



**ALLIED MACHINE
& ENGINEERING**

WOHLHAUPTER®

Holemaking Solutions for Today's Manufacturing



Boring



Reaming



Burnishing



Threading



Specials



Drilling

▶ T-A® Original | GEN2 T-A®
Replaceable Insert Drilling System

T-A[®] Drilling System

Replaceable Insert Drilling System | GEN2 T-A[®] | T-A[®] Original

► Diameter Range: 9.50mm - 160.00mm (0.374" - 6.299")



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[®] Original, 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	Optimises chip evacuation	Wide range of geometry options available
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Applicable Industries



Aerospace



Agriculture



Automotive



Firearms



General Machining



Oil & Gas



Renewable Energy

Your safety and the safety of others is very important. This catalogue 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 catalogue, 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 catalogue. 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.

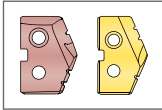
NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

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

T-A® Drilling System Contents

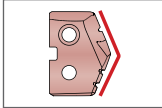
Reference Icons

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



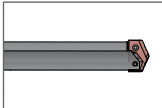
T-A® Inserts

Refers to the range of inserts that connect with the corresponding holders



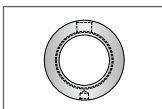
Available Insert Geometries

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)



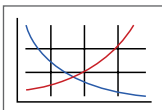
T-ACR-45 Chamfer Rings

Refers to the range of T-ACR 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

Series	Diameter Range	
	Metric (mm)	Imperial (inch)
Y	9.50 - 11.07	0.374 - 0.436
Z	11.10 - 12.95	0.437 - 0.510
0	12.98 - 17.65	0.511 - 0.695
1	17.53 - 24.38	0.690 - 0.960
2	24.41 - 35.05	0.961 - 1.380
3	34.36 - 47.80	1.353 - 1.882
4	46.99 - 65.28	1.850 - 2.570
5	62.38 - 76.20	2.456 - 3.000
6	76.22 - 89.08	3.001 - 3.507
7	89.10 - 101.60	3.508 - 4.000
8	101.63 - 160.00	4.001 - 6.299

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Recommended Cutting Data















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T-A® Drilling System Overview | Drill Inserts


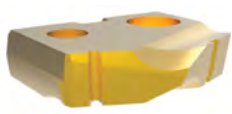

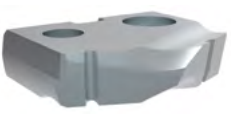
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Series	Y Series	Z Series	0 Series	1 Series	2 Series	3 Series	4 Series
GEN2 T-A®							
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
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
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	K35 (C1) K20 (C2)	K35 (C1) K20 (C2)	K35 (C1) K20 (C2)	K35 (C1) K20 (C2)	K35 (C1) K20 (C2)	-	-
Coatings	AM200®	AM200®	AM200®	AM200®	AM200®	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® Original							
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
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
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	K20 (C2) K10 (C3) P40 (C5) N2	K20 (C2) K10 (C3) P40 (C5) N2	K20 (C2) K10 (C3) P40 (C5) N2	K20 (C2) K10 (C3) P40 (C5) N2	K20 (C2) K10 (C3) P40 (C5) N2	K20 (C2) P40 (C5)	-
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>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 • Colour: copper/bronze 	 <p>TiN</p> <ul style="list-style-type: none"> • General purpose coating • Improved tool life over non-coated inserts • Excellent choice for Aluminium • Colour: 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 • Colour: 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 • Hardness HV 3500 • Colour: blue/grey

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

5 Series	6 Series	7 Series	8 Series
			
62.38 - 76.20	76.22 - 89.08	89.10 - 101.60	101.63 - 160.00
2.456 - 3.000	3.001 - 3.507	3.508 - 4.000	4.001 - 6.299
			
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
			
62.38 - 76.20	76.22 - 89.08	89.10 - 101.60	101.63 - 160.00
2.456 - 3.000	3.001 - 3.507	3.508 - 4.000	4.001 - 6.299
			
HSS Super Cobalt	HSS Super Cobalt	HSS Super Cobalt	HSS Super Cobalt
-	-	-	-
TiN	TiN	TiN	TiN

Drill Insert Grades			
<p>HSS (Original / GEN2)</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 aluminium alloys up to 275 BHN 96kg.</p>	<p>HSS Super Cobalt (Original / GEN2)</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 121kg.</p>	<p>HSS Premium Cobalt (Original / GEN2)</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 139kg.</p>	<p>Carbide P35 (C5) (Original only)</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 K10 (C3) (Original only)</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 K20 (C2) (Original / GEN2)</p> <p>Excellent for drilling high temperature alloys, titanium alloys, cast aluminium, SG/Nodular cast iron, grey/white iron, aluminium bronze, brass, copper, and certain stainless steels.</p>	<p>Carbide K35 (C1) (GEN2 only)</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 (Original only)</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

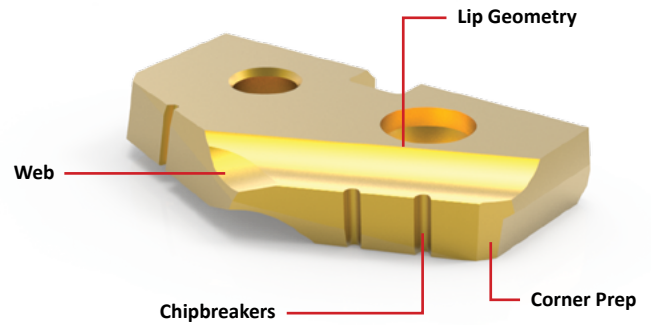
There's a Geometry for That

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.

+44 (0)1384 400 900

engineering.eu@alliedmachine.com



GEN2 T-A® Drill Inserts



Original Drill Inserts



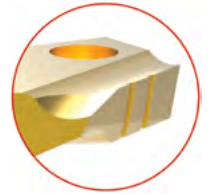
Standard

- Offers substantial increases in penetration rates and tool life
- Improves centring, drill stability, chip formation, and lowers drill forces
- Provides smoother break-out 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



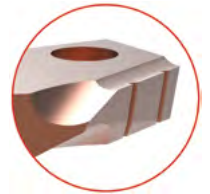
High Elasticity (-HE)

- 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
- Improves drilling capabilities in long-chipping materials
- Enhanced performance in lower-powered machines



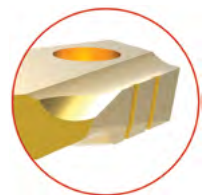
Corner Radius (-CR)

- 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)

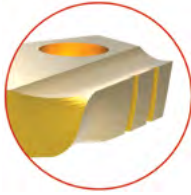
- Ideal for machining cast iron materials
- Larger than a standard corner clip
- Improves heat resistance
- Standard feature on CI, HI, and HR geometries



continued on next page

Cam Point (-CP)

- Helical cam ground point
- Improves drill stability and centring characteristics
- Reduces bell moutingh 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 > 700 N/mm² (200 BHN)
- 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)



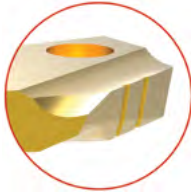
High Impact Notch Point® (-IN)

- 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)



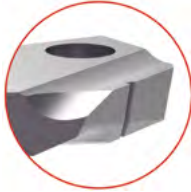
High Rake Notch Point® (-RN)

- 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



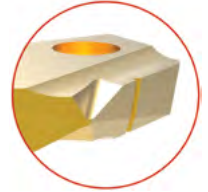
Cast Iron (-CI)

- Specifically designed for use in grey and white cast irons
- Exceptional edge strength
- SK2 corner preparation for improved tool life
- Standard geometry on K10 (C3) carbide inserts



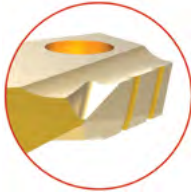
Cast Iron Notch Point® (-CN)

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



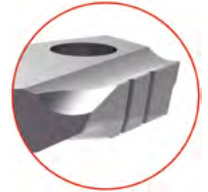
Aluminium (-AN)

- First choice for machining aluminium
- 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 specialised geometry and edge preparation
- Reduces self-feed tendency



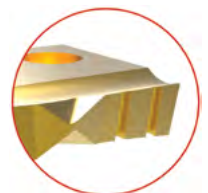
90° Spot and Chamfer (-SP)

- Centre 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 pre-existing 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)

- Centre 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 pre-existing 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® Original					
		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	
-AN	Aluminium				●				●	
-BR	Brass		●	●	●	●	●		●	●
-CI	Cast Iron		●		●	●			●	●
-CN	Notch Point® Cast Iron				●				●	●
-CP	Cam Point				●				●	
-CR	Corner Radius		●	●	●	●	●		●	●
-HE	High Elasticity	●	●							
-HI	High Impact		●	●	●	●	●		●	●
-HR	High Rake		●	●	●	●	●		●	●
-IN	Notch Point® High Impact				●				●	●
-NC	No Chipbreaker		●	●	●	●	●		●	●
-NP	Notch Point®				●				●	●
-RN	Notch Point® High Rake				●				●	●
-SK	Special Corner Preparation		●	●	●	●	●		●	●
-TC	Tiny Chip				●				●	
-WC	No Corner Clips		●	●	●	●	●		●	●

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

Drill Holders

Holder Length Options (for use with both GEN2 and T-A® Original 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



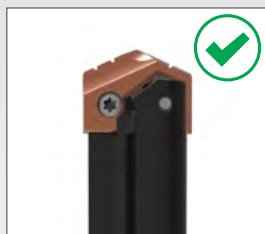
Morse Taper Shank
Series: ALL



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: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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

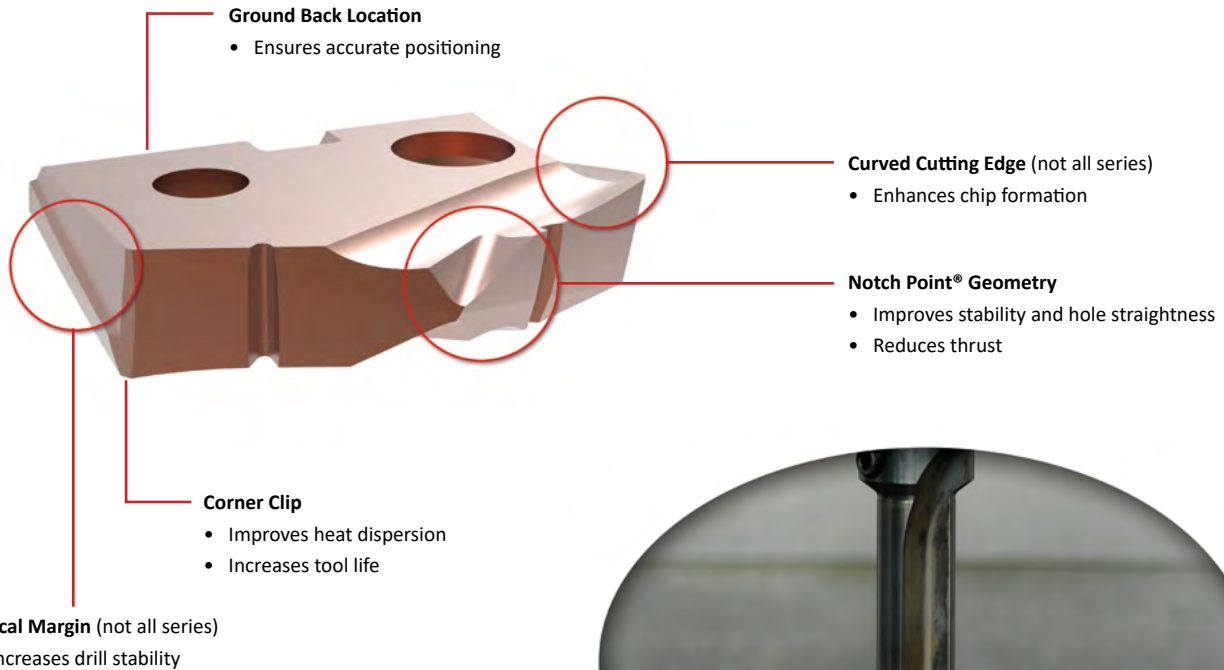
Next Level Solutions: GEN2 T-A®

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.

AM200® Coating

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



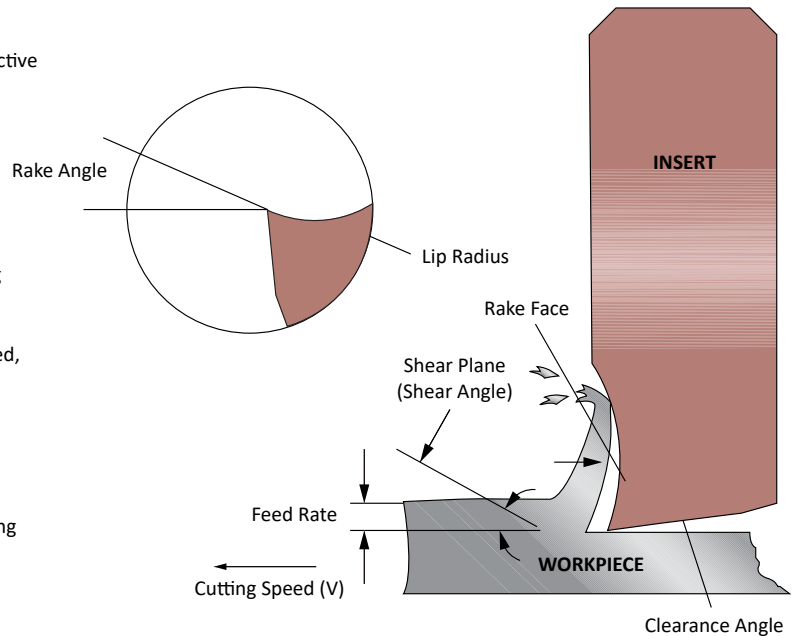
Improving Chip Formation

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.

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 coloured, 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

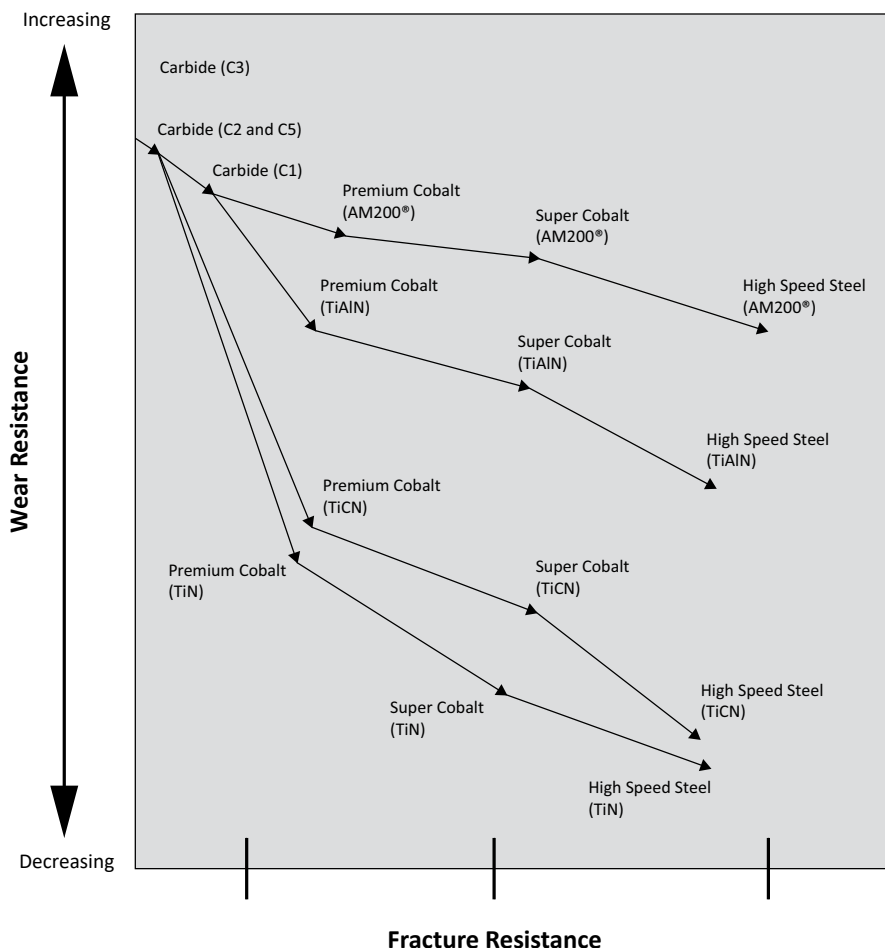
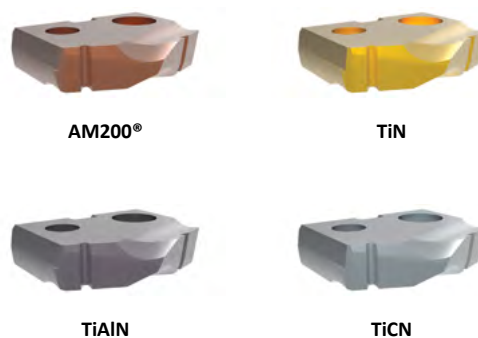


