the OD edge has a back taper. This is why measuring from the location just below the lead angle/OD edge transition point results in the most accurate measurement (before the taper begins).



TIR Measurement

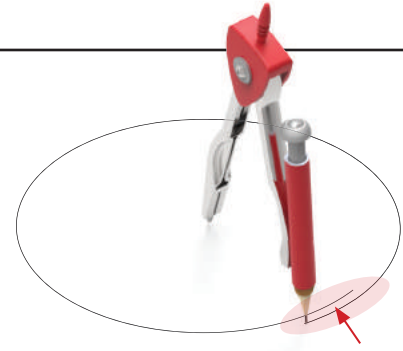
What is TIR?

Total indicator runout (TIR) refers to the distance to which the reamer is cutting off-center. In an ideal situation, the tool would begin in the exact center of the hole, and it would then rotate and cut in a perfect circle. This would result in a TIR of 0.

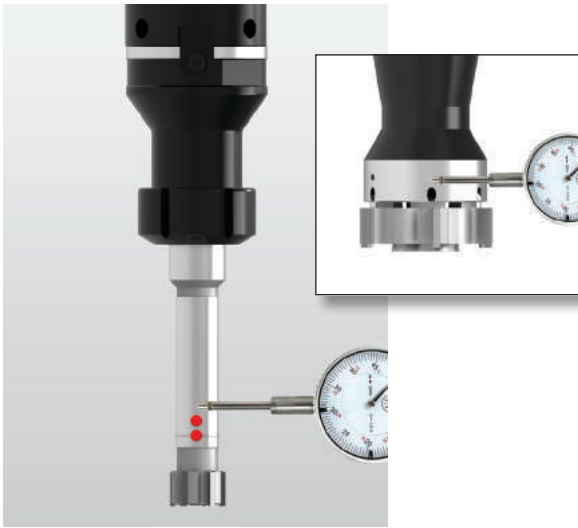
Because a perfect TIR of 0 is not practical, the goal is to maintain a TIR as close to 0 as possible. The closer the TIR is to 0, the better the reamer will perform.

Allied Machine recommends a TIR of $< 0.0005''$ (0.013 mm).

Think of attempting to draw a perfect circle with a drafting compass, but the pencil runs slightly outside the point where the circle began because the center point shifted during the pencil's path. This slight area of overlap would be the TIR.



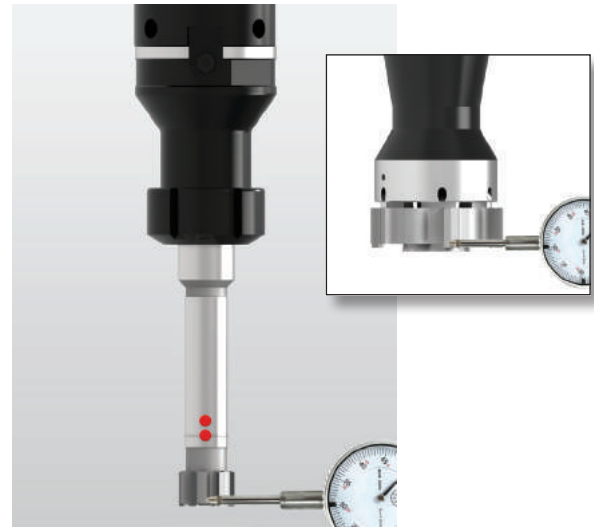
TIR: How far from center the tool will move during its path



Step 1:

Check the TIR first on the mandrel (or ground) area of the reamer. Center the indicator in line with the dimple.

Measure the TIR by rotating the tool until the indicator reaches the highest value.

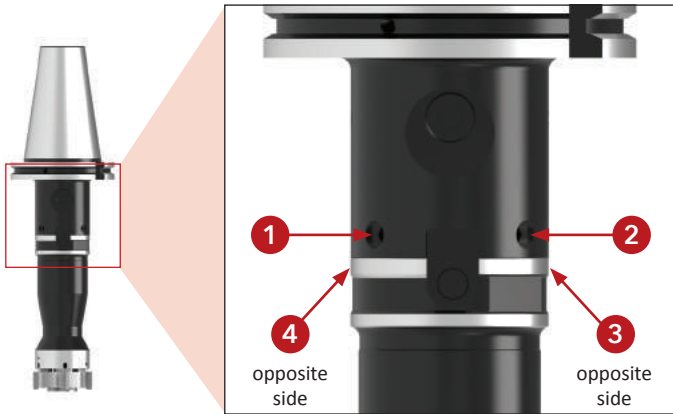


Step 2:

Next, check the TIR on the cutting teeth of the reamer.

NOTE: Rotate the tool counterclockwise to avoid chipping the cutting teeth with the indicator.

TIR Adjustment



Step 1:

Place the tool into the machine spindle. Make contact with the four radial adjustment screws in a concentric fashion (this results in equal pressure surrounding the tool).

Tighten #1, then #3, followed by #2 and #4.



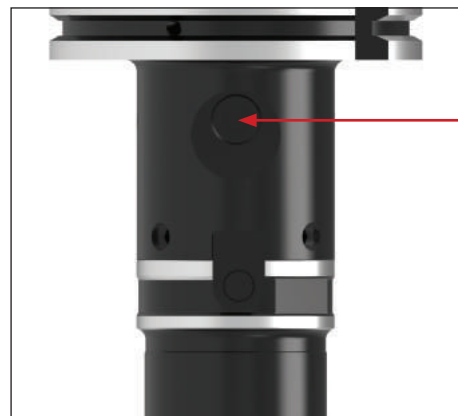
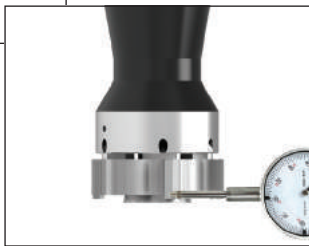
Step 2:

Swipe the dial indicator around the ground portion of the arbor near the coolant outlet holes to verify the TIR.

The TIR should be within 0.0005" (as close to 0 as possible). This will ensure the TIR check on the cutting teeth will be more true. It also means the arbor is running true to the shank.

Step 3:

Once the TIR is checked on the arbor, check the TIR on the cutting teeth. Rotate the tool counterclockwise to avoid chipping the cutting teeth.



Clamping Screw

Step 4:

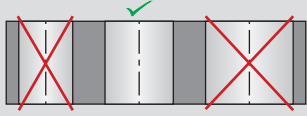
Tighten down the central clamping screws. During the tightening, the tool body will shift slightly. Repeat the TIR check on the cutting teeth and adjust as necessary.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Troubleshooting Guide

A

DRILLING

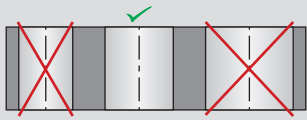


Oversized Hole

- Reamer is running eccentric to the center of the machine spindle ▶ Use modular system with radial adjustment
- Excessive misalignment causing reamer to cut on back taper ▶ Fix the misalignment
- Material buildup on cutting edges ▶ Replace the coolant or change the cutting speed
- Reamer diameter is too large ▶ Use smaller reamer or regrind existing reamer

B

BORING

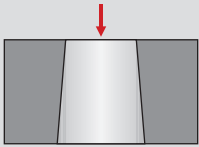


Undersized Hole

- The reamer diameter is too small ▶ Use larger reamer
- The reamer diameter is worn ▶ Expand, regrind, or replace the reamer
- The coolant is not suitable ▶ Replace the coolant
- Stock allowance is too small ▶ Increase the stock allowance
- The cutting speed is too low ▶ Increase the cutting speed

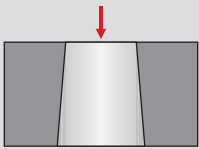
C

REAMING



Tapered Hole

- Excessive misalignment ▶ Correct the misalignment

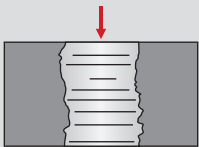


Burr at Hole Entry

- Excessive misalignment ▶ Correct the misalignment

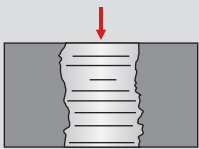
D

BURNISHING



Hole is Not Straight

- Concentricity and alignment error between the workpiece and the tool ▶ Correct the misalignment and use the modular system with radial adjustment
- Asymmetrical cutting or angled surfaces ▶ Create a chamfer on the lead-in

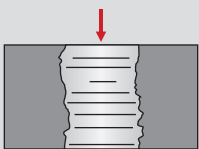


Poor Hole Finish

- One cutting edge is chipped ▶ Regrind the reamer
- The lead-in is irregular ▶ Regrind the reamer
- Back taper on the cutting edge is too great ▶ Regrind the reamer
- Excessive misalignment ▶ Correct the misalignment or use the modular system
- Cutting data is not correct ▶ Verify the cutting data
- Poor chip evacuation ▶ Verify the coolant volume and pressure or use through-tool coolant

F

THREADING



Reamer Creates Excessive Torque Loading

- Back taper on the cutting edge is too small ▶ Regrind the reamer
- The radially ground land is too wide ▶ Regrind the reamer
- The coolant is not suitable ▶ Replace the coolant

X

SPECIALS

SECTION

D

Burnishing

Roller Burnishing Systems

Through Hole Style | Blind Hole Style



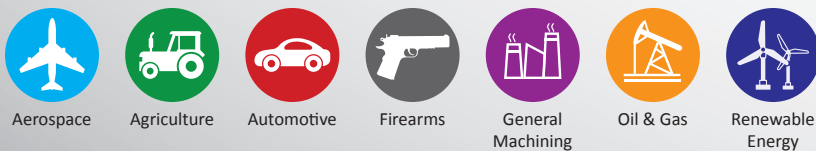
Get the Finish You Need

Allied Machine is proud to offer roller burnishing tools from S.C.A.M.I. These hole finishing tools provide extremely high-quality surface finish on both through hole and blind hole applications. With roller burnishing, you can eliminate the need for slower and more costly finishing processes and secondary operations such as grinding, honing, and lapping.

Not only will the roller burnishing tools create a smooth surface finish, but they will also harden the material and increase the wear resistance of the part. The benefits of this single operation result in the hole quality you should expect from Allied Machine.

| | | |
|-------------------------------|---|--|
| Creates fine surface finishes | Increases wear and corrosion resistance | Eliminates other processes and saves you money |
|-------------------------------|---|--|

Applicable Industries



Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

Roller Burnishing Systems Contents

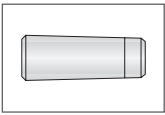
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



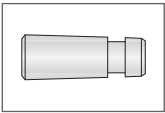
Technical Information

Detailed instructions and information regarding the corresponding part(s)



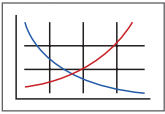
Through Hole Rolls

Refers to the rolls available for through hole burnishing tools



Blind Hole Rolls

Refers to the rolls available for blind hole burnishing tools



Recommended Cutting Data

Speed and feed recommendations for optimum and safe burnishing

| Series | Diameter Range | |
|--------|-----------------|-----------------|
| | Imperial (inch) | Metric (mm) |
| H | 0.1555 - 0.5028 | 3.95 - 12.77 |
| I | 0.4976 - 0.6634 | 12.64 - 16.85 |
| K | 0.6535 - 0.9740 | 16.60 - 24.74 |
| L | 0.9661 - 1.2268 | 24.54 - 31.16 |
| F | 0.9661 - 1.2268 | 24.54 - 31.16 |
| M | 1.2146 - 1.4118 | 30.85 - 35.86 |
| N | 1.4020 - 1.8492 | 35.61 - 46.97 |
| O | 1.8390 - 2.2240 | 46.71 - 56.49 |
| P | 2.2138 - 2.7240 | 56.23 - 69.19 |
| Q | 2.7138 - 3.3492 | 68.93 - 85.07 |
| R | 3.3390 - 4.0992 | 84.81 - 104.12 |
| S | 4.0890 - 5.0370 | 103.86 - 127.94 |
| T | 5.0354 - 5.9016 | 127.90 - 149.90 |
| U | 5.9016 - 6.5315 | 149.90 - 165.90 |



Allied Machine & Engineering offers ALVAN® Burnishers through an exclusive supply agreement with S.C.A.M.I. s.n.c.

S.C.A.M.I. is an Italian manufacturer that has been producing high-quality cutting tools for over 40 years.

For additional information about all Allied Machine products, visit www.alliedmachine.com. For technical assistance, contact our Application Engineering department.
ext: 7611 | email: appeng@alliedmachine.com

Introduction Information

| | |
|--------------------------------------|-------|
| Roller Burnishing Overview | 2 - 3 |
| Product Offering | 4 |
| Product Selection Guide | 5 |
| Product Nomenclature | 6 |

Burnishing Series

| | |
|--------------------|---------|
| H Series | 7 - 11 |
| I Series | 12 - 13 |
| K Series | 14 - 15 |
| L Series | 16 - 17 |
| F Series | 18 - 19 |
| M Series | 20 - 21 |
| N Series | 22 - 23 |
| O Series | 24 - 25 |
| P Series | 26 - 27 |
| Q Series | 28 - 29 |
| R Series | 30 - 31 |
| S Series | 32 - 33 |
| T Series | 34 - 35 |
| U Series | 36 - 37 |

| | |
|-----------------|---------|
| Rolls | 38 - 39 |
|-----------------|---------|

Technical Information

| | |
|-----------------------------------|----|
| Diameter Adjustment | 40 |
| How the Burnisher Works | 41 |

Recommended Cutting Data

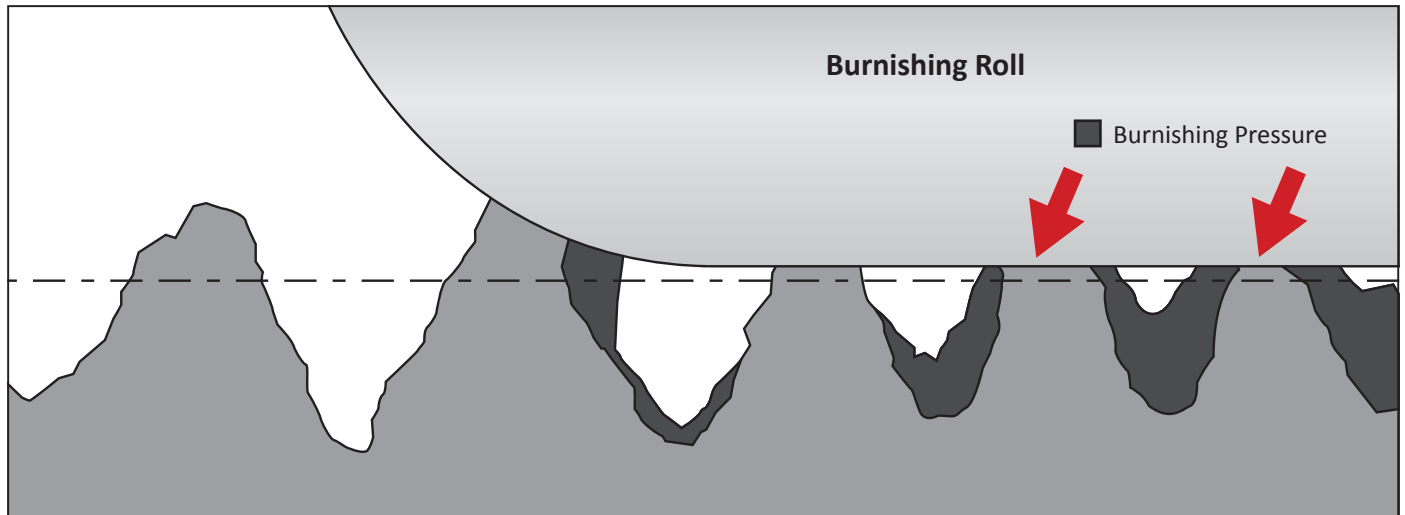
| | |
|---------------------------|---------|
| Imperial (inch) | 42 - 43 |
| Metric (mm) | 44 - 45 |

Roller Burnishing Overview

The Principle of Roller Burnishing

Roller burnishing is a cold-working process that produces a fine surface finish. The planetary rotation of the hardened rolls creates pressure over a metal surface. Unlike cold rolling, which produces large sectional changes, roller burnishing involves cold-working on the surface of the workpiece to improve the surface structure.

All machined surfaces consist of a series of peaks and valleys, all having irregular height and spacing. The plastic deformation created by roller burnishing is a displacement of the material in the peaks. When under pressure, the material in the peaks flows into the valleys. During the process, tool marks and irregularities are rolled out, resulting in a mirror-like finish with a tough, work-hardened surface that is also wear and corrosion resistant.



Advantages of Roller Burnishing: Metallurgical Properties

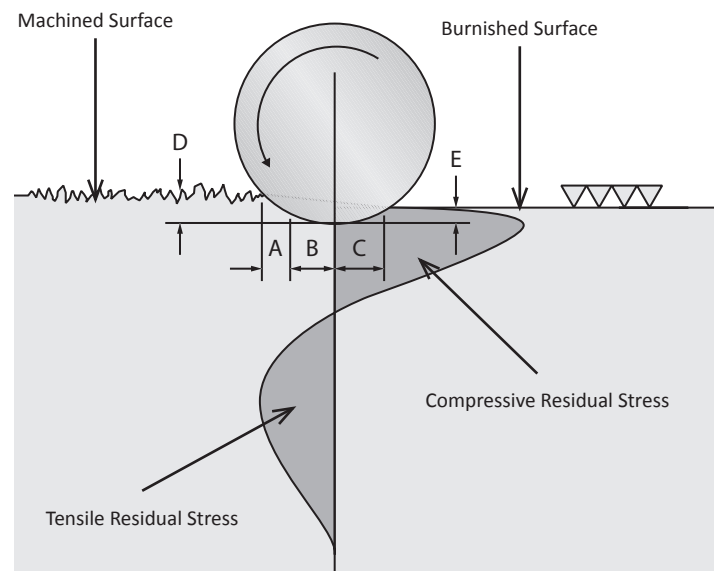
- Grain structure is condensed and refined.
- The compacted surface is **smoother, harder, and more wear resistant** than ground or honed surfaces.
- The process reduces surface porosity and also removes scratches that could hold reactive substances or contaminants. **This increases the corrosion resistance.**
- Depending on the material, the surface hardness can be **increased by as much as 10 points Rockwell C**. This may eliminate the need for heat treatment.
- The plastic deformation induces residual compressive stresses in the surface of the part. This increases the strength properties and fatigue life of the part because any forces on the part must overcome these residual stresses, as well as the tensile strength of the materials, before fatigue conditions occur.

Advantages of Roller Burnishing: Surface Finish

- Creates a high finish to any machinable metal.
- Surfaces that are bored, reamed, or turned to 125 microinches or more can be finished to 4 microinch CLA or less in one pass (at feed rates of 125 to 300 mm/min).
- Roller burnishing replaces grinding, honing, lapping, and other expensive secondary operations.
- Tool marks are rolled out.

The Process

- The first contact with the machined surface occurs in Section A.
- Plastic deformation occurs in Section B as the yield point of the surface is exceeded.
- Section D is the pressurized depth.
- Once the material endures the maximum compressive strain (Section C), it starts relieving elastically (Section E) through the finishing zone.
- This leaves a smooth surface and a compressive residual stress of significant peak value.
- The stresses formed on the material during the compression decrease toward the center. These stresses reach approximately 1mm below the surface. This increases the surface hardness.



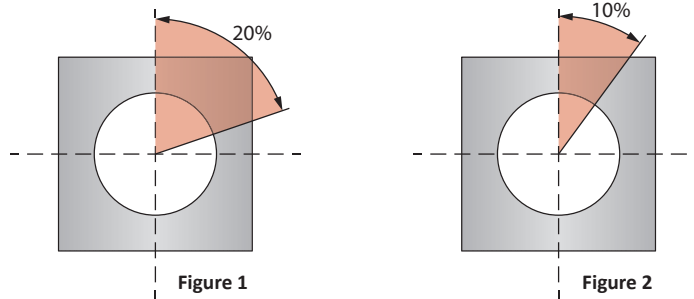
Roller Burnishing Overview

When to Roller Burnish

Conditions for Roller Burnishing

Roller burnishing is a cold-working process used to achieve fine hole finishes. In order to achieve the most optimal results, adhere to the benchmarks below:

- **Finishing:** The ductility and hardness of the workpiece material along with the surface preparation dictates the quality of the burnished finish.
- **Workability:** Any ductile and malleable material up to RC40 can be roller burnished.
- **Worked Surface Properties:** Workpieces with an interrupted surface within 10% of the circumference can be successfully burnished with a standard tool (see Figures 1 and 2).



- **Tolerance of the Burnished Piece:** The tolerance range achieved from the burnishing will be equal to that achieved from the premachining since no material will be removed.

The ideal surface for burnishing consists of a succession of peaks. These peaks correspond on regular feed of the preparation tool (see Figure 3). We suggest the ALVAN® expandable reamer for preburnishing because it creates a uniform roughness and a tolerance range of H6 - H7.

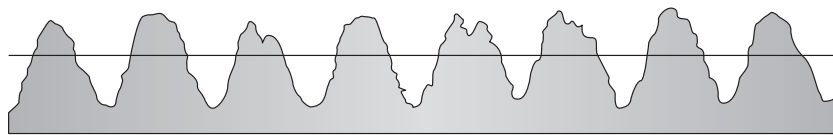


Figure 3

Premachining tapers and surface irregularities caused by cutting tool failure must be noted because these conditions cannot be corrected by the roller burnishing process (see Figures 4 and 5).

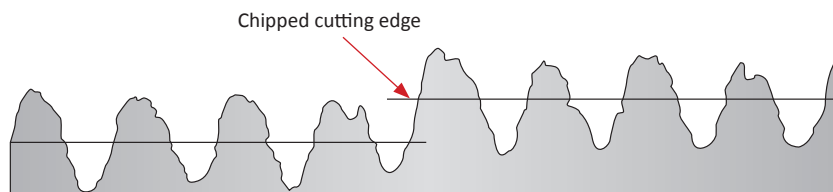


Figure 4

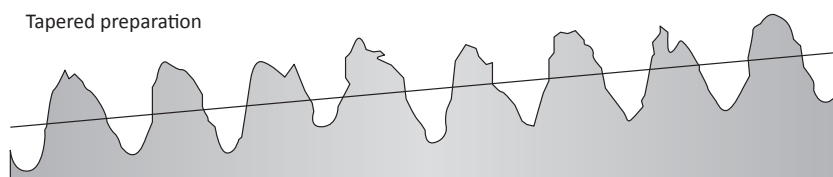


Figure 5

Product Offering



Through Hole Style

0.1555" - 6.5315" (3.95 mm - 165.90 mm)

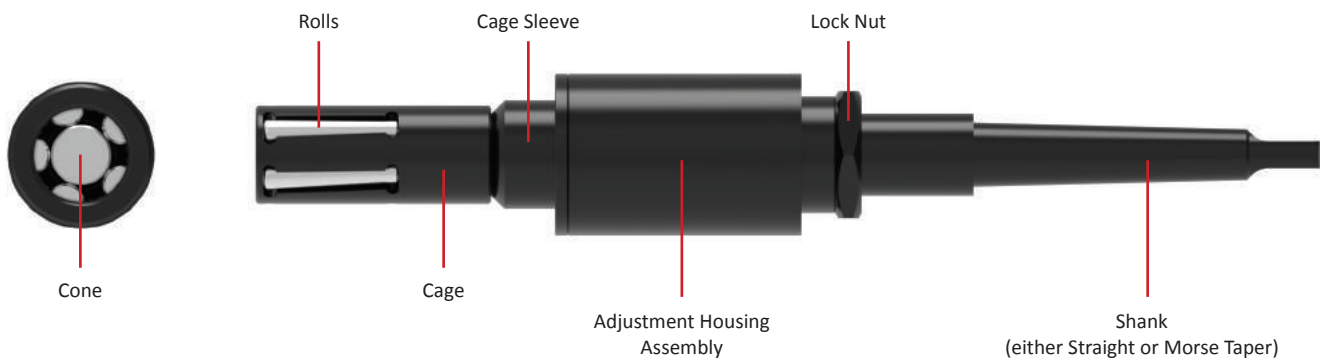


Blind Hole Style

0.2319" - 6.5315" (5.89 mm - 165.90 mm)

Advantages of the Roller Burnishing Tool

- ✔ **Provides accurate size control**
 tolerances within 0.0005" or better (depending on variables such as material)
- ✔ **Produces fine surface finishes**
 between 1 - 16 microinches Ra (0.03 - 0.4 micromillimeters Ra)
- ✔ **Increases surface hardness**
 by 5 - 10% or more
- ✔ **Performs a much cleaner operation**
 than honing or other abrasive finishing methods
- ✔ **Provides versatility**
 because the operation can be performed on any rotating spindle
- ✔ **Eliminates the need for slower and costly finishing processes and secondary operations**
 such as grinding, honing, lapping, etc.


















The Tool Components

All roller burnishing tools (both through hole and blind hole) are composed of the basic burnisher assembly including:

- Cage
- Cone
- Rolls
- Shank (either straight or Morse Taper)

Product Selection Guide

| Series | Diameter Range (inch / mm) | | | | | | Length | | | | |
|---------|---|--|---|---|---|--|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | 0 - 1 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | 5 - 6 | 6 - 7 | Short | Standard | Long | Unlimited |
| | 0 - 25.4 | 25.4 - 50.8 | 50.8 - 76.2 | 76.2 - 101.6 | 101.6 - 127 | 127 - 152.4 | 152.4 - 177.8 | | | | |
| H* Mini |  | | | | | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | |
| H* |  | | | | | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| I |  | | | | | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| K |  | | | | | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| L | |  | | | | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| F | |  | | | | | | | | | <input checked="" type="checkbox"/> |
| M | |  | | | | | | | | | <input checked="" type="checkbox"/> |
| N | |  | | | | | | | | | <input checked="" type="checkbox"/> |
| O | |  | | | | | | | | | <input checked="" type="checkbox"/> |
| P | | |  | | | | | | | | <input checked="" type="checkbox"/> |
| Q | | |  | | | | | | | | <input checked="" type="checkbox"/> |
| R | | | |  | | | | | | | <input checked="" type="checkbox"/> |
| S | | | | |  | | | | | | <input checked="" type="checkbox"/> |
| T | | | | | |  | | | | | <input checked="" type="checkbox"/> |
| U | | | | | | |  | | | | <input checked="" type="checkbox"/> |

*For H series: Through hole tools start at 0.1555" (3.95 mm) and blind hole tools start at 0.2319" (5.89mm)

When to **ORDER UP** 

In some cases, there will be a diameter overlap between a series and the series after it. If the diameter you need falls into this overlap, choose the higher of the two series.

Example:

You need a 24.64mm diameter tool. This diameter falls into both the K series and the L series.

- K series diameter range = 16.60 mm - 24.74 mm
- L series diameter range = 24.54 mm - 31.16 mm

In this scenario, you would choose the L series tool that covers the 24.64 diameter.

Product Nomenclature

Roller Burnishing Tools

| | | | | | | | |
|------------|----------|---|----------|----------|----------|---|---------------|
| RDK | H | - | 2 | 1 | 0 | - | 004,70 |
| 1 | 2 | | 3 | 4 | 5 | | 6 |

| | | |
|--|--|---|
| 1. Type of Burnisher RDK = Through holes RSK = Blind holes | 2. Series H = H series F = F series P = P series T = T series I = I series M = M series Q = Q series U = U series K = K series N = N series R = R series L = L series O = O series S = S series | 3. Shank Type 0 = Straight (mini) 1 = Straight 2 = Morse Taper |
| 4. Length 0 = Unlimited 1 = Short 2 = Standard 3 = Long | 5. Cage Style 0 = Standard 2 = Mini | 6. Diameter Through Hole Tools = Minimum diameter of burnishing range Blind Hole Tools = Diameter to burnish |

Cone Reduction Factor (Blind Holes)

When burnishing blind holes, the cone must not extend past the end of the rolls. If it does, the cone will collide with the bottom of the hole. Each burnishing tool has an adjustment range of:

- Approximately 0.5mm on diameter for tools below 12.7 mm
- Approximately 1.0mm on diameter for tools above 12.7 mm

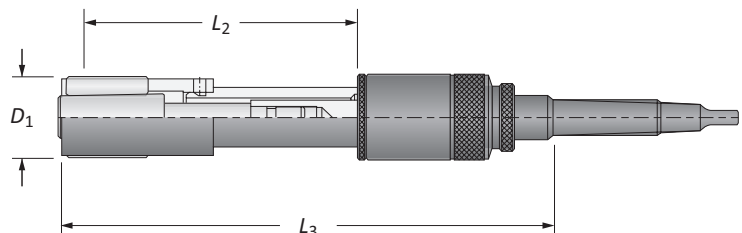
For through hole burnishing tools, the standard cone value "x" is 1. If the standard cone is used for blind hole burnishing, the only way it will not extend past the end of the rolls is to reduce the length of the cone. The required length reduction is dependent on the set diameter versus the minimum capable diameter of the tool. The factor of reduction (x) can be calculated using the formulas below and will be a whole integer number ranging from 2 - 8.

The "x" value could result in a decimal figure. If so, round down for answers below 0.80 and round up for answers 0.80 and above.

| | | |
|--|--|--|
| Diameter (5.89 mm - 12.77 mm) $x = 1 + \frac{Z - Y}{0.05}$ Z = diameter of the hole Y = minimum diameter setting of tool Example: Z = 11.05 Y = 10.71mm $x = 1 + \frac{11.05 - 10.71}{0.05} = 7.8$ which is approximated at "x" = 8 Correct Cone: RSTH-038-11025 | Diameter (12.64 mm - 127.94 mm) $x = 1 + \frac{Z - Y}{0.10}$ Z = diameter of the hole Y = minimum diameter setting of tool Example: Z = 17.76 Y = 17.40mm $x = 1 + \frac{17.76 - 17.40}{0.10} = 4.6$ which is approximated at "x" = 4 Correct Cone: RSTK-034-00044 | Diameter (127.90 mm - 165.90 mm) $xx = 31 + \frac{Z - Y}{0.10}$ Z = diameter of the hole Y = minimum diameter setting of tool Example: Z = 148.20 Y = 147.90mm $xx = 31 + \frac{148.20 - 147.90}{0.10} = 34$ Correct Cone: RSTT-034-01480 |
|--|--|--|

Reference Key

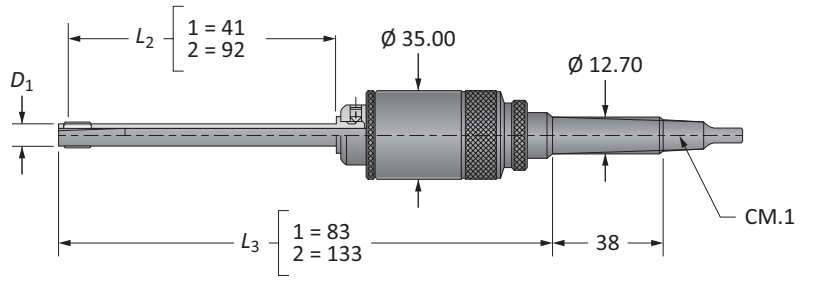
| Symbol | Attribute |
|----------------|-------------------|
| D ₁ | Diameter range |
| L ₂ | Burnishing length |
| L ₃ | Reference length |





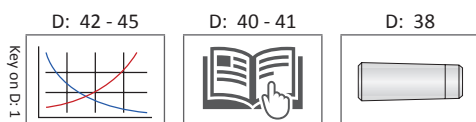
Roller Burnishing Tools | Through Holes

H Series (mini) | Diameter Range: 0.1555" - 0.1870" (3.95 mm - 4.75 mm)



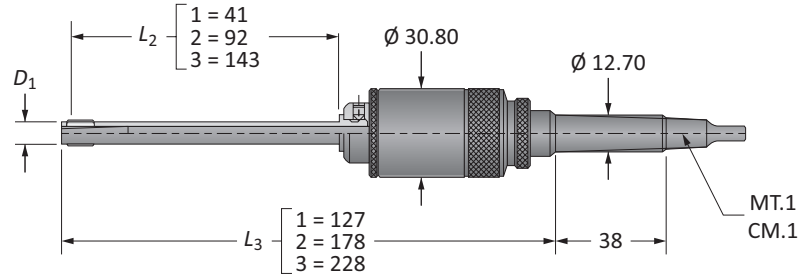
| D_1 | | L | Part No. Assembly with Straight Shank | Spare Parts | | | Qty Rolls |
|-----------------|-------------|-----|---|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | | | Cage | Cone | Rolls | |
| 0.1555 - 0.1634 | 3.95 - 4.15 | 1 | RDKH-012-00395 | RDCH-012-10005 | RDTH-031-10012 | RDRY-704-00047 | 3 |
| 0.1555 - 0.1634 | 3.95 - 4.15 | 2 | RDKH-022-00395 | RDCH-012-20005 | RDTH-031-20012 | RDRY-704-00047 | 3 |
| 0.1638 - 0.1713 | 4.16 - 4.35 | 1 | RDKH-012-00416 | RDCH-012-10006 | RDTH-035-10012 | RDRY-704-00047 | 3 |
| 0.1638 - 0.1713 | 4.16 - 4.35 | 2 | RDKH-022-00416 | RDCH-012-20006 | RDTH-035-20012 | RDRY-704-00047 | 3 |
| 0.1717 - 0.1791 | 4.36 - 4.55 | 1 | RDKH-012-00436 | RDCH-012-10007 | RDTH-031-10013 | RDRY-704-00047 | 3 |
| 0.1717 - 0.1791 | 4.36 - 4.55 | 2 | RDKH-022-00436 | RDCH-012-20007 | RDTH-031-20013 | RDRY-704-00047 | 3 |
| 0.1795 - 0.1870 | 4.56 - 4.75 | 1 | RDKH-012-00456 | RDCH-012-10008 | RDTH-035-10013 | RDRY-704-00047 | 3 |
| 0.1795 - 0.1870 | 4.56 - 4.75 | 2 | RDKH-022-00456 | RDCH-012-20008 | RDTH-035-20013 | RDRY-704-00047 | 3 |

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



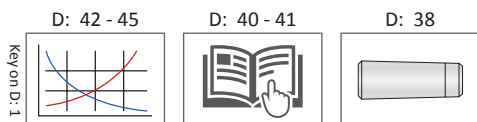
Roller Burnishing Tools | Through Holes

H Series | Diameter Range: 0.1850" - 0.5028" (4.70 mm - 12.77 mm)



| D ₁ | | L | Part No. | | Spare Parts | | | Qty Rolls |
|-----------------|-------------|---|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | |
| 0.1850 - 0.1929 | 4.70 - 4.90 | 1 | RDKH-210-00470 | RDKH-110-00470 | RDCH-011-10012 | RDTH-031-10012 | RDRY-704-00062 | 3 |
| 0.1850 - 0.1929 | 4.70 - 4.90 | 2 | RDKH-220-00470 | RDKH-120-00470 | RDCH-011-20012 | RDTH-031-20012 | RDRY-704-00062 | 3 |
| 0.1850 - 0.1929 | 4.70 - 4.90 | 3 | RDKH-230-00470 | RDKH-130-00470 | RDCH-011-30012 | RDTH-031-30012 | RDRY-704-00062 | 3 |
| 0.1917 - 0.2035 | 4.87 - 5.17 | 1 | RDKH-210-00487 | RDKH-110-00487 | RDCH-011-10011 | RSTH-033-10012 | RDRY-704-00062 | 3 |
| 0.1917 - 0.2035 | 4.87 - 5.17 | 2 | RDKH-220-00487 | RDKH-120-00487 | RDCH-011-20011 | RSTH-033-20012 | RDRY-704-00062 | 3 |
| 0.1917 - 0.2035 | 4.87 - 5.17 | 3 | RDKH-230-00487 | RDKH-130-00487 | RDCH-011-30011 | RSTH-033-30012 | RDRY-704-00062 | 3 |
| 0.1996 - 0.2200 | 5.07 - 5.59 | 1 | RDKH-210-00507 | RDKH-110-00507 | RDCH-011-10013 | RDTH-031-10013 | RDRY-704-00062 | 5 |
| 0.1996 - 0.2200 | 5.07 - 5.59 | 2 | RDKH-220-00507 | RDKH-120-00507 | RDCH-011-20013 | RDTH-031-20013 | RDRY-704-00062 | 5 |
| 0.1996 - 0.2200 | 5.07 - 5.59 | 3 | RDKH-230-00507 | RDKH-130-00507 | RDCH-011-30013 | RDTH-031-30013 | RDRY-704-00062 | 5 |
| 0.2161 - 0.2358 | 5.49 - 5.99 | 1 | RDKH-210-00549 | RDKH-110-00549 | RDCH-011-10014 | RDTH-031-10013 | RDRY-704-00070 | 5 |
| 0.2161 - 0.2358 | 5.49 - 5.99 | 2 | RDKH-220-00549 | RDKH-120-00549 | RDCH-011-20014 | RDTH-031-20013 | RDRY-704-00070 | 5 |
| 0.2161 - 0.2358 | 5.49 - 5.99 | 3 | RDKH-230-00549 | RDKH-130-00549 | RDCH-011-30014 | RDTH-031-30013 | RDRY-704-00070 | 5 |
| 0.2319 - 0.2524 | 5.89 - 6.41 | 1 | RDKH-210-00589 | RDKH-110-00589 | RDCH-011-10015 | RDTH-031-10015 | RDRY-704-00070 | 5 |
| 0.2319 - 0.2524 | 5.89 - 6.41 | 2 | RDKH-220-00589 | RDKH-120-00589 | RDCH-011-20015 | RDTH-031-20015 | RDRY-704-00070 | 5 |
| 0.2319 - 0.2524 | 5.89 - 6.41 | 3 | RDKH-230-00589 | RDKH-130-00589 | RDCH-011-30015 | RDTH-031-30015 | RDRY-704-00070 | 5 |
| 0.2484 - 0.2681 | 6.31 - 6.81 | 1 | RDKH-210-00631 | RDKH-110-00631 | RDCH-011-10016 | RDTH-031-10015 | RDRY-704-00078 | 5 |
| 0.2484 - 0.2681 | 6.31 - 6.81 | 2 | RDKH-220-00631 | RDKH-120-00631 | RDCH-011-20016 | RDTH-031-20015 | RDRY-704-00078 | 5 |
| 0.2484 - 0.2681 | 6.31 - 6.81 | 3 | RDKH-230-00631 | RDKH-130-00631 | RDCH-011-30016 | RDTH-031-30015 | RDRY-704-00078 | 5 |
| 0.2642 - 0.2839 | 6.71 - 7.21 | 1 | RDKH-210-00671 | RDKH-110-00671 | RDCH-011-10017 | RDTH-031-10017 | RDRY-704-00078 | 5 |
| 0.2642 - 0.2839 | 6.71 - 7.21 | 2 | RDKH-220-00671 | RDKH-120-00671 | RDCH-011-20017 | RDTH-031-20017 | RDRY-704-00078 | 5 |
| 0.2642 - 0.2839 | 6.71 - 7.21 | 3 | RDKH-230-00671 | RDKH-130-00671 | RDCH-011-30017 | RDTH-031-30017 | RDRY-704-00078 | 5 |
| 0.2803 - 0.3000 | 7.12 - 7.62 | 1 | RDKH-210-00712 | RDKH-110-00712 | RDCH-011-10018 | RDTH-031-10017 | RDRY-704-00086 | 5 |
| 0.2803 - 0.3000 | 7.12 - 7.62 | 2 | RDKH-220-00712 | RDKH-120-00712 | RDCH-011-20018 | RDTH-031-20017 | RDRY-704-00086 | 5 |
| 0.2803 - 0.3000 | 7.12 - 7.62 | 3 | RDKH-230-00712 | RDKH-130-00712 | RDCH-011-30018 | RDTH-031-30017 | RDRY-704-00086 | 5 |
| 0.2945 - 0.3142 | 7.48 - 7.98 | 1 | RDKH-210-00748 | RDKH-110-00748 | RDCH-011-10019 | RDTH-031-10019 | RDRY-704-00086 | 5 |
| 0.2945 - 0.3142 | 7.48 - 7.98 | 2 | RDKH-220-00748 | RDKH-120-00748 | RDCH-011-20019 | RDTH-031-20019 | RDRY-704-00086 | 5 |
| 0.2945 - 0.3142 | 7.48 - 7.98 | 3 | RDKH-230-00748 | RDKH-130-00748 | RDCH-011-30019 | RDTH-031-30019 | RDRY-704-00086 | 5 |
| 0.3102 - 0.3299 | 7.88 - 8.38 | 1 | RDKH-210-00788 | RDKH-110-00788 | RDCH-011-10020 | RDTH-031-10019 | RDRY-704-00093 | 5 |
| 0.3102 - 0.3299 | 7.88 - 8.38 | 2 | RDKH-220-00788 | RDKH-120-00788 | RDCH-011-20020 | RDTH-031-20019 | RDRY-704-00093 | 5 |
| 0.3102 - 0.3299 | 7.88 - 8.38 | 3 | RDKH-230-00788 | RDKH-130-00788 | RDCH-011-30020 | RDTH-031-30019 | RDRY-704-00093 | 5 |
| 0.3260 - 0.3461 | 8.28 - 8.79 | 1 | RDKH-210-00828 | RDKH-110-00828 | RDCH-011-10021 | RDTH-031-10021 | RDRY-704-00093 | 5 |
| 0.3260 - 0.3461 | 8.28 - 8.79 | 2 | RDKH-220-00828 | RDKH-120-00828 | RDCH-011-20021 | RDTH-031-20021 | RDRY-704-00093 | 5 |
| 0.3260 - 0.3461 | 8.28 - 8.79 | 3 | RDKH-230-00828 | RDKH-130-00828 | RDCH-011-30021 | RDTH-031-30021 | RDRY-704-00093 | 5 |

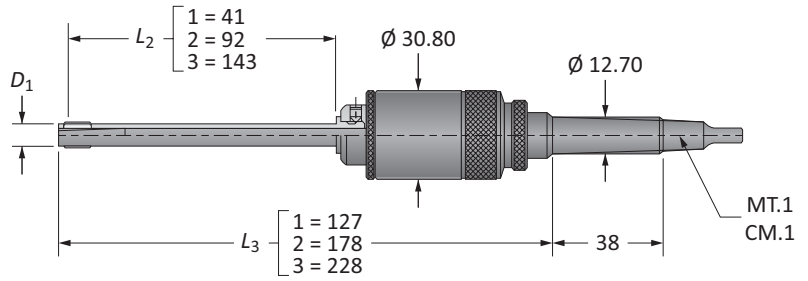
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





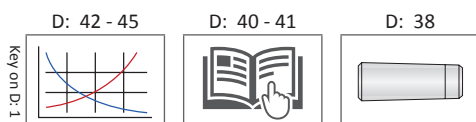
Roller Burnishing Tools | Through Holes (continued)

H Series | Diameter Range: 0.1850" - 0.5028" (4.70 mm - 12.77 mm)



| D_1 | | L | Part No. | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | |
| 0.3410 - 0.3606 | 8.66 - 9.16 | 1 | RDKH-210-00866 | RDKH-110-00866 | RDCH-011-10022 | RDTH-031-10019 | RDRY-704-00109 | 5 |
| 0.3410 - 0.3606 | 8.66 - 9.16 | 2 | RDKH-220-00866 | RDKH-120-00866 | RDCH-011-20022 | RDTH-031-20019 | RDRY-704-00109 | 5 |
| 0.3410 - 0.3606 | 8.66 - 9.16 | 3 | RDKH-230-00866 | RDKH-130-00866 | RDCH-011-30022 | RDTH-031-30019 | RDRY-704-00109 | 5 |
| 0.3567 - 0.3768 | 9.06 - 9.57 | 1 | RDKH-210-00906 | RDKH-110-00906 | RDCH-011-10023 | RDTH-031-10021 | RDRY-704-00109 | 5 |
| 0.3567 - 0.3768 | 9.06 - 9.57 | 2 | RDKH-220-00906 | RDKH-120-00906 | RDCH-011-20023 | RDTH-031-20021 | RDRY-704-00109 | 5 |
| 0.3567 - 0.3768 | 9.06 - 9.57 | 3 | RDKH-230-00906 | RDKH-130-00906 | RDCH-011-30023 | RDTH-031-30021 | RDRY-704-00109 | 5 |
| 0.3732 - 0.3933 | 9.48 - 9.99 | 1 | RDKH-210-00948 | RDKH-110-00948 | RDCH-011-10024 | RDTH-031-10024 | RDRY-704-00109 | 5 |
| 0.3732 - 0.3933 | 9.48 - 9.99 | 2 | RDKH-220-00948 | RDKH-120-00948 | RDCH-011-20024 | RDTH-031-20024 | RDRY-704-00109 | 5 |
| 0.3732 - 0.3933 | 9.48 - 9.99 | 3 | RDKH-230-00948 | RDKH-130-00948 | RDCH-011-30024 | RDTH-031-30024 | RDRY-704-00109 | 5 |
| 0.3902 - 0.4102 | 9.91 - 10.42 | 1 | RDKH-210-00991 | RDKH-110-00991 | RDCH-011-10025 | RDTH-031-10025 | RDRY-704-00109 | 5 |
| 0.3902 - 0.4102 | 9.91 - 10.42 | 2 | RDKH-220-00991 | RDKH-120-00991 | RDCH-011-20025 | RDTH-031-20025 | RDRY-704-00109 | 5 |
| 0.3902 - 0.4102 | 9.91 - 10.42 | 3 | RDKH-230-00991 | RDKH-130-00991 | RDCH-011-30025 | RDTH-031-30025 | RDRY-704-00109 | 5 |
| 0.4051 - 0.4252 | 10.29 - 10.80 | 1 | RDKH-210-01029 | RDKH-110-01029 | RDCH-011-10026 | RDTH-031-10024 | RDRY-704-00125 | 5 |
| 0.4051 - 0.4252 | 10.29 - 10.80 | 2 | RDKH-220-01029 | RDKH-120-01029 | RDCH-011-20026 | RDTH-031-20024 | RDRY-704-00125 | 5 |
| 0.4051 - 0.4252 | 10.29 - 10.80 | 3 | RDKH-230-01029 | RDKH-130-01029 | RDCH-011-30026 | RDTH-031-30024 | RDRY-704-00125 | 5 |
| 0.4217 - 0.4413 | 10.71 - 11.21 | 1 | RDKH-210-01071 | RDKH-110-01071 | RDCH-011-10027 | RDTH-031-10025 | RDRY-704-00125 | 5 |
| 0.4217 - 0.4413 | 10.71 - 11.21 | 2 | RDKH-220-01071 | RDKH-120-01071 | RDCH-011-20027 | RDTH-031-20025 | RDRY-704-00125 | 5 |
| 0.4217 - 0.4413 | 10.71 - 11.21 | 3 | RDKH-230-01071 | RDKH-130-01071 | RDCH-011-30027 | RDTH-031-30025 | RDRY-704-00125 | 5 |
| 0.4374 - 0.4571 | 11.11 - 11.61 | 1 | RDKH-210-01111 | RDKH-110-01111 | RDCH-011-10028 | RDTH-031-10028 | RDRY-704-00125 | 5 |
| 0.4374 - 0.4571 | 11.11 - 11.61 | 2 | RDKH-220-01111 | RDKH-120-01111 | RDCH-011-20028 | RDTH-031-20028 | RDRY-704-00125 | 5 |
| 0.4374 - 0.4571 | 11.11 - 11.61 | 3 | RDKH-230-01111 | RDKH-130-01111 | RDCH-011-30028 | RDTH-031-30028 | RDRY-704-00125 | 5 |
| 0.4512 - 0.4709 | 11.46 - 11.96 | 1 | RDKH-210-01146 | RDKH-110-01146 | RDCH-011-10029 | RDTH-031-10024 | RDRY-704-00148 | 5 |
| 0.4512 - 0.4709 | 11.46 - 11.96 | 2 | RDKH-220-01146 | RDKH-120-01146 | RDCH-011-20029 | RDTH-031-20024 | RDRY-704-00148 | 5 |
| 0.4512 - 0.4709 | 11.46 - 11.96 | 3 | RDKH-230-01146 | RDKH-130-01146 | RDCH-011-30029 | RDTH-031-30024 | RDRY-704-00148 | 5 |
| 0.4681 - 0.4878 | 11.89 - 12.39 | 1 | RDKH-210-01189 | RDKH-110-01189 | RDCH-011-10030 | RDTH-031-10025 | RDRY-704-00148 | 5 |
| 0.4681 - 0.4878 | 11.89 - 12.39 | 2 | RDKH-220-01189 | RDKH-120-01189 | RDCH-011-20030 | RDTH-031-20025 | RDRY-704-00148 | 5 |
| 0.4681 - 0.4878 | 11.89 - 12.39 | 3 | RDKH-230-01189 | RDKH-130-01189 | RDCH-011-30030 | RDTH-031-30025 | RDRY-704-00148 | 5 |
| 0.4831 - 0.5028 | 12.27 - 12.77 | 1 | RDKH-210-01227 | RDKH-110-01227 | RDCH-011-10031 | RDTH-031-10028 | RDRY-704-00148 | 5 |
| 0.4831 - 0.5028 | 12.27 - 12.77 | 2 | RDKH-220-01227 | RDKH-120-01227 | RDCH-011-20031 | RDTH-031-20028 | RDRY-704-00148 | 5 |
| 0.4831 - 0.5028 | 12.27 - 12.77 | 3 | RDKH-230-01227 | RDKH-130-01227 | RDCH-011-30031 | RDTH-031-30028 | RDRY-704-00148 | 5 |

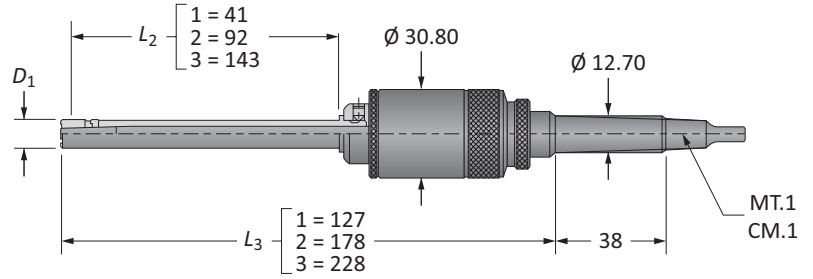
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



H
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Roller Burnishing Tools | Blind Holes

H Series | Diameter Range: 0.2319" - 0.5028" (5.89 mm - 12.77 mm)



| D ₁ | | L | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|-------------|---|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 0.2319 - 0.2524 | 5.89 - 6.41 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10015 | RSTH-03x-10012 | RSRY-708-00086 | 3 |
| 0.2319 - 0.2524 | 5.89 - 6.41 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20015 | RSTH-03x-20012 | RSRY-708-00086 | 3 |
| 0.2319 - 0.2524 | 5.89 - 6.41 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30015 | RSTH-03x-30012 | RSRY-708-00086 | 3 |
| 0.2484 - 0.2681 | 6.31 - 6.81 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10016 | RSTH-03x-10013 | RSRY-708-00086 | 3 |
| 0.2484 - 0.2681 | 6.31 - 6.81 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20016 | RSTH-03x-20013 | RSRY-708-00086 | 3 |
| 0.2484 - 0.2681 | 6.31 - 6.81 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30016 | RSTH-03x-30013 | RSRY-708-00086 | 3 |
| 0.2642 - 0.2839 | 6.71 - 7.21 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10017 | RSTH-03x-10015 | RSRY-708-00086 | 3 |
| 0.2642 - 0.2839 | 6.71 - 7.21 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20017 | RSTH-03x-20015 | RSRY-708-00086 | 3 |
| 0.2642 - 0.2839 | 6.71 - 7.21 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30017 | RSTH-03x-30015 | RSRY-708-00086 | 3 |
| 0.2803 - 0.3000 | 7.12 - 7.62 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10018 | RSTH-03x-10017 | RSRY-708-00086 | 3 |
| 0.2803 - 0.3000 | 7.12 - 7.62 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20018 | RSTH-03x-20017 | RSRY-708-00086 | 3 |
| 0.2803 - 0.3000 | 7.12 - 7.62 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30018 | RSTH-03x-30017 | RSRY-708-00086 | 3 |
| 0.2945 - 0.3142 | 7.48 - 7.98 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10019 | RSTH-03x-10019 | RSRY-708-00086 | 3 |
| 0.2945 - 0.3142 | 7.48 - 7.98 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20019 | RSTH-03x-20019 | RSRY-708-00086 | 3 |
| 0.2945 - 0.3142 | 7.48 - 7.98 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30019 | RSTH-03x-30019 | RSRY-708-00086 | 3 |
| 0.3102 - 0.3299 | 7.88 - 8.38 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10020 | RSTH-03x-10021 | RSRY-708-00086 | 3 |
| 0.3102 - 0.3299 | 7.88 - 8.38 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20020 | RSTH-03x-20021 | RSRY-708-00086 | 3 |
| 0.3102 - 0.3299 | 7.88 - 8.38 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30020 | RSTH-03x-30021 | RSRY-708-00086 | 3 |
| 0.3260 - 0.3461 | 8.28 - 8.79 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10021 | RSTH-03x-10024 | RSRY-708-00086 | 3 |
| 0.3260 - 0.3461 | 8.28 - 8.79 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20021 | RSTH-03x-20024 | RSRY-708-00086 | 3 |
| 0.3260 - 0.3461 | 8.28 - 8.79 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30021 | RSTH-03x-30024 | RSRY-708-00086 | 3 |
| 0.3410 - 0.3606 | 8.66 - 9.16 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10022 | RSTH-03x-10015 | RSRY-708-00125 | 3 |
| 0.3410 - 0.3606 | 8.66 - 9.16 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20022 | RSTH-03x-20015 | RSRY-708-00125 | 3 |
| 0.3410 - 0.3606 | 8.66 - 9.16 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30022 | RSTH-03x-30015 | RSRY-708-00125 | 3 |
| 0.3567 - 0.3768 | 9.06 - 9.57 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10023 | RSTH-03x-10017 | RSRY-708-00125 | 3 |
| 0.3567 - 0.3768 | 9.06 - 9.57 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20023 | RSTH-03x-20017 | RSRY-708-00125 | 3 |
| 0.3567 - 0.3768 | 9.06 - 9.57 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30023 | RSTH-03x-30017 | RSRY-708-00125 | 3 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. short series roller burnisher Ø 10.25 mm with MT.1 shank: RSKH-210-01025).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D: 42 - 45 D: 40 - 41 D: 39

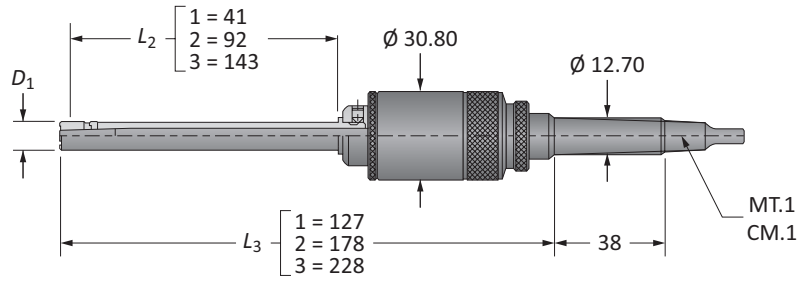
Key on D: 1

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



Roller Burnishing Tools | Blind Holes (continued)

H Series | Diameter Range: 0.2319" - 0.5028" (5.89 mm - 12.77 mm)



| D ₁ | | L | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 0.3732 - 0.3933 | 9.48 - 9.99 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10024 | RSTH-03x-10019 | RSRY-708-00125 | 3 |
| 0.3732 - 0.3933 | 9.48 - 9.99 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20024 | RSTH-03x-20019 | RSRY-708-00125 | 3 |
| 0.3732 - 0.3933 | 9.48 - 9.99 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30024 | RSTH-03x-30019 | RSRY-708-00125 | 3 |
| 0.3902 - 0.4102 | 9.91 - 10.42 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10025 | RSTH-03x-10021 | RSRY-708-00125 | 3 |
| 0.3902 - 0.4102 | 9.91 - 10.42 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20025 | RSTH-03x-20021 | RSRY-708-00125 | 3 |
| 0.3902 - 0.4102 | 9.91 - 10.42 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30025 | RSTH-03x-30021 | RSRY-708-00125 | 3 |
| 0.4051 - 0.4252 | 10.29 - 10.80 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10026 | RSTH-03x-10024 | RSRY-708-00125 | 3 |
| 0.4051 - 0.4252 | 10.29 - 10.80 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20026 | RSTH-03x-20024 | RSRY-708-00125 | 3 |
| 0.4051 - 0.4252 | 10.29 - 10.80 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30026 | RSTH-03x-30024 | RSRY-708-00125 | 3 |
| 0.4217 - 0.4413 | 10.71 - 11.21 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10027 | RSTH-03x-10025 | RSRY-708-00125 | 3 |
| 0.4217 - 0.4413 | 10.71 - 11.21 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20027 | RSTH-03x-20025 | RSRY-708-00125 | 3 |
| 0.4217 - 0.4413 | 10.71 - 11.21 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30027 | RSTH-03x-30025 | RSRY-708-00125 | 3 |
| 0.4374 - 0.4571 | 11.11 - 11.61 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10028 | RSTH-03x-10028 | RSRY-708-00125 | 3 |
| 0.4374 - 0.4571 | 11.11 - 11.61 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20028 | RSTH-03x-20028 | RSRY-708-00125 | 3 |
| 0.4374 - 0.4571 | 11.11 - 11.61 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30028 | RSTH-03x-30028 | RSRY-708-00125 | 3 |
| 0.4512 - 0.4709 | 11.46 - 11.96 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10029 | RSTH-03x-10021 | RSRY-708-00156 | 3 |
| 0.4512 - 0.4709 | 11.46 - 11.96 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20029 | RSTH-03x-20021 | RSRY-708-00156 | 3 |
| 0.4512 - 0.4709 | 11.46 - 11.96 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30029 | RSTH-03x-30021 | RSRY-708-00156 | 3 |
| 0.4681 - 0.4878 | 11.89 - 12.39 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10030 | RSTH-03x-10024 | RSRY-708-00156 | 3 |
| 0.4681 - 0.4878 | 11.89 - 12.39 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20030 | RSTH-03x-20024 | RSRY-708-00156 | 3 |
| 0.4681 - 0.4878 | 11.89 - 12.39 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30030 | RSTH-03x-30024 | RSRY-708-00156 | 3 |
| 0.4831 - 0.5028 | 12.27 - 12.77 | 1 | RSKH-210-xxxxx | RSKH-110-xxxxx | RSCH-015-10031 | RSTH-03x-10025 | RSRY-708-00156 | 3 |
| 0.4831 - 0.5028 | 12.27 - 12.77 | 2 | RSKH-220-xxxxx | RSKH-120-xxxxx | RSCH-015-20031 | RSTH-03x-20025 | RSRY-708-00156 | 3 |
| 0.4831 - 0.5028 | 12.27 - 12.77 | 3 | RSKH-230-xxxxx | RSKH-130-xxxxx | RSCH-015-30031 | RSTH-03x-30025 | RSRY-708-00156 | 3 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. short series roller burnisher Ø 10.25 mm with MT.1 shank: RSKH-210-01025).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

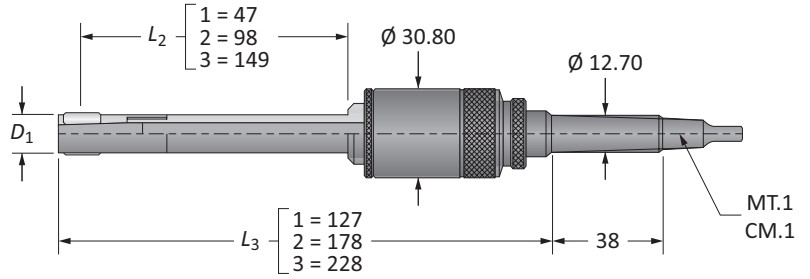
D: 42 - 45 D: 40 - 41 D: 39

Key on D: 1

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Roller Burnishing Tools | Through Holes

I Series | Diameter Range: 0.4976" - 0.6634" (12.64 mm - 16.85 mm)



| D ₁ | | L | Part No. | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | |
| 0.4976 - 0.5315 | 12.64 - 13.50 | 1 | RDKI-210-01264 | RDKI-110-01264 | RDCI-400-00500 | RDTI-031-10032 | RDRY-704-00156 | 5 |
| 0.4976 - 0.5315 | 12.64 - 13.50 | 2 | RDKI-220-01264 | RDKI-120-01264 | RDCI-400-00500 | RDTI-031-20032 | RDRY-704-00156 | 5 |
| 0.4976 - 0.5315 | 12.64 - 13.50 | 3 | RDKI-230-01264 | RDKI-130-01264 | RDCI-400-00500 | RDTI-031-30032 | RDRY-704-00156 | 5 |
| 0.5295 - 0.5689 | 13.45 - 14.45 | 1 | RDKI-210-01345 | RDKI-110-01345 | RDCI-400-00531 | RDTI-031-10034 | RDRY-704-00156 | 5 |
| 0.5295 - 0.5689 | 13.45 - 14.45 | 2 | RDKI-220-01345 | RDKI-120-01345 | RDCI-400-00531 | RDTI-031-20034 | RDRY-704-00156 | 5 |
| 0.5295 - 0.5689 | 13.45 - 14.45 | 3 | RDKI-230-01345 | RDKI-130-01345 | RDCI-400-00531 | RDTI-031-30034 | RDRY-704-00156 | 5 |
| 0.5610 - 0.6004 | 14.25 - 15.25 | 1 | RDKI-210-01425 | RDKI-110-01425 | RDCI-400-00562 | RDTI-031-10034 | RDRY-704-00172 | 5 |
| 0.5610 - 0.6004 | 14.25 - 15.25 | 2 | RDKI-220-01425 | RDKI-120-01425 | RDCI-400-00562 | RDTI-031-20034 | RDRY-704-00172 | 5 |
| 0.5610 - 0.6004 | 14.25 - 15.25 | 3 | RDKI-230-01425 | RDKI-130-01425 | RDCI-400-00562 | RDTI-031-30034 | RDRY-704-00172 | 5 |
| 0.5925 - 0.6319 | 15.05 - 16.05 | 1 | RDKI-210-01505 | RDKI-110-01505 | RDCI-400-00593 | RDTI-031-10038 | RDRY-704-00172 | 5 |
| 0.5925 - 0.6319 | 15.05 - 16.05 | 2 | RDKI-220-01505 | RDKI-120-01505 | RDCI-400-00593 | RDTI-031-20038 | RDRY-704-00172 | 5 |
| 0.5925 - 0.6319 | 15.05 - 16.05 | 3 | RDKI-230-01505 | RDKI-130-01505 | RDCI-400-00593 | RDTI-031-30038 | RDRY-704-00172 | 5 |
| 0.6240 - 0.6634 | 15.85 - 16.85 | 1 | RDKI-210-01585 | RDKI-110-01585 | RDCI-400-00625 | RDTI-031-10038 | RDRY-701-00187 | 5 |
| 0.6240 - 0.6634 | 15.85 - 16.85 | 2 | RDKI-220-01585 | RDKI-120-01585 | RDCI-400-00625 | RDTI-031-20038 | RDRY-701-00187 | 5 |
| 0.6240 - 0.6634 | 15.85 - 16.85 | 3 | RDKI-230-01585 | RDKI-130-01585 | RDCI-400-00625 | RDTI-031-30038 | RDRY-701-00187 | 5 |

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D: 42 - 45

D: 40 - 41

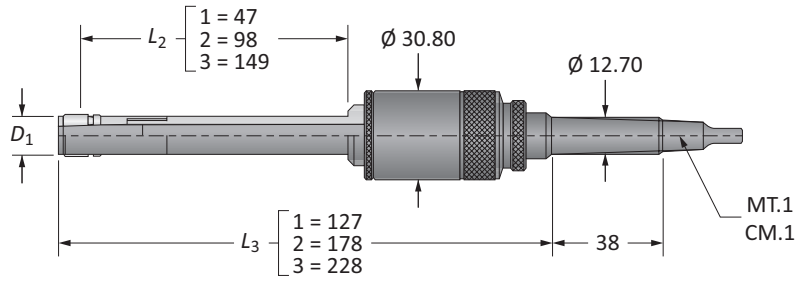
D: 38

Key on D: 1



Roller Burnishing Tools | Blind Holes

I Series | Diameter Range: 0.4976" - 0.6634" (12.64 mm - 16.85 mm)

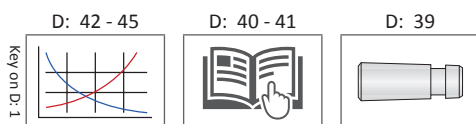


| D ₁ | | L | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---|------------------------------------|---------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 0.4976 - 0.5315 | 12.64 - 13.50 | 1 | RSKI-210-xxxxx | RSKI-110-xxxxx | RSCI-400-00500 | RSTI-03X-10032 | RSRY-708-00156 | 5 |
| 0.4976 - 0.5315 | 12.64 - 13.50 | 2 | RSKI-220-xxxxx | RSKI-120-xxxxx | RSCI-400-00500 | RSTI-03X-20032 | RSRY-708-00156 | 5 |
| 0.4976 - 0.5315 | 12.64 - 13.50 | 3 | RSKI-230-xxxxx | RSKI-130-xxxxx | RSCI-400-00500 | RSTI-03X-30032 | RSRY-708-00156 | 5 |
| 0.5295 - 0.5689 | 13.45 - 14.45 | 1 | RSKI-210-xxxxx | RSKI-110-xxxxx | RSCI-400-00531 | RSTI-03X-10034 | RSRY-708-00156 | 5 |
| 0.5295 - 0.5689 | 13.45 - 14.45 | 2 | RSKI-220-xxxxx | RSKI-120-xxxxx | RSCI-400-00531 | RSTI-03X-20034 | RSRY-708-00156 | 5 |
| 0.5295 - 0.5689 | 13.45 - 14.45 | 3 | RSKI-230-xxxxx | RSKI-130-xxxxx | RSCI-400-00531 | RSTI-03X-30034 | RSRY-708-00156 | 5 |
| 0.5610 - 0.6004 | 14.25 - 15.25 | 1 | RSKI-210-xxxxx | RSKI-110-xxxxx | RSCI-400-00562 | RSTI-03X-10034 | RSRY-708-00172 | 5 |
| 0.5610 - 0.6004 | 14.25 - 15.25 | 2 | RSKI-220-xxxxx | RSKI-120-xxxxx | RSCI-400-00562 | RSTI-03X-20034 | RSRY-708-00172 | 5 |
| 0.5610 - 0.6004 | 14.25 - 15.25 | 3 | RSKI-230-xxxxx | RSKI-130-xxxxx | RSCI-400-00562 | RSTI-03X-30034 | RSRY-708-00172 | 5 |
| 0.5925 - 0.6319 | 15.05 - 16.05 | 1 | RSKI-210-xxxxx | RSKI-110-xxxxx | RSCI-400-00593 | RSTI-03X-10038 | RSRY-708-00172 | 5 |
| 0.5925 - 0.6319 | 15.05 - 16.05 | 2 | RSKI-220-xxxxx | RSKI-120-xxxxx | RSCI-400-00593 | RSTI-03X-20038 | RSRY-708-00172 | 5 |
| 0.5925 - 0.6319 | 15.05 - 16.05 | 3 | RSKI-230-xxxxx | RSKI-130-xxxxx | RSCI-400-00593 | RSTI-03X-30038 | RSRY-708-00172 | 5 |
| 0.6240 - 0.6634 | 15.85 - 16.85 | 1 | RSKI-210-xxxxx | RSKI-110-xxxxx | RSCI-400-00625 | RSTI-03X-10038 | RSRY-708-00187 | 5 |
| 0.6240 - 0.6634 | 15.85 - 16.85 | 2 | RSKI-220-xxxxx | RSKI-120-xxxxx | RSCI-400-00625 | RSTI-03X-20038 | RSRY-708-00187 | 5 |
| 0.6240 - 0.6634 | 15.85 - 16.85 | 3 | RSKI-230-xxxxx | RSKI-130-xxxxx | RSCI-400-00625 | RSTI-03X-30038 | RSRY-708-00187 | 5 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. long series roller burnisher Ø 14.00 mm with MT.1 shank: RSKI-230-01400).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

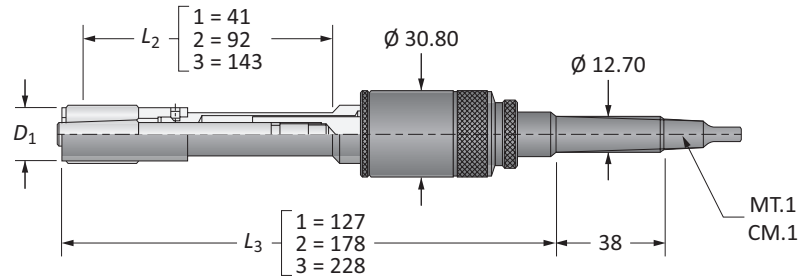
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Roller Burnishing Tools | Through Holes

K Series | Diameter Range: 0.6535" - 0.9740" (16.60 mm - 24.74 mm)



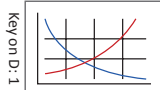
| D_1 | | L | Part No. | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|-----|------------------------------------|---------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | |
| 0.6535 - 0.6933 | 16.60 - 17.61 | 1 | RDKK-210-01660 | RDKK-110-01660 | RDCK-011-00042 | RDTK-031-00042 | RDRY-701-00187 | 5 |
| 0.6535 - 0.6933 | 16.60 - 17.61 | 2 | RDKK-220-01660 | RDKK-120-01660 | RDCK-011-00042 | RDTK-031-00042 | RDRY-701-00187 | 5 |
| 0.6535 - 0.6933 | 16.60 - 17.61 | 3 | RDKK-230-01660 | RDKK-130-01660 | RDCK-011-00042 | RDTK-031-00042 | RDRY-701-00187 | 5 |
| 0.6850 - 0.7240 | 17.40 - 18.39 | 1 | RDKK-210-01740 | RDKK-110-01740 | RDCK-011-00044 | RDTK-031-00044 | RDRY-701-00187 | 5 |
| 0.6850 - 0.7240 | 17.40 - 18.39 | 2 | RDKK-220-01740 | RDKK-120-01740 | RDCK-011-00044 | RDTK-031-00044 | RDRY-701-00187 | 5 |
| 0.6850 - 0.7240 | 17.40 - 18.39 | 3 | RDKK-230-01740 | RDKK-130-01740 | RDCK-011-00044 | RDTK-031-00044 | RDRY-701-00187 | 5 |
| 0.7161 - 0.7551 | 18.19 - 19.18 | 1 | RDKK-210-01819 | RDKK-110-01819 | RDCK-011-00046 | RDTK-031-00042 | RDRY-701-00218 | 5 |
| 0.7161 - 0.7551 | 18.19 - 19.18 | 2 | RDKK-220-01819 | RDKK-120-01819 | RDCK-011-00046 | RDTK-031-00042 | RDRY-701-00218 | 5 |
| 0.7161 - 0.7551 | 18.19 - 19.18 | 3 | RDKK-230-01819 | RDKK-130-01819 | RDCK-011-00046 | RDTK-031-00042 | RDRY-701-00218 | 5 |
| 0.7465 - 0.7870 | 18.96 - 19.99 | 1 | RDKK-210-01896 | RDKK-110-01896 | RDCK-011-00048 | RDTK-031-00044 | RDRY-701-00218 | 5 |
| 0.7465 - 0.7870 | 18.96 - 19.99 | 2 | RDKK-220-01896 | RDKK-120-01896 | RDCK-011-00048 | RDTK-031-00044 | RDRY-701-00218 | 5 |
| 0.7465 - 0.7870 | 18.96 - 19.99 | 3 | RDKK-230-01896 | RDKK-130-01896 | RDCK-011-00048 | RDTK-031-00044 | RDRY-701-00218 | 5 |
| 0.7772 - 0.8177 | 19.74 - 20.77 | 1 | RDKK-210-01974 | RDKK-110-01974 | RDCK-011-00050 | RDTK-031-00050 | RDRY-701-00218 | 5 |
| 0.7772 - 0.8177 | 19.74 - 20.77 | 2 | RDKK-220-01974 | RDKK-120-01974 | RDCK-011-00050 | RDTK-031-00050 | RDRY-701-00218 | 5 |
| 0.7772 - 0.8177 | 19.74 - 20.77 | 3 | RDKK-230-01974 | RDKK-130-01974 | RDCK-011-00050 | RDTK-031-00050 | RDRY-701-00218 | 5 |
| 0.8079 - 0.8492 | 20.52 - 21.57 | 1 | RDKK-210-02052 | RDKK-110-02052 | RDCK-011-00052 | RDTK-031-00052 | RDRY-701-00218 | 5 |
| 0.8079 - 0.8492 | 20.52 - 21.57 | 2 | RDKK-220-02052 | RDKK-120-02052 | RDCK-011-00052 | RDTK-031-00052 | RDRY-701-00218 | 5 |
| 0.8079 - 0.8492 | 20.52 - 21.57 | 3 | RDKK-230-02052 | RDKK-130-02052 | RDCK-011-00052 | RDTK-031-00052 | RDRY-701-00218 | 5 |
| 0.8390 - 0.8799 | 21.31 - 22.35 | 1 | RDKK-210-02131 | RDKK-110-02131 | RDCK-011-00054 | RDTK-031-00054 | RDRY-701-00218 | 5 |
| 0.8390 - 0.8799 | 21.31 - 22.35 | 2 | RDKK-220-02131 | RDKK-120-02131 | RDCK-011-00054 | RDTK-031-00054 | RDRY-701-00218 | 5 |
| 0.8390 - 0.8799 | 21.31 - 22.35 | 3 | RDKK-230-02131 | RDKK-130-02131 | RDCK-011-00054 | RDTK-031-00054 | RDRY-701-00218 | 5 |
| 0.8713 - 0.9118 | 22.13 - 23.16 | 1 | RDKK-210-02213 | RDKK-110-02213 | RDCK-011-00056 | RDTK-031-00050 | RDRY-701-00265 | 5 |
| 0.8713 - 0.9118 | 22.13 - 23.16 | 2 | RDKK-220-02213 | RDKK-120-02213 | RDCK-011-00056 | RDTK-031-00050 | RDRY-701-00265 | 5 |
| 0.8713 - 0.9118 | 22.13 - 23.16 | 3 | RDKK-230-02213 | RDKK-130-02213 | RDCK-011-00056 | RDTK-031-00050 | RDRY-701-00265 | 5 |
| 0.9020 - 0.9433 | 22.91 - 23.96 | 1 | RDKK-210-02291 | RDKK-110-02291 | RDCK-011-00058 | RDTK-031-00052 | RDRY-701-00265 | 5 |
| 0.9020 - 0.9433 | 22.91 - 23.96 | 2 | RDKK-220-02291 | RDKK-120-02291 | RDCK-011-00058 | RDTK-031-00052 | RDRY-701-00265 | 5 |
| 0.9020 - 0.9433 | 22.91 - 23.96 | 3 | RDKK-230-02291 | RDKK-130-02291 | RDCK-011-00058 | RDTK-031-00052 | RDRY-701-00265 | 5 |
| 0.9331 - 0.9740 | 23.70 - 24.74 | 1 | RDKK-210-02370 | RDKK-110-02370 | RDCK-011-00060 | RDTK-031-00054 | RDRY-701-00265 | 5 |
| 0.9331 - 0.9740 | 23.70 - 24.74 | 2 | RDKK-220-02370 | RDKK-120-02370 | RDCK-011-00060 | RDTK-031-00054 | RDRY-701-00265 | 5 |
| 0.9331 - 0.9740 | 23.70 - 24.74 | 3 | RDKK-230-02370 | RDKK-130-02370 | RDCK-011-00060 | RDTK-031-00054 | RDRY-701-00265 | 5 |

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D: 42 - 45

D: 40 - 41

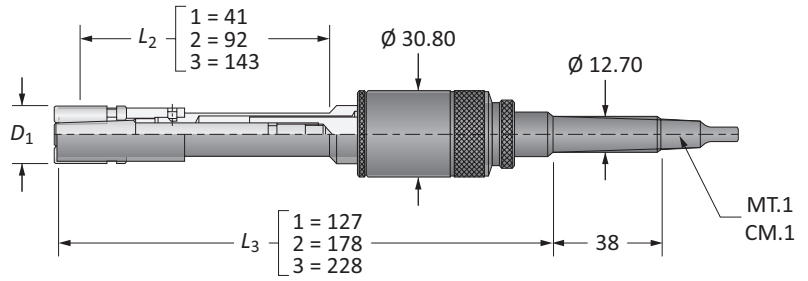
D: 38





Roller Burnishing Tools | Blind Holes

K Series | Diameter Range: 0.6535" - 0.9740" (16.60 mm - 24.74 mm)

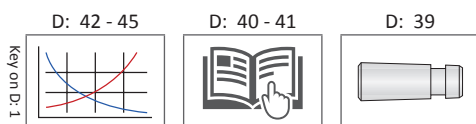


| D ₁ | | L | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 0.6535 - 0.6933 | 16.60 - 17.61 | 1 | RSKK-210-xxxxx | RSKK-110-xxxxx | RSCK-015-00042 | RSTK-03x-00042 | RSRY-708-00187 | 5 |
| 0.6535 - 0.6933 | 16.60 - 17.61 | 2 | RSKK-220-xxxxx | RSKK-120-xxxxx | RSCK-015-00042 | RSTK-03x-00042 | RSRY-708-00187 | 5 |
| 0.6535 - 0.6933 | 16.60 - 17.61 | 3 | RSKK-230-xxxxx | RSKK-130-xxxxx | RSCK-015-00042 | RSTK-03x-00042 | RSRY-708-00187 | 5 |
| 0.6850 - 0.7240 | 17.40 - 18.39 | 1 | RSKK-210-xxxxx | RSKK-110-xxxxx | RSCK-015-00044 | RSTK-03x-00044 | RSRY-708-00187 | 5 |
| 0.6850 - 0.7240 | 17.40 - 18.39 | 2 | RSKK-220-xxxxx | RSKK-120-xxxxx | RSCK-015-00044 | RSTK-03x-00044 | RSRY-708-00187 | 5 |
| 0.6850 - 0.7240 | 17.40 - 18.39 | 3 | RSKK-230-xxxxx | RSKK-130-xxxxx | RSCK-015-00044 | RSTK-03x-00044 | RSRY-708-00187 | 5 |
| 0.7161 - 0.7551 | 18.19 - 19.18 | 1 | RSKK-210-xxxxx | RSKK-110-xxxxx | RSCK-015-00046 | RSTK-03x-00042 | RSRY-708-00218 | 5 |
| 0.7161 - 0.7551 | 18.19 - 19.18 | 2 | RSKK-220-xxxxx | RSKK-120-xxxxx | RSCK-015-00046 | RSTK-03x-00042 | RSRY-708-00218 | 5 |
| 0.7161 - 0.7551 | 18.19 - 19.18 | 3 | RSKK-230-xxxxx | RSKK-130-xxxxx | RSCK-015-00046 | RSTK-03x-00042 | RSRY-708-00218 | 5 |
| 0.7465 - 0.7870 | 18.96 - 19.99 | 1 | RSKK-210-xxxxx | RSKK-110-xxxxx | RSCK-015-00048 | RSTK-03x-00044 | RSRY-708-00218 | 5 |
| 0.7465 - 0.7870 | 18.96 - 19.99 | 2 | RSKK-220-xxxxx | RSKK-120-xxxxx | RSCK-015-00048 | RSTK-03x-00044 | RSRY-708-00218 | 5 |
| 0.7465 - 0.7870 | 18.96 - 19.99 | 3 | RSKK-230-xxxxx | RSKK-130-xxxxx | RSCK-015-00048 | RSTK-03x-00044 | RSRY-708-00218 | 5 |
| 0.7772 - 0.8177 | 19.74 - 20.77 | 1 | RSKK-210-xxxxx | RSKK-110-xxxxx | RSCK-015-00050 | RSTK-03x-00050 | RSRY-708-00218 | 5 |
| 0.7772 - 0.8177 | 19.74 - 20.77 | 2 | RSKK-220-xxxxx | RSKK-120-xxxxx | RSCK-015-00050 | RSTK-03x-00050 | RSRY-708-00218 | 5 |
| 0.7772 - 0.8177 | 19.74 - 20.77 | 3 | RSKK-230-xxxxx | RSKK-130-xxxxx | RSCK-015-00050 | RSTK-03x-00050 | RSRY-708-00218 | 5 |
| 0.8079 - 0.8492 | 20.52 - 21.57 | 1 | RSKK-210-xxxxx | RSKK-110-xxxxx | RSCK-015-00052 | RSTK-03x-00052 | RSRY-708-00218 | 5 |
| 0.8079 - 0.8492 | 20.52 - 21.57 | 2 | RSKK-220-xxxxx | RSKK-120-xxxxx | RSCK-015-00052 | RSTK-03x-00052 | RSRY-708-00218 | 5 |
| 0.8079 - 0.8492 | 20.52 - 21.57 | 3 | RSKK-230-xxxxx | RSKK-130-xxxxx | RSCK-015-00052 | RSTK-03x-00052 | RSRY-708-00218 | 5 |
| 0.8390 - 0.8799 | 21.31 - 22.35 | 1 | RSKK-210-xxxxx | RSKK-110-xxxxx | RSCK-015-00054 | RSTK-03x-00054 | RSRY-708-00218 | 5 |
| 0.8390 - 0.8799 | 21.31 - 22.35 | 2 | RSKK-220-xxxxx | RSKK-120-xxxxx | RSCK-015-00054 | RSTK-03x-00054 | RSRY-708-00218 | 5 |
| 0.8390 - 0.8799 | 21.31 - 22.35 | 3 | RSKK-230-xxxxx | RSKK-130-xxxxx | RSCK-015-00054 | RSTK-03x-00054 | RSRY-708-00218 | 5 |
| 0.8713 - 0.9118 | 22.13 - 23.16 | 1 | RSKK-210-xxxxx | RSKK-110-xxxxx | RSCK-015-00056 | RSTK-03x-00050 | RSRY-708-00265 | 5 |
| 0.8713 - 0.9118 | 22.13 - 23.16 | 2 | RSKK-220-xxxxx | RSKK-120-xxxxx | RSCK-015-00056 | RSTK-03x-00050 | RSRY-708-00265 | 5 |
| 0.8713 - 0.9118 | 22.13 - 23.16 | 3 | RSKK-230-xxxxx | RSKK-130-xxxxx | RSCK-015-00056 | RSTK-03x-00050 | RSRY-708-00265 | 5 |
| 0.9020 - 0.9433 | 22.91 - 23.96 | 1 | RSKK-210-xxxxx | RSKK-110-xxxxx | RSCK-015-00058 | RSTK-03x-00052 | RSRY-708-00265 | 5 |
| 0.9020 - 0.9433 | 22.91 - 23.96 | 2 | RSKK-220-xxxxx | RSKK-120-xxxxx | RSCK-015-00058 | RSTK-03x-00052 | RSRY-708-00265 | 5 |
| 0.9020 - 0.9433 | 22.91 - 23.96 | 3 | RSKK-230-xxxxx | RSKK-130-xxxxx | RSCK-015-00058 | RSTK-03x-00052 | RSRY-708-00265 | 5 |
| 0.9331 - 0.9740 | 23.70 - 24.74 | 1 | RSKK-210-xxxxx | RSKK-110-xxxxx | RSCK-015-00060 | RSTK-03x-00054 | RSRY-708-00265 | 5 |
| 0.9331 - 0.9740 | 23.70 - 24.74 | 2 | RSKK-220-xxxxx | RSKK-120-xxxxx | RSCK-015-00060 | RSTK-03x-00054 | RSRY-708-00265 | 5 |
| 0.9331 - 0.9740 | 23.70 - 24.74 | 3 | RSKK-230-xxxxx | RSKK-130-xxxxx | RSCK-015-00060 | RSTK-03x-00054 | RSRY-708-00265 | 5 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. standard series roller burnisher Ø 20.00 mm with MT.1 shank: RSKK-120-02000).

