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

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

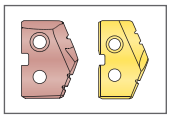
WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

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.

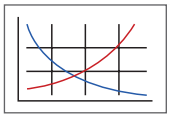
NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

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



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

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

BT-A Drilling System Contents

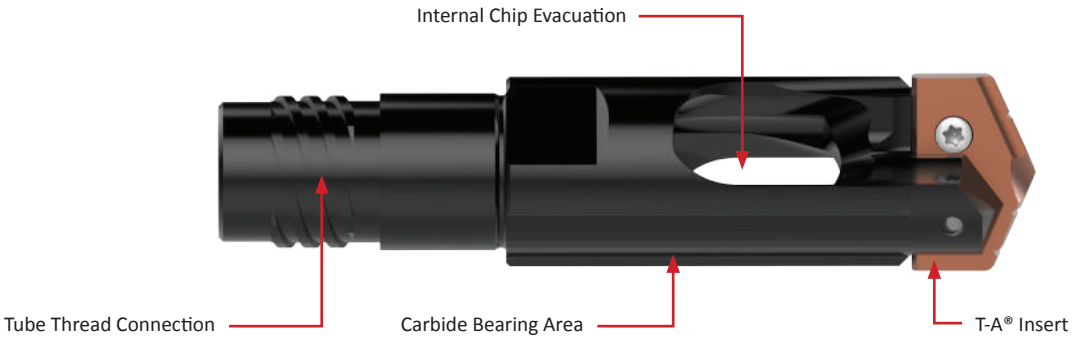
Introduction Information

T-A Drill Series

System Overview

BTA Machining

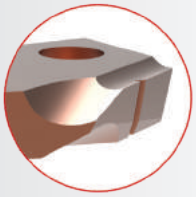
BTA machining is the reverse of typical gun drilling systems. The BT-A drill is a drill head consisting of a holder body and a replaceable tip T-A® insert. The drill head threads into an STS (single tube system) cylindrical tube with a diameter smaller than the drill head. The difference in diameter forms an annular area between the hole and the tube OD. This allows high-volume coolant to be directed to the cutting edge.



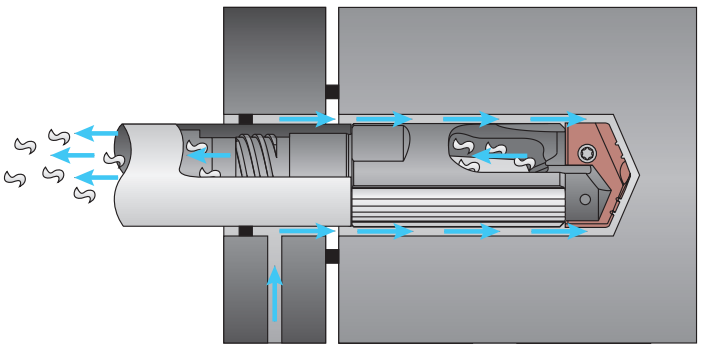
- ***Improve hole straightness***
  with the laser clad bearing area
- ***Eliminate the need for resharpening***
  with replaceable cutting edges
- ***Reduce your inventory***
  with the replaceable T-A® feature
- ***Compatibility***
  heads are compatible with standard BTA-STS systems
- ***Balanced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

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

- Low thrust web geometry reduces Z-axis requirements
- Lip geometry idendtical to the tiny chip (-TC) for improved chip formation
- Polished cutting surface eliminates material buildup

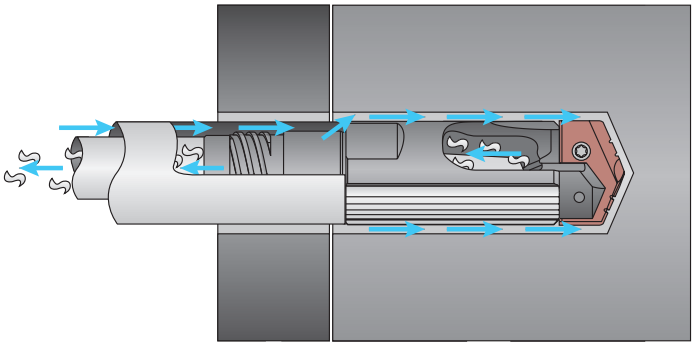


BT-A Single Tube System



2x *INCREASE* in penetration rates over traditional BTA heads

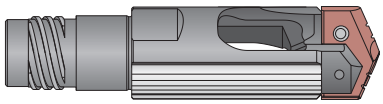
BT-A Double Tube (Ejector) System (Quoted Special)



