

holemaking
SOLUTIONS

www.alliedmachine.com

REPLACEABLE INSERT DRILLS

T-A[®] & GEN2 T-A[®]

Ø 0.374" - 4.500" (9.50 mm - 114.30 mm)



Find the **geometry**
you *need*



Increase your
productivity



Decrease your
cost per hole



Take **versatility** to a new level
Solutions for countless applications



Allied Machine offers a wide range of drilling, boring, reaming, burnishing, and threading tools to lower your **cost per hole**.



Series	Y Series	Z Series	0 Series	1 Series	2 Series	3 Series	4 Series
GEN2 T-A®							
Ø range (in)	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
Ø range (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	HSS Super Cobalt Premium Cobalt	HSS Super Cobalt				
Carbide Substrates	C1 (K35) C2 (K20)	-	-				
Coatings	AM200® AM300®	AM200® AM300®	AM200® AM300®	AM200® AM300®	AM200® AM300®	AM200® TiN	AM200® TiN
Series	Y Series	Z Series	0 Series	1 Series	2 Series	3 Series	4 Series
T-A®							
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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) C5 (P40)	-				
Coatings	TiN TiAlN TiCN	TiN TiAlN TiCN	TiN TiAlN TiCN	TiN TiAlN TiCN	TiN TiAlN TiCN	TiN	TiN

*Half series inserts fit into both full and half series holders. However, full series inserts ONLY fit into full series holders. See page 7 for visual.

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 noncoated 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/gray 	 <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/gray
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NOTE: Coatings may be available as nonstock options depending on insert series and style combination.

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

SUBSTRATES

<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 steel, 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>



GEOMETRIES

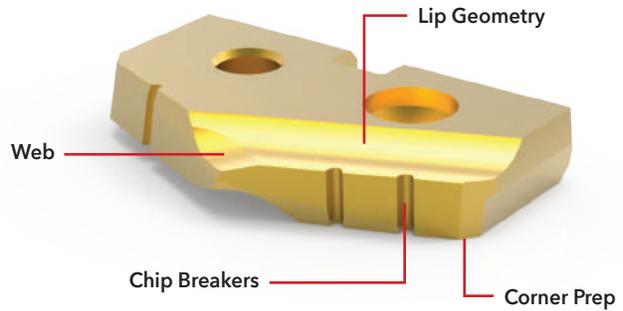
Allied Machine knows there isn't a one-size-fits-all solution when it comes to holemaking. To better accommodate the countless holes our customers drill, we have developed multiple geometry options with new geometries in development at all times.

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

Standard

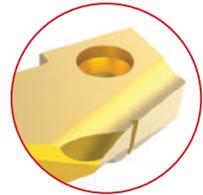
- Offers substantial increases in penetration rates and tool life
- Improves centering, drill stability, chip formation, and lowers drill forces
- Provides smoother breakout on through hole applications



T-A® Drill Inserts

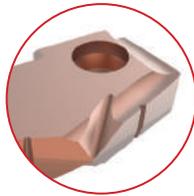
Standard

- Offers excellent penetration rates and tool life
- Smooth breakout 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)



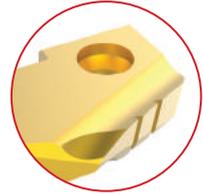
Tiny Chip (-TC)

- Unique lip and point design for excellent chip control
- Improved drilling capabilities in long-chipping materials such as low-carbon steels and soft alloys
- 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



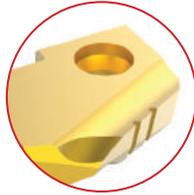
Notch Point® (-NP)

- Reduces bell mouth 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



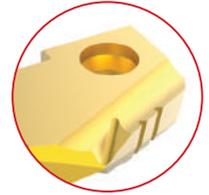
High Impact (-HI)

- 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)



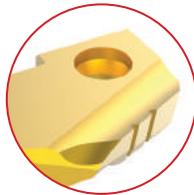
High Impact Notch Point® (-IN)

- 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 bell mouth 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



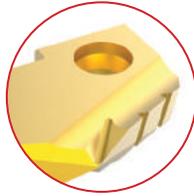
Cast Iron Notch Point® (-CN)

- Combination of cast iron and Notch Point geometries
- Increases stability in deep hole applications
- Specifically designed for use in grey and white cast irons



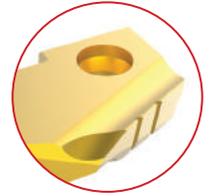
Aluminum (-AN)

- First choice for machining aluminum
- Enhanced geometry improves chip formation and hole quality
- TiN coating improves heat resistance and extends tool life



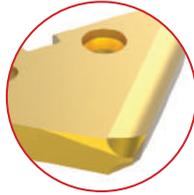
Brass (-BR)

- Improves tool life due to the specialized geometry and edge preparation
- Reduces self-feed tendency



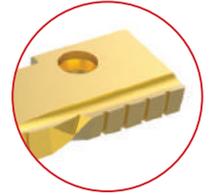
90° Spot and Chamfer (-SP)