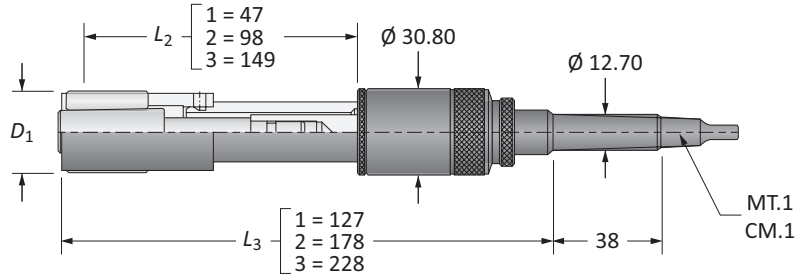
**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



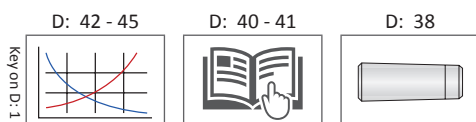
Roller Burnishing Tools | Through Holes

L Series | Diameter Range: 0.9661" - 1.2268" (24.54 mm - 31.16 mm)



| D_1 | | L | Part No. | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|-----|------------------------------------|---------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | |
| 0.9661 - 1.0075 | 24.54 - 25.59 | 1 | RDKL-210-02454 | RDKL-110-02454 | RDCL-011-00062 | RDTL-031-00062 | RDRY-701-00265 | 5 |
| 0.9661 - 1.0075 | 24.54 - 25.59 | 2 | RDKL-220-02454 | RDKL-120-02454 | RDCL-011-00062 | RDTL-031-00062 | RDRY-701-00265 | 5 |
| 0.9661 - 1.0075 | 24.54 - 25.59 | 3 | RDKL-230-02454 | RDKL-130-02454 | RDCL-011-00062 | RDTL-031-00062 | RDRY-701-00265 | 5 |
| 0.9992 - 1.0402 | 25.38 - 26.42 | 1 | RDKL-210-02538 | RDKL-110-02538 | RDCL-011-00064 | RDTL-031-00064 | RDRY-701-00265 | 7 |
| 0.9992 - 1.0402 | 25.38 - 26.42 | 2 | RDKL-220-02538 | RDKL-120-02538 | RDCL-011-00064 | RDTL-031-00064 | RDRY-701-00265 | 7 |
| 0.9992 - 1.0402 | 25.38 - 26.42 | 3 | RDKL-230-02538 | RDKL-130-02538 | RDCL-011-00064 | RDTL-031-00064 | RDRY-701-00265 | 7 |
| 1.0299 - 1.0709 | 26.16 - 27.20 | 1 | RDKL-210-02616 | RDKL-110-02616 | RDCL-011-00066 | RDTL-031-00066 | RDRY-701-00265 | 7 |
| 1.0299 - 1.0709 | 26.16 - 27.20 | 2 | RDKL-220-02616 | RDKL-120-02616 | RDCL-011-00066 | RDTL-031-00066 | RDRY-701-00265 | 7 |
| 1.0299 - 1.0709 | 26.16 - 27.20 | 3 | RDKL-230-02616 | RDKL-130-02616 | RDCL-011-00066 | RDTL-031-00066 | RDRY-701-00265 | 7 |
| 1.0610 - 1.1024 | 26.95 - 28.00 | 1 | RDKL-210-02695 | RDKL-110-02695 | RDCL-011-00068 | RDTL-031-00068 | RDRY-701-00265 | 7 |
| 1.0610 - 1.1024 | 26.95 - 28.00 | 2 | RDKL-220-02695 | RDKL-120-02695 | RDCL-011-00068 | RDTL-031-00068 | RDRY-701-00265 | 7 |
| 1.0610 - 1.1024 | 26.95 - 28.00 | 3 | RDKL-230-02695 | RDKL-130-02695 | RDCL-011-00068 | RDTL-031-00068 | RDRY-701-00265 | 7 |
| 1.0917 - 1.1327 | 27.73 - 28.77 | 1 | RDKL-210-02773 | RDKL-110-02773 | RDCL-011-00070 | RDTL-031-00070 | RDRY-701-00265 | 7 |
| 1.0917 - 1.1327 | 27.73 - 28.77 | 2 | RDKL-220-02773 | RDKL-120-02773 | RDCL-011-00070 | RDTL-031-00070 | RDRY-701-00265 | 7 |
| 1.0917 - 1.1327 | 27.73 - 28.77 | 3 | RDKL-230-02773 | RDKL-130-02773 | RDCL-011-00070 | RDTL-031-00070 | RDRY-701-00265 | 7 |
| 1.1240 - 1.1650 | 28.55 - 29.59 | 1 | RDKL-210-02855 | RDKL-110-02855 | RDCL-011-00072 | RDTL-031-00066 | RDRY-701-00312 | 7 |
| 1.1240 - 1.1650 | 28.55 - 29.59 | 2 | RDKL-220-02855 | RDKL-120-02855 | RDCL-011-00072 | RDTL-031-00066 | RDRY-701-00312 | 7 |
| 1.1240 - 1.1650 | 28.55 - 29.59 | 3 | RDKL-230-02855 | RDKL-130-02855 | RDCL-011-00072 | RDTL-031-00066 | RDRY-701-00312 | 7 |
| 1.1551 - 1.1965 | 29.34 - 30.39 | 1 | RDKL-210-02934 | RDKL-110-02934 | RDCL-011-00074 | RDTL-031-00068 | RDRY-701-00312 | 7 |
| 1.1551 - 1.1965 | 29.34 - 30.39 | 2 | RDKL-220-02934 | RDKL-120-02934 | RDCL-011-00074 | RDTL-031-00068 | RDRY-701-00312 | 7 |
| 1.1551 - 1.1965 | 29.34 - 30.39 | 3 | RDKL-230-02934 | RDKL-130-02934 | RDCL-011-00074 | RDTL-031-00068 | RDRY-701-00312 | 7 |
| 1.1858 - 1.2268 | 30.12 - 31.16 | 1 | RDKL-210-03012 | RDKL-110-03012 | RDCL-011-00076 | RDTL-031-00070 | RDRY-701-00312 | 7 |
| 1.1858 - 1.2268 | 30.12 - 31.16 | 2 | RDKL-220-03012 | RDKL-120-03012 | RDCL-011-00076 | RDTL-031-00070 | RDRY-701-00312 | 7 |
| 1.1858 - 1.2268 | 30.12 - 31.16 | 3 | RDKL-230-03012 | RDKL-130-03012 | RDCL-011-00076 | RDTL-031-00070 | RDRY-701-00312 | 7 |

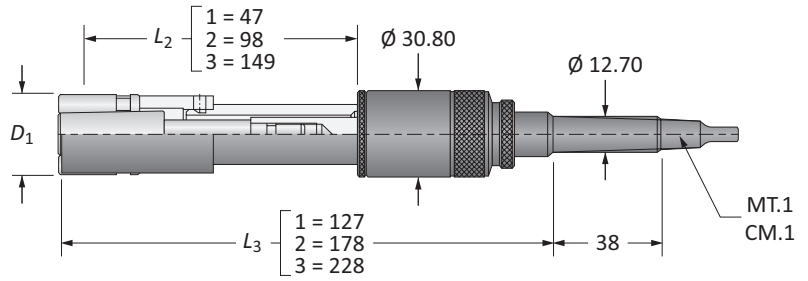
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

L Series | Diameter Range: 0.9661" - 1.2268" (24.54 mm - 31.16 mm)

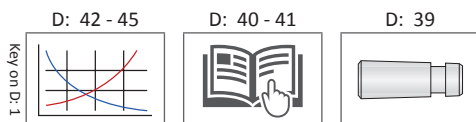


| D ₁ | | L | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 0.9661 - 1.0075 | 24.54 - 25.59 | 1 | RSKL-210-xxxxx | RSKL-110-xxxxx | RSCL-015-00062 | RSTL-03x-00062 | RSRY-708-00265 | 5 |
| 0.9661 - 1.0075 | 24.54 - 25.59 | 2 | RSKL-220-xxxxx | RSKL-120-xxxxx | RSCL-015-00062 | RSTL-03x-00062 | RSRY-708-00265 | 5 |
| 0.9661 - 1.0075 | 24.54 - 25.59 | 3 | RSKL-230-xxxxx | RSKL-130-xxxxx | RSCL-015-00062 | RSTL-03x-00062 | RSRY-708-00265 | 5 |
| 0.9992 - 1.0402 | 25.38 - 26.42 | 1 | RSKL-210-xxxxx | RSKL-110-xxxxx | RSCL-015-00064 | RSTL-03x-00064 | RSRY-708-00265 | 5 |
| 0.9992 - 1.0402 | 25.38 - 26.42 | 2 | RSKL-220-xxxxx | RSKL-120-xxxxx | RSCL-015-00064 | RSTL-03x-00064 | RSRY-708-00265 | 5 |
| 0.9992 - 1.0402 | 25.38 - 26.42 | 3 | RSKL-230-xxxxx | RSKL-130-xxxxx | RSCL-015-00064 | RSTL-03x-00064 | RSRY-708-00265 | 5 |
| 1.0299 - 1.0709 | 26.16 - 27.20 | 1 | RSKL-210-xxxxx | RSKL-110-xxxxx | RSCL-015-00066 | RSTL-03x-00066 | RSRY-708-00265 | 5 |
| 1.0299 - 1.0709 | 26.16 - 27.20 | 2 | RSKL-220-xxxxx | RSKL-120-xxxxx | RSCL-015-00066 | RSTL-03x-00066 | RSRY-708-00265 | 5 |
| 1.0299 - 1.0709 | 26.16 - 27.20 | 3 | RSKL-230-xxxxx | RSKL-130-xxxxx | RSCL-015-00066 | RSTL-03x-00066 | RSRY-708-00265 | 5 |
| 1.0610 - 1.1024 | 26.95 - 28.00 | 1 | RSKL-210-xxxxx | RSKL-110-xxxxx | RSCL-015-00068 | RSTL-03x-00068 | RSRY-708-00265 | 5 |
| 1.0610 - 1.1024 | 26.95 - 28.00 | 2 | RSKL-220-xxxxx | RSKL-120-xxxxx | RSCL-015-00068 | RSTL-03x-00068 | RSRY-708-00265 | 5 |
| 1.0610 - 1.1024 | 26.95 - 28.00 | 3 | RSKL-230-xxxxx | RSKL-130-xxxxx | RSCL-015-00068 | RSTL-03x-00068 | RSRY-708-00265 | 5 |
| 1.0917 - 1.1327 | 27.73 - 28.77 | 1 | RSKL-210-xxxxx | RSKL-110-xxxxx | RSCL-015-00070 | RSTL-03x-00070 | RSRY-708-00265 | 5 |
| 1.0917 - 1.1327 | 27.73 - 28.77 | 2 | RSKL-220-xxxxx | RSKL-120-xxxxx | RSCL-015-00070 | RSTL-03x-00070 | RSRY-708-00265 | 5 |
| 1.0917 - 1.1327 | 27.73 - 28.77 | 3 | RSKL-230-xxxxx | RSKL-130-xxxxx | RSCL-015-00070 | RSTL-03x-00070 | RSRY-708-00265 | 5 |
| 1.1240 - 1.1650 | 28.55 - 29.59 | 1 | RSKL-210-xxxxx | RSKL-110-xxxxx | RSCL-015-00072 | RSTL-03x-00066 | RSRY-708-00312 | 5 |
| 1.1240 - 1.1650 | 28.55 - 29.59 | 2 | RSKL-220-xxxxx | RSKL-120-xxxxx | RSCL-015-00072 | RSTL-03x-00066 | RSRY-708-00312 | 5 |
| 1.1240 - 1.1650 | 28.55 - 29.59 | 3 | RSKL-230-xxxxx | RSKL-130-xxxxx | RSCL-015-00072 | RSTL-03x-00066 | RSRY-708-00312 | 5 |
| 1.1551 - 1.1965 | 29.34 - 30.39 | 1 | RSKL-210-xxxxx | RSKL-110-xxxxx | RSCL-015-00074 | RSTL-03x-00068 | RSRY-708-00312 | 5 |
| 1.1551 - 1.1965 | 29.34 - 30.39 | 2 | RSKL-220-xxxxx | RSKL-120-xxxxx | RSCL-015-00074 | RSTL-03x-00068 | RSRY-708-00312 | 5 |
| 1.1551 - 1.1965 | 29.34 - 30.39 | 3 | RSKL-230-xxxxx | RSKL-130-xxxxx | RSCL-015-00074 | RSTL-03x-00068 | RSRY-708-00312 | 5 |
| 1.1858 - 1.2268 | 30.12 - 31.16 | 1 | RSKL-210-xxxxx | RSKL-110-xxxxx | RSCL-015-00076 | RSTL-03x-00070 | RSRY-708-00312 | 5 |
| 1.1858 - 1.2268 | 30.12 - 31.16 | 2 | RSKL-220-xxxxx | RSKL-120-xxxxx | RSCL-015-00076 | RSTL-03x-00070 | RSRY-708-00312 | 5 |
| 1.1858 - 1.2268 | 30.12 - 31.16 | 3 | RSKL-230-xxxxx | RSKL-130-xxxxx | RSCL-015-00076 | RSTL-03x-00070 | RSRY-708-00312 | 5 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. short series roller burnisher Ø 27.50 mm with MT.1 shank: RSKL-210-02750).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

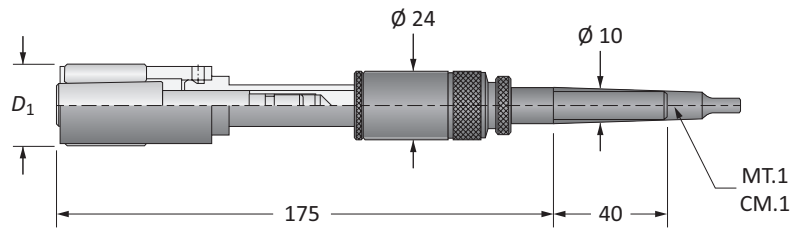
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



L
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

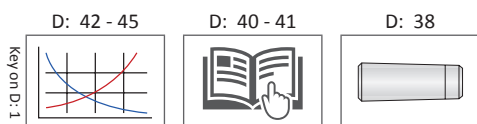
Roller Burnishing Tools | Through Holes

F Series | Diameter Range: 0.9661" - 1.2268" (24.54 mm - 31.16 mm)



| D_1 | | Part No. | | Spare Parts | | | |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | Qty Rolls |
| 0.9661 - 1.0075 | 24.54 - 25.59 | RDKF-200-02454 | RDKF-100-02454 | RDCL-011-00062 | RDTF-031-00062 | RDRY-701-00265 | 5 |
| 0.9992 - 1.0402 | 25.38 - 26.42 | RDKF-200-02538 | RDKF-100-02538 | RDCL-011-00064 | RDTF-031-00064 | RDRY-701-00265 | 7 |
| 1.0299 - 1.0709 | 26.16 - 27.20 | RDKF-200-02616 | RDKF-100-02616 | RDCL-011-00066 | RDTF-031-00066 | RDRY-701-00265 | 7 |
| 1.0610 - 1.1024 | 26.95 - 28.00 | RDKF-200-02695 | RDKF-100-02695 | RDCL-011-00068 | RDTF-031-00068 | RDRY-701-00265 | 7 |
| 1.0917 - 1.1327 | 27.73 - 28.77 | RDKF-200-02773 | RDKF-100-02773 | RDCL-011-00070 | RDTF-031-00070 | RDRY-701-00265 | 7 |
| 1.1240 - 1.1650 | 28.55 - 29.59 | RDKF-200-02855 | RDKF-100-02855 | RDCL-011-00072 | RDTF-031-00066 | RDRY-701-00312 | 7 |
| 1.1551 - 1.1965 | 29.34 - 30.39 | RDKF-200-02934 | RDKF-100-02934 | RDCL-011-00074 | RDTF-031-00068 | RDRY-701-00312 | 7 |
| 1.1858 - 1.2268 | 30.12 - 31.16 | RDKF-200-03012 | RDKF-100-03012 | RDCL-011-00076 | RDTF-031-00070 | RDRY-701-00312 | 7 |

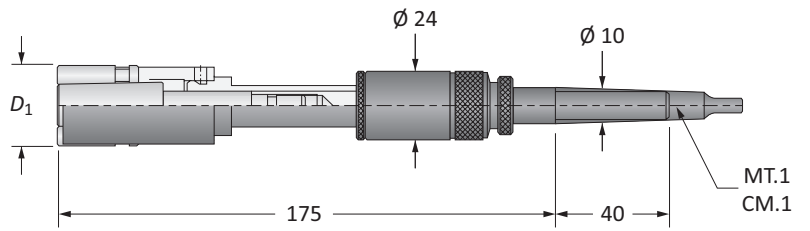
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

F Series | Diameter Range: 0.9661" - 1.2268" (24.54 mm - 31.16 mm)



| D ₁ | | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 0.9661 - 1.0075 | 24.54 - 25.59 | RSKF-200-xxxxx | RSKF-100-xxxxx | RSCL-015-00062 | RSTF-03x-00062 | RSRY-708-00265 | 5 |
| 0.9992 - 1.0402 | 25.38 - 26.42 | RSKF-200-xxxxx | RSKF-100-xxxxx | RSCL-015-00064 | RSTF-03x-00064 | RSRY-708-00265 | 5 |
| 1.0299 - 1.0709 | 26.16 - 27.20 | RSKF-200-xxxxx | RSKF-100-xxxxx | RSCL-015-00066 | RSTF-03x-00066 | RSRY-708-00265 | 5 |
| 1.0610 - 1.1024 | 26.95 - 28.00 | RSKF-200-xxxxx | RSKF-100-xxxxx | RSCL-015-00068 | RSTF-03x-00068 | RSRY-708-00265 | 5 |
| 1.0917 - 1.1327 | 27.73 - 28.77 | RSKF-200-xxxxx | RSKF-100-xxxxx | RSCL-015-00070 | RSTF-03x-00070 | RSRY-708-00265 | 5 |
| 1.1240 - 1.1650 | 28.55 - 29.59 | RSKF-200-xxxxx | RSKF-100-xxxxx | RSCL-015-00072 | RSTF-03x-00066 | RSRY-708-00312 | 5 |
| 1.1551 - 1.1965 | 29.34 - 30.39 | RSKF-200-xxxxx | RSKF-100-xxxxx | RSCL-015-00074 | RSTF-03x-00068 | RSRY-708-00312 | 5 |
| 1.1858 - 1.2268 | 30.12 - 31.16 | RSKF-200-xxxxx | RSKF-100-xxxxx | RSCL-015-00076 | RSTF-03x-00070 | RSRY-708-00312 | 5 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 27.00 mm with MT.1 shank: RSKF-200-02700).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

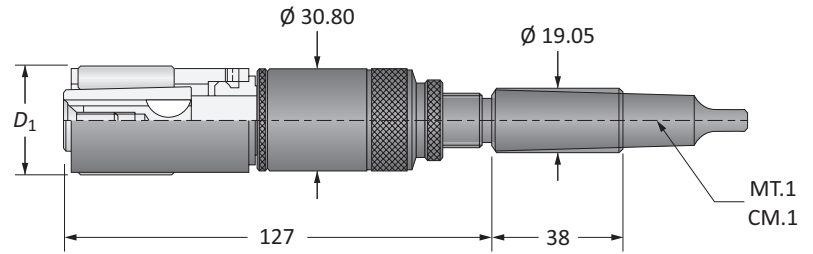
D: 42 - 45

D: 40 - 41

D: 39

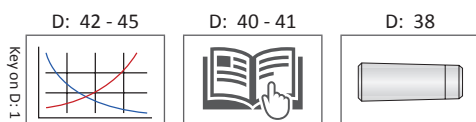
Roller Burnishing Tools | Through Holes

M Series | Diameter Range: 1.2146" - 1.4118" (30.85 mm - 35.86 mm)



| D_1 | | Part No. | | Spare Parts | | | |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | Qty Rolls |
| 1.2146 - 1.2559 | 30.85 - 31.90 | RDKM-200-03085 | RDKM-100-03085 | RDCM-011-00078 | RDTM-031-00078 | RDRY-701-00265 | 7 |
| 1.2469 - 1.2878 | 31.67 - 32.71 | RDKM-200-03167 | RDKM-100-03167 | RDCM-011-00080 | RDTM-031-00080 | RDRY-701-00265 | 7 |
| 1.2772 - 1.3177 | 32.44 - 33.47 | RDKM-200-03244 | RDKM-100-03244 | RDCM-011-00082 | RDTM-031-00082 | RDRY-701-00265 | 7 |
| 1.3087 - 1.3500 | 33.24 - 34.29 | RDKM-200-03324 | RDKM-100-03324 | RDCM-011-00084 | RDTM-031-00078 | RDRY-701-00312 | 7 |
| 1.3406 - 1.3815 | 34.05 - 35.09 | RDKM-200-03405 | RDKM-100-03405 | RDCM-011-00086 | RDTM-031-00080 | RDRY-701-00312 | 7 |
| 1.3713 - 1.4118 | 34.83 - 35.86 | RDKM-200-03483 | RDKM-100-03483 | RDCM-011-00088 | RDTM-031-00082 | RDRY-701-00312 | 7 |

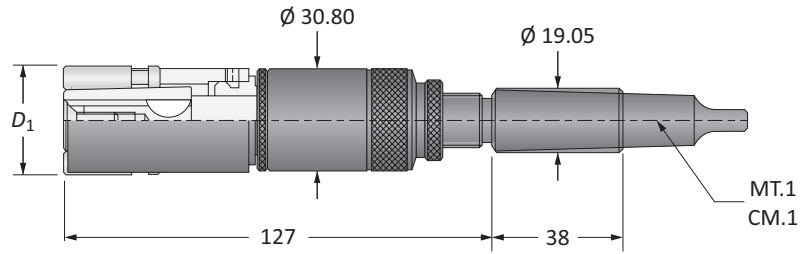
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

M Series | Diameter Range: 1.2146" - 1.4118" (30.85 mm - 35.86 mm)



| D_1 | | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 1.2146 - 1.2559 | 30.85 - 31.90 | RSKM-200-xxxxx | RSKM-100-xxxxx | RSCM-015-00078 | RSTM-03x-00078 | RSRY-708-00265 | 5 |
| 1.2469 - 1.2878 | 31.67 - 32.71 | RSKM-200-xxxxx | RSKM-100-xxxxx | RSCM-015-00080 | RSTM-03x-00080 | RSRY-708-00265 | 5 |
| 1.2772 - 1.3177 | 32.44 - 33.47 | RSKM-200-xxxxx | RSKM-100-xxxxx | RSCM-015-00082 | RSTM-03x-00082 | RSRY-708-00265 | 5 |
| 1.3087 - 1.3500 | 33.24 - 34.29 | RSKM-200-xxxxx | RSKM-100-xxxxx | RSCM-015-00084 | RSTM-03x-00078 | RSRY-708-00312 | 5 |
| 1.3406 - 1.3815 | 34.05 - 35.09 | RSKM-200-xxxxx | RSKM-100-xxxxx | RSCM-015-00086 | RSTM-03x-00080 | RSRY-708-00312 | 5 |
| 1.3713 - 1.4118 | 34.83 - 35.86 | RSKM-200-xxxxx | RSKM-100-xxxxx | RSCM-015-00088 | RSTM-03x-00082 | RSRY-708-00312 | 5 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher \varnothing 35.00 mm with MT.2 shank: RSKM-200-03500).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D: 42 - 45

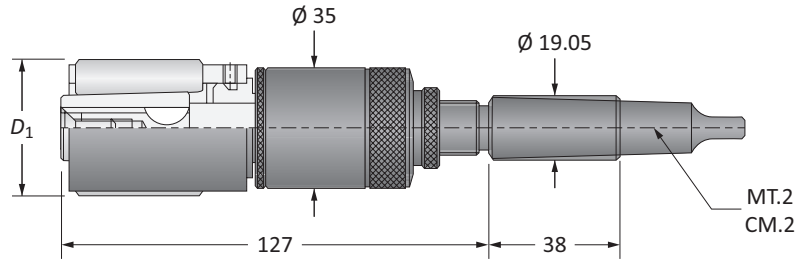
D: 40 - 41

D: 39

Key on D: 1

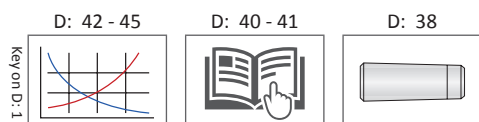
Roller Burnishing Tools | Through Holes

N Series | Diameter Range: 1.4020" - 1.8492" (35.61 mm - 46.97 mm)



| D_1 | | Part No. | | Spare Parts | | | |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | Qty Rolls |
| 1.4020 - 1.4433 | 35.61 - 36.66 | RDKN-200-03561 | RDKN-100-03561 | RDCN-011-00090 | RDTN-031-00090 | RDRY-701-00312 | 7 |
| 1.4331 - 1.4740 | 36.40 - 37.44 | RDKN-200-03640 | RDKN-100-03640 | RDCN-011-00092 | RDTN-031-00092 | RDRY-701-00312 | 7 |
| 1.4638 - 1.5051 | 37.18 - 38.23 | RDKN-200-03718 | RDKN-100-03718 | RDCN-011-00094 | RDTN-031-00094 | RDRY-701-00312 | 7 |
| 1.4961 - 1.5370 | 38.00 - 39.04 | RDKN-200-03800 | RDKN-100-03800 | RDCN-011-00096 | RDTN-031-00096 | RDRY-701-00312 | 7 |
| 1.5272 - 1.5677 | 38.79 - 39.82 | RDKN-200-03879 | RDKN-100-03879 | RDCN-011-00098 | RDTM-031-00080 | RDRY-701-00406 | 7 |
| 1.5579 - 1.5992 | 39.57 - 40.62 | RDKN-200-03957 | RDKN-100-03957 | RDCN-011-00100 | RDTM-031-00082 | RDRY-701-00406 | 7 |
| 1.5890 - 1.6299 | 40.36 - 41.40 | RDKN-200-04036 | RDKN-100-04036 | RDCN-011-00102 | RDTN-031-00090 | RDRY-701-00406 | 7 |
| 1.6213 - 1.6618 | 41.18 - 42.21 | RDKN-200-04118 | RDKN-100-04118 | RDCN-011-00104 | RDTN-031-00092 | RDRY-701-00406 | 7 |
| 1.6520 - 1.6933 | 41.96 - 43.01 | RDKN-200-04196 | RDKN-100-04196 | RDCN-011-00106 | RDTN-031-00094 | RDRY-701-00406 | 7 |
| 1.6831 - 1.7240 | 42.75 - 43.79 | RDKN-200-04275 | RDKN-100-04275 | RDCN-011-00108 | RDTM-031-00082 | RDRY-701-00468 | 7 |
| 1.7138 - 1.7551 | 43.53 - 44.58 | RDKN-200-04353 | RDKN-100-04353 | RDCN-011-00110 | RDTN-031-00090 | RDRY-701-00468 | 7 |
| 1.7461 - 1.7870 | 44.35 - 45.39 | RDKN-200-04435 | RDKN-100-04435 | RDCN-011-00112 | RDTN-031-00092 | RDRY-701-00468 | 7 |
| 1.7772 - 1.8177 | 45.14 - 46.17 | RDKN-200-04514 | RDKN-100-04514 | RDCN-011-00114 | RDTN-031-00094 | RDRY-701-00468 | 7 |
| 1.8079 - 1.8492 | 45.92 - 46.97 | RDKN-200-04592 | RDKN-100-04592 | RDCN-011-00116 | RDTN-031-00096 | RDRY-701-00468 | 7 |

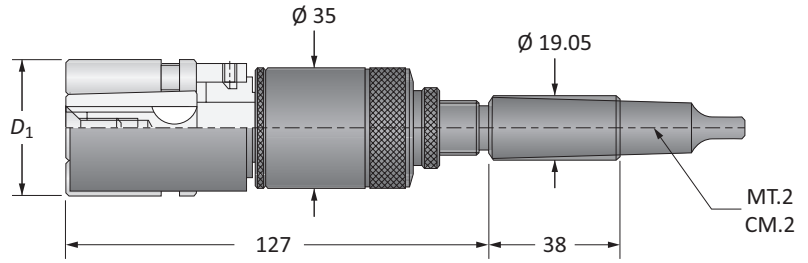
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

N Series | Diameter Range: 1.4020" - 1.8492" (35.61 mm - 46.97 mm)

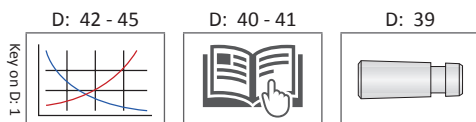


| D_1 | | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|------------------------------------|---------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 1.4020 - 1.4433 | 35.61 - 36.66 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00090 | RSTN-03x-00090 | RSRY-708-00312 | 5 |
| 1.4331 - 1.4740 | 36.40 - 37.44 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00092 | RSTN-03x-00092 | RSRY-708-00312 | 5 |
| 1.4638 - 1.5051 | 37.18 - 38.23 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00094 | RSTN-03x-00094 | RSRY-708-00312 | 5 |
| 1.4961 - 1.5370 | 38.00 - 39.04 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00096 | RSTN-03x-00096 | RSRY-708-00312 | 5 |
| 1.5272 - 1.5677 | 38.79 - 39.82 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00098 | RSTM-03x-00080 | RSRY-708-00406 | 5 |
| 1.5579 - 1.5992 | 39.57 - 40.62 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00100 | RSTM-03x-00082 | RSRY-708-00406 | 5 |
| 1.5890 - 1.6299 | 40.36 - 41.40 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00102 | RSTN-03x-00090 | RSRY-708-00406 | 5 |
| 1.6213 - 1.6618 | 41.18 - 42.21 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00104 | RSTN-03x-00092 | RSRY-708-00406 | 5 |
| 1.6520 - 1.6933 | 41.96 - 43.01 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00106 | RSTN-03x-00094 | RSRY-708-00406 | 5 |
| 1.6831 - 1.7240 | 42.75 - 43.79 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00108 | RSTM-03x-00082 | RSRY-708-00468 | 5 |
| 1.7138 - 1.7551 | 43.53 - 44.58 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00110 | RSTN-03x-00090 | RSRY-708-00468 | 5 |
| 1.7461 - 1.7870 | 44.35 - 45.39 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00112 | RSTN-03x-00092 | RSRY-708-00468 | 5 |
| 1.7772 - 1.8177 | 45.14 - 46.17 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00114 | RSTN-03x-00094 | RSRY-708-00468 | 5 |
| 1.8079 - 1.8492 | 45.92 - 46.97 | RSKN-200-xxxxx | RSKN-100-xxxxx | RSCN-015-00116 | RSTN-03x-00096 | RSRY-708-00468 | 5 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 40.00 mm with straight shank: RSKN-100-04000).

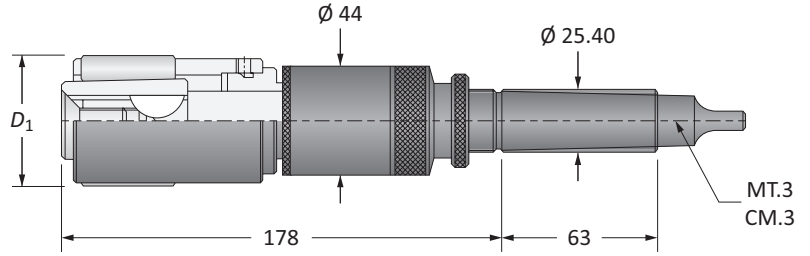
**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



Roller Burnishing Tools | Through Holes

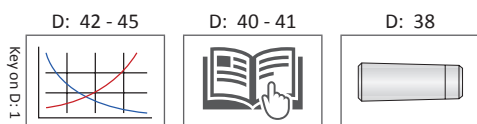
O Series | Diameter Range: 1.8390" - 2.2240" (46.71 mm - 56.49 mm)



Through Holes

| D ₁ | | Part No. | | Spare Parts | | | |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | Qty Rolls |
| 1.8390 - 1.8799 | 46.71 - 47.75 | RDKO-200-04671 | RDKO-100-04671 | RDCO-011-00118 | RDTO-031-00118 | RDRY-701-00312 | 9 |
| 1.8713 - 1.9118 | 47.53 - 48.56 | RDKO-200-04753 | RDKO-100-04753 | RDCO-011-00120 | RDTO-031-00120 | RDRY-701-00312 | 9 |
| 1.9020 - 1.9433 | 48.31 - 49.36 | RDKO-200-04831 | RDKO-100-04831 | RDCO-011-00122 | RDTO-031-00122 | RDRY-701-00312 | 9 |
| 1.9331 - 1.9740 | 49.10 - 50.14 | RDKO-200-04910 | RDKO-100-04910 | RDCO-011-00124 | RDTO-031-00124 | RDRY-701-00312 | 9 |
| 1.9638 - 2.0051 | 49.88 - 50.93 | RDKO-200-04988 | RDKO-100-04988 | RDCO-011-00126 | RDTO-031-00126 | RDRY-701-00312 | 9 |
| 1.9961 - 2.0370 | 50.70 - 51.74 | RDKO-200-05070 | RDKO-100-05070 | RDCO-011-00128 | RDTO-031-00128 | RDRY-701-00312 | 9 |
| 2.0272 - 2.0681 | 51.49 - 52.53 | RDKO-200-05149 | RDKO-100-05149 | RDCO-011-00130 | RDTO-031-00118 | RDRY-701-00406 | 9 |
| 2.0579 - 2.0992 | 52.27 - 53.32 | RDKO-200-05227 | RDKO-100-05227 | RDCO-011-00132 | RDTO-031-00120 | RDRY-701-00406 | 9 |
| 2.0890 - 2.1299 | 53.06 - 54.10 | RDKO-200-05306 | RDKO-100-05306 | RDCO-011-00134 | RDTO-031-00122 | RDRY-701-00406 | 9 |
| 2.1209 - 2.1618 | 53.87 - 54.91 | RDKO-200-05387 | RDKO-100-05387 | RDCO-011-00136 | RDTO-031-00124 | RDRY-701-00406 | 9 |
| 2.1520 - 2.1933 | 54.66 - 55.71 | RDKO-200-05466 | RDKO-100-05466 | RDCO-011-00138 | RDTO-031-00126 | RDRY-701-00406 | 9 |
| 2.1831 - 2.2240 | 55.45 - 56.49 | RDKO-200-05545 | RDKO-100-05545 | RDCO-011-00140 | RDTO-031-00128 | RDRY-701-00406 | 9 |

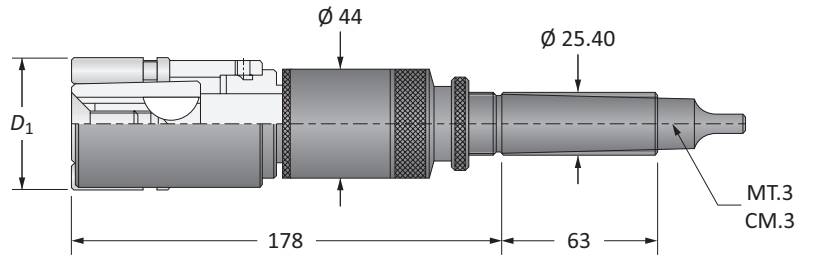
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

O Series | Diameter Range: 1.8390" - 2.2240" (46.71 mm - 56.49 mm)



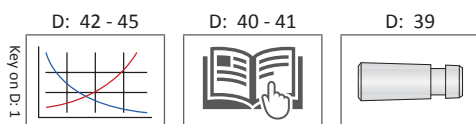
Blind Holes

| D ₁ | | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 1.8390 - 1.8799 | 46.71 - 47.75 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00118 | RSTO-03x-00118 | RSRY-708-00312 | 7 |
| 1.8713 - 1.9118 | 47.53 - 48.56 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00120 | RSTO-03x-00120 | RSRY-708-00312 | 7 |
| 1.9020 - 1.9433 | 48.31 - 49.36 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00122 | RSTO-03x-00122 | RSRY-708-00312 | 7 |
| 1.9331 - 1.9740 | 49.10 - 50.14 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00124 | RSTO-03x-00124 | RSRY-708-00312 | 7 |
| 1.9638 - 2.0051 | 49.88 - 50.93 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00126 | RSTO-03x-00126 | RSRY-708-00312 | 7 |
| 1.9961 - 2.0370 | 50.70 - 51.74 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00128 | RSTO-03x-00128 | RSRY-708-00312 | 7 |
| 2.0272 - 2.0681 | 51.49 - 52.53 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00130 | RSTO-03x-00118 | RSRY-708-00406 | 7 |
| 2.0579 - 2.0992 | 52.27 - 53.32 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00132 | RSTO-03x-00120 | RSRY-708-00406 | 7 |
| 2.0890 - 2.1299 | 53.06 - 54.10 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00134 | RSTO-03x-00122 | RSRY-708-00406 | 7 |
| 2.1209 - 2.1618 | 53.87 - 54.91 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00136 | RSTO-03x-00124 | RSRY-708-00406 | 7 |
| 2.1520 - 2.1933 | 54.66 - 55.71 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00138 | RSTO-03x-00126 | RSRY-708-00406 | 7 |
| 2.1831 - 2.2240 | 55.45 - 56.49 | RSKO-200-xxxxx | RSKO-100-xxxxx | RSCO-015-00140 | RSTO-03x-00128 | RSRY-708-00406 | 7 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 50.25 mm with MT.3 shank: RSKO-200-05025).

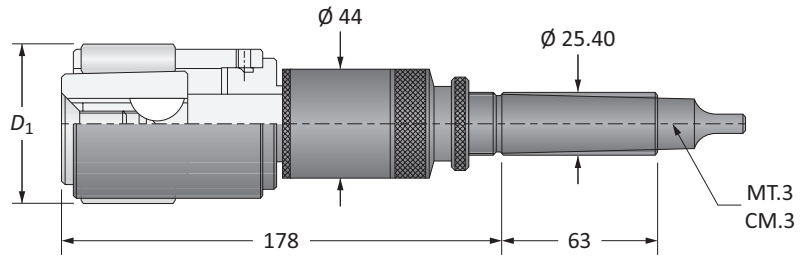
**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



Roller Burnishing Tools | Through Holes

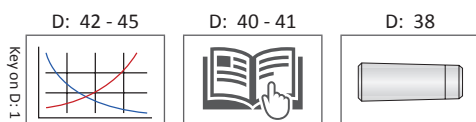
P Series | Diameter Range: 2.2138" - 2.7240" (56.23 mm - 69.19 mm)



Through Holes

| D_1 | | Part No. | | Spare Parts | | | |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | Qty Rolls |
| 2.2138 - 2.2551 | 56.23 - 57.28 | RDKP-200-05623 | RDKP-100-05623 | RDCP-011-00142 | RDTP-031-00142 | RDRY-701-00406 | 9 |
| 2.2461 - 2.2870 | 57.05 - 58.09 | RDKP-200-05705 | RDKP-100-05705 | RDCP-011-00144 | RDTP-031-00144 | RDRY-701-00406 | 9 |
| 2.2772 - 2.3177 | 57.84 - 58.87 | RDKP-200-05784 | RDKP-100-05784 | RDCP-011-00146 | RDTP-031-00146 | RDRY-701-00406 | 9 |
| 2.3079 - 2.3492 | 58.62 - 59.67 | RDKP-200-05862 | RDKP-100-05862 | RDCP-011-00148 | RDTP-031-00148 | RDRY-701-00406 | 9 |
| 2.3390 - 2.3799 | 59.41 - 60.45 | RDKP-200-05941 | RDKP-100-05941 | RDCP-011-00150 | RDTP-031-00142 | RDRY-701-00468 | 9 |
| 2.3713 - 2.4118 | 60.23 - 61.26 | RDKP-200-06023 | RDKP-100-06023 | RDCP-011-00152 | RDTP-031-00144 | RDRY-701-00468 | 9 |
| 2.4020 - 2.4433 | 61.01 - 62.06 | RDKP-200-06101 | RDKP-100-06101 | RDCP-011-00154 | RDTP-031-00146 | RDRY-701-00468 | 9 |
| 2.4330 - 2.4740 | 61.80 - 62.84 | RDKP-200-06180 | RDKP-100-06180 | RDCP-011-00156 | RDTP-031-00148 | RDRY-701-00468 | 9 |
| 2.4638 - 2.5051 | 62.58 - 63.63 | RDKP-200-06258 | RDKP-100-06258 | RDCP-011-00158 | RDTP-031-00158 | RDRY-701-00468 | 9 |
| 2.4961 - 2.5370 | 63.40 - 64.44 | RDKP-200-06340 | RDKP-100-06340 | RDCP-011-00160 | RDTP-031-00160 | RDRY-701-00468 | 9 |
| 2.5272 - 2.5677 | 64.19 - 65.22 | RDKP-200-06419 | RDKP-100-06419 | RDCP-011-00162 | RDTP-031-00162 | RDRY-701-00468 | 9 |
| 2.5579 - 2.5992 | 64.97 - 66.02 | RDKP-200-06497 | RDKP-100-06497 | RDCP-011-00164 | RDTP-031-00164 | RDRY-701-00468 | 9 |
| 2.5890 - 2.6299 | 65.76 - 66.80 | RDKP-200-06576 | RDKP-100-06576 | RDCP-011-00166 | RDTP-031-00158 | RDRY-701-00531 | 9 |
| 2.6213 - 2.6618 | 66.58 - 67.61 | RDKP-200-06658 | RDKP-100-06658 | RDCP-011-00168 | RDTP-031-00160 | RDRY-701-00531 | 9 |
| 2.6520 - 2.6933 | 67.36 - 68.41 | RDKP-200-06736 | RDKP-100-06736 | RDCP-011-00170 | RDTP-031-00162 | RDRY-701-00531 | 9 |
| 2.6830 - 2.7240 | 68.15 - 69.19 | RDKP-200-06815 | RDKP-100-06815 | RDCP-011-00172 | RDTP-031-00164 | RDRY-701-00531 | 9 |

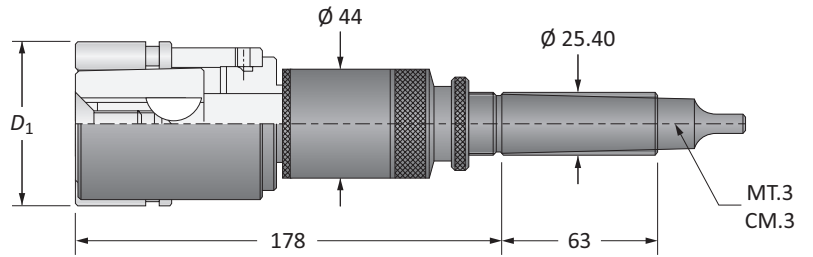
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

P Series | Diameter Range: 2.2138" - 2.7240" (56.23 mm - 69.19 mm)



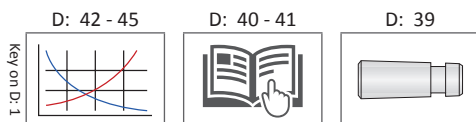
Blind Holes

| D ₁ | | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 2.2138 - 2.2551 | 56.23 - 57.28 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00142 | RSTP-03x-00142 | RSRY-708-00406 | 7 |
| 2.2461 - 2.2870 | 57.05 - 58.09 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00144 | RSTP-03x-00144 | RSRY-708-00406 | 7 |
| 2.2772 - 2.3177 | 57.84 - 58.87 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00146 | RSTP-03x-00146 | RSRY-708-00406 | 7 |
| 2.3079 - 2.3492 | 58.62 - 59.67 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00148 | RSTP-03x-00148 | RSRY-708-00406 | 7 |
| 2.3390 - 2.3799 | 59.41 - 60.45 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00150 | RSTP-03x-00142 | RSRY-708-00468 | 7 |
| 2.3713 - 2.4118 | 60.23 - 61.26 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00152 | RSTP-03x-00144 | RSRY-708-00468 | 7 |
| 2.4020 - 2.4433 | 61.01 - 62.06 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00154 | RSTP-03x-00146 | RSRY-708-00468 | 7 |
| 2.4330 - 2.4740 | 61.80 - 62.84 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00156 | RSTP-03x-00148 | RSRY-708-00468 | 7 |
| 2.4638 - 2.5051 | 62.58 - 63.63 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00158 | RSTP-03x-00158 | RSRY-708-00468 | 7 |
| 2.4961 - 2.5370 | 63.40 - 64.44 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00160 | RSTP-03x-00160 | RSRY-708-00468 | 7 |
| 2.5272 - 2.5677 | 64.19 - 65.22 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00162 | RSTP-03x-00162 | RSRY-708-00468 | 7 |
| 2.5579 - 2.5992 | 64.97 - 66.02 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00164 | RSTP-03x-00164 | RSRY-708-00468 | 7 |
| 2.5890 - 2.6299 | 65.76 - 66.80 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00166 | RSTP-03x-00158 | RSRY-708-00531 | 7 |
| 2.6213 - 2.6618 | 66.58 - 67.61 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00168 | RSTP-03x-00160 | RSRY-708-00531 | 7 |
| 2.6520 - 2.6933 | 67.36 - 68.41 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00170 | RSTP-03x-00162 | RSRY-708-00531 | 7 |
| 2.6830 - 2.7240 | 68.15 - 69.19 | RSKP-200-xxxxx | RSKP-100-xxxxx | RSCP-015-00172 | RSTP-03x-00164 | RSRY-708-00531 | 7 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 60.05 mm with straight shank: RSKP-100-06005).

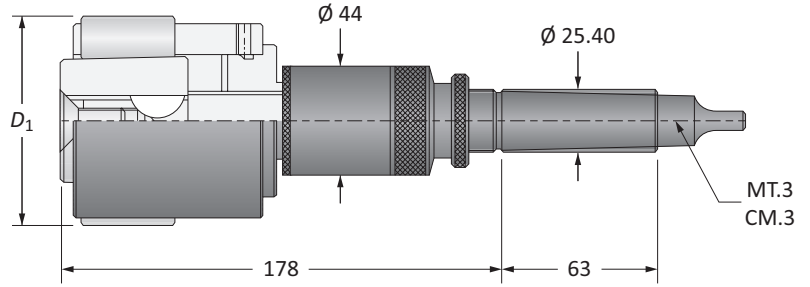
**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



Roller Burnishing Tools | Through Holes

Q Series | Diameter Range: 2.7138" - 3.3492" (68.93 mm - 85.07 mm)



Through Holes

| D ₁ | | Part No. | | Spare Parts | | | |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | Qty Rolls |
| 2.7138 - 2.7551 | 68.93 - 69.98 | RDKQ-200-06893 | RDKQ-100-06893 | RDCQ-011-00174 | RDTQ-031-00174 | RDRY-701-00531 | 9 |
| 2.7461 - 2.7870 | 69.75 - 70.79 | RDKQ-200-06975 | RDKQ-100-06975 | RDCQ-011-00176 | RDTQ-031-00176 | RDRY-701-00531 | 9 |
| 2.7772 - 2.8177 | 70.54 - 71.57 | RDKQ-200-07054 | RDKQ-100-07054 | RDCQ-011-00178 | RDTQ-031-00178 | RDRY-701-00531 | 9 |
| 2.8079 - 2.8504 | 71.32 - 72.40 | RDKQ-200-07132 | RDKQ-100-07132 | RDCQ-011-00180 | RDTQ-031-00180 | RDRY-701-00531 | 9 |
| 2.8390 - 2.8799 | 72.11 - 73.15 | RDKQ-200-07211 | RDKQ-100-07211 | RDCQ-011-00182 | RDTQ-031-00182 | RDRY-701-00531 | 9 |
| 2.8713 - 2.9118 | 72.93 - 73.96 | RDKQ-200-07293 | RDKQ-100-07293 | RDCQ-011-00184 | RDTQ-031-00184 | RDRY-701-00531 | 9 |
| 2.9020 - 2.9429 | 73.71 - 74.75 | RDKQ-200-07371 | RDKQ-100-07371 | RDCQ-011-00186 | RDTQ-031-00174 | RDRY-701-00625 | 9 |
| 2.9331 - 2.9740 | 74.50 - 75.54 | RDKQ-200-07450 | RDKQ-100-07450 | RDCQ-011-00188 | RDTQ-031-00176 | RDRY-701-00625 | 9 |
| 2.9638 - 3.0051 | 75.28 - 76.33 | RDKQ-200-07528 | RDKQ-100-07528 | RDCQ-011-00190 | RDTQ-031-00178 | RDRY-701-00625 | 9 |
| 2.9961 - 3.0370 | 76.10 - 77.14 | RDKQ-200-07610 | RDKQ-100-07610 | RDCQ-011-00192 | RDTQ-031-00180 | RDRY-701-00625 | 9 |
| 3.0272 - 3.0681 | 76.89 - 77.93 | RDKQ-200-07689 | RDKQ-100-07689 | RDCQ-011-00194 | RDTQ-031-00182 | RDRY-701-00625 | 9 |
| 3.0579 - 3.0992 | 77.67 - 78.72 | RDKQ-200-07767 | RDKQ-100-07767 | RDCQ-011-00196 | RDTQ-031-00184 | RDRY-701-00625 | 9 |
| 3.0890 - 3.1299 | 78.46 - 79.50 | RDKQ-200-07846 | RDKQ-100-07846 | RDCQ-011-00198 | RDTQ-031-00198 | RDRY-701-00625 | 9 |
| 3.1209 - 3.1618 | 79.27 - 80.31 | RDKQ-200-07927 | RDKQ-100-07927 | RDCQ-011-00200 | RDTQ-031-00200 | RDRY-701-00625 | 9 |
| 3.1520 - 3.1933 | 80.06 - 81.11 | RDKQ-200-08006 | RDKQ-100-08006 | RDCQ-011-00202 | RDTQ-031-00202 | RDRY-701-00625 | 9 |
| 3.1831 - 3.2240 | 80.85 - 81.89 | RDKQ-200-08085 | RDKQ-100-08085 | RDCQ-011-00204 | RDTQ-031-00204 | RDRY-701-00625 | 9 |
| 3.2138 - 3.2551 | 81.63 - 82.68 | RDKQ-200-08163 | RDKQ-100-08163 | RDCQ-011-00206 | RDTQ-031-00198 | RDRY-701-00687 | 9 |
| 3.2461 - 3.2870 | 82.45 - 83.49 | RDKQ-200-08245 | RDKQ-100-08245 | RDCQ-011-00208 | RDTQ-031-00200 | RDRY-701-00687 | 9 |
| 3.2772 - 3.3177 | 83.24 - 84.27 | RDKQ-200-08324 | RDKQ-100-08324 | RDCQ-011-00210 | RDTQ-031-00202 | RDRY-701-00687 | 9 |
| 3.3079 - 3.3492 | 84.02 - 85.07 | RDKQ-200-08402 | RDKQ-100-08402 | RDCQ-011-00212 | RDTQ-031-00204 | RDRY-701-00687 | 9 |

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

D: 42 - 45

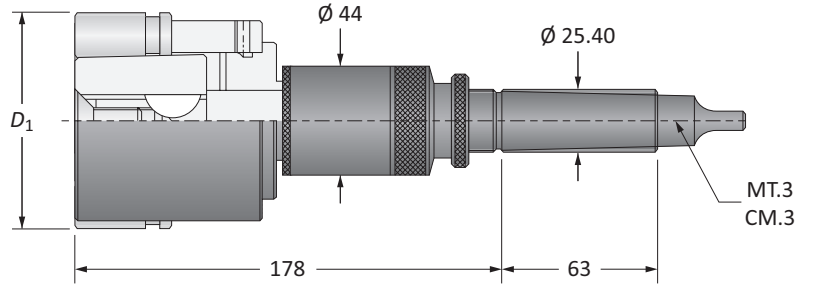
D: 40 - 41

D: 38



Roller Burnishing Tools | Blind Holes

Q Series | Diameter Range: 2.7138" - 3.3492" (68.93 mm - 85.07 mm)



Blind Holes

| D ₁ | | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|---------------|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 2.7138 - 2.7551 | 68.93 - 69.98 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00174 | RSTQ-03x-00174 | RSRY-708-00531 | 7 |
| 2.7461 - 2.7870 | 69.75 - 70.79 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00176 | RSTQ-03x-00176 | RSRY-708-00531 | 7 |
| 2.7772 - 2.8177 | 70.54 - 71.57 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00178 | RSTQ-03x-00178 | RSRY-708-00531 | 7 |
| 2.8079 - 2.8504 | 71.32 - 72.40 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00180 | RSTQ-03x-00180 | RSRY-708-00531 | 7 |
| 2.8390 - 2.8799 | 72.11 - 73.15 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00182 | RSTQ-03x-00182 | RSRY-708-00531 | 7 |
| 2.8713 - 2.9118 | 72.93 - 73.96 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00184 | RSTQ-03x-00184 | RSRY-708-00531 | 7 |
| 2.9020 - 2.9429 | 73.71 - 74.75 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00186 | RSTQ-03x-00174 | RSRY-708-00625 | 7 |
| 2.9331 - 2.9740 | 74.50 - 75.54 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00188 | RSTQ-03x-00176 | RSRY-708-00625 | 7 |
| 2.9638 - 3.0051 | 75.28 - 76.33 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00190 | RSTQ-03x-00178 | RSRY-708-00625 | 7 |
| 2.9961 - 3.0370 | 76.10 - 77.14 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00192 | RSTQ-03x-00180 | RSRY-708-00625 | 7 |
| 3.0272 - 3.0681 | 76.89 - 77.93 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00194 | RSTQ-03x-00182 | RSRY-708-00625 | 7 |
| 3.0579 - 3.0992 | 77.67 - 78.72 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00196 | RSTQ-03x-00184 | RSRY-708-00625 | 7 |
| 3.0890 - 3.1299 | 78.46 - 79.50 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00198 | RSTQ-03x-00198 | RSRY-708-00625 | 7 |
| 3.1209 - 3.1618 | 79.27 - 80.31 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00200 | RSTQ-03x-00200 | RSRY-708-00625 | 7 |
| 3.1520 - 3.1933 | 80.06 - 81.11 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00202 | RSTQ-03x-00202 | RSRY-708-00625 | 7 |
| 3.1831 - 3.2240 | 80.85 - 81.89 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00204 | RSTQ-03x-00204 | RSRY-708-00625 | 7 |
| 3.2138 - 3.2551 | 81.63 - 82.68 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00206 | RSTQ-03x-00198 | RSRY-708-00687 | 7 |
| 3.2461 - 3.2870 | 82.45 - 83.49 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00208 | RSTQ-03x-00200 | RSRY-708-00687 | 7 |
| 3.2772 - 3.3177 | 83.24 - 84.27 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00210 | RSTQ-03x-00202 | RSRY-708-00687 | 7 |
| 3.3079 - 3.3492 | 84.02 - 85.07 | RSKQ-200-xxxxx | RSKQ-100-xxxxx | RSCQ-015-00212 | RSTQ-03x-00204 | RSRY-708-00687 | 7 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 75.00 mm with MT.3 shank: RSKQ-200-07500).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

D: 42 - 45

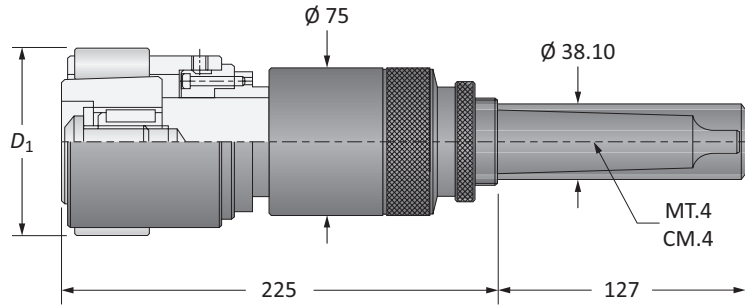
D: 40 - 41

D: 39

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

Roller Burnishing Tools | Through Holes

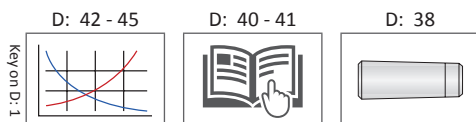
R Series | Diameter Range: 3.3390" - 4.0992" (84.81 mm - 104.12 mm)



Through Holes

| D_1 | | Part No. | | Spare Parts | | | Qty Rolls |
|-----------------|-----------------|------------------------------------|---------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | |
| 3.3390 - 3.3799 | 84.81 - 85.85 | RDKR-200-08481 | RDKR-100-08481 | RDCR-011-00214 | RDTR-073-00001 | RDRY-701-00468 | 9 |
| 3.3713 - 3.4118 | 85.63 - 86.66 | RDKR-200-08563 | RDKR-100-08563 | RDCR-011-00216 | RDTR-074-00001 | RDRY-701-00468 | 9 |
| 3.4020 - 3.4429 | 86.41 - 87.45 | RDKR-200-08641 | RDKR-100-08641 | RDCR-011-00218 | RDTR-071-00001 | RDRY-701-00531 | 9 |
| 3.4331 - 3.4740 | 87.20 - 88.24 | RDKR-200-08720 | RDKR-100-08720 | RDCR-011-00220 | RDTR-072-00001 | RDRY-701-00531 | 9 |
| 3.4642 - 3.5051 | 87.99 - 89.03 | RDKR-200-08799 | RDKR-100-08799 | RDCR-011-00222 | RDTR-073-00001 | RDRY-701-00531 | 9 |
| 3.4957 - 3.5370 | 88.79 - 89.84 | RDKR-200-08879 | RDKR-100-08879 | RDCR-011-00224 | RDTR-074-00001 | RDRY-701-00531 | 9 |
| 3.5272 - 3.5681 | 89.59 - 90.63 | RDKR-200-08959 | RDKR-100-08959 | RDCR-011-00226 | RDTR-075-00001 | RDRY-701-00531 | 9 |
| 3.5579 - 3.5992 | 90.37 - 91.42 | RDKR-200-09037 | RDKR-100-09037 | RDCR-011-00228 | RDTR-076-00001 | RDRY-701-00531 | 9 |
| 3.5890 - 3.6299 | 91.16 - 92.20 | RDKR-200-09116 | RDKR-100-09116 | RDCR-011-00230 | RDTR-071-00001 | RDRY-701-00625 | 9 |
| 3.6209 - 3.6622 | 91.97 - 93.02 | RDKR-200-09197 | RDKR-100-09197 | RDCR-011-00232 | RDTR-072-00001 | RDRY-701-00625 | 9 |
| 3.6520 - 3.6929 | 92.76 - 93.80 | RDKR-200-09276 | RDKR-100-09276 | RDCR-011-00234 | RDTR-073-00001 | RDRY-701-00625 | 9 |
| 3.6831 - 3.7240 | 93.55 - 94.59 | RDKR-200-09355 | RDKR-100-09355 | RDCR-011-00236 | RDTR-074-00001 | RDRY-701-00625 | 9 |
| 3.7142 - 3.7551 | 94.34 - 95.38 | RDKR-200-09434 | RDKR-100-09434 | RDCR-011-00238 | RDTR-075-00001 | RDRY-701-00625 | 9 |
| 3.7461 - 3.7870 | 95.15 - 96.19 | RDKR-200-09515 | RDKR-100-09515 | RDCR-011-00240 | RDTR-076-00001 | RDRY-701-00625 | 9 |
| 3.7772 - 3.8181 | 95.94 - 96.98 | RDKR-200-09594 | RDKR-100-09594 | RDCR-011-00242 | RDTR-077-00001 | RDRY-701-00625 | 9 |
| 3.8079 - 3.8492 | 96.72 - 97.77 | RDKR-200-09672 | RDKR-100-09672 | RDCR-011-00244 | RDTR-078-00001 | RDRY-701-00625 | 9 |
| 3.8390 - 3.8799 | 97.51 - 98.55 | RDKR-200-09751 | RDKR-100-09751 | RDCR-011-00246 | RDTR-075-00001 | RDRY-701-00687 | 9 |
| 3.8709 - 3.9122 | 98.32 - 99.37 | RDKR-200-09832 | RDKR-100-09832 | RDCR-011-00248 | RDTR-076-00001 | RDRY-701-00687 | 9 |
| 3.9020 - 3.9429 | 99.11 - 100.15 | RDKR-200-09911 | RDKR-100-09911 | RDCR-011-00250 | RDTR-077-00001 | RDRY-701-00687 | 9 |
| 3.9331 - 3.9740 | 99.90 - 100.94 | RDKR-200-09990 | RDKR-100-09990 | RDCR-011-00252 | RDTR-078-00001 | RDRY-701-00687 | 9 |
| 3.9642 - 4.0051 | 100.69 - 101.73 | RDKR-200-10069 | RDKR-100-10069 | RDCR-011-00254 | RDTR-079-00001 | RDRY-701-00687 | 9 |
| 3.9961 - 4.0370 | 101.50 - 102.54 | RDKR-200-10150 | RDKR-100-10150 | RDCR-011-00256 | RDTR-080-00001 | RDRY-701-00687 | 9 |
| 4.0272 - 4.0681 | 102.29 - 103.33 | RDKR-200-10229 | RDKR-100-10229 | RDCR-011-00258 | RDTR-081-00001 | RDRY-701-00687 | 9 |
| 4.0579 - 4.0992 | 103.07 - 104.12 | RDKR-200-10307 | RDKR-100-10307 | RDCR-011-00260 | RDTR-082-00001 | RDRY-701-00687 | 9 |

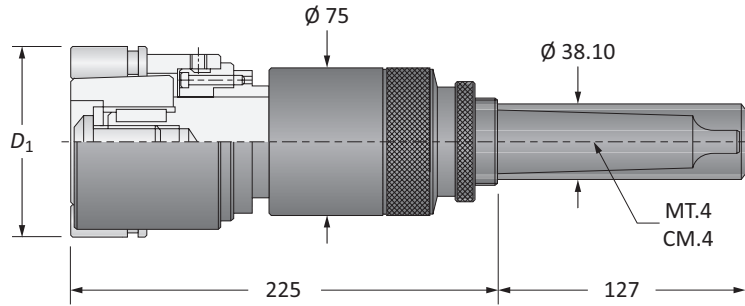
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

R Series | Diameter Range: 3.3390" - 4.0992" (84.81 mm - 104.12 mm)



Blind Holes

| D ₁ | | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|-----------------|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 3.3390 - 3.3799 | 84.81 - 85.85 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00214 | RSTR-073-0000x | RSRY-708-00468 | 9 |
| 3.3713 - 3.4118 | 85.63 - 86.66 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00216 | RSTR-074-0000x | RSRY-708-00468 | 9 |
| 3.4020 - 3.4429 | 86.41 - 87.45 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00218 | RSTR-071-0000x | RSRY-708-00531 | 9 |
| 3.4331 - 3.4740 | 87.20 - 88.24 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00220 | RSTR-072-0000x | RSRY-708-00531 | 9 |
| 3.4642 - 3.5051 | 87.99 - 89.03 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00222 | RSTR-073-0000x | RSRY-708-00531 | 9 |
| 3.4957 - 3.5370 | 88.79 - 89.84 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00224 | RSTR-074-0000x | RSRY-708-00531 | 9 |
| 3.5272 - 3.5681 | 89.59 - 90.63 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00226 | RSTR-075-0000x | RSRY-708-00531 | 9 |
| 3.5579 - 3.5992 | 90.37 - 91.42 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00228 | RSTR-076-0000x | RSRY-708-00531 | 9 |
| 3.5890 - 3.6299 | 91.16 - 92.20 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00230 | RSTR-071-0000x | RSRY-708-00625 | 9 |
| 3.6209 - 3.6622 | 91.97 - 93.02 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00232 | RSTR-072-0000x | RSRY-708-00625 | 9 |
| 3.6520 - 3.6929 | 92.76 - 93.80 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00234 | RSTR-073-0000x | RSRY-708-00625 | 9 |
| 3.6831 - 3.7240 | 93.55 - 94.59 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00236 | RSTR-074-0000x | RSRY-708-00625 | 9 |
| 3.7142 - 3.7551 | 94.34 - 95.38 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00238 | RSTR-075-0000x | RSRY-708-00625 | 9 |
| 3.7461 - 3.7870 | 95.15 - 96.19 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00240 | RSTR-076-0000x | RSRY-708-00625 | 9 |
| 3.7772 - 3.8181 | 95.94 - 96.98 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00242 | RSTR-077-0000x | RSRY-708-00625 | 9 |
| 3.8079 - 3.8492 | 96.72 - 97.77 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00244 | RSTR-078-0000x | RSRY-708-00625 | 9 |
| 3.8390 - 3.8799 | 97.51 - 98.55 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00246 | RSTR-075-0000x | RSRY-708-00687 | 9 |
| 3.8709 - 3.9122 | 98.32 - 99.37 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00248 | RSTR-076-0000x | RSRY-708-00687 | 9 |
| 3.9020 - 3.9429 | 99.11 - 100.15 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00250 | RSTR-077-0000x | RSRY-708-00687 | 9 |
| 3.9331 - 3.9740 | 99.90 - 100.94 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00252 | RSTR-078-0000x | RSRY-708-00687 | 9 |
| 3.9642 - 4.0051 | 100.69 - 101.73 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00254 | RSTR-079-0000x | RSRY-708-00687 | 9 |
| 3.9961 - 4.0370 | 101.50 - 102.54 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00256 | RSTR-080-0000x | RSRY-708-00687 | 9 |
| 4.0272 - 1.0681 | 102.29 - 103.33 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00258 | RSTR-081-0000x | RSRY-708-00687 | 9 |
| 4.0579 - 4.0992 | 103.07 - 104.12 | RSKR-200-xxxxx | RSKR-100-xxxxx | RSCR-015-00260 | RSTR-082-0000x | RSRY-708-00687 | 9 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 100.00 mm with straight shank: RSKR-100-10000).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

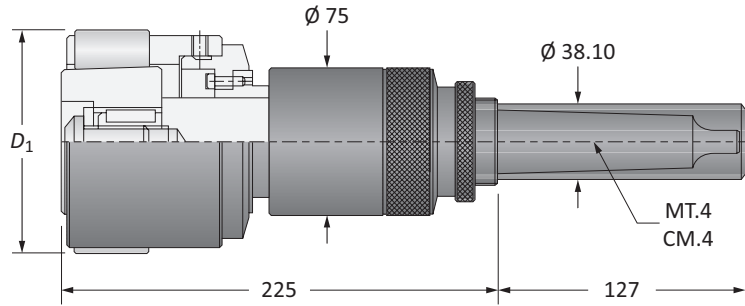
D: 42 - 45

D: 40 - 41

D: 39

Roller Burnishing Tools | Through Holes

S Series | Diameter Range: 4.0890" - 5.0370" (103.86 mm - 127.94 mm)



Through Holes

| D_1 | | Part No. | | Spare Parts | | | Qty Rolls |
|-----------------|-----------------|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | |
| 4.0890 - 4.1299 | 103.86 - 104.90 | RDKS-200-10386 | RDKS-100-10386 | RDCS-011-00262 | RDTS-083-00001 | RDRY-701-00687 | 9 |
| 4.1209 - 4.1634 | 104.67 - 105.75 | RDKS-200-10467 | RDKS-100-10467 | RDCS-011-00264 | RDTS-084-00001 | RDRY-701-00687 | 9 |
| 4.1520 - 4.1929 | 105.46 - 106.50 | RDKS-200-10546 | RDKS-100-10546 | RDCS-011-00266 | RDTS-085-00001 | RDRY-701-00687 | 9 |
| 4.1831 - 4.2240 | 106.25 - 107.29 | RDKS-200-10625 | RDKS-100-10625 | RDCS-011-00268 | RDTS-086-00001 | RDRY-701-00687 | 9 |
| 4.2142 - 4.2551 | 107.04 - 108.08 | RDKS-200-10704 | RDKS-100-10704 | RDCS-011-00270 | RDTS-087-00001 | RDRY-701-00687 | 9 |
| 4.2461 - 4.2870 | 107.85 - 108.89 | RDKS-200-10785 | RDKS-100-10785 | RDCS-011-00272 | RDTS-088-00001 | RDRY-701-00687 | 9 |
| 4.2772 - 4.3181 | 108.64 - 109.68 | RDKS-200-10864 | RDKS-100-10864 | RDCS-011-00274 | RDTS-089-00001 | RDRY-701-00687 | 9 |
| 4.3079 - 4.3492 | 109.42 - 110.47 | RDKS-200-10942 | RDKS-100-10942 | RDCS-011-00276 | RDTS-090-00001 | RDRY-701-00687 | 9 |
| 4.3390 - 4.3799 | 110.21 - 111.25 | RDKS-200-11021 | RDKS-100-11021 | RDCS-011-00278 | RDTS-083-00001 | RDRY-701-00812 | 9 |
| 4.3709 - 4.4122 | 111.02 - 112.07 | RDKS-200-11102 | RDKS-100-11102 | RDCS-011-00280 | RDTS-084-00001 | RDRY-701-00812 | 9 |
| 4.4020 - 4.4429 | 111.81 - 112.85 | RDKS-200-11181 | RDKS-100-11181 | RDCS-011-00282 | RDTS-085-00001 | RDRY-701-00812 | 9 |
| 4.4331 - 4.4740 | 112.60 - 113.64 | RDKS-200-11260 | RDKS-100-11260 | RDCS-011-00284 | RDTS-086-00001 | RDRY-701-00812 | 9 |
| 4.4622 - 4.5051 | 113.34 - 114.43 | RDKS-200-11334 | RDKS-100-11334 | RDCS-011-00286 | RDTS-087-00001 | RDRY-701-00812 | 9 |
| 4.4961 - 4.5370 | 114.20 - 115.24 | RDKS-200-11420 | RDKS-100-11420 | RDCS-011-00288 | RDTS-088-00001 | RDRY-701-00812 | 9 |
| 4.5272 - 4.5681 | 114.99 - 116.03 | RDKS-200-11499 | RDKS-100-11499 | RDCS-011-00290 | RDTS-089-00001 | RDRY-701-00812 | 9 |
| 4.5579 - 4.5992 | 115.77 - 116.82 | RDKS-200-11577 | RDKS-100-11577 | RDCS-011-00292 | RDTS-090-00001 | RDRY-701-00812 | 9 |
| 4.5890 - 4.6299 | 116.56 - 117.60 | RDKS-200-11656 | RDKS-100-11656 | RDCS-011-00294 | RDTS-091-00001 | RDRY-701-00812 | 9 |
| 4.6209 - 4.6622 | 117.37 - 118.42 | RDKS-200-11737 | RDKS-100-11737 | RDCS-011-00296 | RDTS-092-00001 | RDRY-701-00812 | 9 |
| 4.6520 - 4.6929 | 118.16 - 119.20 | RDKS-200-11816 | RDKS-100-11816 | RDCS-011-00298 | RDTS-093-00001 | RDRY-701-00812 | 9 |
| 4.6831 - 4.7240 | 118.95 - 119.99 | RDKS-200-11895 | RDKS-100-11895 | RDCS-011-00300 | RDTS-094-00001 | RDRY-701-00812 | 9 |
| 4.7142 - 4.7551 | 119.74 - 120.78 | RDKS-200-11974 | RDKS-100-11974 | RDCS-011-00302 | RDTS-095-00001 | RDRY-701-00812 | 9 |
| 4.7461 - 4.7870 | 120.55 - 121.59 | RDKS-200-12055 | RDKS-100-12055 | RDCS-011-00304 | RDTS-096-00001 | RDRY-701-00812 | 9 |
| 4.7772 - 4.8181 | 121.34 - 122.38 | RDKS-200-12134 | RDKS-100-12134 | RDCS-011-00306 | RDTS-097-00001 | RDRY-701-00812 | 9 |
| 4.8079 - 4.8492 | 122.12 - 123.17 | RDKS-200-12212 | RDKS-100-12212 | RDCS-011-00308 | RDTS-098-00001 | RDRY-701-00812 | 9 |
| 4.8390 - 4.8799 | 122.91 - 123.95 | RDKS-200-12291 | RDKS-100-12291 | RDCS-011-00310 | RDTS-099-00001 | RDRY-701-00812 | 9 |
| 4.8709 - 4.9122 | 123.72 - 124.77 | RDKS-200-12372 | RDKS-100-12372 | RDCS-011-00312 | RDTS-100-00001 | RDRY-701-00812 | 9 |
| 4.9020 - 4.9429 | 124.51 - 125.55 | RDKS-200-12451 | RDKS-100-12451 | RDCS-011-01245 | RDTS-031-01245 | RDRY-701-00812 | 9 |
| 4.9331 - 4.9740 | 125.30 - 126.34 | RDKS-200-12530 | RDKS-100-12530 | RDCS-011-01255 | RDTS-031-01255 | RDRY-701-00812 | 9 |
| 4.9642 - 5.0051 | 126.09 - 127.13 | RDKS-200-12609 | RDKS-100-12609 | RDCS-011-01265 | RDTS-031-01265 | RDRY-701-00812 | 9 |
| 4.9961 - 5.0370 | 126.90 - 127.94 | RDKS-200-12690 | RDKS-100-12690 | RDCS-011-01275 | RDTS-031-01275 | RDRY-701-00812 | 9 |

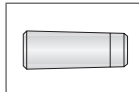
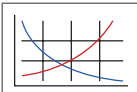
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D: 42 - 45

D: 40 - 41

D: 38

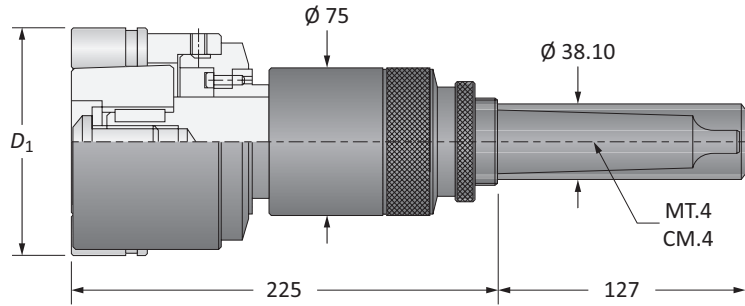
Key on D: 1





Roller Burnishing Tools | Blind Holes

S Series | Diameter Range: 4.0890" - 5.0370" (103.86 mm - 127.94 mm)



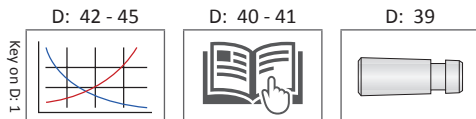
Blind Holes

| D_1 | | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|-----------------|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 4.0890 - 4.1299 | 103.86 - 104.90 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00262 | RSTS-083-0000x | RSRY-708-00687 | 9 |
| 4.1209 - 4.1634 | 104.67 - 105.75 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00264 | RSTS-084-0000x | RSRY-708-00687 | 9 |
| 4.1520 - 4.1929 | 105.46 - 106.50 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00266 | RSTS-085-0000x | RSRY-708-00687 | 9 |
| 4.1831 - 4.2240 | 106.25 - 107.29 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00268 | RSTS-086-0000x | RSRY-708-00687 | 9 |
| 4.2142 - 4.2551 | 107.04 - 108.08 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00270 | RSTS-087-0000x | RSRY-708-00687 | 9 |
| 4.2461 - 4.2870 | 107.85 - 108.89 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00272 | RSTS-088-0000x | RSRY-708-00687 | 9 |
| 4.2772 - 4.3181 | 108.64 - 109.68 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00274 | RSTS-089-0000x | RSRY-708-00687 | 9 |
| 4.3079 - 4.3492 | 109.42 - 110.47 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00276 | RSTS-090-0000x | RSRY-708-00687 | 9 |
| 4.3390 - 4.3799 | 110.21 - 111.25 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00278 | RSTS-083-0000x | RSRY-708-00812 | 9 |
| 4.3709 - 4.4122 | 111.02 - 112.07 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00280 | RSTS-084-0000x | RSRY-708-00812 | 9 |
| 4.4020 - 4.4429 | 111.81 - 112.85 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00282 | RSTS-085-0000x | RSRY-708-00812 | 9 |
| 4.4331 - 4.4740 | 112.60 - 113.64 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00284 | RSTS-086-0000x | RSRY-708-00812 | 9 |
| 4.4622 - 4.5051 | 113.34 - 114.43 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00286 | RSTS-087-0000x | RSRY-708-00812 | 9 |
| 4.4961 - 4.5370 | 114.20 - 115.24 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00288 | RSTS-088-0000x | RSRY-708-00812 | 9 |
| 4.5272 - 4.5681 | 114.99 - 116.03 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00290 | RSTS-089-0000x | RSRY-708-00812 | 9 |
| 4.5579 - 4.5992 | 115.77 - 116.82 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00292 | RSTS-090-0000x | RSRY-708-00812 | 9 |
| 4.5890 - 4.6299 | 116.56 - 117.60 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00294 | RSTS-091-0000x | RSRY-708-00812 | 9 |
| 4.6209 - 4.6622 | 117.37 - 118.42 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00296 | RSTS-092-0000x | RSRY-708-00812 | 9 |
| 4.6520 - 4.6929 | 118.16 - 119.20 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00298 | RSTS-093-0000x | RSRY-708-00812 | 9 |
| 4.6831 - 4.7240 | 118.95 - 119.99 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00300 | RSTS-094-0000x | RSRY-708-00812 | 9 |
| 4.7142 - 4.7551 | 119.74 - 120.78 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00302 | RSTS-095-0000x | RSRY-708-00812 | 9 |
| 4.7461 - 4.7870 | 120.55 - 121.59 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00304 | RSTS-096-0000x | RSRY-708-00812 | 9 |
| 4.7772 - 4.8181 | 121.34 - 122.38 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00306 | RSTS-097-0000x | RSRY-708-00812 | 9 |
| 4.8079 - 4.8492 | 122.12 - 123.17 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00308 | RSTS-098-0000x | RSRY-708-00812 | 9 |
| 4.8390 - 4.8799 | 122.91 - 123.95 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00310 | RSTS-099-0000x | RSRY-708-00812 | 9 |
| 4.8709 - 4.9122 | 123.72 - 124.77 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-00312 | RSTS-100-0000x | RSRY-708-00812 | 9 |
| 4.9020 - 4.9429 | 124.51 - 125.55 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-01245 | RSTS-03x-01245 | RSRY-708-00812 | 9 |
| 4.9331 - 4.9740 | 125.30 - 126.34 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-01255 | RSTS-03x-01255 | RSRY-708-00812 | 9 |
| 4.9642 - 5.0051 | 126.09 - 127.13 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-01265 | RSTS-03x-01265 | RSRY-708-00812 | 9 |
| 4.9961 - 5.0370 | 126.90 - 127.94 | RSKS-200-xxxxx | RSKS-100-xxxxx | RSCS-015-01275 | RSTS-03x-01275 | RSRY-708-00812 | 9 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher \varnothing 120.05 mm with MT.4 shank: RSKS-200-12005).