Product Nomenclature

BT-A Drill Holders

BTA2	804	–	1.1299
1	2		3



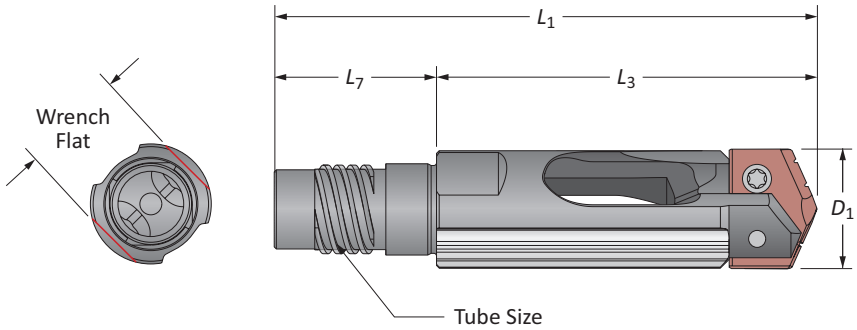
1. BT-A Drill T-A® Insert Series
BTA0 = 0 series T-A insert
BTA1 = 1 series T-A insert
BTA2 = 2 series T-A insert
BTA3 = 3 series T-A insert

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

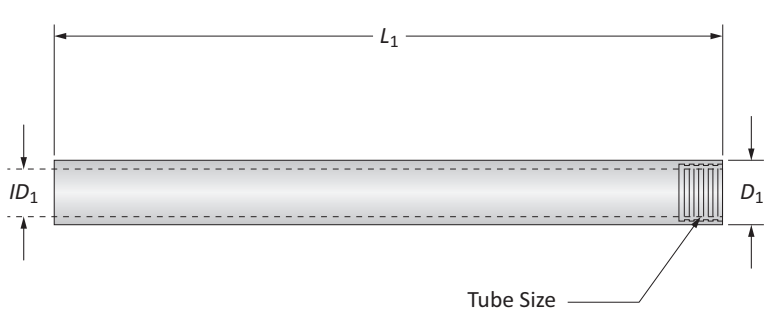
1. BT-A Drill T-A Insert Series
BTAT = BT-A Tube

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

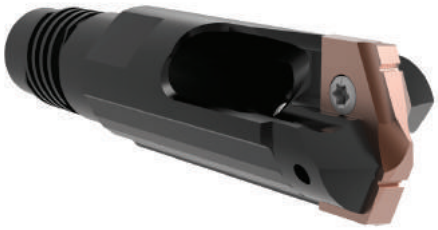
Reference Key

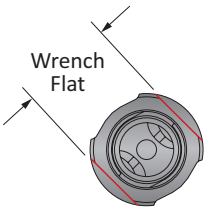
Symbol	Attribute
D_1	Body diameter
ID_1	Internal diameter
L_1	Overall length

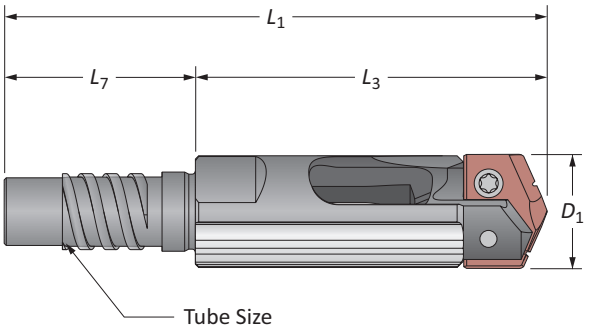


BT-A Drill Holders

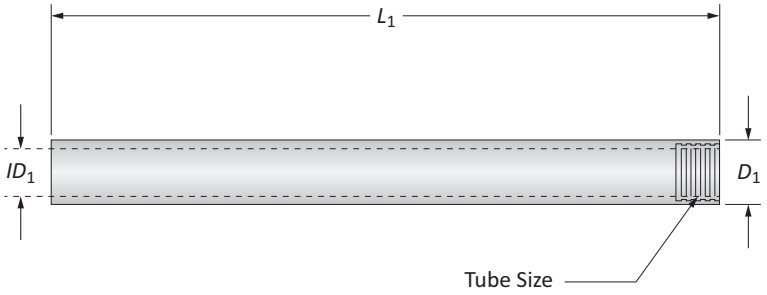
0 Series | Diameter Range: 0.5110" - 0.6959" (12.98 mm - 17.67 mm)







