



ALLIED MACHINE & ENGINEERING

Holemaking Solutions for Today's Manufacturing



Boring



Reaming



Burnishing



Threading



Specials



BT-A Drill

► *DRILLING*

BTA-STS (Single Tube System)
Deep Hole Machining



SECTION

A93

BT-A Drill

BT-A Drill

BTA (STS) Deep Hole Machining System

► **Diameter Range:** 0.5110" - 1.8829" (12.98 mm - 47.82 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.
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Applicable Industries



Aerospace



Agriculture



Automotive



Heavy
Equipment



Hydraulics



Tool, Mold,
and Die



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.

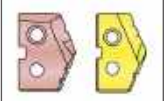
NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

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.

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

Introduction Information

System Overview	2
Product Nomenclature	3

T-A Drill Series

0 Series	4
1 Series	5
2 Series	6
3 Series	7

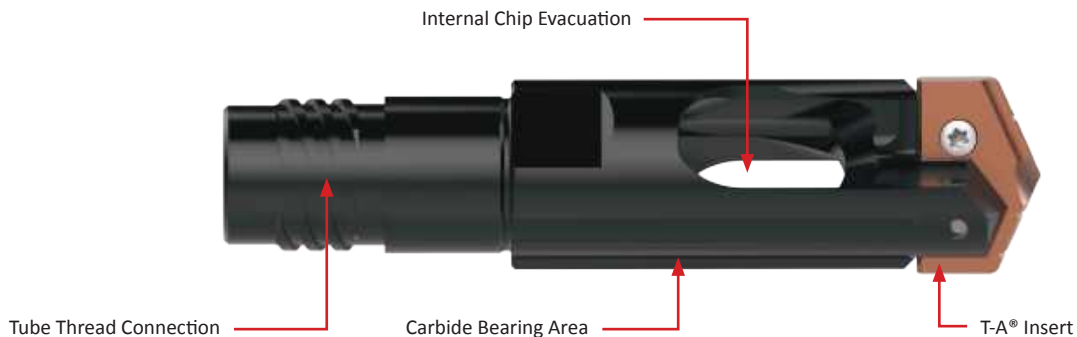
Series	Diameter Range	
	Imperial (inch)	Metric (mm)
0	0.5110 - 0.6959	12.98 - 17.67
1	0.6900 - 0.9609	17.53 - 24.40
2	0.9610 - 1.3809	24.41 - 35.06
3	1.3530 - 1.8829	34.37 - 47.82



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.



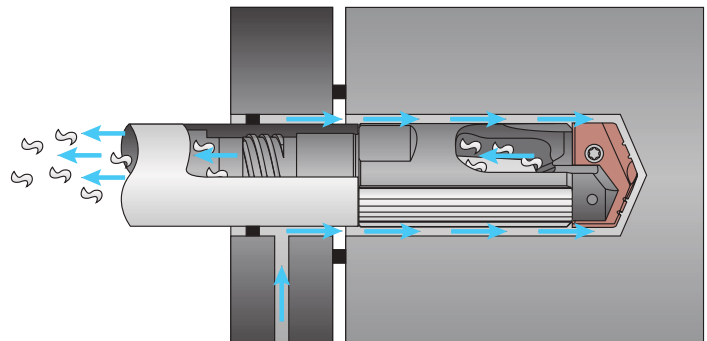
T-A Insert: BT-A Geometry (-BT)

- 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.

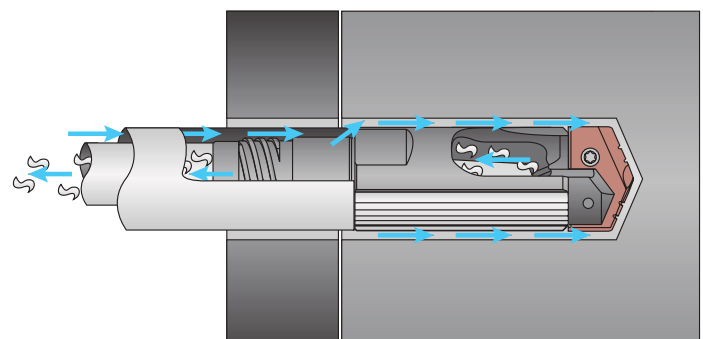


- ✓ **Improve hole straightness**
with the laser clad bearing area
- ✓ **Eliminate the need for resharpener**
with replaceable cutting edges
- ✓ **Reduce your inventory**
with the replaceable T-A® feature
- ✓ **Compatibility**
heads are compatible with standard BTA-STs systems
- ✓ **Balanced cutting forces**
- ✓ **Patented design**