A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

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 0.08mm (0.003") of centre 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 0.30mm (0.012") 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 Holders

2	30	20	S	-	004	M
1	2	3	4		5	6

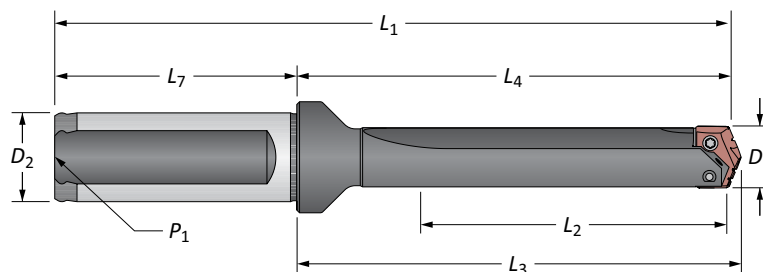


1. Holder	2. Length	3. Series	4. Flute
2 = T-A® holder	10 = Stub 20 = Short 30 = Intermediate 40 = Standard 45 = Standard Plus 50 = Extended 60 = Long 65 = Long Plus 70 = XL 90 = 3XL	Y0 = Y series 20 = 2 series Z0 = Z series 25 = 2.5 series 00 = 0 series 30 = 3 series 05 = 0.5 series 40 = 4 series 10 = 1 series 50 = 5 series 15 = 1.5 series 70 = 7 series	S = Straight H = Helical

5. Shank Designator			6. Shank Code
Morse Taper	Metric	Imperial	M = Metric Morse taper
002 = 2MT	16 = 16mm	063 = 5/8"	I = Imperial Morse taper
003 = 3MT	20 = 20mm	075 = 3/4"	L = Lathe shank
004 = 4MT	25 = 25mm	100 = 1"	FM = Flanged metric shank
005 = 5MT	32 = 32mm	125 = 1-1/4"	F = Flanged shank
	40 = 40mm	150 = 1-1/2"	
	50 = 50mm	175 = 1-3/4"	
		200 = 2"	
		300 = 3"	

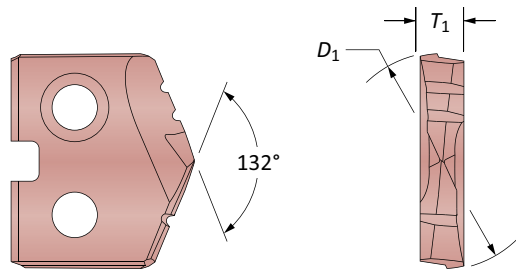
Reference Key

Symbol	Attribute
D_1	Drill insert range
D_2	Shank diameter
L_1	Overall length
L_2	Drill depth
L_3	New tool 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






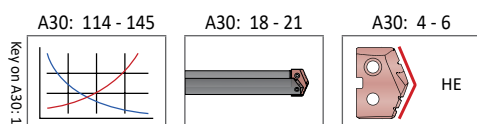
GEN2 T-A® Drill Inserts

Y Series | Diameter Range: 9.5mm - 11.07mm (0.374" - 0.436")



HSS Inserts – Super Cobalt • Carbide Inserts – K20 (C2) | K35 (C1)

Insert				HSS Part No.	Carbide Part No.	
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 Super Cobalt	 K20 (C2)	 K35 (C1)
9.50	0.3740	–	2.38	45YH-9.5	4C2YH-9.5	4C1YH-9.5
9.53	0.3750	3/8		45YH-0012	4C2YH-0012	4C1YH-0012
9.80	0.3860	W		45YH-.386	4C2YH-.386	4C1YH-.386
9.92	0.3906	25/64		45YH-.390	4C2YH-.390	4C1YH-.390
10.00	0.3937	–		45YH-10	4C2YH-10	4C1YH-10
10.20	0.4016	–		45YH-10.2	4C2YH-10.2	4C1YH-10.2
10.32	0.4063	13/32		45YH-0013	4C2YH-0013	4C1YH-0013
10.50	0.4134	–		45YH-10.5	4C2YH-10.5	4C1YH-10.5
10.72	0.4219	27/64		45YH-.421	4C2YH-.421	4C1YH-.421
10.80	0.4252	–		45YH-10.8	4C2YH-10.8	4C1YH-10.8
11.00	0.4331	–		45YH-11	4C2YH-11	4C1YH-11



Coatings not listed above can be supplied as non-stocked standards.

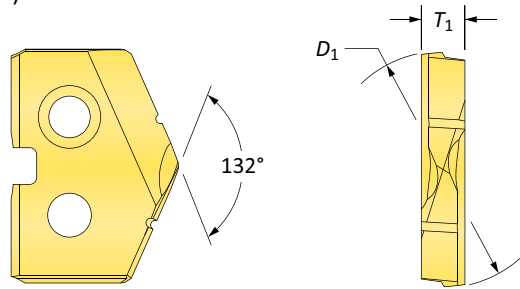
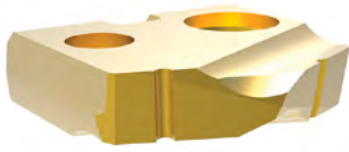


TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX




Inserts sold in quantities of 2

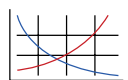
T-A® Original Drill Inserts

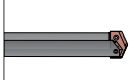
Y Series | HSS | Diameter Range: 9.5mm - 11.07mm (0.374" - 0.436")





HSS Inserts – Premium Cobalt

Insert				Part No.		
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN	 TiCN
9.50	0.3740	–	2.38	18YT-9.5	18YA-9.5	18YN-9.5
9.53	0.3750	3/8		18YT-0012	18YA-0012	18YN-0012
9.80	0.3860	W		18YT-.386	18YA-.386	18YN-.386
9.92	0.3906	25/64		18YT-.390	18YA-.390	18YN-.390
10.00	0.3937	–		18YT-10	18YA-10	18YN-10
10.20	0.4016	–		18YT-10.2	18YA-10.2	18YN-10.2
10.32	0.4063	13/32		18YT-0013	18YA-0013	18YN-0013
10.50	0.4134	–		18YT-10.5	18YA-10.5	18YN-10.5
10.72	0.4219	27/64		18YT-.421	18YA-.421	18YN-.421
10.80	0.4252	–		18YT-10.8	18YA-10.8	18YN-10.8
11.00	0.4331	–		18YT-11	18YA-11	18YN-11

A30: 114 - 145 

A30: 18 - 21 

A30: 4 - 6  HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC

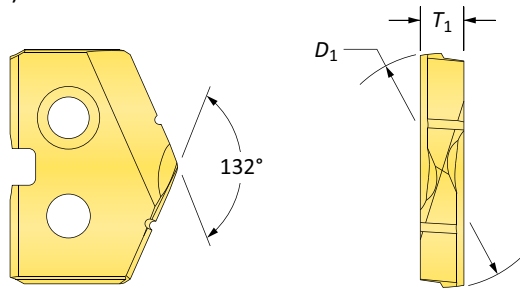
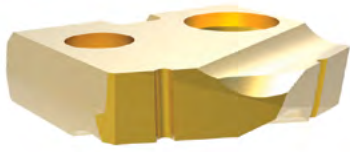
Coatings not listed above can be supplied as non-stocked standards. 

Inserts sold in quantities of 2




TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

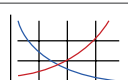


T-A® Original Drill Inserts

Y Series | HSS | Diameter Range: 9.5mm - 11.07mm (0.374" - 0.436")



HSS Inserts – Super Cobalt

Insert				Part No.		
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN	 TiCN
9.50	0.3740	–	2.38	15YT-9.5	15YA-9.5	15YN-9.5
9.53	0.3750	3/8		15YT-0012	15YA-0012	15YN-0012
9.80	0.3860	W		15YT-.386	15YA-.386	15YN-.386
9.92	0.3906	25/64		15YT-.390	15YA-.390	15YN-.390
10.00	0.3937	–		15YT-10	15YA-10	15YN-10
10.20	0.4016	–		15YT-10.2	15YA-10.2	15YN-10.2
10.32	0.4063	13/32		15YT-0013	15YA-0013	15YN-0013
10.50	0.4134	–		15YT-10.5	15YA-10.5	15YN-10.5
10.72	0.4219	27/64		15YT-.421	15YA-.421	15YN-.421
10.80	0.4252	–		15YT-10.8	15YA-10.8	15YN-10.8
11.00	0.4331	–		15YT-11	15YA-11	15YN-11

A30: 114 - 145  A30: 18 - 21  A30: 4 - 6 

Key on A30: 1

HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC

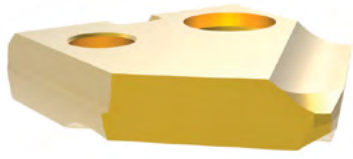
Coatings not listed above can be supplied as non-stocked standards. →

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

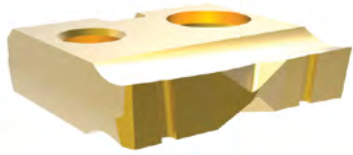
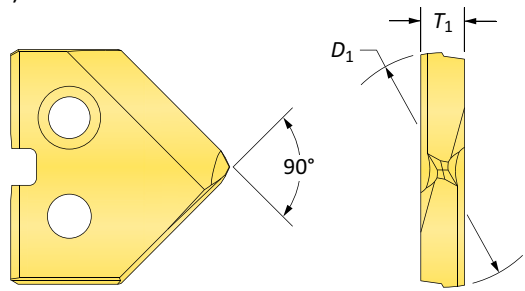
Inserts sold in quantities of 2

T-A® Original Drill Inserts

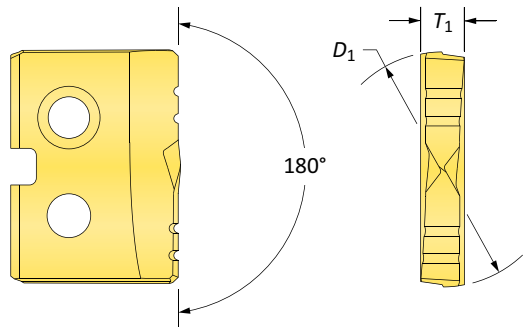
Y Series | HSS | Diameter Range: 9.5mm - 11.07mm (0.374" - 0.436")







90° Spot & Chamfer



Flat Bottom

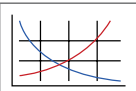


HSS Inserts – Super Cobalt


Insert				90° Spot & Chamfer Part No.			Flat Bottom Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm				
				TiN	TiAlN	TiCN	TiN
9.50	0.3740	–	2.38	15YT-9.5-SP	15YA-9.5-SP	15YN-9.5-SP	15YT-9.5-FB
9.53	0.3750	3/8		15YT-0012-SP	15YA-0012-SP	15YN-0012-SP	15YT-0012-FB
9.80	0.3860	W		15YT-.386-SP	15YA-.386-SP	15YN-.386-SP	15YT-.386-FB
9.92	0.3906	25/64		15YT-.390-SP	15YA-.390-SP	15YN-.390-SP	15YT-.390-FB
10.00	0.3937	–		15YT-10-SP	15YA-10-SP	15YN-10-SP	15YT-10-FB
10.20	0.4016	–		15YT-10.2-SP	15YA-10.2-SP	15YN-10.2-SP	15YT-10.2-FB
10.32	0.4063	13/32		15YT-0013-SP	15YA-0013-SP	15YN-0013-SP	15YT-0013-FB
10.50	0.4134	–		15YT-10.5-SP	15YA-10.5-SP	15YN-10.5-SP	15YT-10.5-FB
10.72	0.4219	27/64		15YT-.421-SP	15YA-.421-SP	15YN-.421-SP	15YT-.421-FB
10.80	0.4252	–		15YT-10.8-SP	15YA-10.8-SP	15YN-10.8-SP	15YT-10.8-FB
11.00	0.4331	–		15YT-11-SP	15YA-11-SP	15YN-11-SP	15YT-11-FB

Key on A30: 1

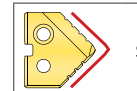
A30: 114 - 145



A30: 18 - 21

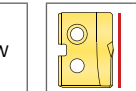


A30: 4 - 6




SW

A30: 4 - 6



FN

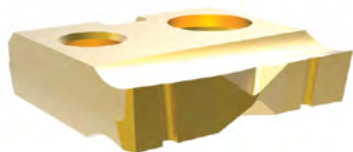
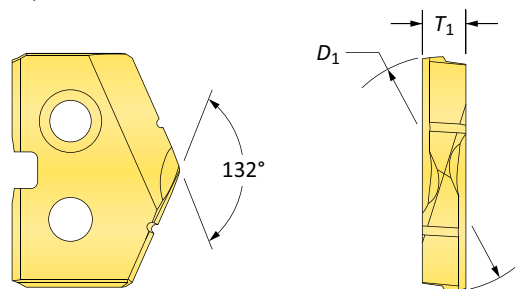
Coatings not listed above can be supplied as non-stocked standards. 

Inserts sold in quantities of 2

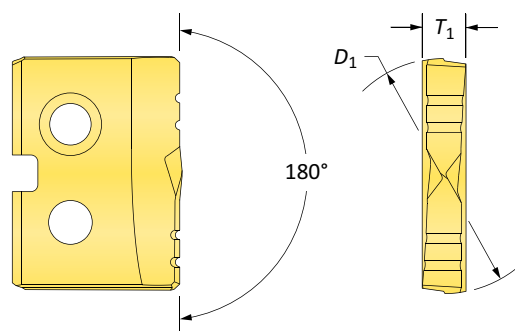
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts




Y Series | Carbide | Diameter Range: 9.5mm - 11.07mm (0.374" - 0.436")

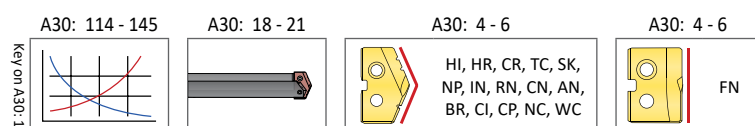


Flat Bottom



Carbide Inserts – K20 (C2)

Insert				Part No.		Flat Bottom Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN	 TiN
9.50	0.3740	–	2.38	1C2YT-9.5	1C2YA-9.5	1C2YT-9.5-FB
9.53	0.3750	3/8		1C2YT-0012	1C2YA-0012	1C2YT-0012-FB
9.80	0.3860	W		1C2YT-.386	1C2YA-.386	1C2YT-.386-FB
9.92	0.3906	25/64		1C2YT-.390	1C2YA-.390	1C2YT-.390-FB
10.00	0.3937	–		1C2YT-10	1C2YA-10	1C2YT-10-FB
10.20	0.4016	–		1C2YT-10.2	1C2YA-10.2	1C2YT-10.2-FB
10.32	0.4063	13/32		1C2YT-0013	1C2YA-0013	1C2YT-0013-FB
10.50	0.4134	–		1C2YT-10.5	1C2YA-10.5	1C2YT-10.5-FB
10.72	0.4219	27/64		1C2YT-.421	1C2YA-.421	1C2YT-.421-FB
10.80	0.4252	–		1C2YT-10.8	1C2YA-10.8	1C2YT-10.8-FB
11.00	0.4331	–		1C2YT-11	1C2YA-11	1C2YT-11-FB



Coatings not listed above can be supplied as non-stocked standards.

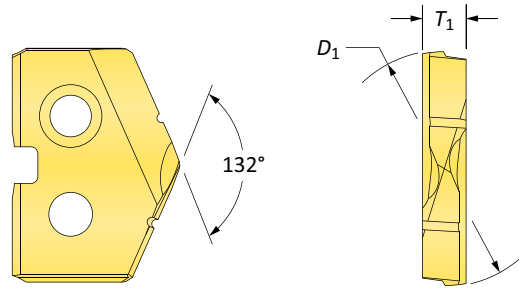
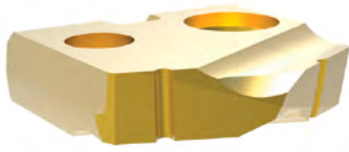


TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX





Inserts sold in quantities of 2

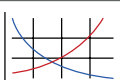
T-A® Original Drill Inserts


Y Series | Carbide | Diameter Range: 9.5mm - 11.07mm (0.374" - 0.436")




Carbide Inserts – P35 (C5) | K10 (C3) | N2

Insert				C5 Part No.		C3 Part No.	N2 Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN	 TiAlN (Cast Iron)	 Diamond Film
9.50	0.3740	–	2.38	1C5YT-9.5	1C5YA-9.5	1C3YA-9.5-CI	1N2YD-9.5
9.53	0.3750	3/8		1C5YT-0012	1C5YA-0012	1C3YA-0012-CI	1N2YD-0012
9.80	0.3860	W		1C5YT-.386	1C5YA-.386	1C3YA-.386-CI	1N2YD-.386
9.92	0.3906	25/64		1C5YT-.390	1C5YA-.390	1C3YA-.390-CI	1N2YD-.390
10.00	0.3937	–		1C5YT-10	1C5YA-10	1C3YA-10-CI	1N2YD-10
10.20	0.4016	–		1C5YT-10.2	1C5YA-10.2	1C3YA-10.2-CI	1N2YD-10.2
10.32	0.4063	13/32		1C5YT-0013	1C5YA-0013	1C3YA-0013-CI	1N2YD-0013
10.50	0.4134	–		1C5YT-10.5	1C5YA-10.5	1C3YA-10.5-CI	1N2YD-10.5
10.72	0.4219	27/64		1C5YT-.421	1C5YA-.421	1C3YA-.421-CI	1N2YD-.421
10.80	0.4252	–		1C5YT-10.8	1C5YA-10.8	1C3YA-10.8-CI	1N2YD-10.8
11.00	0.4331	–		1C5YT-11	1C5YA-11	1C3YA-11-CI	1N2YD-11

A30: 114 - 145 

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.