- Center cutting web design improves stability and strength
- Eliminates the need for a secondary chamfering operation
- Available with chip breakers (see -SW below)



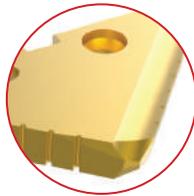
Flat Bottom (-FB)

- 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 chip breakers (see -FN below)



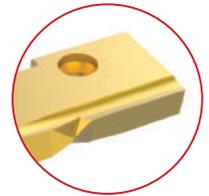
90° Spot and Chamfer (-SW)

- Center cutting web design improves stability and strength
- Eliminates the need for a secondary chamfering operation
- With added chip breakers



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 chip breakers (see -FB above)





AVAILABLE STANDARD 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		T-A GEN2			T-A							
		Y - 2 Series	3 - 4 Series	5 - 8 Series	HSS Inserts				Carbide Inserts			
					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	Notch Point® Cast Iron				●					●	●	●
-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				●	●						
-SS	150° Structural Steel				●	●						
-TC	Tiny Chip				●	●	●	●		●	●	
-TW	Thin Wall				●	●						
-WC	No Corner Clips		●	●	●	●	●	●		●	●	●



HOLDER LENGTH OPTIONS

(for use with both GEN2 T-A 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 the T-A section of the master 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.

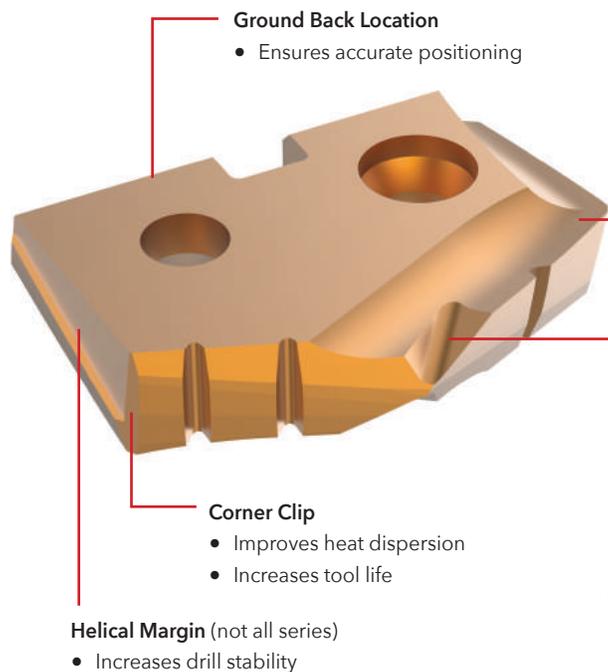


TECHNICAL INFORMATION

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.

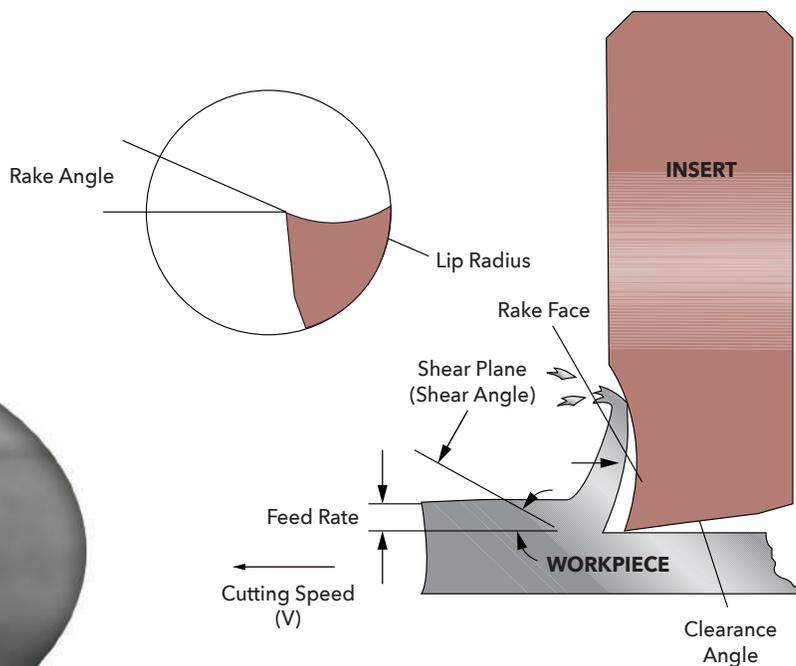


AM300® Coating

- Superior tool life at high penetration rates
- Improved heat resistance over AM200® coating
- Increased tool life up to 20% over AM200 coating

AM200® Coating

- Improved heat resistance over TiN, TiCN, and TiAlN with improved wear capabilities
- Increased penetration rates
- Increased tool life more than 20% over TiAlN coating



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.

Allied Machine offers expert engineering support. Whether you need a quote, a test, or an application solution, a highly skilled and trained engineer is standing by, ready to help. www.alliedmachine.com/contactus

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WOHLHAUPTER®

Holemaking Solutions for Today's Manufacturing