	Tube Size	D_1	Holder L_3	Holder L_1	Holder L_7	Part No.	T-A® Insert	Wrench Flat (mm)
	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
	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 D_1	Tube ID_1	Tube L_1	Part No.
	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**

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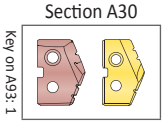
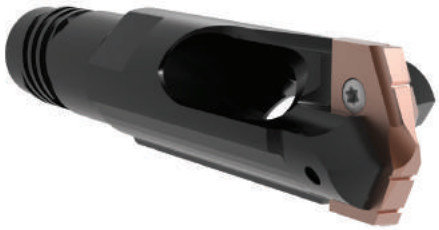
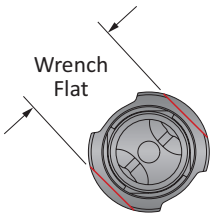


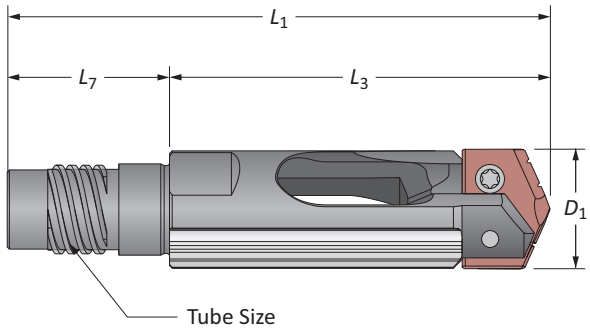
ⓘ = Imperial (in)
ⓜ = Metric (mm)

BT-A Drill Holders

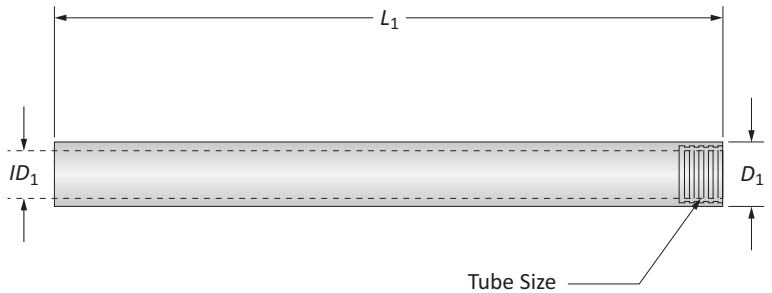
1 Series | Diameter Range: 0.6900" - 0.9609" (17.53 mm - 24.40 mm)







	Tube Size	D_1	Holder L_3	Holder L_1	Holder L_7	Part No.	T-A® Insert	Wrench Flat (mm)
	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
	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 D_1	Tube ID_1	Tube L_1	Part No.
	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**

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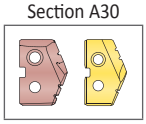
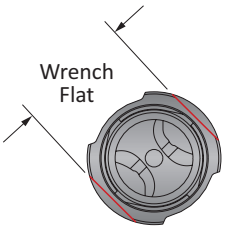
Key on A93: 1

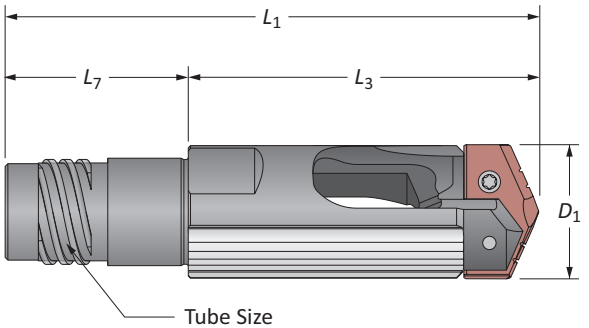


ⓘ = Imperial (in)
ⓜ = Metric (mm)