BT-A Single Tube System



BT-A Double Tube (Ejector) System
(Quoted Special)

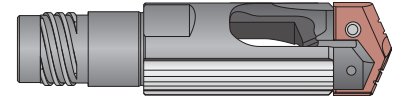


2x INCREASE in
penetration rates
over traditional BTA heads

Product Nomenclature

BT-A Drill Holders

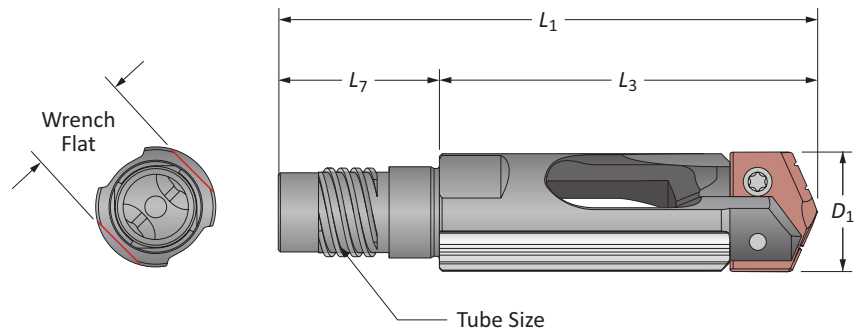
BTA2	804	–	1.1299
1	2		3



1. BT-A Drill T-A® Insert Series	2. Tube Size	3. Diameter																		
BTA0 = 0 series T-A insert BTA1 = 1 series T-A insert BTA2 = 2 series T-A insert BTA3 = 3 series T-A insert	<table> <tr><td>794</td><td>800</td><td>806</td></tr> <tr><td>795</td><td>801</td><td>807</td></tr> <tr><td>796</td><td>802</td><td>808</td></tr> <tr><td>797</td><td>803</td><td>809</td></tr> <tr><td>798</td><td>804</td><td>810</td></tr> <tr><td>799</td><td>805</td><td>811</td></tr> </table>	794	800	806	795	801	807	796	802	808	797	803	809	798	804	810	799	805	811	0.7344 = Inch 25.00 = Metric
794	800	806																		
795	801	807																		
796	802	808																		
797	803	809																		
798	804	810																		
799	805	811																		

Reference Key

Symbol	Attribute
D_1	Drill insert range
L_1	Overall length
L_3	Holder reference length
L_7	Shank length



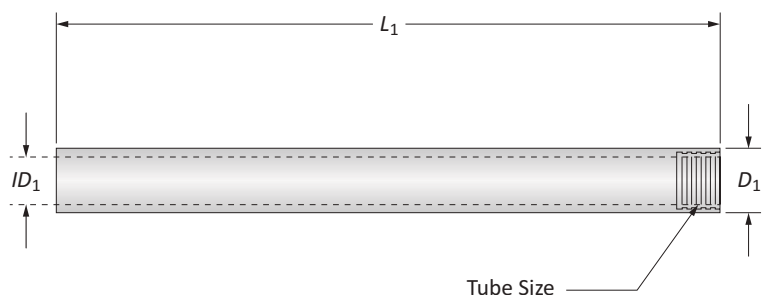
BT-A Drill Tubes

BTAT	–	804	–	63
1		2		3

1. BT-A Drill T-A Insert Series	2. Tube Size	3. Length																		
BTAT = BT-A Tube	<table> <tr><td>794</td><td>800</td><td>806</td></tr> <tr><td>795</td><td>801</td><td>807</td></tr> <tr><td>796</td><td>802</td><td>808</td></tr> <tr><td>797</td><td>803</td><td>809</td></tr> <tr><td>798</td><td>804</td><td>810</td></tr> <tr><td>799</td><td>805</td><td>811</td></tr> </table>	794	800	806	795	801	807	796	802	808	797	803	809	798	804	810	799	805	811	63 = Standard 102 = Long
794	800	806																		
795	801	807																		
796	802	808																		
797	803	809																		
798	804	810																		
799	805	811																		