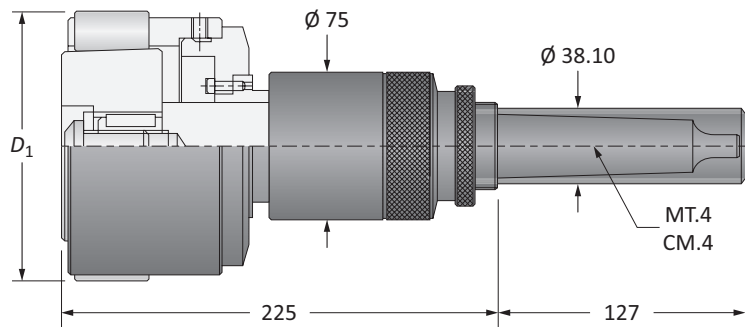
**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



Roller Burnishing Tools | Through Holes

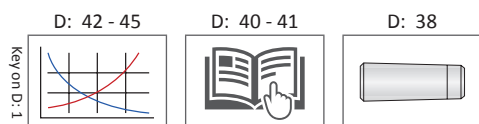
T Series | Diameter Range: 5.0354" - 5.9016" (127.90 mm - 149.90 mm)



Through Holes

| D_1 | | Part No. | | Spare Parts | | | |
|-----------------|-----------------|---------------------------------|------------------------------|----------------|----------------|----------------|-----------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | Qty Rolls |
| 5.0354 - 5.0748 | 127.90 - 128.90 | RDKT-200-12790 | RDKT-100-12790 | RDCT-011-01280 | RDTT-031-01280 | RDRY-701-00812 | 11 |
| 5.0748 - 5.1142 | 128.90 - 129.90 | RDKT-200-12890 | RDKT-100-12890 | RDCT-011-01290 | RDTT-031-01290 | RDRY-701-00812 | 11 |
| 5.1142 - 5.1535 | 129.90 - 130.90 | RDKT-200-12990 | RDKT-100-12990 | RDCT-011-01300 | RDTT-031-01300 | RDRY-701-00812 | 11 |
| 5.1535 - 5.1929 | 130.90 - 131.90 | RDKT-200-13090 | RDKT-100-13090 | RDCT-011-01310 | RDTT-031-01310 | RDRY-701-00812 | 11 |
| 5.1929 - 5.2323 | 131.90 - 132.90 | RDKT-200-13190 | RDKT-100-13190 | RDCT-011-01320 | RDTT-031-01320 | RDRY-701-00812 | 11 |
| 5.2323 - 5.2717 | 132.90 - 133.90 | RDKT-200-13290 | RDKT-100-13290 | RDCT-011-01330 | RDTT-031-01330 | RDRY-701-00812 | 11 |
| 5.2717 - 5.3110 | 133.90 - 134.90 | RDKT-200-13390 | RDKT-100-13390 | RDCT-011-01340 | RDTT-031-01340 | RDRY-701-00812 | 11 |
| 5.3110 - 5.3504 | 134.90 - 135.90 | RDKT-200-13490 | RDKT-100-13490 | RDCT-011-01350 | RDTT-031-01350 | RDRY-701-00812 | 11 |
| 5.3504 - 5.3898 | 135.90 - 136.90 | RDKT-200-13590 | RDKT-100-13590 | RDCT-011-01360 | RDTT-031-01360 | RDRY-701-00812 | 11 |
| 5.3898 - 5.4291 | 136.90 - 137.90 | RDKT-200-13690 | RDKT-100-13690 | RDCT-011-01370 | RDTT-031-01370 | RDRY-701-00812 | 11 |
| 5.4291 - 5.4685 | 137.90 - 138.90 | RDKT-200-13790 | RDKT-100-13790 | RDCT-011-01380 | RDTT-031-01380 | RDRY-701-00812 | 11 |
| 5.4685 - 5.5079 | 138.90 - 139.90 | RDKT-200-13890 | RDKT-100-13890 | RDCT-011-01390 | RDTT-031-01390 | RDRY-701-00812 | 11 |
| 5.5079 - 5.5472 | 139.90 - 140.90 | RDKT-200-13990 | RDKT-100-13990 | RDCT-011-01400 | RDTT-031-01400 | RDRY-701-00812 | 11 |
| 5.5472 - 5.5866 | 140.90 - 141.90 | RDKT-200-14090 | RDKT-100-14090 | RDCT-011-01410 | RDTT-031-01410 | RDRY-701-00812 | 11 |
| 5.5866 - 5.6260 | 141.60 - 142.90 | RDKT-200-14190 | RDKT-100-14190 | RDCT-011-01420 | RDTT-031-01420 | RDRY-701-00812 | 11 |
| 5.6260 - 5.6654 | 142.90 - 143.90 | RDKT-200-14290 | RDKT-100-14290 | RDCT-011-01430 | RDTT-031-01430 | RDRY-701-00812 | 11 |
| 5.6654 - 5.7047 | 143.90 - 144.90 | RDKT-200-14390 | RDKT-100-14390 | RDCT-011-01440 | RDTT-031-01440 | RDRY-701-00812 | 11 |
| 5.7047 - 5.7441 | 144.90 - 145.90 | RDKT-200-14490 | RDKT-100-14490 | RDCT-011-01450 | RDTT-031-01450 | RDRY-701-00812 | 11 |
| 5.7441 - 5.7835 | 145.90 - 146.90 | RDKT-200-14590 | RDKT-100-14590 | RDCT-011-01460 | RDTT-031-01460 | RDRY-701-00812 | 11 |
| 5.7835 - 5.8228 | 146.90 - 147.90 | RDKT-200-14690 | RDKT-100-14690 | RDCT-011-01470 | RDTT-031-01470 | RDRY-701-00812 | 11 |
| 5.8228 - 5.8622 | 147.90 - 148.90 | RDKT-200-14790 | RDKT-100-14790 | RDCT-011-01480 | RDTT-031-01480 | RDRY-701-00812 | 11 |
| 5.8622 - 5.9016 | 148.90 - 149.90 | RDKT-200-14890 | RDKT-100-14890 | RDCT-011-01490 | RDTT-031-01490 | RDRY-701-00812 | 11 |

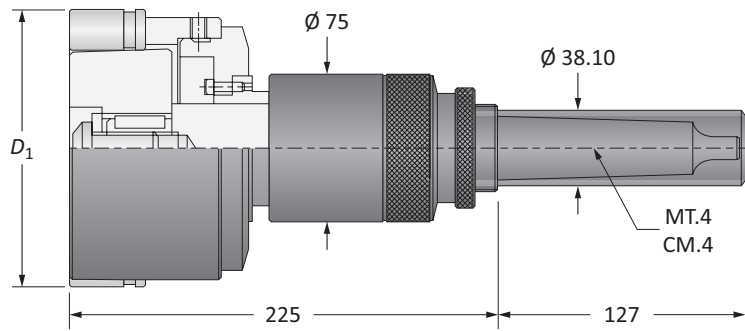
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

T Series | Diameter Range: 5.0354" - 5.9016" (127.90 mm - 149.90 mm)



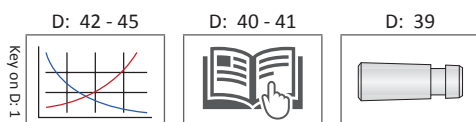
Blind Holes

| D ₁ | | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|-----------------|------------------------------------|---------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 5.0354 - 5.0748 | 127.90 - 128.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01280 | RSTT-0xx-01280 | RSRY-708-00812 | 11 |
| 5.0748 - 5.1142 | 128.90 - 129.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01290 | RSTT-0xx-01290 | RSRY-708-00812 | 11 |
| 5.1142 - 5.1535 | 129.90 - 130.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01300 | RSTT-0xx-01300 | RSRY-708-00812 | 11 |
| 5.1535 - 5.1929 | 130.90 - 131.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01310 | RSTT-0xx-01310 | RSRY-708-00812 | 11 |
| 5.1929 - 5.2323 | 131.90 - 132.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01320 | RSTT-0xx-01320 | RSRY-708-00812 | 11 |
| 5.2323 - 5.2717 | 132.90 - 133.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01330 | RSTT-0xx-01330 | RSRY-708-00812 | 11 |
| 5.2717 - 5.3110 | 133.90 - 134.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01340 | RSTT-0xx-01340 | RSRY-708-00812 | 11 |
| 5.3110 - 5.3504 | 134.90 - 135.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01350 | RSTT-0xx-01350 | RSRY-708-00812 | 11 |
| 5.3504 - 5.3898 | 135.90 - 136.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01360 | RSTT-0xx-01360 | RSRY-708-00812 | 11 |
| 5.3898 - 5.4291 | 136.90 - 137.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01370 | RSTT-0xx-01370 | RSRY-708-00812 | 11 |
| 5.4291 - 5.4685 | 137.90 - 138.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01380 | RSTT-0xx-01380 | RSRY-708-00812 | 11 |
| 5.4685 - 5.5079 | 138.90 - 139.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01390 | RSTT-0xx-01390 | RSRY-708-00812 | 11 |
| 5.5079 - 5.5472 | 139.90 - 140.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01400 | RSTT-0xx-01400 | RSRY-708-00812 | 11 |
| 5.5472 - 5.5866 | 140.90 - 141.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01410 | RSTT-0xx-01410 | RSRY-708-00812 | 11 |
| 5.5866 - 5.6260 | 141.60 - 142.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01420 | RSTT-0xx-01420 | RSRY-708-00812 | 11 |
| 5.6260 - 5.6654 | 142.90 - 143.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01430 | RSTT-0xx-01430 | RSRY-708-00812 | 11 |
| 5.6654 - 5.7047 | 143.90 - 144.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01440 | RSTT-0xx-01440 | RSRY-708-00812 | 11 |
| 5.7047 - 5.7441 | 144.90 - 145.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01450 | RSTT-0xx-01450 | RSRY-708-00812 | 11 |
| 5.7441 - 5.7835 | 145.90 - 146.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01460 | RSTT-0xx-01460 | RSRY-708-00812 | 11 |
| 5.7835 - 5.8228 | 146.90 - 147.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01470 | RSTT-0xx-01470 | RSRY-708-00812 | 11 |
| 5.8228 - 5.8622 | 147.90 - 148.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01480 | RSTT-0xx-01480 | RSRY-708-00812 | 11 |
| 5.8622 - 5.9016 | 148.90 - 149.90 | RSKT-200-xxxxx | RSKT-100-xxxxx | RSCT-015-01490 | RSTT-0xx-01490 | RSRY-708-00812 | 11 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 140.00 mm with straight shank: RSKT-100-14000).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



T
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

U

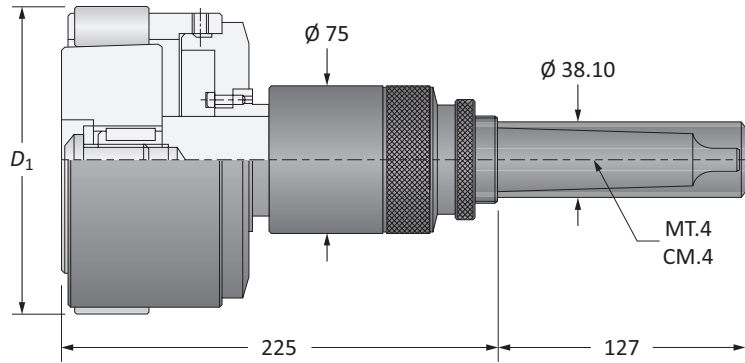

 BURNISHING | S.C.A.M.I.® Roller Burnishing Systems

A

Roller Burnishing Tools | Through Holes

U Series | Diameter Range: 5.9016" - 6.5315" (149.90 mm - 165.90 mm)

DRILLING

B

BORING

Through Holes

| D_1 | | Part No. | | Spare Parts | | | | Qty Rolls |
|-----------------|-----------------|---------------------------------|------------------------------|----------------|----------------|----------------|----|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone | Rolls | | |
| 5.9016 - 5.9409 | 149.90 - 150.90 | RDKU-200-14990 | RDKU-100-14990 | RDCU-011-01500 | RDTU-031-01500 | RDRY-701-00812 | 13 | |
| 5.9409 - 5.9803 | 150.90 - 151.90 | RDKU-200-15090 | RDKU-100-15090 | RDCU-011-01510 | RDTU-031-01510 | RDRY-701-00812 | 13 | |
| 5.9803 - 6.0197 | 151.90 - 152.90 | RDKU-200-15190 | RDKU-100-15190 | RDCU-011-01520 | RDTU-031-01520 | RDRY-701-00812 | 13 | |
| 6.0197 - 6.0591 | 152.90 - 153.90 | RDKU-200-15290 | RDKU-100-15290 | RDCU-011-01530 | RDTU-031-01530 | RDRY-701-00812 | 13 | |
| 6.0591 - 6.0984 | 153.90 - 154.90 | RDKU-200-15390 | RDKU-100-15390 | RDCU-011-01540 | RDTU-031-01540 | RDRY-701-00812 | 13 | |
| 6.0984 - 6.1378 | 154.90 - 155.90 | RDKU-200-15490 | RDKU-100-15490 | RDCU-011-01550 | RDTU-031-01550 | RDRY-701-00812 | 13 | |
| 6.1378 - 6.1772 | 155.90 - 156.90 | RDKU-200-15590 | RDKU-100-15590 | RDCU-011-01560 | RDTU-031-01560 | RDRY-701-00812 | 13 | |
| 6.1772 - 6.2165 | 156.90 - 157.90 | RDKU-200-15690 | RDKU-100-15690 | RDCU-011-01570 | RDTU-031-01570 | RDRY-701-00812 | 13 | |
| 6.2165 - 6.2559 | 157.90 - 158.90 | RDKU-200-15790 | RDKU-100-15790 | RDCU-011-01580 | RDTU-031-01580 | RDRY-701-00812 | 13 | |
| 6.2559 - 6.2953 | 158.90 - 159.90 | RDKU-200-15890 | RDKU-100-15890 | RDCU-011-01590 | RDTU-031-01590 | RDRY-701-00812 | 13 | |
| 6.2953 - 6.3346 | 159.90 - 160.90 | RDKU-200-15990 | RDKU-100-15990 | RDCU-011-01600 | RDTU-031-01600 | RDRY-701-00812 | 13 | |
| 6.3346 - 6.3740 | 160.90 - 161.90 | RDKU-200-16090 | RDKU-100-16090 | RDCU-011-01610 | RDTU-031-01610 | RDRY-701-00812 | 13 | |
| 6.3740 - 6.4134 | 161.90 - 162.90 | RDKU-200-16190 | RDKU-100-16190 | RDCU-011-01620 | RDTU-031-01620 | RDRY-701-00812 | 13 | |
| 6.4134 - 6.4528 | 162.90 - 163.90 | RDKU-200-16290 | RDKU-100-16290 | RDCU-011-01630 | RDTU-031-01630 | RDRY-701-00812 | 13 | |
| 6.4528 - 6.4921 | 163.90 - 164.90 | RDKU-200-16390 | RDKU-100-16390 | RDCU-011-01640 | RDTU-031-01640 | RDRY-701-00812 | 13 | |
| 6.4921 - 6.5315 | 164.90 - 165.90 | RDKU-200-16490 | RDKU-100-16490 | RDCU-011-01650 | RDTU-031-01650 | RDRY-701-00812 | 13 | |

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D

BURNISHING

F

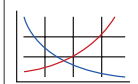
THREADING

X


SPECIALS

Key on D: 1


D: 42 - 45



D: 40 - 41



D: 38



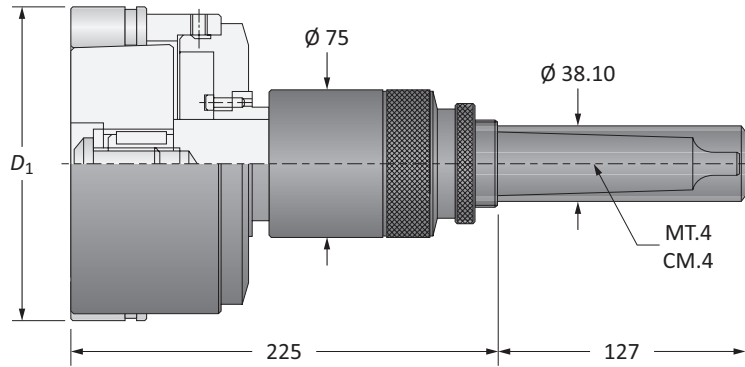
D: 36

www.alliedmachine.com | 1.330.343.4283



Roller Burnishing Tools | Blind Holes

U Series | Diameter Range: 5.9016" - 6.5315" (149.90 mm - 165.90 mm)



Blind Holes

| D_1 | | Part No.* | | Spare Parts | | | Qty Rolls |
|-----------------|-----------------|---------------------------------|------------------------------|----------------|----------------|----------------|--------------|
| Imperial (in) | Metric (mm) | Assembly with Morse Taper Shank | Assembly with Straight Shank | Cage | Cone** | Rolls | |
| 5.9016 - 5.9409 | 149.90 - 150.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01500 | RSTU-0xx-01500 | RSRY-708-00812 | 13 |
| 5.9409 - 5.9803 | 150.90 - 151.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01510 | RSTU-0xx-01510 | RSRY-708-00812 | 13 |
| 5.9803 - 6.0197 | 151.90 - 152.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01520 | RSTU-0xx-01520 | RSRY-708-00812 | 13 |
| 6.0197 - 6.0591 | 152.90 - 153.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01530 | RSTU-0xx-01530 | RSRY-708-00812 | 13 |
| 6.0591 - 6.0984 | 153.90 - 154.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01540 | RSTU-0xx-01540 | RSRY-708-00812 | 13 |
| 6.0984 - 6.1378 | 154.90 - 155.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01550 | RSTU-0xx-01550 | RSRY-708-00812 | 13 |
| 6.1378 - 6.1772 | 155.90 - 156.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01560 | RSTU-0xx-01560 | RSRY-708-00812 | 13 |
| 6.1772 - 6.2165 | 156.90 - 157.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01570 | RSTU-0xx-01570 | RSRY-708-00812 | 13 |
| 6.2165 - 6.2559 | 157.90 - 158.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01580 | RSTU-0xx-01580 | RSRY-708-00812 | 13 |
| 6.2559 - 6.2953 | 158.90 - 159.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01590 | RSTU-0xx-01590 | RSRY-708-00812 | 13 |
| 6.2953 - 6.3346 | 159.90 - 160.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01600 | RSTU-0xx-01600 | RSRY-708-00812 | 13 |
| 6.3346 - 6.3740 | 160.90 - 161.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01610 | RSTU-0xx-01610 | RSRY-708-00812 | 13 |
| 6.3740 - 6.4134 | 161.90 - 162.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01620 | RSTU-0xx-01620 | RSRY-708-00812 | 13 |
| 6.4134 - 6.4528 | 162.90 - 163.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01630 | RSTU-0xx-01630 | RSRY-708-00812 | 13 |
| 6.4528 - 6.4921 | 163.90 - 164.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01640 | RSTU-0xx-01640 | RSRY-708-00812 | 13 |
| 6.4921 - 6.5315 | 164.90 - 165.90 | RSKU-200-xxxxx | RSKU-100-xxxxx | RSCU-015-01650 | RSTU-0xx-01650 | RSRY-708-00812 | 13 |

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 160.00 mm with MT.4 shank: RSKU-200-16000).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D: 42 - 45

D: 40 - 41

D: 39

Key on D: 1

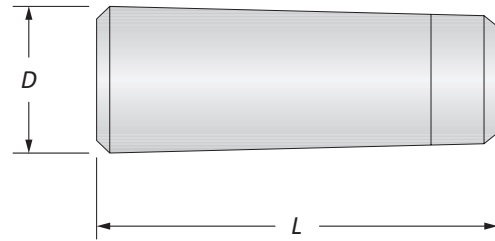
U
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Rolls

Through Holes

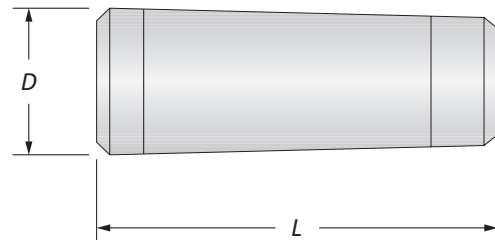
Rolls 704 and 707

| Part No. | Imperial (in) | | Metric (mm) | |
|----------------|---------------|--------|-------------|-------|
| | D | L | D | L |
| RDRY-704-00047 | 0.0465 | 0.2500 | 1.18 | 6.35 |
| RDRY-704-00062 | 0.0618 | 0.2500 | 1.57 | 6.35 |
| RDRY-704-00070 | 0.0697 | 0.3126 | 1.77 | 7.94 |
| RDRY-704-00078 | 0.0776 | 0.3752 | 1.97 | 9.53 |
| RDRY-704-00086 | 0.0854 | 0.3752 | 2.17 | 9.53 |
| RDRY-704-00093 | 0.0929 | 0.3752 | 2.36 | 9.53 |
| RDRY-704-00109 | 0.1083 | 0.5000 | 2.75 | 12.70 |
| RDRY-704-00125 | 0.1244 | 0.5000 | 3.16 | 12.70 |
| RDRY-704-00148 | 0.1472 | 0.5000 | 3.74 | 12.70 |
| RDRY-704-00156 | 0.1555 | 0.5000 | 3.95 | 12.70 |
| RDRY-704-00172 | 0.1709 | 0.6252 | 4.34 | 15.88 |
| RDRY-704-00187 | 0.1858 | 0.8772 | 4.72 | 22.28 |
| RDRY-707-00187 | 0.1870 | 0.5000 | 4.75 | 12.70 |
| RDRY-704-00218 | 0.2173 | 0.5000 | 5.52 | 12.70 |
| RDRY-707-00218 | 0.2173 | 1.0000 | 5.52 | 25.40 |
| RDRY-704-00265 | 0.2638 | 1.1252 | 6.70 | 28.58 |
| RDRY-704-00312 | 0.3110 | 1.5000 | 7.90 | 38.10 |
| RDRY-707-00312 | 0.3118 | 1.1252 | 7.92 | 28.58 |
| RDRY-704-00406 | 0.4047 | 1.5000 | 10.28 | 38.10 |
| RDRY-704-00468 | 0.4669 | 1.5000 | 11.86 | 38.10 |
| RDRY-704-00531 | 0.5299 | 1.5000 | 13.46 | 38.10 |
| RDRY-704-00625 | 0.6240 | 1.5000 | 15.85 | 38.10 |
| RDRY-704-00687 | 0.6858 | 1.5000 | 17.42 | 38.10 |
| RDRY-704-00812 | 0.8110 | 1.5000 | 20.60 | 38.10 |



Rolls 701

| Part No. | Imperial (in) | | Metric (mm) | |
|----------------|---------------|--------|-------------|-------|
| | D | L | D | L |
| RDRY-701-00187 | 0.1831 | 0.8772 | 4.65 | 22.28 |
| RDRY-701-00218 | 0.2138 | 1.0000 | 5.43 | 25.40 |
| RDRY-701-00265 | 0.2610 | 1.1252 | 6.63 | 28.58 |
| RDRY-701-00312 | 0.3039 | 1.5000 | 7.72 | 38.10 |
| RDRY-701-00406 | 0.3980 | 1.5000 | 10.11 | 38.10 |
| RDRY-701-00468 | 0.4598 | 1.5000 | 11.68 | 38.10 |
| RDRY-701-00531 | 0.5228 | 1.5000 | 13.28 | 38.10 |
| RDRY-701-00625 | 0.6169 | 1.5000 | 15.67 | 38.10 |
| RDRY-701-00687 | 0.6799 | 1.5000 | 17.27 | 38.10 |
| RDRY-701-00812 | 0.8039 | 1.5000 | 20.42 | 38.10 |

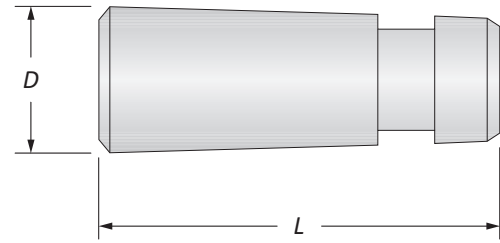


Rolls

Blind Holes

Rolls 708

| Part No. | Imperial (in) | | Metric (mm) | |
|----------------|---------------|----------|-------------|----------|
| | <i>D</i> | <i>L</i> | <i>D</i> | <i>L</i> |
| RSRY-708-00086 | 0.0854 | 0.3752 | 2.17 | 9.53 |
| RSRY-708-00125 | 0.1244 | 0.5000 | 3.16 | 12.70 |
| RSRY-708-00156 | 0.1555 | 0.5000 | 3.95 | 12.70 |
| RSRY-708-00172 | 0.1709 | 0.6252 | 4.35 | 15.88 |
| RSRY-708-00187 | 0.1858 | 0.8772 | 4.72 | 22.28 |
| RSRY-708-00218 | 0.2173 | 0.5000 | 5.52 | 25.40 |
| RSRY-708-00265 | 0.2638 | 1.1252 | 6.70 | 28.58 |
| RSRY-708-00312 | 0.3110 | 1.5000 | 7.90 | 38.10 |
| RSRY-708-00406 | 0.4047 | 1.5000 | 10.29 | 38.10 |
| RSRY-708-00468 | 0.4669 | 1.5000 | 11.86 | 38.10 |
| RSRY-708-00531 | 0.5299 | 1.5000 | 13.46 | 38.10 |
| RSRY-708-00625 | 0.6240 | 1.5000 | 15.85 | 38.10 |
| RSRY-708-00687 | 0.6858 | 1.5000 | 17.42 | 38.10 |
| RSRY-708-00812 | 0.8110 | 1.5000 | 20.60 | 38.10 |



A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

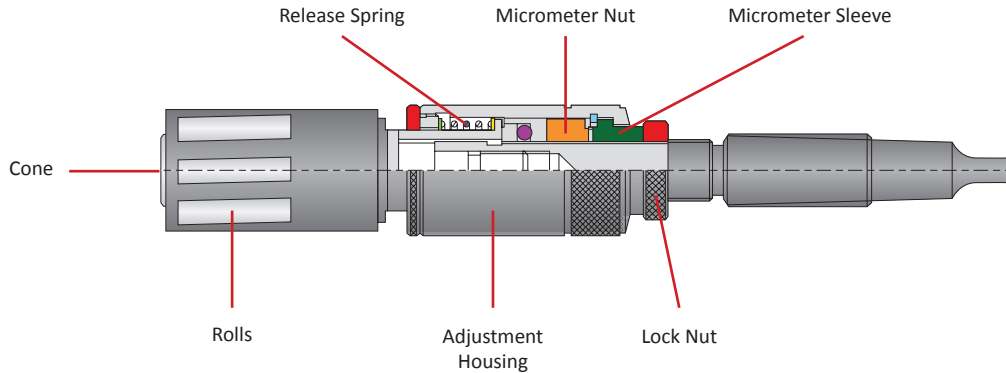
E

THREADING

X

SPECIALS

Diameter Adjustment



Adjustment

The roller burnishing tool incorporates a shank, a body, and a planetary system of conical rolls that are evenly spaced by a retaining cage.

1. Unscrew the lock nut.
2. Pull the housing toward the lock nut and rotate to increase or decrease the diameter.
3. Tighten the lock nut.

IMPORTANT: As you increase the diameter, the cone moves forward, pushing the rolls outward. Because of this, the cone will protrude from the end of the cage, decreasing the clearance available in blind holes (see Figures 1 and 2).

Refer to chart below for clearance values.

Figure 1

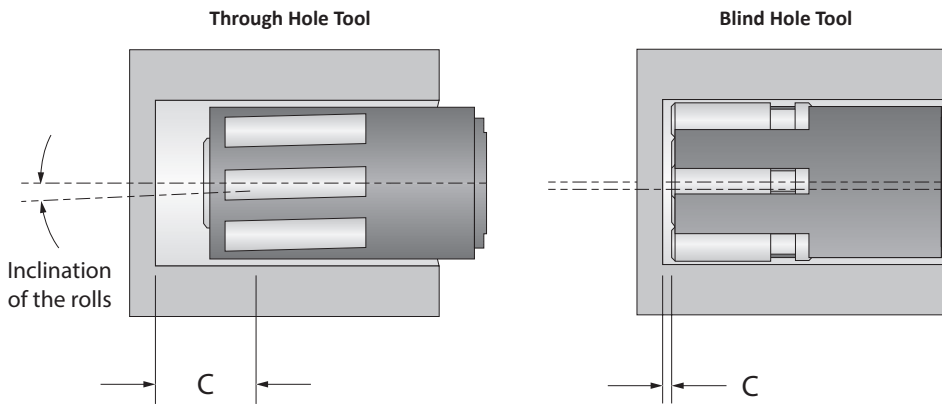


Figure 2

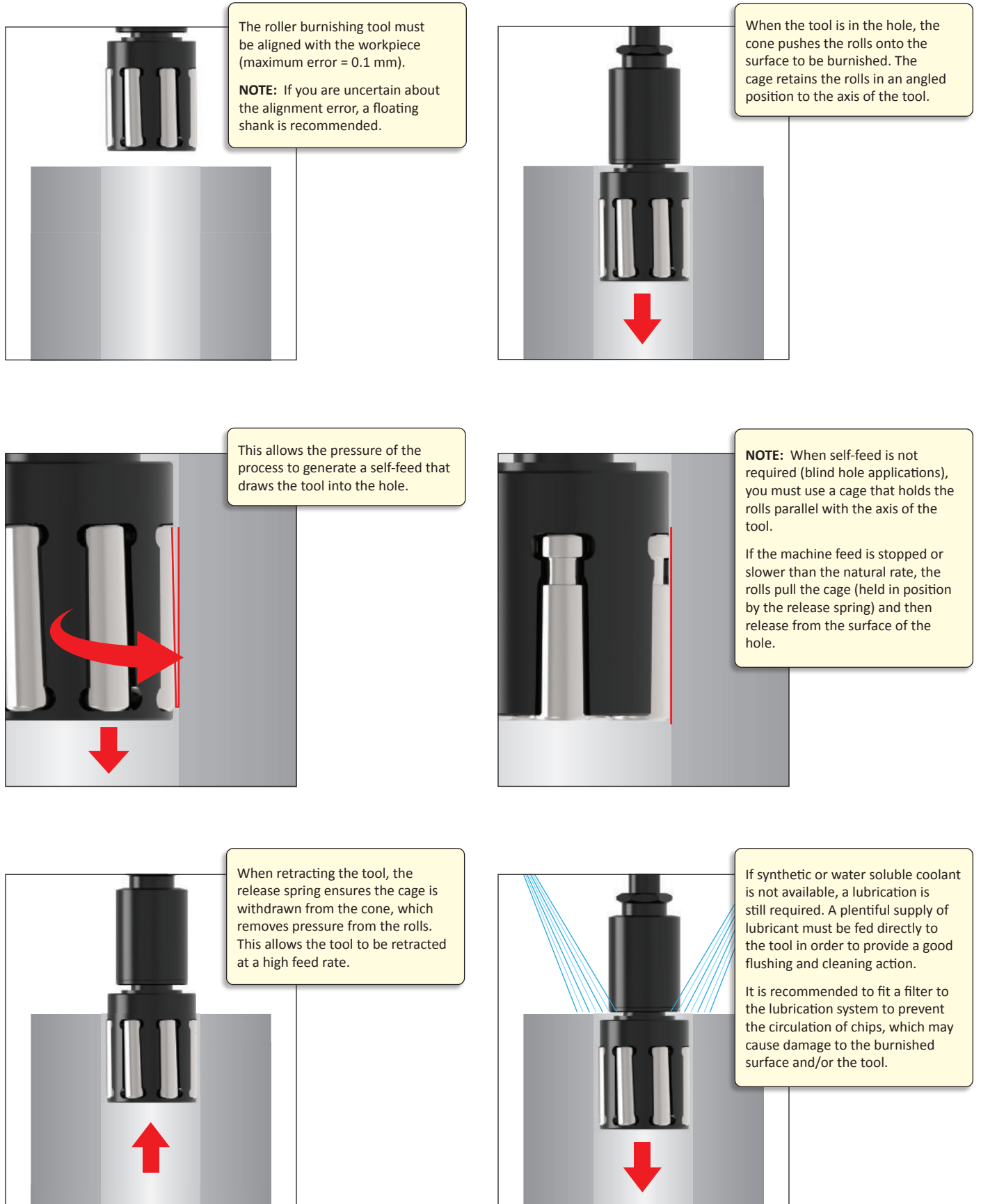


Larger Diameter = Extruded Cone = Decreased Clearance

| Adjustment Range | | Clearance (C) | | |
|------------------|----------------|---------------|-----------------|-------------|
| | | Through Holes | | Blind Holes |
| Imperial (inch) | Metric (mm) | Rolls 701 | Rolls 704 / 707 | Rolls 708 |
| 0.1850 - 0.2315 | 4.70 - 5.88 | – | 2.40 | – |
| 0.2319 - 0.3728 | 5.89 - 9.47 | – | 2.40 | 0.60 |
| 0.3732 - 0.6236 | 9.48 - 15.84 | – | 2.40 | 0.60 |
| 0.6240 - 1.1236 | 15.85 - 28.54 | 5.40 | 3.20 | 1.00 |
| 1.1240 - 1.8385 | 28.55 - 46.70 | 9.50 | 3.20 | 1.00 |
| 1.8390 - 3.3386 | 46.71 - 84.80 | 9.50 | 4.00 | 1.00 |
| 3.3390 - 6.5315 | 84.81 - 165.90 | 10.30 | 4.70 | 1.00 |

How it Works

Roller Burnishing Tools



Recommended Cutting Data | Imperial (inch)

Roller Burnishing

| ISO | Material | Hardness (BHN) | Speed (SFM) | Recommended Feed (IPR) by Burnisher Diameter | | | |
|-----|---|----------------|-------------|--|-------------------|-------------------|-------------------|
| | | | | 0.1850" - 0.4724" | 0.4725" - 0.9843" | 0.9844" - 1.9685" | 1.9686" - 6.5315" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | 180 - 250 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | 180 - 275 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | 180 - 325 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | 180 - 375 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | | | | | | |
| | Structural Steel A36, A285, A516, etc. | 125 - 180 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | 180 - 350 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | 200 - 250 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 50 - 150 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | | | | | | |
| | Titanium Alloy | 140 - 310 | 50 - 150 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | 75 - 200 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | | | | | | |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 75 - 200 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| K | Grey Cast Iron, Ductile Iron, Spheroidal Cast Iron (Pearlitic) | < 200 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | > 200 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | 75 - 300 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| N | Copper and Alloys Brass | < 500 | 150 - 350 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | | | | | | |
| | Bronze Bronze Phosphorous | < 180 | 150 - 350 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |
| | | < 150 | 150 - 350 | 0.005 - 0.020 | 0.014 - 0.037 | 0.032 - 0.086 | 0.070 - 0.121 |

Max RPM

| Series | Max RPM |
|--------|---------|
| H | 2000 |
| I | 1500 |
| K | 1200 |
| L | 1000 |
| F | 1000 |
| M | 900 |
| N | 900 |
| O | 700 |
| P | 600 |
| Q | 500 |
| R | 300 |
| S | 300 |
| T | 250 |
| U | 200 |

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Stock Allowance | Imperial (inch)

Roller Burnishing

| ISO | Material | Hardness (BHN) | Recommended Stock (inch) by Burnisher Diameter* | | | |
|--|--|-----------------|---|-------------------|-------------------|-------------------|
| | | | 0.1850" - 0.4724" | 0.4725" - 0.9843" | 0.9844" - 1.9685" | 1.9686" - 6.5315" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | | 180 - 250 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | | 180 - 275 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | | 180 - 325 | 0.0004 - 0.0007 | 0.0005 - 0.0007 | 0.0005 - 0.0010 | 0.0008 - 0.0014 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | | 180 - 375 | 0.0004 - 0.0007 | 0.0005 - 0.0007 | 0.0005 - 0.0010 | 0.0008 - 0.0014 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | 0.0004 - 0.0007 | 0.0005 - 0.0007 | 0.0005 - 0.0010 | 0.0008 - 0.0014 |
| | Structural Steel A36, A285, A516, etc. | 125 - 180 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | 180 - 350 | 0.0004 - 0.0007 | 0.0005 - 0.0007 | 0.0005 - 0.0010 | 0.0008 - 0.0014 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 | |
| | 200 - 250 | 0.0004 - 0.0007 | 0.0005 - 0.0007 | 0.0005 - 0.0010 | 0.0008 - 0.0014 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 0.0004 - 0.0007 | 0.0005 - 0.0007 | 0.0005 - 0.0010 | 0.0008 - 0.0014 |
| | Titanium Alloy | 140 - 310 | 0.0004 - 0.0007 | 0.0005 - 0.0007 | 0.0005 - 0.0010 | 0.0008 - 0.0014 |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| K | Grey Cast Iron, Ductile Iron, Spheroidal Cast Iron (Pearlitic) | < 200 | 0.0004 - 0.0007 | 0.0005 - 0.0007 | 0.0005 - 0.0010 | 0.0008 - 0.0014 |
| | | > 200 | 0.0004 - 0.0007 | 0.0005 - 0.0007 | 0.0005 - 0.0010 | 0.0008 - 0.0014 |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | 0.0004 - 0.0007 | 0.0005 - 0.0007 | 0.0005 - 0.0010 | 0.0008 - 0.0014 |
| N | Copper and Alloys | < 500 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | Brass | < 180 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | Bronze | < 180 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | Bronze Phosphorous | < 180 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |
| | Aluminum and Alloys | < 150 | 0.0004 - 0.0007 | 0.0007 - 0.0016 | 0.0010 - 0.0018 | 0.0012 - 0.0020 |

*Stock value is on diameter.

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Cutting Data | Metric (mm)

Roller Burnishing

| ISO | Material | Hardness (BHN) | Speed (M/min) | Recommended Feed (mm/rev) by Burnisher Diameter | | | |
|-----|--|----------------|---------------|---|---------------------|---------------------|----------------------|
| | | | | 4.70 mm - 12.00 mm | 12.01 mm - 25.00 mm | 25.01 mm - 50.00 mm | 50.01 mm - 165.90 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | | 180 - 250 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | | 180 - 275 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | | 180 - 325 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | | 180 - 375 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | | | | | | | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 15 - 45 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | Titanium Alloy | 140 - 310 | 15 - 45 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | | | | | | | |
| | | | | | | | |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | 22 - 60 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 22 - 60 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| K | Grey Cast Iron, Ductile Iron, | < 200 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | Spheroidal Cast Iron (Pearlitic) | > 200 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | 22 - 90 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| N | Copper and Alloys | < 500 | 45 - 105 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | Brass | | | | | | |
| | Bronze | < 180 | 45 - 105 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |
| | Bronze Phosphorous | | | | | | |
| | Aluminum and Alloys | < 150 | 45 - 105 | 0.13 - 0.51 | 0.36 - 0.94 | 0.81 - 2.18 | 1.78 - 3.07 |

Max RPM

| Series | Max RPM |
|--------|---------|
| H | 2000 |
| I | 1500 |
| K | 1200 |
| L | 1000 |
| F | 1000 |
| M | 900 |
| N | 900 |
| O | 700 |
| P | 600 |
| Q | 500 |
| R | 300 |
| S | 300 |
| T | 250 |
| U | 200 |

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is also available for specific applications through our Application Engineering department. ext: 7611 | email: appeng@alliedmachine.com

Stock Allowance | Metric (mm)

Roller Burnishing

| ISO | Material | Hardness (BHN) | Recommended Stock (mm) by Burnisher Diameter* | | | |
|-----|--|----------------|---|---------------------|---------------------|----------------------|
| | | | 4.70 mm - 12.00 mm | 12.01 mm - 25.00 mm | 25.01 mm - 50.00 mm | 50.01 mm - 165.90 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 180 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | | 180 - 250 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 180 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | | 180 - 275 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 180 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | | 180 - 325 | 0.010 - 0.018 | 0.012 - 0.018 | 0.012 - 0.025 | 0.020 - 0.036 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 180 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | | 180 - 375 | 0.010 - 0.018 | 0.012 - 0.018 | 0.012 - 0.025 | 0.020 - 0.036 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 240 - 450 | 0.010 - 0.018 | 0.012 - 0.018 | 0.012 - 0.025 | 0.020 - 0.036 |
| | Structural Steel A36, A285, A516, etc. | 125 - 180 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | | 180 - 350 | 0.010 - 0.018 | 0.012 - 0.018 | 0.012 - 0.025 | 0.020 - 0.036 |
| | Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | 200 - 250 | 0.010 - 0.018 | 0.012 - 0.018 | 0.012 - 0.025 | 0.020 - 0.036 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 310 | 0.010 - 0.018 | 0.012 - 0.018 | 0.012 - 0.025 | 0.020 - 0.036 |
| | Titanium Alloy | 140 - 310 | 0.010 - 0.018 | 0.012 - 0.018 | 0.012 - 0.025 | 0.020 - 0.036 |
| M | Stainless Steel 400 Series 416, 420, etc. | 135 - 350 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 275 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| K | Grey Cast Iron, Ductile Iron, Spheroidal Cast Iron (Pearlitic) | < 200 | 0.010 - 0.018 | 0.012 - 0.018 | 0.012 - 0.025 | 0.020 - 0.036 |
| | | > 200 | 0.010 - 0.018 | 0.012 - 0.018 | 0.012 - 0.025 | 0.020 - 0.036 |
| | Spheroidal Cast Iron (Ferritic) | 260 - 320 | 0.010 - 0.018 | 0.012 - 0.018 | 0.012 - 0.025 | 0.020 - 0.036 |
| N | Copper and Alloys | < 500 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | Brass | < 180 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | Bronze | < 180 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | Bronze Phosphorous | < 180 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |
| | Aluminum and Alloys | < 150 | 0.010 - 0.018 | 0.018 - 0.041 | 0.025 - 0.046 | 0.030 - 0.051 |

*Stock value is on diameter.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

SECTION

E

Threading

Threading Solutions

Solid Carbide and Indexable Thread Mills | AccuThread® 856 | ThreadMills USA™



Any Thread, Any Time

Allied Machine's thread milling product line has developed into a comprehensive range of high-precision tooling that offers outstanding productivity with exceptional levels of tool life and thread accuracy. The thread mill range covers both solid carbide and indexable replaceable insert tools with an extensive range of thread forms.

Our thread milling product line has been specifically designed to provide customers with a wide range of options. This is achieved by offering two thread mill ranges within our product lineup: the low cost, general production ThreadMills USA range and the high performance, high productivity AccuThread range.

| | | |
|----------------------------------|---|------------------------------------|
| Online programmer available 24/7 | Solid carbide and indexable insert styles | Large range of thread form options |
|----------------------------------|---|------------------------------------|

Applicable Industries



Aerospace



Agriculture



Automotive



Firearms



General Machining



Medical



Oil & Gas



Renewable Energy



Tool, Mold & Die

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

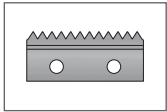
NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

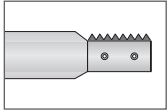
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



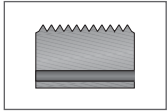
Bolt-in Style Inserts

Refers to the available bolt-in style thread mill insert options



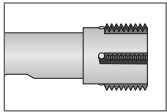
Bolt-in Style Insert Holders

Refers to the range of holder options available for bolt-in style inserts



Pin Style Inserts

Refers to the available pin style thread mill insert options.



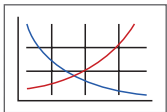
Pin Style Insert Holders

Refers to the range of holder options available for pin style inserts



Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe threading



Coolant-Through Option

Indicates that the product is coolant through

Introduction Information

| | |
|--|-------|
| Thread Mills Overview and Online Tools | 2 - 3 |
|--|-------|

Solid Carbide Thread Mills

| | |
|--|---------|
| Product Overview | 4 |
| Port and Thread Finishing Kits | 5 |
| Product Nomenclature | 6 - 7 |
| BSW Thread Form | 8 - 9 |
| BSPT Thread Form | 10 |
| BSPB Thread Form | 11 |
| NPT Thread Form | 12 - 13 |
| NPTF Thread Form | 14 - 15 |
| NPS Thread Form | 16 |
| NPSF Thread Form | 17 |
| UN Thread Form | 18 - 25 |
| ISO Thread Form | 26 - 29 |
| UN Thread Form (AccuThread T3®) | 30 - 32 |
| ISO Thread Form (AccuThread T3®) | 33 - 34 |

Indexable Thread Mills

| | |
|--|---------|
| Product Overview | 36 |
| Product Nomenclature | 37 |
| <i>Bolt-in Style:</i> | |
| NPT / NPTF Thread Forms | 38 |
| BSPB / BSPB Thread Forms | 39 |
| UN Thread Form | 40 |
| UNJ Thread Form | 41 |
| ISO Thread Form | 42 |
| <i>Holders</i> | |
| <i>Pin Style:</i> | |
| NPT / NPTF / BSPB Thread Forms | 44 |
| BSPB / API-ROUND / ACME Thread Forms | 45 |
| UN Thread Form | 46 - 47 |
| UNJ Thread Form | 48 |
| ISO Thread Form | 49 |
| Holders | 50 - 51 |







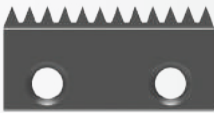

Recommended Cutting Data

| | |
|--|---------|
| Pre-Drill Information, Formulas and Recommended Pass Chart | 52 - 53 |
| Solid Carbide: AccuThread® 856 | 54 - 55 |
| Solid Carbide: ThreadMills USA™ | 56 - 57 |
| Solid Carbide: AccuThread® T3 | 58 - 59 |
| Indexable: AccuThread® 856 | 60 - 63 |
| Programming Guide | 64 - 65 |
| AccuThread® T3 Technical Guide | 66 |
| Troubleshooting Guide | 68 - 69 |

High Performance Threading Solutions

THREAD MILLING DONE *RIGHT*



| Solid Carbide Thread Mills | | Notes |
|--|--|-------|
| AccuThread® 856  | <ul style="list-style-type: none"> • Allied Machine's proprietary AM210® coating yields a 25-50% increase in tool life over competitor products • Standard cutting lengths allow for multiple applications without the need for special thread mills • Helical flute offers increased strength and rigidity when cutting forces are applied | |
| ThreadMills USA™  | <ul style="list-style-type: none"> • Helical flute offers increased strength and rigidity when cutting forces are applied • High quality for consistent, predictable production • Coolant-through options available • TiAlN coating improves tool life versus uncoated tools  | |
| AccuThread® T3  | <ul style="list-style-type: none"> • Allied Machine's proprietary AM210® coating yields a 25-50% increase in tool life over competitor products • Standard cutting lengths allow for multiple applications without the need for special thread mills • Helical flute offers increased strength and rigidity when cutting forces are applied | |
| Indexable Insert Thread Mills | | Notes |
| AccuThread® 856 Bolt-in Style  | <ul style="list-style-type: none"> • Thread mill holders are manufactured from stainless steel that is engineered to dampen vibration during operation • Extensive range of thread forms with two thread lengths • Can produce left- or right-handed threads | |
| AccuThread® 856 Pin Style  | <ul style="list-style-type: none"> • Patented pin style locking system ensures unsurpassed repeatability • Thread mill holders are manufactured from stainless steel that is engineered to dampen vibration during operation • Extensive range of thread forms with two thread lengths | |
| AccuThread® 856 Indexable Inserts   <p style="text-align: center;">Bolt-in Style Pin Style</p> | <ul style="list-style-type: none"> • Full profiles present on all inserts allow 100% thread form against 65-75% for tapping • Allied Machine's premium carbide allows for extended tool life while providing high-quality thread forms • Allied Machine's proprietary AM210® coating yields a 25-50% increase in tool life over competitor products | |

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Online Tools

Insta-Code®

Find your thread mill. Create your program.

The all new software lets you choose the best thread mill product for your application and create the program code for your machine. Insta-Code is available as a PC download app (that can be used offline) and an online web app available 24/7 at www.alliedmachine.com/InstaCode.

Eliminate the wait. Get your program now.



Insta-Code also has a **Cycle Time Calculator**



Online Version



- Generates thread mill G-code programs
- Available online 24/7
- No login required
- No updates needed
- Easily share the program code
- Supported on all web browsers

Download Version



- Creates program code for multiple machine platforms
- Suggests a thread mill based on application details
- Provides estimated cycle time for improved production
- Available for use offline

Offline Version Updates



- Update your offline Insta-Code software
- Download the updated .zip file, then transfer to the offline computer. Click "check for update" in your Insta-Code software and navigate to the downloaded zip file
- This allows you to keep all your saved programs

1

Download and open **Allied_Machine_Insta-Code.zip**

2

Click on **setup.exe** to install the program








3

One click updates are available for online computers


 Supported on all Windows OS

www.alliedmachine.com/InstaCode

Solid Carbide Styles and Thread Forms

| Straight BSW | Helical BSPP, NPS, NPSF, UN, ISO | Taper Helical BSPT, NPT, NPTF | Helical (3-Tooth Style) UN, ISO |
|---|---|--|---|
|  <p>AccuThread® 856</p> |  <p>AccuThread® 856</p> |  <p>AccuThread® 856</p> |  <p>AccuThread® T3</p> |
|  <p>ThreadMills USA™ (coolant and non-coolant)</p> |  <p>ThreadMills USA™ (coolant and non-coolant)</p> |  <p>ThreadMills USA™ (coolant and non-coolant)</p> | |

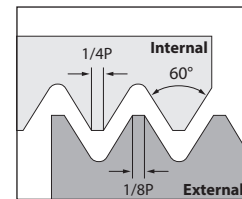
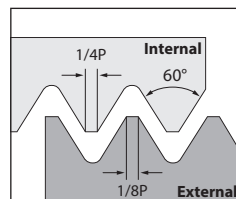
AccuThread® T3



- Left-Hand Cutting**
 The tool continues to climb mill while it moves from top to bottom
 - ▶ Advantage**
 Improves tool life and produces a precise thread form
- AM210® Coating**
 Multilayer PVD coating
 - ▶ Advantage**
 Improves cycle times and tool life
- 3 Cutting Teeth**
 The tool cuts minimal threads at once and reduces side deflection
 - ▶ Advantage**
 Cuts harder materials and produces deeper threads than a standard thread mill

Additional Information

- Available in UN and ISO thread forms
- Available in imperial and metric shanks
- Available in 2xD and 3xD lengths



Port and Thread Finishing Kits



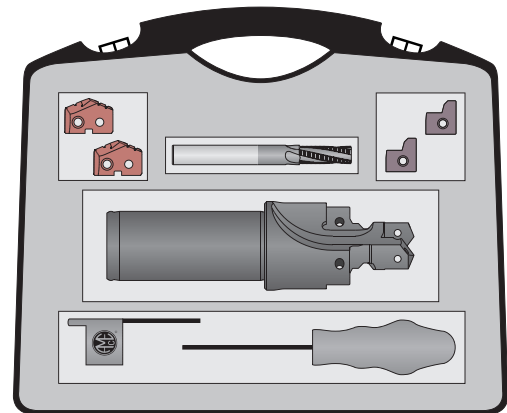
WE HAVE A KIT FOR THAT

Kits aren't for everyone, but if you work on different projects from day to day, you need to ***be prepared for the work tomorrow will bring.***

The Complete Package

Producing fully finished threaded hydraulic ports has never been easier. The Port and Thread Finishing Kit includes the AccuPort 432® port contour cutter with a dedicated AccuThread® 856 solid carbide thread mill in a single kit. You also receive the T-A® inserts and port form inserts needed to complete the assembly.

Port kits incorporate the AccuThread 856 solid carbide thread mills to increase the manufacturing flexibility by allowing hydraulic ports to be produced in just two operations. In addition, where a unique port profile is required, Allied Machine provides a dedicated special tooling solution using our extensive tool design and manufacturing experience to meet precise specifications.



NOTE: See Section A92 of our product catalog for the complete list of Port and Thread Finishing Kits.



One Tool, FOUR Operations

- Spot Face
- Port Contour
- Tap Drill
- Spot Drill



NOTE: See Section A92 of our product catalog for full AccuPort 432 product line information.

Product Nomenclature

AccuThread® 856 Solid Carbide Thread Mills

| | | | | | | |
|-----------|----------|----------|-------------|---|-----------|----------|
| TM | U | K | 0250 | - | 20 | M |
| 1 | 2 | 3 | 4 | | 5 | 6 |



| 1. Thread Mill | 2. Thread Class | 3. Coating | 4. Min Thread Diameter | 5. Thread Pitch | 6. Shank |
|---|--|--|--|---|--|
| TM = Standard HDTM = Heavy duty TW = Weldon flat | U = UN N = NPT, NPTF B = BSPP, BSPT, BSW M = ISO A = AccuPort® specific | K = AM210® U = Uncoated | 0250 = 1/4 (English) 0008 = #8 (Number Drill) 0450 = M4.5 (ISO) | 20 = UN 20 TPI 075 = ISO 0.75 NPT = All pipe threads will show thread form | Blank = Imperial M = Metric |

ThreadMills USA™ Solid Carbide Thread Mills

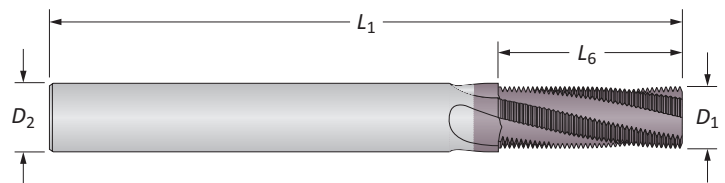
| | | | | |
|-----------|------------|-----------|-----------|----------|
| TM | 250 | 20 | CH | M |
| 1 | 2 | 3 | 4 | 5 |



| 1. Thread Mill | 2. Min Thread Diameter | 3. Thread Pitch | 4. Optional | 5. Shank |
|--|---|---|---|--|
| TM = TiAlN TMFT = Uncoated HDTM = Heavy duty HDTMFT = Heavy duty uncoated | 250 = 1/4 (English) 08 = #8 (Number Drill) 45 = M4.5 (ISO) | 20 = UN 20 TPI 075 = ISO 0.75 NPT = All pipe threads will show thread form | CH = Coolant hole DE = Double end NPT = All pipe threads will show thread form | Blank = Imperial M = Metric |

Reference Key

| Symbol | Attribute |
|--------|-------------------------|
| D_1 | Maximum cutter diameter |
| D_2 | Shank diameter |
| L_1 | Overall length |
| L_6 | Length of cut |





Product Nomenclature

AccuThread® T3 Solid Carbide Thread Mills

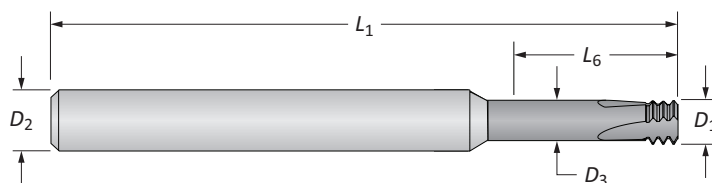
| | | | | | | |
|-----------|------------|-----------|----------|---|-----------|-----------|
| TM | 073 | 64 | M | - | 3T | 2X |
| 1 | 2 | 3 | 4 | | 5 | 6 |



| 1. Thread Mill | 2. Min Thread Diameter | 3. Pitch | 4. Shank | 5. Style | 6. Depth to Diameter Ratio |
|----------------|---|----------------------------------|--------------------------------|--------------|----------------------------|
| TM = Standard | 250 = 1/4 (English) 45 = M4.5 (Metric) | 20 = UN 20 TPI 075 = ISO 0.75 | Blank = Imperial M = Metric | 3T = 3 tooth | 2X = 2xD 3X = 3xD |

Reference Key

| Symbol | Attribute |
|--------|-------------------------|
| D_1 | Maximum cutter diameter |
| D_2 | Shank diameter |
| D_3 | Undercut diameter |
| L_1 | Overall length |
| L_6 | Length of cut |



A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

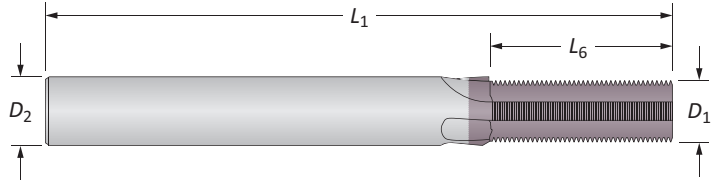
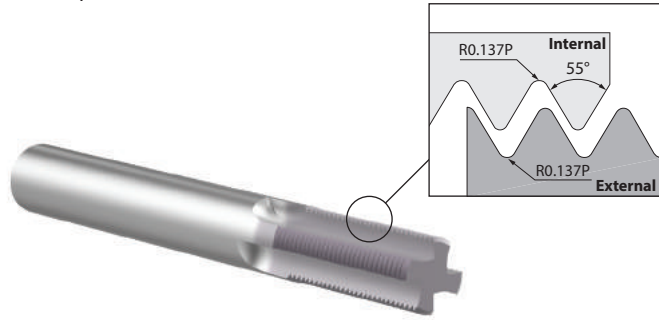
THREADING

X

SPECIALS

Solid Carbide Thread Mills

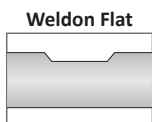
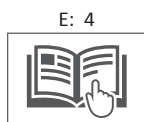
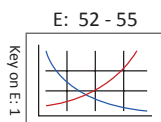
BSW | Noncoolant



BSW | Noncoolant

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. | |
|-------------|--------------|--------|-------------|-------|-------|-------|------------------|---------------------|
| | | | D_1 | D_2 | L_6 | L_1 | ThreadMills USA™ | AccuThread® 856 |
| 20 | 1/4 | 3 | 0.177 | 0.250 | 0.400 | 2.500 | TM20BSW | - |
| 18 | 5/16 | 3 | 0.197 | 0.250 | 0.445 | 2.500 | TM18BSW | - |
| 16 | 3/8 | 5 | 0.276 | 0.312 | 0.563 | 3.000 | TM16BSW | - |
| 14 | 7/16 | 5 | 0.311 | 0.312 | 0.715 | 3.000 | TM14BSW | - |
| i 12 | 1/2 | 5 | 0.354 | 0.375 | 0.750 | 3.500 | TM12BSW | - |
| 11 | 5/8 | 5 | 0.468 | 0.500 | 0.910 | 3.500 | TM11BSW | - |
| 10 | 3/4 | 5 | 0.468 | 0.500 | 1.100 | 3.500 | TM10BSW | - |
| 9 | 7/8 | 6 | 0.620 | 0.625 | 1.112 | 4.000 | TM9BSW | - |
| 8 | 1 | 6 | 0.620 | 0.625 | 1.375 | 4.000 | TM8BSW | - |
| 20 | 1/4 | 3 | 4.50 | 6.00 | 10.16 | 58.00 | TM20BSWM | TMBK0250-20M |
| 18 | 5/16 | 3 | 5.00 | 6.00 | 11.29 | 58.00 | TM18BSWM | TMBK0312-18M |
| 16 | 3/8 | 5 | 7.00 | 8.00 | 14.29 | 64.00 | TM16BSWM | TMBK0375-16M |
| 14 | 7/16 | 5 | 7.90 | 8.00 | 18.15 | 64.00 | TM14BSWM | TMBK0437-14M |
| m 12 | 1/2 | 5 | 9.00 | 10.00 | 19.10 | 73.00 | TM12BSWM | TMBK0500-12M |
| 11 | 5/8 | 5 | 11.90 | 12.00 | 23.10 | 84.00 | TM11BSWM | TMBK0625-11M |
| 10 | 3/4 | 5 | 11.90 | 12.00 | 27.94 | 84.00 | TM10BSWM | TMBK0750-10M |
| 9 | 7/8 | 6 | 15.90 | 16.00 | 28.23 | 93.00 | TM9BSWM | TMBK0875-9M |
| 8 | 1 | 6 | 15.90 | 16.00 | 34.94 | 93.00 | TM8BSWM | TMBK1000-8M |

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



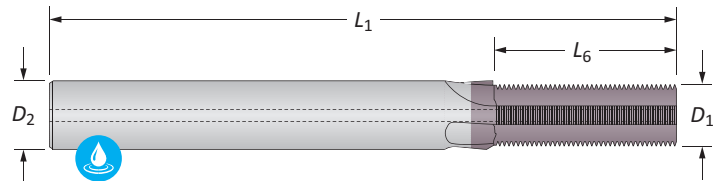
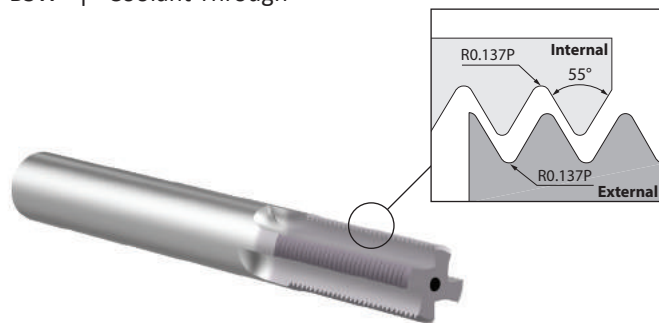
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TWN**K0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
m = Metric (mm)



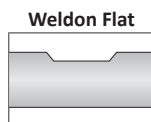
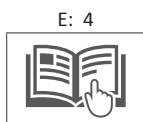
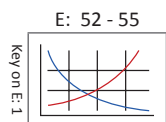
Solid Carbide Thread Mills

BSW | Coolant Through



BSW | Coolant Through

| | TPI (Pitch) | Min Thread \varnothing | Flutes | Thread Mill | | | | Part No. |
|---|----------------|-----------------------------|--------|-------------|-------|-------|-----------|------------------|
| | | | | D_1 | D_2 | L_6 | L_1 | ThreadMills USA™ |
| i | 20 | 1/4 | 3 | 0.177 | 0.250 | 0.400 | 2.375 | TM20BSWCH |
| | 18 | 5/16 | 3 | 0.197 | 0.250 | 0.445 | 2.375 | TM18BSWCH |
| | 16 | 3/8 | 5 | 0.276 | 0.312 | 0.563 | 3.000 | TM16BSWCH |
| | 14 | 7/16 | 5 | 0.311 | 0.312 | 0.715 | 3.000 | TM14BSWCH |
| | 12 | 1/2 | 5 | 0.354 | 0.375 | 0.750 | 3.000 | TM12BSWCH |
| | 11 | 5/8 | 5 | 0.468 | 0.500 | 0.910 | 3.500 | TM11BSWCH |
| | 10 | 3/4 | 5 | 0.468 | 0.500 | 1.100 | 3.500 | TM10BSWCH |
| | 9 | 7/8 | 6 | 0.620 | 0.625 | 1.112 | 4.000 | TM9BSWCH |
| | 8 | 1 | 6 | 0.620 | 0.625 | 1.375 | 4.000 | TM8BSWCH |
| m | 20 | 1/4 | 3 | 4.50 | 6.00 | 10.16 | 58.00 | TM20BSWCHM |
| | 18 | 5/16 | 3 | 5.00 | 6.00 | 11.29 | 58.00 | TM18BSWCHM |
| | 16 | 3/8 | 5 | 7.00 | 8.00 | 14.29 | 64.00 | TM16BSWCHM |
| | 14 | 7/16 | 5 | 7.90 | 8.00 | 18.15 | 64.00 | TM14BSWCHM |
| | 12 | 1/2 | 5 | 9.00 | 10.00 | 19.10 | 84.00 | TM12BSWCHM |
| | 11 | 5/8 | 5 | 11.90 | 12.00 | 23.10 | 84.00 | TM11BSWCHM |
| | 10 | 3/4 | 5 | 11.90 | 12.00 | 27.94 | 84.00 | TM10BSWCHM |
| | 9 | 7/8 | 6 | 15.90 | 16.00 | 28.23 | 93.00 | TM9BSWCHM |
| | 8 | 1 | 15.90 | 16.00 | 34.94 | 93.00 | TM8BSWCHM | |



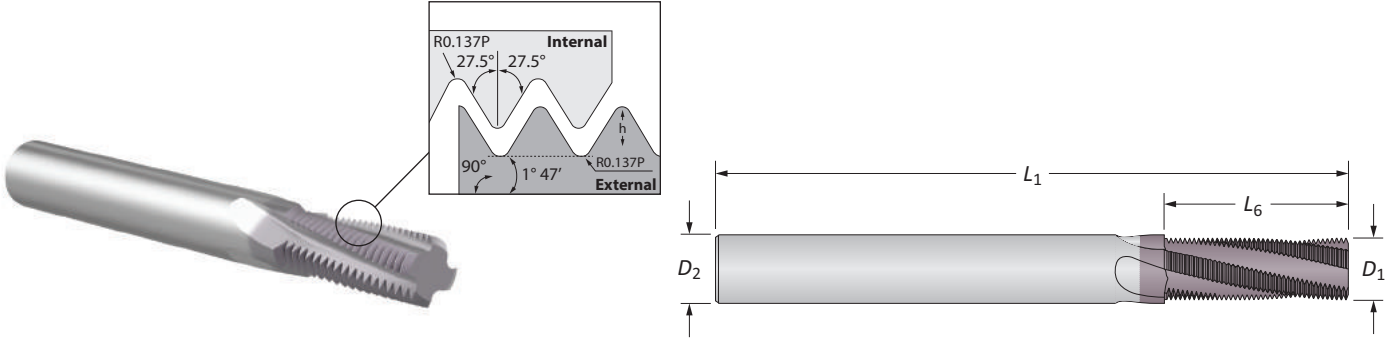
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
 m = Metric (mm)

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

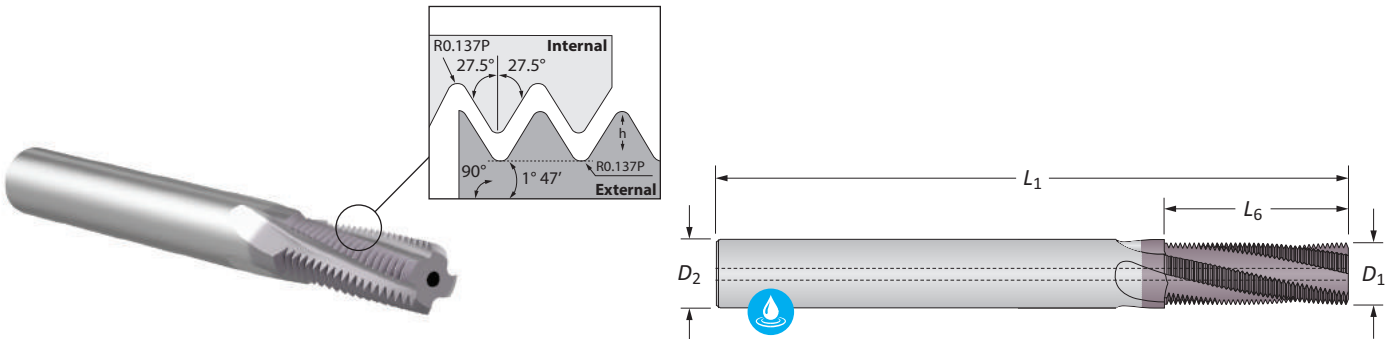
Solid Carbide Thread Mills

BSPT



BSPT | Noncoolant

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. | | |
|-------------|--------------|--------------|-------------|-------|-------|-------|------------------|-----------------|----------------|
| | | | D_1 | D_2 | L_6 | L_1 | ThreadMills USA™ | AccuThread® 856 | |
| i | 28 | 1/16 and 1/8 | 3 | 0.240 | 0.250 | 0.393 | 2.500 | TM28BSPT | - |
| | 19 | 1/4 and 3/8 | 4 | 0.310 | 0.312 | 0.580 | 3.000 | TM19BSPT | - |
| | 14 | 1/2 and 3/4 | 4 | 0.470 | 0.500 | 0.787 | 3.500 | TM14BSPT | - |
| | 11 | 1 | 4 | 0.620 | 0.625 | 1.546 | 4.000 | TM11BSPT | - |
| m | 28 | 1/16 and 1/8 | 3 | 5.97 | 6.00 | 9.98 | 58.00 | TM28BSPTM | TMBK0063-BSPTM |
| | 19 | 1/4 and 3/8 | 4 | 9.91 | 10.00 | 14.73 | 73.00 | TM19BSPTM | TMBK0250-BSPTM |
| | 14 | 1/2 and 3/4 | 4 | 11.94 | 12.00 | 20.00 | 84.00 | TM14BSPTM | TMBK0500-BSPTM |
| | 11 | 1 | 4 | 15.75 | 16.00 | 32.31 | 93.00 | TM11BSPTM | TMBK1000-BSPTM |