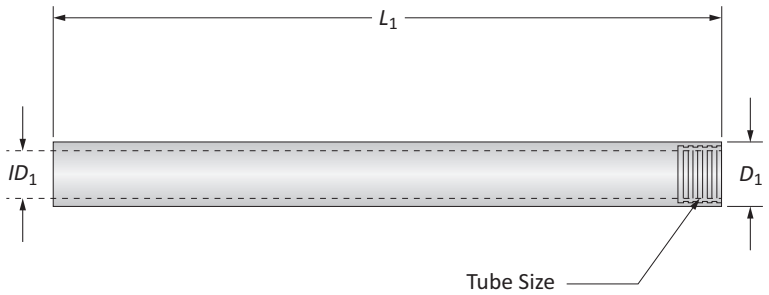
BT-A Drill Holders

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





	Tube Size	D_1	Holder L_3	Holder L_1	Holder L_7	Part No.	T-A® Insert	Wrench Flat (mm)
	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
	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 D_1	Tube ID_1	Tube L_1	Part No.
	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**

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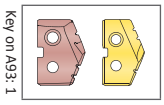
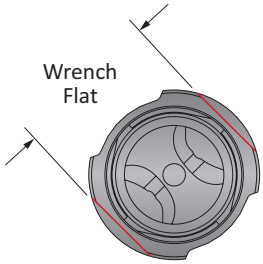
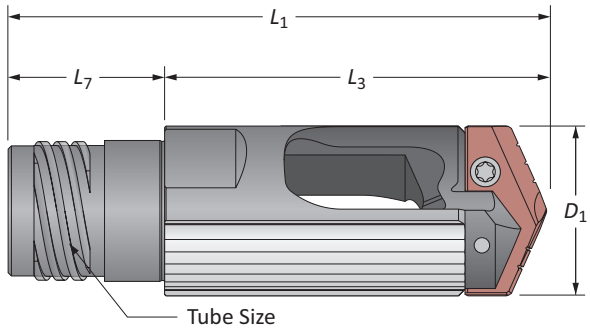


ⓘ = Imperial (in)
ⓜ = Metric (mm)

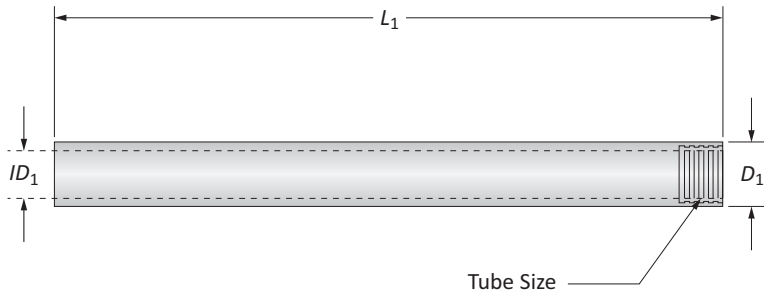
BT-A Drill Holders

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



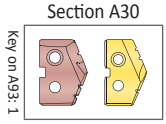


	Tube Size	D_1	Holder L_3	Holder L_1	Holder L_7	Part No.	T-A® Insert	Wrench Flat (mm)
	807	1.3530 - 1.4259	3-13/16	5-15/64	1-27/64	**BTA3-807-X.XXXX**	1C13H-XXXX-BT	30
	808	1.4260 - 1.5599	3-15/16	5-11/16	1-3/4	**BTA3-808-X.XXXX**	1C13H-XXXX-BT	32
ⓘ	809	1.5600 - 1.6929	4-1/16	5-3/4	1-11/16	**BTA3-809-X.XXXX**	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
	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 D_1	Tube ID_1	Tube L_1	Part No.
	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



ⓘ = Imperial (in)
ⓜ = Metric (mm)

Notes

Notes

Guaranteed Test / Demo Application Form

Distributor PO #	

The following must be filled out completely before your test will be considered

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: _____ (Lathe / Screw machine / Machine center / etc.)

Builder: _____ (Haas, Mori Seiki, etc.)

Model #: _____

Shank Required: _____ (CAT50 / Morse taper, etc.)

Power: _____ HP/KW

Rigidity:
- ☐ Excellent
- ☐ Good
- ☐ Poor

Orientation:
- ☐ Vertical
- ☐ Horizontal

Tool Rotating:
- ☐ Yes
- ☐ No

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

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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.

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