Inserts sold in quantities of 2

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

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

Y

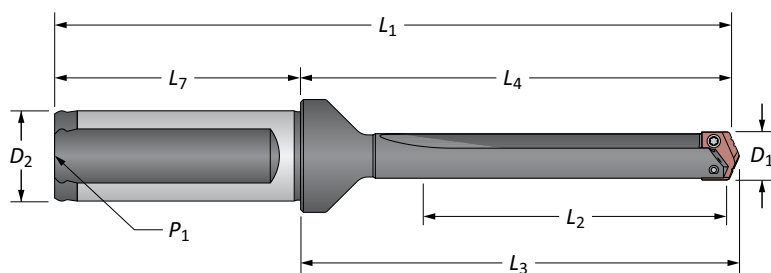
 DRILLING | T-A® Replaceable Insert Drilling System

T-A® Drill Insert Holders

Y Series | Flanged Shank

A

DRILLING

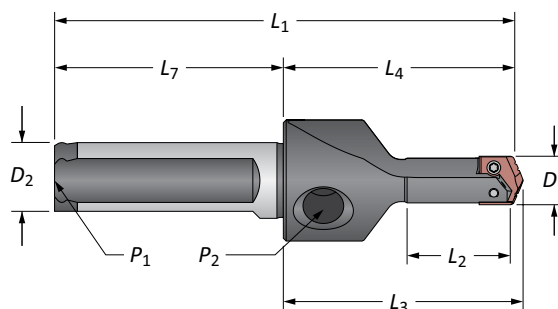



B

BORING



Stub Length



C

REAMING

Straight Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Stub	9.5 - 11.0	19.1	47.6	50.0	95.6	16.0	48.0	1/16*	210Y0S-16FM
	Short	9.5 - 11.0	31.8	61.1	63.5	111.1	20.0	50.0	1/8*	220Y0S-20FM
	XL	9.5 - 11.0	222	251.7	254.1	301.7	20.0	50.0	1/8*	▲ 270Y0S-20FM
	3XL	9.5 - 11.0	290	319.9	322.3	369.9	20.0	50.0	1/8*	▲ 290Y0S-20FM
i	Stub	3/8 - 27/64	3/4	1-7/8	1-31/32	3-3/4	5/8	1-7/8	1/16	210Y0S-063F
	Short	3/8 - 27/64	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8	220Y0S-075F
	Standard	3/8 - 27/64	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	240Y0S-075F
	Extended	3/8 - 27/64	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	▲ 250Y0S-075F

*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/8" side pipe tap (P₂)

D

BURNISHING

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	84 N-cm (7.4 in-lbs)

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

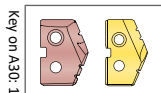
E

THREADING

X

SPECIALS

A30: 12 - 17



m = Metric (mm)

i = Imperial (in)

Screws sold in quantities of 10

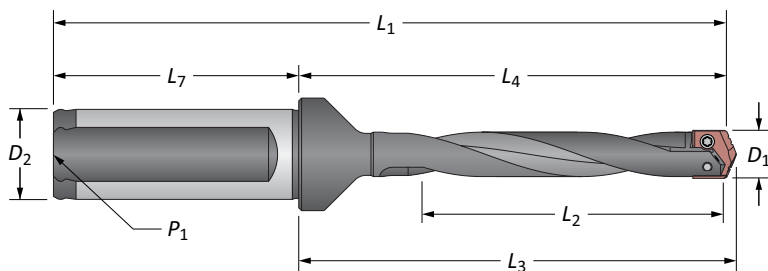
1. WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

A30: 18

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T-A® Drill Insert Holders

Y Series | Flanged Shank








Helical Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Standard	9.5 - 11.0	60.3	89.7	92.1	139.7	20.0	50.0	1/8*	240Y0H-20FM
	Standard Plus	9.5 - 11.0	86.0	115.4	117.8	165.4	20.0	50.0	1/8*	⚠ 245Y0H-20FM
	Extended	9.5 - 11.0	111.1	140.5	142.9	190.5	20.0	50.0	1/8*	⚠ 250Y0H-20FM
i	Standard	3/8 - 27/64	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	240Y0H-075F
	Standard Plus	3/8 - 27/64	3-3/8	4-35/64	4-41/64	6-43/64	3/4	2-1/32	1/8	⚠ 245Y0H-075F
	Extended	3/8 - 27/64	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	⚠ 250Y0H-075F

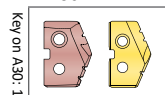
*Metric thread to BSP and ISO 7-1

Connection Accessories

					Admissible Tightening Torque* 84 N-cm (7.4 in-lbs)
724-IP7-1	724N-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

A30: 12 - 17



m = Metric (mm)

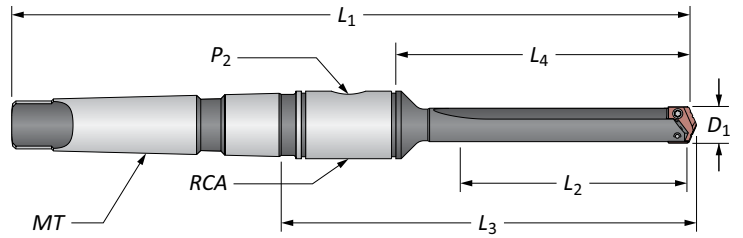
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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

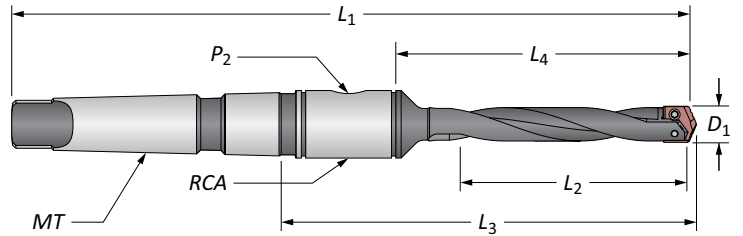


Straight Flute

Length	D ₁	Body				Shank			Part No.	
		L ₂	L ₄	L ₃	L ₁	MT	P ₂	RCA		
m Short	9.5 - 11.0	31.8	51.5	88.0	160.3	#2**	1/16*	2T-2SRM	220Y0S-002M	
i	Short	3/8 - 27/64	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	2T-2SR	220Y0S-002I
	Standard	3/8 - 27/64	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	2T-2SR	240Y0S-002I
	Extended	3/8 - 27/64	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	2T-2SR	250Y0S-002I

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Helical Flute

Length	D ₁	Body				Shank			Part No.	
		L ₂	L ₄	L ₃	L ₁	MT	P ₂	RCA		
m Standard	9.5 - 11.0	60.3	80.2	116.7	188.9	#2**	1/16*	2T-2SRM	240Y0H-002M	
Extended	9.5 - 11.0	111.1	130.9	167.4	239.7	#2**	1/16*	2T-2SRM	250Y0H-002M	
i	Standard	3/8 - 27/64	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	2T-2SR	240Y0H-002I
	Extended	3/8 - 27/64	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	2T-2SR	250Y0H-002I

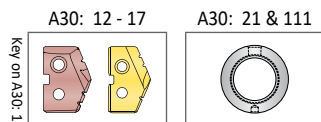
*Metric thread to BSP and ISO 7-1

**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	84 N-cm (7.4 in-lbs)

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



m = Metric (mm)

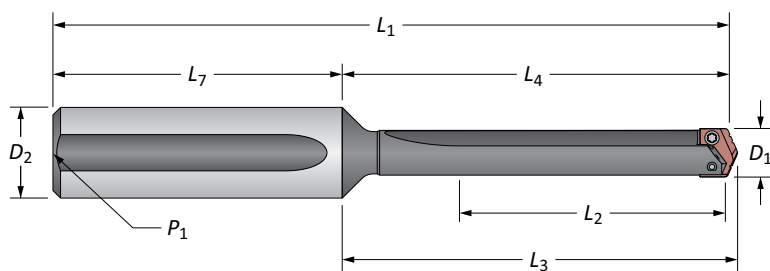
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

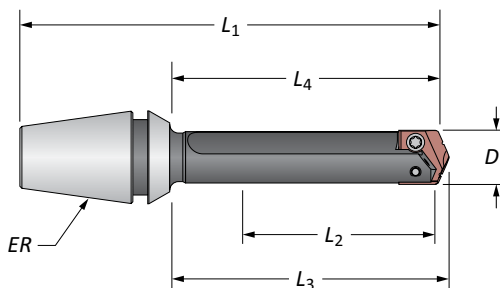
T-A® Drill Insert Holders

Y Series | Straight Shank | ER Collet



Straight Flute

Length	D ₁	Body				Shank			Part No.
		L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Short	3/8 - 27/64	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8	220Y0S-075L
Standard	3/8 - 27/64	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8	240Y0S-075L
Extended	3/8 - 27/64	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8	250Y0S-075L
XL	3/8 - 27/64	8-3/4	9-17/32	9-5/8	11-29/32	3/4	2-3/8	1/8	270Y0S-075L
3XL	3/8 - 27/64	11-7/16	12-7/32	12-5/16	14-19/32	3/4	2-3/8	1/8	290Y0S-075L



ER Collet Holder

D ₁	L ₂	L ₄	L ₃	L ₁	ER	Part No.	Collet Nut without Retaining Ring
3/8 - 27/64	1-3/8	1-29/32	2	3-5/64	ER-16	210Y0S-16ER	ER-16N
3/8 - 27/64	1-3/8	1-29/32	2	3-15/64	ER-20	210Y0S-20ER	ER-20N

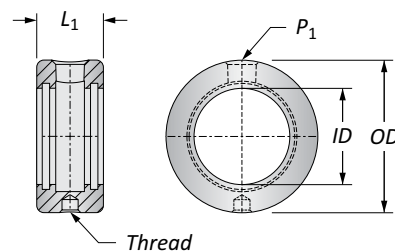
T-A® Drill Accessories

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
19.05	44.45	22.23	M8 x 1.25	1/8*	2T-2SRM	2T1-2SR	2T1-2OR-10
3/4	1-3/4	7/8	5/16-18	1/8	2T-2SR	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: 111 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	84 N-cm (7.4 in-lbs)

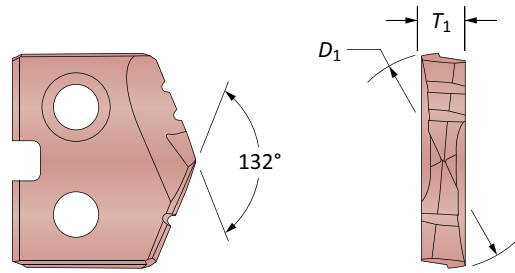
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.




Ⓜ = Metric (mm)
 ⓘ = Imperial (in)
 Screws sold in packs of 10
 O-rings sold in packs of 10

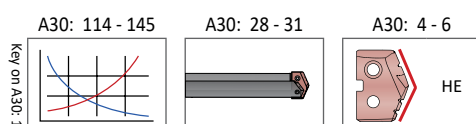
GEN2 T-A® Drill Inserts

Z Series | Diameter Range: 11.10mm - 12.95mm (0.437" - 0.510")



HSS Inserts – Super Cobalt • Carbide Inserts – K20 (C2) | K35 (C1)

Insert				HSS Part No.	Carbide Part No.	
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 Super Cobalt	 K20 (C2)	 K35 (C1)
11.11	0.4375	7/16	2.38	45ZH-0014	4C2ZH-0014	4C1ZH-0014
11.46	0.4510	–		45ZH-.451	4C2ZH-.451	4C1ZH-.451
11.50	0.4528	–		45ZH-11.5	4C2ZH-11.5	4C1ZH-11.5
11.51	0.4531	29/64		45ZH-.453	4C2ZH-.453	4C1ZH-.453
11.91	0.4688	15/32		45ZH-0015	4C2ZH-0015	4C1ZH-0015
12.00	0.4724	–		45ZH-12	4C2ZH-12	4C1ZH-12
12.30	0.4844	31/64		45ZH-.484	4C2ZH-.484	4C1ZH-.484
12.50	0.4921	–		45ZH-12.5	4C2ZH-12.5	4C1ZH-12.5
12.70	0.5000	1/2		45ZH-0016	4C2ZH-0016	4C1ZH-0016
12.85	0.5060	–		45ZH-.506	4C2ZH-.506	4C1ZH-.506
12.95	0.5100	–		45ZH-.510	4C2ZH-.510	4C1ZH-.510



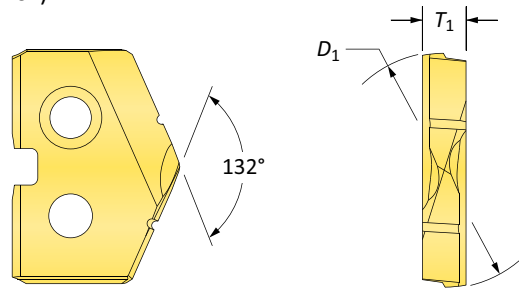
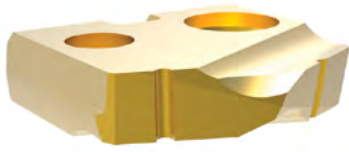
Coatings not listed above can be supplied as non-stocked standards.






Inserts sold in quantities of 2	
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

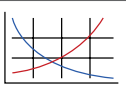
T-A® Original Drill Inserts


Z Series | HSS | Diameter Range: 11.10mm - 12.95mm (0.437" - 0.510")




HSS Inserts – Premium Cobalt

Insert				Part No.		
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN	 TiCN
11.11	0.4375	7/16	2.38	18ZT-0014	18ZA-0014	18ZN-0014
11.46	0.4510	–		18ZT-.451	18ZA-.451	18ZN-.451
11.50	0.4528	–		18ZT-11.5	18ZA-11.5	18ZN-11.5
11.51	0.4531	29/64		18ZT-.453	18ZA-.453	18ZN-.453
11.91	0.4688	15/32		18ZT-0015	18ZA-0015	18ZN-0015
12.00	0.4724	–		18ZT-12	18ZA-12	18ZN-12
12.30	0.4844	31/64		18ZT-.484	18ZA-.484	18ZN-.484
12.50	0.4921	–		18ZT-12.5	18ZA-12.5	18ZN-12.5
12.70	0.5000	1/2		18ZT-0016	18ZA-0016	18ZN-0016
12.85	0.5060	–		18ZT-.506	18ZA-.506	18ZN-.506
12.95	0.5100	–		18ZT-.510	18ZA-.510	18ZN-.510

A30: 114 - 145


A30: 28 - 31


A30: 4 - 6
 HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC

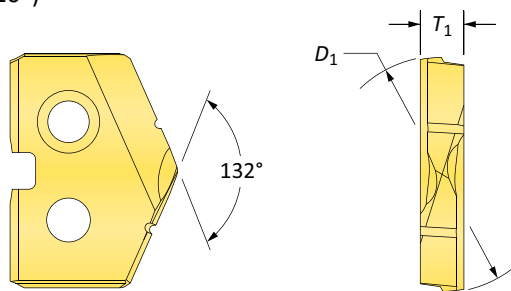
Coatings not listed above can be supplied as non-stocked standards.

Inserts sold in quantities of 2




TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

Z Series | HSS | Diameter Range: 11.10mm - 12.95mm (0.437" - 0.510")

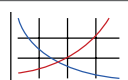


HSS Inserts – Super Cobalt


Insert				Part No.		
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN	 TiCN
11.11	0.4375	7/16	2.38	15ZT-0014	15ZA-0014	15ZN-0014
11.46	0.4510	–		15ZT-.451	15ZA-.451	15ZN-.451
11.50	0.4528	–		15ZT-11.5	15ZA-11.5	15ZN-11.5
11.51	0.4531	29/64		15ZT-.453	15ZA-.453	15ZN-.453
11.91	0.4688	15/32		15ZT-0015	15ZA-0015	15ZN-0015
12.00	0.4724	–		15ZT-12	15ZA-12	15ZN-12
12.30	0.4844	31/64		15ZT-.484	15ZA-.484	15ZN-.484
12.50	0.4921	–		15ZT-12.5	15ZA-12.5	15ZN-12.5
12.70	0.5000	1/2		15ZT-0016	15ZA-0016	15ZN-0016
12.85	0.5060	–		15ZT-.506	15ZA-.506	15ZN-.506
12.95	0.5100	–		15ZT-.510	15ZA-.510	15ZN-.510

Key on A30: 1


A30: 114 - 145



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.