BSPT | Coolant Through

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. | |
|-------------|--------------|--------------|-------------|-------|-------|-------|------------------|-------------|
| | | | D_1 | D_2 | L_6 | L_1 | ThreadMills USA™ | |
| i | 28 | 1/16 and 1/8 | 3 | 0.240 | 0.250 | 0.393 | 2.375 | TM28BSPTCH |
| | 19 | 1/4 and 3/8 | 4 | 0.310 | 0.312 | 0.580 | 3.000 | TM19BSPTCH |
| | 14 | 1/2 and 3/4 | 4 | 0.470 | 0.500 | 0.787 | 3.500 | TM14BSPTCH |
| | 11 | 1 | 4 | 0.620 | 0.625 | 1.546 | 4.000 | TM11BSPTCH |
| m | 28 | 1/16 and 1/8 | 3 | 5.97 | 6.00 | 9.98 | 58.00 | TM28BSPTCHM |
| | 19 | 1/4 and 3/8 | 4 | 9.91 | 10.00 | 14.73 | 84.00 | TM19BSPTCHM |
| | 14 | 1/2 and 3/4 | 4 | 11.94 | 12.00 | 20.00 | 84.00 | TM14BSPTCHM |
| | 11 | 1 | 4 | 15.75 | 16.00 | 32.31 | 93.00 | TM11BSPTCHM |

E: 52 - 55 E: 4 Weldon Flat

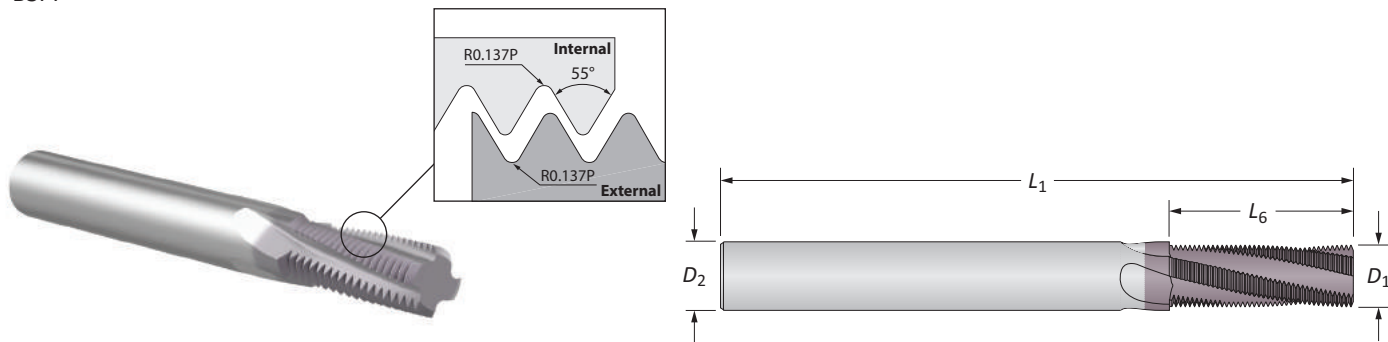
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TW**NK0500-NPT | Weldon shank flat = **TWN**K0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
 m = Metric (mm)



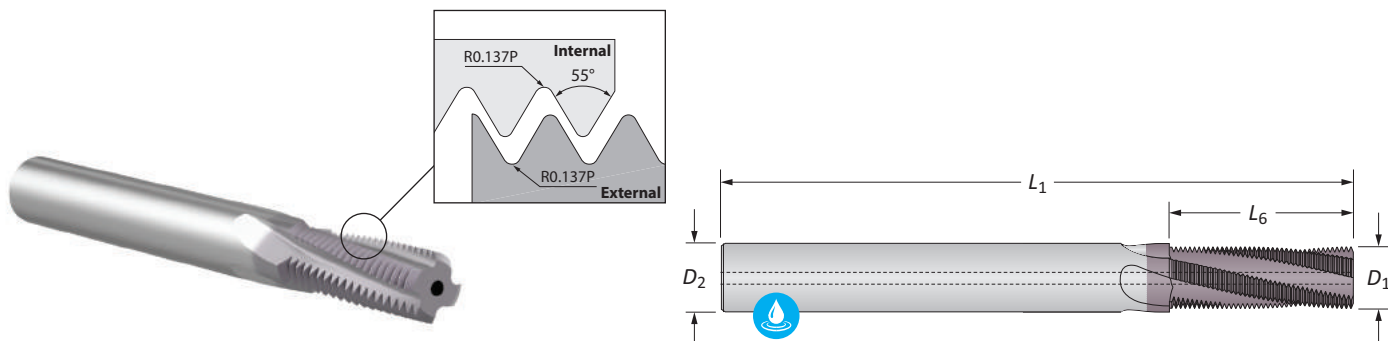
Solid Carbide Thread Mills

BSPB



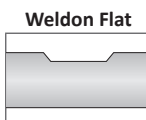
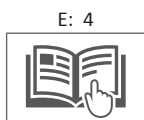
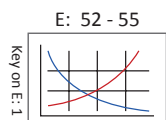
BSPB | Noncoolant

| | TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. | |
|---|-------------|--------------|--------|----------------|----------------|----------------|----------------|------------------|-----------------|
| | | | | D ₁ | D ₂ | L ₆ | L ₁ | ThreadMills USA™ | AccuThread® 856 |
| i | 28 | 1/16 and 1/8 | 3 | 0.240 | 0.250 | 0.572 | 2.500 | TM28BSPP | - |
| | 19 | 1/4 and 3/8 | 4 | 0.310 | 0.312 | 0.737 | 3.000 | TM19BSPP | - |
| | 14 | 1/2 and 3/4 | 4 | 0.470 | 0.500 | 1.143 | 3.500 | TM14BSPP | - |
| | 11 | 1 | 4 | 0.620 | 0.625 | 1.365 | 4.000 | TM11BSPP | - |
| m | 28 | 1/16 and 1/8 | 3 | 5.97 | 6.00 | 14.53 | 58.00 | TM28BSPPM | TMBK0063-BSPPM |
| | 19 | 1/4 and 3/8 | 4 | 9.91 | 10.00 | 18.72 | 73.00 | TM19BSPPM | TMBK0250-BSPPM |
| | 19 | 3/8 | 4 | 11.94 | 12.00 | 28.41 | 84.00 | HDTM19BSPPM | - |
| | 14 | 1/2 and 3/4 | 4 | 11.94 | 12.00 | 29.03 | 84.00 | TM14BSPPM | TMBK0500-BSPPM |
| | 14 | 3/4 | 5 | 15.75 | 16.00 | 34.47 | 93.00 | HDTM14BSPPM | - |
| | 11 | 1 | 4 | 15.75 | 16.00 | 34.67 | 93.00 | TM11BSPPM | TMBK1000-BSPPM |



BSPB | Coolant Through

| | TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. |
|---|-------------|--------------|--------|----------------|----------------|----------------|----------------|------------------|
| | | | | D ₁ | D ₂ | L ₆ | L ₁ | ThreadMills USA™ |
| i | 28 | 1/16 and 1/8 | 3 | 0.240 | 0.250 | 0.572 | 2.375 | TM28BSPPCH |
| | 19 | 1/4 and 3/8 | 4 | 0.310 | 0.312 | 0.737 | 3.000 | TM19BSPPCH |
| | 14 | 1/2 and 3/4 | 4 | 0.470 | 0.500 | 1.143 | 3.500 | TM14BSPPCH |
| | 11 | 1 | 4 | 0.620 | 0.625 | 1.365 | 4.000 | TM11BSPPCH |
| m | 28 | 1/16 and 1/8 | 3 | 5.97 | 6.00 | 14.53 | 58.00 | TM28BSPPCHM |
| | 19 | 1/4 and 3/8 | 4 | 9.91 | 10.00 | 18.72 | 84.00 | TM19BSPPCHM |
| | 14 | 1/2 and 3/4 | 4 | 11.94 | 12.00 | 29.03 | 84.00 | TM14BSPPCHM |
| | 11 | 1 | 4 | 15.75 | 16.00 | 34.67 | 93.00 | TM11BSPPCHM |

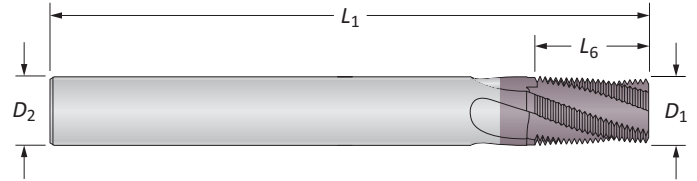
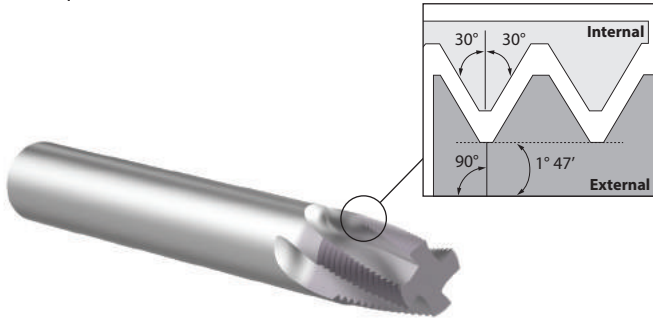


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
 m = Metric (mm)

Solid Carbide Thread Mills

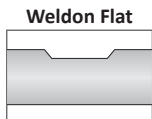
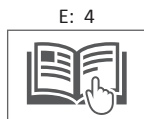
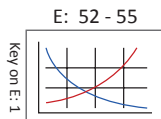
NPT | Noncoolant



NPT | Noncoolant

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. | |
|-------------|--------------|--------|----------------|----------------|----------------|----------------|------------------|-----------------|
| | | | D ₁ | D ₂ | L ₆ | L ₁ | ThreadMills USA™ | AccuThread® 856 |
| 27 | 1/16 and 1/8 | 3 | 0.245 | 0.250 | 0.437 | 2.500 | TM27NPT | TMNK0063-NPT |
| | 1/8 | 4 | 0.300 | 0.312 | 0.482 | 3.000 | HDTM27NPT | HDTMNK0125-NPT |
| 18 | 1/4 and 3/8 | 4 | 0.305 | 0.312 | 0.625 | 3.000 | TM18NPT | TMNK0250-NPT |
| | 1/4 and 3/8 | 4 | 0.363 | 0.375 | 0.680 | 3.500 | HDTM18NPT | HDTMNK0250-NPT |
| 14 | 1/2 and 3/4 | 4 | 0.495 | 0.500 | 0.875 | 3.500 | TM14NPT | TMNK0500-NPT |
| | 3/4 | 4 | 0.620 | 0.625 | 1.000 | 4.000 | HDTM14NPT | HDTMNK0750-NPT |
| 11.5 | 1 | 4 | 0.620 | 0.625 | 1.125 | 4.000 | TM11NPT | TMNK1000-NPT |
| 11.5 | 1 | 5 | 0.745 | 0.750 | 1.219 | 4.000 | HDTM11NPT | HDTMNK1000-NPT |
| 8 | 2-1/2 | 4 | 0.745 | 0.750 | 1.500 | 5.000 | TM8NPT | TMNK2500-NPT |
| 27 | 1/16 and 1/8 | 3 | 5.95 | 6.00 | 11.30 | 58.00 | TM27NPTM | TMNK0063-NPTM |
| 27 | 1/8 | 4 | 7.62 | 8.00 | 12.25 | 64.00 | HDTM27NPTM | - |
| 18 | 1/4 and 3/8 | 4 | 7.75 | 8.00 | 15.70 | 64.00 | TM18NPTM | TMNK0250-NPTM |
| | 1/4 and 3/8 | 4 | 9.22 | 10.00 | 17.25 | 84.00 | HDTM18NPTM | - |
| 14 | 1/2 and 3/4 | 4 | 11.95 | 12.00 | 23.70 | 84.00 | TM14NPTM | TMNK0500-NPTM |
| | 3/4 | 4 | 15.75 | 16.00 | 25.40 | 93.00 | HDTM14NPTM | - |
| 11.5 | 1 | 4 | 15.75 | 16.00 | 28.75 | 93.00 | TM11NPTM | TMNK1000-NPTM |
| 11.5 | 1 | 5 | 18.92 | 20.00 | 30.95 | 105.00 | HDTM11NPTM | - |
| 8 | 2-1/2 | 5 | 19.75 | 20.00 | 38.10 | 115.00 | TM8NPTM | TMNK2500-NPTM |

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



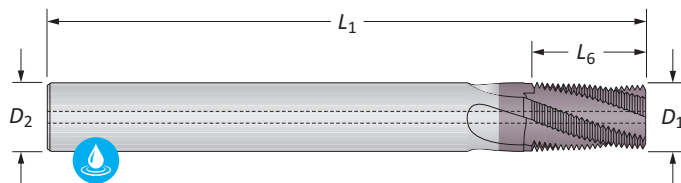
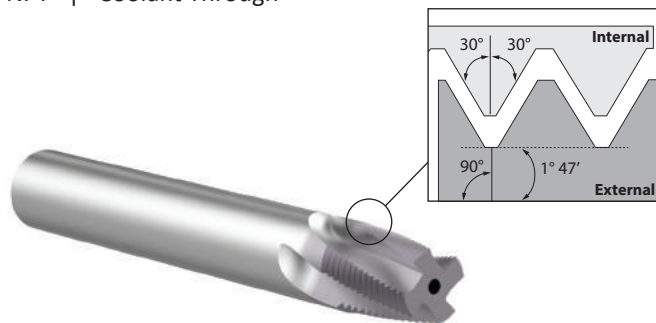
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TWNK**0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
m = Metric (mm)



Solid Carbide Thread Mills

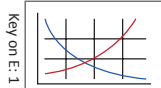
NPT | Coolant Through



NPT | Coolant Through

| | TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. |
|---|-------------|--------------|--------|----------------|----------------|----------------|----------------|------------------|
| | | | | D ₁ | D ₂ | L ₆ | L ₁ | ThreadMills USA™ |
| i | 27 | 1/16 and 1/8 | 3 | 0.245 | 0.250 | 0.437 | 2.375 | TM27NPTCH |
| | 27 | 1/8 | 4 | 0.300 | 0.312 | 0.482 | 3.000 | HDTM27NPTCH |
| | 18 | 1/4 and 3/8 | 4 | 0.305 | 0.312 | 0.625 | 3.000 | TM18NPTCH |
| | 18 | 1/4 and 3/8 | 4 | 0.363 | 0.375 | 0.680 | 3.000 | HDTM18NPTCH |
| | 14 | 1/2 and 3/4 | 4 | 0.495 | 0.500 | 0.875 | 3.500 | TM14NPTCH |
| | 14 | 3/4 | 4 | 0.620 | 0.625 | 1.000 | 4.000 | HDTM14NPTCH |
| | 11.5 | 1 | 4 | 0.620 | 0.625 | 1.125 | 4.000 | TM11NPTCH |
| | 11 | 1 | 5 | 0.745 | 0.750 | 1.219 | 4.000 | HDTM11NPTCH |
| | 8 | 2-1/2 | 4 | 0.745 | 0.750 | 1.500 | 5.000 | TM8NPTCH |
| m | 27 | 1/16 and 1/8 | 3 | 5.95 | 6.00 | 11.30 | 58.00 | TM27NPTCHM |
| | 27 | 1/8 | 4 | 7.62 | 8.00 | 12.25 | 64.00 | HDTM27NPTCHM |
| | 18 | 1/4 and 3/8 | 4 | 7.75 | 8.00 | 15.70 | 64.00 | TM18NPTCHM |
| | 18 | 1/4 and 3/8 | 4 | 9.22 | 10.00 | 17.25 | 84.00 | HDTM18NPTCHM |
| | 14 | 1/2 and 3/4 | 4 | 11.95 | 12.00 | 23.70 | 84.00 | TM14NPTCHM |
| | 14 | 3/4 | 4 | 15.75 | 16.00 | 25.40 | 93.00 | HDTM14NPTCHM |
| | 11.5 | 1 | 4 | 15.75 | 16.00 | 28.75 | 93.00 | TM11NPTCHM |
| | 11.5 | 1 | 5 | 18.92 | 20.00 | 30.95 | 105.00 | HDTM11NPTCHM |
| | 8 | 2-1/2 | 5 | 19.75 | 20.00 | 38.10 | 115.00 | TM8NPTCHM |

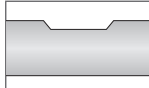
E: 52 - 55



E: 4



Weldon Flat

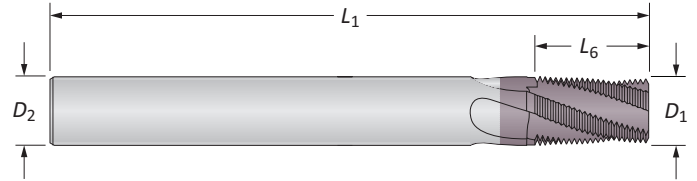
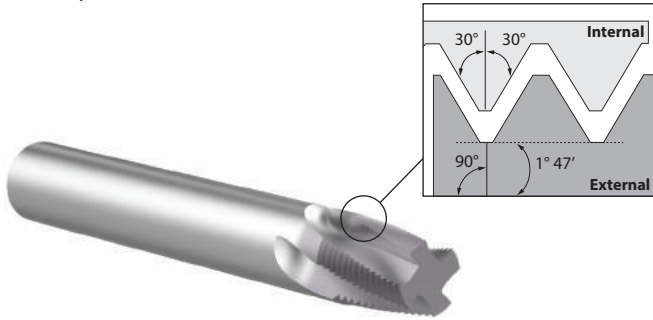


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
 m = Metric (mm)

Solid Carbide Thread Mills

NPTF | Noncoolant



NPTF | Noncoolant

| | TPI (Pitch) | Min Thread ϕ | Flutes | Thread Mill | | | | Part No. | |
|---|-------------|-------------------|--------|-------------|-------|-------|--------|------------------|-----------------|
| | | | | D_1 | D_2 | L_6 | L_1 | ThreadMills USA™ | AccuThread® 856 |
| i | 27 | 1/16 and 1/8 | 3 | 0.245 | 0.250 | 0.437 | 2.500 | TM27NPTF | TMNK0063-NPTF |
| | 18 | 1/4 and 3/8 | 4 | 0.305 | 0.312 | 0.625 | 3.000 | TM18NPTF | TMNK0250-NPTF |
| | 14 | 1/2 and 3/4 | 4 | 0.495 | 0.500 | 0.875 | 3.500 | TM14NPTF | TMNK0500-NPTF |
| | 11.5 | 1 | 4 | 0.620 | 0.625 | 1.125 | 4.000 | TM11NPTF | TMNK1000-NPTF |
| | 8 | 2-1/2 | 4 | 0.745 | 0.750 | 1.500 | 5.000 | TM8NPTF | TMNK2500-NPTF |
| m | 27 | 1/16 and 1/8 | 3 | 5.95 | 6.00 | 11.30 | 58.00 | TM27NPTFM | TMNK0063-NPTFM |
| | 18 | 1/4 and 3/8 | 4 | 7.75 | 8.00 | 15.70 | 64.00 | TM18NPTFM | TMNK0250-NPTFM |
| | 14 | 1/2 and 3/4 | 4 | 11.95 | 12.00 | 23.70 | 84.00 | TM14NPTFM | TMNK0500-NPTFM |
| | 11.5 | 1 | 4 | 15.75 | 16.00 | 28.75 | 93.00 | TM11NPTFM | TMNK1000-NPTFM |
| | 8 | 2-1/2 | 5 | 19.75 | 20.00 | 38.10 | 115.00 | TM8NPTFM | TMNK2500-NPTFM |

D BURNISHING

F THREADING

X SPECIALS

E: 52 - 55

E: 4

Weldon Flat

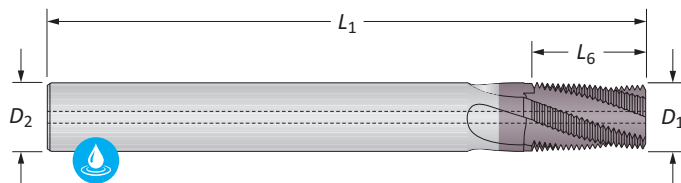
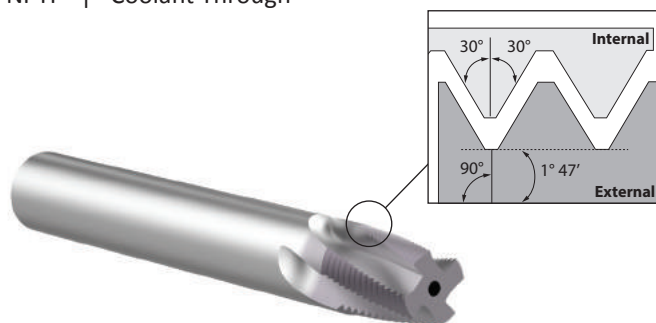
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TMNK0500-NPT** | Weldon shank flat = **TWKNK0500-NPT**
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
 m = Metric (mm)



Solid Carbide Thread Mills

NPTF | Coolant Through



NPTF | Coolant Through

| | TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. |
|---|-------------|--------------|--------|-------------|-------|-------|--------|--------------------|
| | | | | D_1 | D_2 | L_6 | L_1 | ThreadMills USA™ |
| i | 27 | 1/16 and 1/8 | 3 | 0.245 | 0.250 | 0.437 | 2.375 | TM27NPTFCH |
| | 18 | 1/4 and 3/8 | 4 | 0.305 | 0.312 | 0.625 | 3.000 | TM18NPTFCH |
| | 14 | 1/2 and 3/4 | 4 | 0.495 | 0.500 | 0.875 | 3.500 | TM14NPTFCH |
| | 11.5 | 1 | 4 | 0.620 | 0.625 | 1.125 | 4.000 | TM11NPTFCH |
| | 8 | 2-1/2 | 4 | 0.745 | 0.750 | 1.500 | 5.000 | TM8NPTFCH |
| m | 27 | 1/16 and 1/8 | 3 | 5.95 | 6.00 | 11.30 | 58.00 | TM27NPTFCHM |
| | 18 | 1/4 and 3/8 | 4 | 7.75 | 8.00 | 15.70 | 64.00 | TM18NPTFCHM |
| | 14 | 1/2 and 3/4 | 4 | 11.95 | 12.00 | 23.70 | 84.00 | TM14NPTFCHM |
| | 11.5 | 1 | 4 | 15.75 | 16.00 | 28.75 | 93.00 | TM11NPTFCHM |
| | 8 | 2-1/2 | 5 | 19.75 | 20.00 | 38.10 | 115.00 | TM8NPTFCHM |

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

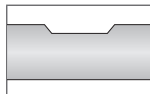
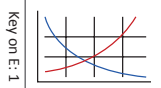
X

SPECIALS

E: 52 - 55

E: 4

Weldon Flat

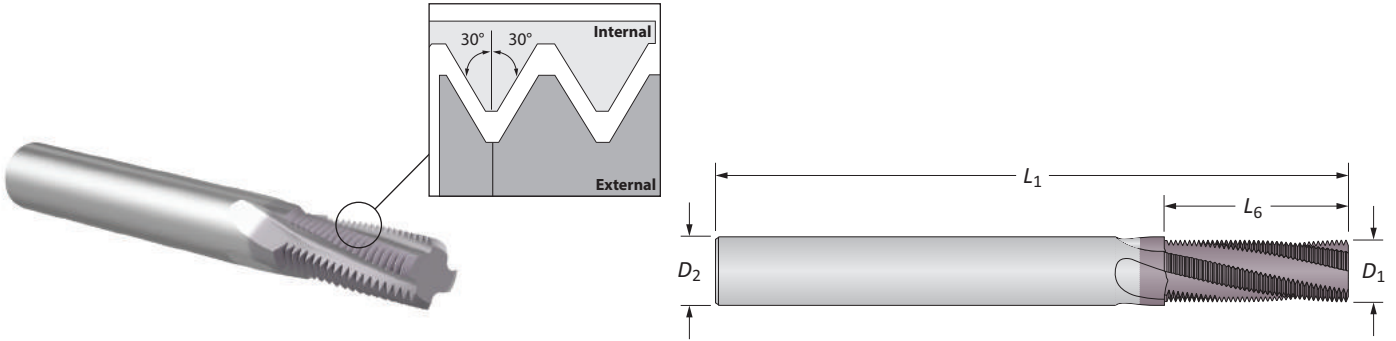


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
 m = Metric (mm)

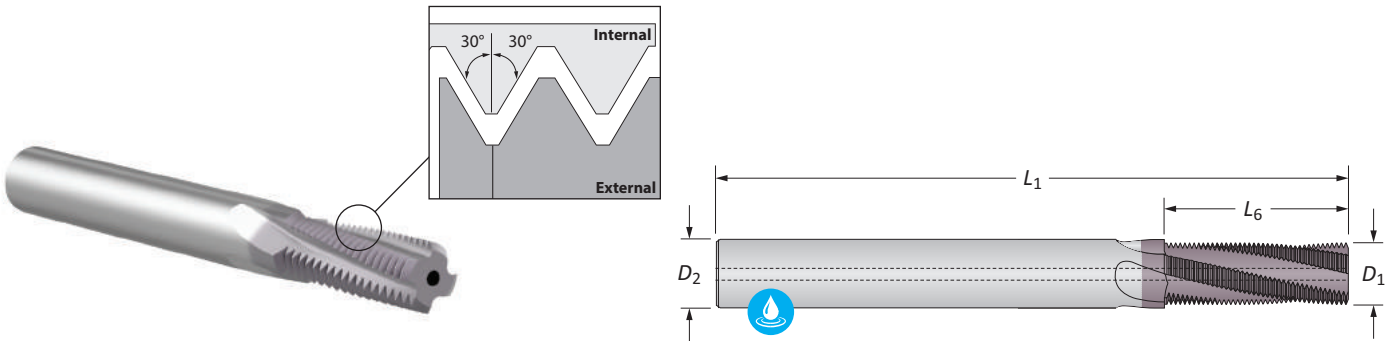
Solid Carbide Thread Mills

NPS



NPS | Noncoolant

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. | |
|-------------|--------------|-------------|----------------|----------------|----------------|----------------|----------|-----------------|
| | | | D ₁ | D ₂ | L ₆ | L ₁ | | |
| i | 27 | 1/8 | 3 | 0.245 | 0.250 | 0.630 | 2.500 | TM27NPS |
| | 18 | 1/4 and 3/8 | 4 | 0.370 | 0.375 | 0.889 | 3.500 | TM18NPS |
| | 14 | 1/2 and 3/4 | 4 | 0.490 | 0.500 | 1.288 | 3.500 | TM14NPS |
| | 11.5 | 1 | 4 | 0.620 | 0.625 | 1.392 | 4.000 | TM11NPS |
| E | 27 | 1/8 | 3 | 5.95 | 6.00 | 16.00 | 58.00 | TM27NPSM |
| | 18 | 1/4 and 3/8 | 4 | 9.40 | 10.00 | 22.60 | 84.00 | TM18NPSM |
| | 14 | 1/2 and 3/4 | 4 | 11.94 | 12.00 | 32.70 | 84.00 | TM14NPSM |
| | 11.5 | 1 | 4 | 15.75 | 16.00 | 35.35 | 93.00 | TM11NPSM |



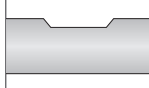
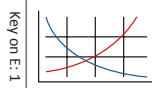
NPS | Coolant Through

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. | |
|-------------|--------------|-------------|----------------|----------------|----------------|----------------|----------|-------------------|
| | | | D ₁ | D ₂ | L ₆ | L ₁ | | |
| i | 27 | 1/8 | 3 | 0.245 | 0.250 | 0.630 | 2.375 | TM27NPSCH |
| | 18 | 1/4 and 3/8 | 4 | 0.370 | 0.375 | 0.889 | 3.000 | TM18NPSCH |
| | 14 | 1/2 and 3/4 | 4 | 0.490 | 0.500 | 1.288 | 3.500 | TM14NPSCH |
| | 11.5 | 1 | 4 | 0.620 | 0.625 | 1.392 | 4.000 | TM11NPSCH |
| E | 27 | 1/8 | 3 | 5.95 | 6.00 | 16.00 | 58.00 | TM27NPSCHM |
| | 18 | 1/4 and 3/8 | 4 | 9.40 | 10.00 | 22.60 | 84.00 | TM18NPSCHM |
| | 14 | 1/2 and 3/4 | 4 | 11.94 | 12.00 | 32.70 | 84.00 | TM14NPSCHM |
| | 11.5 | 1 | 4 | 15.75 | 16.00 | 35.35 | 93.00 | TM11NPSCHM |

E: 52 - 55

E: 4

Weldon Flat



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)

Example: Cylindrical shank = **TW**NK0500-NPT | Weldon shank flat = **TWN**K0500-NPT

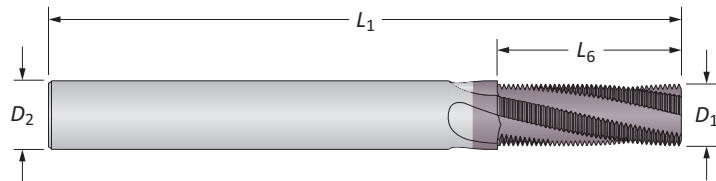
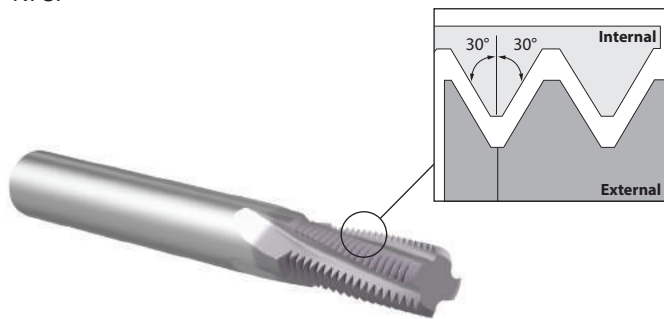
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
m = Metric (mm)



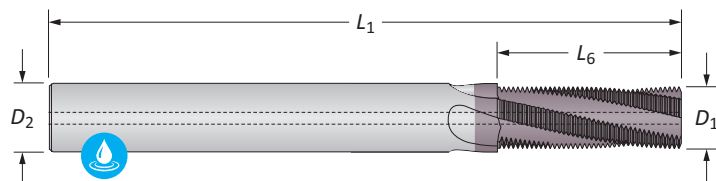
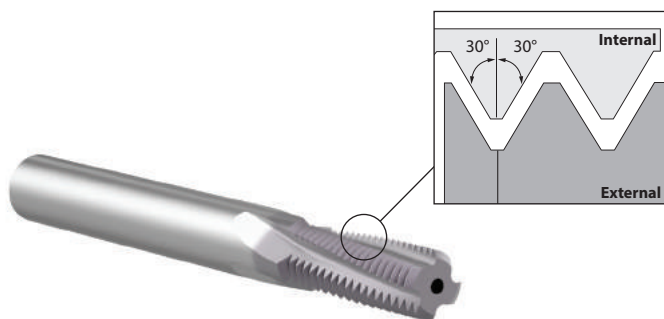
Solid Carbide Thread Mills

NPSF



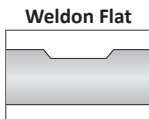
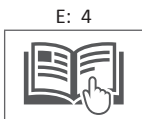
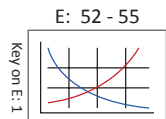
NPSF | Noncoolant

| | TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. |
|---|-------------|--------------|--------|-------------|-------|-------|-------|------------------|
| | | | | D_1 | D_2 | L_6 | L_1 | ThreadMills USA™ |
| i | 27 | 1/8 | 3 | 0.245 | 0.250 | 0.630 | 2.500 | TM27NPSF |
| | 18 | 1/4 and 3/8 | 4 | 0.370 | 0.375 | 0.889 | 3.500 | TM18NPSF |
| | 14 | 1/2 and 3/4 | 4 | 0.490 | 0.500 | 1.288 | 3.500 | TM14NPSF |
| | 11.5 | 1 | 4 | 0.620 | 0.625 | 1.392 | 4.000 | TM11NPSF |
| m | 27 | 1/8 | 3 | 5.95 | 6.00 | 16.00 | 58.00 | TM27NPSFM |
| | 18 | 1/4 and 3/8 | 4 | 9.40 | 10.00 | 22.60 | 84.00 | TM18NPSFM |
| | 14 | 1/2 and 3/4 | 4 | 11.94 | 12.00 | 32.70 | 84.00 | TM14NPSFM |
| | 11.5 | 1 | 4 | 15.75 | 16.00 | 35.35 | 93.00 | TM11NPSFM |



NPSF | Coolant Through

| | TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. |
|---|-------------|--------------|--------|-------------|-------|-------|-------|------------------|
| | | | | D_1 | D_2 | L_6 | L_1 | ThreadMills USA™ |
| i | 27 | 1/8 | 3 | 0.245 | 0.250 | 0.630 | 2.375 | TM27NPSFCH |
| | 18 | 1/4 and 3/8 | 4 | 0.370 | 0.375 | 0.889 | 3.000 | TM18NPSFCH |
| | 14 | 1/2 and 3/4 | 4 | 0.490 | 0.500 | 1.288 | 3.500 | TM14NPSFCH |
| | 11.5 | 1 | 4 | 0.620 | 0.625 | 1.392 | 4.000 | TM11NPSFCH |
| m | 27 | 1/8 | 3 | 5.95 | 6.00 | 16.00 | 58.00 | TM27NPSFCHM |
| | 18 | 1/4 and 3/8 | 4 | 9.40 | 10.00 | 22.60 | 84.00 | TM18NPSFCHM |
| | 14 | 1/2 and 3/4 | 4 | 11.94 | 12.00 | 32.70 | 84.00 | TM14NPSFCHM |
| | 11.5 | 1 | 4 | 15.75 | 16.00 | 35.35 | 93.00 | TM11NPSFCHM |



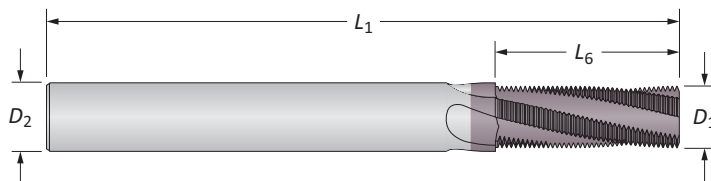
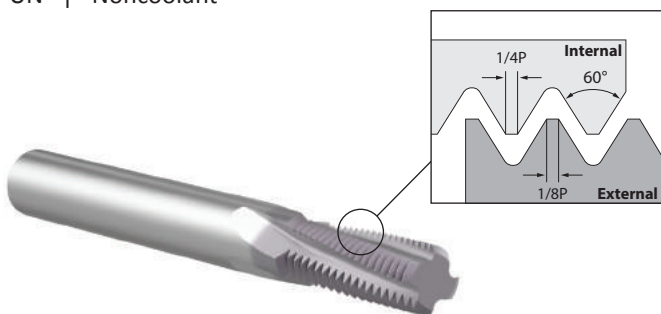
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
 m = Metric (mm)

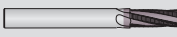
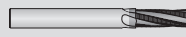
A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

Solid Carbide Thread Mills

UN | Noncoolant

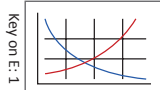


UN | Noncoolant

| TPI (Pitch) | Min Thread ϕ | Flutes | Thread Mill | | | | Part No. | |
|----------------|----------------------|--------|-------------|-------|-------|-------|--|---|
| | | | D_1 | D_2 | L_6 | L_1 |  ThreadMills USA™ |  AccuThread® 856 |
| 64 | #2 | 3* | 0.065 | 0.125 | 0.125 | 2.000 | TM08664 | – |
| 56 | #2 | 3* | 0.065 | 0.125 | 0.125 | 2.000 | TM08656 | TMUK0002-56 |
| 48 | #3 | 3* | 0.075 | 0.125 | 0.167 | 2.000 | TM09948 | – |
| 44 | #5 | 3 | 0.095 | 0.125 | 0.228 | 2.000 | TM12544 | – |
| 40 | #4 | 3* | 0.085 | 0.125 | 0.175 | 2.000 | TM12540 | TMUK0004-40 |
| 36 | #8 | 3 | 0.115 | 0.125 | 0.250 | 2.000 | TM16436 | – |
| 32 | #6 | 3 | 0.100 | 0.125 | 0.218 | 2.000 | TM13832 | TMUK0006-32 |
| 32 | #8 | 3 | 0.115 | 0.125 | 0.250 | 2.000 | TM16432 | TMUK0008-32 |
| 32 | #10 | 3 | 0.120 | 0.125 | 0.312 | 2.000 | TM19032 | TMUK0010-32 |
| 32 | #10 | 3 | 0.150 | 0.187 | 0.312 | 2.500 | HDTM19032 | – |
| 32 | 1/2 | 6 | 0.370 | 0.375 | 1.000 | 3.500 | TM50032 | – |
| i 28 | #10 | 3 | 0.120 | 0.125 | 0.312 | 2.000 | TM19028 | TMUK0010-28 |
| 28 | 1/4 | 3 | 0.180 | 0.187 | 0.500 | 2.500 | TM25028 | TMUK0250-28 |
| 28 | 1/2 | 6 | 0.370 | 0.375 | 1.000 | 3.500 | TM50028 | – |
| 24 | #10 | 3 | 0.120 | 0.125 | 0.312 | 2.000 | TM19024 | TMUK0010-24 |
| 24 | #10 | 3 | 0.145 | 0.187 | 0.312 | 2.500 | HDTM19024 | – |
| 24 | 5/16 | 3 | 0.235 | 0.250 | 0.625 | 2.500 | TM31224 | TMUK0313-24 |
| 24 | 3/8 | 4 | 0.285 | 0.312 | 0.750 | 3.000 | TM37524 | TMUK0375-24 |
| 24 | 1/2 | 6 | 0.370 | 0.375 | 1.000 | 3.500 | TM50024 | – |
| 20 | 1/4 | 3 | 0.180 | 0.187 | 0.500 | 2.500 | TM25020 | TMUK0250-20 |
| 20 | 1/4 | 3 | 0.195 | 0.250 | 0.500 | 2.500 | HDTM25020 | – |
| 20 | 7/16 | 4 | 0.335 | 0.375 | 0.875 | 3.500 | TM43720 | TMUK0438-20 |
| 20 | 1/2 | 6 | 0.370 | 0.375 | 1.000 | 3.500 | TM50020 | – |

*Straight fluted

E: 52 - 55

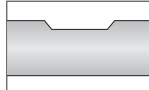


Key on E: 1

E: 4



Weldon Flat



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)

Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TWN**K0500-NPT

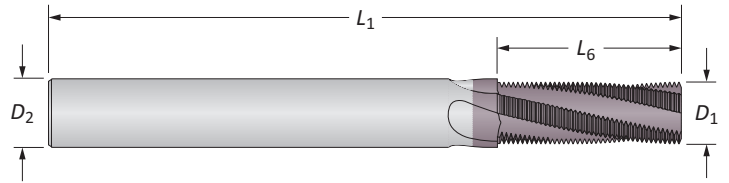
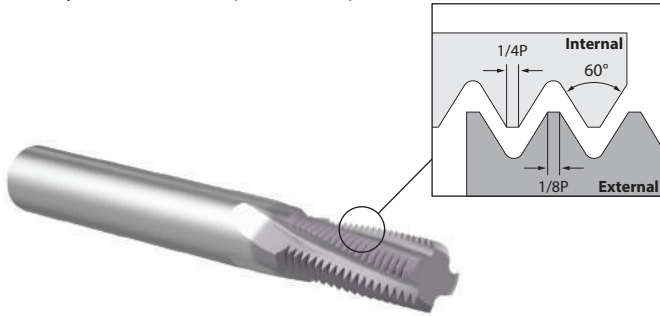
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
m = Metric (mm)



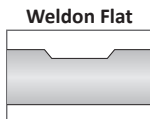
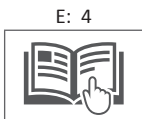
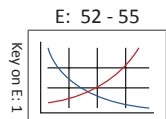
Solid Carbide Thread Mills

UN | Noncoolant (continued)



UN | Noncoolant

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. | |
|----------------|-----------------|--------|----------------|----------------|----------------|----------------|------------------|-----------------|
| | | | D ₁ | D ₂ | L ₆ | L ₁ | ThreadMills USA™ | AccuThread® 856 |
| 18 | 5/16 | 3 | 0.235 | 0.250 | 0.625 | 2.500 | TM31218 | TMUK0313-18 |
| 18 | 5/16 | 3 | 0.245 | 0.312 | 0.625 | 3.000 | HDTM31218 | - |
| 18 | 9/16 | 4 | 0.370 | 0.375 | 0.875 | 3.500 | TM56218 | TMUK0563-18 |
| 16 | 3/8 | 4 | 0.285 | 0.312 | 0.750 | 3.000 | TM37516 | TMUK0375-16 |
| 16 | 3/8 | 4 | 0.300 | 0.375 | 0.750 | 3.500 | HDTM37516 | - |
| 16 | 3/4 | 4 | 0.490 | 0.500 | 1.250 | 3.500 | TM75016 | TMUK0750-16 |
| 14 | 7/16 | 4 | 0.305 | 0.312 | 0.750 | 3.000 | TM43714 | TMUK0438-14 |
| 14 | 7/8 | 4 | 0.490 | 0.500 | 1.250 | 3.500 | TM87514 | TMUK0875-14 |
| 13 | 1/2 | 4 | 0.350 | 0.375 | 0.875 | 3.500 | TM50013 | TMUK0500-13 |
| 13 | 1/2 | 4 | 0.400 | 0.500 | 0.875 | 3.500 | HDTM50013 | - |
| 12 | 9/16 | 4 | 0.370 | 0.375 | 0.875 | 3.500 | TM56212 | TMUK0563-12 |
| i | 12 | 3/4 | 0.495 | 0.500 | 1.250 | 3.500 | TM75012 | TMUK0750-12 |
| 12 | 1 | 6 | 0.745 | 0.750 | 1.500 | 4.000 | TM10012 | - |
| 11 | 5/8 | 4 | 0.470 | 0.500 | 1.250 | 3.500 | TM62511 | TMUK0625-11 |
| 11 | 5/8 | 4 | 0.470 | 0.500 | 1.455 | 3.500 | TM62511-XL | TMUK0625-11XL |
| 10 | 3/4 | 4 | 0.495 | 0.500 | 1.250 | 3.500 | TM75010 | TMUK0750-10 |
| 10 | 3/4 | 4 | 0.495 | 0.500 | 1.600 | 4.000 | TM75010-XL | TMUK0750-10XL |
| 9 | 7/8 | 4 | 0.620 | 0.625 | 1.375 | 4.000 | TM87509 | TMUK0875-9 |
| 9 | 7/8 | 4 | 0.620 | 0.625 | 1.778 | 4.000 | TM87509-XL | TMUK0875-9XL |
| 8 | 1 | 4 | 0.620 | 0.625 | 1.375 | 4.000 | TM10008 | TMUK1000-8 |
| 8 | 1 | 6 | 0.745 | 0.750 | 2.000 | 4.500 | TM10008-XL | TMUK1000-8XL |
| 7 | 1-1/8 | 5 | 0.745 | 0.750 | 1.572 | 4.500 | TM12507 | - |
| 6 | 1-3/8 | 5 | 0.745 | 0.750 | 1.500 | 4.500 | TM13706 | - |

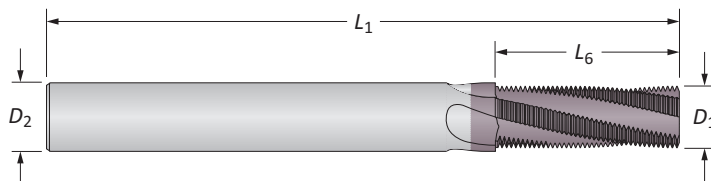
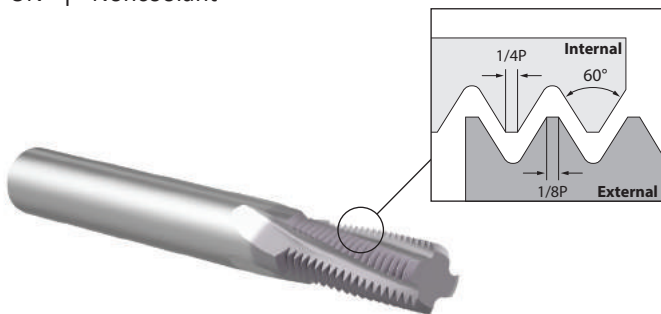


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

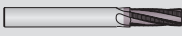
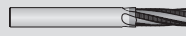
i = Imperial (in)
 m = Metric (mm)

Solid Carbide Thread Mills

UN | Noncoolant

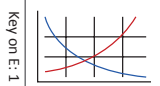


UN | Noncoolant

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. | |
|----------------|-----------------|--------|-------------|-------|-------|-------|--|---|
| | | | D_1 | D_2 | L_6 | L_1 |  ThreadMills USA™ |  AccuThread® 856 |
| 64 | #2 | 3* | 1.65 | 3.00 | 3.20 | 39.00 | TM08664M | TMUK0002-64M |
| 56 | #2 | 3* | 1.65 | 3.00 | 3.20 | 39.00 | TM08656M | TMUK0002-56M |
| 48 | #3 | 3* | 1.80 | 3.00 | 3.75 | 39.00 | TM09948M | TMUK0003-48M |
| 44 | #5 | 3 | 2.40 | 3.00 | 4.65 | 39.00 | TM12544M | TMUK0005-44M |
| 40 | #4 | 3* | 2.20 | 3.00 | 4.45 | 39.00 | TM12540M | TMUK0004-40M |
| 36 | #8 | 3 | 3.00 | 4.00 | 6.35 | 51.00 | TM16436M | TMUK0008-36M |
| 32 | #6 | 3 | 2.50 | 3.00 | 5.55 | 39.00 | TM13832M | TMUK0006-32M |
| 32 | #8 | 3 | 3.20 | 4.00 | 6.35 | 51.00 | TM16432M | TMUK0008-32M |
| 32 | #10 | 3 | 3.80 | 4.00 | 7.95 | 51.00 | TM19032M | TMUK0010-32M |
| 32 | #10 | 3 | 3.80 | 4.00 | 7.95 | 51.00 | HDTM19032M | — |
| 32 | 1/2 | 6 | 9.40 | 10.00 | 25.40 | 84.00 | TM50032M | — |
| 28 | #10 | 3 | 3.80 | 4.00 | 8.20 | 51.00 | TM19028M | TMUK0010-28M |
| 28 | 1/4 | 3 | 4.75 | 6.00 | 12.70 | 58.00 | TM25028M | TMUK0250-28M |
| 28 | 7/16 | 4 | 7.90 | 8.00 | 19.95 | 64.00 | — | TMUK0438-28M |
| 28 | 1/2 | 6 | 9.40 | 10.00 | 25.40 | 84.00 | TM50028M | — |
| 24 | #10 | 3 | 3.70 | 4.00 | 8.50 | 51.00 | TM19024M | TMUK0010-24M |
| 24 | #10 | 3 | 3.70 | 4.00 | 8.50 | 51.00 | HDTM19024M | TMUK0313-24M |
| 24 | 5/16 | 3 | 5.95 | 6.00 | 16.00 | 58.00 | TM31224M | TMUK0375-24M |
| 24 | 3/8 | 4 | 7.25 | 8.00 | 19.00 | 64.00 | TM37524M | — |
| 24 | 1/2 | 6 | 9.40 | 10.00 | 25.40 | 84.00 | TM50024M | — |
| 20 | 1/4 | 3 | 4.75 | 6.00 | 12.70 | 58.00 | TM25020M | TMUK0250-20M |
| 20 | 1/4 | 3 | 4.95 | 6.00 | 12.70 | 58.00 | HDTM25020M | — |
| 20 | 7/16 | 4 | 8.75 | 10.00 | 22.85 | 73.00 | TM43720M | TMUK0438-20M |
| 20 | 1/2 | 6 | 9.40 | 10.00 | 25.40 | 84.00 | TM50020M | — |

*Straight fluted

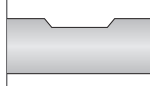
E: 52 - 55



E: 4



Weldon Flat



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)

Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TWN**K0500-NPT

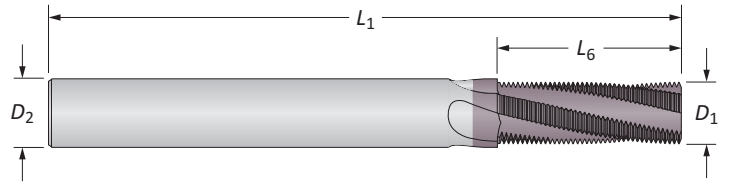
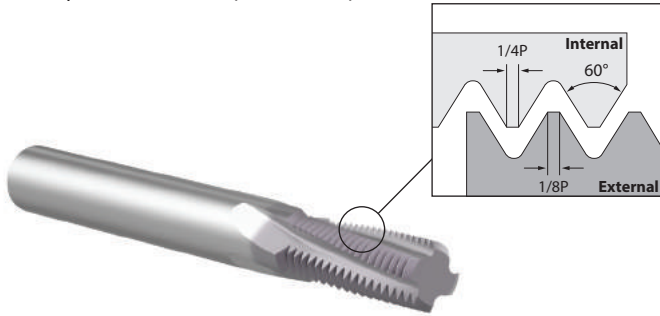
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
m = Metric (mm)



Solid Carbide Thread Mills

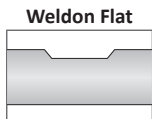
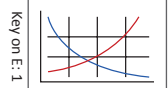
UN | Noncoolant (continued)



UN | Noncoolant

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. | |
|----------------|-----------------|--------|----------------|----------------|----------------|----------------|------------------|-----------------|
| | | | D ₁ | D ₂ | L ₆ | L ₁ | ThreadMills USA™ | AccuThread® 856 |
| 18 | 5/16 | 3 | 5.95 | 6.00 | 17.00 | 58.00 | TM31218M | TMUK0313-18M |
| 18 | 5/16 | 3 | 6.22 | 8.00 | 15.87 | 64.00 | HDTM31218M | - |
| 18 | 9/16 | 4 | 9.90 | 10.00 | 22.65 | 73.00 | TM56218M | TMUK0563-18M |
| 16 | 3/8 | 4 | 7.25 | 8.00 | 19.05 | 64.00 | TM37516M | TMUK0375-16M |
| 16 | 3/8 | 4 | 7.62 | 10.00 | 19.05 | 84.00 | HDTM37516M | - |
| 16 | 3/4 | 4 | 11.95 | 12.00 | 31.75 | 84.00 | TM75016M | TMUK0750-16M |
| 14 | 7/16 | 4 | 7.75 | 8.00 | 20.00 | 64.00 | TM43714M | TMUK0438-14M |
| 14 | 7/8 | 4 | 11.95 | 12.00 | 32.70 | 84.00 | TM87514M | TMUK0875-14M |
| 13 | 1/2 | 4 | 9.40 | 10.00 | 23.50 | 73.00 | TM50013M | TMUK0500-13M |
| 13 | 1/2 | 4 | 10.16 | 12.00 | 23.50 | 84.00 | HDTM50013M | - |
| 12 | 9/16 | 4 | 9.90 | 10.00 | 23.35 | 73.00 | TM56212M | TMUK0563-12M |
| 12 | 3/4 | 4 | 11.95 | 12.00 | 31.75 | 84.00 | TM75012M | TMUK0750-12M |
| 12 | 1 | 6 | 18.92 | 20.00 | 38.10 | 105.00 | TM10012M | - |
| 11 | 5/8 | 4 | 11.95 | 12.00 | 32.40 | 84.00 | TM62511M | TMUK0625-11M |
| 11 | 5/8 | 4 | 11.95 | 12.00 | 37.00 | 100.00 | TM62511M-XL | TMUK0625-11XLM |
| 10 | 3/4 | 4 | 11.95 | 12.00 | 33.00 | 84.00 | TM75010M | TMUK0750-10M |
| 10 | 3/4 | 4 | 11.95 | 12.00 | 40.70 | 100.00 | TM75010M-XL | TMUK0750-10XLM |
| 9 | 7/8 | 4 | 15.75 | 16.00 | 36.75 | 93.00 | TM87509M | TMUK0875-9M |
| 9 | 7/8 | 4 | 15.75 | 16.00 | 45.20 | 100.00 | TM87509M-XL | TMUK0875-9XLM |
| 8 | 1 | 4 | 15.75 | 16.00 | 35.00 | 93.00 | TM10008M | TMUK1000-8M |
| 8 | 1 | 6 | 19.90 | 20.00 | 50.80 | 115.00 | TM10008M-XL | TMUK1000-8XLM |
| 7 | 1-1/8 | 5 | 19.90 | 20.00 | 36.30 | 105.00 | TM12507M | TMUK1125-7M |
| 6 | 1-3/8 | 5 | 19.90 | 20.00 | 38.10 | 105.00 | TM13706M | TMUK1375-6M |

Ⓜ

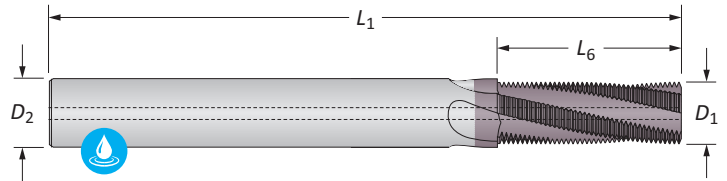
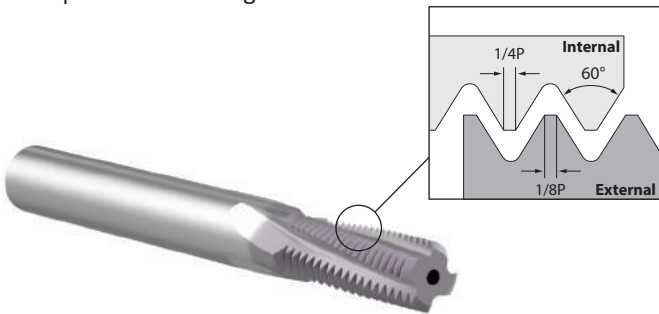


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

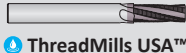
Ⓜ = Imperial (in)
 Ⓜ = Metric (mm)

Solid Carbide Thread Mills

UN | Coolant Through

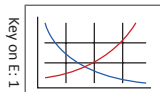


UN | Coolant Through

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No.  ThreadMills USA™ |
|----------------|-----------------|--------|-------------|-------|-------|-------|---|
| | | | D_1 | D_2 | L_6 | L_1 | |
| 64 | #2 | 3* | 0.065 | 0.125 | 0.125 | 1.500 | TM08664CH |
| 56 | #2 | 3* | 0.065 | 0.125 | 0.125 | 1.500 | TM08656CH |
| 48 | #3 | 3* | 0.075 | 0.125 | 0.167 | 1.500 | TM09948CH |
| 44 | #5 | 3 | 0.095 | 0.125 | 0.228 | 1.500 | TM12544CH |
| 40 | #4 | 3* | 0.085 | 0.125 | 0.175 | 1.500 | TM12540CH |
| 36 | #8 | 3 | 0.115 | 0.125 | 0.250 | 1.500 | TM16436CH |
| 32 | #6 | 3 | 0.100 | 0.125 | 0.218 | 1.500 | TM13832CH |
| 32 | #8 | 3 | 0.115 | 0.125 | 0.250 | 1.500 | TM16432CH |
| 32 | #10 | 3 | 0.150 | 0.187 | 0.312 | 2.375 | TM19032CH |
| 32 | #10 | 3 | 0.150 | 0.187 | 0.312 | 2.375 | HDTM19032CH |
| 32 | 1/2 | 6 | 0.370 | 0.375 | 1.000 | 3.500 | TM50032CH |
| i 28 | #10 | 3 | 0.120 | 0.125 | 0.312 | 1.500 | TM19028CH |
| 28 | 1/4 | 3 | 0.180 | 0.187 | 0.500 | 2.375 | TM25028CH |
| 28 | 1/2 | 6 | 0.370 | 0.375 | 1.000 | 3.500 | TM50028CH |
| 24 | #10 | 3 | 0.145 | 0.187 | 0.312 | 2.375 | TM19024CH |
| 24 | #10 | 3 | 0.145 | 0.187 | 0.312 | 2.375 | HDTM19024CH |
| 24 | 5/16 | 3 | 0.235 | 0.250 | 0.625 | 2.375 | TM31224CH |
| 24 | 3/8 | 4 | 0.285 | 0.312 | 0.750 | 3.000 | TM37524CH |
| 24 | 1/2 | 6 | 0.370 | 0.375 | 1.000 | 3.500 | TM50024CH |
| 20 | 1/4 | 3 | 0.180 | 0.187 | 0.500 | 2.375 | TM25020CH |
| 20 | 1/4 | 3 | 0.195 | 0.250 | 0.500 | 2.375 | HDTM25020CH |
| 20 | 7/16 | 4 | 0.335 | 0.375 | 0.875 | 3.000 | TM43720CH |
| 20 | 1/2 | 6 | 0.370 | 0.375 | 1.000 | 3.500 | TM50020CH |

*Straight fluted

E: 52 - 55

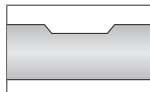


Key on E: 1

E: 4



Weldon Flat



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)

Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TWNK**0500-NPT

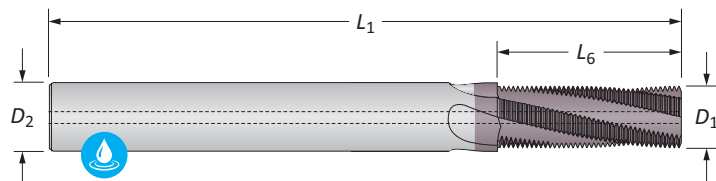
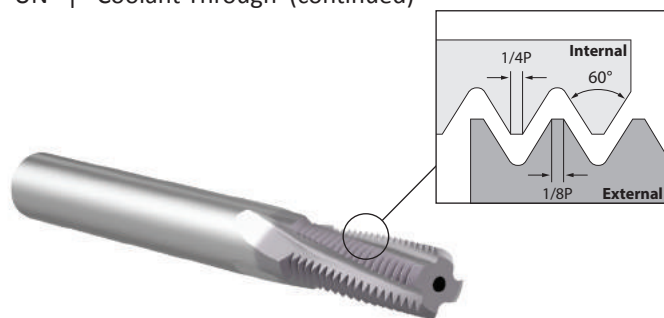
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
m = Metric (mm)



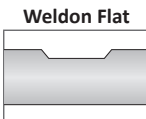
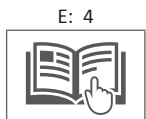
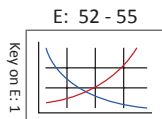
Solid Carbide Thread Mills

UN | Coolant Through (continued)



UN | Coolant Through

| TPI (Pitch) | Min Thread ϕ | Flutes | Thread Mill | | | | Part No. | |
|----------------|----------------------|--------|-------------|-------|-------|-------|--------------|-----------|
| | | | D_1 | D_2 | L_6 | L_1 | | |
| 18 | 5/16 | 3 | 0.235 | 0.250 | 0.625 | 2.375 | TM31218CH | |
| 18 | 5/16 | 3 | 0.245 | 0.312 | 0.625 | 3.000 | HDTM31218CH | |
| 18 | 9/16 | 4 | 0.370 | 0.375 | 0.875 | 3.000 | TM56218CH | |
| 16 | 3/8 | 4 | 0.285 | 0.312 | 0.750 | 3.000 | TM37516CH | |
| 16 | 3/8 | 4 | 0.300 | 0.375 | 0.750 | 3.000 | HDTM37516CH | |
| 16 | 3/4 | 4 | 0.490 | 0.500 | 1.250 | 3.500 | TM75016CH | |
| 14 | 7/16 | 4 | 0.305 | 0.312 | 0.750 | 3.000 | TM43714CH | |
| 14 | 7/8 | 4 | 0.490 | 0.500 | 1.250 | 3.500 | TM87514CH | |
| 13 | 1/2 | 4 | 0.350 | 0.375 | 0.875 | 3.000 | TM50013CH | |
| 13 | 1/2 | 4 | 0.400 | 0.500 | 0.875 | 3.500 | HDTM50013CH | |
| 12 | 9/16 | 4 | 0.370 | 0.375 | 0.875 | 3.500 | TM56212CH | |
| i | 12 | 3/4 | 4 | 0.495 | 0.500 | 1.250 | 3.500 | TM75012CH |
| 12 | 1 | 6 | 0.745 | 0.750 | 1.500 | 4.000 | TM10012CH | |
| 11 | 5/8 | 4 | 0.470 | 0.500 | 1.250 | 3.500 | TM62511CH | |
| 11 | 5/8 | 4 | 0.470 | 0.500 | 1.455 | 3.500 | TM62511CH-XL | |
| 10 | 3/4 | 4 | 0.495 | 0.500 | 1.250 | 3.500 | TM75010CH | |
| 10 | 3/4 | 4 | 0.495 | 0.500 | 1.600 | 4.000 | TM75010CH-XL | |
| 9 | 7/8 | 4 | 0.620 | 0.625 | 1.375 | 4.000 | TM87509CH | |
| 9 | 7/8 | 4 | 0.620 | 0.625 | 1.778 | 4.000 | TM87509CH-XL | |
| 8 | 1 | 4 | 0.620 | 0.625 | 1.375 | 4.000 | TM10008CH | |
| 8 | 1 | 6 | 0.745 | 0.750 | 2.000 | 4.500 | TM10008CH-XL | |
| 7 | 1-1/8 | 5 | 0.745 | 0.750 | 1.572 | 4.500 | TM12507CH | |
| 6 | 1-3/8 | 5 | 0.745 | 0.750 | 1.500 | 4.500 | TM13706CH | |

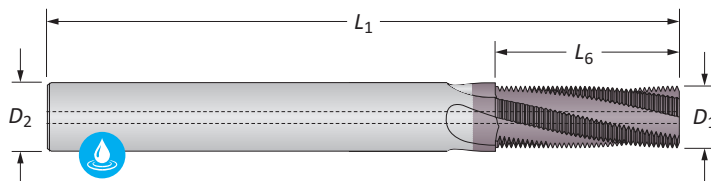
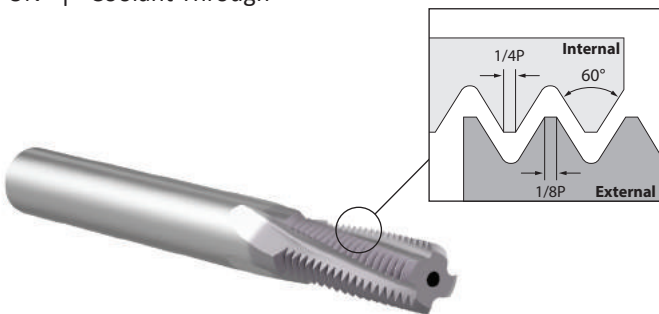


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
 m = Metric (mm)

Solid Carbide Thread Mills

UN | Coolant Through

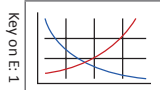


UN | Coolant Through

| TPI (Pitch) | Min Thread Ø | Flutes | Thread Mill | | | | Part No. |
|----------------|-----------------|--------|-------------|-------|-------|-------|---------------------|
| | | | D_1 | D_2 | L_6 | L_1 | |
| 64 | #2 | 3* | 1.65 | 3.00 | 3.20 | 39.00 | TM08664CHM |
| 56 | #2 | 3* | 1.65 | 3.00 | 3.20 | 39.00 | TM08656CHM |
| 48 | #3 | 3* | 1.80 | 3.00 | 3.75 | 39.00 | TM09948CHM |
| 44 | #5 | 3 | 2.40 | 3.00 | 4.65 | 39.00 | TM12544CHM |
| 40 | #4 | 3* | 2.20 | 3.00 | 4.45 | 39.00 | TM12540CHM |
| 36 | #8 | 3 | 3.00 | 4.00 | 6.35 | 51.00 | TM16436CHM |
| 32 | #6 | 3 | 2.50 | 3.00 | 5.55 | 39.00 | TM13832CHM |
| 32 | #8 | 3 | 3.20 | 4.00 | 6.35 | 51.00 | TM16432CHM |
| 32 | #10 | 3 | 3.80 | 4.00 | 7.95 | 51.00 | TM19032CHM |
| 32 | #10 | 3 | 3.80 | 4.00 | 7.95 | 51.00 | HDTM19032CHM |
| 32 | 1/2 | 6 | 9.40 | 10.00 | 25.40 | 84.00 | TM50032CHM |
| m 28 | #10 | 3 | 3.80 | 4.00 | 8.20 | 51.00 | TM19028CHM |
| 28 | 1/4 | 3 | 4.75 | 6.00 | 12.70 | 58.00 | TM25028CHM |
| 28 | 1/2 | 6 | 9.40 | 10.00 | 25.40 | 84.00 | TM50028CHM |
| 24 | #10 | 3 | 3.68 | 4.00 | 8.50 | 51.00 | TM19024CHM |
| 24 | #10 | 3 | 3.70 | 4.00 | 8.50 | 51.00 | HDTM19024CHM |
| 24 | 5/16 | 3 | 5.95 | 6.00 | 16.00 | 58.00 | TM31224CHM |
| 24 | 3/8 | 4 | 7.25 | 8.00 | 19.00 | 64.00 | TM37524CHM |
| 24 | 1/2 | 6 | 9.40 | 10.00 | 25.40 | 84.00 | TM50024CHM |
| 20 | 1/4 | 3 | 4.75 | 6.00 | 12.70 | 58.00 | TM25020CHM |
| 20 | 1/4 | 3 | 4.95 | 6.00 | 12.70 | 58.00 | HDTM25020CHM |
| 20 | 7/16 | 4 | 8.75 | 10.00 | 22.85 | 84.00 | TM43720CHM |
| 20 | 1/2 | 6 | 9.40 | 10.00 | 25.40 | 84.00 | TM50020CHM |

*Straight fluted

E: 52 - 55

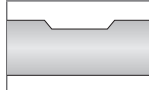


Key on E: 1

E: 4



Weldon Flat



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)

Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT

NOTE: Weldon flats have a minimum order quantity of 2 pieces

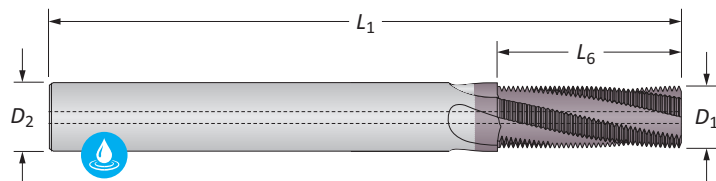
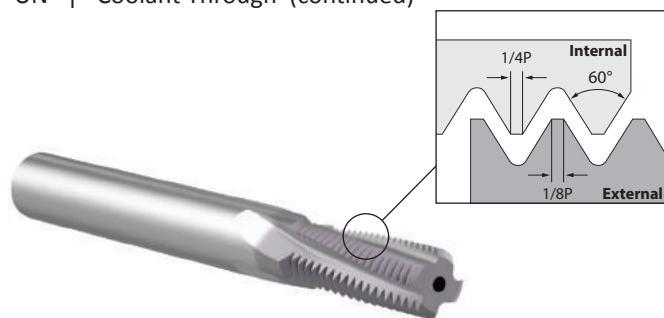
i = Imperial (in)

m = Metric (mm)



Solid Carbide Thread Mills

UN | Coolant Through (continued)



UN | Coolant Through

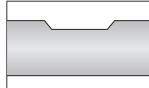
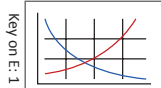
| TPI (Pitch) | Min Thread ϕ | Flutes | Thread Mill | | | | Part No. |
|----------------|----------------------|--------|-------------|-------|-------|--------|---------------|
| | | | D_1 | D_2 | L_6 | L_1 | |
| 18 | 5/16 | 3 | 5.95 | 6.00 | 17.00 | 58.00 | TM31218CHM |
| 18 | 5/16 | 3 | 6.22 | 8.00 | 15.87 | 64.00 | HDTM31218CHM |
| 18 | 9/16 | 4 | 9.90 | 10.00 | 22.65 | 84.00 | TM56218CHM |
| 16 | 3/8 | 4 | 7.25 | 8.00 | 19.05 | 64.00 | TM37516CHM |
| 16 | 3/8 | 4 | 7.62 | 10.00 | 19.05 | 84.00 | HDTM37516CHM |
| 16 | 3/4 | 4 | 11.95 | 12.00 | 31.75 | 84.00 | TM75016CHM |
| 14 | 7/16 | 4 | 7.75 | 8.00 | 20.00 | 64.00 | TM43714CHM |
| 14 | 7/8 | 4 | 11.95 | 12.00 | 32.70 | 84.00 | TM87514CHM |
| 13 | 1/2 | 4 | 9.40 | 10.00 | 23.50 | 84.00 | TM50013CHM |
| 13 | 1/2 | 4 | 10.16 | 12.00 | 23.50 | 84.00 | HDTM50013CHM |
| 12 | 9/16 | 4 | 9.90 | 10.00 | 23.35 | 84.00 | TM56212CHM |
| 12 | 3/4 | 4 | 11.95 | 12.00 | 31.75 | 84.00 | TM75012CHM |
| 12 | 1 | 6 | 18.92 | 20.00 | 38.10 | 105.00 | TM10012CHM |
| 11 | 5/8 | 4 | 11.95 | 12.00 | 32.40 | 84.00 | TM62511CHM |
| 11 | 5/8 | 4 | 11.95 | 12.00 | 37.00 | 100.00 | TM62511CHM-XL |
| 10 | 3/4 | 4 | 11.95 | 12.00 | 33.00 | 84.00 | TM75010CHM |
| 10 | 3/4 | 4 | 11.95 | 12.00 | 40.70 | 100.00 | TM75010CHM-XL |
| 9 | 7/8 | 4 | 15.75 | 16.00 | 36.75 | 93.00 | TM87509CHM |
| 9 | 7/8 | 4 | 15.75 | 16.00 | 45.20 | 100.00 | TM87509CHM-XL |
| 8 | 1 | 4 | 15.75 | 16.00 | 35.00 | 93.00 | TM10008CHM |
| 8 | 1 | 6 | 19.90 | 20.00 | 50.80 | 115.00 | TM10008CHM-XL |
| 7 | 1-1/8 | 5 | 19.90 | 20.00 | 36.10 | 105.00 | TM12507CHM |
| 6 | 1-3/8 | 5 | 19.90 | 20.00 | 38.10 | 105.00 | TM13706CHM |

Ⓜ

E: 52 - 55

E: 4

Weldon Flat



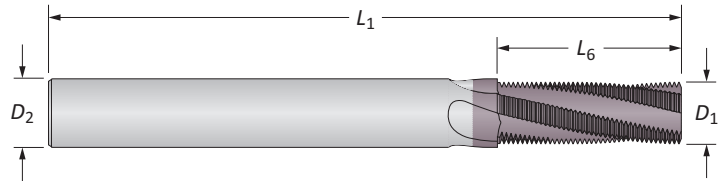
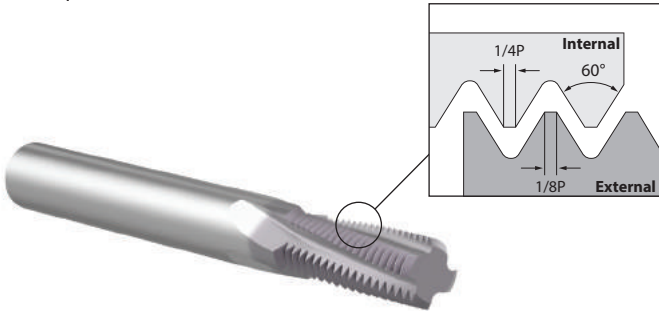
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

Ⓜ = Imperial (in)
 Ⓜ = Metric (mm)

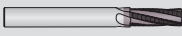
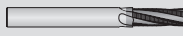


Solid Carbide Thread Mills

ISO | Noncoolant

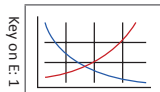


ISO | Noncoolant

| Pitch | Min Thread \varnothing | Flutes | Thread Mill | | | | Part No. | |
|-------|--------------------------|--------|-------------|-------|-------|-------|--|---|
| | | | D_1 | D_2 | L_6 | L_1 |  ThreadMills USA™ |  AccuThread® 856 |
| 0.40 | M2 | 3* | 0.059 | 0.125 | 0.126 | 2.000 | TM20040 | – |
| 0.45 | M2.5 | 3* | 0.059 | 0.125 | 0.142 | 2.000 | TM25045 | – |
| 0.50 | M3 | 3* | 0.085 | 0.125 | 0.178 | 2.000 | TM30050 | – |
| 0.50 | M6 | 3 | 0.181 | 0.187 | 0.473 | 2.500 | TM60050 | – |
| 0.50 | M10 | 4 | 0.310 | 0.312 | 0.591 | 3.000 | TM10050 | – |
| 0.70 | M4 | 3 | 0.115 | 0.125 | 0.276 | 2.000 | TM40070 | – |
| 0.75 | M4.5 | 3 | 0.120 | 0.125 | 0.266 | 2.000 | TM45075 | TMMK0450-075 |
| 0.75 | M8 | 3 | 0.235 | 0.250 | 0.625 | 2.500 | TM80075 | TMMK0800-075 |
| 0.75 | M10 | 4 | 0.310 | 0.312 | 0.591 | 3.000 | TM10075 | – |
| 0.80 | M5 | 3 | 0.120 | 0.125 | 0.312 | 2.000 | TM50080 | TMMK0500-080 |
| 1.00 | M6 | 3 | 0.170 | 0.187 | 0.500 | 2.500 | TM60100 | TMMK0600-100 |
| 1.00 | M12 | 4 | 0.360 | 0.375 | 0.875 | 3.500 | TM12100 | TMMK1200-100 |
| 1.25 | M8 | 3 | 0.235 | 0.250 | 0.625 | 2.500 | TM80125 | TMMK0800-125 |
| 1.50 | M10 | 4 | 0.300 | 0.312 | 0.750 | 3.000 | TM10150 | TMMK1000-150 |
| 1.50 | M14 | 4 | 0.370 | 0.375 | 0.875 | 3.500 | TM14150 | TMMK1400-150 |
| 1.50 | M18 | 4 | 0.490 | 0.500 | 1.250 | 3.500 | TM18150 | TMMK1800-150 |
| 1.50 | M20 | 5 | 0.620 | 0.625 | 1.418 | 4.000 | TM20150 | – |
| 1.75 | M12 | 4 | 0.360 | 0.375 | 0.875 | 3.500 | TM12175 | TMMK1200-175 |
| 2.00 | M14 | 4 | 0.429 | 0.500 | 1.103 | 3.500 | TM14200 | – |
| 2.00 | M16 | 4 | 0.470 | 0.500 | 1.250 | 3.500 | TM16200 | TMMK1600-200 |
| 2.50 | M20 | 4 | 0.495 | 0.500 | 1.250 | 3.500 | TM20250 | TMMK2000-250 |
| 3.00 | M24 | 4 | 0.620 | 0.625 | 1.375 | 4.000 | TM24300 | TMMK2400-300 |
| 3.50 | M30 | 4 | 0.620 | 0.625 | 1.516 | 4.000 | TM30350 | – |
| 4.00 | M36 | 5 | 0.745 | 0.750 | 1.575 | 4.500 | TM36400 | – |

*Straight fluted

E: 52 - 55

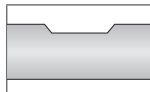


Key on E: 1

E: 4



Weldon Flat



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)

Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TWN**K0500-NPT

NOTE: Weldon flats have a minimum order quantity of 2 pieces

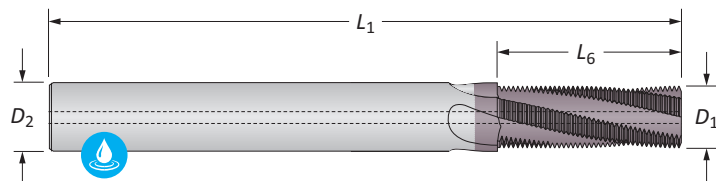
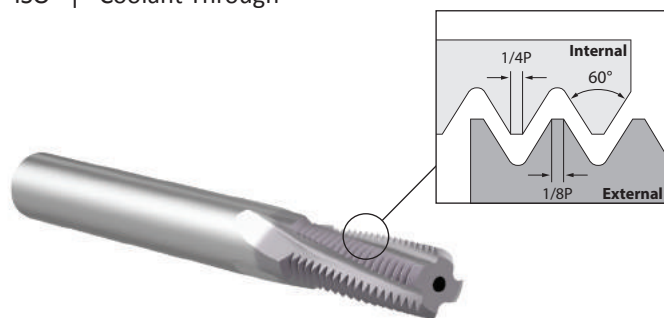
i = Imperial (in)

m = Metric (mm)



Solid Carbide Thread Mills

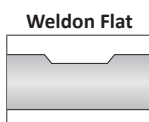
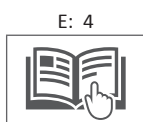
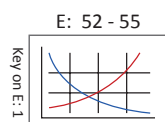
ISO | Coolant Through



ISO | Coolant Through

| Pitch | Min Thread ϕ | Flutes | Thread Mill | | | | Part No. |
|-------|-------------------|--------|-------------|-------|-------|-------|-----------|
| | | | D_1 | D_2 | L_6 | L_1 | |
| 0.40 | M2 | 3* | 0.059 | 0.125 | 0.126 | 1.500 | TM20040CH |
| 0.45 | M2.5 | 3* | 0.059 | 0.125 | 0.142 | 1.500 | TM25045CH |
| 0.50 | M3 | 3* | 0.085 | 0.125 | 0.178 | 1.500 | TM30050CH |
| 0.50 | M6 | 3 | 0.181 | 0.187 | 0.473 | 2.375 | TM60050CH |
| 0.50 | M10 | 4 | 0.310 | 0.312 | 0.591 | 3.000 | TM10050CH |
| 0.70 | M4 | 3 | 0.115 | 0.125 | 0.276 | 1.500 | TM40070CH |
| 0.75 | M4.5 | 3 | 0.120 | 0.125 | 0.266 | 1.500 | TM45075CH |
| 0.75 | M8 | 3 | 0.235 | 0.250 | 0.625 | 2.375 | TM80075CH |
| 0.75 | M10 | 4 | 0.310 | 0.312 | 0.591 | 3.000 | TM10075CH |
| 0.80 | M5 | 3 | 0.120 | 0.125 | 0.312 | 1.500 | TM50080CH |
| 1.00 | M6 | 3 | 0.170 | 0.187 | 0.500 | 2.375 | TM60100CH |
| 1.00 | M12 | 4 | 0.360 | 0.375 | 0.875 | 3.000 | TM12100CH |
| 1.25 | M8 | 3 | 0.235 | 0.250 | 0.625 | 2.375 | TM80125CH |
| 1.50 | M10 | 4 | 0.300 | 0.312 | 0.750 | 3.000 | TM10150CH |
| 1.50 | M14 | 4 | 0.370 | 0.375 | 0.875 | 3.000 | TM14150CH |
| 1.50 | M18 | 4 | 0.490 | 0.500 | 1.250 | 3.500 | TM18150CH |
| 1.50 | M20 | 5 | 0.620 | 0.625 | 1.418 | 4.000 | TM20150CH |
| 1.75 | M12 | 4 | 0.360 | 0.375 | 0.875 | 3.000 | TM12175CH |
| 2.00 | M14 | 4 | 0.429 | 0.500 | 1.103 | 3.500 | TM14200CH |
| 2.00 | M16 | 4 | 0.470 | 0.500 | 1.250 | 3.500 | TM16200CH |
| 2.50 | M20 | 4 | 0.495 | 0.500 | 1.250 | 3.500 | TM20250CH |
| 3.00 | M24 | 4 | 0.620 | 0.625 | 1.375 | 4.000 | TM24300CH |
| 3.50 | M30 | 4 | 0.620 | 0.625 | 1.516 | 4.000 | TM30350CH |
| 4.00 | M36 | 5 | 0.745 | 0.750 | 1.575 | 4.500 | TM36400CH |

*Straight fluted

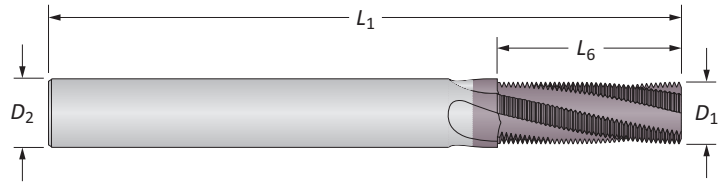
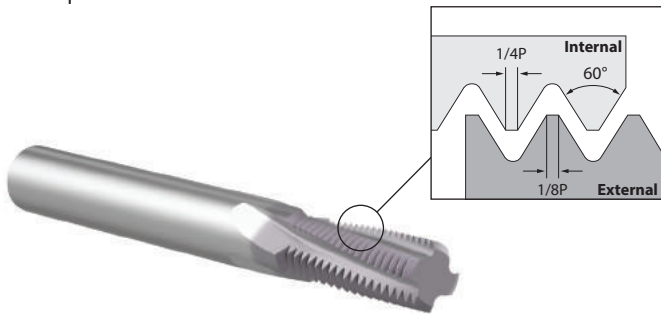


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
m = Metric (mm)

Solid Carbide Thread Mills

ISO | Noncoolant

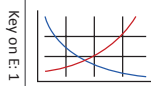


ISO | Noncoolant

| Pitch | Min Thread \varnothing | Flutes | Thread Mill | | | | Part No. | |
|-------|--------------------------|--------|-------------|-------|-------|--------|------------------|-----------------|
| | | | D_1 | D_2 | L_6 | L_1 | ThreadMills USA™ | AccuThread® 856 |
| 0.40 | M2 | 3* | 1.50 | 3.00 | 3.20 | 39.00 | TM20040M | TMMK0200-040M |
| 0.45 | M2.5 | 3* | 1.50 | 3.00 | 3.60 | 39.00 | TM25045M | TMMK0250-045M |
| 0.50 | M3 | 3* | 2.15 | 3.00 | 4.50 | 39.00 | TM30050M | TMMK0300-050M |
| 0.50 | M6 | 3 | 4.60 | 6.00 | 12.00 | 58.00 | TM60050M | TMMK0600-050M |
| 0.50 | M10 | 4 | 7.95 | 8.00 | 15.00 | 64.00 | TM10050M | TMMK1000-050M |
| 0.70 | M4 | 3 | 2.90 | 3.00 | 8.00 | 39.00 | TM40070M | TMMK0400-070M |
| 0.75 | M4.5 | 3 | 3.00 | 4.00 | 6.75 | 51.00 | TM45075M | TMMK0450-075M |
| 0.75 | M6 | 3 | 4.60 | 6.00 | 12.00 | 58.00 | TM60075M | TMMK0600-075M |
| 0.75 | M10 | 4 | 7.95 | 8.00 | 15.00 | 64.00 | TM10075M | TMMK1000-075M |
| 0.80 | M5 | 3 | 3.60 | 4.00 | 8.00 | 51.00 | TM50080M | TMMK0500-080M |
| 1.00 | M6 | 3 | 4.60 | 6.00 | 12.00 | 58.00 | TM60100M | TMMK0600-100M |
| 1.00 | M12 | 4 | 9.40 | 10.00 | 20.00 | 73.00 | TM12100M | TMMK1200-100M |
| 1.25 | M8 | 3 | 5.90 | 6.00 | 16.25 | 58.00 | TM80125M | TMMK0800-125M |
| 1.50 | M10 | 4 | 7.40 | 8.00 | 19.50 | 64.00 | TM10150M | TMMK1000-150M |
| 1.50 | M14 | 4 | 10.90 | 12.00 | 27.00 | 84.00 | TM14150M | TMMK1400-150M |
| 1.50 | M18 | 4 | 11.90 | 12.00 | 31.50 | 84.00 | TM18150M | TMMK1800-150M |
| 1.50 | M20 | 5 | 15.75 | 16.00 | 36.00 | 93.00 | TM20150M | - |
| 1.75 | M12 | 4 | 9.40 | 10.00 | 22.71 | 73.00 | TM12175M | TMMK1200-175M |
| 2.00 | M14 | 4 | 10.90 | 12.00 | 28.00 | 84.00 | TM14200M | TMMK1400-200M |
| 2.00 | M16 | 4 | 11.95 | 12.00 | 30.00 | 84.00 | TM16200M | TMMK2000-200M |
| 2.50 | M20 | 4 | 11.90 | 12.00 | 30.00 | 84.00 | TM20250M | TMMK2000-250M |
| 3.00 | M24 | 4 | 15.90 | 16.00 | 36.00 | 93.00 | TM24300M | TMMK2400-300M |
| 3.50 | M30 | 4 | 15.75 | 16.00 | 38.50 | 100.00 | TM30350M | TMMK3000-350M |
| 4.00 | M36 | 5 | 19.90 | 20.00 | 40.00 | 105.00 | TM36400M | TMMK3600-400M |

*Straight fluted

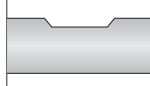
E: 52 - 55



E: 4



Weldon Flat



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)

Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TWN**K0500-NPT

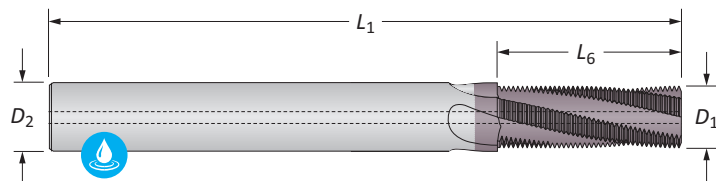
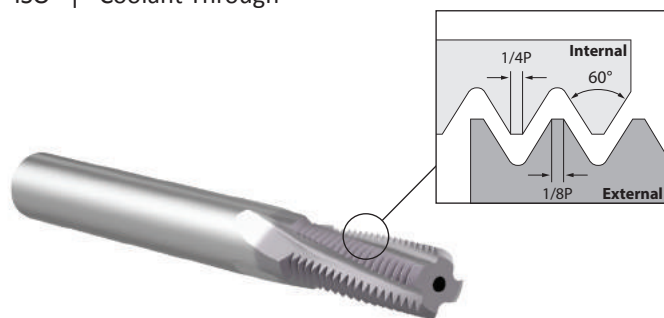
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)
m = Metric (mm)



Solid Carbide Thread Mills

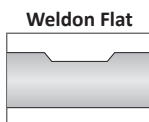
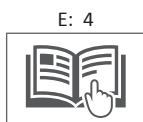
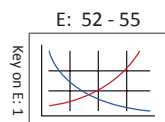
ISO | Coolant Through



ISO | Coolant Through

| Pitch | Min Thread ϕ | Flutes | Thread Mill | | | | Part No. |
|-------|-------------------|--------|-------------|-------|-------|--------|------------------|
| | | | D_1 | D_2 | L_6 | L_1 | ThreadMills USA™ |
| 0.40 | M2 | 3* | 1.50 | 3.00 | 3.20 | 39.00 | TM20040CHM |
| 0.45 | M2.5 | 3* | 1.50 | 3.00 | 3.60 | 39.00 | TM25045CHM |
| 0.50 | M3 | 3* | 2.15 | 3.00 | 4.50 | 39.00 | TM30050CHM |
| 0.50 | M6 | 3 | 4.60 | 6.00 | 12.00 | 58.00 | TM60050CHM |
| 0.50 | M10 | 4 | 7.95 | 8.00 | 15.00 | 64.00 | TM10050CHM |
| 0.70 | M4 | 3 | 2.90 | 3.00 | 8.00 | 39.00 | TM40070CHM |
| 0.75 | M4.5 | 3 | 3.00 | 4.00 | 6.75 | 51.00 | TM45075CHM |
| 0.75 | M6 | 3 | 4.60 | 6.00 | 12.00 | 58.00 | TM60075CHM |
| 0.75 | M10 | 4 | 7.95 | 8.00 | 15.00 | 64.00 | TM10075CHM |
| 0.80 | M5 | 3 | 3.60 | 4.00 | 8.00 | 51.00 | TM50080CHM |
| 1.00 | M6 | 3 | 4.60 | 6.00 | 12.00 | 58.00 | TM60100CHM |
| 1.00 | M12 | 4 | 9.40 | 10.00 | 20.00 | 84.00 | TM12100CHM |
| 1.25 | M8 | 3 | 5.90 | 6.00 | 16.25 | 58.00 | TM80125CHM |
| 1.50 | M10 | 4 | 7.40 | 8.00 | 19.50 | 64.00 | TM10150CHM |
| 1.50 | M14 | 4 | 10.90 | 12.00 | 27.00 | 84.00 | TM14150CHM |
| 1.50 | M18 | 4 | 11.90 | 12.00 | 31.50 | 84.00 | TM18150CHM |
| 1.50 | M20 | 5 | 15.75 | 16.00 | 36.00 | 93.00 | TM20150CHM |
| 1.75 | M12 | 4 | 9.40 | 10.00 | 22.71 | 84.00 | TM12175CHM |
| 2.00 | M14 | 4 | 10.90 | 12.00 | 28.00 | 84.00 | TM14200CHM |
| 2.00 | M16 | 4 | 11.95 | 12.00 | 30.00 | 84.00 | TM16200CHM |
| 2.50 | M20 | 4 | 11.90 | 12.00 | 30.00 | 84.00 | TM20250CHM |
| 3.00 | M24 | 4 | 15.90 | 16.00 | 36.00 | 93.00 | TM24300CHM |
| 3.50 | M30 | 4 | 15.75 | 16.00 | 38.50 | 100.00 | TM30350CHM |
| 4.00 | M36 | 5 | 19.90 | 20.00 | 40.00 | 105.00 | TM36400CHM |

*Straight fluted

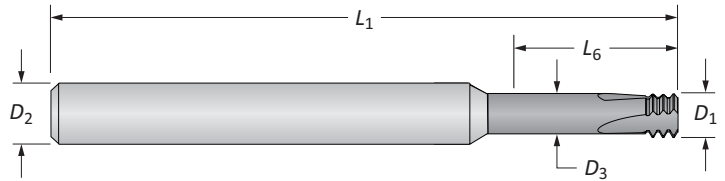
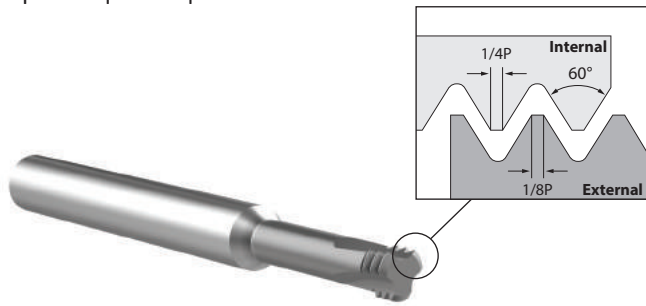


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6 mm and above)
Example: Cylindrical shank = **TM**NK0500-NPT | Weldon shank flat = **TW**NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces


I = Imperial (in)
M = Metric (mm)

Solid Carbide Thread Mills

Imperial | UN | 2xD

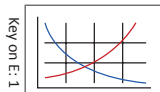


UN | Noncoolant

| TPI (Pitch) | Min Thread \varnothing | Flutes | Thread Mill | | | | | Part No.  AccuThread® T3 |
|----------------|-----------------------------|--------|-------------|-------|-------|-------|-------|---|
| | | | D_1 | D_3 | D_2 | L_6 | L_1 | |
| 64 | #1 | 3 | 0.055 | 0.035 | 0.250 | 0.150 | 2.500 | TM07364-3T2X |
| 56 | #2 | 3 | 0.065 | 0.042 | 0.250 | 0.170 | 2.500 | TM08656-3T2X |
| 48 | #3 | 3 | 0.075 | 0.049 | 0.250 | 0.200 | 2.500 | TM09948-3T2X |
| 40 | #4 | 3 | 0.085 | 0.054 | 0.250 | 0.250 | 2.500 | TM11240-3T2X |
| 36 | #8 | 3 | 0.130 | 0.095 | 0.250 | 0.350 | 2.500 | TM16436-3T2X |
| 32 | #6 | 3 | 0.100 | 0.061 | 0.250 | 0.280 | 2.500 | TM13832-3T2X |
| 32 | #8 | 3 | 0.126 | 0.087 | 0.250 | 0.370 | 2.500 | TM16432-3T2X |
| 32 | #10 | 3 | 0.145 | 0.106 | 0.250 | 0.410 | 2.500 | TM19032-3T2X |
| 28 | 1/4 | 3 | 0.197 | 0.153 | 0.250 | 0.570 | 2.500 | TM25028-3T2X |
| 24 | #10 | 3 | 0.138 | 0.086 | 0.250 | 0.420 | 2.500 | TM19024-3T2X |
| 24 | 5/16 | 3 | 0.260 | 0.208 | 0.312 | 0.670 | 2.500 | TM31224-3T2X |
| 20 | 1/4 | 3 | 0.187 | 0.125 | 0.250 | 0.550 | 2.500 | TM25020-3T2X |
| i 20 | 7/16 | 4 | 0.312 | 0.250 | 0.312 | 0.980 | 2.500 | TM43720-3T2X |
| 18 | 5/16 | 3 | 0.236 | 0.168 | 0.250 | 0.670 | 2.500 | TM31218-3T2X |
| 16 | 3/8 | 3 | 0.264 | 0.187 | 0.312 | 0.870 | 2.500 | TM37516-3T2X |
| 16 | 3/4 | 4 | 0.495 | 0.414 | 0.500 | 1.500 | 3.500 | TM75016-3T2X |
| 14 | 7/16 | 4 | 0.300 | 0.212 | 0.312 | 0.980 | 2.500 | TM43714-3T2X |
| 14 | 7/8 | 4 | 0.620 | 0.528 | 0.625 | 1.750 | 4.000 | TM87514-3T2X |
| 13 | 1/2 | 4 | 0.360 | 0.266 | 0.375 | 1.080 | 3.000 | TM50013-3T2X |
| 12 | 9/16 | 4 | 0.410 | 0.308 | 0.500 | 1.240 | 3.500 | TM56212-3T2X |
| 12 | 3/4 | 4 | 0.495 | 0.389 | 0.500 | 1.500 | 3.500 | TM75012-3T2X |
| 11 | 5/8 | 4 | 0.470 | 0.355 | 0.500 | 1.250 | 3.500 | TM62511-3T2X |
| 10 | 3/4 | 4 | 0.495 | 0.369 | 0.500 | 1.500 | 3.500 | TM75010-3T2X |
| 9 | 7/8 | 4 | 0.620 | 0.480 | 0.625 | 1.750 | 4.000 | TM87509-3T2X |
| 8 | 1 | 4 | 0.620 | 0.463 | 0.625 | 2.000 | 4.000 | TM10008-3T2X |

E: 58 - 59

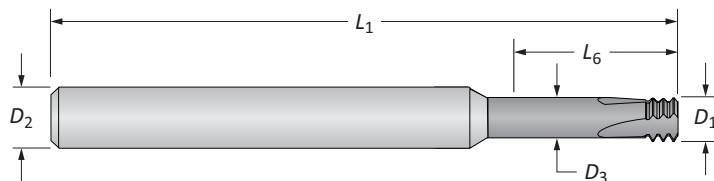
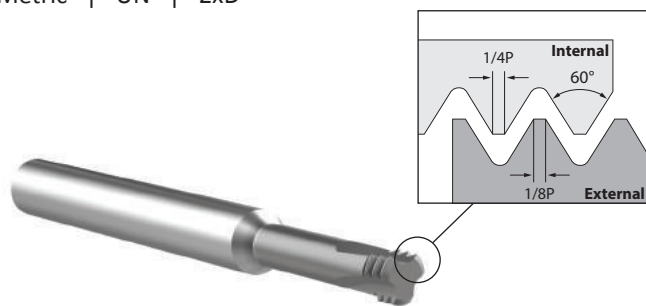
E: 7



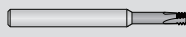
i = Imperial (in)
m = Metric (mm)

Solid Carbide Thread Mills

Metric | UN | 2xD



UN | Noncoolant

| TPI (Pitch) | Min Thread ϕ | Flutes | Thread Mill | | | | | Part No.  AccuThread® T3 |
|----------------|----------------------|--------|-------------|-------|-------|-------|--------|---|
| | | | D_1 | D_3 | D_2 | L_6 | L_1 | |
| 64 | #1 | 3 | 1.40 | 0.89 | 6.00 | 3.81 | 63.00 | TM07364M-3T2X |
| 56 | #2 | 3 | 1.65 | 1.08 | 6.00 | 4.32 | 63.00 | TM08656M-3T2X |
| 48 | #3 | 3 | 1.91 | 1.24 | 6.00 | 5.08 | 63.00 | TM09948M-3T2X |
| 40 | #4 | 3 | 2.16 | 1.36 | 6.00 | 6.35 | 63.00 | TM11240M-3T2X |
| 36 | #8 | 3 | 3.30 | 2.42 | 6.00 | 8.89 | 63.00 | TM16436M-3T2X |
| 32 | #6 | 3 | 2.54 | 1.55 | 6.00 | 7.11 | 63.00 | TM13832M-3T2X |
| 32 | #8 | 3 | 3.20 | 2.21 | 6.00 | 9.40 | 63.00 | TM16432M-3T2X |
| 32 | #10 | 3 | 3.68 | 2.70 | 6.00 | 10.41 | 63.00 | TM19032M-3T2X |
| 28 | 1/4 | 3 | 5.00 | 3.88 | 6.00 | 14.48 | 63.00 | TM25028M-3T2X |
| 24 | #10 | 3 | 3.51 | 2.20 | 6.00 | 10.67 | 63.00 | TM19024M-3T2X |
| 24 | 5/16 | 3 | 6.60 | 5.30 | 8.00 | 17.02 | 64.00 | TM31224M-3T2X |
| mm 20 | 1/4 | 3 | 4.75 | 3.18 | 6.00 | 13.97 | 63.00 | TM25020M-3T2X |
| 20 | 7/16 | 4 | 7.92 | 6.36 | 8.00 | 24.89 | 64.00 | TM43720M-3T2X |
| 18 | 5/16 | 3 | 5.94 | 4.26 | 6.00 | 17.02 | 63.00 | TM31218M-3T2X |
| 16 | 3/8 | 3 | 6.71 | 4.76 | 8.00 | 22.10 | 64.00 | TM37516M-3T2X |
| 16 | 3/4 | 4 | 11.94 | 9.88 | 12.00 | 38.10 | 88.90 | TM75016M-3T2X |
| 14 | 7/16 | 4 | 7.62 | 5.39 | 8.00 | 24.89 | 64.00 | TM43714M-3T2X |
| 14 | 7/8 | 4 | 15.75 | 13.42 | 16.00 | 44.45 | 100.00 | TM87514M-3T2X |
| 12 | 3/4 | 4 | 11.94 | 9.24 | 12.00 | 38.10 | 88.90 | TM75012M-3T2X |
| 11 | 5/8 | 4 | 11.94 | 9.01 | 12.00 | 31.75 | 88.90 | TM62511M-3T2X |
| 10 | 3/4 | 4 | 11.94 | 8.73 | 12.00 | 38.10 | 88.90 | TM75010M-3T2X |
| 9 | 7/8 | 4 | 15.75 | 12.20 | 16.00 | 44.45 | 100.00 | TM87509M-3T2X |
| 8 | 1 | 4 | 15.75 | 11.77 | 16.00 | 50.80 | 100.00 | TM10008M-3T2X |

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

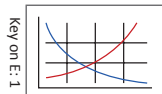
THREADING

X

SPECIALS

E: 58 - 59

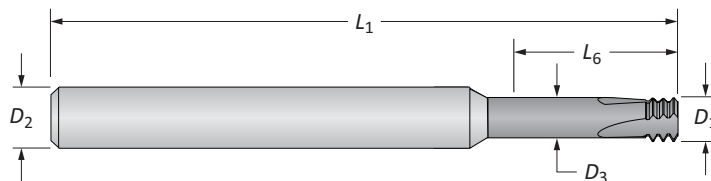
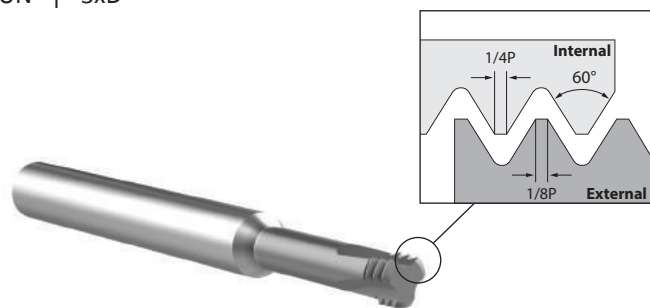
E: 7




I = Imperial (in)
 mm = Metric (mm)

Solid Carbide Thread Mills

UN | 3xD



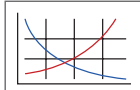
UN | Noncoolant

| TPI (Pitch) | Min Thread \varnothing | Flutes | Thread Mill | | | | | Part No.  AccuThread® T3 |
|----------------|-----------------------------|--------|-------------|-------|-------|-------|--------|---|
| | | | D_1 | D_3 | D_2 | L_6 | L_1 | |
| 40 | #4 | 3 | 0.085 | 0.054 | 0.250 | 0.310 | 2.500 | TM11240-3T3X |
| 32 | #6 | 3 | 0.100 | 0.061 | 0.250 | 0.410 | 2.500 | TM13832-3T3X |
| 32 | #8 | 3 | 0.126 | 0.087 | 0.250 | 0.490 | 2.500 | TM16432-3T3X |
| 32 | #10 | 3 | 0.145 | 0.106 | 0.250 | 0.590 | 2.500 | TM19032-3T3X |
| 28 | 1/4 | 3 | 0.197 | 0.153 | 0.250 | 0.750 | 2.500 | TM25028-3T3X |
| 24 | #10 | 3 | 0.138 | 0.086 | 0.250 | 0.590 | 2.500 | TM19024-3T3X |
| 24 | 5/16 | 3 | 0.260 | 0.208 | 0.312 | 0.940 | 2.500 | TM31224-3T3X |
| 20 | 1/4 | 3 | 0.187 | 0.125 | 0.250 | 0.750 | 2.500 | TM25020-3T3X |
| 18 | 5/16 | 3 | 0.236 | 0.168 | 0.250 | 0.910 | 2.500 | TM31218-3T3X |
| 16 | 3/4 | 4 | 0.495 | 0.414 | 0.500 | 2.250 | 4.000 | TM75016-3T3X |
| 14 | 7/8 | 4 | 0.620 | 0.528 | 0.625 | 2.625 | 4.000 | TM87514-3T3X |
| 12 | 3/4 | 4 | 0.495 | 0.389 | 0.500 | 2.250 | 4.000 | TM75012-3T3X |
| 11 | 5/8 | 4 | 0.470 | 0.355 | 0.500 | 1.875 | 4.000 | TM62511-3T3X |
| 10 | 3/4 | 4 | 0.495 | 0.369 | 0.500 | 2.250 | 4.000 | TM75010-3T3X |
| 9 | 7/8 | 4 | 0.620 | 0.480 | 0.625 | 2.625 | 4.000 | TM87509-3T3X |
| 8 | 1 | 4 | 0.620 | 0.463 | 0.625 | 3.000 | 4.500 | TM10008-3T3X |
| i | | | | | | | | |
| 40 | #4 | 3 | 2.16 | 1.36 | 6.00 | 7.87 | 63.00 | TM11240M-3T3X |
| 32 | #6 | 3 | 2.54 | 1.55 | 6.00 | 10.41 | 63.00 | TM13832M-3T3X |
| 32 | #8 | 3 | 3.20 | 2.21 | 6.00 | 12.45 | 63.00 | TM16432M-3T3X |
| 32 | #10 | 3 | 3.68 | 2.70 | 6.00 | 14.99 | 63.00 | TM19032M-3T3X |
| 28 | 1/4 | 3 | 5.00 | 3.88 | 6.00 | 19.05 | 63.00 | TM25028M-3T3X |
| 24 | #10 | 3 | 3.51 | 2.20 | 6.00 | 14.99 | 63.00 | TM19024M-3T3X |
| 24 | 5/16 | 3 | 6.60 | 5.30 | 8.00 | 23.88 | 64.00 | TM31224M-3T3X |
| 20 | 1/4 | 3 | 4.75 | 3.18 | 6.00 | 19.05 | 63.00 | TM25020M-3T3X |
| 18 | 5/16 | 3 | 5.94 | 4.21 | 6.00 | 23.11 | 63.00 | TM31218M-3T3X |
| 16 | 3/4 | 4 | 11.94 | 9.88 | 12.00 | 57.15 | 88.90 | TM75016M-3T3X |
| 14 | 7/8 | 4 | 15.75 | 13.42 | 16.00 | 66.68 | 100.00 | TM87514M-3T3X |
| 12 | 3/4 | 4 | 11.94 | 9.24 | 12.00 | 57.15 | 88.90 | TM75012M-3T3X |
| 11 | 5/8 | 4 | 11.94 | 9.01 | 12.00 | 47.63 | 88.90 | TM62511M-3T3X |
| 10 | 3/4 | 4 | 11.94 | 8.73 | 12.00 | 57.15 | 88.90 | TM75010M-3T3X |
| 9 | 7/8 | 4 | 15.75 | 12.20 | 16.00 | 66.68 | 100.00 | TM87509M-3T3X |
| 8 | 1 | 4 | 15.75 | 11.77 | 16.00 | 76.20 | 114.30 | TM10008M-3T3X |
| m | | | | | | | | |

E: 58 - 59

E: 7

Key on E: 1

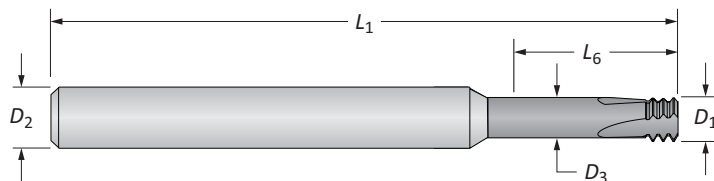
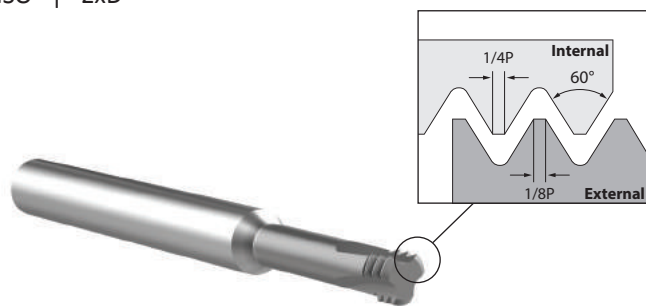


i = Imperial (in)
m = Metric (mm)



Solid Carbide Thread Mills

ISO | 2xD



ISO | Noncoolant

| | Pitch | Min Thread ϕ | Flutes | Thread Mill | | | | | Part No. |
|------|-------|-------------------|--------|-------------|-------|-------|--------|---------------|----------------|
| | | | | D_1 | D_3 | D_2 | L_6 | L_1 | AccuThread® T3 |
| i | 0.35 | M1.8 | 3 | 0.053 | 0.033 | 0.250 | 0.170 | 2.500 | TM18035-3T2X |
| | 0.40 | M2 | 3 | 0.061 | 0.041 | 0.250 | 0.180 | 2.500 | TM20040-3T2X |
| | 0.45 | M2.5 | 3 | 0.077 | 0.055 | 0.250 | 0.220 | 2.500 | TM25045-3T2X |
| | 0.50 | M3 | 3 | 0.093 | 0.068 | 0.250 | 0.260 | 2.500 | TM30050-3T2X |
| | 0.60 | M3.5 | 3 | 0.108 | 0.078 | 0.250 | 0.300 | 2.500 | TM35060-3T2X |
| | 0.70 | M4 | 3 | 0.122 | 0.088 | 0.250 | 0.350 | 2.500 | TM40070-3T2X |
| | 0.75 | M4.5 | 3 | 0.133 | 0.095 | 0.250 | 0.430 | 2.500 | TM45075-3T2X |
| | 0.80 | M5 | 3 | 0.150 | 0.111 | 0.250 | 0.490 | 2.500 | TM50080-3T2X |
| | 1.00 | M6 | 3 | 0.183 | 0.134 | 0.250 | 0.550 | 2.500 | TM60100-3T2X |
| | 1.25 | M8 | 3 | 0.234 | 0.173 | 0.250 | 0.710 | 2.500 | TM80125-3T2X |
| | 1.50 | M10 | 4 | 0.307 | 0.234 | 0.312 | 0.910 | 2.500 | TM10150-3T2X |
| | 1.50 | M14 | 4 | 0.370 | 0.293 | 0.375 | 1.100 | 3.500 | TM14150-3T2X |
| | 1.50 | M18 | 4 | 0.495 | 0.418 | 0.500 | 1.420 | 3.500 | TM18150-3T2X |
| | 1.75 | M12 | 4 | 0.310 | 0.225 | 0.312 | 0.945 | 2.500 | TM12175-3T2X |
| 2.00 | M16 | 4 | 0.470 | 0.370 | 0.500 | 1.260 | 3.500 | TM16200-3T2X | |
| 2.50 | M20 | 4 | 0.590 | 0.466 | 0.625 | 1.570 | 4.000 | TM20250-3T2X | |
| 3.00 | M24 | 4 | 0.620 | 0.472 | 0.625 | 1.890 | 4.000 | TM24300-3T2X | |
| m | 0.35 | M1.8 | 3 | 1.35 | 0.84 | 6.00 | 4.32 | 63.00 | TM18035M-3T2X |
| | 0.40 | M2 | 3 | 1.55 | 1.04 | 6.00 | 4.60 | 63.00 | TM20040M-3T2X |
| | 0.45 | M2.5 | 3 | 1.96 | 1.38 | 6.00 | 5.60 | 63.00 | TM25045M-3T2X |
| | 0.50 | M3 | 3 | 2.36 | 1.73 | 6.00 | 6.60 | 63.00 | TM30050M-3T2X |
| | 0.60 | M3.5 | 3 | 2.74 | 1.99 | 6.00 | 7.60 | 63.00 | TM35060M-3T2X |
| | 0.70 | M4 | 3 | 3.10 | 2.22 | 6.00 | 8.90 | 63.00 | TM40070M-3T2X |
| | 0.75 | M4.5 | 3 | 3.38 | 2.41 | 6.00 | 10.92 | 63.00 | TM45075M-3T2X |
| | 0.80 | M5 | 3 | 3.81 | 2.81 | 6.00 | 12.40 | 63.00 | TM50080M-3T2X |
| | 1.00 | M6 | 3 | 4.65 | 3.41 | 6.00 | 14.00 | 63.00 | TM60100M-3T2X |
| | 1.25 | M8 | 3 | 5.94 | 4.40 | 6.00 | 18.00 | 63.00 | TM80125M-3T2X |
| | 1.50 | M10 | 4 | 7.80 | 5.95 | 8.00 | 23.10 | 64.00 | TM10150M-3T2X |
| | 1.50 | M14 | 4 | 9.40 | 7.45 | 10.00 | 27.94 | 88.90 | TM14150M-3T2X |
| | 1.50 | M18 | 4 | 11.94 | 9.98 | 12.00 | 36.07 | 88.90 | TM18150M-3T2X |
| | 1.75 | M12 | 4 | 7.92 | 5.78 | 8.00 | 24.00 | 64.00 | TM12175M-3T2X |
| 2.00 | M16 | 4 | 11.94 | 9.40 | 12.00 | 32.00 | 88.90 | TM16200M-3T2X | |
| 2.50 | M20 | 4 | 14.99 | 11.83 | 16.00 | 39.88 | 100.00 | TM20250M-3T2X | |
| 3.00 | M24 | 4 | 15.75 | 11.98 | 16.00 | 48.01 | 100.00 | TM24300M-3T2X | |

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

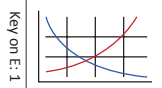
THREADING

X

SPECIALS

E: 58 - 59

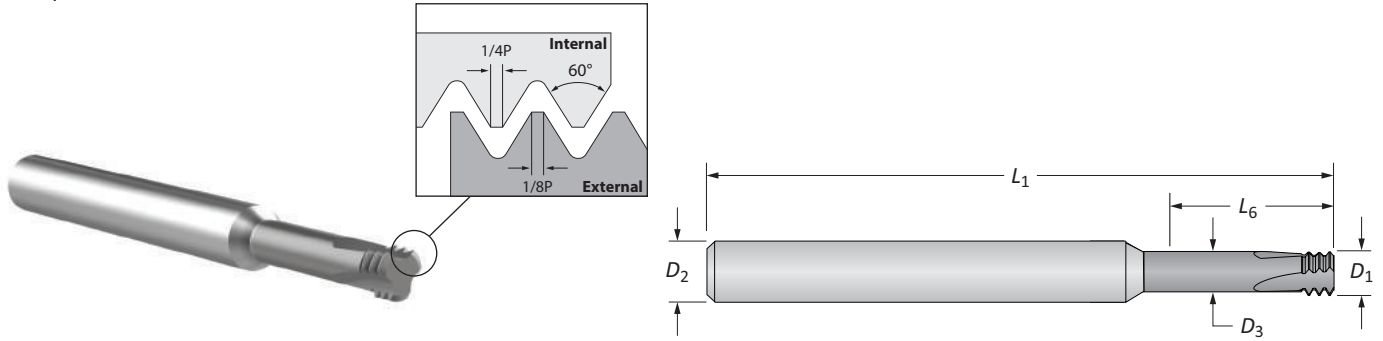
E: 7



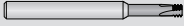
i = Imperial (in)
m = Metric (mm)

Solid Carbide Thread Mills

ISO | 3xD

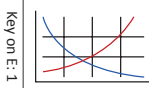


ISO | Noncoolant

| Pitch | Min Thread Ø | Flutes | Thread Mill | | | | | Part No. |
|---------------|--------------|--------|----------------|----------------|----------------|----------------|----------------|---|
| | | | D ₁ | D ₃ | D ₂ | L ₆ | L ₁ | |
| | | | | | | | |  AccuThread® T3 |
| 0.45 | M2.5 | 3 | 0.077 | 0.055 | 0.250 | 0.300 | 2.500 | TM25045-3T3X |
| 0.50 | M3 | 3 | 0.093 | 0.068 | 0.250 | 0.370 | 2.500 | TM30050-3T3X |
| 0.60 | M3.5 | 3 | 0.108 | 0.078 | 0.250 | 0.450 | 2.500 | TM35060-3T3X |
| 0.70 | M4 | 3 | 0.122 | 0.088 | 0.250 | 0.490 | 2.500 | TM40070-3T3X |
| 0.80 | M5 | 3 | 0.150 | 0.111 | 0.250 | 0.630 | 2.500 | TM50080-3T3X |
| 1.00 | M6 | 3 | 0.183 | 0.134 | 0.250 | 0.790 | 2.500 | TM60100-3T3X |
| i 1.25 | M8 | 3 | 0.234 | 0.173 | 0.250 | 0.940 | 2.500 | TM80125-3T3X |
| 1.50 | M10 | 4 | 0.307 | 0.234 | 0.312 | 1.120 | 2.500 | TM10150-3T3X |
| 1.50 | M14 | 4 | 0.370 | 0.293 | 0.375 | 1.650 | 3.500 | TM14150-3T3X |
| 1.50 | M18 | 4 | 0.495 | 0.418 | 0.500 | 2.120 | 4.000 | TM18150-3T3X |
| 1.75 | M12 | 4 | 0.310 | 0.225 | 0.312 | 1.418 | 2.500 | TM12175-3T3X |
| 2.00 | M16 | 4 | 0.470 | 0.370 | 0.500 | 1.950 | 4.000 | TM16200-3T3X |
| 2.50 | M20 | 4 | 0.590 | 0.466 | 0.625 | 2.360 | 4.000 | TM20250-3T3X |
| 3.00 | M24 | 4 | 0.620 | 0.472 | 0.625 | 2.830 | 4.000 | TM24300-3T3X |
| 0.45 | M2.5 | 3 | 1.96 | 1.38 | 6.00 | 7.60 | 63.00 | TM25045M-3T3X |
| 0.50 | M3 | 3 | 2.36 | 1.73 | 6.00 | 9.40 | 63.00 | TM30050M-3T3X |
| 0.60 | M3.5 | 3 | 2.74 | 1.99 | 6.00 | 11.40 | 63.00 | TM35060M-3T3X |
| 0.70 | M4 | 3 | 3.10 | 2.22 | 6.00 | 12.40 | 63.00 | TM40070M-3T3X |
| 0.80 | M5 | 3 | 3.81 | 2.81 | 6.00 | 16.00 | 63.00 | TM50080M-3T3X |
| 1.00 | M6 | 3 | 4.65 | 3.41 | 6.00 | 20.10 | 63.00 | TM60100M-3T3X |
| m 1.25 | M8 | 3 | 5.94 | 4.40 | 6.00 | 23.90 | 63.00 | TM80125M-3T3X |
| 1.50 | M10 | 4 | 7.80 | 5.95 | 8.00 | 28.40 | 64.00 | TM10150M-3T3X |
| 1.50 | M14 | 4 | 9.40 | 7.45 | 10.00 | 41.91 | 88.90 | TM14150M-3T3X |
| 1.50 | M18 | 4 | 11.94 | 9.98 | 12.00 | 53.85 | 88.90 | TM18150M-3T3X |
| 1.75 | M12 | 4 | 7.92 | 5.78 | 8.00 | 36.00 | 64.00 | TM12175M-3T3X |
| 2.00 | M16 | 4 | 11.94 | 9.40 | 12.00 | 49.53 | 88.90 | TM16200M-3T3X |
| 2.50 | M20 | 4 | 14.99 | 11.83 | 16.00 | 59.94 | 100.00 | TM20250M-3T3X |
| 3.00 | M24 | 4 | 15.75 | 11.98 | 16.00 | 71.88 | 100.00 | TM24300M-3T3X |

E: 58 - 59

E: 7



i = Imperial (in)
m = Metric (mm)

Indexable Insert Thread Mills Overview

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



Bolt-in Style

- Replaceable inserts allow for quick setups and tool changes to keep the production process moving smoothly
- Inserts are available with AM210® coating, which increases tool life
- Available with 1 flute only
- Multiple thread form styles are available
- Tapered thread forms: NPT, NPTF, BSPT
- Straight thread forms: BSPP, UN, UNJ, ISO

Bolt-in Style Indexable Thread Mill Assembly

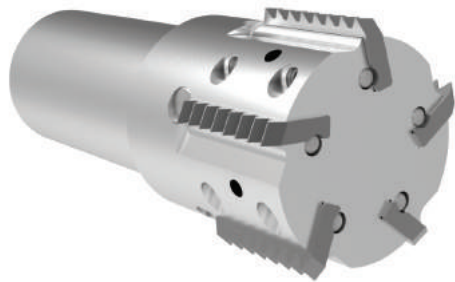


Step 1:
Slide the thread mill insert into the insert holder slot.

Step 2:
Hand tighten insert screws to hold insert in place.

Step 3:
Tighten each screw to 1.5 Nm (1.1 ft-lbs).

Step 4:
Tighten each screw to 3.5 Nm (2.6 ft-lbs).



Pin Style

- Replaceable inserts allow for quick setups and tool changes to keep the production process moving smoothly
- Inserts are available with AM210® coating, which increases tool life
- Holders available in 2 styles: Weldon Shank and Shell Mill
- Weldon Shank holders available with 1, 2, 3, and 5 flutes
- Shell Mill holders available with 6, 7, and 8 flutes
- Thread forms available: NPT, NPTF, BSPT, BSPP, API-ROUND, ACME, UN, UNJ, ISO

Pin Style Indexable Thread Mill Assembly



Step 1:
Slide the thread mill insert into the insert holder slot.

Step 2:
Slide the pin into the pin holder slot to hold the insert in place.

Step 3:
Hand tighten insert screws to hold insert in place. If there are three insert screws, start tightening the middle screw, then the two outer screws. Repeat for each insert.

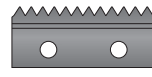
Step 4:
Following the order from step three, tighten each screw to 1.5 Nm (1.1 ft-lbs).

Step 5:
Following the order from step three, tighten each screw to 3.5 Nm (2.6 ft-lbs).

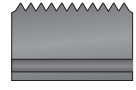
Product Nomenclature

AccuThread® 856 Indexable Inserts

| | | | | | | |
|-----------|------------|----------|---|-----------|-----------|----------|
| TP | 075 | K | - | UN | 32 | I |
| 1 | 2 | 3 | | 4 | 5 | 6 |



Bolt-in Style

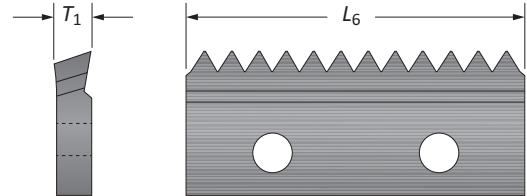


Pin Style

| 1. Insert Style | 2. Insert Length | 3. Coating | 4. Thread Class | 5. Thread Pitch | 6. Thread Style |
|--|--|--|--|------------------------------------|--|
| TP = Bolt-in TN = Pin style | 075 = 3/4 100 = 1.00 150 = 1.50 | K = AM210® A = TiAlN U = Uncoated | UN = UN BSPT = BSPT UNJ = UNJ M = ISO NPT = NPT FA = Full ACME NPTF = NPTF AP = API Round BSPP = BSPP | 20 = UN 1.0 = ISO | I = Internal E = External |

Indexable Inserts

| Symbol | Attribute |
|--------|------------------|
| L_6 | Length of insert |
| T_1 | Insert thickness |



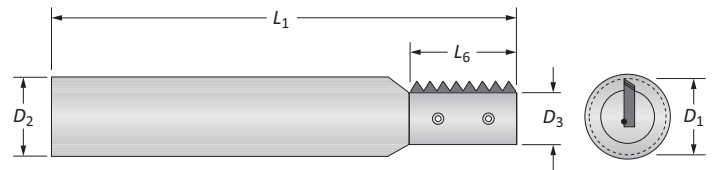
AccuThread® 856 Indexable Insert Holders

| | | | | | | |
|------------|---|-------------|---|-----------|------------|----------|
| THT | - | 0400 | - | 1F | 075 | M |
| 1 | | 2 | | 3 | 4 | 5 |

| 1. Holder Style | |
|----------------------------|---------------------------------------|
| Bolt-in Style | Pin Style |
| THT = Tapered Head | THP = Weldon Positive Rake |
| THN = Straight Head | TNR = Weldon Neutral Rake |
| | TSN = Shell Mill Positive Rake |
| | TSR = Shell Mill Neutral Rake |

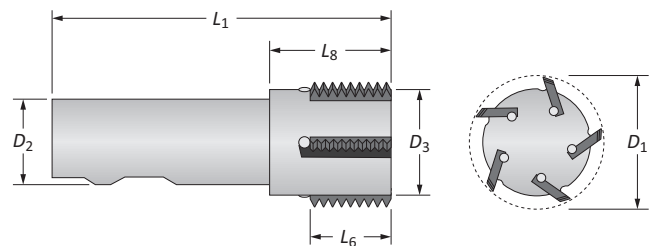
| 2. Cutter Diameter | 3. Shank Designation |
|---------------------|--|
| 0400 = 0.400 | 1F = 1 flute 6F = 6 flutes 2F = 2 flutes 7F = 7 flutes 3F = 3 flutes 8F = 8 flutes 5F = 5 flutes |

| 4. Length of Insert | 5. Shank Designation |
|--|--|
| 075 = 3/4 100 = 1.00 150 = 1.50 | Blank = Inch M = Metric |



Bolt-in Style Holders

| Symbol | Attribute | Symbol | Attribute |
|--------|-------------------------|--------|------------------|
| D_1 | Maximum cutter diameter | L_1 | Overall length |
| D_2 | Shank diameter | L_6 | Length of insert |
| D_3 | Pilot diameter | | |



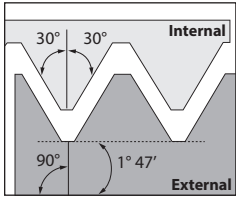
Pin Style Holders

| Symbol | Attribute | Symbol | Attribute |
|---------|----------------------------|--------|----------------------------|
| D_1 | Cutter diameter | D_5 | Bore diameter (Shell Mill) |
| D_1^* | Oversized cutter diameter | L_1 | Overall length |
| D_2 | Shank diameter | L_6 | Length of insert |
| D_3 | Pilot diameter | L_8 | Flute length |
| D_4 | Body diameter (Shell Mill) | T_2 | Slot width (Shell Mill) |

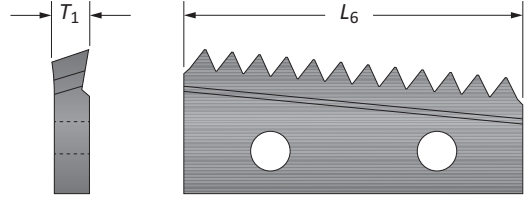
AccuThread® 856 Thread Mill Inserts

Bolt-in Style | NPT / NPTF

A
DRILLING



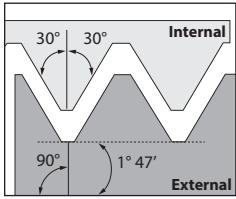
NPT
Internal / External



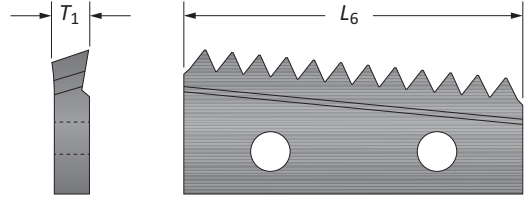
B
BORING

| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|--------------------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | NPT Internal/External |
| 18 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-NPT18 |
| 14 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-NPT14 |

C
REAMING



NPTF
Internal / External



| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|---------------------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | NPTF Internal/External |
| 18 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-NPTF18 |
| 14 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-NPTF14 |

D
BURNISHING

E
THREADING

X
SPECIALS

E: 60 - 63

E: 37

E: 43

Key on E: 1

Inserts sold in quantities of 2

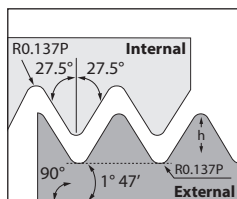


AccuThread® 856 Thread Mill Inserts

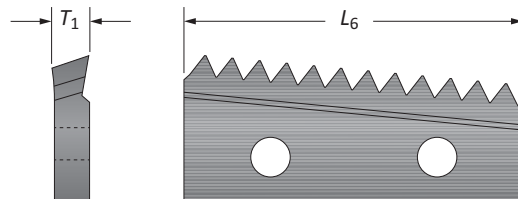
Bolt-in Style | BSPT / BSPP

A

DRILLING



BSPT
Internal / External



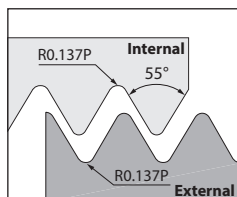
B

BORING

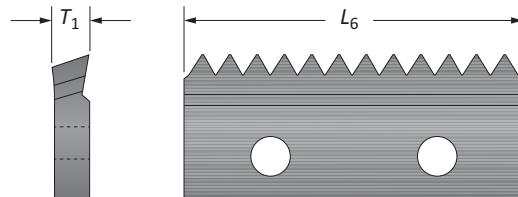
| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|---------------------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | BSPT Internal/External |
| 19 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-BSPT19 |
| 19 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-BSPT19 |
| 14 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-BSPT14 |

C

REAMING



BSPP
Internal / External



| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|---------------------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | BSPP Internal/External |
| 19 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-BSPP19 |
| 19 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-BSPP19 |
| 14 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-BSPP14 |

D

BURNISHING

E

THREADING

X

SPECIALS

E: 60 - 63

E: 37

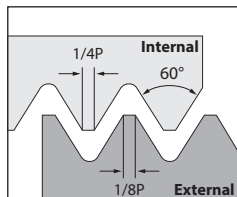
E: 43

Key on E: 1

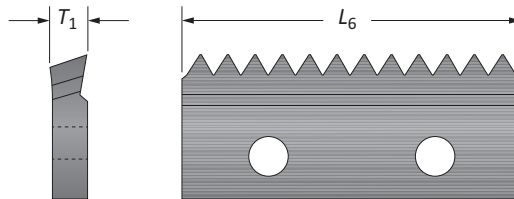
Inserts sold in quantities of 2

AccuThread® 856 Thread Mill Inserts

Bolt-in Style | UN

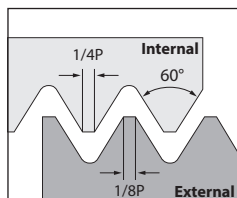


UN
Internal

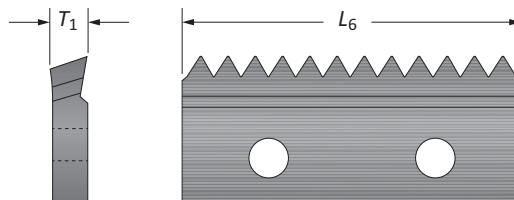


| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|---------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | UN Internal |
| 32 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UN32I |
| 32 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN32I |
| 24 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UN24I |
| 24 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN24I |
| 20 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UN20I |
| 20 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN20I |
| 18 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UN18I |
| 18 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN18I |
| 16 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UN16I |
| 16 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN16I |
| 14 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN14I |
| 13 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN13I |
| 12 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN12I |
| 10* | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN10I* |

*This item is only used with THN-0611-1F100. The reduced body allows a 3/4"-10 UN/UNJ to be produced.

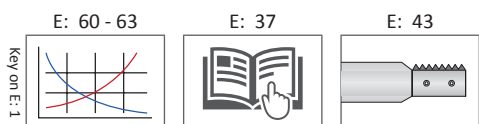


UN
External



| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|---------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | UN External |
| 32 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UN32E |
| 32 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN32E |
| 24 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UN24E |
| 24 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN24E |
| 20 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UN20E |
| 20 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN20E |
| 18 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UN18E |
| 18 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN18E |
| 16 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UN16E |
| 16 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN16E |
| 14 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN14E |
| 13 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN13E |
| 12 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN12E |
| 10* | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UN10E* |

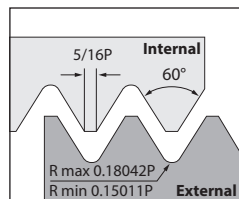
*This item is only used with THN-0611-1F100. The reduced body allows a 3/4"-10 UN/UNJ to be produced.



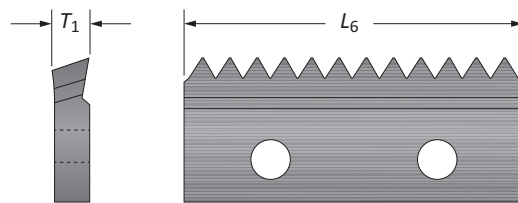
Inserts sold in quantities of 2

AccuThread® 856 Thread Mill Inserts

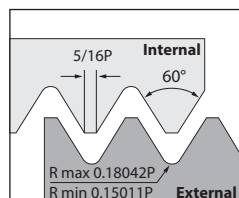
Bolt-in Style | UNJ



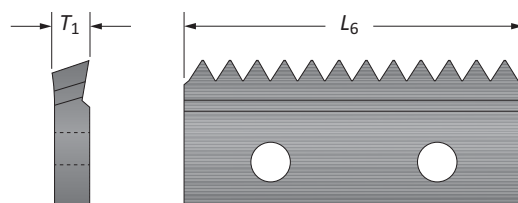
UNJ
Internal



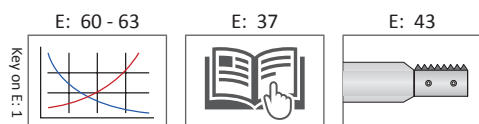
| TPI (Pitch) | Insert | | | | Part No. |
|-------------|---------------------|-------------------|---------------------|-------------------|---------------|
| | L ₆ inch | L ₆ mm | T ₁ inch | T ₁ mm | UNJ Internal |
| 32 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UNJ32I |
| 32 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ32I |
| 24 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UNJ24I |
| 24 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ24I |
| 20 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UNJ20I |
| 20 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ20I |
| 18 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UNJ18I |
| 18 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ18I |
| 16 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UNJ16I |
| 16 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ16I |
| 14 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ14I |
| 12 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ12I |



UNJ
External



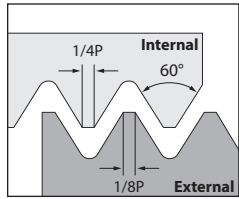
| TPI (Pitch) | Insert | | | | Part No. |
|-------------|---------------------|-------------------|---------------------|-------------------|---------------|
| | L ₆ inch | L ₆ mm | T ₁ inch | T ₁ mm | UNJ External |
| 32 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UNJ32E |
| 32 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ32E |
| 24 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UNJ24E |
| 24 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ24E |
| 20 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UNJ20E |
| 20 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ20E |
| 18 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UNJ18E |
| 18 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ18E |
| 16 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-UNJ16E |
| 16 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ16E |
| 12 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-UNJ12E |



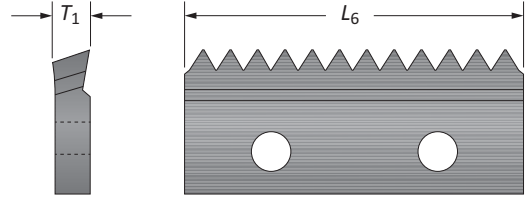
Inserts sold in quantities of 2

AccuThread® 856 Thread Mill Inserts

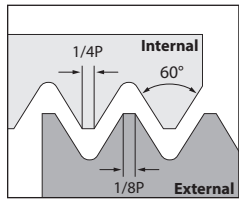
Bolt-in Style | ISO



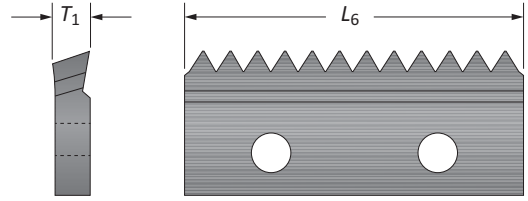
ISO
Internal



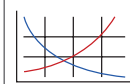

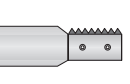
| Pitch | Insert | | | | Part No. |
|-------|------------|----------|------------|----------|---------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | ISO Internal |
| 0.5 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-M0.5I |
| 1.0 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-M1.0I |
| 1.0 | 1.000 | 24.40 | 0.140 | 3.56 | TP100K-M1.0I |
| 1.25 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-M1.25I |
| 1.5 | 0.750 | 19.05 | 0.080 | 2.03 | TP075K-M1.5I |
| 1.5 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-M1.5I |
| 2.0 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-M2.0I |



ISO
External



| Pitch | Insert | | | | Part No. |
|-------|------------|----------|------------|----------|--------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | ISO External |
| 1.0 | 1.000 | 24.40 | 0.140 | 3.56 | TP100K-M1.0E |
| 1.5 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-M1.5E |
| 2.0 | 1.000 | 25.40 | 0.140 | 3.56 | TP100K-M2.0E |

E: 60 - 63  E: 37  E: 43 

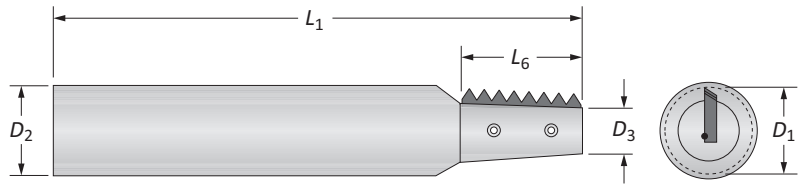
Key on E: 1

Inserts sold in quantities of 2



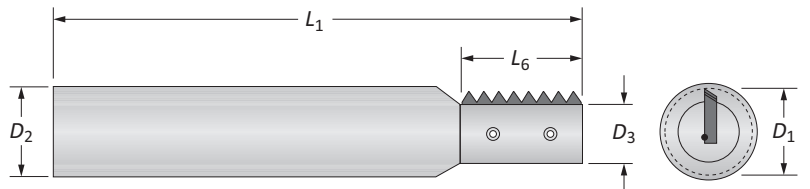
AccuThread® 856 Thread Mill Insert Holders

Bolt-in Style



Tapered Insert Holders | NPT / NPTF / BSPT

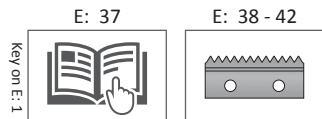
| | Holder | | | | | Flutes | Part No. | Inserts | Screw | Wrench |
|---|--------|-------|-------|-------|-------|--------|------------------------|-----------|---------|--------|
| | D_1 | D_3 | D_2 | L_6 | L_1 | | | | | |
| i | 0.400 | 0.229 | 0.500 | 0.750 | 3.000 | 1 | THT-0400-1F075 | TP075K... | TMS-250 | 8T-8 |
| | 0.659 | 0.379 | 0.500 | 1.000 | 3.000 | 1 | THT-0659-1F100 | TP100K... | TMS-45 | 8T-9 |
| m | 10.16 | 5.82 | 13.00 | 19.05 | 76.20 | 1 | THT-0400-1F075M | TP075K... | TMS-250 | 8T-8 |
| | 16.74 | 9.65 | 13.00 | 25.40 | 76.20 | 1 | THT-0659-1F100M | TP100K... | TMS-45 | 8T-9 |



Straight Insert Holders | BSPP / UN / UNJ / ISO

| | Holder | | | | | Flutes | Part No. | Inserts | Screw | Wrench |
|---|--------|-------|-------|-------|-------|--------|------------------------|-----------|---------|--------|
| | D_1 | D_3 | D_2 | L_6 | L_1 | | | | | |
| i | 0.394 | 0.250 | 0.500 | 0.750 | 3.000 | 1 | THN-0394-1F075 | TP075K... | TMS-250 | 8T-8 |
| | 0.611 | 0.383 | 0.750 | 1.000 | 3.500 | 1 | THN-0611-1F100 | *SEE NOTE | TMS-40 | 8T-9 |
| | 0.625 | 0.454 | 0.750 | 1.000 | 3.500 | 1 | THN-0625-1F100 | TP100K... | TMS-40 | 8T-9 |
| m | 10.01 | 6.35 | 13.00 | 19.05 | 76.20 | 1 | THN-0394-1F075M | TP075K... | TMS-250 | 8T-8 |
| | 15.88 | 11.58 | 25.00 | 25.40 | 88.90 | 1 | THN-0625-1F100M | TP100K... | TMS-40 | 8T-9 |

*NOTE: Only UN/UNJ 10 TPI inserts can be used in this holder. Please refer to inserts on pages E: 38-39.



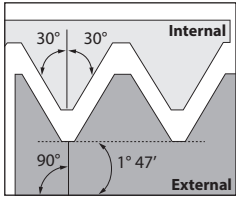
Key on E: 1

i = Imperial (in)
m = Metric (mm)

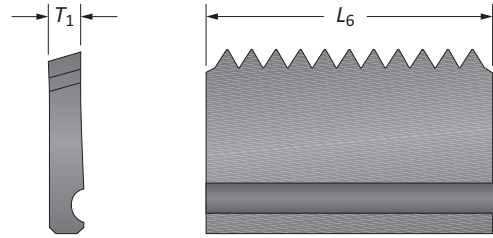
AccuThread® 856 Thread Mill Inserts

Pin Style | NPT / NPTF / BSPT

A
DRILLING



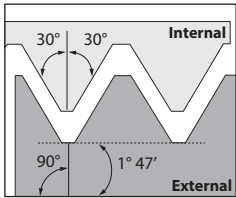
NPT
Internal / External



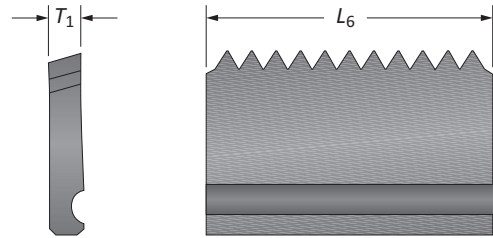
B
BORING

| TPI (Pitch) | Insert | | | | Part No. |
|-------------|---------------------|-------------------|---------------------|-------------------|--------------------------|
| | L ₆ inch | L ₆ mm | T ₁ inch | T ₁ mm | NPT Internal/External |
| 11.5 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-NPT11.5 |
| 8 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-NPT8 |

C
REAMING

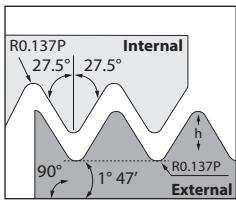


NPTF
Internal / External

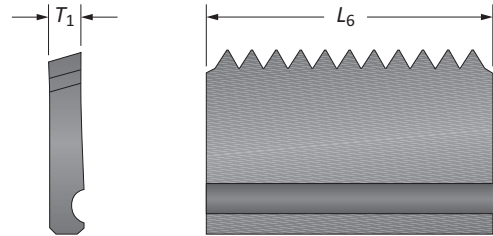


| TPI (Pitch) | Insert | | | | Part No. |
|-------------|---------------------|-------------------|---------------------|-------------------|---------------------------|
| | L ₆ inch | L ₆ mm | T ₁ inch | T ₁ mm | NPTF Internal/External |
| 11.5 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-NPTF11.5 |
| 8 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-NPTF8 |

D
BURNISHING



BSPT
Internal / External



| TPI (Pitch) | Insert | | | | Part No. |
|-------------|---------------------|-------------------|---------------------|-------------------|---------------------------|
| | L ₆ inch | L ₆ mm | T ₁ inch | T ₁ mm | BSPT Internal/External |
| 11 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-BSPT11 |

E
THREADING

X
SPECIALS

E: 60 - 63 E: 37 E: 50 - 51

Key on E: 1

Inserts sold in quantities of 2

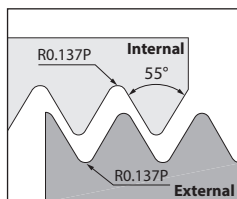


AccuThread® 856 Thread Mill Inserts

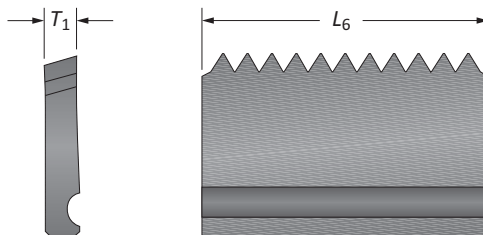
Pin Style | BSPP / API-ROUND / ACME

A

DRILLING



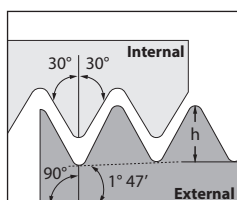
BSPP
Internal / External



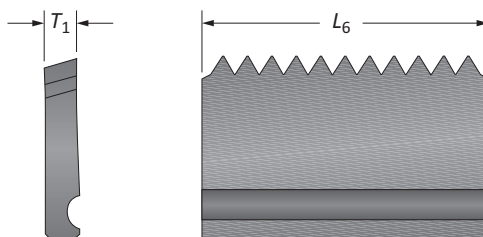
B

BORING

| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|---------------------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | BSPP Internal/External |
| 11 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-BSPP11 |



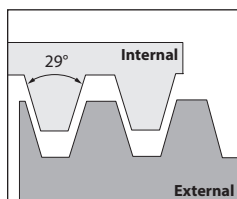
API-ROUND
Internal / External



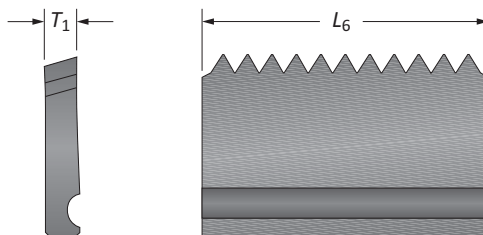
C

REAMING

| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|--------------------------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | API-ROUND Internal/External |
| 10 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-AP10 |
| 8 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-AP8 |



ACME
Full Profile



D

BURNISHING

| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|----------------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | ACME Full Profile |
| 12 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-FA12 |
| 12 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-FA12 |
| 10 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-FA10 |
| 10 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-FA10 |
| 8 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-FA8 |
| 8 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-FA8 |
| 6 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-FA6 |
| 5 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-FA5 |

E

THREADING

X

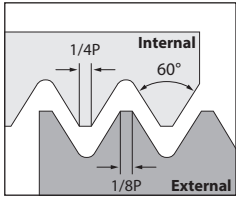
SPECIALS

E: 60 - 63 E: 37 E: 50 - 51

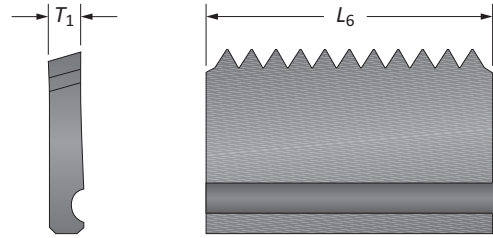
Inserts sold in quantities of 2

AccuThread® 856 Thread Mill Inserts

Pin Style | UN



UN
Internal

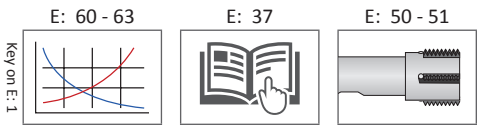


| TPI (Pitch) | Insert | | | | Part No. UN Internal |
|-------------|---------------------|-------------------|---------------------|-------------------|--------------------------------|
| | L ₆ inch | L ₆ mm | T ₁ inch | T ₁ mm | |
| 32 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN32I |
| 24 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN24I |
| 24 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN24I |
| 20 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN20I |
| 20 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN20I |
| 18 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN18I |
| 18 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN18I |
| 16 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN16I |
| 16 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN16I |
| 14 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN14I |
| 12 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN12I |
| 12 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN12I |
| 10 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN10I |
| 10 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN10I |
| 8 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN8I |
| 8 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN8I |
| 7 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN7I |
| 7 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN7I |
| 6 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN6I |

D
BURNISHING

F
THREADING

X
SPECIALS

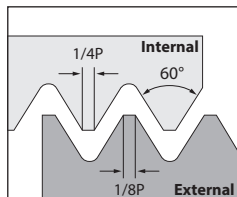


Inserts sold in quantities of 2

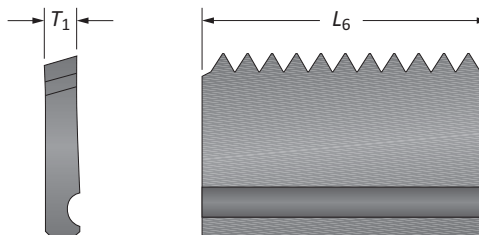


AccuThread® 856 Thread Mill Inserts

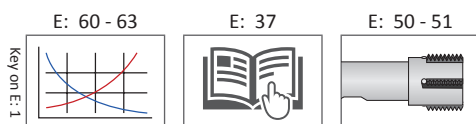
Pin Style | UN



UN
External



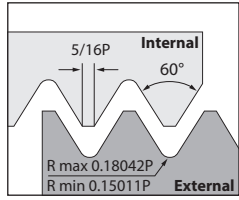
| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|--------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | UN External |
| 32 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN32E |
| 24 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN24E |
| 20 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN20E |
| 20 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN20E |
| 18 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN18E |
| 18 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN18E |
| 16 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN16E |
| 16 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN16E |
| 12 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN12E |
| 12 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN12E |
| 10 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN10E |
| 10 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN10E |
| 8 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UN8E |
| 8 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN8E |
| 6 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UN6E |



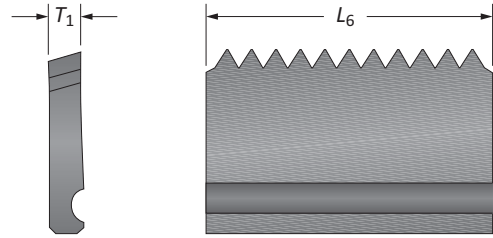
Inserts sold in quantities of 2

AccuThread® 856 Thread Mill Inserts

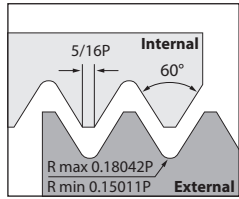
Pin Style | UNJ



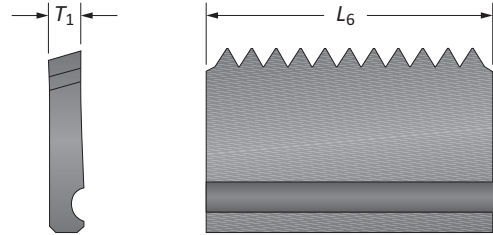
UNJ
Internal



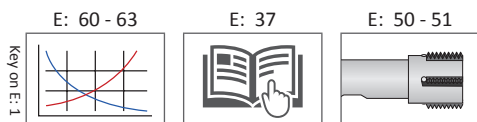
| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|---------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | UNJ Internal |
| 32 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ32I |
| 24 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ24I |
| 24 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ24I |
| 20 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ20I |
| 20 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ20I |
| 18 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ18I |
| 18 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ18I |
| 16 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ16I |
| 16 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ16I |
| 12 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ12I |
| 12 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ12I |
| 8 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ8I |



UNJ
External



| TPI (Pitch) | Insert | | | | Part No. |
|-------------|------------|----------|------------|----------|---------------|
| | L_6 inch | L_6 mm | T_1 inch | T_1 mm | UNJ External |
| 32 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ32E |
| 24 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ24E |
| 24 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ24E |
| 20 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ20E |
| 20 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ20E |
| 18 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ18E |
| 18 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ18E |
| 16 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ16E |
| 16 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ16E |
| 12 | 1.000 | 25.40 | 0.140 | 3.56 | TN100K-UNJ12E |
| 12 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ12E |
| 8 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-UNJ8E |

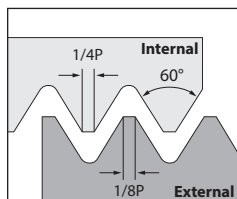


Inserts sold in quantities of 2

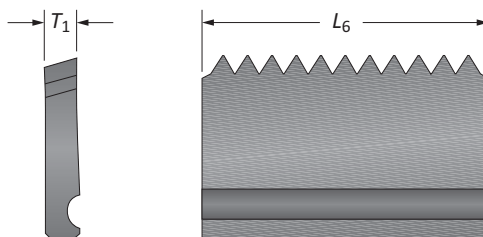


AccuThread® 856 Thread Mill Inserts

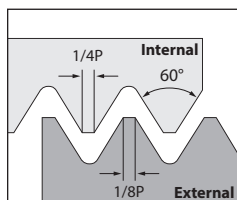
Pin Style | ISO



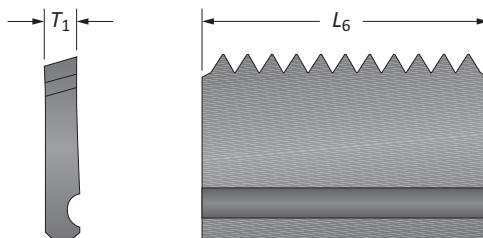
ISO
Internal



| Pitch | Insert | | | | Part No. |
|-------|---------------------|-------------------|---------------------|-------------------|--------------|
| | L ₆ inch | L ₆ mm | T ₁ inch | T ₁ mm | ISO Internal |
| 1.5 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M1.5I |
| 2.0 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M2.0I |
| 2.5 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M2.5I |
| 3.0 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M3.0I |
| 3.5 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M3.5I |
| 4.0 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M4.0I |
| 4.5 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M4.5I |
| 5.0 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M5.0I |
| 6.0 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M6.0I |



ISO
External



| Pitch | Insert | | | | Part No. |
|-------|---------------------|-------------------|---------------------|-------------------|--------------|
| | L ₆ inch | L ₆ mm | T ₁ inch | T ₁ mm | ISO External |
| 2.0 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M2.0E |
| 4.0 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M4.0E |
| 4.5 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M4.5E |
| 5.0 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M5.0E |
| 6.0 | 1.500 | 38.10 | 0.140 | 3.56 | TN150K-M6.0E |