Reference Key

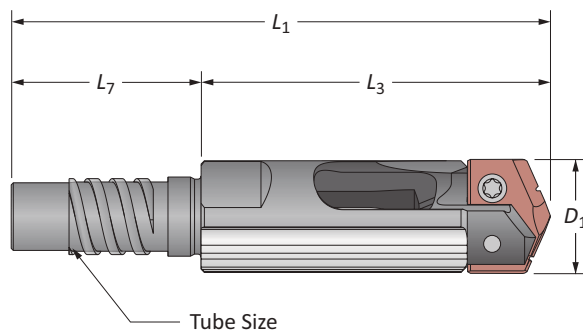
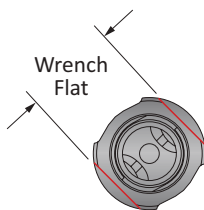
Symbol	Attribute
D_1	Body diameter
ID_1	Internal diameter
L_1	Overall length




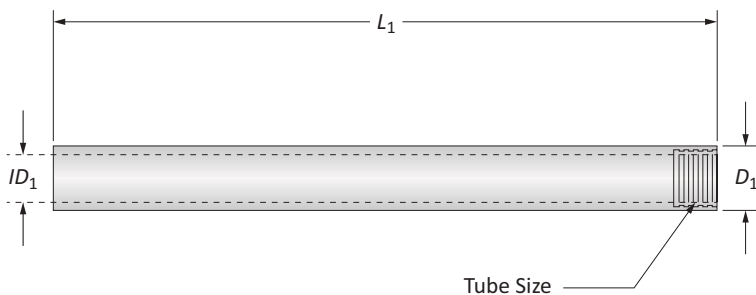


BT-A Drill Holders

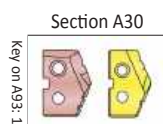
0 Series | Diameter Range: 0.5110" - 0.6959" (12.98 mm - 17.67 mm)



Tube Size		Holder				Part No.	 T-A® Insert	Wrench Flat (mm)
		D_1	L_3	L_1	L_7			
i	794	0.5110 - 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	12.98 - 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 - 17.67	45.3	69.3	24	BTA0-798-XX.XX	1C10H-XXXX-BT	15



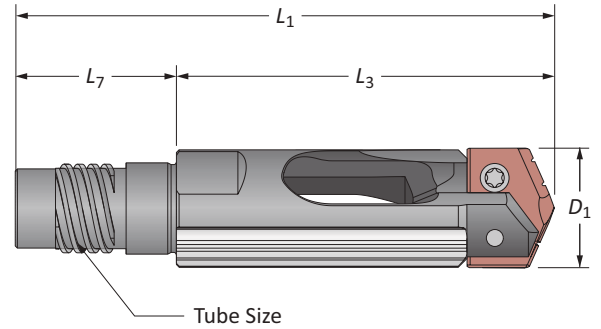
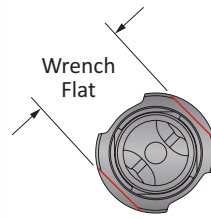
Tube Size		Tube			Part No.
		D_1	ID_1	L_1	
i	794	0.433	0.276	63	BTAT794-63
	794	0.433	0.276	102	BTAT794-102
	795	0.472	0.315	63	BTAT795-63
	795	0.472	0.315	102	BTAT795-102
	796	0.512	0.335	63	BTAT796-63
	796	0.512	0.335	102	BTAT796-102
	797	0.551	0.354	63	BTAT797-63
	797	0.551	0.354	102	BTAT797-102
	798	0.591	0.394	63	BTAT798-63
798	0.591	0.394	102	BTAT798-102	



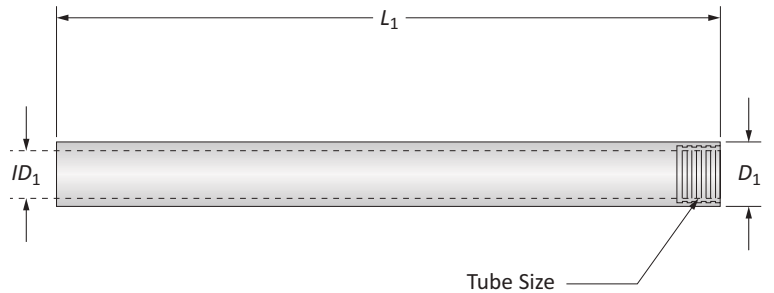
i = Imperial (in)
m = Metric (mm)