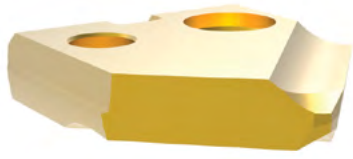


Inserts sold in quantities of 2

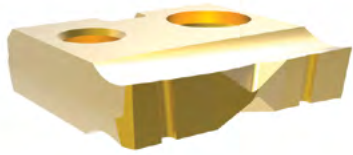
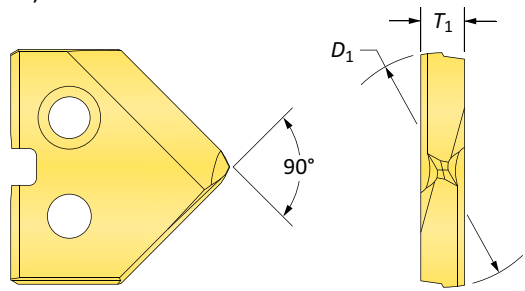
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

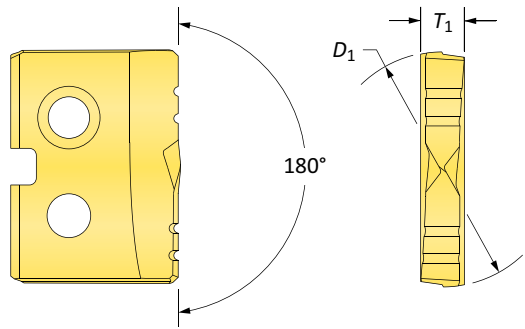
Z Series | HSS | Diameter Range: 11.10mm - 12.95mm (0.437" - 0.510")







90° Spot & Chamfer

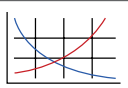
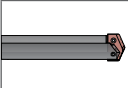
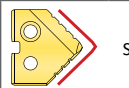




Flat Bottom



HSS Inserts – Super Cobalt

Insert				90° Spot & Chamfer Part No.			Flat Bottom Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN	 TiCN	 TiN
11.11	0.4375	7/16	2.38	15ZT-0014-SP	15ZA-0014-SP	15ZN-0014-SP	15ZT-0014-FB
11.46	0.4510	-		15ZT-.451-SP	15ZA-.451-SP	15ZN-.451-SP	15ZT-.451-FB
11.50	0.4528	-		15ZT-11.5-SP	15ZA-11.5-SP	15ZN-11.5-SP	15ZT-11.5-FB
11.51	0.4531	29/64		15ZT-.453-SP	15ZA-.453-SP	15ZN-.453-SP	15ZT-.453-FB
11.91	0.4688	15/32		15ZT-0015-SP	15ZA-0015-SP	15ZN-0015-SP	15ZT-0015-FB
12.00	0.4724	-		15ZT-12-SP	15ZA-12-SP	15ZN-12-SP	15ZT-12-FB
12.30	0.4844	31/64		15ZT-.484-SP	15ZA-.484-SP	15ZN-.484-SP	15ZT-.484-FB
12.50	0.4921	-		15ZT-12.5-SP	15ZA-12.5-SP	15ZN-12.5-SP	15ZT-12.5-FB
12.70	0.5000	1/2		15ZT-0016-SP	15ZA-0016-SP	15ZN-0016-SP	15ZT-0016-FB
12.85	0.5060	-		15ZT-.506-SP	15ZA-.506-SP	15ZN-.506-SP	15ZT-.506-FB
12.95	0.5100	-		15ZT-.510-SP	15ZA-.510-SP	15ZN-.510-SP	15ZT-.510-FB

A30: 114 - 145  A30: 28 - 31  A30: 4 - 6  SW A30: 4 - 6  FN

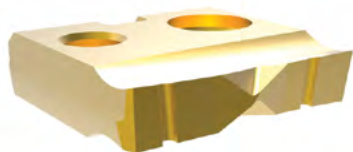
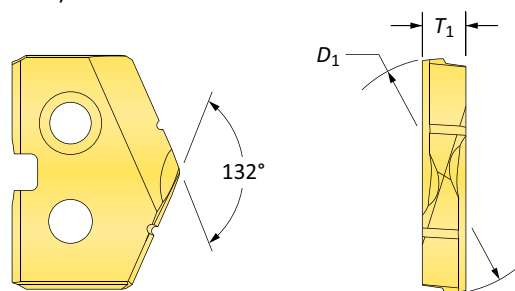
Coatings not listed above can be supplied as non-stocked standards. 

Inserts sold in quantities of 2

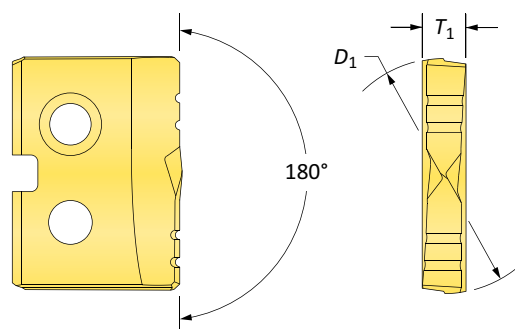
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts




Z Series | Carbide | Diameter Range: 11.10mm - 12.95mm (0.437" - 0.510")



Flat Bottom

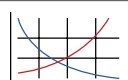


Carbide Inserts – K20 (C2)


Insert				Part No.		Flat Bottom Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN	 TiN
11.11	0.4375	7/16	2.38	1C2ZT-0014	1C2ZA-0014	1C2ZT-0014-FB
11.46	0.4510	–		1C2ZT-.451	1C2ZA-.451	1C2ZT-.451-FB
11.50	0.4528	–		1C2ZT-11.5	1C2ZA-11.5	1C2ZT-11.5-FB
11.51	0.4531	29/64		1C2ZT-.453	1C2ZA-.453	1C2ZT-.453-FB
11.91	0.4688	15/32		1C2ZT-0015	1C2ZA-0015	1C2ZT-0015-FB
12.00	0.4724	–		1C2ZT-12	1C2ZA-12	1C2ZT-12-FB
12.30	0.4844	31/64		1C2ZT-.484	1C2ZA-.484	1C2ZT-.484-FB
12.50	0.4921	–		1C2ZT-12.5	1C2ZA-12.5	1C2ZT-12.5-FB
12.70	0.5000	1/2		1C2ZT-0016	1C2ZA-0016	1C2ZT-0016-FB
12.85	0.5060	–		1C2ZT-.506	1C2ZA-.506	1C2ZT-.506-FB
12.95	0.5100	–		1C2ZT-.510	1C2ZA-.510	1C2ZT-.510-FB

Key on A30:1


A30: 114 - 145



A30: 28 - 31

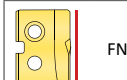


A30: 4 - 6



HI, HR, CR, TC, SK,
NP, IN, RN, CN, AN,
BR, CI, CP, NC, WC

A30: 4 - 6



FN

Coatings not listed above can be supplied as non-stocked standards.

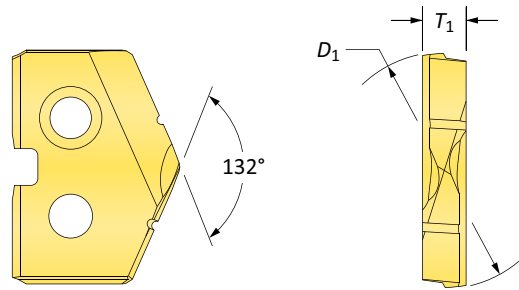
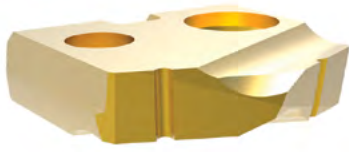


TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX





Inserts sold in quantities of 2

T-A® Original Drill Inserts

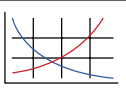
Z Series | Carbide | Diameter Range: 11.10mm - 12.95mm (0.437" - 0.510")




Carbide Inserts – P35 (C5) | K10 (C3) | N2

Insert				C5 Part No.		C3 Part No.	N2 Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN	 TiAlN (Cast Iron)	 Diamond Film
11.11	0.4375	7/16	2.38	1C5ZT-0014	1C5ZA-0014	1C3ZA-0014-CI	1N2ZD-0014
11.46	0.4510	–		1C5ZT-.451	1C5ZA-.451	1C3ZA-.451-CI	1N2ZD-.451
11.50	0.4528	–		1C5ZT-11.5	1C5ZA-11.5	1C3ZA-11.5-CI	1N2ZD-11.5
11.51	0.4531	29/64		1C5ZT-.453	1C5ZA-.453	1C3ZA-.453-CI	1N2ZD-.453
11.91	0.4688	15/32		1C5ZT-0015	1C5ZA-0015	1C3ZA-0015-CI	1N2ZD-0015
12.00	0.4724	–		1C5ZT-12	1C5ZA-12	1C3ZA-12-CI	1N2ZD-12
12.30	0.4844	31/64		1C5ZT-.484	1C5ZA-.484	1C3ZA-.484-CI	1N2ZD-.484
12.50	0.4921	–		1C5ZT-12.5	1C5ZA-12.5	1C3ZA-12.5-CI	1N2ZD-12.5
12.70	0.5000	1/2		1C5ZT-0016	1C5ZA-0016	1C3ZA-0016-CI	1N2ZD-0016
12.85	0.5060	–		1C5ZT-.506	1C5ZA-.506	1C3ZA-.506-CI	1N2ZD-.506
12.95	0.5100	–		1C5ZT-.510	1C5ZA-.510	1C3ZA-.510-CI	1N2ZD-.510


A30: 114 - 145



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.

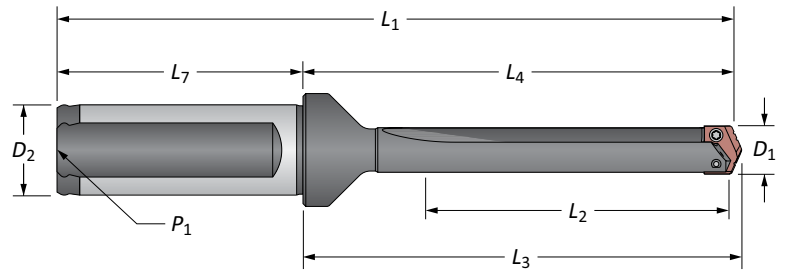
Inserts sold in quantities of 2

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

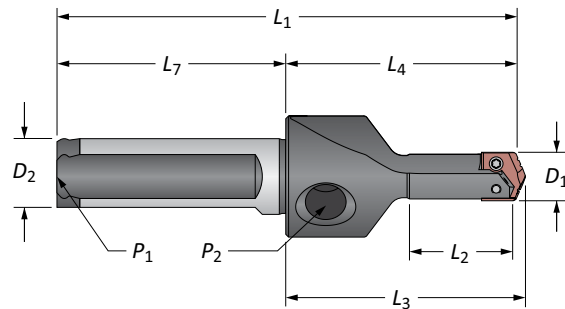
Z
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Drill Insert Holders

Z Series | Flanged Shank



Stub Length



Straight Flute

	Length	Body					Shank			Part No.
		D_1	L_2	L_4	L_3	L_1	D_2	L_7	P_1	
m	Stub	11.5 - 12.5	19.1	47.6	50.0	95.6	16.0	48.0	1/16*	210Z0S-16FM
	Short	11.5 - 12.5	31.8	61.1	63.5	111.1	20.0	50.0	1/8*	220Z0S-20FM
	XL	11.5 - 12.5	222.3	251.7	254.1	301.7	20.0	50.0	1/8*	270Z0S-20FM
	3XL	11.5 - 12.5	290.5	319.9	322.3	369.9	20.0	50.0	1/8*	290Z0S-20FM
i	Stub	7/16 - 1/2	3/4	1-7/8	1-31/32	3-3/4	5/8	1-7/8	1/16	210Z0S-063F
	Short	7/16 - 1/2	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8	220Z0S-075F
	Standard	7/16 - 1/2	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	240Z0S-075F
	Extended	7/16 - 1/2	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	250Z0S-075F

*Metric thread to BSP and ISO 7-1

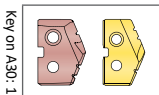
NOTE: Stub length holders have a 1/8" side pipe tap (P_2)

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	84 N-cm (7.4 in-lbs)

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

A30: 22 - 27



m = Metric (mm)

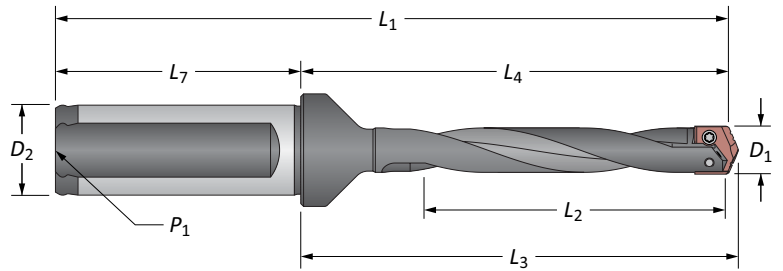
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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 | Flanged Shank



Helical Flute

	Length	D ₁	Body			Shank			Part No.	
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇		P ₁
m	Standard	11.5 - 12.5	60.3	89.7	92.1	139.7	20.0	50.0	1/8*	240Z0H-20FM
	Standard Plus	11.5 - 12.8	86.0	115.4	117.8	165.4	20.0	50.0	1/8*	245Z0H-20FM
	Extended	11.5 - 12.5	111.1	140.5	142.9	190.5	20.0	50.0	1/8*	⚠ 250Z0H-20FM
	Long	11.5 - 12.8	180.0	209.4	211.8	259.4	20.0	50.0	1/8*	⚠ 260Z0H-20FM
i	Standard	7/16 - 1/2	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	240Z0H-075F
	Standard Plus	7/16 - 1/2	3-3/8	4-35/64	4-41/64	6-43/64	3/4	2-1/32	1/8	245Z0H-075F
	Extended	7/16 - 1/2	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	⚠ 250Z0H-075F
	Long	7/16 - 1/2	7-1/16	8-1/4	8-11/32	10-3/8	3/4	2-1/32	1/8	⚠ 260Z0H-075F

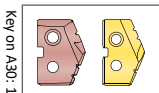
*Metric thread to BSP and ISO 7-1

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	84 N-cm (7.4 in-lbs)

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

A30: 22 - 27



m = Metric (mm)

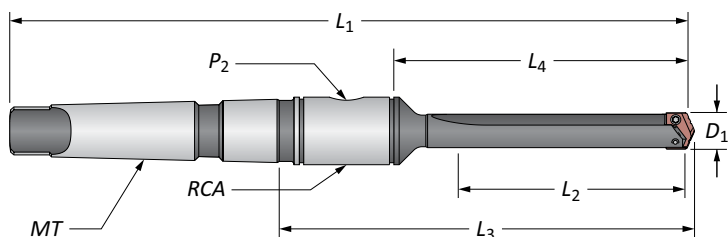
i = Imperial (in)

Screws sold in quantities of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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

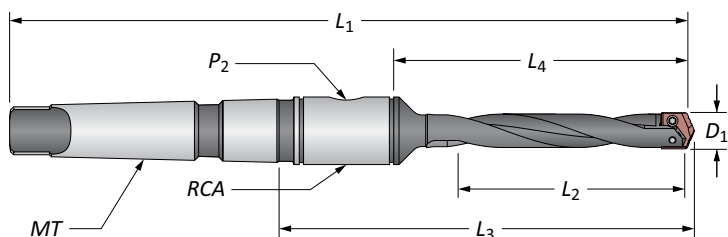


Straight Flute

	Length	D_1	Body				Shank			Part No.
			L_2	L_4	L_3	L_1	MT	P_2	RCA	
m	Short	11.5 - 12.5	31.8	51.5	88.0	160.3	#2**	1/16*	2T-2SRM	220Z0S-002M
i	Short	7/16 - 1/2	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	2T-2SR	220Z0S-002I
	Standard	7/16 - 1/2	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	2T-2SR	240Z0S-002I
	Extended	7/16 - 1/2	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	2T-2SR	250Z0S-002I

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Helical Flute

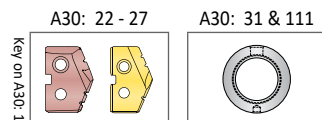
	Length	D_1	Body				Shank			Part No.
			L_2	L_4	L_3	L_1	MT	P_2	RCA	
m	Standard	11.5 - 12.5	60.3	80.2	116.7	188.9	#2**	1/16*	2T-2SRM	240Z0H-002M
	Extended	11.5 - 12.5	111.1	130.9	167.4	239.7	#2**	1/16*	2T-2SRM	250Z0H-002M
i	Standard	7/16 - 1/2	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	2T-2SR	240Z0H-002I
	Extended	7/16 - 1/2	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	2T-2SR	250Z0H-002I