A

DRILLING

B

BORING

C

REAMING

D

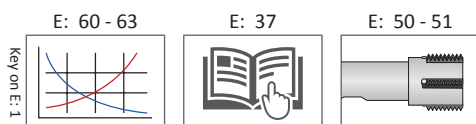
BURNISHING

E

THREADING

X

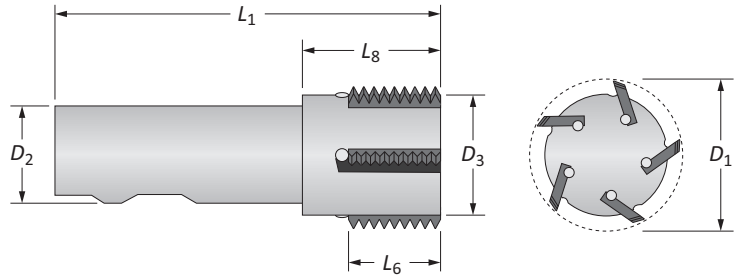
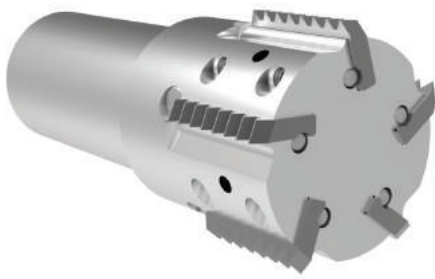
SPECIALS



Inserts sold in quantities of 2

AccuThread® Pin Style Holders

Weldon Shank



Positive Rake

| | D ₁ | | Holder | | | | | Coolant | Flutes | Part No. | Inserts | Screw | Key Size | Pin |
|---|----------------|-----------|----------------|----------------|----------------|----------------|----------------|---------|--------|-----------------|-----------|--------|----------|-------|
| | Standard | Oversize* | D ₃ | L ₈ | L ₆ | L ₁ | D ₂ | | | | | | | |
| i | 0.969 | – | 0.750 | 1.38 | 1.000 | 4.500 | 1.000 | N | 2 | THP-0969-2F100 | TN100K... | TMSS-3 | 3/32 | TMP-1 |
| | 1.755 | – | 1.500 | 2.25 | 1.000 | 4.000 | 1.250 | Y | 5 | THP-1755-5F100 | TN100K... | TMSS-2 | 3/32 | TMP-1 |
| | 0.932 | 1.063 | 0.722 | 1.90 | 1.500 | 4.500 | 1.000 | N | 1 | THP-0932-1F150 | TN150K... | TMSS-2 | 3/32 | TMP-2 |
| | 0.969 | 1.100 | 0.750 | 2.00 | 1.500 | 4.500 | 1.000 | N | 2 | THP-0969-2F150 | TN150K... | TMSS-3 | 3/32 | TMP-2 |
| | 1.116 | 1.247 | 0.812 | 2.00 | 1.500 | 4.500 | 1.000 | Y | 3 | THP-1116-3F150 | TN150K... | TMSS-3 | 3/32 | TMP-2 |
| | 1.755 | 1.887 | 1.500 | 2.25 | 1.500 | 4.500 | 1.250 | Y | 5 | THP-1755-5F150 | TN150K... | TMSS-2 | 3/32 | TMP-2 |
| m | 24.61 | – | 19.05 | 35.05 | 25.40 | 114.30 | 25.00 | N | 2 | THP-0969-2F100M | TN100K... | TMSS-3 | 3/32 | TMP-1 |
| | 44.58 | – | 38.10 | 57.15 | 25.40 | 101.60 | 32.00 | Y | 5 | THP-1755-5F100M | TN100K... | TMSS-2 | 3/32 | TMP-1 |
| | 23.67 | 27.00 | 18.34 | 48.44 | 38.10 | 114.30 | 25.00 | N | 1 | THP-0932-1F150M | TN150K... | TMSS-2 | 3/32 | TMP-2 |
| | 24.61 | 27.94 | 19.05 | 50.80 | 38.10 | 114.30 | 25.00 | N | 2 | THP-0969-2F150M | TN150K... | TMSS-3 | 3/32 | TMP-2 |
| | 28.35 | 31.67 | 20.63 | 50.80 | 38.10 | 114.30 | 25.00 | Y | 3 | THP-1116-3F150M | TN150K... | TMSS-3 | 3/32 | TMP-2 |
| | 44.58 | 47.93 | 38.10 | 57.15 | 38.10 | 114.30 | 32.00 | Y | 5 | THP-1755-5F150M | TN150K... | TMSS-2 | 3/32 | TMP-2 |


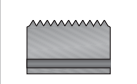
*See note at bottom of page

Neutral Rake

| | D ₁ | | Holder | | | | | Coolant | Flutes | Part No. | Inserts | Screw | Key Size | Pin |
|---|----------------|-----------|----------------|----------------|----------------|----------------|----------------|---------|--------|-----------------|-----------|--------|----------|-------|
| | Standard | Oversize* | D ₃ | L ₈ | L ₆ | L ₁ | D ₂ | | | | | | | |
| i | 1.116 | 1.247 | 0.812 | 2.00 | 1.500 | 4.500 | 1.000 | Y | 3 | TNR-1116-3F150 | TN150K... | TMSS-3 | 3/32 | TMP-2 |
| | 1.755 | 1.887 | 1.500 | 2.25 | 1.500 | 4.531 | 1.250 | Y | 5 | TNR-1755-5F150 | TN150K... | TMSS-2 | 3/32 | TMP-2 |
| m | 28.35 | 31.67 | 20.63 | 50.80 | 38.10 | 114.30 | 25.00 | Y | 3 | TNR-1116-3F150M | TN150K... | TMSS-3 | 3/32 | TMP-2 |
| | 44.58 | 47.93 | 38.10 | 57.15 | 38.10 | 114.30 | 32.00 | Y | 5 | TNR-1755-5F150M | TN150K... | TMSS-2 | 3/32 | TMP-2 |

*See note at bottom of page

*Oversized cutter diameter occurs when assembled with the following pin style inserts:

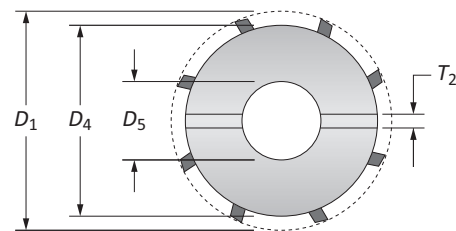
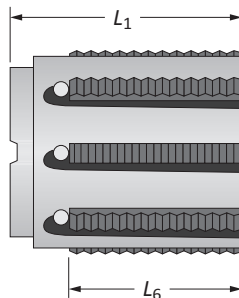
| | | | | | | |
|-------------|---|---|-----------|-------|------------|--------|
| Key on E: 1 | E: 37 | E: 44 - 49 | NPT 8 | API 8 | Metric 6.0 | ACME 5 |
| |  |  | NPTF 11.5 | | Metric 5.0 | ACME 6 |
| | | | NPTF 8 | | Metric 4.5 | |

i = Imperial (in)
m = Metric (mm)



AccuThread® Pin Style Holders

Shell Mill



Positive Rake

| | D ₁ | | Holder | | | | | Flutes | Part No. | Inserts | Screw | Key Size | Pin |
|---|----------------|-----------|----------------|----------------|----------------|----------------|----------------|--------|------------------------|-----------|--------|----------|-------|
| | Standard | Oversize* | D ₄ | D ₅ | L ₆ | L ₁ | T ₂ | | | | | | |
| i | 2.714 | 2.845 | 2.500 | 1.000 | 1.500 | 2.250 | 0.375 | 7 | TSN-2846-7F150 | TN150K... | TMSS-2 | 3/32 | TMP-2 |
| | 3.208 | 3.340 | 3.000 | 1.250 | 1.500 | 2.250 | 0.500 | 8 | TSN-3341-8F150 | TN150K... | TMSS-2 | 3/32 | TMP-2 |
| m | 68.94 | 72.26 | 63.50 | 27.00 | 38.10 | 57.15 | 12 | 7 | TSN-2846-7F150M | TN150K... | TMSS-2 | 3/32 | TMP-2 |
| | 81.48 | 84.84 | 76.20 | 32.00 | 38.10 | 57.15 | 14 | 8 | TSN-3341-8F150M | TN150K... | TMSS-2 | 3/32 | TMP-2 |

*See note at bottom of page

Neutral Rake

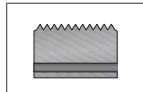
| | D ₁ | | Holder | | | | | Flutes | Part No. | Inserts | Screw | Key Size | Pin |
|---|----------------|-----------|----------------|----------------|----------------|----------------|----------------|--------|------------------------|-----------|--------|----------|-------|
| | Standard | Oversize* | D ₄ | D ₅ | L ₆ | L ₁ | T ₂ | | | | | | |
| i | 2.217 | 2.349 | 2.000 | 0.750 | 1.500 | 2.250 | 0.312 | 6 | TSR-2217-6F150 | TN150K... | TMSS-2 | 3/32 | TMP-2 |
| m | 56.31 | 59.66 | 50.80 | 22.00 | 38.10 | 57.15 | 10.00 | 6 | TSR-2217-6F150M | TN150K... | TMSS-2 | 3/32 | TMP-2 |

*See note at bottom of page

*Oversized cutter diameter occurs when assembled with the following pin style inserts:

E: 37

E: 44 - 49



NPT 8
NPTF 11.5
NPTF 8

API 8

Metric 6.0
Metric 5.0
Metric 4.5

ACME 5
ACME 6

i = Imperial (in)
m = Metric (mm)

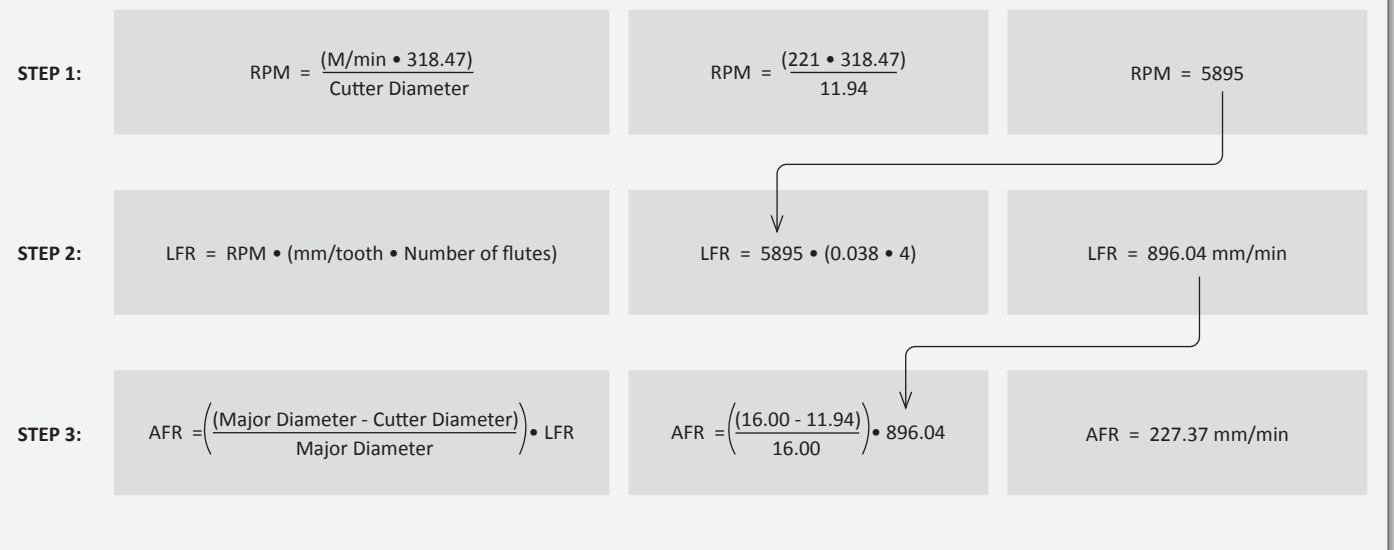
Thread Mill Pre-Drill Information

| Formula | Metric | Imperial |
|---|---|---|
| Velocity | $M/min = RPM \cdot 0.003 \cdot \text{Cutter Diameter}$ | $SFM = RPM \cdot 0.262 \cdot \text{Cutter Diameter}$ |
| Speed | $RPM = \frac{(M/min \cdot 318.47)}{\text{Cutter Diameter}}$ | $RPM = \frac{(SFM \cdot 3.82)}{\text{Cutter Diameter}}$ |
| Linear Feed Rate (LFR) | $mm/min = RPM \cdot (mm/tooth \cdot \text{Number of Flutes})$ | $IPM = RPM \cdot (IPT \cdot \text{Number of Flutes})$ |
| Adjusted Feed Rate (AFR) <i>See Note Below</i> | $AFR = \left(\frac{\text{Major Diameter} - \text{Cutter Diameter}}{\text{Major Diameter}} \right) \cdot LFR$ | |

NOTE: The above formula on an internal thread program adjusts the linear feed rate to be applied to the outer diameter instead of the center of the cutting tool. If the feed rate is not adjusted, the excessive feed rate will cause the thread mill cutting edges to fail.

Example of an Internal Adjusted Feed Rate Calculation:

Free machining steel at 125 BHN with a M16x2 2B thread using ThreadMills USA™ solid carbide thread mill (TM16200) running at 221 M/min and 0.038 mm/tooth



Unit Definitions

| | |
|----------|---|
| Velocity | M/min = Meters per Minute SFM = Surface Feet per Minute |
| Speed | RPM = Revolutions per Minute |
| Feed | mm/rev = millimeters per revolution mm/tooth = millimeters per tooth <i>also known as</i> millimeters per flute IPR = Inch per Revolution IPT = Inch per Tooth <i>also known as</i> Inch per Flute mm/min = millimeters per minute IPM = Inches per minute |

Thread Mill Calculations and Recommended Passes

Thread Mill Drill Calculation

Based on nominal tap drill diameter. Based on 0.003" or 0.075 mm probable mean oversize.

To calculate the percent of full thread for a given hole diameter:

IMPERIAL:
$$\% \text{ of thread} = \# \text{ of threads per inch} \cdot \frac{\text{Basic major diameter of thread} - \text{Drill hole size}}{0.0130}$$

METRIC:
$$\% \text{ of thread} = \frac{76.96}{\text{Pitch (mm)}} \cdot [\text{Basic major diameter of thread} - \text{Drill hole size}]$$

Major Thread Diameter for # Drills

| Drill # | Thread Diameter |
|---------|-----------------|
| # 2 | 0.086 |
| # 3 | 0.099 |
| # 4 | 0.112 |
| # 5 | 0.125 |
| # 6 | 0.132 |
| # 8 | 0.164 |
| # 10 | 0.190 |
| # 12 | 0.216 |

Recommended Passes

| Pitch Size | Machinability | | |
|------------|---------------|---------|-----------|
| | Easy | Average | Difficult |
| 28 | 1 | 1 | 2 |
| 27 | 1 | 1 | 2 |
| 19 | 1 | 1 | 2 |
| 18 | 1 | 1 | 2 |
| 14 | 1 | 2 | 3 |
| 11.5 | 1 | 2 | 3 |
| 11 | 1 | 2 | 3 |
| 10 | 1 | 2 | 3 |
| 8 | 2 | 3 | 4 |

- 1 Pass
- 2 Passes
- 3 Passes
- 4 Passes

| Pitch Size | Machinability | | |
|------------|---------------|---------|-----------|
| | Easy | Average | Difficult |
| 0.40 | 1 | 1 | 2 |
| 0.45 | 1 | 1 | 2 |
| 0.50 | 1 | 1 | 2 |
| 0.70 | 1 | 1 | 2 |
| 0.75 | 1 | 1 | 2 |
| 0.80 | 1 | 1 | 2 |
| 1.00 | 1 | 1 | 2 |
| 1.25 | 1 | 2 | 3 |
| 1.50 | 1 | 2 | 3 |
| 1.75 | 1 | 2 | 3 |
| 2.00 | 1 | 2 | 3 |
| 2.50 | 2 | 3 | 4 |
| 3.00 | 2 | 3 | 4 |
| 3.50 | 2 | 3 | 4 |
| 4.00 | 2 | 3 | 4 |
| 4.50 | 2 | 3 | 4 |
| 5.00 | 2 | 3 | 4 |
| 6.00 | 2 | 3 | 4 |

| Pitch Size | Machinability | | |
|------------|---------------|---------|-----------|
| | Easy | Average | Difficult |
| 64 | 1 | 1 | 2 |
| 56 | 1 | 1 | 2 |
| 48 | 1 | 1 | 2 |
| 44 | 1 | 1 | 2 |
| 40 | 1 | 1 | 2 |
| 36 | 1 | 1 | 2 |
| 32 | 1 | 1 | 2 |
| 28 | 1 | 1 | 2 |
| 24 | 1 | 1 | 2 |
| 20 | 1 | 2 | 3 |
| 19 | 1 | 2 | 3 |
| 18 | 1 | 2 | 3 |
| 16 | 1 | 2 | 3 |
| 14 | 1 | 2 | 3 |
| 13 | 1 | 2 | 3 |
| 12 | 1 | 2 | 3 |
| 11 | 2 | 2 | 4 |
| 10 | 2 | 3 | 4 |
| 9 | 2 | 3 | 4 |
| 8 | 2 | 3 | 4 |
| 7 | 2 | 3 | 4 |
| 6 | 2 | 3 | 4 |

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Recommended Cutting Data | Imperial (inch)

Solid Carbide | AccuThread® 856

| ISO | Material | Hardness (BHN) | Machinability* | Speed (SFM) | Recommended Feed (inch/tooth) by Cutter Diameter | | | | | | | |
|-------------------------------------|---|----------------|----------------|-------------|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | | | | | 0.060" to 0.125" | 0.126" to 0.188" | 0.189" to 0.250" | 0.251" to 0.312" | 0.313" to 0.375" | 0.376" to 0.500" | 0.501" to 0.625" | 0.626" to 0.750" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | Easy | 900 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 150 - 200 | Easy | 700 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 200 - 250 | Easy | 500 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144 | 85 - 125 | Average | 900 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 125 - 175 | Average | 700 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 175 - 225 | Average | 600 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 225 - 275 | Average | 500 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | Medium-Carbon Steel 1010, 1040, 1050, 1527, 1140 | 125 - 175 | Average | 575 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 175 - 225 | Average | 500 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 225 - 275 | Average | 450 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 275 - 325 | Average | 400 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | Alloy Steel 4140, 5140, 8640 | 125 - 175 | Average | 575 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 175 - 225 | Average | 500 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 225 - 275 | Average | 450 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 275 - 325 | Difficult | 400 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 325 - 375 | Difficult | 375 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | High-Strength Alloy 4340, 4330V, 300M | 225 - 300 | Average | 450 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 300 - 350 | Difficult | 400 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| 350 - 400 | | Difficult | 350 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 | |
| Structural Steel A36, A285, A516 | 100 - 150 | Average | 600 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | |
| | 150 - 250 | Average | 500 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | |
| | 250 - 350 | Difficult | 450 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600 | 140 - 220 | Difficult | 120 | 0.0003 | 0.0004 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 |
| | | 220 - 310 | Difficult | 90 | 0.0003 | 0.0004 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 |
| M | Stainless Steel 303, 416, 420 | 135 - 185 | Difficult | 525 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0015 | 0.0020 |
| | | 185 - 275 | Difficult | 500 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0015 | 0.0020 |
| | Stainless Steel PH 17-4 | 185 - 275 | Difficult | 300 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0015 | 0.0020 |
| | | 275 - 325 | Difficult | 150 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0015 | 0.0020 |
| | Tool Steel H-13, H21, A-4 | 150 - 200 | Difficult | 575 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| 200 - 250 | | Difficult | 500 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | |
| K | Cast Iron Grey, Ductile, Nodular | 120 - 150 | Easy | 675 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 150 - 200 | Easy | 625 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 200 - 220 | Easy | 575 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 220 - 260 | Average | 500 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 260 - 320 | Average | 475 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| N | Wrought Aluminum 6061 T6 | 30 | Easy | 1100 | 0.0005 | 0.0006 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | | 180 | Easy | 1000 | 0.0005 | 0.0006 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | Cast Aluminum** up to 10% silicon | 120 | Easy | 625 | 0.0005 | 0.0006 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | Brass | 30 - 125 | Easy | 1100 | 0.0005 | 0.0006 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 53 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

Recommended Cutting Data | Metric (mm)

Solid Carbide | AccuThread® 856

| ISO | Material | Hardness (BHN) | Machinability* | Speed (M/min) | Recommended Feed (mm/tooth) by Cutter Diameter | | | | | | | |
|-------------------------------------|---|----------------|----------------|---------------|--|---------|---------|---------|---------|----------|----------|----------|
| | | | | | 1.50 mm | 3.19 mm | 4.77 mm | 6.36 mm | 7.95 mm | 9.54 mm | 12.71 mm | 15.89 mm |
| | | | | | 3.18 mm | 4.76 mm | 6.35 mm | 7.94 mm | 9.53 mm | 12.70 mm | 15.88 mm | 19.05 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | Easy | 274 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 150 - 200 | Easy | 213 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 200 - 250 | Easy | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144 | 85 - 125 | Average | 274 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 125 - 175 | Average | 213 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 175 - 225 | Average | 183 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 225 - 275 | Average | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | Medium-Carbon Steel 1010, 1040, 1050, 1527, 1140 | 125 - 175 | Average | 175 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | | 175 - 225 | Average | 152 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | | 225 - 275 | Average | 137 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | | 275 - 325 | Average | 122 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | Alloy Steel 4140, 5140, 8640 | 125 - 175 | Average | 175 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | | 175 - 225 | Average | 152 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | | 225 - 275 | Average | 137 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | | 275 - 325 | Difficult | 122 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | | 325 - 375 | Difficult | 114 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | High-Strength Alloy 4340, 4330V, 300M | 225 - 300 | Average | 137 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | | 300 - 350 | Difficult | 122 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| 350 - 400 | | Difficult | 107 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 | |
| Structural Steel A36, A285, A516 | 100 - 150 | Average | 183 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | |
| | 150 - 250 | Average | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | |
| | 250 - 350 | Difficult | 137 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600 | 140 - 220 | Difficult | 37 | 0.008 | 0.010 | 0.015 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 |
| | | 220 - 310 | Difficult | 27 | 0.008 | 0.010 | 0.015 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 |
| M | Stainless Steel 303, 416, 420 | 135 - 185 | Difficult | 160 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| | | 185 - 275 | Difficult | 152 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| | Stainless Steel PH 17-4 | 185 - 275 | Difficult | 91 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| | | 275 - 325 | Difficult | 46 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| Tool Steel H-13, H21, A-4 | 150 - 200 | Difficult | 175 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | |
| | 200 - 250 | Difficult | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | |
| K | Cast Iron Grey, Ductile, Nodular | 120 - 150 | Easy | 206 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 150 - 200 | Easy | 191 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 200 - 220 | Easy | 175 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 220 - 260 | Average | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 260 - 320 | Average | 145 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| N | Wrought Aluminum 6061 T6 | 30 | Easy | 335 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 180 | Easy | 305 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| | Cast Aluminum** up to 10% silicon | 120 | Easy | 191 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| | Brass | 30 - 125 | Easy | 335 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 53 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Recommended Cutting Data | Imperial (inch)

Solid Carbide | ThreadMills USA™

| ISO | Material | Hardness (BHN) | Machinability* | Speed (SFM) | Recommended Feed (inch/tooth) by Cutter Diameter | | | | | | | |
|-------------------------------------|---|----------------|----------------|-------------|--|--------|--------|--------|--------|--------|--------|--------|
| | | | | | 0.060" | 0.126" | 0.189" | 0.251" | 0.313" | 0.376" | 0.501" | 0.626" |
| | | | | | 0.125" | 0.188" | 0.250" | 0.312" | 0.375" | 0.500" | 0.625" | 0.750" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | Easy | 725 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 150 - 200 | Easy | 550 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 200 - 250 | Easy | 450 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144 | 85 - 125 | Average | 725 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 125 - 175 | Average | 550 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 175 - 225 | Average | 450 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 225 - 275 | Average | 400 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | Medium-Carbon Steel 1010, 1040, 1050, 1527, 1140 | 125 - 175 | Average | 450 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 175 - 225 | Average | 400 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 225 - 275 | Average | 350 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 275 - 325 | Average | 300 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | Alloy Steel 4140, 5140, 8640 | 125 - 175 | Average | 450 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 175 - 225 | Average | 400 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 225 - 275 | Average | 350 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 275 - 325 | Difficult | 300 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 325 - 375 | Difficult | 250 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | High-Strength Alloy 4340, 4330V, 300M | 225 - 300 | Average | 350 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| | | 300 - 350 | Difficult | 300 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 |
| 350 - 400 | | Difficult | 250 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0013 | 0.0018 | 0.0020 | |
| Structural Steel A36, A285, A516 | 100 - 150 | Average | 450 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | |
| | 150 - 250 | Average | 400 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | |
| | 250 - 350 | Difficult | 300 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600 | 140 - 220 | Difficult | 100 | 0.0003 | 0.0004 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 |
| | | 220 - 310 | Difficult | 75 | 0.0003 | 0.0004 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 |
| M | Stainless Steel 303, 416, 420 | 135 - 185 | Difficult | 425 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0015 | 0.0020 |
| | | 185 - 275 | Difficult | 400 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0015 | 0.0020 |
| | Stainless Steel PH 17-4 | 185 - 275 | Difficult | 250 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0015 | 0.0020 |
| | | 275 - 325 | Difficult | 125 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0009 | 0.0010 | 0.0015 | 0.0020 |
| | Tool Steel H-13, H21, A-4 | 150 - 200 | Difficult | 325 | 0.0004 | 0.0005 | 0.0007 | 0.0008 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| 200 - 250 | | Difficult | 225 | 0.0004 | 0.0005 | 0.0007 | 0.0008 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | |
| K | Cast Iron Grey, Ductile, Nodular | 120 - 150 | Easy | 550 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 150 - 200 | Easy | 500 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 200 - 220 | Easy | 450 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 220 - 260 | Average | 400 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 260 - 320 | Average | 375 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| N | Wrought Aluminum 6061 T6 | 30 | Easy | 1000 | 0.0005 | 0.0006 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | | 180 | Easy | 900 | 0.0005 | 0.0006 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | Cast Aluminum** up to 10% silicon | 120 | Easy | 500 | 0.0005 | 0.0006 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | Brass | 30 - 125 | Easy | 1000 | 0.0005 | 0.0006 | 0.0009 | 0.0010 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 53 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

Recommended Cutting Data | Metric (mm)

Solid Carbide | ThreadMills USA™

| ISO | Material | Hardness (BHN) | Machinability* | Speed (M/min) | Recommended Feed (mm/tooth) by Cutter Diameter | | | | | | | |
|------------------------------|---|----------------|----------------|---------------|--|---------|---------|---------|---------|----------|----------|----------|
| | | | | | 1.50 mm | 3.19 mm | 4.77 mm | 6.36 mm | 7.95 mm | 9.54 mm | 12.71 mm | 15.89 mm |
| | | | | | 3.18 mm | 4.76 mm | 6.35 mm | 7.94 mm | 9.53 mm | 12.70 mm | 15.88 mm | 19.05 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | Easy | 221 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 150 - 200 | Easy | 168 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 200 - 250 | Easy | 137 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144 | 85 - 125 | Average | 221 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 125 - 175 | Average | 168 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 175 - 225 | Average | 137 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | Medium-Carbon Steel 1010, 1040, 1050, 1527, 1140 | 225 - 275 | Average | 122 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 125 - 175 | Average | 137 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.046 | 0.051 |
| | | 175 - 225 | Average | 122 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.046 | 0.051 |
| | Alloy Steel 4140, 5140, 8640 | 225 - 275 | Average | 107 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.046 | 0.051 |
| | | 275 - 325 | Average | 91 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.046 | 0.051 |
| | | 275 - 325 | Difficult | 91 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.046 | 0.051 |
| | | 325 - 375 | Difficult | 76 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.046 | 0.051 |
| | High-Strength Alloy 4340, 4330V, 300M | 225 - 300 | Average | 107 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.046 | 0.051 |
| | | 300 - 350 | Difficult | 91 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.046 | 0.051 |
| | | 350 - 400 | Difficult | 76 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.046 | 0.051 |
| | Structural Steel A36, A285, A516 | 100 - 150 | Average | 137 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 150 - 250 | Average | 122 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| 250 - 350 | | Difficult | 91 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600 | 140 - 220 | Difficult | 30 | 0.008 | 0.010 | 0.015 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 |
| | | 220 - 310 | Difficult | 23 | 0.008 | 0.010 | 0.015 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 |
| M | Stainless Steel 303, 416, 420 | 135 - 185 | Difficult | 130 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| | | 185 - 275 | Difficult | 122 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| | Stainless Steel PH 17-4 | 185 - 275 | Difficult | 76 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| | | 275 - 325 | Difficult | 38 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| Tool Steel H-13, H21, A-4 | 150 - 200 | Difficult | 99 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | |
| | 200 - 250 | Difficult | 69 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | |
| R | Cast Iron Grey, Ductile, Nodular | 120 - 150 | Easy | 168 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 150 - 200 | Easy | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 200 - 220 | Easy | 137 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 220 - 260 | Average | 122 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 260 - 320 | Average | 114 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| S | Wrought Aluminum 6061 T6 | 30 | Easy | 305 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 180 | Easy | 274 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| | Cast Aluminum** up to 10% silicon | 120 | Easy | 152 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| | Brass | 30 - 125 | Easy | 305 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 53 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Recommended Cutting Data | Imperial (inch)

Solid Carbide | AccuThread® T3

| ISO | Material | Hardness (BHN) | Speed (SFM) | Chipload per Tooth (IPT) by Cutter Diameter | | | | | | |
|--|---|----------------|-------------|---|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | 0.055" | 0.126" | 0.189" | 0.251" | 0.313" | 0.376" | 0.501" |
| | | | | - 0.125" | - 0.188" | - 0.250" | - 0.312" | - 0.375" | - 0.500" | - 0.750" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | 375 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | | 150 - 200 | 275 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | | 200 - 250 | 225 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | 375 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | | 125 - 175 | 275 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | | 175 - 225 | 225 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | | 225 - 275 | 200 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 125 - 175 | 225 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 |
| | | 175 - 225 | 200 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 |
| | | 225 - 275 | 175 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 |
| | | 275 - 325 | 150 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 |
| | Alloy Steel 4140, 5140, 8640, etc. | 125 - 175 | 225 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 |
| 175 - 225 | | 200 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 | |
| 225 - 275 | | 175 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 | |
| 275 - 325 | | 150 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 | |
| 325 - 375 | | 125 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 | |
| High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 300 | 175 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 | |
| | 300 - 350 | 150 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 | |
| | 350 - 400 | 125 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 | |
| Structural Steel A36, A285, A516, etc. | 100 - 150 | 225 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 | |
| | 150 - 250 | 200 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 | |
| | 250 - 350 | 150 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 150 - 200 | 175 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 | |
| | 200 - 250 | 125 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0020 | 0.0026 | 0.0031 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 140 - 220 | 100 | 0.0006 | 0.0008 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| | | 220 - 310 | 75 | 0.0006 | 0.0008 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| | Titanium Alloy | 140 - 220 | 100 | 0.0006 | 0.0008 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| | | 220 - 310 | 75 | 0.0006 | 0.0008 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| Aerospace Alloy S82 | 185 - 275 | 100 | 0.0006 | 0.0008 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 | |
| | 275 - 350 | 75 | 0.0006 | 0.0008 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 | |
| M | Stainless Steel 416, 420, etc. | 185 - 275 | 225 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| | | 275 - 350 | 200 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | 125 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| | | 185 - 275 | 75 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| | Super Duplex Stainless Steel | 135 - 185 | 125 | 0.0006 | 0.0008 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| 185 - 275 | | 75 | 0.0006 | 0.0008 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 | |
| H | Hardened Steels | 450 - 500 | 175 | 0.0006 | 0.0008 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| | | 500 - 550 | 125 | 0.0006 | 0.0008 | 0.0012 | 0.0016 | 0.0018 | 0.0020 | 0.0025 |
| K | Cast Iron Grey, Ductile, Nodular | 120 - 150 | 275 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | | 150 - 200 | 250 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | | 200 - 220 | 225 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | | 220 - 260 | 200 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| | | 260 - 320 | 200 | 0.0008 | 0.0010 | 0.0014 | 0.0018 | 0.0020 | 0.0030 | 0.0035 |
| N | Wrought Aluminum | 30 | 500 | 0.0010 | 0.0012 | 0.0018 | 0.0020 | 0.0030 | 0.0040 | 0.0048 |
| | | 180 | 450 | 0.0010 | 0.0012 | 0.0018 | 0.0020 | 0.0030 | 0.0040 | 0.0048 |
| | Cast Aluminum | 30 - 180 | 250 | 0.0010 | 0.0012 | 0.0018 | 0.0020 | 0.0030 | 0.0040 | 0.0048 |
| | Brass | 30 - 100 | 500 | 0.0010 | 0.0012 | 0.0018 | 0.0020 | 0.0030 | 0.0040 | 0.0048 |

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 53 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

Recommended Cutting Data | Metric (mm)

Solid Carbide | AccuThread® T3

| ISO | Material | Hardness (BHN) | Speed (M/min) | Chipload per Tooth (mm/tooth) by Cutter Diameter | | | | | | |
|---|---|----------------|---------------|--|--------------|--------------|--------------|--------------|---------------|---------------|
| | | | | 1.40 mm | 3.18 mm | 4.78 mm | 6.36 mm | 7.93 mm | 9.53 mm | 12.71 mm |
| | | | | - 3.17 mm | - 4.77 mm | - 6.35 mm | - 7.92 mm | - 9.52 mm | - 12.70 mm | - 19.05 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | 115 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | | 150 - 200 | 85 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | | 200 - 250 | 70 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144, etc. | 85 - 125 | 115 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | | 125 - 175 | 85 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | | 175 - 225 | 70 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | Medium-Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc. | 225 - 275 | 60 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | | 125 - 175 | 70 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| | | 175 - 225 | 60 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| | Alloy Steel 4140, 5140, 8640, etc. | 225 - 275 | 50 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| | | 275 - 325 | 45 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| | | 125 - 175 | 70 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| | | 175 - 225 | 60 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| | High-Strength Alloy 4340, 4330V, 300M, etc. | 225 - 275 | 50 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| | | 275 - 325 | 45 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| | | 325 - 375 | 38 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| | Structural Steel A36, A285, A516, etc. | 225 - 300 | 50 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| | | 300 - 350 | 45 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 |
| 350 - 400 | | 38 | 0.020 | 0.025 | 0.030 | 0.040 | 0.050 | 0.065 | 0.080 | |
| Tool Steel H-13, H-21, A-4, O-2, S-3, etc. | 100 - 150 | 70 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 | |
| | 150 - 250 | 60 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600, etc. | 250 - 350 | 45 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | | 140 - 220 | 30 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| | Titanium Alloy | 220 - 310 | 23 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| | | 140 - 220 | 30 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| | Aerospace Alloy S82 | 220 - 310 | 23 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| | | 185 - 275 | 30 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| M | Stainless Steel 416, 420, etc. | 275 - 350 | 23 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| | | 185 - 275 | 30 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| | Stainless Steel 300 Series 304, 316, 17-4PH, etc. | 135 - 185 | 38 | 0.020 | 0.025 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| | | 185 - 275 | 23 | 0.020 | 0.025 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| | Super Duplex Stainless Steel | 135 - 185 | 38 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| 185 - 275 | | 23 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 | |
| H | Hardened Steels | 450 - 500 | 50 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| | | 500 - 550 | 38 | 0.015 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.065 |
| K | Cast Iron Grey, Ductile, Nodular | 120 - 150 | 85 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | | 150 - 200 | 75 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | | 200 - 220 | 70 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | | 220 - 260 | 60 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| | | 260 - 320 | 60 | 0.020 | 0.025 | 0.035 | 0.045 | 0.050 | 0.075 | 0.090 |
| N | Wrought Aluminum | 30 | 150 | 0.025 | 0.030 | 0.045 | 0.050 | 0.075 | 0.100 | 0.120 |
| | | 180 | 135 | 0.025 | 0.030 | 0.045 | 0.050 | 0.075 | 0.100 | 0.120 |
| | Cast Aluminum | 30 - 180 | 75 | 0.025 | 0.030 | 0.045 | 0.050 | 0.075 | 0.100 | 0.120 |
| | | Brass | 30 - 100 | 150 | 0.025 | 0.030 | 0.045 | 0.050 | 0.075 | 0.100 |

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 53 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Cutting Data | Imperial (inch)

Indexable | AccuThread® 856 | Positive Rake

| ISO | Material | Hardness (BHN) | Machinability** | Speed (SFM) | Recommended Feed (inch/tooth) by Cutter Diameter | | | | | | |
|-------------------------------------|---|----------------|-----------------|-------------|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | 1 flute | | 1 and 2 flutes | 3 flutes | 5 flutes | 7 flutes | 8 flutes |
| | | | | | 0.375" - 0.500" | 0.501" - 0.750" | 0.751" - 1.000" | 1.001" - 1.500" | 1.501" - 2.000" | 2.001" - 2.750" | 2.751" - 3.500" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | Easy | 900 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | | 150 - 200 | Easy | 700 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | | 200 - 250 | Easy | 500 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144 | 85 - 125 | Average | 900 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | | 125 - 175 | Average | 700 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | | 175 - 225 | Average | 600 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | | 225 - 275 | Average | 500 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | Medium-Carbon Steel 1010, 1040, 1050, 1527, 1140 | 125 - 175 | Average | 575 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| | | 175 - 225 | Average | 500 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| | | 225 - 275 | Average | 450 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| | | 275 - 325 | Average | 400 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| | Alloy Steel 4140, 5140, 8640 | 125 - 175 | Average | 575 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| | | 175 - 225 | Average | 500 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| | | 225 - 275 | Average | 450 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| | | 275 - 325 | Difficult | 400 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| | | 325 - 375 | Difficult | 375 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| | High-Strength Alloy 4340, 4330V, 300M | 225 - 300 | Average | 450 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| | | 300 - 350 | Difficult | 400 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 |
| 350 - 400 | | Difficult | 350 | 0.0008 | 0.0009 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | |
| Structural Steel A36, A285, A516 | 100 - 150 | Average | 600 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 | |
| | 150 - 250 | Average | 500 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 | |
| | 250 - 350 | Difficult | 450 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600 | 140 - 220 | Difficult | 120 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| | | 220 - 310 | Difficult | 90 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0015 | 0.0020 | 0.0025 |
| M | Stainless Steel 303, 416, 420 | 135 - 185 | Difficult | 525 | 0.0005 | 0.0007 | 0.0009 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | | 185 - 275 | Difficult | 500 | 0.0005 | 0.0007 | 0.0009 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | Stainless Steel PH 17-4 | 185 - 275 | Difficult | 300 | 0.0005 | 0.0007 | 0.0009 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | | 275 - 325 | Difficult | 150 | 0.0005 | 0.0007 | 0.0009 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| | Tool Steel H-13, H21, A-4 | 150 - 200 | Difficult | 575 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 |
| 200 - 250 | | Difficult | 500 | 0.0008 | 0.0010 | 0.0012 | 0.0015 | 0.0020 | 0.0025 | 0.0030 | |
| K | Cast Iron Grey, Ductile, Nodular | 120 - 150 | Easy | 675 | 0.0008 | 0.0012 | 0.0015 | 0.0020 | 0.0030 | 0.0040 | 0.0050 |
| | | 150 - 200 | Easy | 625 | 0.0008 | 0.0012 | 0.0015 | 0.0020 | 0.0030 | 0.0040 | 0.0050 |
| | | 200 - 220 | Easy | 575 | 0.0008 | 0.0012 | 0.0015 | 0.0020 | 0.0030 | 0.0040 | 0.0050 |
| | | 220 - 260 | Average | 500 | 0.0008 | 0.0012 | 0.0015 | 0.0020 | 0.0030 | 0.0040 | 0.0050 |
| | | 260 - 320 | Average | 475 | 0.0008 | 0.0012 | 0.0015 | 0.0020 | 0.0030 | 0.0040 | 0.0050 |
| N | Wrought Aluminum 6061 T6 | 30 | Easy | 1100 | 0.0015 | 0.0020 | 0.0025 | 0.0030 | 0.0040 | 0.0050 | 0.0060 |
| | | 180 | Easy | 1000 | 0.0015 | 0.0020 | 0.0025 | 0.0030 | 0.0040 | 0.0050 | 0.0060 |
| | Cast Aluminum** up to 10% silicon | 120 | Easy | 625 | 0.0015 | 0.0020 | 0.0025 | 0.0030 | 0.0040 | 0.0050 | 0.0060 |
| | Brass | 30 - 125 | Easy | 1100 | 0.0020 | 0.0025 | 0.0030 | 0.0040 | 0.0045 | 0.0055 | 0.0065 |

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 53 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

Recommended Cutting Data | Metric (mm)

Indexable | AccuThread® 856 | Positive Rake

| ISO | Material | Hardness (BHN) | Machinability** | Speed (M/min) | Recommended Feed (mm/tooth) by Cutter Diameter | | | | | | |
|-------|---|----------------|-----------------|---------------|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | | | | | 1 flute | | 1 and 2 flutes | 3 flutes | 5 flutes | 7 flutes | 8 flutes |
| | | | | | 9.53 mm - 12.70 mm | 12.71 mm - 19.05 mm | 19.06 mm - 25.40 mm | 25.41 mm - 38.10 mm | 38.11 mm - 50.80 mm | 50.81 mm - 69.85 mm | 69.86 mm - 88.90 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | Easy | 274 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 150 - 200 | Easy | 213 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 200 - 250 | Easy | 152 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144 | 85 - 125 | Average | 274 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 125 - 175 | Average | 213 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 175 - 225 | Average | 183 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| | Medium-Carbon Steel 1010, 1040, 1050, 1527, 1140 | 125 - 175 | Average | 175 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | | 175 - 225 | Average | 152 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | | 225 - 275 | Average | 137 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | Alloy Steel 4140, 5140, 8640 | 125 - 175 | Average | 175 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | | 175 - 225 | Average | 152 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | | 225 - 275 | Average | 137 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | High-Strength Alloy 4340, 4330V, 300M | 275 - 325 | Difficult | 122 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | | 325 - 375 | Difficult | 114 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | | 225 - 300 | Average | 137 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | Structural Steel A36, A285, A516 | 300 - 350 | Difficult | 122 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | | 350 - 400 | Difficult | 107 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 |
| | | 100 - 150 | Average | 183 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| S | High-Temp Alloy Hastelloy B, Inconel 600 | 150 - 250 | Average | 152 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 250 - 350 | Difficult | 137 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| M | Stainless Steel 303, 416, 420 | 140 - 220 | Difficult | 37 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.051 | 0.064 |
| | | 220 - 310 | Difficult | 27 | 0.013 | 0.015 | 0.020 | 0.025 | 0.038 | 0.051 | 0.064 |
| | Stainless Steel PH 17-4 | 135 - 185 | Difficult | 160 | 0.013 | 0.018 | 0.023 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 185 - 275 | Difficult | 152 | 0.013 | 0.018 | 0.023 | 0.038 | 0.051 | 0.064 | 0.076 |
| | Tool Steel H-13, H21, A-4 | 185 - 275 | Difficult | 91 | 0.013 | 0.018 | 0.023 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 275 - 325 | Difficult | 46 | 0.013 | 0.018 | 0.023 | 0.038 | 0.051 | 0.064 | 0.076 |
| K | Cast Iron Grey, Ductile, Nodular | 150 - 200 | Difficult | 175 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 200 - 250 | Difficult | 152 | 0.020 | 0.025 | 0.030 | 0.038 | 0.051 | 0.064 | 0.076 |
| | | 120 - 150 | Easy | 206 | 0.020 | 0.030 | 0.038 | 0.051 | 0.076 | 0.102 | 0.127 |
| | | 150 - 200 | Easy | 191 | 0.020 | 0.030 | 0.038 | 0.051 | 0.076 | 0.102 | 0.127 |
| | | 200 - 220 | Easy | 175 | 0.020 | 0.030 | 0.038 | 0.051 | 0.076 | 0.102 | 0.127 |
| N | Wrought Aluminum 6061 T6 | 220 - 260 | Average | 152 | 0.020 | 0.030 | 0.038 | 0.051 | 0.076 | 0.102 | 0.127 |
| | | 260 - 320 | Average | 145 | 0.020 | 0.030 | 0.038 | 0.051 | 0.076 | 0.102 | 0.127 |
| | Cast Aluminum** up to 10% silicon | 30 | Easy | 335 | 0.038 | 0.051 | 0.064 | 0.076 | 0.102 | 0.127 | 0.152 |
| | | 180 | Easy | 305 | 0.038 | 0.051 | 0.064 | 0.076 | 0.102 | 0.127 | 0.152 |
| Brass | 120 | Easy | 191 | 0.038 | 0.051 | 0.064 | 0.076 | 0.102 | 0.127 | 0.152 | |
| | | 30 - 125 | Easy | 335 | 0.051 | 0.064 | 0.076 | 0.102 | 0.114 | 0.140 | 0.165 |

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 53 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Recommended Cutting Data | Imperial (inch)

Indexable | AccuThread® 856 | Neutral Rake

| ISO | Material | Hardness (BHN) | Machinability** | Speed (SFM) | Recommended Feed (inch/tooth) by Cutter Diameter | | |
|-------------------------------------|---|----------------|-----------------|-------------|--|-----------------|-----------------|
| | | | | | 3 flutes | 5 flutes | 6 flutes |
| | | | | | 1.000" - 1.499" | 1.500" - 1.999" | 2.000" - 2.750" |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | Easy | 765 | 0.0013 | 0.0017 | 0.0021 |
| | | 150 - 200 | Easy | 595 | 0.0013 | 0.0017 | 0.0021 |
| | | 200 - 250 | Easy | 425 | 0.0013 | 0.0017 | 0.0021 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144 | 85 - 125 | Average | 765 | 0.0013 | 0.0017 | 0.0021 |
| | | 125 - 175 | Average | 595 | 0.0013 | 0.0017 | 0.0021 |
| | | 175 - 225 | Average | 510 | 0.0013 | 0.0017 | 0.0021 |
| | | 225 - 275 | Average | 425 | 0.0013 | 0.0017 | 0.0021 |
| | Medium-Carbon Steel 1010, 1040, 1050, 1527, 1140 | 125 - 175 | Average | 490 | 0.0010 | 0.0013 | 0.0017 |
| | | 175 - 225 | Average | 425 | 0.0010 | 0.0013 | 0.0017 |
| | | 225 - 275 | Average | 380 | 0.0010 | 0.0013 | 0.0017 |
| | | 275 - 325 | Average | 340 | 0.0010 | 0.0013 | 0.0017 |
| | Alloy Steel 4140, 5140, 8640 | 125 - 175 | Average | 490 | 0.0010 | 0.0013 | 0.0017 |
| | | 175 - 225 | Average | 425 | 0.0010 | 0.0013 | 0.0017 |
| | | 225 - 275 | Average | 380 | 0.0010 | 0.0013 | 0.0017 |
| | | 275 - 325 | Difficult | 340 | 0.0010 | 0.0013 | 0.0017 |
| | | 325 - 375 | Difficult | 320 | 0.0010 | 0.0013 | 0.0017 |
| | High-Strength Alloy 4340, 4330V, 300M | 225 - 300 | Average | 390 | 0.0010 | 0.0013 | 0.0017 |
| | | 300 - 350 | Difficult | 340 | 0.0010 | 0.0013 | 0.0017 |
| 350 - 400 | | Difficult | 300 | 0.0010 | 0.0013 | 0.0017 | |
| Structural Steel A36, A285, A516 | 100 - 150 | Average | 510 | 0.0013 | 0.0017 | 0.0021 | |
| | 150 - 250 | Average | 425 | 0.0013 | 0.0017 | 0.0021 | |
| | 250 - 350 | Difficult | 390 | 0.0013 | 0.0017 | 0.0021 | |
| S | High-Temp Alloy Hastelloy B, Inconel 600 | 140 - 220 | Difficult | - | - | - | |
| | | 220 - 310 | Difficult | - | - | - | |
| M | Stainless Steel 303, 416, 420 | 135 - 185 | Difficult | - | - | - | |
| | | 185 - 275 | Difficult | - | - | - | |
| | Stainless Steel PH 17-4 | 185 - 275 | Difficult | - | - | - | |
| | | 275 - 325 | Difficult | - | - | - | |
| | Tool Steel H-13, H21, A-4 | 150 - 200 | Difficult | - | - | - | |
| 200 - 250 | | Difficult | - | - | - | | |
| K | Cast Iron Grey, Ductile, Nodular | 120 - 150 | Easy | 575 | 0.0017 | 0.0026 | 0.0034 |
| | | 150 - 200 | Easy | 525 | 0.0017 | 0.0026 | 0.0034 |
| | | 200 - 220 | Easy | 490 | 0.0017 | 0.0026 | 0.0034 |
| | | 220 - 260 | Average | 425 | 0.0017 | 0.0026 | 0.0034 |
| | | 260 - 320 | Average | 400 | 0.0017 | 0.0026 | 0.0034 |
| N | Wrought Aluminum 6061 T6 | 30 | Easy | - | - | - | |
| | | 180 | Easy | - | - | - | |
| | Cast Aluminum** up to 10% silicon | 120 | Easy | - | - | - | |
| | Brass | 30 - 125 | Easy | - | - | - | |

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 53 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

Recommended Cutting Data | Metric (mm)

Indexable | AccuThread® 856 | Neutral Rake

| ISO | Material | Hardness (BHN) | Machinability** | Speed (M/min) | Recommended Feed (mm/tooth) by Cutter Diameter | | |
|-----------|---|---|-----------------|---------------|--|------------------------------------|------------------------------------|
| | | | | | 3 flutes 25.41 mm - 38.09 mm | 5 flutes 38.10 mm - 50.77 mm | 6 flutes 50.78 mm - 69.85 mm |
| P | Free-Machining Steel 1118, 1215, 12L14, etc. | 100 - 150 | Easy | 233 | 0.032 | 0.043 | 0.054 |
| | | 150 - 200 | Easy | 181 | 0.032 | 0.043 | 0.054 |
| | | 200 - 250 | Easy | 129 | 0.032 | 0.043 | 0.054 |
| | Low-Carbon Steel 1010, 1020, 1025, 1522, 1144 | 85 - 125 | Average | 233 | 0.032 | 0.043 | 0.054 |
| | | 125 - 175 | Average | 181 | 0.032 | 0.043 | 0.054 |
| | | 175 - 225 | Average | 156 | 0.032 | 0.043 | 0.054 |
| | Medium-Carbon Steel 1010, 1040, 1050, 1527, 1140 | 225 - 275 | Average | 129 | 0.032 | 0.043 | 0.054 |
| | | 125 - 175 | Average | 149 | 0.026 | 0.032 | 0.043 |
| | | 175 - 225 | Average | 129 | 0.026 | 0.032 | 0.043 |
| | Alloy Steel 4140, 5140, 8640 | 225 - 275 | Average | 116 | 0.026 | 0.032 | 0.043 |
| | | 275 - 325 | Average | 104 | 0.026 | 0.032 | 0.043 |
| | | 125 - 175 | Average | 149 | 0.026 | 0.032 | 0.043 |
| | | 175 - 225 | Average | 129 | 0.026 | 0.032 | 0.043 |
| | High-Strength Alloy 4340, 4330V, 300M | 225 - 275 | Average | 116 | 0.026 | 0.032 | 0.043 |
| | | 275 - 325 | Difficult | 104 | 0.026 | 0.032 | 0.043 |
| | | 325 - 375 | Difficult | 97 | 0.026 | 0.032 | 0.043 |
| | Structural Steel A36, A285, A516 | 350 - 400 | Difficult | 91 | 0.026 | 0.032 | 0.043 |
| | | 100 - 150 | Average | 156 | 0.032 | 0.043 | 0.054 |
| | | 150 - 250 | Average | 129 | 0.032 | 0.043 | 0.054 |
| | S | High-Temp Alloy Hastelloy B, Inconel 600 | 250 - 350 | Difficult | 116 | 0.032 | 0.043 |
| 140 - 220 | | | Difficult | - | - | - | - |
| M | Stainless Steel 303, 416, 420 | 220 - 310 | Difficult | - | - | - | - |
| | | 135 - 185 | Difficult | - | - | - | - |
| | Stainless Steel PH 17-4 | 185 - 275 | Difficult | - | - | - | - |
| | | 275 - 325 | Difficult | - | - | - | - |
| | Tool Steel H-13, H21, A-4 | 150 - 200 | Difficult | - | - | - | - |
| 200 - 250 | | Difficult | - | - | - | - | |
| K | Cast Iron Grey, Ductile, Nodular | 120 - 150 | Easy | 175 | 0.043 | 0.065 | 0.087 |
| | | 150 - 200 | Easy | 162 | 0.043 | 0.065 | 0.087 |
| | | 200 - 220 | Easy | 149 | 0.043 | 0.065 | 0.087 |
| | | 220 - 260 | Average | 129 | 0.043 | 0.065 | 0.087 |
| | | 260 - 320 | Average | 123 | 0.043 | 0.065 | 0.087 |
| N | Wrought Aluminum 6061 T6 | 30 | Easy | - | - | - | - |
| | | 180 | Easy | - | - | - | - |
| | Cast Aluminum** up to 10% silicon | 120 | Easy | - | - | - | - |
| | Brass | 30 - 125 | Easy | - | - | - | - |

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 53 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Thread Mill Programming Guide

What you need to know

- Thread milling can be easily accomplished with simple G code programming
- If your machine is capable of 3 axis (helical) interpolation, you can and **should** be thread milling
- Basic programming of a one pass thread mill can be achieved in 6 basic steps

AVAILABLE ONLINE 24/7
or download **INSTA-CODE®**

visit www.alliedmachine.com

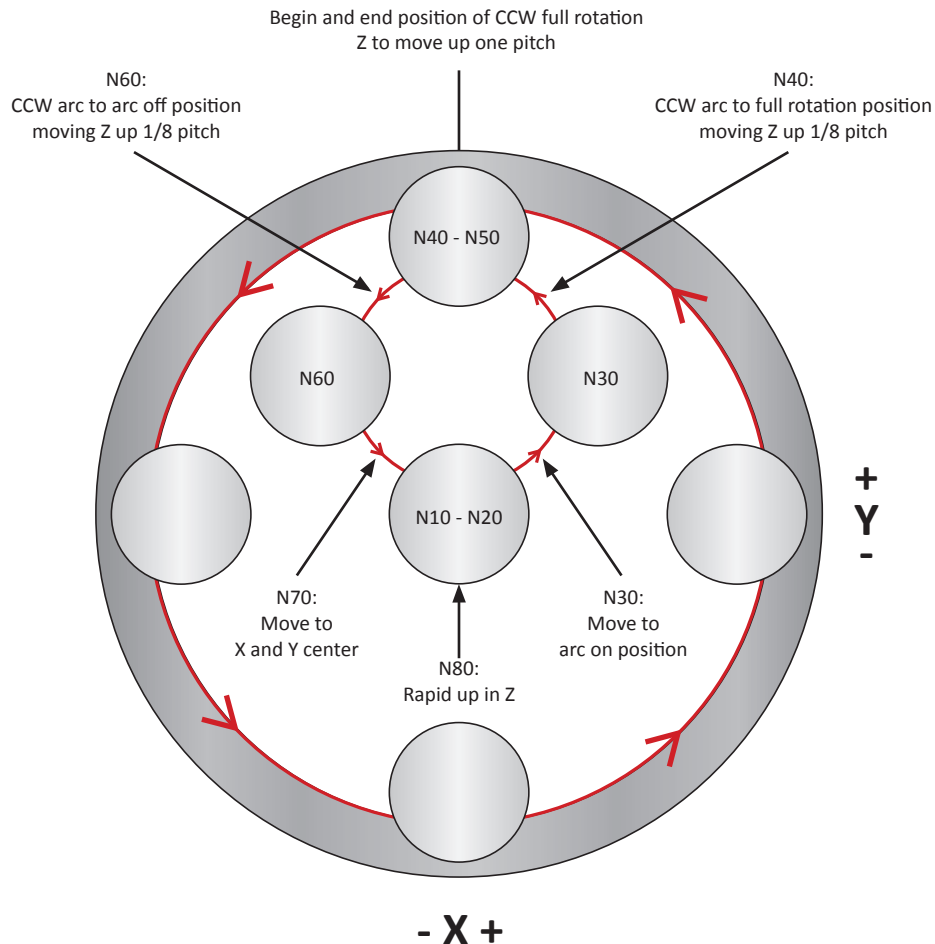
The following are examples of how to calculate and program a M16x2 right hand thread that will be 10mm deep produced in one pass

| | | |
|---|----------------------|---|
| Major thread diameter | 16mm | Major diameter of thread |
| Threads per inch | | (only applies to imperial threads) |
| Length of thread | 10mm | Desired length of cut |
| Velocity | 221 M/min | Recommended velocity for material to be cut |
| Feed per flute | 0.038mm/tooth | Recommended feed rate per cutting edge |
| Number of flutes | 4 | Number of flutes on tool to be used |
| Cutter diameter | 11.94mm | Diameter of cutting tool |
| Using the information above, the values can be calculated: | | |
| Pitch | 2.0mm | Use 1/ threads per inch for imperial |
| Speed | 5895 RPM | $(318.47 \cdot M/min) / \text{cutter diameter}$ or $(SFM \cdot 3.82) / \text{cutter diameter}$ |
| Linear feed | 896.04mm/min | $RPM \cdot (\text{Feed per flute} \cdot \text{Number of flutes})$ |
| Feed rate for thread milling | 227.37mm/min | $((\text{Major thread diameter} - \text{cutter diameter}) / \text{Major thread diameter}) \cdot \text{Linear feed}$ |
| Z-axis travel on arc on | 0.25mm | $(\text{Pitch} / 8)$ |
| Z-axis travel for full thread | 10.25mm | $(\text{Pitch} / 8) + \text{Length of cut}$ |
| Arc on/off | 1.015mm | $(\text{Major thread diameter} - \text{cutter diameter}) / 4$ |
| Full rotation value | 2.030mm | $(\text{Major thread diameter} - \text{cutter diameter}) / 2$ |

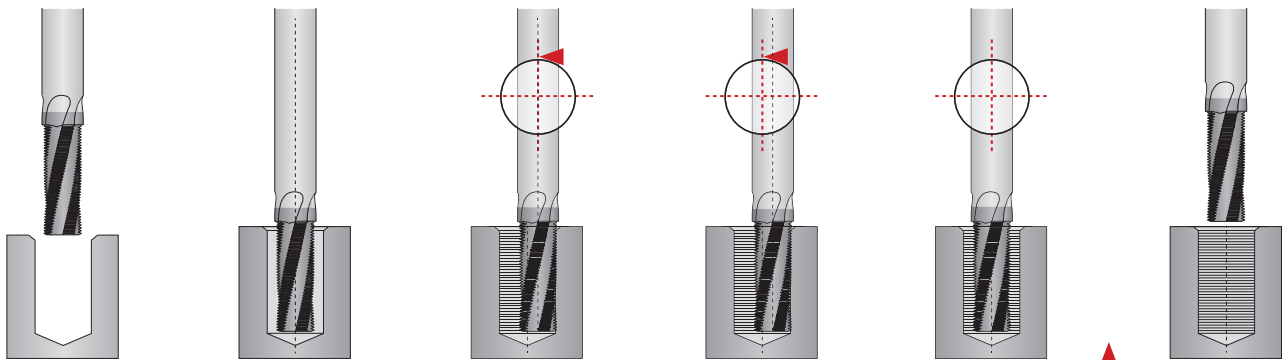
| | |
|-----------------------|----------|
| Major thread diameter | 16 mm |
| Cutter diameter | 11.94 mm |
| Length of thread | 10.00 mm |

| | |
|------------------------------|---------------|
| Feed rate for thread milling | 227.37 mm/min |
| Z axis depth for full thread | 10.25 mm |
| Z axis for arc on/off | 0.25 mm |

| | |
|---------------------|----------|
| Arc on/off value | 1.015 mm |
| Full rotation value | 2.030 mm |
| Pitch value | 2.00 mm |



| | | | | | | |
|---|-----|------|--|-----------|-----------|---------------------------|
| | | 5895 | M03 | | | |
| 1 | N10 | S | Turn on spindle in the clockwise direction. | | | |
| 2 | N20 | G91 | G01 | Z -10.250 | F 1136.25 | |
| | N30 | G41 | X 1.015 | Y 1.015 | D1 | F 681.75 |
| 3 | N40 | G03 | X -1.015 | Y 1.015 | Z 0.250 | I -1.015 J 0.000 F 227.37 |
| | N50 | G03 | X 0.000 | Y 0.000 | Z 2.000 | I 0.000 J -2.030 |
| | N60 | G03 | X -1.015 | Y -1.015 | Z 0.250 | I 0.000 J -1.015 F 909.00 |
| 5 | N70 | G40 | G01 | X 1.015 | Y -1.015 | F 1136.25 |
| | N80 | G00 | Z 7.750 | | | |
| 6 | N90 | G90 | Switch back to absolute positioning and rapid to a safe point in Z above part level (assumed to be 1 pitch above part level for demonstration purposes below). | | | |



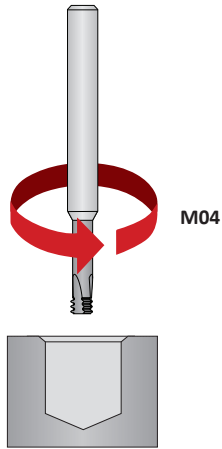
| Step 1 N10 | Step 2 N20 | Step 3 N30 - N40 | Step 4 N50 | Step 5 N60 - N70 | Step 6 N80 - N90 |
|---|---|--|--|--|---|
| <ul style="list-style-type: none"> Preparatory commands Positioning above hole center and at hole level in Z In absolute position mode | <ul style="list-style-type: none"> Change to incremental Feed to bottom of hole Z axis depth for full thread | <ul style="list-style-type: none"> Activate left cutter comp Feed to arc on position Arc to full rotation value while moving Z up 1/8 pitch Z axis move for arc on | <ul style="list-style-type: none"> One complete CCW rotation at full arc rotation value while moving Z up 1 pitch value | <ul style="list-style-type: none"> CCW arc from full rotation value to the arc on/off value while moving Z up 1/8 pitch (Z axis move for arc off) | <ul style="list-style-type: none"> Rapid up in Z |

Technical Information

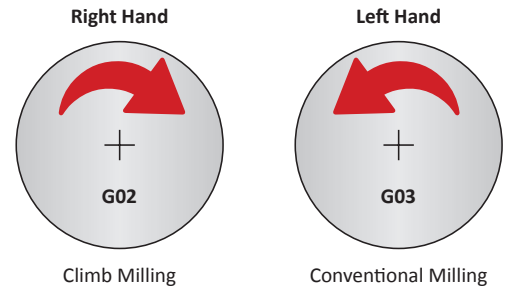
AccuThread® T3

Spindle Rotation

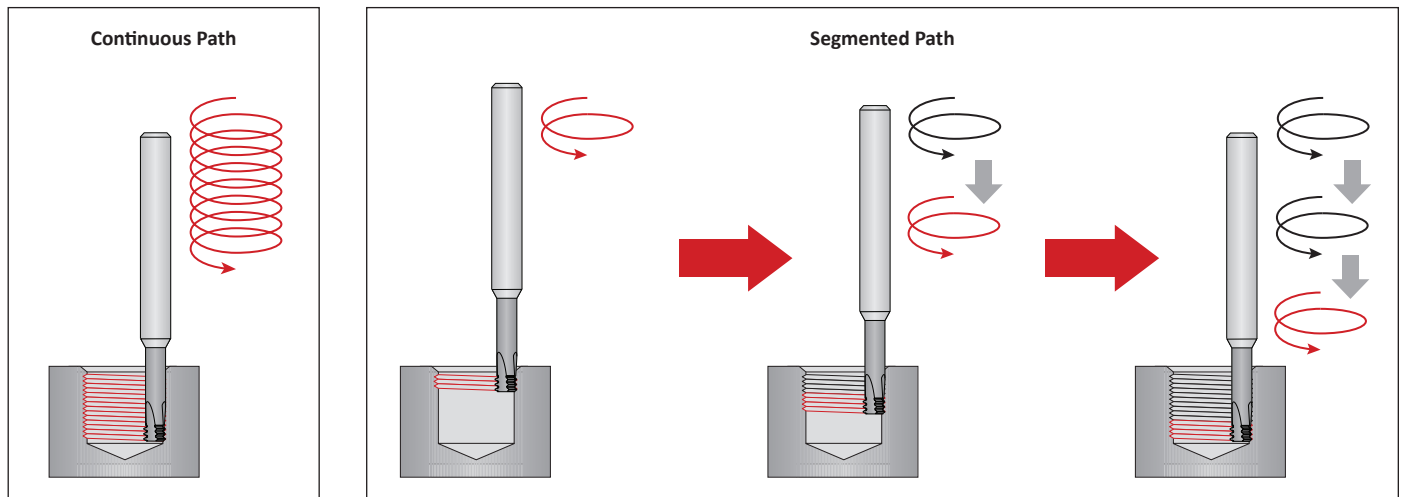
! Tools are left-hand cutting. The left-hand cut allows the tool to climb mill when creating a right hand thread with an AccuThread T3. Climb milling reduces deflection and heat generated during the cut.



Direction of Helical Interpolation



Programming Z-Axis Cutting Path



Start Point

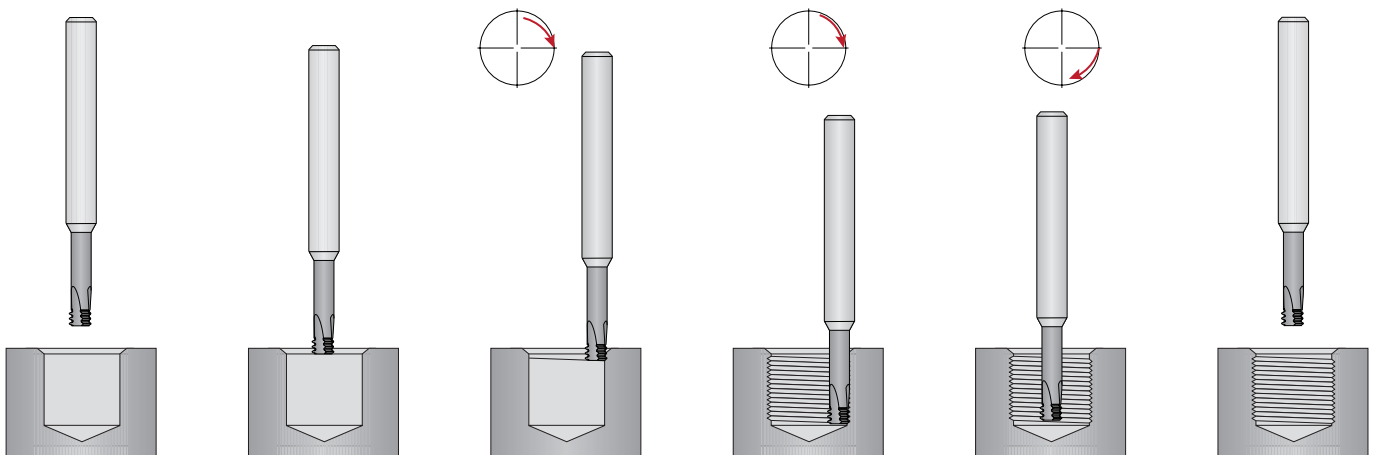
Center Location

Arc Entrance

Thread Milling

Arc Exit

End Point



Thread Mill Troubleshooting Guide

| | | Problem | | | | | | | | | |
|----------------|--|--|----------------------------|---|---|---------------------------------|--|--|-------------------------|------------------------------------|---|
| | | Thread mill is showing accelerated or excessive wear | Cutting edges are chipping | Thread mill is breaking in the first hole of part | Thread mill is creating excessive chatter | Out of round thread is produced | Bell-mouthed thread form (small at bottom, big at top) | Part rejection because of rough flank finish | Steps in thread profile | Gauge difference from part to part | Machine not making correct paths to create thread profile |
| Causes | | | | | | | | | | | |
| Catalog | Incorrect tool selection | | | 1 | 1 | | | | | | |
| | Incorrect speed and feed selection | 2, 3 | 2, 3 | | 2, 3 | | | 2, 3 | | | |
| Speed and Feed | RPM too high | 5 | | | | | | | | | |
| | RPM too low | | | | 4 | | 4 | 4 | | | |
| | Machine tool specifications restrict RPMs | | | 5, 19 | | | | | | | |
| | Feed rate too high | | 7 | 7 | | | 7 | 7 | 7 | | |
| | Feed rate too low | 6 | | | | | | | | | |
| | Incorrect adjusted feed rate adjustment ratio | | | 12 | | | | | | | |
| | Machine tool specification restricts feed rate | | | | | 7, 19 | | | | | |
| | Ramp-in is programmed as an axial move | | | 20 | | | | | 20 | | |
| Tool | Thread mill moved or slipped in its holding device | 13 | 13 | 13 | 13 | | | 13 | 13 | | |
| | Tool is sticking out of the holder too far | 15 | 15 | 15 | 15 | | | 15 | 15 | 15 | |
| | Runout between thread mill and holder | | | | 10 | | | 10 | | | |
| | Incorrect coating creating built up edge | 8, 17 | | | | | | | | 8, 17 | |
| | Helix angle too low | | | | 9 | | | 9 | | | |
| | Excessive thread mill wear | | | | | | | | 11 | 11 | |
| | Excessive tool pressure | 7, 11, 14 | | | | | | 7, 11, 14 | | | |
| Machine | Workpiece moving in its fixturing | 16 | 16 | 16 | 16 | | | 16 | | 16 | |
| | Insufficient coolant pressure or flow | 17 | 17 | | | | | | | | |
| | Lack of machine rigidity | 16 | 16 | | 16 | | 16 | 16 | | | |
| Programming | Incorrect number of passes | | | 22 | | | 22 | | | | |
| | Incorrect program variables | | | 18, 26 | | | | | | 18, 26 | |
| | Did not account for X/Y radial moves for tapered threads | | | | | | | | | 24, 26 | |
| | Incorrect cutter compensation variables | | | 23, 26 | | | | | | | 23, 26 |
| | Helical interpolation option not on machine or turned off | | | | | | | | | 21, 26 | 21, 26 |
| | Machine tool control is not formatted to standard EIA/ASCII/ISO Code | | | | | | | | | | 25, 26 |

Troubleshooting Solutions

1. Refer to catalog to ensure proper tool selection.
2. Verify the correct speed was selected from the catalog speed and feed chart.
3. Verify the correct feed rate was selected from the catalog speed and feed chart.
4. Increase the spindle speed (RPM).
5. Decrease the spindle speed (RPM).
6. Increase feed per tooth.
7. Decrease feed per tooth.
8. Investigate other coatings.
9. Increase the tool helix.
10. Gauge runout between thread mill and tool holder.
11. Perform tool change at quicker intervals.
12. Adjust the feed rate ratio properly to the correct actual penetration rate for internal threads. Refer to speed and feed pages for formula.
13. Use hydraulic clamping chuck.
14. Check the tool for excessive wear. Beginning threads will wear the fastest.
15. Make the amount of overhang in the holding device as short as possible.
16. Verify the workpiece is properly clamped. Retighten or increase stability if necessary.
17. Increase the coolant flow and volume.
18. Check the milling program variables, especially the positive or negative value associated with I and J values.
19. Make sure the machine has the appropriate axis and path speed capabilities.
20. Make sure the thread mill is arcing in the major diameter instead of making a radial move.
21. Make sure the machine tool has a helical interpolation option that is on.
22. Increase the number of thread mill passes.
23. Make sure the cutter compensation variables are input into the G41 program line.
24. Adjust the program for pipe tap threads to taper out on diameter in X/Y directions to create proper form.
25. Request information from the machine tool builder regarding its programming formats.
26. Scan and email a copy of your program to the Application Engineering department at appeng@alliedmachine.com.

SECTION

X

Special Tooling Solutions

Special Tooling Solutions

Superion® | Insta-Quote® | Engineered Specials



Specialty is Our Specialty

When it comes to designing and developing special solutions for customers, Allied Machine is the top choice. Our engineers see applications in ways many others don't, and that ability allows us to win situations that haven't been won before.

If you have a particularly unique or difficult application, give us a call. Most of our tooling can be tweaked as specials, and we can create entirely new concepts if alterations to standard product won't do the trick.

After all, everyone deserves some special attention.



Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

Special Tooling Solutions Contents

Introduction Information

Overview of Specials Capabilities 2 - 3

Superion® Solid Carbide and PCD Tooling 4 - 5

Insta-Quote®

Program Overview 6

User Guide 7 - 9

T-A® Inserts 10

T-A® Holders 11

GEN3SYS® XT Holders 12

ALVAN® Reamers 13

Engineered Specials

Insert Designs 14

Vaccum Drill 15

Guided T-A® 16

Success Stories 17

i-Form 18 - 19

Special Design Examples 20 - 21

QDSI™ Inserts 22 - 23

Send in Your Own Design 24 - 25

Deep Hole Drilling Guidelines 26

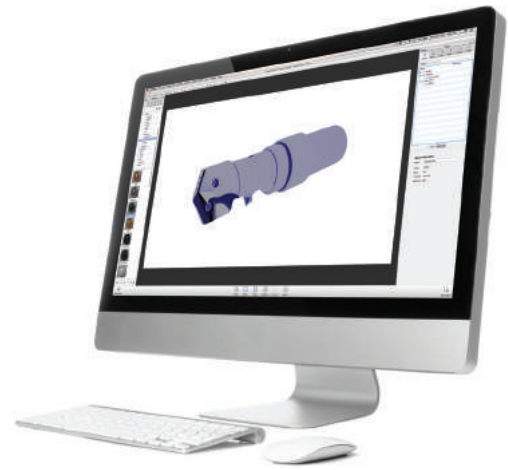
Special Tooling Options

Special Tooling is Our Specialty

Allied Machine offers three methods for obtaining special tooling to solve any application problem you encounter: Superior®, Insta-Quote®, and Engineered Specials. We know standard tooling can't be the answer for everyone, and that's why we specialize in developing unique tooling to fit your needs.

Many of our products can be altered as specials. In fact, many of our standard items are results of frequently requested special features. Many times, one special design can end up solving problems for multiple customers across a variety of industries. Our specials capabilities truly set us apart from our competition.

Our Application Engineering team and Field Sales Engineers are trained and highly skilled to develop unique solutions that you won't find anywhere else. If you need special tooling, give us a call. Let us be the ones to tell you it can't be done. But don't expect us to.



Advanced Capabilities

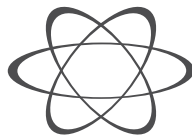
With the addition of the Superior solid carbide products, Allied Machine can now provide made-to-order special tooling to better help customers achieve optimal performance and productivity in their holmaking applications. Give us a call today and see the new solutions we can provide.

Made-to-Order Solid Carbide Specials

- PCD Tooling
- Burnishing Drills
- Solid Carbide Drills
- Step Drills / PCD Step Reamers



Solid Carbide Specials



Insta-Quote®

Insta-Quote is an online custom tool designer. The program is available 24/7 and guides you through the steps as you create a special tool designed to meet the requirements of your application.

Products Available:

- T-A® Inserts
- T-A® Holders
- GEN3SYS® XT Holders
- ALVAN® Reamers



See pages X: 6 - 13



Engineered Specials

When the requirements of your application fall outside the limitations of Insta-Quote, your special tooling becomes an Engineered Special. These are tool designs that our engineers get to create and develop specifically for you.

Reasons to Call:

- Many standard products can be specially engineered
- Allied Machine specials can save you time and increase tool life
- Our engineers have the skills and knowledge to create designs that meet the challenge



See pages X: 14 - 21

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

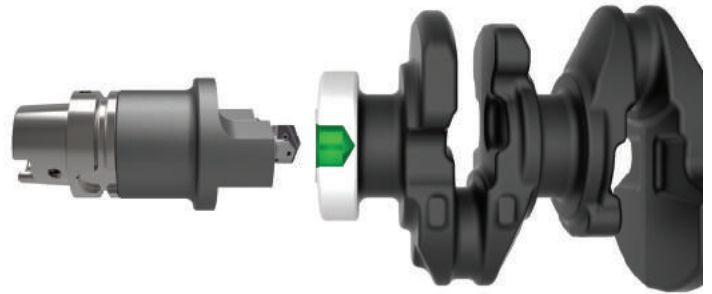
Industry Solutions

Every Industry Needs Some Special Attention

Many specific industry applications can be tricky, and processes can change drastically from one sector to the next. Allied's Field Sales Engineers and Application Engineers work together to develop breakthrough solutions that help customers master processes that before seemed impossible to improve.