BT-A Drill Holders

1 Series | Diameter Range: 0.6900" - 0.9609" (17.53 mm - 24.40 mm)

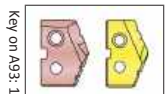


	Tube Size	D_1	Holder				T-A® Insert	Wrench Flat (mm)
			L_3	L_1	L_7	Part No.		
i	799	0.6900 - 0.7449	2-15/64	3-9/32	63/64	BTA1-799-X.XXXX	1C11H-XXXX-BT	16
	800	0.7450 - 0.7879	2-5/16	3-27/64	1-7/64	BTA1-800-X.XXXX	1C11H-XXXX-BT	17
	801	0.7880 - 0.8589	2-11/32	3-35/64	1-13/64	BTA1-801-X.XXXX	1C11H-XXXX-BT	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 - 0.9609	2-33/64	3-13/16	1-19/64	BTA1-803-X.XXXX	1C11H-XXXX-BT	21
m	799	17.53 - 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 - 24.40	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

Section A30

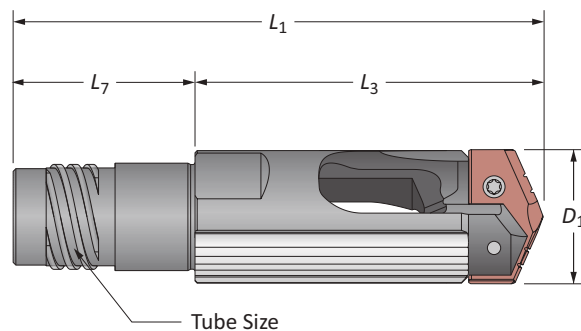
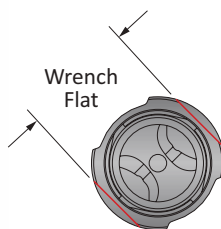


i = Imperial (in)
m = Metric (mm)

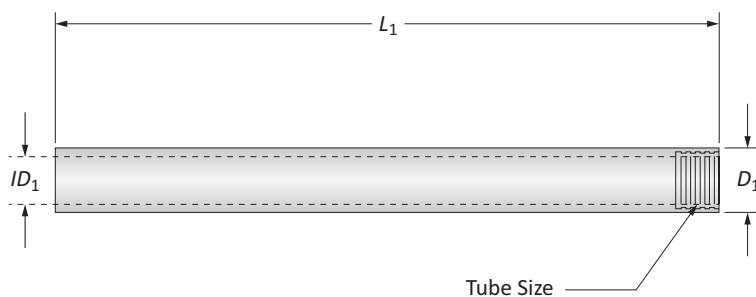


BT-A Drill Holders

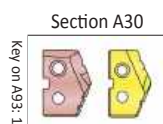
2 Series | Diameter Range: 0.9610" - 1.3809" (24.41 mm - 35.06 mm)



	Tube Size	Holder				Part No.	T-A® Insert	Wrench Flat (mm)
		D_1	L_3	L_1	L_7			
i	803	0.9610 - 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 - 1.3809	3-1/16	4-31/64	1-27/64	BTA2-807-X.XXXX	1C12H-XXXX-BT	30
m	803	24.41 - 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 - 35.06	77.9	113.8	36	BTA2-807-XX.XX	1C12H-XXXX-BT	30