*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	84 N-cm (7.4 in-lbs)

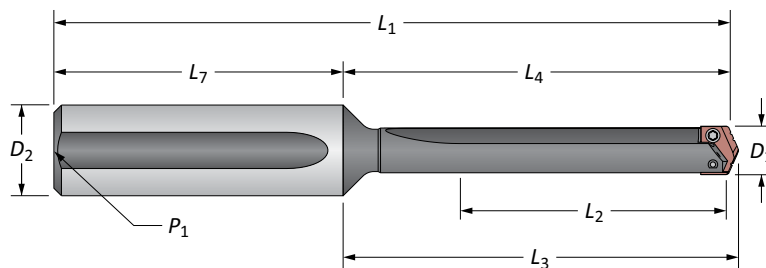
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength**m** = Metric (mm)**i** = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

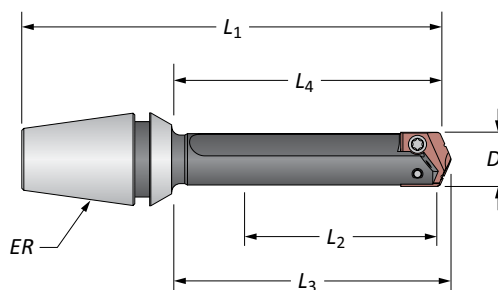
T-A® Drill Insert Holders

Z Series | Straight Shank | ER Collet



Straight Flute

Length	D ₁	Body				Shank			Part No.
		L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Short	7/16 - 1/2	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8	220Z0S-075L
Standard	7/16 - 1/2	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8	240Z0S-075L
Extended	7/16 - 1/2	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8	250Z0S-075L
XL	7/16 - 1/2	8-3/4	9-17/32	9-5/8	11-29/32	3/4	2-3/8	1/8	270Z0S-075L
3XL	7/16 - 1/2	11-7/16	12-7/32	12-5/16	14-19/32	3/4	2-3/8	1/8	290Z0S-075L



ER Collet Holder

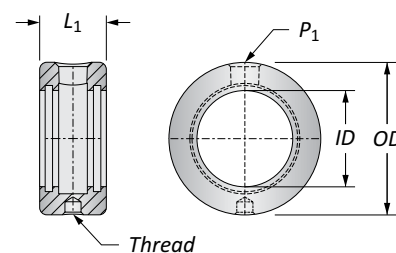
D ₁	Body				ER	Part No.	Collet Nut without Retaining Ring
	L ₂	L ₄	L ₃	L ₁			
7/16 - 1/2	1-3/8	1-29/32	2	3-5/64	ER-16	210Z0S-16ER	ER-16N
7/16 - 1/2	1-3/8	1-29/32	2	3-15/64	ER-20	210Z0S-20ER	ER-20N

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
19.05	44.45	22.23	M8 x 1.25	1/8*	2T-2SRM	2T1-2SR	2T1-2OR-10
3/4	1-3/4	7/8	5/16-18	1/8	2T-2SR	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: 111 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	84 N-cm (7.4 in-lbs)

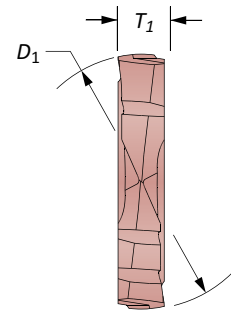
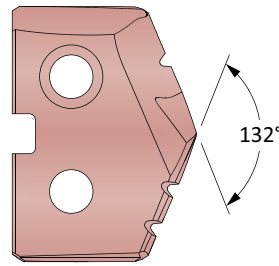
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.




Ⓜ = Metric (mm)
 ⓘ = Imperial (in)
 Screws sold in packs of 10
 O-rings sold in packs of 10

GEN2 T-A® Drill Inserts

0 Series | Diameter Range: 12.98mm - 17.65mm (0.511" - 0.695")

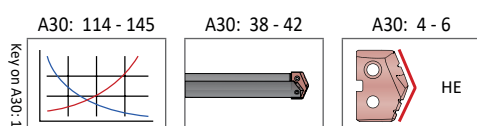


HSS Inserts – Super Cobalt • Carbide Inserts – K20 (C2) | K35 (C1)

Series	Insert				HSS Part No.		
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁ mm	Super Cobalt	K20 (C2)	K35 (C1)
0	13.00	0.5118	–	3.18			
	13.10	0.5156	33/64		450H-13	4C20H-13	4C10H-13
	13.49	0.5313	17/32		450H-.515	4C20H-.515	4C10H-.515
	13.50	0.5315	–		450H-0017	4C20H-0017	4C10H-0017
	13.89	0.5469	35/64		450H-13.5	4C20H-13.5	4C10H-13.5
	14.00	0.5512	–		450H-.546	4C20H-.546	4C10H-.546
	14.29	0.5625	9/16		450H-14	4C20H-14	4C10H-14
	14.50	0.5709	–		450H-0018	4C20H-0018	4C10H-0018
	14.68	0.5781	37/64		450H-14.5	4C20H-14.5	4C10H-14.5
	15.00	0.5906	–		450H-.578	4C20H-.578	4C10H-.578
0.5	15.08	0.5938	19/32	3.18	450H-15	4C20H-15	4C10H-15
	15.48	0.6094	39/64		450H-0019	4C20H-0019	4C10H-0019
	15.50	0.6102	–		450H-.609	4C20H-.609	4C10H-.609
	15.88	0.6250	5/8		450H-15.5	4C20H-15.5	4C10H-15.5
	16.00	0.6299	–		450H-0020	4C20H-0020	4C10H-0020
	16.27	0.6406	41/64		450H-16	4C20H-16	4C10H-16
	16.50	0.6496	–		450H-.640	4C20H-.640	4C10H-.640
	16.67	0.6563	21/32		450H-16.5	4C20H-16.5	4C10H-16.5
	17.00	0.6693	–		450H-0021	4C20H-0021	4C10H-0021
	17.07	0.6719	43/64		450H-17	4C20H-17	4C10H-17
0.5	17.46	0.6875	11/16	3.18	450H-.671	4C20H-.671	4C10H-.671
	17.50	0.6890	–		450H-0022	4C20H-0022	4C10H-0022
					450H-17.5	4C20H-17.5	4C10H-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

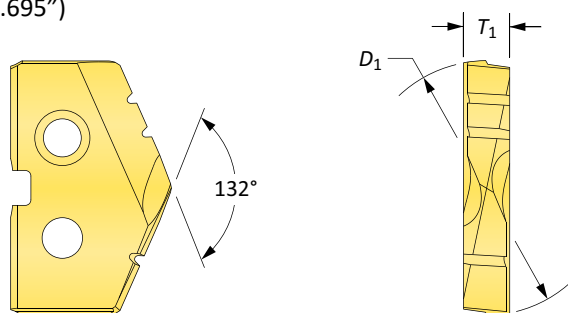


Coatings not listed above can be supplied as non-stocked standards.




TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

0 Series | HSS | Diameter Range: 12.98mm - 17.65mm (0.511" - 0.695")



HSS Inserts – Premium Cobalt

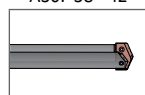
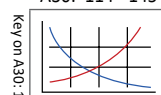
Series	Insert				Part No.		
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁ mm	 TiN	 TiAlN	 TiCN
0	13.00	0.5118	–	3.18	180T-13	180A-13	180N-13
	13.10	0.5156	33/64		180T-.515	180A-.515	180N-.515
	13.49	0.5313	17/32		180T-0017	180A-0017	180N-0017
	13.50	0.5315	–		180T-13.5	180A-13.5	180N-13.5
	13.89	0.5469	35/64		180T-.546	180A-.546	180N-.546
	14.00	0.5512	–		180T-14	180A-14	180N-14
	14.29	0.5625	9/16		180T-0018	180A-0018	180N-0018
	14.50	0.5709	–		180T-14.5	180A-14.5	180N-14.5
	14.68	0.5781	37/64		180T-.578	180A-.578	180N-.578
	15.00	0.5906	–		180T-15	180A-15	180N-15
15.08	0.5938	19/32	180T-0019	180A-0019	180N-0019		
0.5	15.48	0.6094	39/64	3.18	180T-.609	180A-.609	180N-.609
	15.50	0.6102	–		180T-15.5	180A-15.5	180N-15.5
	15.88	0.6250	5/8		180T-0020	180A-0020	180N-0020
	16.00	0.6299	–		180T-16	180A-16	180N-16
	16.27	0.6406	41/64		180T-.640	180A-.640	180N-.640
	16.50	0.6496	–		180T-16.5	180A-16.5	180N-16.5
	16.67	0.6563	21/32		180T-0021	180A-0021	180N-0021
	17.00	0.6693	–		180T-17	180A-17	180N-17
	17.07	0.6719	43/64		180T-.671	180A-.671	180N-.671
	17.46	0.6875	11/16		180T-0022	180A-0022	180N-0022
17.50	0.6890	–	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: 114 - 145

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.

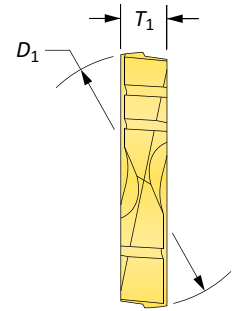
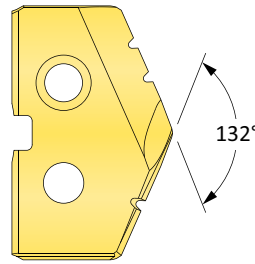
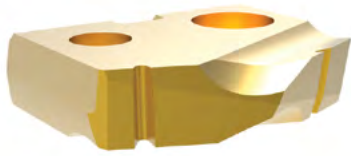


TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

Inserts sold in quantities of 2

T-A® Original Drill Inserts

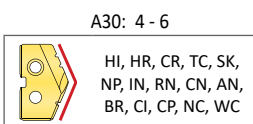
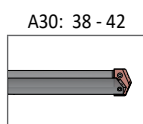
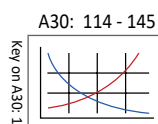
0 Series | HSS | Diameter Range: 12.98mm - 17.65mm (0.511" - 0.695")



HSS Inserts – Super Cobalt

Series	Insert			T ₁ mm	Part No.		
	D ₁ mm	D ₁ inch	Fractional Equivalent		TiN	TiAlN	TiCN
0	13.00	0.5118	-	3.18	150T-13	150A-13	150N-13
	13.10	0.5156	33/64		150T-.515	150A-.515	150N-.515
	13.49	0.5313	17/32		150T-0017	150A-0017	150N-0017
	13.50	0.5315	-		150T-13.5	150A-13.5	150N-13.5
	13.89	0.5469	35/64		150T-.546	150A-.546	150N-.546
	14.00	0.5512	-		150T-14	150A-14	150N-14
	14.29	0.5625	9/16		150T-0018	150A-0018	150N-0018
	14.50	0.5709	-		150T-14.5	150A-14.5	150N-14.5
	14.68	0.5781	37/64		150T-.578	150A-.578	150N-.578
	15.00	0.5906	-		150T-15	150A-15	150N-15
0.5	15.08	0.5938	19/32	3.18	150T-0019	150A-0019	150N-0019
	15.48	0.6094	39/64		150T-.609	150A-.609	150N-.609
	15.50	0.6102	-		150T-15.5	150A-15.5	150N-15.5
	15.88	0.6250	5/8		150T-0020	150A-0020	150N-0020
	16.00	0.6299	-		150T-16	150A-16	150N-16
	16.27	0.6406	41/64		150T-.640	150A-.640	150N-.640
	16.50	0.6496	-		150T-16.5	150A-16.5	150N-16.5
	16.67	0.6563	21/32		150T-0021	150A-0021	150N-0021
	17.00	0.6693	-		150T-17	150A-17	150N-17
	17.07	0.6719	43/64		150T-.671	150A-.671	150N-.671
	17.46	0.6875	11/16		150T-0022	150A-0022	150N-0022
	17.50	0.6890	-		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.



Coatings not listed above can be supplied as non-stocked standards.



Inserts sold in quantities of 2

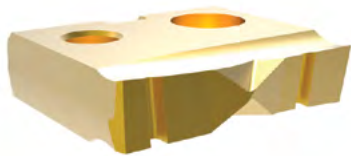
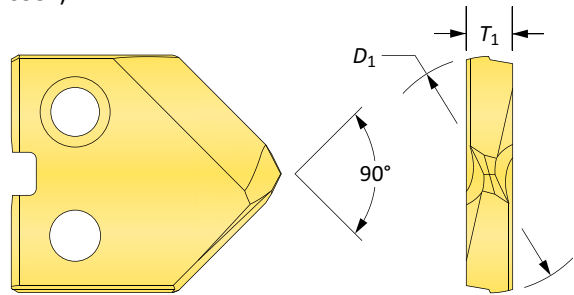
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

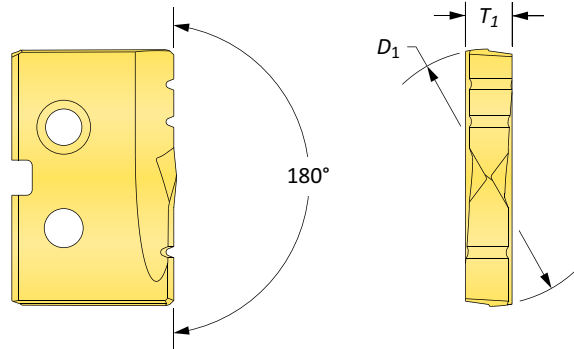
0 Series | HSS | Diameter Range: 12.98mm - 17.65mm (0.511" - 0.695")







90° Spot & Chamfer



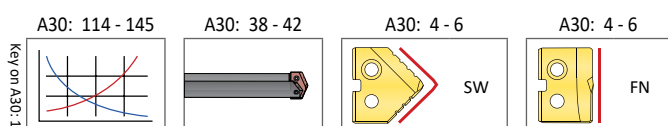
Flat Bottom



HSS Inserts – Super Cobalt

Series	Insert				90° Spot & Chamfer Part No.			Flat Bottom Part No.
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁ mm	 TiN	 TiAlN	 TiCN	 TiN
0	13.00	0.5118	–	3.18	150T-13-SP	150A-13-SP	150N-13-SP	150T-13-FB
	13.10	0.5156	33/64		150T-.515-SP	150A-.515-SP	150N-.515-SP	150T-.515-FB
	13.49	0.5313	17/32		150T-0017-SP	150A-0017-SP	150N-0017-SP	150T-0017-FB
	13.50	0.5315	–		150T-13.5-SP	150A-13.5-SP	150N-13.5-SP	150T-13.5-FB
	13.89	0.5469	35/64		150T-.546-SP	150A-.546-SP	150N-.546-SP	150T-.546-FB
	14.00	0.5512	–		150T-14-SP	150A-14-SP	150N-14-SP	150T-14-FB
	14.29	0.5625	9/16		150T-0018-SP	150A-0018-SP	150N-0018-SP	150T-0018-FB
	14.50	0.5709	–		150T-14.5-SP	150A-14.5-SP	150N-14.5-SP	150T-14.5-FB
	14.68	0.5781	37/64		150T-.578-SP	150A-.578-SP	150N-.578-SP	150T-.578-FB
	15.00	0.5906	–		150T-15-SP	150A-15-SP	150N-15-SP	150T-15-FB
0.5	15.08	0.5938	19/32	3.18	150T-0019-SP	150A-0019-SP	150N-0019-SP	150T-0019-FB
	15.48	0.6094	39/64		150T-.609-SP	150A-.609-SP	150N-.609-SP	150T-.609-FB
	15.50	0.6102	–		150T-15.5-SP	150A-15.5-SP	150N-15.5-SP	150T-15.5-FB
	15.88	0.6250	5/8		150T-0020-SP	150A-0020-SP	150N-0020-SP	150T-0020-FB
	16.00	0.6299	–		150T-16-SP	150A-16-SP	150N-16-SP	150T-16-FB
	16.27	0.6406	41/64		150T-.640-SP	150A-.640-SP	150N-.640-SP	150T-.640-FB
	16.50	0.6496	–		150T-16.5-SP	150A-16.5-SP	150N-16.5-SP	150T-16.5-FB
	16.67	0.6563	21/32		150T-0021-SP	150A-0021-SP	150N-0021-SP	150T-0021-FB
	17.00	0.6693	–		150T-17-SP	150A-17-SP	150N-17-SP	150T-17-FB
	17.07	0.6719	43/64		150T-.671-SP	150A-.671-SP	150N-.671-SP	150T-.671-FB
	17.46	0.6875	11/16		150T-0022-SP	150A-0022-SP	150N-0022-SP	150T-0022-FB
	17.50	0.6890	–		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.