You know your parts. You know your materials. You know what works and what doesn't. All you need to do is let us know what you're dealing with, and we'll take it from there. Whether you're machining the wings of an airplane or the engine block in a new car, we'll develop the right design to solve the problem you're facing.

For more industry examples, see Allied Machine's case studies at www.alliedmachine.com/RealLifeResults.



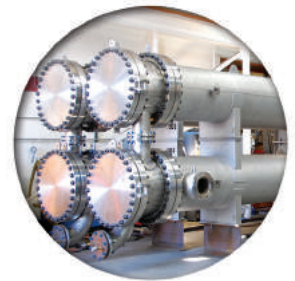
Automotive
Engine Block



Aerospace
Central Fuselage Wing Box

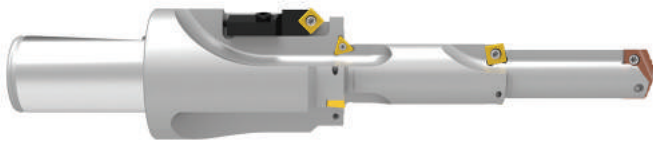


Heavy Machinery
Track Links



Oil and Gas
Heat Exchanger

COMPLEX SOLUTIONS



INNOVATIVE SOLUTIONS



LONG SOLUTIONS



EVERY PROBLEM
HAS A
SOLUTION

SUPERION

Solid Carbide and PCD Tooling Solutions

WHAT IS SUPERION?

Superion capabilities provide cutting-edge solutions in both solid carbide and PCD tooling.



WHY SHOULD YOU USE SUPERION?

- State-of-the-art manufacturing automation allows for high repeatability and consistency, regardless of the quantity you need.
- Superion provides application-specific solutions tailored to meet your toughest demands.
- Superion tooling excels in difficult and unique material applications.
- Our goal is to provide you a quality solution to exceed your need on a schedule that satisfies.



WHEN SHOULD YOU USE SUPERION?

- When finish is critical and dimensions are tight, Superion will deliver a tool to maintain your tolerances.
- When your tooling budget requires regrinds and the ability to remanufacture, Superion tackles your needs.
- If you're dealing with CFRP or other unique materials, Superion tooling is the right solution.



A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

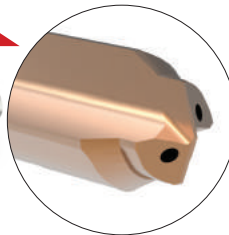
AEROSPACE / Landing Gear Components



DRILL BURNISH TOOLS

Reduce cycle time, increase throughput, and increase profitability by combining roughing and finishing operations using our burnishing geometry for applications in which surface finish and hole tolerance are critical.

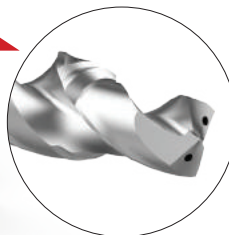
AUTOMOTIVE / Crankshafts



COMBINATION TOOLS

Combine multiple steps and various profile features to improve throughput. Combination tools reduce cost per hole and increase profit potential.

HEAVY EQUIPMENT / Manifolds



SOLID CARBIDE TOOLS WITH COOLANT

Solid carbide solutions optimize the manufacturing of manifolds. Most port specs call for at least three steps, and combining these features can reduce costs and increase throughput.

AUTOMOTIVE / Transmission Components



SOLID CARBIDE STEP TOOLS

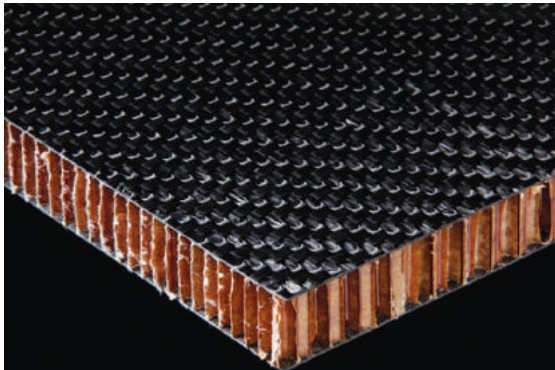
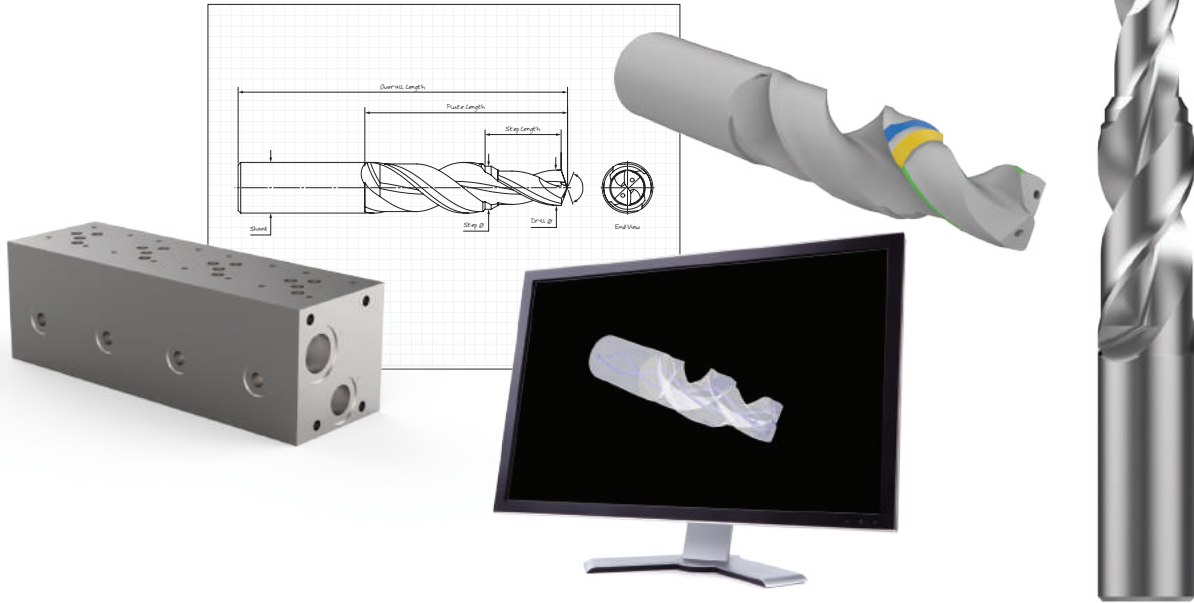
You can rely on Superion's state-of-the-art manufacturing facility, built specifically to satisfy the customer's needs. Whether it's 10 drills or 1,000 drills, Superion will provide consistent and effective solutions to your production needs.

Superion®

Solid Carbide and PCD Tooling Solutions

From Concept to Reality

Allied's team of engineers is ready to assist you with your application. We'll gather all the information we need about your application and turn your concept into reality. Give us a call today, and we will collaborate with you and listen to your needs, formulate a concept, develop the model, and build the solution.

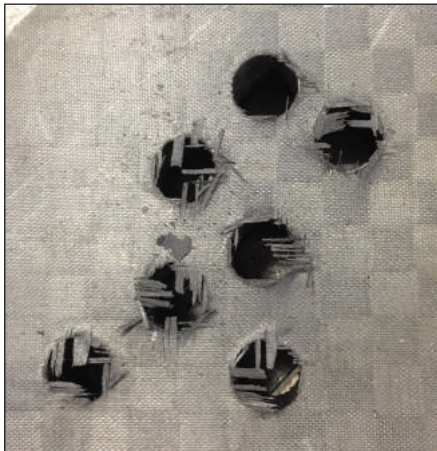


The Challenge of CFRP Materials

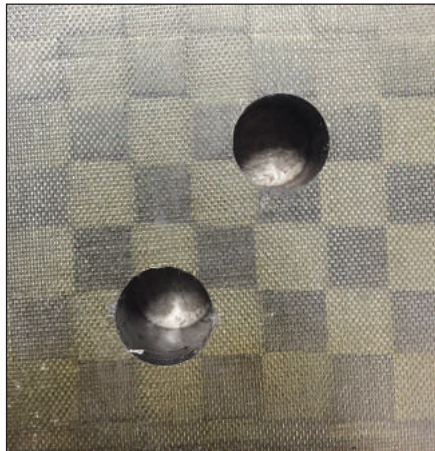
Carbon fiber material is ideal for industries that require components with high strength and rigidity without increasing weight. In other words, these products need to be really strong and sturdy but also really light. For example, the aerospace industry revolves around aerodynamics, which is why carbon fiber is utilized to increase the quality of aerospace components without increasing the weight.

Many other metals are composed of uniform properties that are the same in every direction. Carbon fiber, on the other hand, is made of fabrics that are specifically positioned in different directions. This configuration increases the strength and rigidity of the material, but it also makes carbon fiber much more difficult to drill.

Results When Drilling Aerospace-Grade Carbon Fiber



Holes drilled with CVD drill insert



Holes drilled with PCD tooling

Just Look at That!

These images tell the whole story. Check out the holes drilled by the PCD tooling versus the CVD insert. Notice the excessive delamination on the first group of holes. The PCD tooling avoids most delamination, resulting in an excellent hole in the difficult-to-drill carbon fiber material.

Carbon fiber has high strength that causes:

- Wear on the cutting tool
- Splintering/fraying of the hole

As you can see, the first test experienced these problems. The PCD tooling, however, successfully drilled clean holes.

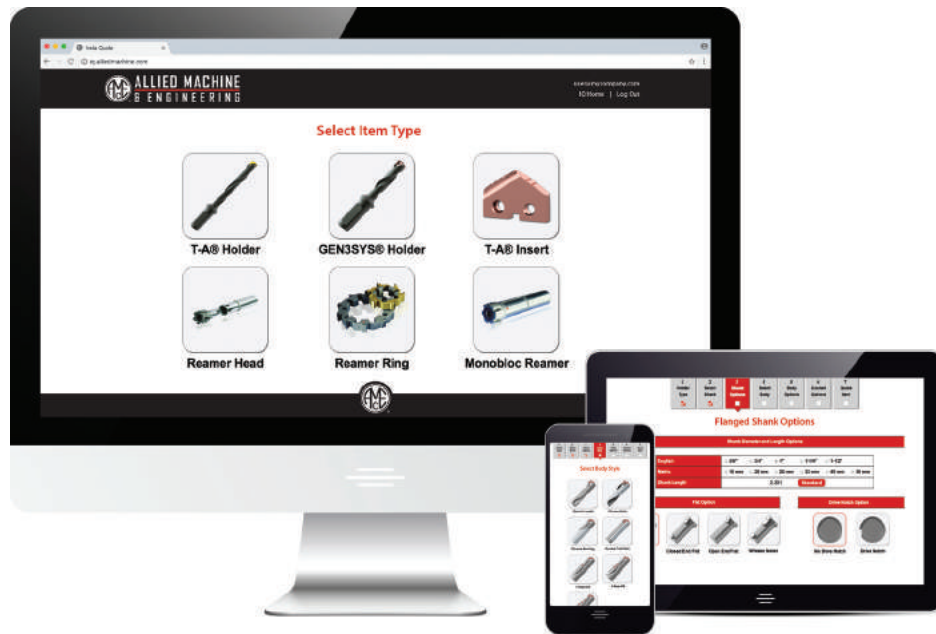
Insta-Quote®

Design Your Custom Tooling



Design your custom tooling and receive a drawing and quote...all within *minutes*.

iq.alliedmachine.com



Design Your Own Solutions

Insta-Quote is an online program that allows you to design and quote your own tooling in a matter of minutes. After you log in, Insta-Quote will guide you through the steps to gather all the necessary information and generate the solution you need. Within the system, you can choose from the following tools to design:

- T-A® Inserts
- T-A® Holders
- GEN3SYS® XT Holders

Along with designing these products as specials, Insta-Quote can also help you create your item number for ALVAN® Reamers. Because reamer item numbers do not follow the same method as Allied Machine's standard products, you must build your reamer item numbers. Insta-Quote can do that for you.

- Replaceable Head Style
- Monobloc Style
- Cutting Ring Style



Design anytime from anywhere.
Available online 24/7.



Insta-Quote®

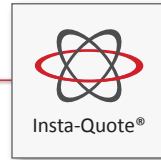
User Guide



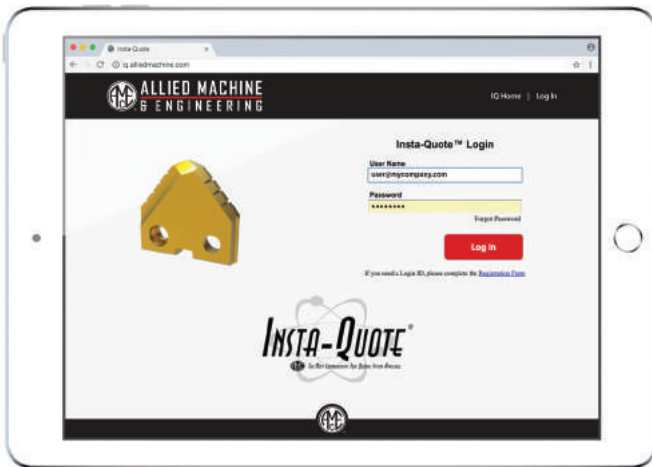
Where Do I Find Insta-Quote?

There are two ways to get to the Insta-Quote program. You can visit the Allied Machine homepage (www.alliedmachine.com) and click on the Insta-Quote icon under the quick links menu (☰)

Or you can simply go to iq.alliedmachine.com to access Insta-Quote directly.



OR iq.alliedmachine.com



1

Log In

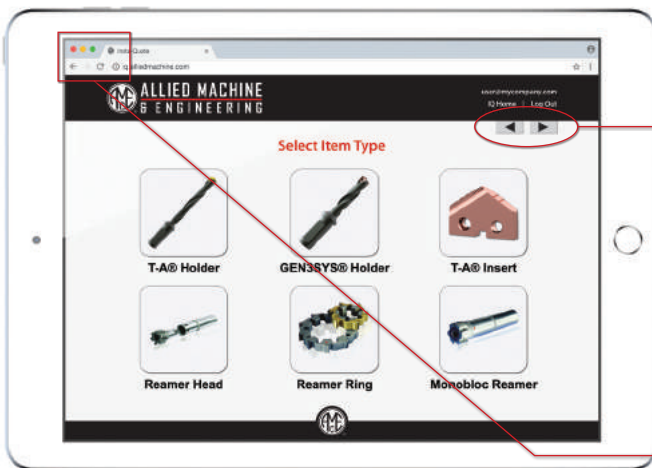
Fill in "User Name" and "Password" and click the login button. If you do not have a login, just click the "Registration Form" option beneath the login button and submit your registration.



2

Select Activity

On this screen, you can choose to create a new tool, edit a previous tool, update your quote, or copy a previous item.



3

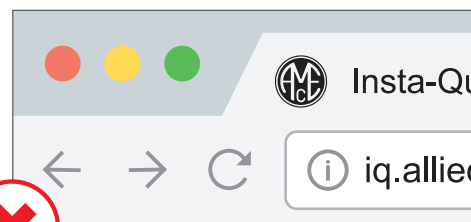
Select Tool Type

Choose the type of special tool you would like to create. The options include T-A® inserts, T-A® holders, GEN3SYS® holders, replaceable head reamers, monobloc reamers, and cutting ring reamers.



IMPORTANT:

The right and left arrows will navigate you through each step. **DO NOT** use the web browser's back and forward buttons; doing so may result in loss of progress.



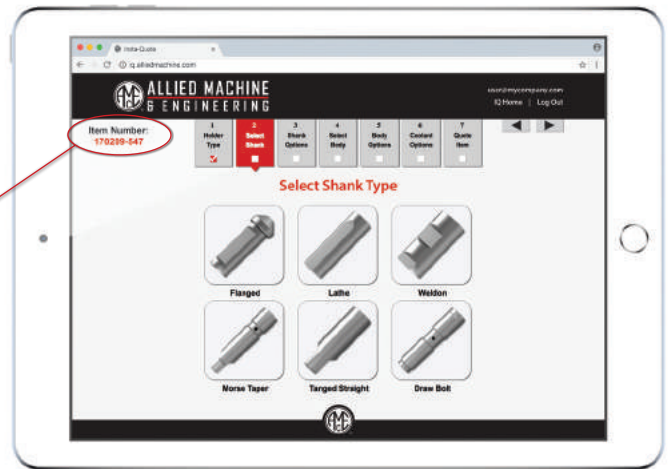
Do not use the web browser's back and forward arrows

What Is My Item Number?

As soon as you select the type of product you want to design, Insta-Quote automatically generates the item number for your tool. The item number will appear at the top left-hand side of your screen.

170209-547

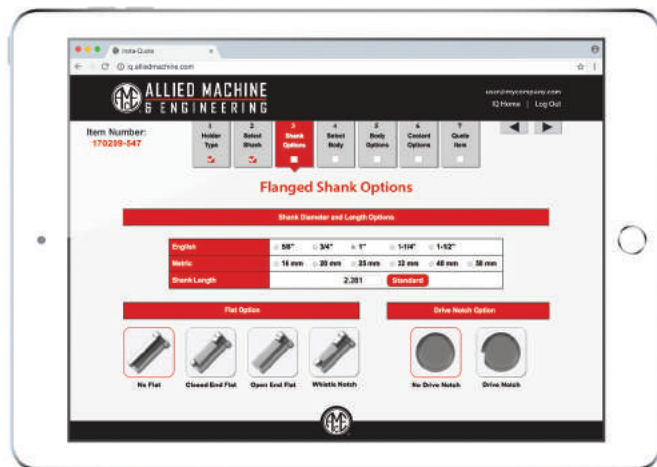
Year Month Day Reference No.



4

Shank Selection

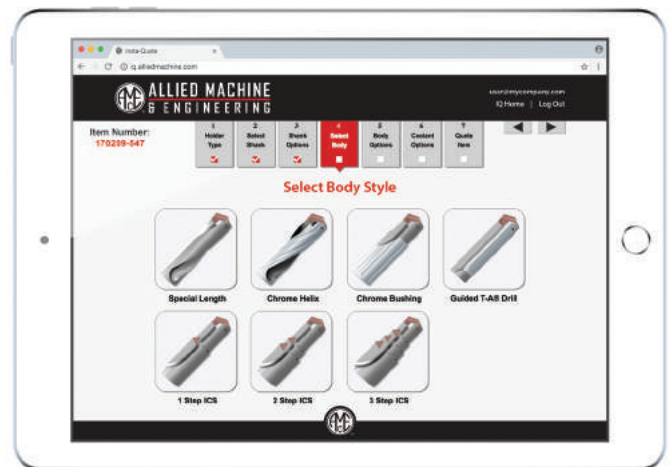
Select the shank type you require and then click the right arrow button ► to proceed.



5

Shank Options

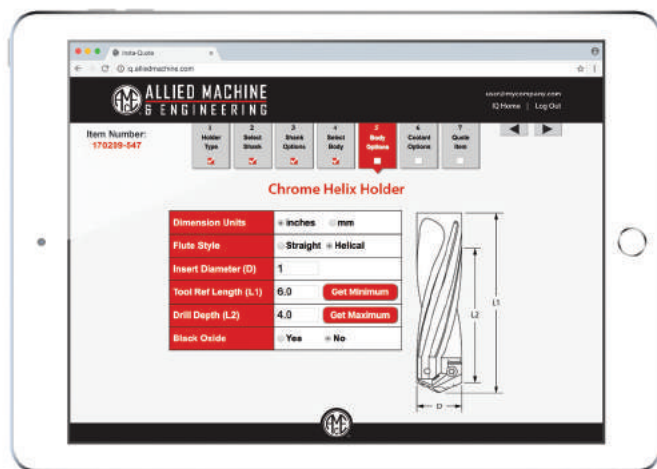
After choosing the shank type, you will be provided with additional shank options (if applicable). Once your selections are made, click the right arrow button ► to proceed.



6

Select Body Style

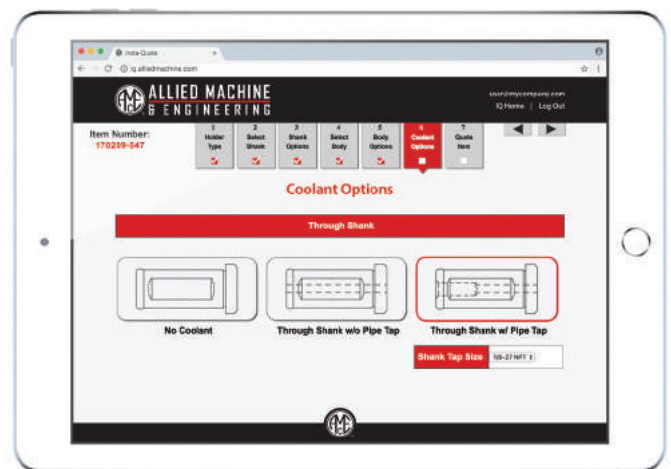
Choose the holder style you need, and then click the right arrow button ► to proceed.



7

Body Options

After choosing the holder style, you will be provided with additional holder options (if applicable). Once your selections are made, click the right arrow button ► to proceed.



8

Coolant Options

On this screen you will select your coolant options. When finished, click the right arrow button ► to proceed.

A DRILLING

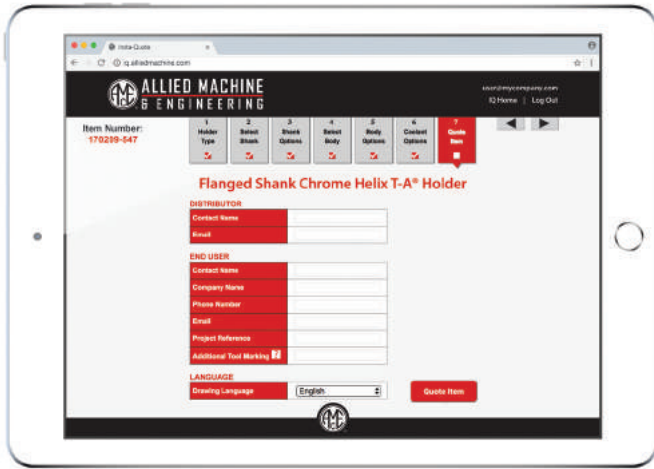
B BORING

C REAMING

D BURNISHING

E THREADING

X SPECIALS



9 Contact Information
Complete the contact details and select a language for the drawing. Click the "Quote Item" button to proceed.

10 Quote Your Item
Once you have selected "Quote Item," a box will appear to let you know the estimated time remaining before your quote and drawing are created (typical wait time is less than 1 minute).
NOTE: Your pop-up blocker must be disabled in order to view the downloaded files.

ALLIED MACHINE & ENGINEERING
120 Deeds Drive, Dover, OH 44622
Phone: 330-343-4283 | Fax: 330-602-3400
www.alliedmachine.com

AMEC Rep:
Harold Siskey
Phone: 330-343-4283
Fax: 330-602-3400
Email:

Quotation Number: N-012345-678910
Item Number: 170210-523 Rev. 0

Customer Item Reference: ABC Company
Attn: Joe Thomas
123 Holskeming Pkwy Suite 1000
Dover, OH 44622
USA
Email: joe@abccompany.com
Phone: 330-343-4283
Fax: 330-602-3400

Customer:
Customer Address:
456 Holskeming Dr.
Email:
Phone: 330-330-3300

| DESCRIPTION | QTY | LIST PRICE EACH (U.S. \$) | SCH |
|---|-------|---------------------------|-----|
| #2 Series T-A® Chrome Helix Holder With 1.000" Drill Diameter, 5.860" Helical Flute, 4.00" Drill Depth, 1.000" Dia. By 2.281" Long Flanged Shank With No Flat With Through Shank Coolant. For AMEC# 170210-523 Rev. 0 | 1 | \$0.00 | |
| | 2 | \$0.00 | |
| | 3 | \$0.00 | |
| | 4-5 | \$0.00 | |
| | 6-9 | \$0.00 | |
| | 10-14 | \$0.00 | |
| | 15-24 | \$0.00 | |
| | 25-49 | \$0.00 | |
| | 50+ | \$0.00 | |

Price Class: ABC
For additional opportunities to lower cost, please review AMEC's Blanket Release Order Policy (BRO Policy 081618 Rev. 3).
This quotation is being offered based on the information that has been provided to AMEC. The price and manufacturability is subject to change without notice. Responses longer than 2 days will impact.

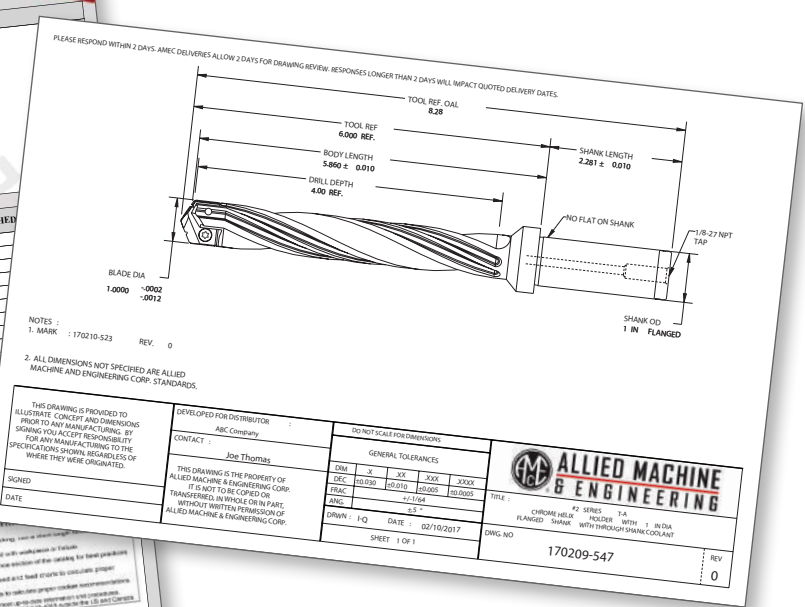
| Order Quantity | Allowable Quantity Variance | Shipment Table |
|----------------|-----------------------------|----------------|
| 1-9 | +0-0 | +0-1 |
| 10-49 | +0-1 | +0-2 |
| 50-149 | +0-2 | +0-3 |
| 150-249 | +0-3 | +0-4 |

Order Quantity Variance Amount

WARNING: For Deep Hole Drilling
This document will serve as our official response. Please notify us if additional copies should be mailed.
This quote is valid until 12/31/2023 unless you send a specific modification to the company.
Scheduled lead time is based on availability of material at time of order. You will be notified within 3 business days of receipt of order, if a lead time change is required.
Scheduled lead time starts upon receipt of order as well as customer approved AMEC drawing when appropriate.
All special order cancellations are subject to a minimum of 10% cancellation charge. AMEC reserves the right to increase the cancellation charge as deemed necessary to cover costs associated with items being cancelled.
ALLIED MACHINE & ENGINEERING CORP.
This quote prepared by: *Insta-Quote*

DRILLING | **BORING** | **REAMING** | **BURNISHING** | **THREADING** | **SPECIALS**

05/12/2022 | Page 1 of 1
Allied Machine & Engineering | ABC Company | Customer Quote #N 012345-678910

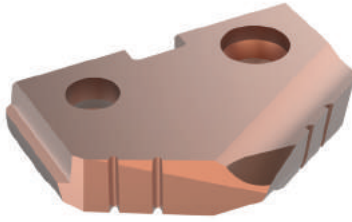


The drawing contains all relevant dimensions. It must be signed before manufacturing can begin.
NOTE: The drawing is a generic representation and is not to scale.

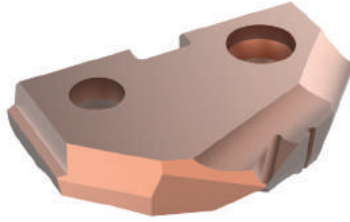
Insta-Quote® Custom Tooling

T-A® Inserts

A
DRILLING
B
BORING
C
REAMING
D
URNISHING
E
HREADING
X
PECIALS



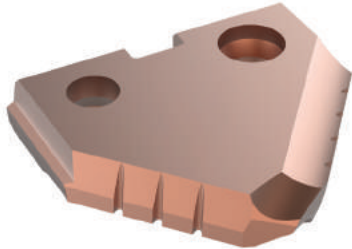
Special Angle



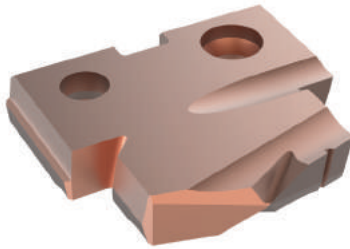
Double Angle



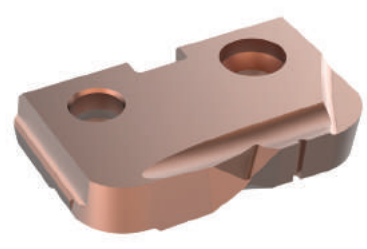
Spur Point



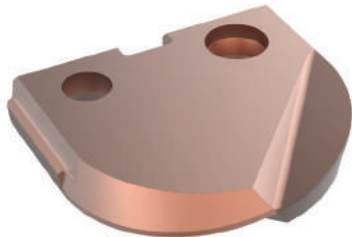
Spot and Chamfer



Step Insert

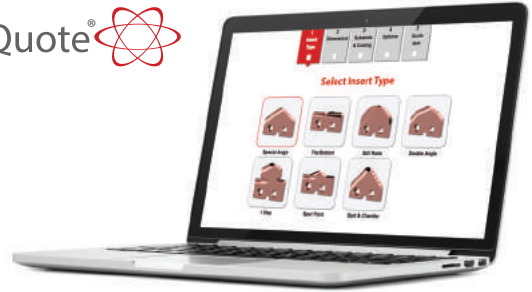


Flat Bottom



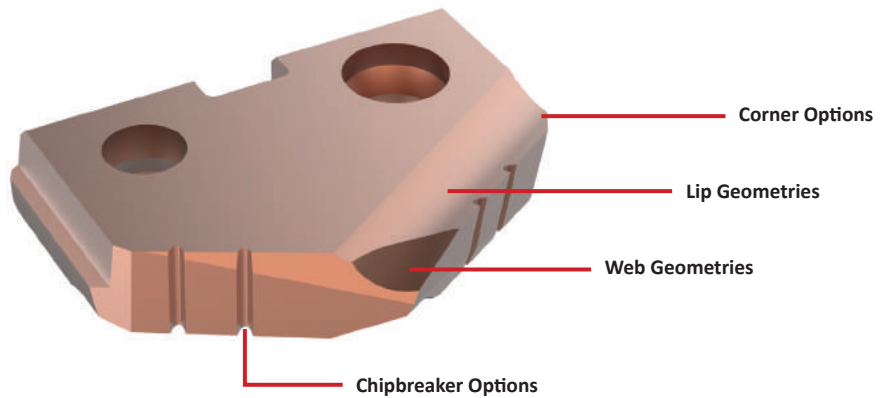
Ball Nose

Insta-Quote®



Additional Features

Insta-Quote provides multiple options to enhance different areas of the insert. If you have questions about which options would most benefit your application, just give us a call. We'll be happy to provide in-depth explanations about how certain options can optimize your results.



| Substrate Options |
|--|
| HSS: HSS, Super Cobalt, Premium Cobalt |
| Carbide: C1, C2, C3, C5 |

| Coating Options | | | |
|-------------------|----------------|------------------|-----------------|
| AM200® | TiN | TiAlN | TiCN |

Insta-Quote® Custom Tooling

T-A® Holders



Chrome Helix



Chrome Bushing



 Guided Holder



One Step ICS



Two Step ICS

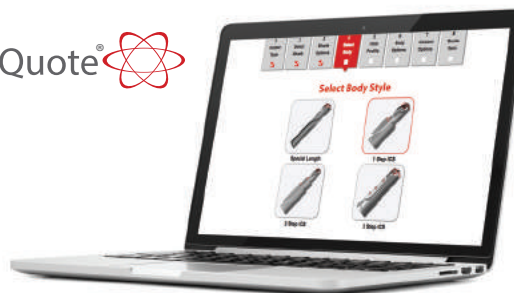


Three Step ICS



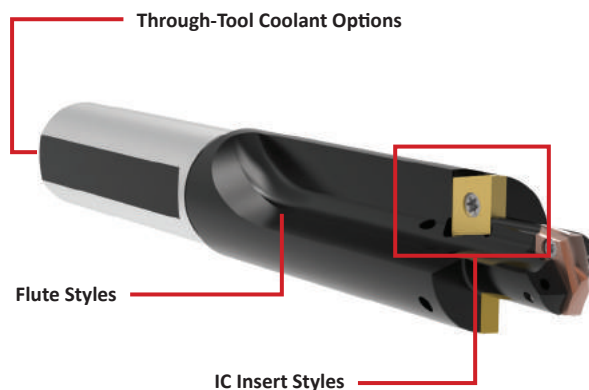
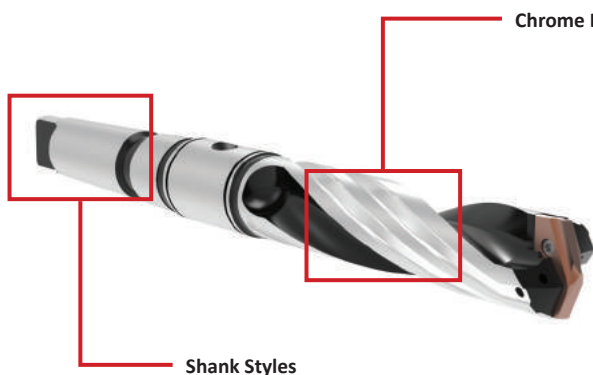
 Special Length

Insta-Quote® 



Additional Features

Insta-Quote provides multiple options to enhance different parts of the holder. If you have questions about which options would most benefit your application, just give us a call. We'll be happy to provide in-depth explanations about how certain options can optimize your results.



WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page X: 26 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

Insta-Quote® Custom Tooling

GEN3SYS® XT Holders

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



Chrome Helix



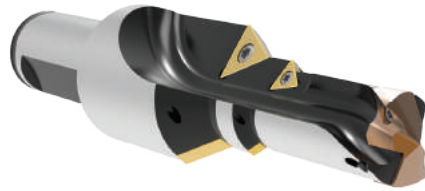
Chrome Bushing



⚠ Special Length



One Step ICS



Two Step ICS

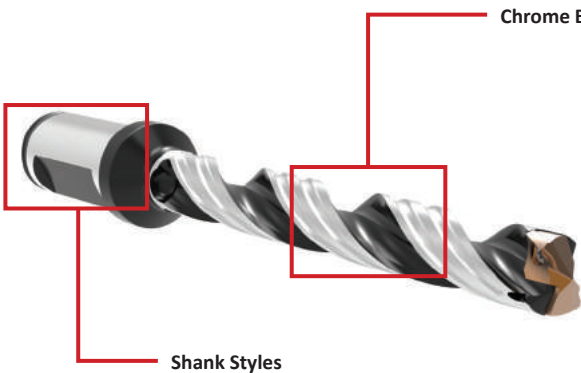
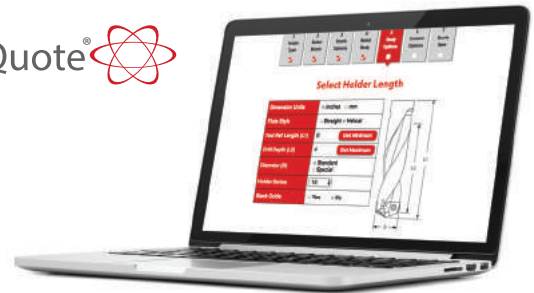


Three Step ICS

Additional Features

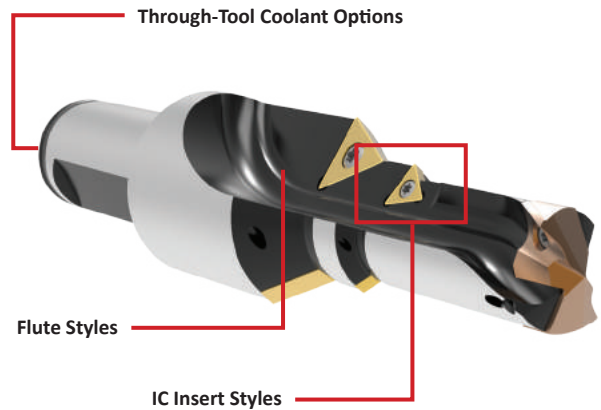
Insta-Quote provides multiple options to enhance different parts of the holder. If you have questions about which options would most benefit your application, just give us a call. We'll be happy to provide in-depth explanations about how certain options can optimize your results.

Insta-Quote®



Chrome Bearing Areas

Shank Styles



Through-Tool Coolant Options

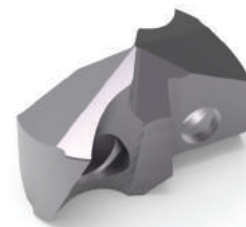
Flute Styles

IC Insert Styles

Where are the Inserts?

Though Insta-Quote incorporates special designs for GEN3SYS XT holders, it does not include options for designing special GEN3SYS XT inserts. GEN3SYS XT holders utilize standard GEN3SYS XT inserts, which can be found in Section A20 of the product catalog.

If you need a special insert or would simply like to discuss options for designing one to fit your application, please contact us, and we can create a special design as an engineered special.



Engineered Special
GEN3SYS XT insert designed for specific aerospace application

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page X: 26 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

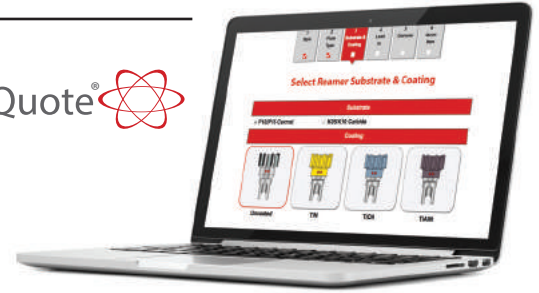
Insta-Quote® Custom Tooling

ALVAN® Reamers

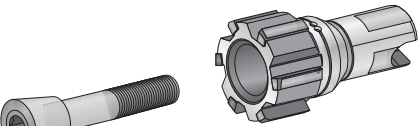
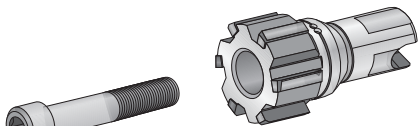
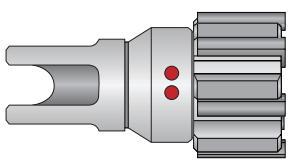
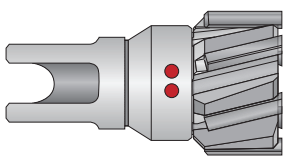




Use Insta-Quote to Build Your Part Numbers

Insta-Quote can help you find or build the ALVAN® Reamer item numbers you need along with the price and delivery of the items. It can also give you the recondition item and delivery. Just follow the steps, and Insta-Quote will guide you through the process.

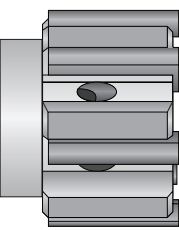
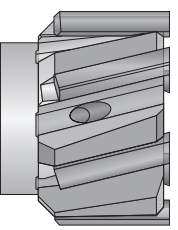




Insta-Quote® 



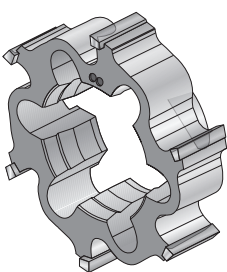
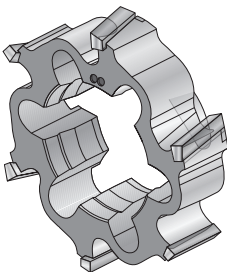




Replaceable Head Style

| Diameter Options | Flute Options | Coating Options |
|--|--|---|
|  <p>Expandable Diameter</p>  <p>Fixed Diameter</p> | <p>Straight Flute</p>  <p>Left-Hand Helical Flute</p>  | <p>Uncoated</p>  <p>TiN</p>  <p>TiAlN</p>  <p>TiCN</p>  |

Monobloc Style

| Flute Options | Coating Options |
|--|---|
|  <p>Straight Flute</p>  <p>Left-Hand Helical Flute</p> | <p>Uncoated</p>  <p>TiN</p>  <p>TiAlN</p>  <p>TiCN</p>  |

Cutting Ring Style

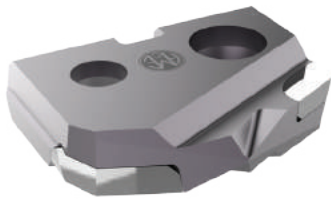
| Flute Options | Coating Options |
|--|---|
|  <p>Straight Flute</p>  <p>Left-Hand Helical Flute</p> | <p>Uncoated</p>  <p>TiN</p>  <p>TiAlN</p>  <p>TiCN</p>  |

Engineered Specials

Insert Designs

OUR SOLUTION

T-A® PCD Drill Insert



- C3 carbide substrate increases tool life
- PCD tip is specifically designed for carbon reinforced polymer (CFRP) material
- Notch Point® geometry, special corner clip, and drill point angle help minimize delamination upon exiting the hole

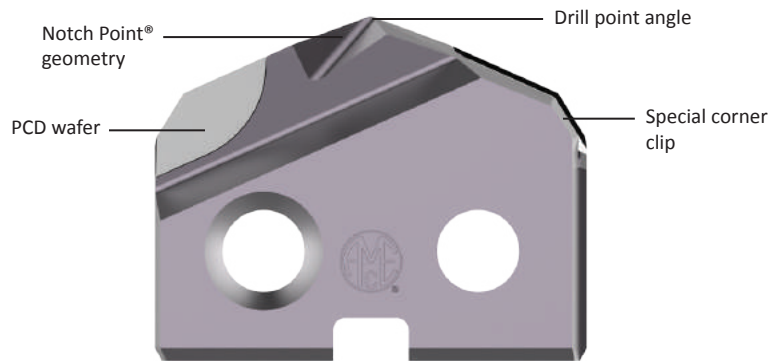
YOUR ADVANTAGE

Take control of carbon fiber reinforced polymer applications. The T-A PCD drill insert can provide the hole quality you need to produce successful quality parts and reduce scrap.

Polycrystalline Diamond Insert

What allows the polycrystalline diamond (PCD) insert to generate such high success in aerospace carbon fiber is the sharp cutting edge that provides clearance cutting and reduces delamination. The PCD wafers improve the wear resistance.

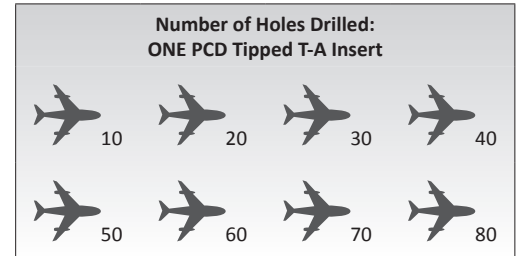
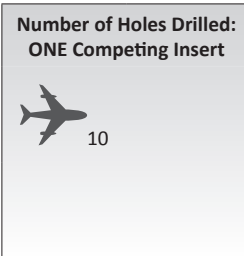
While other tools encounter massive tearing when exiting the hole in carbon fiber, the PCD insert geometry, along with precise OD corner prep and Notch Point® technology, encounters minimal delamination. This produces a near-perfect, tight tolerance and smooth hole.



The Proof is in the Numbers

See the following results from a customer who was experiencing difficulty when drilling CFRP material:

INCREASED tool life by **700%**



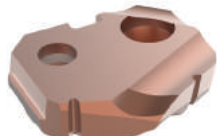
Infinite Solutions

Though Insta-Quote® and i-Form are incredible special tooling systems, some applications require a deeper level of engineering to accomplish the optimal results. No matter what the application may be, Allied Machine engineers have the knowledge, experience, and expertise to design and develop a special product to exceed your expectations.

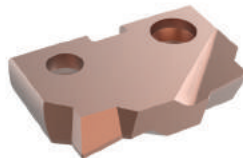
Engineered Specials are not limited to T-A® or GEN3SYS® XT products. In fact, Engineered Specials can be created for most products offered by Allied Machine, including APX™ Drill, Opening Drill®, ASC 320®, AccuThread® 856, Wohlhaupter® boring products, and many other product families.



Back Chamfer without Chip Breakers



Back Chamfer with Chip Breakers



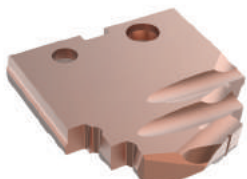
Noncenter Cutting and Chamfer



Special Inverted Coring Geometry



Flat Bottom with Pilot, Corner Radius, and Chamfer



Multiple Step



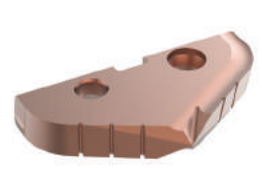
Special Step



Special Point



Special Counterbore Step



Special Corner Radius

Engineered Specials

Featured Design | GEN3SYS® XT Vacuum Drill



The GEN3SYS XT® Vacuum Drill allows you to reap the productivity benefits of the GEN3SYS® XT outside of a fixed-position machine tool. The Vacuum Drill technology attaches to a hose to remove material that flows through the internal flute of the drill. This versatile ability allows the drilling process to move from location to location, performing operations on large components.

The design of the GEN3SYS® XT insert increases penetration rates, which can lower your production time and decrease operation costs. Available in multiple material-specific geometries, the GEN3SYS® XT has a solution for most applications.

A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

OUR SOLUTION

GEN3SYS® XT Vacuum Drill



- Spent coolant and chips are evacuated through an internal flute
- Guided body diameter to run through a drill bushing
- Replaceable tip for quick and easy insert change

YOUR ADVANTAGE

The sealed vacuum system lets you move your drilling operations outside the confines of a machine, allowing you to increase productivity on massive components.


MATERIAL TIPS

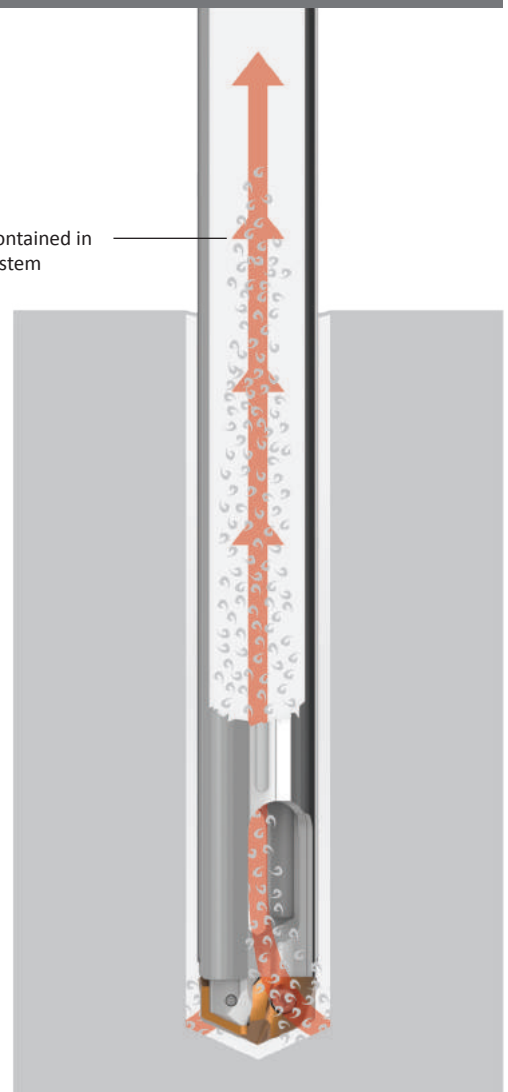
Drilling in CFRP (Carbon Fiber Reinforced Polymer)


- These applications are run with the vacuum only (no coolant)
- Can be run with or without a micro peck cycle

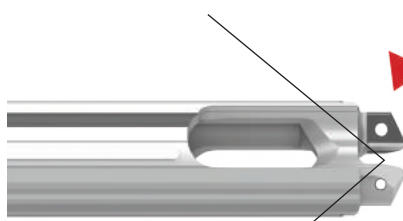
Drilling in Metal


- These applications are run with the vacuum and coolant or mist
- Recommended to be run with a micro peck cycle

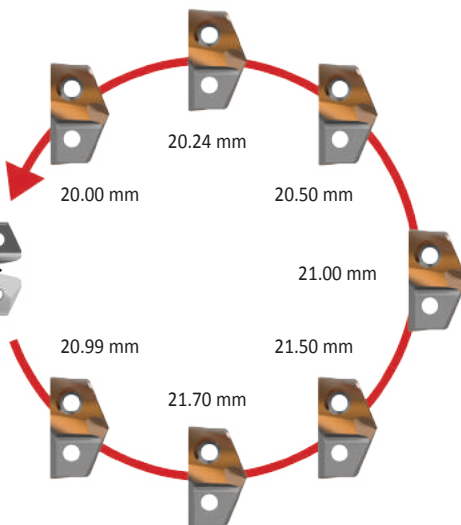
 Materials remain contained in a sealed vacuum system



 The same holder can be used for a range of diameters



 The same holder can be used for different material-specific inserts



Engineered Specials

Featured Design | Guided T-A®

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



Guided T-A Highlights

- Two adjustable Torx® PLUS screw pins allow for diameter adjustment to reduce TIR
- Provides improved tool life and hole finish
- Guided wear pads improve hole straightness
- Coolant-through design with multiple coolant outlets along the drill holder provides stability in deep hole drilling applications and also improves chip evacuation



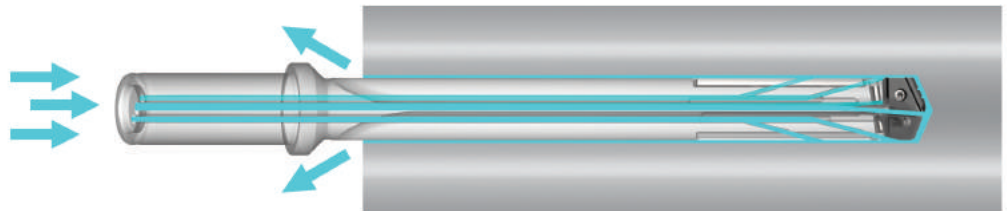
Industry Application
Automotive



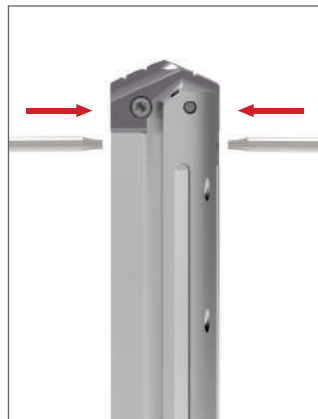
Industry Application
Aerospace

Triple Coolant Outlets

- Additional coolant outlets help keep the holder straight and precise
- Longer holders experience and maintain increased stability in deeper holes



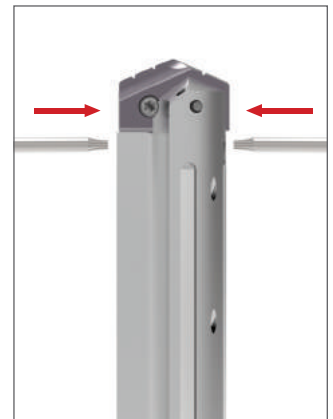
Locate the two adjustable Torx® PLUS screws (one on each side).



Loosen each screw.



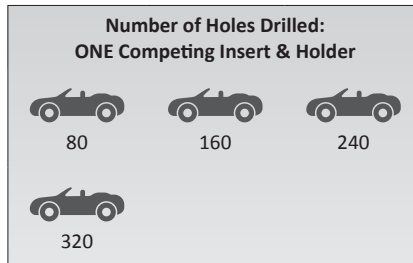
Adjust insert position.



Tighten each screw.

The Proof is in the Numbers

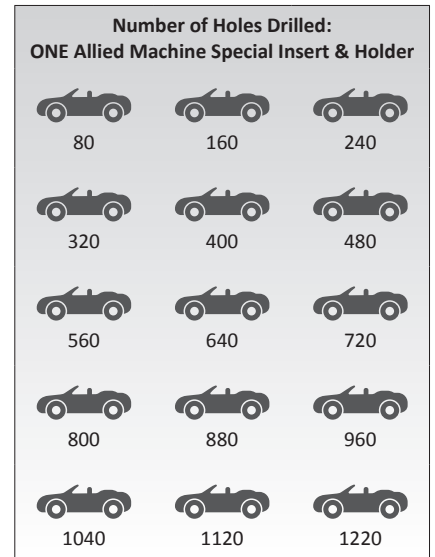
The following results came from a real-life application that utilized the Guided T-A. The customer was experiencing a high scrap rate and needed to find a solution to eliminate the problem.



In this application, Allied Machine:

- Eliminated **\$240,000** in scrap per year
- Optimized the chip formation
- Enhanced the chip evacuation
- Provided excellent surface finish

INCREASED tool life by
280%



Engineered Specials

Success Stories

Real-Life Results

Below are five brief success stories. Each one provides an overview of specific situations when our special tooling achieved top-quality performance for our customers. For more in-depth case studies, go to www.alliedmachine.com/RealLifeResults.



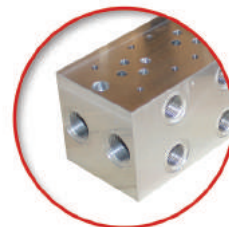
Industry Application

Oil & Gas

Special AccuPort 432® Port Contour Cutter

Hydraulic Manifolds

- Eliminated multiple tools in the process
- Eliminated regrinds
- Improved performance in cross hole applications



Industry Application

Heavy Equipment

Special T-A® Holder & Insert

Axle Shafts

- 100% increase in tool life
- \$7,500 reduction in setup costs
- Eliminated scrap that was caused by setup issues



Industry Application

Firearms

i-Form Drill

Barrel Nut

- Eliminated three tools in the process
- Reduced cycle time by 25%
- Improved chip formation



Industry Application

Automotive

T-A® Rim Drill

Aluminum Wheels

- 50% increase in penetration rates
- 50% increase in tool life
- Eliminated regrinds



Industry Application

Aerospace

Special Carbide Clad T-A® Holder with Diamond Coated Insert

Carbon Fiber Landing Arm

- Eliminated delamination of carbon fiber
- 7x more tool life
- Special shank threads directly into drill unit for easy tool change



Engineered Specials

i-Form Custom Indexable Drill / Form Tool System

Any Way You Want It

What if you could utilize complex forms that only seem to be available as brazed or solid carbide tools? Allied Machine's i-Form custom indexable drill/form tool system allows for complex designs with a replaceable cutting edge. This will reduce setup times and eliminate regrinds, allowing you to increase your productivity and reduce costs. Don't settle for being good when the possibility of being great is right in front of you.

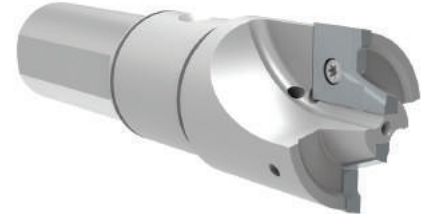
This is just a small sample of what you can do.



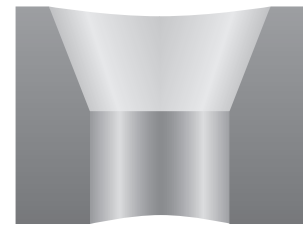
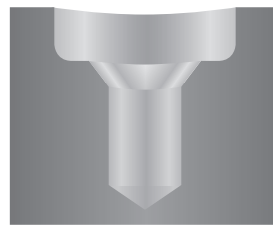
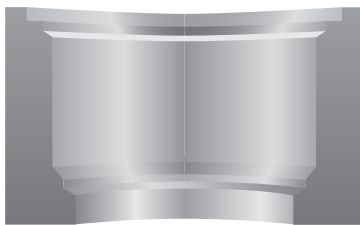
**i-Form Holder
with i-Form Inserts**



**Lug Hole T-A® Drill
with i-Form Inserts**



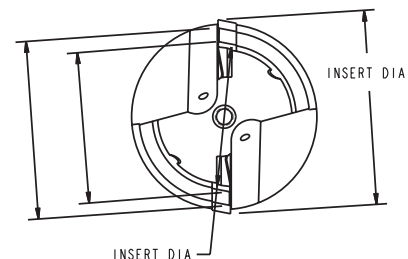
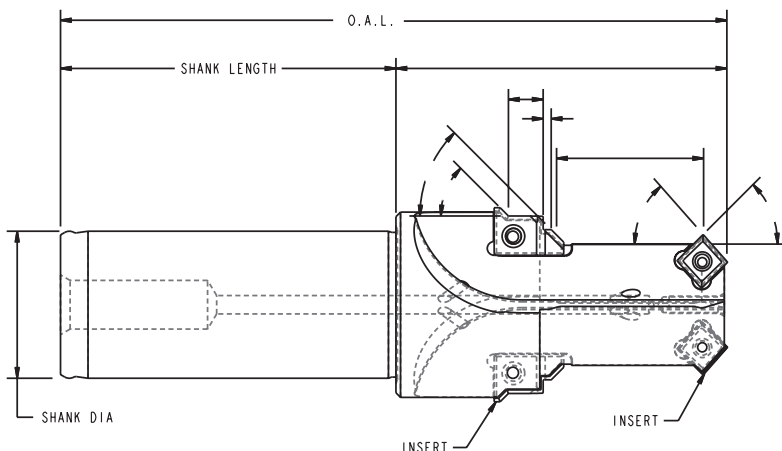
**i-Form Drill for Facing Operations
with ID-OD Chamfer**



Design Complex Forms for ANY Hole Style

i-Form allows you to design complex forms for any style hole with increased productivity. The i-Form product line - both pilot inserts and form inserts - creates custom engineered forms that provide complex designs with replaceable cutting edges and improved consistency, all while outperforming brazed and solid carbide tooling. i-Form tools will increase your productivity, minimize setup times, and eliminate regrind tool float and inconsistency.

- Holders have coolant-through capabilities
- Holders can utilize standard inserts, Insta-Quote® inserts, and/or special insert designs



Engineered Specials

i-Form Custom Indexable Drill / Form Tool System



**GEN3SYS® XT Pilot Insert
with i-Form Inserts**



**GEN3SYS® XT Pilot Insert
with i-Form Inserts**



**GEN3SYS® XT Back Chamfer Insert
with ISO Inserts**



**T-A® Flat Bottom Form Drill
with i-Form Inserts**



**T-A® ICS Drill
with i-Form Inserts**



**T-A® Pilot Insert
with i-Form Inserts**



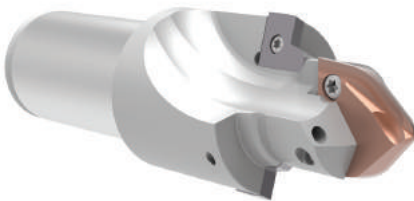
**Square QDSI 34™ Inserts
with i-Form Inserts**



**3 Flute IC Drill
with i-Form Inserts**



**i-Form Holder
with i-Form Inserts**



**AccuPort 432® Drill
with Special T-A® Form Insert**



**T-A® 2 Step IC Drill
with i-Form Inserts**



**Special Core Drill
with i-Form Inserts**

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

Engineered Specials

Special Designs | T-A® Products

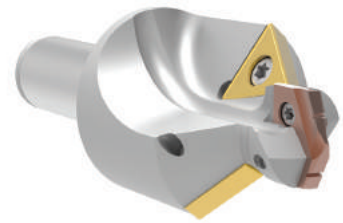
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS



**T-A IC Drill
with Back Chamfer Insert**



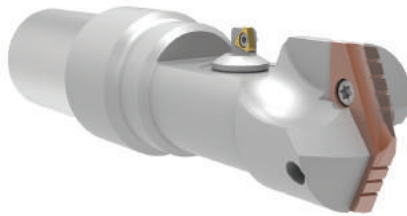
T-A 1 Step Stub Length



T-A IC Drill



T-A 2 Step IC Drill



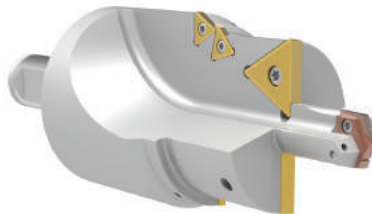
**T-A Counter Bore Tool
with Micro Adjustable Cartridge**



**T-A Form Drill
with Adjustable Cartridge**



**T-A Multiple Step Drill
with Adjustable Cartridge**



**T-A Large Diameter
Multiple Step IC Drill**



T-A Deburr Drill



**T-A IC Drill
with Customer Defined Shank**



**T-A Deep Hole Drill
with Customer Defined Design**



**T-A Chrome Bearing Drill
with Customer Defined Shank**



**T-A 1 Step IC Drill
with Flat Bottom Insert**



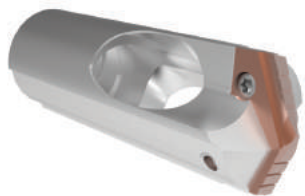
T-A Form Drill



**T-A Drill
with Special Holder and Insert Design**

Engineered Specials

Special Designs | Other Products



**Special BT-A Drill
with Internal Thread**



Special BT-A Drill



Special BT-A Drill



**APX™ Drill
with Carbide Clad Guides**



**APX™ Drill
with 1 Step Design**



**APX™ Drill
with HSK Shank**



**Opening Drill®
with Special Diameter**



**Special Core Drill
with 2 Step Design**



**ICS Drill
with Adjustable Cartridge**



**Superior® Solid Carbide
with AM200® Coating**



**AccuThread® 856
with Through Coolant**



**AccuPort 432®
Special Length**



**ALVAN® Ring Style Reamer
with Special Length**



**GEN3SYS® XT
with Morse Taper Shank**



**GEN3SYS® XT
with IC Inserts and Special Body**

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

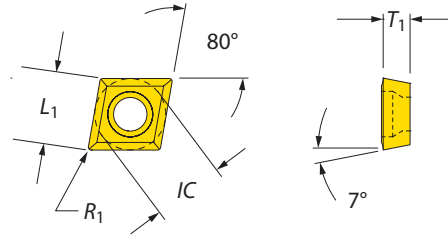
THREADING

X




SPECIALS

QDSI 34™ Inserts

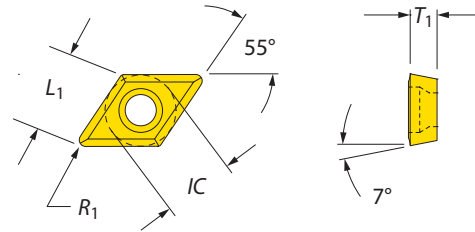
80° Diamond | 55° Diamond






80° Diamond Inserts

| Imperial (inch) | | | | Metric (mm) | | | |  | ANSI Designation |  |  |
|-----------------|----------------|----------------|----------------|-------------|----------------|----------------|----------------|---|------------------|---|---|
| IC | L ₁ | T ₁ | R ₁ | IC | L ₁ | T ₁ | R ₁ | | | | |
| 0.250 | 0.249 | 0.094 | 0.008 | 6.35 | 6.32 | 2.39 | 0.20 | CCGT-060202 | CCGT 2(1.5)0.5 | 7256-IP8-1 | 8IP-8 |
| 0.250 | 0.247 | 0.094 | 0.016 | 6.35 | 6.28 | 2.39 | 0.40 | CCMT-060204 | CCMT 2(1.5)1 | 7256-IP8-1 | 8IP-8 |
| 0.250 | 0.244 | 0.094 | 0.031 | 6.35 | 6.21 | 2.39 | 0.79 | CCMT-060208 | CCMT 2(1.5)2 | 7256-IP8-1 | 8IP-8 |
| 0.250 | 0.244 | 0.156 | 0.031 | 6.35 | 6.21 | 3.96 | 0.79 | CCGT-06T308 | CCGT 2(2.5)2 | 7256-IP8-1 | 8IP-8 |
| 0.375 | 0.374 | 0.156 | 0.008 | 9.53 | 9.49 | 3.96 | 0.20 | CCGT-09T302 | CCGT 3(2.5)0.5 | 7359-IP15-1 | 8IP-15 |
| 0.375 | 0.372 | 0.156 | 0.016 | 9.53 | 9.46 | 3.96 | 0.40 | CCMT-09T304 | CCMT 3(2.5)1 | 7359-IP15-1 | 8IP-15 |
| 0.375 | 0.369 | 0.156 | 0.031 | 9.53 | 9.39 | 3.96 | 0.79 | CCMT-09T308 | CCMT 3(2.5)2 | 7359-IP15-1 | 8IP-15 |
| 0.500 | 0.497 | 0.188 | 0.016 | 12.70 | 12.63 | 4.76 | 0.40 | CCMT-120404 | CCMT 431 | 745105-IP20-1 | 8IP-20 |
| 0.500 | 0.494 | 0.188 | 0.031 | 12.70 | 12.56 | 4.76 | 0.79 | CCMT-120408 | CCMT 432 | 745105-IP20-1 | 8IP-20 |

NOTE: QDSI 34 inserts are utilized only in special ICS holders. Speeds and feeds for QDSI 34 inserts are determined by drill insert.



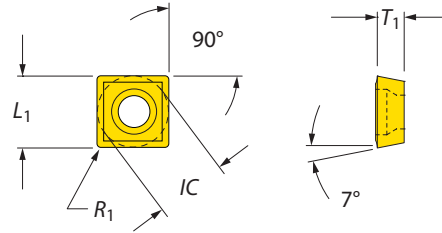
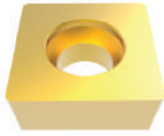
55° Diamond Inserts

| Imperial (inch) | | | | Metric (mm) | | | |  | ANSI Designation |  |  |
|-----------------|----------------|----------------|----------------|-------------|----------------|----------------|----------------|---|------------------|---|---|
| IC | L ₁ | T ₁ | R ₁ | IC | L ₁ | T ₁ | R ₁ | | | | |
| 0.250 | 0.243 | 0.094 | 0.008 | 6.35 | 6.18 | 2.39 | 0.008 | DCGT-070202 | DCGT 2(1.5)0.5 | 7256-IP8-1 | 8IP-8 |
| 0.250 | 0.237 | 0.094 | 0.016 | 6.35 | 6.01 | 2.39 | 0.016 | DCMT-070204 | DCMT 2(1.5)1 | 7256-IP8-1 | 8IP-8 |
| 0.250 | 0.223 | 0.094 | 0.031 | 6.35 | 5.67 | 2.39 | 0.031 | DCMT-070208 | DCMT 2(1.5)2 | 7256-IP8-1 | 8IP-8 |
| 0.375 | 0.362 | 0.156 | 0.016 | 9.53 | 9.19 | 3.96 | 0.016 | DCMT-11T304 | DCMT 3(2.5)1 | 7359-IP15-1 | 8IP-15 |
| 0.375 | 0.348 | 0.156 | 0.031 | 9.53 | 8.85 | 3.96 | 0.031 | DCMT-11T308 | DCMT 3(2.5)2 | 7359-IP15-1 | 8IP-15 |




NOTE: QDSI 34 inserts are utilized only in special ICS holders. Speeds and feeds for QDSI 34 inserts are determined by drill insert.

QDSI 34™ Inserts

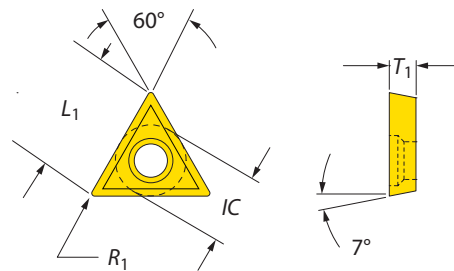
Square | 60° Triangle






Square Inserts

| Imperial (inch) | | | | Metric (mm) | | | |  | ANSI Designation |  |  |
|-----------------|----------------|----------------|----------------|-------------|----------------|----------------|----------------|---|------------------|---|---|
| IC | L ₁ | T ₁ | R ₁ | IC | L ₁ | T ₁ | R ₁ | Part No. | | Torx Screw | Torx® Driver |
| 0.375 | 0.375 | 0.156 | 0.016 | 9.53 | 9.53 | 3.96 | 0.40 | SCMT-09T304 | SCMT 3(2.5)1 | 7359-IP15-1 | 8IP-15 |

NOTE: QDSI 34 inserts are utilized only in special ICS holders. Speeds and feeds for QDSI 34 inserts are determined by drill insert.



60° Triangle Inserts

| Imperial (inch) | | | | Metric (mm) | | | |  | ANSI Designation |  |  |
|-----------------|----------------|----------------|----------------|-------------|----------------|----------------|----------------|---|------------------|---|---|
| IC | L ₁ | T ₁ | R ₁ | IC | L ₁ | T ₁ | R ₁ | Part No. | | Torx Screw | Torx® Driver |
| 0.156 | 0.259 | 0.078 | 0.008 | 3.97 | 6.58 | 1.98 | 0.20 | TCGT-06T102 | TCGT 1.2(1.2)0.5 | 724-IP6-1 | 8IP-6 |
| 0.156 | 0.248 | 0.078 | 0.016 | 3.97 | 6.29 | 1.98 | 0.40 | TCGT-06T104 | TCGT 1.2(1.2)1 | 724-IP6-1 | 8IP-6 |
| 0.156 | 0.225 | 0.078 | 0.031 | 3.97 | 5.71 | 1.98 | 0.79 | TCGT-06T108 | TCGT 1.2(1.2)2 | 724-IP6-1 | 8IP-6 |
| 0.219 | 0.367 | 0.094 | 0.008 | 5.65 | 9.33 | 2.39 | 0.20 | TCGT-090202 | TCGT 1.8(1.5)0.5 | 7225-IP7-1 | 8IP-7 |
| 0.219 | 0.356 | 0.094 | 0.016 | 5.65 | 9.04 | 2.39 | 0.40 | TCGT-090204 | TCGT 1.8(1.5)1 | 7225-IP7-1 | 8IP-7 |
| 0.219 | 0.333 | 0.094 | 0.031 | 5.65 | 8.46 | 2.39 | 0.79 | TCGT-090208 | TCGT 1.8(1.5)2 | 7225-IP7-1 | 8IP-7 |
| 0.250 | 0.422 | 0.094 | 0.008 | 6.35 | 10.71 | 2.39 | 0.20 | TCGT-110202 | TCGT 2(1.5)0.5 | 7256-IP8-1 | 8IP-8 |
| 0.250 | 0.410 | 0.094 | 0.016 | 6.35 | 10.42 | 2.39 | 0.40 | TCMT-110204 | TCMT 2(1.5)1 | 7256-IP8-1 | 8IP-8 |
| 0.250 | 0.387 | 0.094 | 0.031 | 6.35 | 9.84 | 2.39 | 0.79 | TCMT-110208 | TCMT 2(1.5)2 | 7256-IP8-1 | 8IP-8 |
| 0.375 | 0.627 | 0.156 | 0.016 | 9.53 | 15.92 | 3.96 | 0.40 | TCMT-16T304 | TCMT 3(2.5)1 | 7359-IP15-1 | 8IP-15 |
| 0.375 | 0.604 | 0.156 | 0.031 | 9.53 | 15.34 | 3.96 | 0.79 | TCMT-16T308 | TCMT 3(2.5)2 | 7359-IP15-1 | 8IP-15 |
| 0.500 | 0.820 | 0.188 | 0.031 | 12.70 | 20.83 | 4.76 | 0.79 | TCGT-220408 | TCGT 432 | 745105-IP20-1 | 8IP-20 |

NOTE: QDSI 34 inserts are utilized only in special ICS holders. Speeds and feeds for QDSI 34 inserts are determined by drill insert.

A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Special Tooling

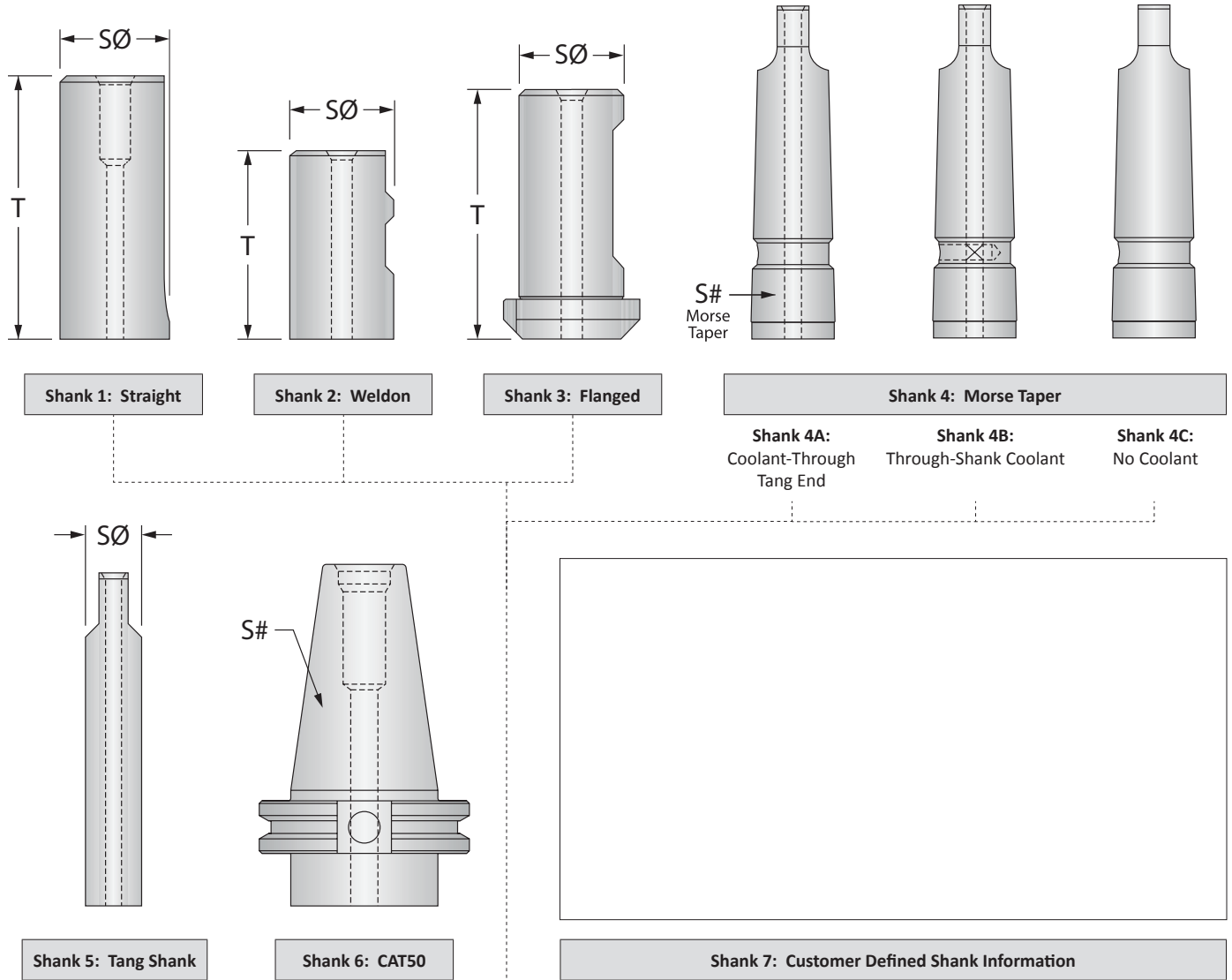
Complete Your Design

Show Us What You Need

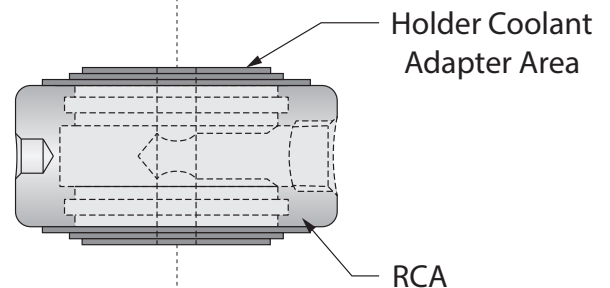
These pages have been included so you can assist us with defining your special tooling requirements.