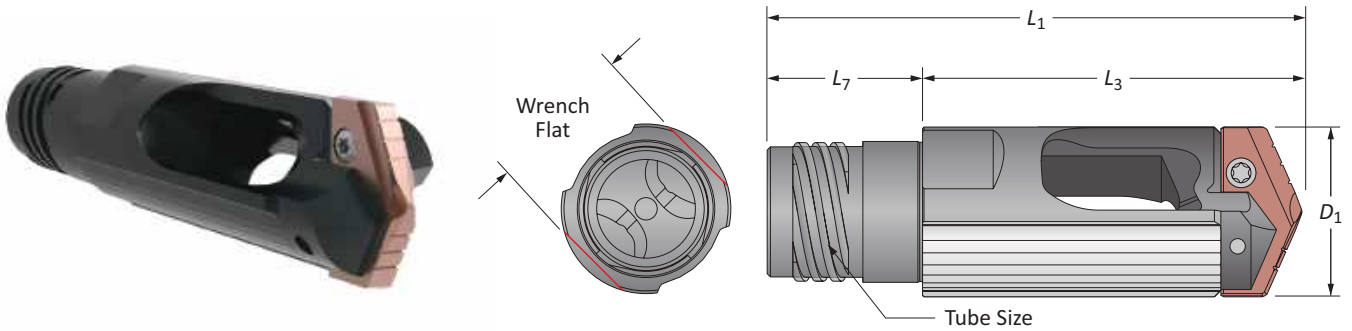
	Tube Size	Tube			Part No.
		D_1	ID_1	L_1	
i	803	0.866	0.551	63	BTAT803-63
	803	0.866	0.551	102	BTAT803-102
	804	0.945	0.610	63	BTAT804-63
	804	0.945	0.610	102	BTAT804-102
	805	1.024	0.669	63	BTAT805-63
	805	1.024	0.669	102	BTAT805-102
	806	1.102	0.728	102	BTAT806-102
	807	1.181	0.787	102	BTAT807-102



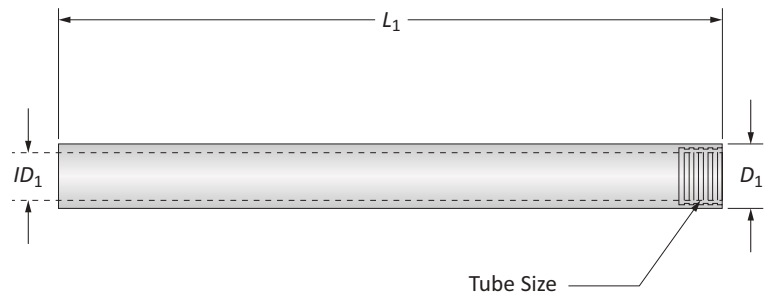
i = Imperial (in)
m = Metric (mm)

BT-A Drill Holders

3 Series | Diameter Range: 1.3530" - 1.8829" (34.37 mm - 47.82 mm)

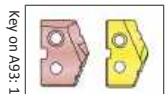


	Tube Size	D_1	Holder			Part No.	T-A® Insert	Wrench Flat (mm)
			L_3	L_1	L_7			
i	807	1.3530 - 1.4259	3-13/16	5-15/64	1-27/64	BTA3-807-X.XXXX	1C13H-XXXX-BT	30
	808	1.4260 - 1.5599	3-15/16	5-11/16	1-3/4	BTA3-808-X.XXXX	1C13H-XXXX-BT	32
	809	1.5600 - 1.6929	4-1/16	5-3/4	1-11/16	BTA3-809-X.XXXX	1C13H-XXXX-BT	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 - 1.8829	4-1/16	5-3/4	1-11/16	BTA3-811-X.XXXX	1C13H-XXXX-BT	41
m	807	34.37 - 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 - 47.82	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

Section A30



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

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.)
Preexisting Diameter: _____ in/mm Depth of Cut: _____ in/mm Hardness: _____
(BHN, Rc)
Required Finish: _____ RMS State: _____
(Casting, hot rolled, forging)

Machine Information

Machine Type: _____ Builder: _____ Model #: _____
(Lathe, screw machine, machine center, etc.) (Haas, Mori Seiki, etc.)
Shank Required: _____ Power: _____ HP/KW
(CAT50, Morse taper, etc.)
Rigidity: Orientation: Tool Rotating: Thrust: _____ lbs/N
☐ Excellent ☐ Vertical ☐ Yes
☐ Good ☐ Horizontal ☐ No
☐ Poor

Coolant Information

Coolant Delivery: _____ Coolant Pressure: _____ PSI / bar
(Through tool, flood)
Coolant Type: _____ Coolant Volume: _____ GPM / LPM
(Air mist, oil, synthetic, water soluble, etc.)

Requested Tooling

QTY	Item Number

QTY	Item Number



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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.

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Available Online Only: A93-BTA
Publish Date: May 2025