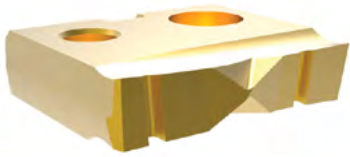
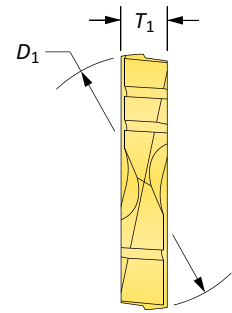
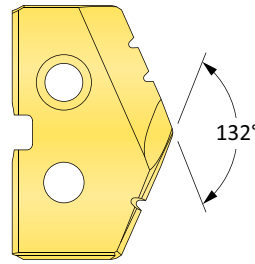
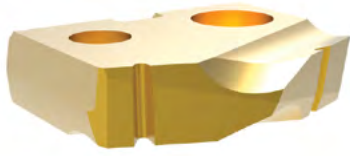
Coatings not listed above can be supplied as non-stocked standards.

Inserts sold in quantities of 2

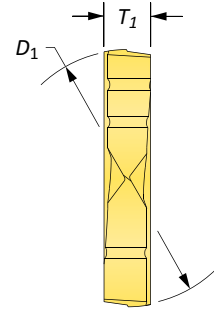
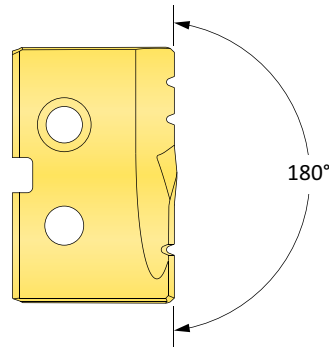
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

0 Series | Carbide | Diameter Range: 12.98mm - 17.65mm (0.511" - 0.695")



Flat Bottom



Carbide Inserts – K20 (C2)

Series	Insert				Part No.		Flat Bottom Part No.
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁ mm	TiN	TiAlN	TiN
0	13.00	0.5118	–	3.18	1C20T-13	1C20A-13	1C20T-13-FB
	13.10	0.5156	33/64		1C20T-.515	1C20A-.515	1C20T-.515-FB
	13.49	0.5313	17/32		1C20T-0017	1C20A-0017	1C20T-0017-FB
	13.50	0.5315	–		1C20T-13.5	1C20A-13.5	1C20T-13.5-FB
	13.89	0.5469	35/64		1C20T-.546	1C20A-.546	1C20T-.546-FB
	14.00	0.5512	–		1C20T-14	1C20A-14	1C20T-14-FB
	14.29	0.5625	9/16		1C20T-0018	1C20A-0018	1C20T-0018-FB
	14.50	0.5709	–		1C20T-14.5	1C20A-14.5	1C20T-14.5-FB
	14.68	0.5781	37/64		1C20T-.578	1C20A-.578	1C20T-.578-FB
	15.00	0.5906	–		1C20T-15	1C20A-15	1C20T-15-FB
15.08	0.5938	19/32	1C20T-0019	1C20A-0019	1C20T-0019-FB		
0.5	15.48	0.6094	39/64	3.18	1C20T-.609	1C20A-.609	1C20T-.609-FB
	15.50	0.6102	–		1C20T-15.5	1C20A-15.5	1C20T-15.5-FB
	15.88	0.6250	5/8		1C20T-0020	1C20A-0020	1C20T-0020-FB
	16.00	0.6299	–		1C20T-16	1C20A-16	1C20T-16-FB
	16.27	0.6406	41/64		1C20T-.640	1C20A-.640	1C20T-.640-FB
	16.50	0.6496	–		1C20T-16.5	1C20A-16.5	1C20T-16.5-FB
	16.67	0.6563	21/32		1C20T-0021	1C20A-0021	1C20T-0021-FB
	17.00	0.6693	–		1C20T-17	1C20A-17	1C20T-17-FB
	17.07	0.6719	43/64		1C20T-.671	1C20A-.671	1C20T-.671-FB
	17.46	0.6875	11/16		1C20T-0022	1C20A-0022	1C20T-0022-FB
17.50	0.6890	–	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.

A30: 114 - 145

Key on A30: 1

A30: 38 - 42

A30: 4 - 6

HI, HR, CR, TC, SK,
NP, IN, RN, CN, AN,
BR, CI, CP, NC, WC

A30: 4 - 6

FN

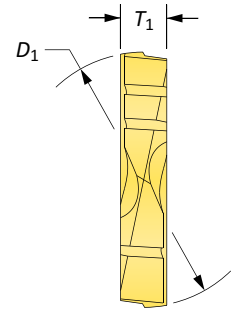
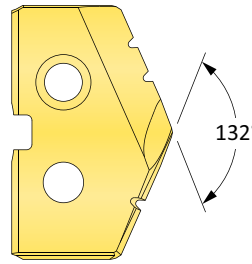
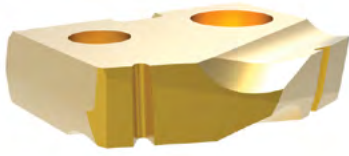
Coatings not listed above can be supplied as non-stocked standards.

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX





Inserts sold in quantities of 2

T-A® Original Drill Inserts

0 Series | Carbide | Diameter Range: 12.98mm - 17.65mm (0.511" - 0.695")



Carbide Inserts – P35 (C5) | K10 (C3) | N2

Series	Insert				C5 Part No.		C3 Part No.	N2 Part No.
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁	 TiN	 TiAlN	 TiAlN (Cast Iron)	 Diamond Film
0	13.00	0.5118	–	3.18	1C50T-13	1C50A-13	1C30A-13-CI	1N20D-13
	13.10	0.5156	33/64		1C50T-.515	1C50A-.515	1C30A-.515-CI	1N20D-.515
	13.49	0.5313	17/32		1C50T-0017	1C50A-0017	1C30A-0017-CI	1N20D-0017
	13.50	0.5315	–		1C50T-13.5	1C50A-13.5	1C30A-13.5-CI	1N20D-13.5
	13.89	0.5469	35/64		1C50T-.546	1C50A-.546	1C30A-.546-CI	1N20D-.546
	14.00	0.5512	–		1C50T-14	1C50A-14	1C30A-14-CI	1N20D-14
	14.29	0.5625	9/16		1C50T-0018	1C50A-0018	1C30A-0018-CI	1N20D-0018
	14.50	0.5709	–		1C50T-14.5	1C50A-14.5	1C30A-14.5-CI	1N20D-14.5
	14.68	0.5781	37/64		1C50T-.578	1C50A-.578	1C30A-.578-CI	1N20D-.578
	15.00	0.5906	–		1C50T-15	1C50A-15	1C30A-15-CI	1N20D-15
15.08	0.5938	19/32	1C50T-0019	1C50A-0019	1C30A-0019-CI	1N20D-0019		
0.5	15.48	0.6094	39/64	3.18	1C50T-.609	1C50A-.609	1C30A-.609-CI	1N20D-.609
	15.50	0.6102	–		1C50T-15.5	1C50A-15.5	1C30A-15.5-CI	1N20D-15.5
	15.88	0.6250	5/8		1C50T-0020	1C50A-0020	1C30A-0020-CI	1N20D-0020
	16.00	0.6299	–		1C50T-16	1C50A-16	1C30A-16-CI	1N20D-16
	16.27	0.6406	41/64		1C50T-.640	1C50A-.640	1C30A-.640-CI	1N20D-.640
	16.50	0.6496	–		1C50T-16.5	1C50A-16.5	1C30A-16.5-CI	1N20D-16.5
	16.67	0.6563	21/32		1C50T-0021	1C50A-0021	1C30A-0021-CI	1N20D-0021
	17.00	0.6693	–		1C50T-17	1C50A-17	1C30A-17-CI	1N20D-17
	17.07	0.6719	43/64		1C50T-.671	1C50A-.671	1C30A-.671-CI	1N20D-.671
	17.46	0.6875	11/16		1C50T-0022	1C50A-0022	1C30A-0022-CI	1N20D-0022
17.50	0.6890	–	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.

A30: 114 - 145
Key on A30: 1

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.



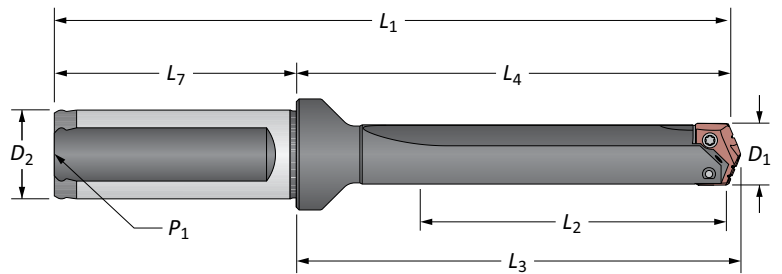
Inserts sold in quantities of 2

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

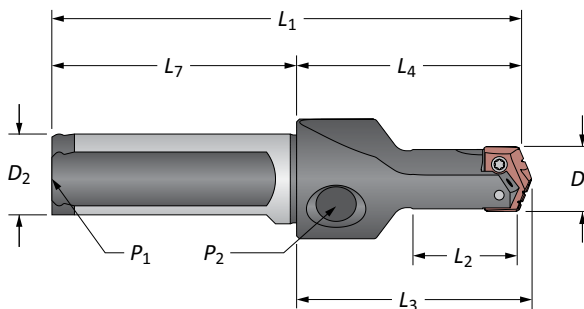
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

T-A® Drill Insert Holders

0 Series | Flanged Shank



Stub Length



Straight Flute

Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁		
m	0	Stub	13.0 - 17.5	22.2	47.6	50.4	97.6	20.0	50.0	1/8*	21000S-20FM
		Short	13.0 - 17.5	34.9	63.5	66.3	113.5	20.0	50.0	1/8*	22000S-20FM
		XL	13.0 - 17.5	295.0	323.9	326.7	373.9	20.0	50.0	1/8*	27000S-20FM
		3XL	13.0 - 17.5	387.0	416.0	418.8	466.0	20.0	50.0	1/8*	29000S-20FM
0.5	Stub	15.5 - 17.5	22.2	47.6	50.4	97.6	20.0	50.0	1/8*	21005S-20FM	
	Short	15.5 - 17.5	34.9	63.5	66.3	113.5	20.0	50.0	1/8*	22005S-20FM	
i	0	Stub	33/64 - 11/16	7/8	1-7/8	1-63/64	3-29/32	3/4	2-1/32	1/8	21000S-075F
		Short	33/64 - 11/16	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8	22000S-075F
		Standard	33/64 - 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	24000S-075F
		Extended	33/64 - 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	25000S-075F
	0.5	Stub	39/64 - 11/16	7/8	1-7/8	1-63/64	3-29/32	3/4	2-1/32	1/8	21005S-075F
		Short	39/64 - 11/16	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8	22005S-075F
		Standard	39/64 - 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	24005S-075F
		Extended	39/64 - 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	25005S-075F

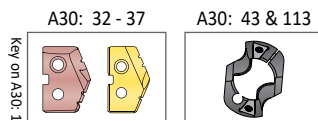
*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/8" side pipe tap (P₂)

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	175 N-cm (15.5 in-lbs)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	175 N-cm (15.5 in-lbs)

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



m = Metric (mm)

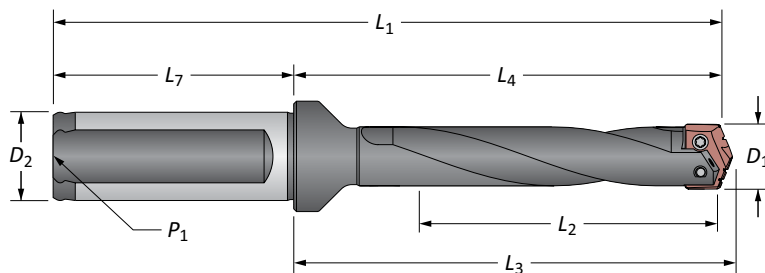
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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 | Flanged Shank








Helical Flute

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Standard	13.0 - 17.5	63.5	92.1	94.9	142.1	20.0	50.0	1/8*	24000H-20FM
	Standard Plus	13.0 - 17.5	89.0	117.6	120.4	167.6	20.0	50.0	1/8*	24500H-20FM
	Extended	13.0 - 17.5	114.3	142.9	145.7	192.9	20.0	50.0	1/8*	⚠ 25000H-20FM
	Long	13.0 - 17.5	177.8	206.4	209.1	256.4	20.0	50.0	1/8*	⚠ 26000H-20FM
	Long Plus	13.0 - 17.5	240.0	268.6	271.4	318.6	20.0	50.0	1/8*	⚠ 26500H-20FM
0.5	Standard	15.5 - 17.5	63.5	92.1	94.9	142.1	20.0	50.0	1/8*	24005H-20FM
	Extended	15.5 - 17.5	114.3	142.9	145.7	192.9	20.0	50.0	1/8*	⚠ 25005H-20FM
	Long	15.5 - 17.5	177.8	206.4	209.1	256.4	20.0	50.0	1/8*	⚠ 26005H-20FM
i	Standard	33/64 - 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	24000H-075F
	Standard Plus	33/64 - 11/16	3-1/2	4-5/8	4-37/64	6-39/64	3/4	2-1/32	1/8	24500H-075F
	Extended	33/64 - 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	⚠ 25000H-075F
	Long	33/64 - 11/16	7	8-1/8	8-15/64	10-5/32	3/4	2-1/32	1/8	⚠ 26000H-075F
	Long Plus	33/64 - 11/16	9-7/16	10-37/64	10-11/16	12-23/32	3/4	2-1/32	1/8	⚠ 26500H-075F
0.5	Standard	39/64 - 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	24005H-075F
	Extended	39/64 - 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	⚠ 25005H-075F
	Long	39/64 - 11/16	7	8-1/8	8-15/64	10-5/32	3/4	2-1/32	1/8	⚠ 26005H-075F

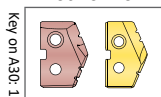
*Metric thread to BSP and ISO 7-1

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	175 N-cm (15.5 in-lbs)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	175 N-cm (15.5 in-lbs)

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

A30: 32 - 37



m = Metric (mm)

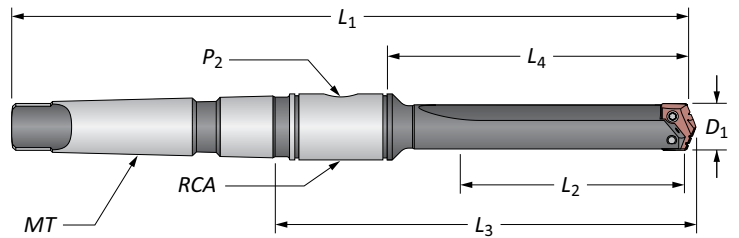
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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



Straight Flute

Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	RCA		
m 0	Short	13.0 - 17.5	35.0	92.4	55.5	164.3	#2**	1/16*	2T-2SRM	22000S-002M	
0.5	Short	15.5 - 17.5	35.0	92.4	55.5	164.3	#2**	1/16*	2T-2SRM	22005S-002M	
i	0	Short	33/64 - 11/16	1-3/8	3-41/64	2-3/16	6-15/32	#2	1/16	2T-2SR	22000S-002I
		Standard	33/64 - 11/16	2-1/2	4-49/64	3-5/16	7-19/32	#2	1/16	2T-2SR	24000S-002I
		Extended	33/64 - 11/16	4-1/2	6-49/64	5-5/16	9-19/32	#2	1/16	2T-2SR	25000S-002I
	0.5	Short	39/64 - 11/16	1-3/8	3-41/64	2-3/16	6-15/32	#2	1/16	2T-2SR	22005S-002I
		Standard	39/64 - 11/16	2-1/2	4-49/64	3-5/16	7-19/32	#2	1/16	2T-2SR	24005S-002I
		Extended	39/64 - 11/16	4-1/2	6-49/64	5-5/16	9-19/32	#2	1/16	2T-2SR	25005S-002I

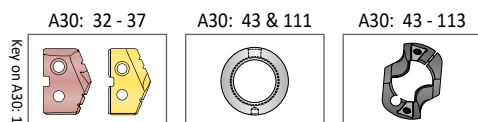
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

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	175 N-cm (15.5 in-lbs)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	175 N-cm (15.5 in-lbs)

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



m = Metric (mm)

i = Imperial (in)

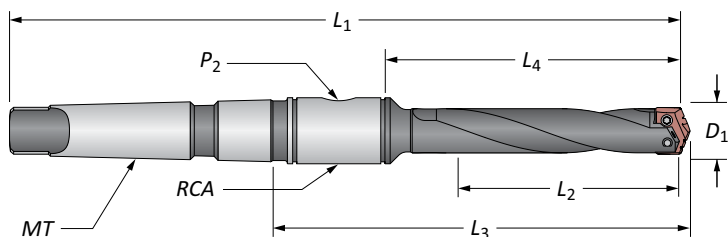
Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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