- Select a Shank (1 - 6), or define Shank 7
- Indicate if the shank will be used with or without a Rotary Coolant Adapter (RCA)

We ask that you define your hole profile and offer an example of a tool form to help us with the design process. Tools 1 - 5 cover only a small portion of our capabilities, so feel free to use your imagination. Please scan these pages, record your information in the boxes on the next page, and email the information for our quickest response.



| Shank | SØ | S# | T | RCA |
|-----------------|----|-----|---|---|
| 4A (EXAMPLE) | - | 4MT | - | YES <input checked="" type="radio"/> NO |
| | | | | YES / NO |
| | | | | YES / NO |
| | | | | YES / NO |



A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Tool 1

- Carbide Clad
- Chrome Plate
- Helical Flute
- Straight Flute

Tool 2

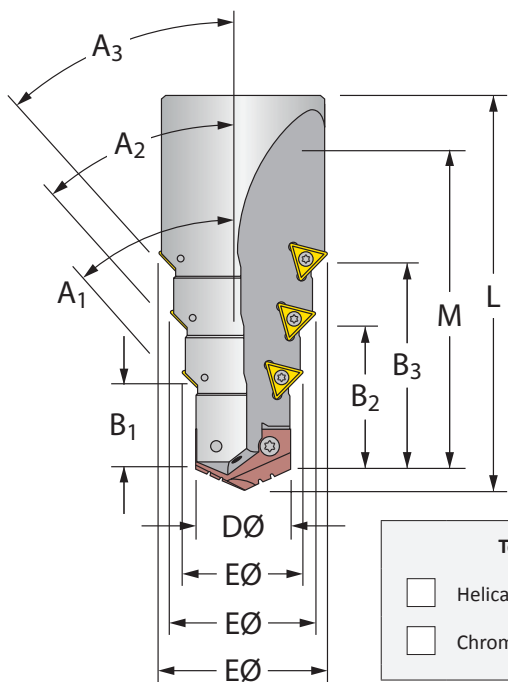
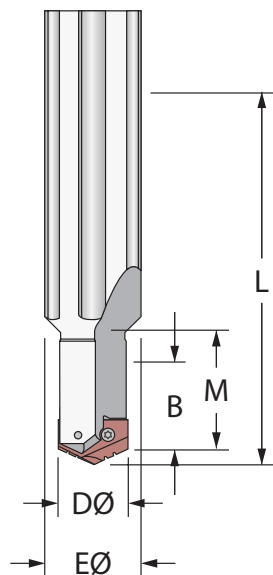
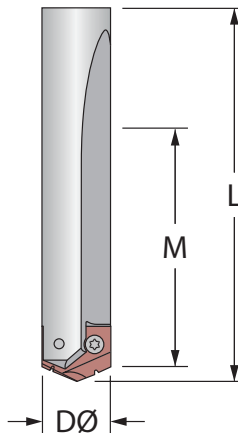
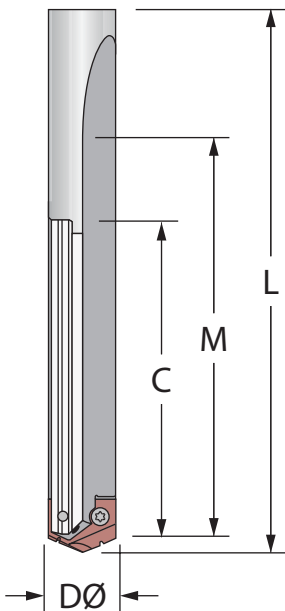
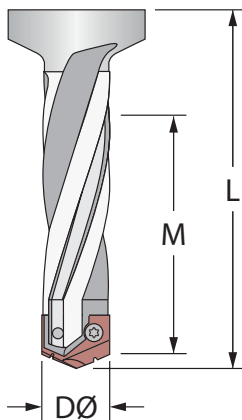
- Helical Pilot
- Chrome Pilot

Tool 3

- Helical Flute
- Straight Flute

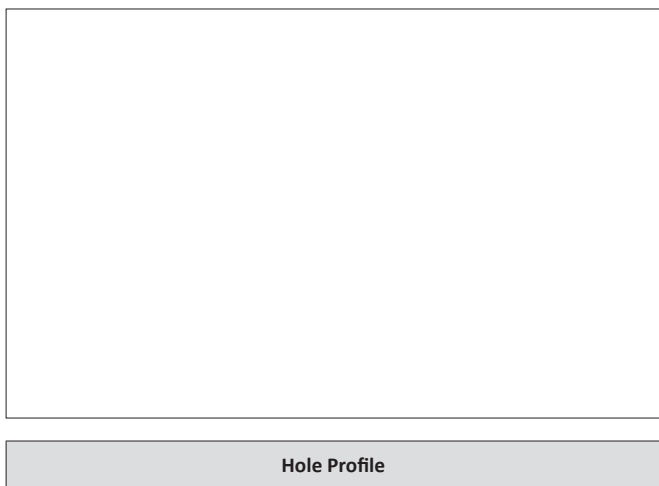
Tool 4

- Helical Pilot
- Chrome Pilot



Tool 5

- Helical Pilot
- Chrome Pilot



Please email or fax your design to:
 Application Engineering Department
 P: 800.321.5537
 F: 330.343.7666
 E: appeng@alliedmachine.com

| Item | Tool | A ₁ | A ₂ | A ₃ | B ₁ | B ₂ | B ₃ | C | D Ø | E Ø | F Ø | G | L | M |
|---------|------|----------------|----------------|----------------|----------------|----------------|----------------|------|-------|------|-----|---|------|------|
| EXAMPLE | 5 | 30° | - | - | 1.00 | - | - | 0.25 | 0.620 | 1.25 | - | - | 4.50 | 3.00 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

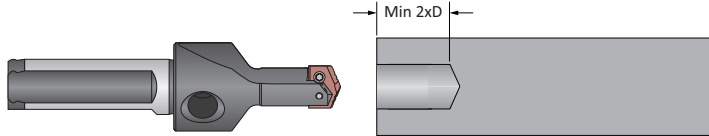
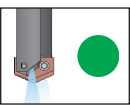
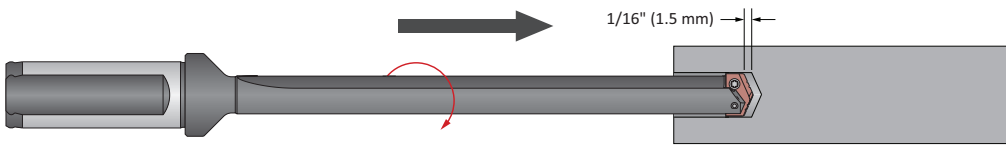
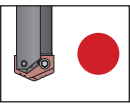
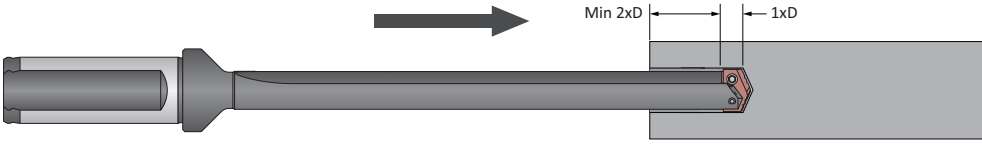
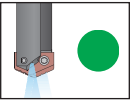
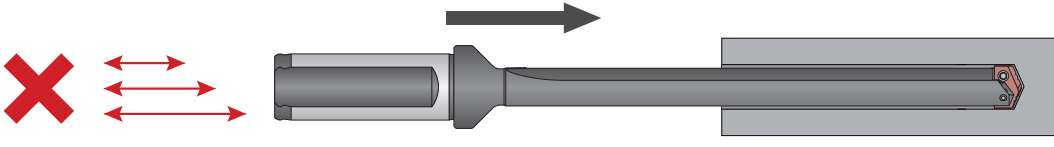
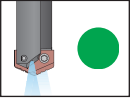
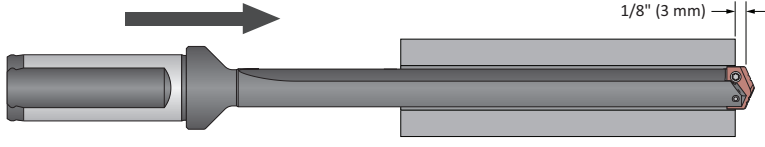
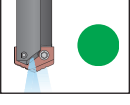
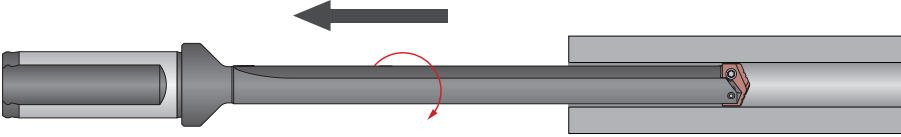
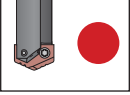
Customer Signature: _____ Date: _____

Please be sure to include shank and coolant information from the previous page when sending tool designs

A DRILLING
 B BORING
 C REAMING
 D BURNISHING
 E THREADING
 X SPECIALS

Deep Hole Drilling Guidelines

For Lengths Greater Than 9xD (including Extended, Long, XL, 3XL, and Special Length)

| | |
|-----------------|--|
| A DRILLING | <p>1. Pilot Hole 100 % RPM 100% IPR (mm/rev)</p> <p>Establish the pilot hole using the same diameter short drill to a depth of 2xD minimum. Utilize a pilot drill with the same or larger included point angle.</p>  <p>Coolant ON</p>  |
| B BORING | <p>2. Feed-in 50 RPM max 12 IPM (300 mm/min)</p> <p>Feed the longer drill within 1/16" (1.5 mm) short of the established pilot hole bottom at a maximum of 50 RPM and 12 IPM (300 mm/min) feed rate.</p>  <p>Coolant OFF</p>  |
| C REAMING | <p>3. Deep Hole Transition Drilling 50 % RPM 75% IPR (mm/rev)</p> <p>Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed. Minimum of 1 second dwell is required to meet full speed before feeding.</p>  <p>Coolant ON</p>  |
| D BURNISHING | <p>4. Deep Hole Drilling - Blind 100% RPM 100% IPR (mm/rev)</p> <p>Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts. No peck cycle recommended.</p>  <p>Coolant ON</p>  |
| E THREADING | <p>5. Deep Hole Drilling - at Breakout 50% RPM 75% IPR (mm/rev)</p> <p>For through holes only: Reduce speed by 50% and feed by 25% prior to breakout. Do not breakout more than 1/8" (3 mm) past the full diameter of the drill.</p>  <p>Coolant ON</p>  |
| X SPECIALS | <p>6. Drill Retract 50 RPM max</p> <p>Reduce speed to a maximum of 50 RPM before retracting from the hole.</p>  <p>Coolant OFF</p>  |

1. WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/DeepHoleGuidelines for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

| Part No. | Page |
|------------|--|
| 0 | |
| 02B.40... | C: 54 |
| 02B.45... | C: 54 |
| 02B.50... | C: 54 |
| 0050GA... | B20: 4, B20: 10 |
| 0060GA... | B20: 4, B20: 10 |
| 0080GA... | B20: 4, B20: 10 |
| 0100GA... | B20: 4, B20: 10 |
| 0110GA... | B20: 4, B20: 10 |
| 0120HA... | B20: 4, B20: 10 |
| 0140HA... | B20: 4, B20: 10 |
| 0160HA... | B20: 4, B20: 10 |
| 0180HA... | B20: 4, B20: 10 |
| 0200HA... | B20: 4, B20: 10 |
| 0250B... | B20: 5, B20: 11, B20: 26, B20: 29, B20: 33 |
| 0312B... | B20: 5, B20: 11, B20: 26, B20: 29, B20: 33 |
| 0365HM... | B20: 5, B20: 26, B20: 29 |
| 0375B... | B20: 5, B20: 11, B20: 26, B20: 29, B20: 33 |
| 0425BHM... | B20: 33 |
| 0437B... | B20: 5, B20: 11, B20: 26, B20: 29, B20: 33 |
| 0500B... | B20: 5, B20: 11, B20: 26, B20: 29 |
| 0500BCH... | B20: 30 |
| 0500D... | B20: 33, B20: 37, B20: 41 |
| 0550BHM... | B20: 5, B20: 26, B20: 29, B20: 33 |
| 0625BCS... | B20: 5, B20: 27, B20: 29, B20: 34 |
| 0688CHM... | B20: 33 |
| 0750D... | B20: 33, B20: 37, B20: 41 |
| 0750DCH... | B20: 35 |
| 0832DHM... | B20: 33, B20: 37, B20: 41 |
| 0875DCS... | B20: 34, B20: 38, B20: 42 |
| 1000D... | B20: 33 |
| 1250D... | B20: 33 |
| 1 | |
| 1000D... | B20: 37, B20: 41 |
| 1000ECH... | B20: 39 |
| 1250D... | B20: 37, B20: 41 |
| 1500FCH... | B20: 43 |
| 1021A... | A40: 7 |
| 1021A... | A40: 6 |
| 1021N... | A40: 6 |
| 1021T... | A40: 6 |
| 1022A... | A40: 11 |
| 1022A... | A40: 10 |
| 1022N... | A40: 10 |
| 1022T... | A40: 10 |
| 1023A... | A40: 15 |
| 1023A... | A40: 14 |

| Part No. | Page |
|----------|---|
| 1023N... | A40: 14 |
| 1023T... | A40: 14 |
| 1024A... | A40: 19 |
| 1024A... | A40: 18 |
| 1024N... | A40: 18 |
| 1024T... | A40: 18 |
| 1024U... | A40: 18, A40: 38 |
| 1025A... | A40: 23 |
| 1025A... | A40: 22 |
| 1025N... | A40: 22 |
| 1025T... | A40: 22 |
| 1025U... | A40: 22, A40: 38 |
| 1026A... | A40: 27 |
| 10265... | A40: 27 |
| 1026A... | A40: 26 |
| 1026N... | A40: 26 |
| 1026T... | A40: 26 |
| 1026U... | A40: 26, A40: 38 |
| 1027A... | A40: 31 |
| 1027A... | A40: 30 |
| 1027N... | A40: 30 |
| 1027T... | A40: 30 |
| 1027U... | A40: 30, A40: 38 |
| 1028A... | A40: 35 |
| 1028A... | A40: 34 |
| 1028N... | A40: 34 |
| 1028T... | A40: 34 |
| 1028U... | A40: 34, A40: 38 |
| 1029A... | A40: 36 |
| 1041A... | A40: 7 |
| 1042A... | A40: 11 |
| 1043A... | A40: 15 |
| 1044A... | A40: 19 |
| 1045A... | A40: 23 |
| 1047A... | A40: 31 |
| 1048A... | A40: 35 |
| 1121A... | A40: 7 |
| 1122A... | A40: 11 |
| 1123A... | A40: 15 |
| 1124A... | A40: 19 |
| 1125A... | A40: 23 |
| 1126A... | A40: 27 |
| 131... | A30: 48, A30: 49 |
| 132... | A30: 63, A30: 64 |
| 135... | A30: 95 |
| 136... | A30: 97 |
| 137... | A30: 103 |
| 138... | A30: 105 |
| 150... | A30: 34, A30: 35, A91: 22, A92: 19, A92: 21, A92: 23, A92: 25, A92: 27 |
| 151... | A30: 46, A30: 47, A30: 48, A91: 26, A92: 19, A92: 21, A92: 23, A92: 25, A92: 27 |
| 152... | A30: 61, A30: 62, A30: 63, A91: 30, A92: 19, A92: 21, A92: 23, A92: 25, A92: 27 |
| 153... | A30: 77, A30: 78, |

| Part No. | Page |
|----------|--|
| | A30: 79, A91: 34 |
| 154... | A30: 88, A30: 89 |
| 155... | A30: 95 |
| 156... | A30: 97 |
| 157... | A30: 103 |
| 158... | A30: 105 |
| 15Y... | A30: 14, A30: 15, A92: 19, A92: 21, A92: 23, A92: 25, A92: 27 |
| 15Z... | A30: 24, A30: 25, A92: 19, A92: 21, A92: 23, A92: 25, A92: 27 |
| 180... | A30: 33 |
| 181... | A30: 45 |
| 182... | A30: 59 |
| 18Y... | A30: 13 |
| 18Z... | A30: 23 |
| 1C20... | A30: 36 |
| 1C21... | A30: 50 |
| 1C22... | A30: 65, A30: 66 |
| 1C23... | A30: 80 |
| 1C2Y... | A30: 16 |
| 1C2Z... | A30: 26 |
| 1C30... | A30: 37 |
| 1C31... | A30: 51 |
| 1C32... | A30: 67 |
| 1C3Y... | A30: 17 |
| 1C3Z... | A30: 27 |
| 1C50... | A30: 37 |
| 1C51... | A30: 51 |
| 1C52... | A30: 67 |
| 1C53... | A30: 81, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15 |
| 1C5Y... | A30: 17 |
| 1C5Z... | A30: 27 |
| 1N20... | A30: 37 |
| 1N21... | A30: 51 |
| 1N22... | A30: 67 |
| 1N2Y... | A30: 17 |
| 1N2Z... | A30: 27 |
| 2 | |
| 20231... | A40: 16 |
| 20241... | A40: 20 |
| 20251... | A40: 24 |
| 20261... | A40: 28 |
| 20411... | A40: 8 |
| 20421... | A40: 12 |
| 20431... | A40: 16 |
| 20441... | A40: 20 |
| 20451... | A40: 24 |
| 20461... | A40: 28 |
| 20611... | A40: 8 |
| 20621... | A40: 12 |
| 20631... | A40: 16 |
| 20641... | A40: 20 |
| 20651... | A40: 24 |
| 20661... | A40: 28 |
| 20671... | A40: 32 |
| 20681... | A40: 37 |
| 20811... | A40: 8 |

| Part No. | Page |
|----------|---------------------------------------|
| 20821... | A40: 12 |
| 20831... | A40: 16 |
| 20841... | A40: 20 |
| 20851... | A40: 24 |
| 20861... | A40: 28 |
| 20871... | A40: 32 |
| 20881... | A40: 37 |
| 21000... | A30: 38, A30: 42 |
| 21005... | A30: 38 |
| 21010... | A30: 52 |
| 21011... | A40: 8 |
| 21015... | A30: 52 |
| 21020... | A30: 68 |
| 21021... | A40: 12 |
| 21025... | A30: 68 |
| 21030... | A30: 82 |
| 21031... | A40: 16 |
| 21041... | A40: 20 |
| 21051... | A40: 24 |
| 21061... | A40: 28 |
| 210Y0... | A30: 18, A30: 21 |
| 210Z0... | A30: 28, A30: 31 |
| 21411... | A40: 9 |
| 21421... | A40: 13 |
| 21431... | A40: 17 |
| 21441... | A40: 21 |
| 21451... | A40: 25 |
| 21461... | A40: 29 |
| 21471... | A40: 33 |
| 21481... | A40: 37 |
| 21511... | A40: 9 |
| 21521... | A40: 13 |
| 21531... | A40: 17 |
| 21541... | A40: 21 |
| 21551... | A40: 25 |
| 21561... | A40: 29 |
| 21571... | A40: 33 |
| 21611... | A40: 9 |
| 21621... | A40: 13 |
| 21631... | A40: 17 |
| 21641... | A40: 21 |
| 21651... | A40: 25 |
| 21661... | A40: 29 |
| 21671... | A40: 33 |
| 21681... | A40: 37 |
| 21811... | A40: 9 |
| 21821... | A40: 13 |
| 21831... | A40: 17 |
| 21841... | A40: 21 |
| 21851... | A40: 25 |
| 21861... | A40: 29 |
| 21871... | A40: 33 |
| 21881... | A40: 37 |
| 22000... | A30: 38, A30: 40, A30: 42, A91: 24 |
| 22005... | A30: 38, A30: 40, A30: 42, A91: 24 |
| 22010... | A30: 52, A30: 54, A30: 56, A91: 28 |
| 22011... | A40: 9 |
| 22015... | A30: 52, A30: 54, A30: 56, A91: 28 |
| 22020... | A30: 68, A30: 70, |

| Part No. | Page |
|----------|--|
| | A30: 72, A91: 32 |
| 22021... | A40: 13 |
| 22025... | A30: 68, A30: 70, A30: 72, A91: 32 |
| 22030... | A30: 82, A30: 84, A30: 85, A91: 36 |
| 22031... | A40: 17 |
| 22040... | A30: 90, A30: 91, A30: 92 |
| 22041... | A40: 21 |
| 22050... | A30: 98, A30: 99, A30: 100 |
| 22051... | A40: 25 |
| 22061... | A40: 29 |
| 22070... | A30: 106, A30: 107, A30: 108 |
| 22071... | A40: 33 |
| 22081... | A40: 37 |
| 220Y0... | A30: 18, A30: 20, A30: 21 |
| 220Z0... | A30: 28, A30: 30, A30: 31 |
| 22211... | A40: 9 |
| 22221... | A40: 13 |
| 22231... | A40: 17 |
| 22241... | A40: 21 |
| 22261... | A40: 29 |
| 22271... | A40: 33 |
| 22281... | A40: 37 |
| 23010... | A30: 52, A30: 53, A30: 54, A30: 55, A30: 56 |
| 23015... | A30: 52, A30: 53, A30: 54, A30: 55, A30: 56 |
| 23020... | A30: 68, A30: 69, A30: 70, A30: 71, A30: 72 |
| 23025... | A30: 68, A30: 69, A30: 70, A30: 71, A30: 72 |
| 23030... | A30: 82, A30: 83, A30: 84, A30: 85 |
| 24000... | A30: 38, A30: 39, A30: 40, A30: 41, A30: 42, A91: 25 |
| 24005... | A30: 38, A30: 39, A30: 40, A30: 41, A30: 42, A91: 25 |
| 24010... | A30: 52, A30: 53, A30: 54, A30: 55, A30: 56, A91: 29 |
| 24015... | A30: 52, A30: 53, A30: 54, A30: 55, A30: 56, A91: 29 |
| 24020... | A30: 68, A30: 69, A30: 70, A30: 71, A30: 72, A91: 33 |
| 24025... | A30: 68, A30: 69, A30: 70, A30: 71, A30: 72, A91: 33 |
| 24030... | A30: 82, A30: 83, A30: 84, A30: 85, |

| Part No. | Page |
|----------|--|
| | A91: 36 |
| 24040... | A30: 90, A30: 91, A30: 92 |
| 24050... | A30: 98, A30: 99, A30: 100 |
| 24070... | A30: 106, A30: 107, A30: 108 |
| 240Y0... | A30: 18, A30: 19, A30: 20, A30: 21 |
| 240Z0... | A30: 28, A30: 29, A30: 30, A30: 31 |
| 2431... | C: 25 |
| 2441... | C: 22 |
| 24410... | A40: 41 |
| 24420... | A40: 41 |
| 24430... | A40: 41 |
| 24440... | A40: 41 |
| 24450... | A40: 41 |
| 24460... | A40: 41 |
| 24470... | A40: 41 |
| 24480... | A40: 41 |
| 24500... | A30: 39 |
| 24510... | A30: 53 |
| 245Y0... | A30: 19 |
| 245Z0... | A30: 29 |
| 25000... | A30: 38, A30: 39, A30: 40, A30: 41, A30: 42, A91: 25 |
| 25005... | A30: 38, A30: 39, A30: 40, A30: 41, A30: 42, A91: 25 |
| 25010... | A30: 52, A30: 53, A30: 54, A30: 55, A30: 56, A91: 29 |
| 25015... | A30: 52, A30: 53, A30: 54, A30: 55, A30: 56, A91: 29 |
| 25020... | A30: 68, A30: 69, A30: 70, A30: 71, A30: 72, A91: 33 |
| 25025... | A30: 68, A30: 69, A30: 70, A30: 71, A30: 72 |
| 25030... | A30: 82, A30: 84, A30: 85 |
| 25040... | A30: 90, A30: 91, A30: 92 |
| 25050... | A30: 98, A30: 99, A30: 100 |
| 25070... | A30: 106, A30: 107, A30: 108 |
| 250Y0... | A30: 18, A30: 19, A30: 20, A30: 21 |
| 250Z0... | A30: 28, A30: 29, A30: 30, A30: 31 |
| 26000... | A30: 39, A30: 41, A30: 42 |
| 26005... | A30: 39, A30: 41, A30: 42 |
| 26010... | A30: 53, A91: 29 |
| 26015... | A91: 29 |
| 26020... | A30: 69, A91: 33 |
| 260Z0... | A30: 29 |

| Part No. | Page |
|--------------|---|
| 26500... | A30: 39 |
| 27000... | A30: 38, A30: 42 |
| 27010... | A30: 52, A30: 56 |
| 27020... | A30: 68, A30: 72 |
| 27030... | A30: 82, A30: 84, A30: 85 |
| 27040... | A30: 90, A30: 91, A30: 92 |
| 27050... | A30: 99, A30: 100 |
| 27070... | A30: 107, A30: 108 |
| 270Y0... | A30: 18, A30: 21 |
| 270Z0... | A30: 28, A30: 31 |
| 29000... | A30: 38, A30: 42 |
| 29010... | A30: 52, A30: 56 |
| 29020... | A30: 68, A30: 72 |
| 29030... | A30: 82, A30: 84, A30: 85 |
| 29040... | A30: 90, A30: 91, A30: 92 |
| 29050... | A30: 99, A30: 100 |
| 29070... | A30: 107, A30: 108 |
| 290Y0... | A30: 18, A30: 21 |
| 290Z0... | A30: 28, A30: 31 |
| 2T-2SR... | A30: 21, A30: 31, A30: 43, A30: 110 |
| 2T-3SR... | A30: 57, A30: 73, A30: 110 |
| 2T-4SR... | A30: 73, A30: 85, A30: 93, A30: 110, A40: 9, A40: 13, A40: 17, A40: 21, A40: 40 |
| 2T-5SR... | A30: 85, A30: 93, A30: 110, A40: 13, A40: 17, A40: 21, A40: 40 |
| 2T-6SR... | A30: 101, A30: 109, A30: 110, A40: 25, A40: 29, A40: 33, A40: 37, A40: 40 |
| 2T-55SR... | A40: 21, A40: 25, A40: 37, A40: 40 |
| 2T-60SR... | A40: 29, A40: 40 |
| 2T-65SR... | A40: 33, A40: 40 |
| 3 | |
| 30.50R... | C: 58 |
| 30.63R... | C: 58 |
| 30.80R... | C: 58 |
| 35.50R... | C: 59 |
| 35.63R... | C: 59 |
| 3610... | C: 26 |
| 3617... | C: 27 |
| 3620... | C: 23 |
| 3627... | C: 24 |
| 4 | |
| 4T-05T203... | A55: 12, A55: 13 |
| 4T-06T204... | A55: 14, A55: 15 |
| 4T-09T306... | A55: 18, A55: 19, A55: 20, A55: 21 |
| 4T-11T306... | A55: 22, A55: 23, A55: 24, A55: 25 |
| 4T-030203... | A55: 8, A55: 9 |

| Part No. | Page |
|--------------|--|
| 4T-040203... | A55: 10, A55: 11 |
| 4T-070305... | A55: 16, A55: 17 |
| 4T-140408... | A55: 26, A55: 27, A55: 28, A55: 29 |
| 40.50R... | C: 59 |
| 40.63R... | C: 59 |
| 4300... | C: 48, C: 49 |
| 4305... | C: 50, C: 51 |
| 4330... | C: 40, C: 41 |
| 4335... | C: 42, C: 43 |
| 434... | A30: 87 |
| 435... | A30: 94 |
| 4350... | C: 44, C: 45 |
| 4355... | C: 46, C: 47 |
| 436... | A30: 96 |
| 437... | A30: 102 |
| 438... | A30: 104 |
| 450... | A30: 32, A91: 23, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15, A92: 17, A92: 20, A92: 22, A92: 24, A92: 26, A92: 28 |
| 4500... | C: 36, C: 37 |
| 4505... | C: 38, C: 39 |
| 451... | A30: 44, A91: 27, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15, A92: 17, A92: 18, A92: 20, A92: 22, A92: 24, A92: 26, A92: 28 |
| 452... | A30: 58, A91: 31, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15, A92: 17, A92: 18, A92: 20, A92: 22, A92: 24, A92: 26, A92: 28 |
| 453... | A30: 75, A91: 35, A92: 7, A92: 9, A92: 11, A92: 15, A92: 17, A92: 18, A92: 19, A92: 20, A92: 21, A92: 23, A92: 25, A92: 26, A92: 27, A92: 28 |
| 454... | A30: 86, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15, A92: 17, A92: 18, A92: 19, A92: 20, A92: 21, A92: 22, A92: 23, A92: 24, A92: 25, A92: 26, A92: 27, A92: 28 |
| 455... | A30: 94 |
| 4550... | C: 32, C: 33 |
| 4555... | C: 34, C: 35 |
| 456... | A30: 96 |
| 457... | A30: 102 |
| 458... | A30: 104 |

| Part No. | Page |
|-------------|---|
| 45Y... | A30: 12, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15, A92: 17, A92: 18, A92: 20, A92: 22, A92: 24, A92: 26, A92: 28 |
| 45Z... | A30: 22, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15, A92: 17, A92: 18, A92: 20, A92: 22, A92: 24, A92: 26, A92: 28 |
| 483... | A30: 74, A30: 76 |
| 4C10... | A30: 32, A91: 23, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15 |
| 4C11... | A30: 44, A91: 27, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15 |
| 4C12... | A30: 58, A91: 31, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15 |
| 4C1Y... | A30: 12, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15 |
| 4C1Z... | A30: 22, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15 |
| 4C20... | A30: 32, A92: 17 |
| 4C21... | A30: 44, A92: 17 |
| 4C22... | A30: 58, A92: 17 |
| 4C2Y... | A30: 12, A92: 17 |
| 4C2Z... | A30: 22, A92: 17 |
| 5 | |
| 536010... | B10: 7 |
| 563010... | B10: 7 |
| 6 | |
| 60111C45... | A20: 15 |
| 60111H... | A20: 15 |
| 60112C45... | A20: 19 |
| 60112H... | A20: 19 |
| 60113C45... | A20: 23 |
| 60113H... | A20: 23 |
| 60114C45... | A20: 27 |
| 60114H... | A20: 27 |
| 60115C45... | A20: 31 |
| 60115H... | A20: 31 |
| 60116C45... | A20: 35 |
| 60116H... | A20: 35 |
| 60117C45... | A20: 39 |
| 60117H... | A20: 39 |
| 60118C45... | A20: 43 |
| 60118H... | A20: 43 |
| 60120C45... | A20: 47 |
| 60120H... | A20: 47 |
| 60122C45... | A20: 51 |
| 60122H... | A20: 51 |
| 60124C45... | A20: 55 |

| Part No. | Page |
|-------------|---------|
| 60124H... | A20: 55 |
| 60126C45... | A20: 59 |
| 60126H... | A20: 59 |
| 60129C45... | A20: 63 |
| 60129H... | A20: 63 |
| 60132C45... | A20: 67 |
| 60132H... | A20: 67 |
| 60311H... | A20: 15 |
| 60311S... | A20: 15 |
| 60312H... | A20: 19 |
| 60312S... | A20: 19 |
| 60313H... | A20: 23 |
| 60313S... | A20: 23 |
| 60314H... | A20: 27 |
| 60314S... | A20: 27 |
| 60315H... | A20: 31 |
| 60315S... | A20: 31 |
| 60316H... | A20: 35 |
| 60316S... | A20: 35 |
| 60317H... | A20: 39 |
| 60317S... | A20: 39 |
| 60318H... | A20: 43 |
| 60318S... | A20: 43 |
| 60320H... | A20: 47 |
| 60320S... | A20: 47 |
| 60322H... | A20: 51 |
| 60322S... | A20: 51 |
| 60324H... | A20: 55 |
| 60324S... | A20: 55 |
| 60326H... | A20: 59 |
| 60326S... | A20: 59 |
| 60329H... | A20: 63 |
| 60329S... | A20: 63 |
| 60332H... | A20: 67 |
| 60332S... | A20: 67 |
| 60511H... | A20: 15 |
| 60511S... | A20: 15 |
| 60512H... | A20: 19 |
| 60512S... | A20: 19 |
| 60513H... | A20: 23 |
| 60513S... | A20: 23 |
| 60514H... | A20: 27 |
| 60514S... | A20: 27 |
| 60515H... | A20: 31 |
| 60515S... | A20: 31 |
| 60516H... | A20: 35 |
| 60516S... | A20: 35 |
| 60517H... | A20: 39 |
| 60517S... | A20: 39 |
| 60518H... | A20: 43 |
| 60518S... | A20: 43 |
| 60520H... | A20: 47 |
| 60520S... | A20: 47 |
| 60522H... | A20: 51 |
| 60522S... | A20: 51 |
| 60524H... | A20: 55 |
| 60524S... | A20: 55 |
| 60526H... | A20: 59 |
| 60526S... | A20: 59 |
| 60529H... | A20: 63 |
| 60529S... | A20: 63 |
| 60532H... | A20: 67 |
| 60532S... | A20: 67 |

| Part No. | Page |
|------------|--------------|
| 60711H... | A20: 15 |
| 60711S... | A20: 15 |
| 60712H... | A20: 19 |
| 60712S... | A20: 19 |
| 60713H... | A20: 23 |
| 60713S... | A20: 23 |
| 60714H... | A20: 27 |
| 60714S... | A20: 27 |
| 60715H... | A20: 31 |
| 60715S... | A20: 31 |
| 60716H... | A20: 35 |
| 60716S... | A20: 35 |
| 60717H... | A20: 39 |
| 60717S... | A20: 39 |
| 60718H... | A20: 43 |
| 60718S... | A20: 43 |
| 60720H... | A20: 47 |
| 60720S... | A20: 47 |
| 60722H... | A20: 51 |
| 60722S... | A20: 51 |
| 60724H... | A20: 55 |
| 60724S... | A20: 55 |
| 60726H... | A20: 59 |
| 60726S... | A20: 59 |
| 60729H... | A20: 63 |
| 60729S... | A20: 63 |
| 60732H... | A20: 67 |
| 60732S... | A20: 67 |
| 7 | |
| 7000... | C: 12 |
| 7000-MC... | C: 16 |
| 7000-ML... | C: 17, C: 19 |
| 7000-MM... | C: 18 |
| 7000-VI... | C: 14, C: 15 |
| 7001-MC... | C: 16 |
| 7001-ML... | C: 17 |
| 7001-MM... | C: 18 |
| 7001-VI... | C: 14, C: 15 |
| 7400... | C: 12 |
| 7405... | C: 13 |
| 7705... | C: 13 |
| 7C111P... | A20: 14 |
| 7C112P... | A20: 18 |
| 7C113P... | A20: 22 |
| 7C114P... | A20: 26 |
| 7C115P... | A20: 30 |
| 7C116P... | A20: 34 |
| 7C117P... | A20: 38 |
| 7C118P... | A20: 42 |
| 7C120P... | A20: 46 |
| 7C122P... | A20: 50 |
| 7C124P... | A20: 54 |
| 7C126P... | A20: 58 |
| 7C129P... | A20: 62 |
| 7C132P... | A20: 66 |
| 7C211P... | A20: 14 |
| 7C212P... | A20: 18 |
| 7C213P... | A20: 22 |
| 7C214P... | A20: 26 |
| 7C215P... | A20: 30 |
| 7C217P... | A20: 38 |
| 7C218P... | A20: 42 |
| 7C220P... | A20: 46 |

| Part No. | Page |
|--------------|--|
| 7C222P... | A20: 50 |
| 7C224P... | A20: 54 |
| 7C229P... | A20: 62 |
| 7C232P... | A20: 66 |
| 9 | |
| 94500... | C: 36, C: 37 |
| 94505... | C: 38, C: 39 |
| 94550... | C: 32, C: 33 |
| 94555... | C: 34, C: 35 |
| A | |
| AS5202... | A92: 14, A92: 15, A92: 26, A92: 27 |
| ATKK... | A92: 18, A92: 20, A92: 22, A92: 24, A92: 26, A92: 28 |
| ATKU... | A92: 19, A92: 21, A92: 23, A92: 25, A92: 27 |
| B | |
| BTA0... | A93: 4 |
| BTA1... | A93: 5 |
| BTA2... | A93: 6 |
| BTA3... | A93: 7 |
| BTAT... | A93: 4, A93: 5, A93: 6, A93: 7 |
| BTB.40... | C: 55 |
| BTB.50... | C: 55 |
| BTH... | B20: 4, B20: 5, B20: 10, B20: 26, B20: 29, B20: 33, B20: 34, B20: 37, B20: 38, B20: 41, B20: 42 |
| C | |
| C34... | A60: 7, A60: 9, A60: 11, A60: 13, A60: 15, A60: 17, A60: 19, A60: 21, A60: 23, A60: 25, A60: 27 |
| CB... | B20: 15, B20: 20, B20: 28, B20: 32, B20: 36, B20: 40 |
| CB038M... | B20: 49, B20: 50 |
| CB050M... | B20: 49, B20: 50 |
| CB076M... | B20: 49, B20: 50 |
| CB1000... | B20: 45 |
| CB1250... | B20: 45 |
| CB1500... | B20: 44, B20: 45, B20: 46, B20: 47 |
| CB2000... | B20: 44, B20: 45, B20: 46, B20: 47 |
| CB2500... | B20: 46 |
| CB2500BMA... | B20: 25 |
| CB3000... | B20: 44, B20: 45, B20: 46, B20: 47 |
| CB6000... | B20: 46 |
| CBS1250B... | B20: 9 |
| CCGT... | X: 22 |
| CCMT... | B20: 13, B20: 16, B20: 23, B20: 27, B20: 31, B20: 35, B20: 39, B20: 43, |

| Part No. | Page |
|---------------|--|
| | X: 22 |
| CCMT060202... | B20: 6, B20: 11 |
| CIL.25... | C: 57 |
| CIL.32... | C: 57 |
| CIL.40... | C: 57 |
| D | |
| D203... | A55: 8, A55: 9 |
| D204... | A55: 10, A55: 11 |
| D205... | A55: 12, A55: 13 |
| D206... | A55: 14, A55: 15 |
| D207... | A55: 16, A55: 17 |
| D209... | A55: 18, A55: 20 |
| D211... | A55: 22, A55: 24 |
| D214... | A55: 26, A55: 28 |
| D303... | A55: 8, A55: 9 |
| D304... | A55: 10, A55: 11 |
| D305... | A55: 12, A55: 13 |
| D306... | A55: 14, A55: 15 |
| D307... | A55: 16, A55: 17 |
| D309... | A55: 18, A55: 20 |
| D311... | A55: 22, A55: 24 |
| D314... | A55: 26, A55: 27, A55: 28, A55: 29 |
| D403... | A55: 8, A55: 9 |
| D404... | A55: 10, A55: 11 |
| D405... | A55: 12, A55: 13 |
| D406... | A55: 14, A55: 15 |
| D407... | A55: 16, A55: 17 |
| D409... | A55: 19, A55: 21 |
| D411... | A55: 23, A55: 25 |
| D414... | A55: 27, A55: 29 |
| DCGT... | X: 22 |
| DCMT... | X: 22 |
| G | |
| G1731... | A92: 16, A92: 17, A92: 28 |
| H | |
| HDTM... | E: 18, E: 19, E: 20, E: 21, E: 22, E: 23, E: 24, E: 25 |
| HDTMNxNPT... | E: 12 |
| HDTMxBSP... | E: 11 |
| HDTMxNPT... | E: 12, E: 13 |
| HSKA.100... | C: 56 |
| HSKA.63... | C: 56 |
| HTA0A01... | A25: 18, A25: 20 |
| HTA0A03... | A25: 18, A25: 20 |
| HTA0A05... | A25: 18, A25: 20 |
| HTA0A07... | A25: 18, A25: 20 |
| HTA0A10... | A25: 19, A25: 21 |
| HTA0A12... | A25: 19, A25: 21 |
| HTA0A15... | A25: 19, A25: 21 |
| HTA0B01... | A25: 18, A25: 20 |
| HTA0B03... | A25: 18, A25: 20 |
| HTA0B05... | A25: 18, A25: 20 |
| HTA0B07... | A25: 18, A25: 20 |
| HTA0B10... | A25: 19, A25: 21 |
| HTA0B12... | A25: 19, A25: 21 |
| HTA0B15... | A25: 19, A25: 21 |
| HTA0C01... | A25: 18, A25: 20 |
| HTA0C03... | A25: 18, A25: 20 |

| Part No. | Page |
|------------|------------------|
| HTA0C05... | A25: 18, A25: 20 |
| HTA0C07... | A25: 18, A25: 20 |
| HTA0C10... | A25: 19, A25: 21 |
| HTA0C12... | A25: 19, A25: 21 |
| HTA0C15... | A25: 19, A25: 21 |
| HTA0D01... | A25: 18, A25: 20 |
| HTA0D03... | A25: 18, A25: 20 |
| HTA0D05... | A25: 18, A25: 20 |
| HTA0D07... | A25: 18, A25: 20 |
| HTA0D10... | A25: 19, A25: 21 |
| HTA0D12... | A25: 19, A25: 21 |
| HTA0D15... | A25: 19, A25: 21 |
| HTA1A01... | A25: 30, A25: 32 |
| HTA1A03... | A25: 30, A25: 32 |
| HTA1A05... | A25: 30, A25: 32 |
| HTA1A07... | A25: 30, A25: 32 |
| HTA1A10... | A25: 31, A25: 33 |
| HTA1A12... | A25: 31, A25: 33 |
| HTA1A15... | A25: 31, A25: 33 |
| HTA1B01... | A25: 30, A25: 32 |
| HTA1B03... | A25: 30, A25: 32 |
| HTA1B05... | A25: 30, A25: 32 |
| HTA1B07... | A25: 30, A25: 32 |
| HTA1B10... | A25: 31, A25: 33 |
| HTA1B12... | A25: 31, A25: 33 |
| HTA1B15... | A25: 31, A25: 33 |
| HTA1C01... | A25: 30, A25: 32 |
| HTA1C03... | A25: 30, A25: 32 |
| HTA1C05... | A25: 30, A25: 32 |
| HTA1C07... | A25: 30, A25: 32 |
| HTA1C10... | A25: 31, A25: 33 |
| HTA1C12... | A25: 31, A25: 33 |
| HTA1C15... | A25: 31, A25: 33 |
| HTA1D01... | A25: 30, A25: 32 |
| HTA1D03... | A25: 30, A25: 32 |
| HTA1D05... | A25: 30, A25: 32 |
| HTA1D07... | A25: 30, A25: 32 |
| HTA1D10... | A25: 31, A25: 33 |
| HTA1D12... | A25: 31, A25: 33 |
| HTA1D15... | A25: 31, A25: 33 |
| HTA2A01... | A25: 42, A25: 44 |
| HTA2A03... | A25: 42, A25: 44 |
| HTA2A05... | A25: 42, A25: 44 |
| HTA2A07... | A25: 42, A25: 44 |
| HTA2A10... | A25: 43, A25: 45 |
| HTA2A12... | A25: 43, A25: 45 |
| HTA2A15... | A25: 43, A25: 45 |
| HTA2B01... | A25: 42, A25: 44 |
| HTA2B03... | A25: 42, A25: 44 |
| HTA2B05... | A25: 42, A25: 44 |
| HTA2B07... | A25: 42, A25: 44 |
| HTA2B10... | A25: 43, A25: 45 |
| HTA2B12... | A25: 43, A25: 45 |
| HTA2B15... | A25: 43, A25: 45 |
| HTA2C01... | A25: 42, A25: 44 |
| HTA2C03... | A25: 42, A25: 44 |
| HTA2C05... | A25: 42, A25: 44 |
| HTA2C07... | A25: 42, A25: 44 |
| HTA2C10... | A25: 43, A25: 45 |
| HTA2C12... | A25: 43, A25: 45 |
| HTA2C15... | A25: 43, A25: 45 |
| HTA2D01... | A25: 42, A25: 44 |
| HTA2D03... | A25: 42, A25: 44 |

| Part No. | Page |
|-------------|------------------|
| HTA2D05... | A25: 42, A25: 44 |
| HTA2D07... | A25: 42, A25: 44 |
| HTA2D10... | A25: 43, A25: 45 |
| HTA2D12... | A25: 43, A25: 45 |
| HTA2D15... | A25: 43, A25: 45 |
| HTA3A01... | A25: 54, A25: 56 |
| HTA3A03... | A25: 54, A25: 56 |
| HTA3A05... | A25: 54, A25: 56 |
| HTA3A07... | A25: 54, A25: 56 |
| HTA3A10... | A25: 55, A25: 57 |
| HTA3A12... | A25: 55, A25: 57 |
| HTA3A15... | A25: 55, A25: 57 |
| HTA3B01... | A25: 54, A25: 56 |
| HTA3B03... | A25: 54, A25: 56 |
| HTA3B05... | A25: 54, A25: 56 |
| HTA3B07... | A25: 54, A25: 56 |
| HTA3B10... | A25: 55, A25: 57 |
| HTA3B12... | A25: 55, A25: 57 |
| HTA3B15... | A25: 55, A25: 57 |
| HTA3C01... | A25: 54, A25: 56 |
| HTA3C03... | A25: 54, A25: 56 |
| HTA3C05... | A25: 54, A25: 56 |
| HTA3C07... | A25: 54, A25: 56 |
| HTA3C10... | A25: 55, A25: 57 |
| HTA3C12... | A25: 55, A25: 57 |
| HTA3C15... | A25: 55, A25: 57 |
| HTA3D01... | A25: 54, A25: 56 |
| HTA3D03... | A25: 54, A25: 56 |
| HTA3D05... | A25: 54, A25: 56 |
| HTA3D07... | A25: 54, A25: 56 |
| HTA3D10... | A25: 55, A25: 57 |
| HTA3D12... | A25: 55, A25: 57 |
| HTA3D15... | A25: 55, A25: 57 |
| HTAZA01... | A25: 12, A25: 13 |
| HTAZA03... | A25: 12, A25: 13 |
| HTAZA05... | A25: 12, A25: 13 |
| HTAZA07... | A25: 12, A25: 13 |
| HTAZA10... | A25: 12, A25: 13 |
| HTAZA12... | A25: 12, A25: 13 |
| HTAZA15... | A25: 12, A25: 13 |
| HTAZB01... | A25: 12, A25: 13 |
| HTAZB03... | A25: 12, A25: 13 |
| HTAZB05... | A25: 12, A25: 13 |
| HTAZB07... | A25: 12, A25: 13 |
| HTAZB10... | A25: 12, A25: 13 |
| HTAZB12... | A25: 12, A25: 13 |
| HTAZB15... | A25: 12, A25: 13 |
| HXT0311S... | A20: 13 |
| HXT0312S... | A20: 17 |
| HXT0313S... | A20: 21 |
| HXT0314S... | A20: 25 |
| HXT0315S... | A20: 29 |
| HXT0316S... | A20: 33 |
| HXT0317S... | A20: 37 |
| HXT0318S... | A20: 41 |
| HXT0320S... | A20: 45 |
| HXT0322S... | A20: 49 |
| HXT0324S... | A20: 53 |
| HXT0326S... | A20: 57 |
| HXT0329S... | A20: 61 |
| HXT0332S... | A20: 65 |
| HXT0511S... | A20: 13 |
| HXT0512S... | A20: 17 |

| Part No. | Page |
|-------------|---|
| HXT0513S... | A20: 21 |
| HXT0514S... | A20: 25 |
| HXT0515S... | A20: 29 |
| HXT0516S... | A20: 33 |
| HXT0517S... | A20: 37 |
| HXT0518S... | A20: 41 |
| HXT0520S... | A20: 45 |
| HXT0522S... | A20: 49 |
| HXT0524S... | A20: 53 |
| HXT0526S... | A20: 57 |
| HXT0529S... | A20: 61 |
| HXT0532S... | A20: 65 |
| HXT0711S... | A20: 13 |
| HXT0712S... | A20: 17 |
| HXT0713S... | A20: 21 |
| HXT0714S... | A20: 25 |
| HXT0715S... | A20: 29 |
| HXT0716S... | A20: 33 |
| HXT0717S... | A20: 37 |
| HXT0718S... | A20: 41 |
| HXT0720S... | A20: 45 |
| HXT0722S... | A20: 49 |
| HXT0724S... | A20: 53 |
| HXT0726S... | A20: 57 |
| HXT0729S... | A20: 61 |
| HXT0732S... | A20: 65 |
| HXT1011S... | A20: 13 |
| HXT1012S... | A20: 17 |
| HXT1013S... | A20: 21 |
| HXT1014S... | A20: 25 |
| HXT1015S... | A20: 29 |
| HXT1016S... | A20: 33 |
| HXT1017S... | A20: 37 |
| HXT1018S... | A20: 41 |
| HXT1020S... | A20: 45 |
| HXT1022S... | A20: 49 |
| HXT1024S... | A20: 53 |
| HXT1026S... | A20: 57 |
| HXT1029S... | A20: 61 |
| HXT1032S... | A20: 65 |
| HXT1211S... | A20: 13 |
| HXT1212S... | A20: 17 |
| HXT1213S... | A20: 21 |
| HXT1214S... | A20: 25 |
| HXT1215S... | A20: 29 |
| HXT1216S... | A20: 33 |
| HXT1217S... | A20: 37 |
| HXT1218S... | A20: 41 |
| HXT1220S... | A20: 45 |
| HXT1222S... | A20: 49 |
| HXT1224S... | A20: 53 |
| HXT1226S... | A20: 57 |
| I | |
| I6149... | A92: 12, A92: 13, A92: 22, A92: 23, A92: 24, A92: 25 |
| J | |
| J1926... | A92: 6, A92: 7, A92: 8, A92: 9, A92: 18, A92: 19, A92: 20, A92: 21 |
| L | |
| LCB... | B20: 20, B20: 21, |

| Part No. | Page |
|--------------|---|
| | B20: 22 |
| M | |
| MBS0500B... | B20: 3 |
| MD... | B20: 13 |
| MT2... | B20: 48 |
| MT3... | B20: 48 |
| MT4... | B20: 48 |
| MT5... | B20: 48 |
| N | |
| NMTB30... | B20: 49 |
| NMTB40... | B20: 49 |
| NMTB50... | B20: 49 |
| O | |
| OP-05T308... | A50: 6, A60: 7, A60: 9, A60: 11, A60: 13, A60: 15, A60: 17, A60: 19, A60: 21, A60: 23, A60: 25, A60: 27, A70: 6, A70: 7, A70: 8, A70: 9, A70: 10, A70: 11, A70: 12, A70: 13, A70: 14, A70: 15 |
| OP1... | A70: 6, A70: 8, A70: 9, A70: 10, A70: 11, A70: 12, A70: 13, A70: 14, A70: 15 |
| OP2... | A70: 6, A70: 8, A70: 9, A70: 10, A70: 11, A70: 12, A70: 13, A70: 14, A70: 15 |
| OP3... | A70: 6, A70: 8, A70: 9, A70: 10, A70: 11, A70: 12, A70: 13, A70: 14, A70: 15 |
| OP4... | A70: 6, A70: 8, A70: 9, A70: 10, A70: 11, A70: 12, A70: 13, A70: 14, A70: 15 |
| OP-060408... | A50: 8, A50: 10, A50: 18 |
| OP-080508... | A50: 10, A50: 12, A50: 20, A50: 22 |
| OP-090608... | A50: 12, A50: 14, A50: 16, A50: 24, A50: 26 |
| R | |
| R8... | B20: 48 |
| R34X22... | A60: 6, A60: 7 |
| R34X35... | A60: 6, A60: 7 |
| R34X45... | A60: 6, A60: 7 |
| R36X22... | A60: 8, A60: 9 |
| R36X35... | A60: 8, A60: 9 |
| R36X45... | A60: 8, A60: 9 |
| R38X22... | A60: 10, A60: 11 |
| R38X35... | A60: 10, A60: 11 |
| R38X45... | A60: 10, A60: 11 |
| R42X22... | A60: 12, A60: 13 |

| Part No. | Page |
|------------|------------------|
| R42X35... | A60: 12, A60: 13 |
| R42X45... | A60: 12, A60: 13 |
| R44X22... | A60: 14 |
| R44X35... | A60: 14 |
| R46X22... | A60: 16 |
| R46X35... | A60: 16 |
| R48X10... | A60: 18 |
| R48X25... | A60: 18 |
| R52X10... | A60: 20 |
| R52X25... | A60: 20 |
| R54X10... | A60: 22 |
| R54X25... | A60: 22 |
| R56X10... | A60: 24 |
| R56X25... | A60: 24 |
| R58X10... | A60: 26 |
| R58X25... | A60: 26 |
| RDKF... | D: 18 |
| RDKH... | D: 7, D: 8, D: 9 |
| RDKI... | D: 12 |
| RDKK... | D: 14 |
| RDKL... | D: 16 |
| RDKM... | D: 20 |
| RDKN... | D: 22 |
| RDKO... | D: 24 |
| RDKP... | D: 26 |
| RDKQ... | D: 28 |
| RDKR... | D: 30 |
| RDKS... | D: 32 |
| RDKT... | D: 34 |
| RDKU... | D: 36 |
| RDRY... | D: 38 |
| RSKF... | D: 19 |
| RSKH... | D: 10, D: 11 |
| RSKI... | D: 13 |
| RSKK... | D: 15 |
| RSKL... | D: 17 |
| RSKM... | D: 21 |
| RSKN... | D: 23 |
| RSKO... | D: 25 |
| RSKP... | D: 27 |
| RSKQ... | D: 29 |
| RSKR... | D: 31 |
| RSKS... | D: 33 |
| RSKT... | D: 35 |
| RSKU... | D: 37 |
| RSRY... | D: 39 |
| S | |
| SCMT... | X: 23 |
| SLEEVE... | A55: 30 |
| SP34X22... | A60: 6, A60: 7 |
| SP36X22... | A60: 8, A60: 9 |
| SP38X22... | A60: 10, A60: 11 |
| SP42X22... | A60: 12, A60: 13 |
| SP44X22... | A60: 14 |
| SP46X22... | A60: 16 |
| SP48X10... | A60: 18 |
| SP48X25... | A60: 18 |
| SP52X10... | A60: 20 |
| SP52X25... | A60: 20 |
| SP54X10... | A60: 22 |
| SP54X25... | A60: 22 |
| SP56X10... | A60: 24 |
| SP56X25... | A60: 24 |

| Part No. | Page |
|-------------|--|
| SP58X10... | A60: 26 |
| SP58X25... | A60: 26 |
| SS0500... | B20: 47 |
| SS0625... | B20: 47 |
| SS0750... | B20: 47 |
| SS1000... | B20: 47 |
| SS1250... | B20: 47 |
| SS1500... | B20: 47 |
| SS2000... | B20: 47 |
| ST03120... | A91: 6 |
| ST03140... | A91: 7, A91: 8 |
| ST03150... | A91: 9 |
| ST03160... | A91: 10 |
| ST03170... | A91: 11 |
| ST03180... | A91: 12 |
| ST03200... | A91: 13 |
| ST03220... | A91: 14 |
| ST03225... | A91: 14 |
| ST03240... | A91: 15 |
| ST03260... | A91: 16 |
| ST03290... | A91: 17 |
| ST03320... | A91: 18 |
| ST05120... | A91: 6 |
| ST05140... | A91: 7, A91: 8 |
| ST05150... | A91: 9 |
| ST05160... | A91: 10 |
| ST05170... | A91: 11 |
| ST05180... | A91: 12 |
| ST05200... | A91: 13 |
| ST05220... | A91: 14 |
| ST05225... | A91: 14 |
| ST05240... | A91: 15 |
| ST05260... | A91: 16 |
| ST05290... | A91: 17 |
| ST05320... | A91: 18 |
| ST07120... | A91: 6 |
| ST07140... | A91: 7, A91: 8 |
| ST07150... | A91: 9 |
| ST07160... | A91: 10 |
| ST07170... | A91: 11 |
| ST07180... | A91: 12 |
| ST07200... | A91: 13 |
| ST07220... | A91: 14 |
| ST07225... | A91: 14 |
| ST07240... | A91: 15 |
| ST07260... | A91: 16 |
| ST07290... | A91: 17 |
| ST07320... | A91: 18 |
| T | |
| T-ACR-45... | A30: 43, A30: 57, A30: 73, A30: 111 |
| TAKO-12... | A25: 14 |
| TAKO-13... | A25: 14 |
| TAKO-14... | A25: 14 |
| TAKO-15... | A25: 14, A25: 15 |
| TAKO-16... | A25: 15 |
| TAKO-17... | A25: 15 |
| TAK1-17... | A25: 22 |
| TAK1-18... | A25: 22 |
| TAK1-19... | A25: 22, A25: 23 |
| TAK1-20... | A25: 23, A25: 24 |
| TAK1-21... | A25: 24 |
| TAK1-22... | A25: 24, A25: 25 |

| Part No. | Page |
|------------|------------------|
| TAK1-23... | A25: 25 |
| TAK1-24... | A25: 25 |
| TAK2-24... | A25: 34 |
| TAK2-25... | A25: 34, A25: 35 |
| TAK2-26... | A25: 35 |
| TAK2-27... | A25: 35 |
| TAK2-28... | A25: 35, A25: 36 |
| TAK2-29... | A25: 36 |
| TAK2-30... | A25: 36 |
| TAK2-31... | A25: 36, A25: 37 |
| TAK2-32... | A25: 37 |
| TAK2-33... | A25: 37 |
| TAK2-34... | A25: 37 |
| TAK2-35... | A25: 37 |
| TAK3-35... | A25: 46 |
| TAK3-36... | A25: 46 |
| TAK3-37... | A25: 46, A25: 47 |
| TAK3-38... | A25: 47 |
| TAK3-39... | A25: 47 |
| TAK3-40... | A25: 47 |
| TAK3-41... | A25: 48 |
| TAK3-42... | A25: 48 |
| TAK3-43... | A25: 48 |
| TAK3-44... | A25: 48, A25: 49 |
| TAK3-45... | A25: 49 |
| TAK3-46... | A25: 49 |
| TAK3-47... | A25: 49 |
| TAKZ-11... | A25: 10 |
| TAKZ-12... | A25: 10 |
| TAM0-12... | A25: 14 |
| TAM0-13... | A25: 14 |
| TAM0-14... | A25: 14 |
| TAM0-15... | A25: 14, A25: 15 |
| TAM0-16... | A25: 15 |
| TAM0-17... | A25: 15 |
| TAM1-17... | A25: 22 |
| TAM1-18... | A25: 22 |
| TAM1-19... | A25: 22, A25: 23 |
| TAM1-20... | A25: 23, A25: 24 |
| TAM1-21... | A25: 24 |
| TAM1-22... | A25: 24, A25: 25 |
| TAM1-23... | A25: 25 |
| TAM1-24... | A25: 25 |
| TAM2-24... | A25: 34 |
| TAM2-25... | A25: 34, A25: 35 |
| TAM2-26... | A25: 35 |
| TAM2-27... | A25: 35 |
| TAM2-28... | A25: 35, A25: 36 |
| TAM2-29... | A25: 36 |
| TAM2-30... | A25: 36 |
| TAM2-31... | A25: 36, A25: 37 |
| TAM2-32... | A25: 37 |
| TAM2-33... | A25: 37 |
| TAM2-34... | A25: 37 |
| TAM2-35... | A25: 37 |
| TAM3-35... | A25: 46 |
| TAM3-36... | A25: 46 |
| TAM3-37... | A25: 46, A25: 47 |
| TAM3-38... | A25: 47 |
| TAM3-39... | A25: 47 |
| TAM3-40... | A25: 47 |
| TAM3-41... | A25: 48 |
| TAM3-42... | A25: 48 |

| Part No. | Page |
|------------|------------------|
| TAM3-43... | A25: 48 |
| TAM3-44... | A25: 48, A25: 49 |
| TAM3-45... | A25: 49 |
| TAM3-46... | A25: 49 |
| TAM3-47... | A25: 49 |
| TAMZ-11... | A25: 10 |
| TAMZ-12... | A25: 10 |
| TANO-12... | A25: 14 |
| TANO-13... | A25: 14 |
| TANO-14... | A25: 14 |
| TANO-15... | A25: 14, A25: 15 |
| TANO-16... | A25: 15 |
| TANO-17... | A25: 15 |
| TAN1-17... | A25: 22 |
| TAN1-18... | A25: 22 |
| TAN1-19... | A25: 22, A25: 23 |
| TAN1-20... | A25: 23, A25: 24 |
| TAN1-21... | A25: 24 |
| TAN1-22... | A25: 24, A25: 25 |
| TAN1-23... | A25: 25 |
| TAN1-24... | A25: 25 |
| TAN2-24... | A25: 34 |
| TAN2-25... | A25: 34, A25: 35 |
| TAN2-26... | A25: 35 |
| TAN2-27... | A25: 35 |
| TAN2-28... | A25: 35, A25: 36 |
| TAN2-29... | A25: 36 |
| TAN2-30... | A25: 36 |
| TAN2-31... | A25: 36, A25: 37 |
| TAN2-32... | A25: 37 |
| TAN2-33... | A25: 37 |
| TAN2-34... | A25: 37 |
| TAN2-35... | A25: 37 |
| TAN3-35... | A25: 46 |
| TAN3-36... | A25: 46 |
| TAN3-37... | A25: 46, A25: 47 |
| TAN3-38... | A25: 47 |
| TAN3-39... | A25: 47 |
| TAN3-40... | A25: 47 |
| TAN3-41... | A25: 48 |
| TAN3-42... | A25: 48 |
| TAN3-43... | A25: 48 |
| TAN3-44... | A25: 48, A25: 49 |
| TAN3-45... | A25: 49 |
| TAN3-46... | A25: 49 |
| TAN3-47... | A25: 49 |
| TANZ-11... | A25: 10 |
| TANZ-12... | A25: 10 |
| TAP0-12... | A25: 14 |
| TAP0-13... | A25: 14 |
| TAP0-14... | A25: 14 |
| TAP0-15... | A25: 14, A25: 15 |
| TAP0-16... | A25: 15 |
| TAP0-17... | A25: 15 |
| TAP1-17... | A25: 22 |
| TAP1-18... | A25: 22 |
| TAP1-19... | A25: 22, A25: 23 |
| TAP1-20... | A25: 23, A25: 24 |
| TAP1-21... | A25: 24 |
| TAP1-22... | A25: 24, A25: 25 |
| TAP1-23... | A25: 25 |
| TAP1-24... | A25: 25 |
| TAP2-24... | A25: 34 |
| TAP2-25... | A25: 34, A25: 35 |

| Part No. | Page |
|------------|------------------|
| TAP2-26... | A25: 35 |
| TAP2-27... | A25: 35 |
| TAP2-28... | A25: 35, A25: 36 |
| TAP2-29... | A25: 36 |
| TAP2-30... | A25: 36 |
| TAP2-31... | A25: 36, A25: 37 |
| TAP2-32... | A25: 37 |
| TAP2-33... | A25: 37 |
| TAP2-34... | A25: 37 |
| TAP2-35... | A25: 37 |
| TAP3-35... | A25: 46 |
| TAP3-36... | A25: 46 |
| TAP3-37... | A25: 46, A25: 47 |
| TAP3-38... | A25: 47 |
| TAP3-39... | A25: 47 |
| TAP3-40... | A25: 47 |
| TAP3-41... | A25: 48 |
| TAP3-42... | A25: 48 |
| TAP3-43... | A25: 48 |
| TAP3-44... | A25: 48, A25: 49 |
| TAP3-45... | A25: 49 |
| TAP3-46... | A25: 49 |
| TAP3-47... | A25: 49 |
| TAPZ-11... | A25: 10 |
| TAPZ-12... | A25: 10 |
| TAX0-12... | A25: 16 |
| TAX0-13... | A25: 16 |
| TAX0-14... | A25: 16 |
| TAX0-15... | A25: 16, A25: 17 |
| TAX0-16... | A25: 17 |
| TAX0-17... | A25: 17 |
| TAX1-17... | A25: 26 |
| TAX1-18... | A25: 26 |
| TAX1-19... | A25: 26, A25: 27 |
| TAX1-20... | A25: 27, A25: 28 |
| TAX1-21... | A25: 28 |
| TAX1-22... | A25: 28, A25: 29 |
| TAX1-23... | A25: 29 |
| TAX1-24... | A25: 29 |
| TAX2-24... | A25: 38 |
| TAX2-25... | A25: 38, A25: 39 |
| TAX2-26... | A25: 39 |
| TAX2-27... | A25: 39 |
| TAX2-28... | A25: 39, A25: 40 |
| TAX2-29... | A25: 40 |
| TAX2-30... | A25: 40 |
| TAX2-31... | A25: 40, A25: 41 |
| TAX2-32... | A25: 41 |
| TAX2-33... | A25: 41 |
| TAX2-34... | A25: 41 |
| TAX2-35... | A25: 41 |
| TAX3-35... | A25: 50 |
| TAX3-36... | A25: 50 |
| TAX3-37... | A25: 50, A25: 51 |
| TAX3-38... | A25: 51 |
| TAX3-39... | A25: 51 |
| TAX3-40... | A25: 51 |
| TAX3-41... | A25: 52 |
| TAX3-42... | A25: 52 |
| TAX3-43... | A25: 52 |
| TAX3-44... | A25: 52, A25: 53 |
| TAX3-45... | A25: 53 |
| TAX3-46... | A25: 53 |
| TAX3-47... | A25: 53 |

| Part No. | Page |
|--------------|--|
| TAXZ-11... | A25: 11 |
| TAXZ-12... | A25: 11 |
| TCGT... | B20: 16, B20: 23, X: 23 |
| TCMT... | A20: 15, A20: 19, A20: 23, A20: 27, A20: 31, A20: 35, A20: 39, A20: 43, A20: 47, A20: 51, A20: 55, A20: 59, A20: 63, A20: 67, X: 23 |
| THN... | E: 43 |
| THP... | E: 50 |
| THT... | E: 43 |
| TM... | E: 18, E: 19, E: 20, E: 21, E: 22, E: 23, E: 24, E: 25, E: 26, E: 27, E: 28, E: 29 |
| TMAU... | A92: 21 |
| TMBK... | E: 8, E: 10, E: 11 |
| TMMK... | E: 26, E: 28 |
| TMNK&NPTF... | E: 12 |
| TMNK&NPTF... | E: 14 |
| TMUK... | E: 18, E: 19, E: 20, E: 21 |
| TMx3T2X... | E: 30, E: 31, E: 33 |
| TMx3T3X... | E: 32, E: 34 |
| TMxBSP... | E: 10 |
| TMxBSP... | E: 11 |
| TMxBSW... | E: 8, E: 9 |
| TMxNPS... | E: 16 |
| TMxNPSF... | E: 17 |
| TMxNPT... | E: 12, E: 13 |
| TMxNPTF... | E: 14, E: 15 |
| TN100K... | E: 46, E: 47, E: 48 |
| TN150K... | E: 44, E: 45, E: 46, E: 48, E: 49 |
| TNR... | E: 50 |
| TP075K... | E: 38, E: 39, E: 40, E: 41, E: 42 |
| TP100K... | E: 38, E: 39, E: 40, E: 41, E: 42 |
| TSN... | E: 51 |
| TSR... | E: 51 |
| V | |
| V3300D... | A50: 6 |
| V3301D... | A50: 6 |
| V3800D... | A50: 8 |
| V3801D... | A50: 8 |
| V3815D... | A50: 8 |
| V3817D... | A50: 8 |
| V3818D... | A50: 8 |
| V3820D... | A50: 8 |
| V4401D... | A50: 10 |
| V4417D... | A50: 10 |
| V4418D... | A50: 10 |
| V4422D... | A50: 10 |
| V5101D... | A50: 12 |
| V5118D... | A50: 12 |
| V5120D... | A50: 12 |
| V5122D... | A50: 12 |
| V5701D... | A50: 14 |
| V5702D... | A50: 14 |

| Part No. | Page |
|---------------|--|
| V5722D... | A50: 14 |
| V5724D... | A50: 14 |
| V5726D... | A50: 14 |
| V6302D... | A50: 16 |
| V6326D... | A50: 16 |
| V6329D... | A50: 16 |
| V6332D... | A50: 16 |
| V7002S... | A50: 18 |
| V7029S... | A50: 18 |
| V7602S... | A50: 20 |
| V7629S... | A50: 20 |
| V8302S... | A50: 22 |
| V8332S... | A50: 22 |
| V8902S... | A50: 24 |
| V8929S... | A50: 24 |
| V9502S... | A50: 26 |
| V9532S... | A50: 26 |
| W | |
| W3303H... | A50: 7 |
| W3305H... | A50: 7 |
| W3308H... | A50: 7 |
| W3310H... | A50: 7 |
| W3803H... | A50: 9 |
| W3805H... | A50: 9 |
| W3808H... | A50: 9 |
| W3810H... | A50: 9 |
| W4403H... | A50: 11 |
| W4405H... | A50: 11 |
| W4408H... | A50: 11 |
| W4410H... | A50: 11 |
| W5103H... | A50: 13 |
| W5105H... | A50: 13 |
| W5108H... | A50: 13 |
| W5110H... | A50: 13 |
| W5703H... | A50: 15 |
| W5705H... | A50: 15 |
| W5708H... | A50: 15 |
| W5710H... | A50: 15 |
| W6303H... | A50: 17 |
| W6305H... | A50: 17 |
| W6308H... | A50: 17 |
| W6310H... | A50: 17 |
| W7003H... | A50: 19 |
| W7005H... | A50: 19 |
| W7008H... | A50: 19 |
| W7010H... | A50: 19 |
| W7603H... | A50: 21 |
| W7605H... | A50: 21 |
| W7608H... | A50: 21 |
| W8303H... | A50: 23 |
| W8305H... | A50: 23 |
| W8308H... | A50: 23 |
| W8903H... | A50: 25 |
| W8905H... | A50: 25 |
| W8908H... | A50: 25 |
| W9503H... | A50: 27 |
| W9505H... | A50: 27 |
| W9508H... | A50: 27 |
| WBGX030101... | |
| | B20: 6, B20: 11, B20: 27, B20: 31, B20: 35 |
| X | |
| X1926... | A92: 10, A92: 11 |

| Part No. | Page |
|-----------|---------|
| XTK11... | A20: 12 |
| XTK12... | A20: 16 |
| XTK13... | A20: 20 |
| XTK14... | A20: 24 |
| XTK15... | A20: 28 |
| XTK16... | A20: 32 |
| XTK17... | A20: 36 |
| XTK18... | A20: 40 |
| XTK20... | A20: 44 |
| XTK22... | A20: 48 |
| XTK24... | A20: 52 |
| XTK26... | A20: 56 |
| XTK29... | A20: 60 |
| XTK32... | A20: 64 |
| XTN11... | A20: 12 |
| XTN12... | A20: 16 |
| XTN13... | A20: 20 |
| XTN14... | A20: 24 |
| XTN15... | A20: 28 |
| XTN16... | A20: 32 |
| XTN17... | A20: 36 |
| XTN18... | A20: 40 |
| XTN20... | A20: 44 |
| XTN22... | A20: 48 |
| XTN24... | A20: 52 |
| XTN26... | A20: 56 |
| XTN29... | A20: 60 |
| XTN32... | A20: 64 |
| XTP11... | A20: 12 |
| XTP12... | A20: 16 |
| XTP13... | A20: 20 |
| XTP14... | A20: 24 |
| XTP15... | A20: 28 |
| XTP16... | A20: 32 |
| XTP17... | A20: 36 |
| XTP18... | A20: 40 |
| XTP20... | A20: 44 |
| XTP22... | A20: 48 |
| XTP24... | A20: 52 |
| XTP26... | A20: 56 |
| XTP29... | A20: 60 |
| XTP32... | A20: 64 |
| XTST12... | A91: 6 |
| XTST13... | A91: 7 |
| XTST14... | A91: 8 |
| XTST15... | A91: 9 |
| XTST16... | A91: 10 |
| XTST17... | A91: 11 |
| XTST18... | A91: 12 |
| XTST20... | A91: 13 |
| XTST22... | A91: 14 |
| XTST24... | A91: 15 |
| XTST26... | A91: 16 |
| XTST29... | A91: 17 |
| XTST32... | A91: 18 |

Guaranteed Test / Demo Application Form

Distributor PO # _____

The following must be filled out completely before your test will be considered

IMPORTANT: For processing, send Purchase Order to your Allied Field Sales Engineer (FSE). Please clearly mark the paperwork as "Test Order."

Distributor Information

Company Name: _____
 Contact: _____
 Account Number: _____
 Phone: _____
 Email: _____

End User Information

Company Name: _____
 Contact: _____
 Industry: _____
 Phone: _____
 Email: _____

Current Process List all tooling, coatings, substrates, speeds and feeds, tool life, and any problems you are experiencing

Test Objective List what would make this a successful test (i.e. penetration rate, finish, tool life, hole size, etc.)

Application Information

| | | |
|------------------------------------|---------------------------|--|
| Hole Diameter: _____ in/mm | Tolerance: _____ | Material: _____ (4150 / A36 / Cast Iron / etc.) |
| Pre-existing Diameter: _____ in/mm | Depth of Cut: _____ in/mm | Hardness: _____ (BHN / Rc) |
| Required Finish: _____ RMS | State: _____ | (Casting / Hot rolled / Forging) |

Machine Information

| | | |
|--|--|------------------------------|
| Machine Type: _____ (Lathe / Screw machine / Machine center / etc.) | Builder: _____ (Haas, Mori Seiki, etc.) | Model #: _____ |
| Shank Required: _____ (CAT50 / Morse taper, etc.) | | Power: _____ HP/KW |
| Rigidity: _____ | Orientation: _____ | Tool Rotating: _____ |
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Vertical | <input type="checkbox"/> Yes |
| <input type="checkbox"/> Good | <input type="checkbox"/> Horizontal | <input type="checkbox"/> No |
| <input type="checkbox"/> Poor | | Thrust: _____ lbs/N |

Coolant Information

| | |
|--|-----------------------------------|
| Coolant Delivery: _____ (Through tool / Flood) | Coolant Pressure: _____ PSI / bar |
| Coolant Type: _____ (Air mist, oil, synthetic, water soluble, etc.) | Coolant Volume: _____ GPM / LPM |

Requested Tooling

| QTY | Item Number |
|-----|-------------|
| | |
| | |
| | |
| | |
| | |
| | |

| QTY | Item Number |
|-----|-------------|
| | |
| | |
| | |
| | |
| | |
| | |



Allied Machine & Engineering
 120 Deeds Drive
 Dover, OH 44622

Telephone: (330) 343-4283
 Toll Free USA & Canada: (800) 321-5537
 Fax: (330) 602-3400
 Email: info@alliedmachine.com

Warranty Information



Allied Machine & Engineering ("Allied Machine") warrants to original equipment manufacturers, distributors, industrial and commercial users of its products for one year from the original date of sale that each new product manufactured or supplied by Allied Machine shall be free from defects in material and workmanship.

Allied Machine's sole and exclusive obligation under this warranty is limited to, at its option, without additional charge, replacing or repairing this product or issuing a credit. For this warranty to be applied, the product must be returned freight prepaid to the plant designated by an Allied Machine representative and which, upon inspection, is determined by Allied Machine to be defective in material and workmanship.

Complete information as to operating conditions, machine, setup, and the application of cutting fluid should accompany any product returned for inspection. This warranty shall not apply to any Allied Machine products which have been subjected to misuse, abuse, improper operating conditions, improper machine setup or improper application of cutting fluid or which have been repaired or altered if such repair or alteration, in the judgement of Allied Machine, would adversely affect the performance of the product.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Allied Machine shall have no liability or responsibility for any claim, whether in contract, tort or otherwise, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery or use of any product sold hereunder, in excess of the cost of replacement or repair as provided herein.

Allied Machine shall not be liable in contract or in tort (including, without limitation, negligence, strict liability or otherwise) for economic losses of any kind or for any special, incidental, indirect, consequential, punitive or exemplary damages arising in any way out of the performance of, or failure to perform this agreement.

ALL PRICES, DELIVERIES, DESIGNS, AND MATERIALS ARE SUBJECT TO CHANGE WITHOUT NOTICE.



Allied Machine & Engineering
is registered to
ISO 9001:2015 by DQS



Wohlhaupter GmbH
is registered to
ISO 9001:2015 by QA TECHNICH

United States

Allied Machine & Engineering

120 Deeds Drive
Dover OH 44622
United States

Phone:
+1.330.343.4283

Fax:
+1.330.602.3400

Toll Free USA and Canada:
800.321.5537

Toll Free USA and Canada:
800.223.5140

Allied Machine & Engineering

485 W Third Street
Dover OH 44622
United States

Phone:
+1.330.343.4283

Fax:
+1.330.364.7666
(Engineering Dept.)

Toll Free USA and Canada:
800.321.5537

Europe

Allied Machine & Engineering Co. (Europe) Ltd.

93 Vantage Point
Pensnett Estate
Kingswinford
West Midlands
DY6 7FR England

Phone:
+44 (0) 1384.400900

Wohlhaupter GmbH

Maybachstrasse 4
Postfach 1264
72636 Frickenhausen
Germany

Phone:
+49 (0) 7022.408.0

Fax:
+49 (0) 7022.408.212

Asia

Wohlhaupter India Pvt. Ltd.

B-23, 3rd Floor
B Block Community Centre
Janakpuri, New Delhi - 110058
India

Phone:
+91 (0) 11.41827044

Your local Allied Machine representative:

www.alliedmachine.com

Allied Machine & Engineering is registered to **ISO 9001:2015** by DQS
Wohlhaupter GmbH is registered to **ISO 9001:2015** by QTA TECHNIC