Helical Flute

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	RCA	
M	Standard	13.0 - 17.5	63.5	121.0	84.1	192.9	#2**	1/16*	2T-2SRM	24000H-002M
	Extended	13.0 - 17.5	114.3	171.8	135.0	243.7	#2**	1/16*	2T-2SRM	⚠ 25000H-002M
	Long	13.0 - 17.5	177.8	235.3	198.5	307.2	#2**	1/16*	2T-2SRM	⚠ 26000H-002M
I	Standard	15.5 - 17.5	63.5	121.0	84.1	192.9	#2**	1/16*	2T-2SRM	24005H-002M
	Extended	15.5 - 17.5	114.3	171.8	135.0	243.7	#2**	1/16*	2T-2SRM	⚠ 25005H-002M
	Long	15.5 - 17.5	177.8	235.3	198.5	307.2	#2**	1/16*	2T-2SRM	⚠ 26005H-002M
I	Standard	33/64 - 11/16	2-1/2	4-49/64	3-5/16	7-19/32	#2	1/16	2T-2SR	24000H-002I
	Extended	33/64 - 11/16	4-1/2	6-49/64	5-5/16	9-19/32	#2	1/16	2T-2SR	⚠ 25000H-002I
	Long	33/64 - 11/16	7	8-17/64	7-13/16	12-3/32	#2	1/16	2T-2SR	⚠ 26000H-002I
I	Standard	39/64 - 11/16	2-1/2	4-49/64	3-5/16	7-19/32	#2	1/16	2T-2SR	24005H-002I
	Extended	39/64 - 11/16	4-1/2	6-49/64	5-5/16	9-19/32	#2	1/16	2T-2SR	⚠ 25005H-002I
	Long	39/64 - 11/16	7	8-17/64	7-13/16	12-3/32	#2	1/16	2T-2SR	⚠ 26005H-002I

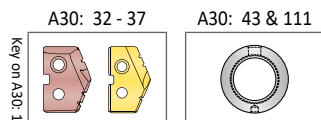
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

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	175 N-cm (15.5 in-lbs)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	175 N-cm (15.5 in-lbs)

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



M = Metric (mm)

I = Imperial (in)

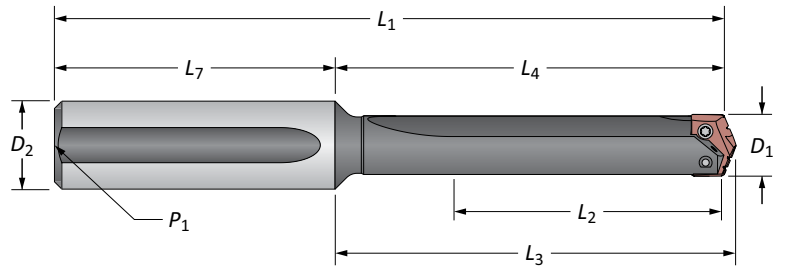
Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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

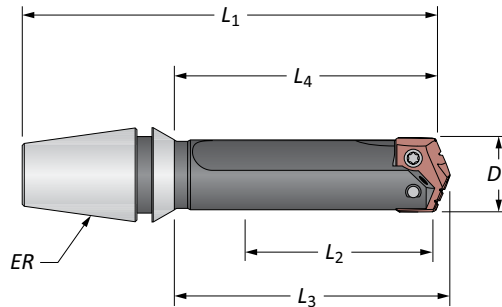
T-A® Drill Insert Holders

0 Series | Straight Shank | ER Collet



Straight Flute

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
0	Short	33/64 - 11/16	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8	22000S-075L
	Standard	33/64 - 11/16	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8	24000S-075L
	Extended	33/64 - 11/16	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8	25000S-075L
	Long	33/64 - 11/16	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8	26000S-075L
	XL	33/64 - 11/16	11-5/8	12-7/16	12-35/64	14-13/16	3/4	2-3/8	1/8	27000S-075L
	3XL	33/64 - 11/16	15-1/4	16-1/16	16-11/64	18-7/16	3/4	2-3/8	1/8	29000S-075L
0.5	Short	39/64 - 11/16	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8*	22005S-075L
	Standard	39/64 - 11/16	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8*	24005S-075L
	Extended	39/64 - 11/16	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8*	25005S-075L
	Long	39/64 - 11/16	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8*	26005S-075L



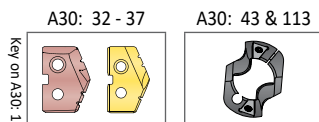
ER Collet Holder

Series	D ₁	L ₂	L ₄	L ₃	L ₁	ER	Part No.	Collet Nut without Retaining Ring
0	33/64 - 11/16	1-3/8	1-57/64	2	3-5/64	ER-16	21000S-16ER	ER-16N
	33/64 - 11/16	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	175 N-cm (15.5 in-lbs)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	175 N-cm (15.5 in-lbs)

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



m = Metric (mm)

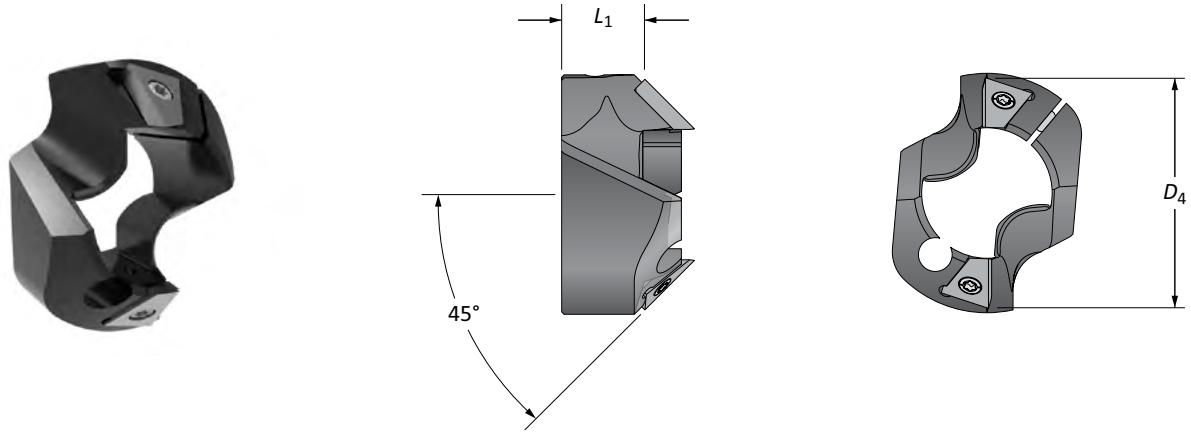
i = Imperial (in)

Screws sold in quantities of 10




WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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

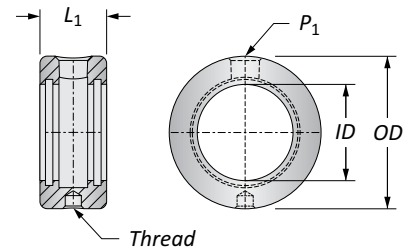


T-ACR 45 Chamfer Ring

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	13.00 - 17.50	20.64	17.17	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
 19.05	44.45	22.23	M8 x 1.25	1/8*	 2T-2SRM	2T1-2SR	2T1-2OR-10
 3/4	1-3/4	7/8	5/16-18	1/8	 2T-2SR	2T1-2SR	2T1-2OR-10








*Thread to BSP and ISO 7-1

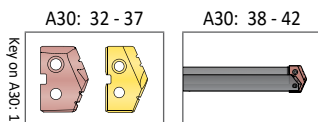
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers



 Refer to page A30: 111 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	175 N-cm (15.5 in-lbs)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	175 N-cm (15.5 in-lbs)

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



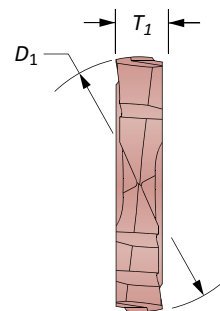
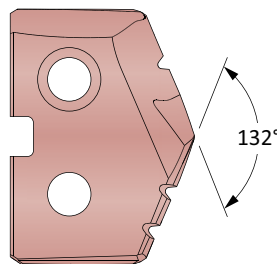
 = Metric (mm)
 = Imperial (in)

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

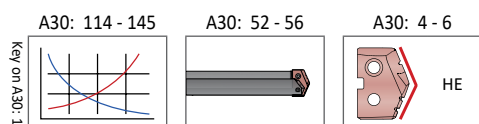
1 Series | Diameter Range: 17.53mm - 24.38mm (0.690" - 0.960")



HSS Inserts – Super Cobalt • Carbide Inserts – K20 (C2) | K35 (C1)

Series	Insert				HSS Part No.		
	D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	Super Cobalt	C2	C1
1	17.86	0.7031	45/64	4.00	451H-.703	4C21H-.703	4C11H-.703
	18.00	0.7087	–		451H-18	4C21H-18	4C11H-18
	18.26	0.7188	23/32		451H-0023	4C21H-0023	4C11H-0023
	18.50	0.7283	–		451H-18.5	4C21H-18.5	4C11H-18.5
	18.65	0.7344	47/64		451H-.734	4C21H-.734	4C11H-.734
	19.00	0.7480	–		451H-19	4C21H-19	4C11H-19
	19.05	0.7500	3/4		451H-0024	4C21H-0024	4C11H-0024
	19.45	0.7656	49/64		451H-.765	4C21H-.765	4C11H-.765
	19.50	0.7677	–		451H-19.5	4C21H-19.5	4C11H-19.5
	19.84	0.7813	25/32		451H-0025	4C21H-0025	4C11H-0025
	20.00	0.7874	–		451H-20	4C21H-20	4C11H-20
	20.24	0.7969	51/64		451H-.796	4C21H-.796	4C11H-.796
	20.34	0.8010	–		451H-.801	4C21H-.801	4C11H-.801
	20.50	0.8071	–		451H-20.5	4C21H-20.5	4C11H-20.5
	20.64	0.8125	13/16		451H-0026	4C21H-0026	4C11H-0026
	21.00	0.8268	–		451H-21	4C21H-21	4C11H-21
	21.43	0.8438	27/32		451H-0027	4C21H-0027	4C11H-0027
21.50	0.8465	–	451H-21.5	4C21H-21.5	4C11H-21.5		
1.5	21.83	0.8594	55/64	4.00	451H-.859	4C21H-.859	4C11H-.859
	22.00	0.8661	–		451H-22	4C21H-22	4C11H-22
	22.23	0.8750	7/8		451H-0028	4C21H-0028	4C11H-0028
	22.50	0.8858	–		451H-22.5	4C21H-22.5	4C11H-22.5
	20.62	0.8906	57/64		451H-.890	4C21H-.890	4C11H-.890
	23.00	0.9055	–		451H-23	4C21H-23	4C11H-23
	23.02	0.9063	29/32		451H-0029	4C21H-0029	4C11H-0029
	23.42	0.9219	59/64		451H-.921	4C21H-.921	4C11H-.921
	23.50	0.9252	–		451H-23.5	4C21H-23.5	4C11H-23.5
	23.81	0.9375	15/16		451H-0030	4C21H-0030	4C11H-0030
	24.00	0.9449	–		451H-24	4C21H-24	4C11H-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.



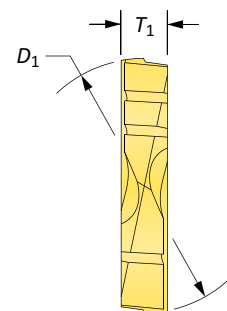
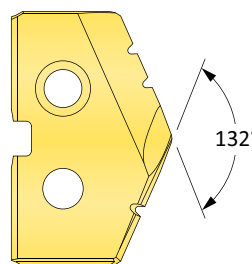
Coatings not listed above can be supplied as non-stocked standards.

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX




Inserts sold in quantities of 2

T-A® Original Drill Inserts

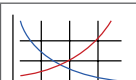


1 Series | HSS | Diameter Range: 17.53mm - 24.38mm (0.690" - 0.960")




HSS Inserts – Premium Cobalt

Series	Insert			T ₁ mm	Part No.		
	D ₁ mm	D ₁ inch	Fractional Equivalent		 TiN	 TiAlN	 TiCN
1	17.86	0.7031	45/64	4.00	181T-.703	181A-.703	181N-.703
	18.00	0.7087	–		181T-18	181A-18	181N-18
	18.26	0.7188	23/32		181T-0023	181A-0023	181N-0023
	18.50	0.7283	–		181T-18.5	181A-18.5	181N-18.5
	18.65	0.7344	47/64		181T-.734	181A-.734	181N-.734
	19.00	0.7480	–		181T-19	181A-19	181N-19
	19.05	0.7500	3/4		181T-0024	181A-0024	181N-0024
	19.45	0.7656	49/64		181T-.765	181A-.765	181N-.765
	19.50	0.7677	–		181T-19.5	181A-19.5	181N-19.5
	19.84	0.7813	25/32		181T-0025	181A-0025	181N-0025
	20.00	0.7874	–		181T-20	181A-20	181N-20
	20.24	0.7969	51/64		181T-.796	181A-.796	181N-.796
	20.34	0.8010	–		181T-.801	181A-.801	181N-.801
	20.50	0.8071	–		181T-20.5	181A-20.5	181N-20.5
	20.64	0.8125	13/16		181T-0026	181A-0026	181N-0026
	21.00	0.8268	–		181T-21	181A-21	181N-21
21.43	0.8438	27/32	181T-0027	181A-0027	181N-0027		
21.50	0.8465	–	181T-21.5	181A-21.5	181N-21.5		
1.5	21.83	0.8594	55/64	4.00	181T-.859	181A-.859	181N-.859
	22.00	0.8661	–		181T-22	181A-22	181N-22
	22.23	0.8750	7/8		181T-0028	181A-0028	181N-0028
	22.50	0.8858	–		181T-22.5	181A-22.5	181N-22.5
	20.62	0.8906	57/64		181T-.890	181A-.890	181N-.890
	23.00	0.9055	–		181T-23	181A-23	181N-23
	23.02	0.9063	29/32		181T-0029	181A-0029	181N-0029
	23.42	0.9219	59/64		181T-.921	181A-.921	181N-.921
	23.50	0.9252	–		181T-23.5	181A-23.5	181N-23.5
	23.81	0.9375	15/16		181T-0030	181A-0030	181N-0030
	24.00	0.9449	–		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: 114 - 145  A30: 52 - 56  A30: 4 - 6  HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC

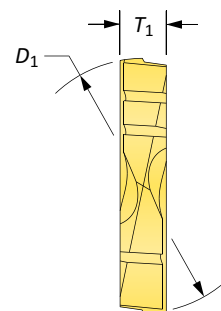
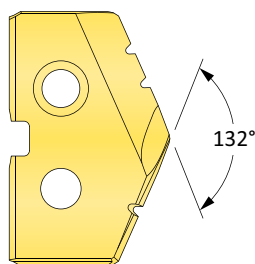
Coatings not listed above can be supplied as non-stocked standards. 

Inserts sold in quantities of 2




TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

1 Series | HSS | Diameter Range: 17.53mm - 24.38mm (0.690" - 0.960")

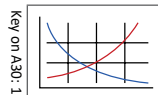


HSS Inserts – Super Cobalt

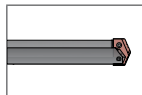
Series	Insert			T ₁ mm	Part No.		
	D ₁ mm	D ₁ inch	Fractional Equivalent		 TiN	 TiAlN	 TiCN
1	17.86	0.7031	45/64	4.00	151T-.703	151A-.703	151N-.703
	18.00	0.7087	–		151T-18	151A-18	151N-18
	18.26	0.7188	23/32		151T-0023	151A-0023	151N-0023
	18.50	0.7283	–		151T-18.5	151A-18.5	151N-18.5
	18.65	0.7344	47/64		151T-.734	151A-.734	151N-.734
	19.00	0.7480	–		151T-19	151A-19	151N-19
	19.05	0.7500	3/4		151T-0024	151A-0024	151N-0024
	19.45	0.7656	49/64		151T-.765	151A-.765	151N-.765
	19.50	0.7677	–		151T-19.5	151A-19.5	151N-19.5
	19.84	0.7813	25/32		151T-0025	151A-0025	151N-0025
	20.00	0.7874	–		151T-20	151A-20	151N-20
	20.24	0.7969	51/64		151T-.796	151A-.796	151N-.796
	20.34	0.8010	–		151T-.801	151A-.801	151N-.801
	20.50	0.8071	–		151T-20.5	151A-20.5	151N-20.5
	20.64	0.8125	13/16		151T-0026	151A-0026	151N-0026
	21.00	0.8268	–		151T-21	151A-21	151N-21
21.43	0.8438	27/32	151T-0027	151A-0027	151N-0027		
21.50	0.8465	–	151T-21.5	151A-21.5	151N-21.5		
1.5	21.83	0.8594	55/64	4.0	151T-.859	151A-.859	151N-.859
	22.00	0.8661	–		151T-22	151A-22	151N-22
	22.23	0.8750	7/8		151T-0028	151A-0028	151N-0028
	22.50	0.8858	–		151T-22.5	151A-22.5	151N-22.5
	20.62	0.8906	57/64		151T-.890	151A-.890	151N-.890
	23.00	0.9055	–		151T-23	151A-23	151N-23
	23.02	0.9063	29/32		151T-0029	151A-0029	151N-0029
	23.42	0.9219	59/64		151T-.921	151A-.921	151N-.921
	23.50	0.9252	–		151T-23.5	151A-23.5	151N-23.5
	23.81	0.9375	15/16		151T-0030	151A-0030	151N-0030
	24.00	0.9449	–		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: 114 - 145



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.



Inserts sold in quantities of 2

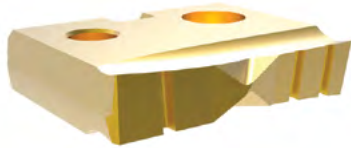
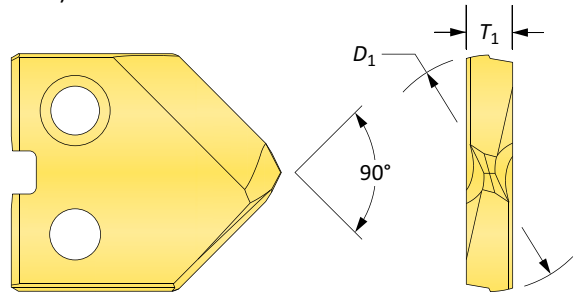
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

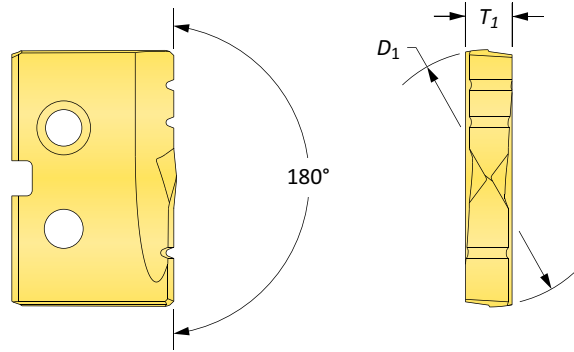
1 Series | HSS | Diameter Range: 17.53mm - 24.38mm (0.690" - 0.960")







90° Spot & Chamfer



Flat Bottom

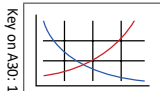


HSS Inserts – Super Cobalt

Series	Insert				90° Spot & Chamfer Part No.			Flat Bottom Part No.
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁ mm	 TiN	 TiAlN	 TiCN	 TiN
1	17.86	0.7031	45/64	4.00	151T-.703-SP	151A-.703-SP	151N-.703-SP	151T-.703-FB
	18.00	0.7087	-		151T-18-SP	151A-18-SP	151N-18-SP	151T-18-FB
	18.26	0.7188	23/32		151T-0023-SP	151A-0023-SP	151N-0023-SP	151T-0023-FB
	18.50	0.7283	-		151T-18.5-SP	151A-18.5-SP	151N-18.5-SP	151T-18.5-FB
	18.65	0.7344	47/64		151T-.734-SP	151A-.734-SP	151N-.734-SP	151T-.734-FB
	19.00	0.7480	-		151T-19-SP	151A-19-SP	151N-19-SP	151T-19-FB
	19.05	0.7500	3/4		151T-0024-SP	151A-0024-SP	151N-0024-SP	151T-0024-FB
	19.45	0.7656	49/64		151T-.765-SP	151A-.765-SP	151N-.765-SP	151T-.765-FB
	19.50	0.7677	-		151T-19.5-SP	151A-19.5-SP	151N-19.5-SP	151T-19.5-FB
	19.84	0.7813	25/32		151T-0025-SP	151A-0025-SP	151N-0025-SP	151T-0025-FB
	20.00	0.7874	-		151T-20-SP	151A-20-SP	151N-20-SP	151T-20-FB
	20.24	0.7969	51/64		151T-.796-SP	151A-.796-SP	151N-.796-SP	151T-.796-FB
	20.34	0.8010	-		151T-.801-SP	151A-.801-SP	151N-.801-SP	151T-.801-FB
	20.50	0.8071	-		151T-20.5-SP	151A-20.5-SP	151N-20.5-SP	151T-20.5-FB
	20.64	0.8125	13/16		151T-0026-SP	151A-0026-SP	151N-0026-SP	151T-0026-FB
21.00	0.8268	-	151T-21-SP	151A-21-SP	151N-21-SP	151T-21-FB		
21.43	0.8438	27/32	151T-0027-SP	151A-0027-SP	151N-0027-SP	151T-0027-FB		
21.50	0.8465	-	151T-21.5-SP	151A-21.5-SP	151N-21.5-SP	151T-21.5-FB		
1.5	21.83	0.8594	55/64	4.0	151T-.859-SP	151A-.859-SP	151N-.859-SP	151T-.859-FB
	22.00	0.8661	-		151T-22-SP	151A-22-SP	151N-22-SP	151T-22-FB
	22.23	0.8750	7/8		151T-0028-SP	151A-0028-SP	151N-0028-SP	151T-0028-FB
	22.50	0.8858	-		151T-22.5-SP	151A-22.5-SP	151N-22.5-SP	151T-22.5-FB
	20.62	0.8906	57/64		151T-.890-SP	151A-.890-SP	151N-.890-SP	151T-.890-FB
	23.00	0.9055	-		151T-23-SP	151A-23-SP	151N-23-SP	151T-23-FB
	23.02	0.9063	29/32		151T-0029-SP	151A-0029-SP	151N-0029-SP	151T-0029-FB
	23.42	0.9219	59/64		151T-.921-SP	151A-.921-SP	151N-.921-SP	151T-.921-FB
	23.50	0.9252	-		151T-23.5-SP	151A-23.5-SP	151N-23.5-SP	151T-23.5-FB
	23.81	0.9375	15/16		151T-0030-SP	151A-0030-SP	151N-0030-SP	151T-0030-FB
	24.00	0.9449	-		151T-24-SP	151A-24-SP	151N-24-SP	151T-24-FB

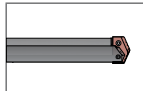
NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

A30: 114 - 145

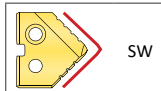


Key on A30: 1

A30: 52 - 56

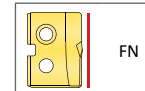


A30: 4 - 6




SW

A30: 4 - 6



FN

Coatings not listed above can be supplied as non-stocked standards. 

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

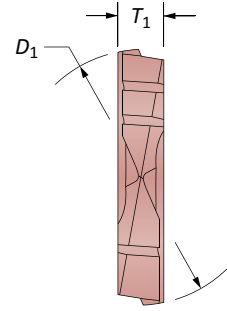
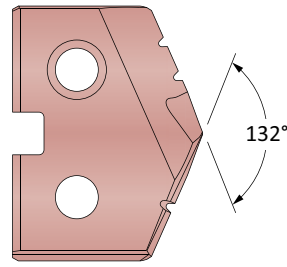
Inserts sold in quantities of 2

T-A® Original Drill Inserts



1 Series | HSS | Diameter Range: 17.53mm - 24.38mm (0.690" - 0.960")

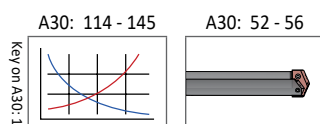


Tube Sheet



HSS Inserts – Super Cobalt | HSS

Series	Insert				Part No.	
	D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 Super Cobalt	 HSS
1	19.25	0.7580	–	4.00	151H-.7580-IN	131H-.7580-IN
	19.45	0.7656	49/64		151H-.765-IN	131H-.765-IN
	19.85	0.7813	25/32		151H-0025-IN	131H-0025-IN



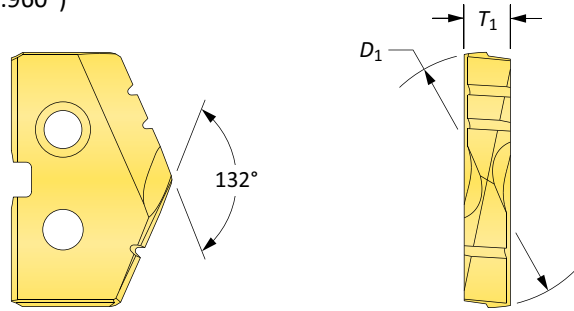
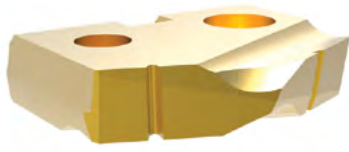
Coatings not listed above can be supplied as non-stocked standards.






Inserts sold in quantities of 2	
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

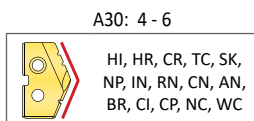
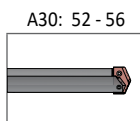
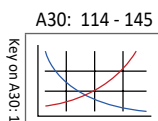
1 Series | HSS | Diameter Range: 17.53mm - 24.38mm (0.690" - 0.960")



HSS Inserts – HSS

Series	Insert			T ₁ mm	Part No.		
	D ₁ mm	D ₁ inch	Fractional Equivalent		 TiN	 TiAlN	 TiCN
1	17.86	0.7031	45/64	4.00	131T-.703	131A-.703	131N-.703
	18.00	0.7087	–		131T-18	131A-18	131N-18
	18.26	0.7188	23/32		131T-0023	131A-0023	131N-0023
	18.50	0.7283	–		131T-18.5	131A-18.5	131N-18.5
	18.65	0.7344	47/64		131T-.734	131A-.734	131N-.734
	19.00	0.7480	–		131T-19	131A-19	131N-19
	19.05	0.7500	3/4		131T-0024	131A-0024	131N-0024
	19.45	0.7656	49/64		131T-.765	131A-.765	131N-.765
	19.50	0.7677	–		131T-19.5	131A-19.5	131N-19.5
	19.84	0.7813	25/32		131T-0025	131A-0025	131N-0025
	20.00	0.7874	–		131T-20	131A-20	131N-20
	20.24	0.7969	51/64		131T-.796	131A-.796	131N-.796
	20.34	0.8010	–		131T-.801	131A-.801	131N-.801
	20.50	0.8071	–		131T-20.5	131A-20.5	131N-20.5
	20.64	0.8125	13/16		131T-0026	131A-0026	131N-0026
	21.00	0.8268	–		131T-21	131A-21	131N-21
21.43	0.8438	27/32	131T-0027	131A-0027	131N-0027		
21.50	0.8465	–	131T-21.5	131A-21.5	131N-21.5		
1.5	21.83	0.8594	55/64	4.00	131T-.859	131A-.859	131N-.859
	22.00	0.8661	–		131T-22	131A-22	131N-22
	22.23	0.8750	7/8		131T-0028	131A-0028	131N-0028
	22.50	0.8858	–		131T-22.5	131A-22.5	131N-22.5
	20.62	0.8906	57/64		131T-.890	131A-.890	131N-.890
	23.00	0.9055	–		131T-23	131A-23	131N-23
	23.02	0.9063	29/32		131T-0029	131A-0029	131N-0029
	23.42	0.9219	59/64		131T-.921	131A-.921	131N-.921
	23.50	0.9252	–		131T-23.5	131A-23.5	131N-23.5
	23.81	0.9375	15/16		131T-0030	131A-0030	131N-0030
	24.00	0.9449	–		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.



Coatings not listed above can be supplied as non-stocked standards.

Inserts sold in quantities of 2

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

1 Series | Carbide | Diameter Range: 17.53mm - 24.38mm (0.690" - 0.960")

DRILLING

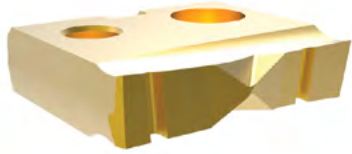
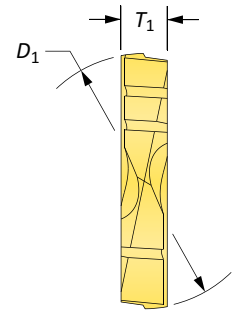
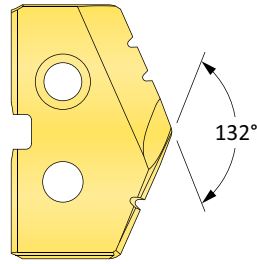
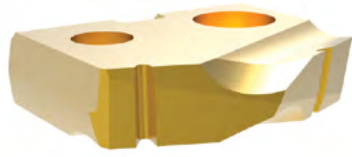
BORING

REAMING

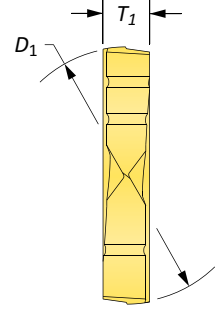
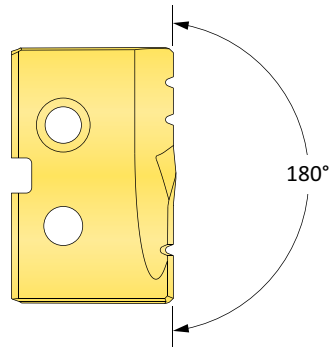
BURNISHING

THREADING

SPECIALS



Flat Bottom



Carbide Inserts – K20 (C2)

Series	Insert				Part No.		Flat Bottom Part No.
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁ mm	TiN	TiAlN	TiN
1	17.86	0.7031	45/64	4.00	1C21T-.703	1C21A-.703	1C21T-.703-FB
	18.00	0.7087	-		1C21T-18	1C21A-18	1C21T-18-FB
	18.26	0.7188	23/32		1C21T-0023	1C21A-0023	1C21T-0023-FB
	18.50	0.7283	-		1C21T-18.5	1C21A-18.5	1C21T-18.5-FB
	18.65	0.7344	47/64		1C21T-.734	1C21A-.734	1C21T-.734-FB
	19.00	0.7480	-		1C21T-19	1C21A-19	1C21T-19-FB
	19.05	0.7500	3/4		1C21T-0024	1C21A-0024	1C21T-0024-FB
	19.45	0.7656	49/64		1C21T-.765	1C21A-.765	1C21T-.765-FB
	19.50	0.7677	-		1C21T-19.5	1C21A-19.5	1C21T-19.5-FB
	19.84	0.7813	25/32		1C21T-0025	1C21A-0025	1C21T-0025-FB
	20.00	0.7874	-		1C21T-20	1C21A-20	1C21T-20-FB
	20.24	0.7969	51/64		1C21T-.796	1C21A-.796	1C21T-.796-FB
	20.34	0.8010	-		1C21T-.801	1C21A-.801	1C21T-.801-FB
	20.50	0.8071	-		1C21T-20.5	1C21A-20.5	1C21T-20.5-FB
	20.64	0.8125	13/16		1C21T-0026	1C21A-0026	1C21T-0026-FB
	21.00	0.8268	-		1C21T-21	1C21A-21	1C21T-21-FB
21.43	0.8438	27/32	1C21T-0027	1C21A-0027	1C21T-0027-FB		
21.50	0.8465	-	1C21T-21.5	1C21A-21.5	1C21T-21.5-FB		
1.5	21.83	0.8594	55/64	4.00	1C21T-.859	1C21A-.859	1C21T-.859-FB
	22.00	0.8661	-		1C21T-22	1C21A-22	1C21T-22-FB
	22.23	0.8750	7/8		1C21T-0028	1C21A-0028	1C21T-0028-FB
	22.50	0.8858	-		1C21T-22.5	1C21A-22.5	1C21T-22.5-FB
	20.62	0.8906	57/64		1C21T-.890	1C21A-.890	1C21T-.890-FB
	23.00	0.9055	-		1C21T-23	1C21A-23	1C21T-23-FB
	23.02	0.9063	29/32		1C21T-0029	1C21A-0029	1C21T-0029-FB
	23.42	0.9219	59/64		1C21T-.921	1C21A-.921	1C21T-.921-FB
	23.50	0.9252	-		1C21T-23.5	1C21A-23.5	1C21T-23.5-FB
	23.81	0.9375	15/16		1C21T-0030	1C21A-0030	1C21T-0030-FB
	24.00	0.9449	-		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.

Inserts sold in quantities of 2

A30: 114 - 145

A30: 52 - 56

A30: 4 - 6

HI, HR, CR, TC, SK,
NP, IN, RN, CN, AN,
BR, CI, CP, NC, WC

A30: 4 - 6

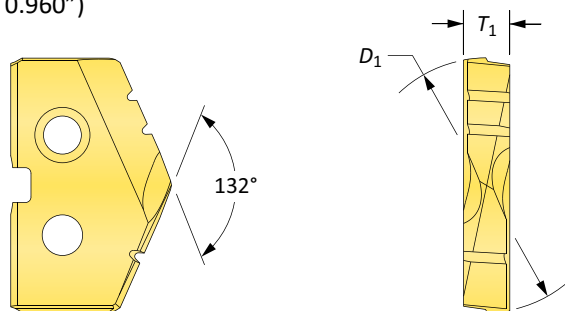
FN

Coatings not listed above can be supplied as non-stocked standards.





TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

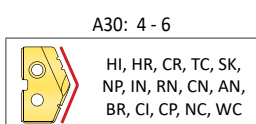
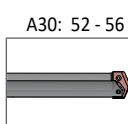
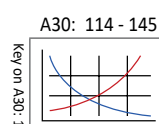
1 Series | Carbide | Diameter Range: 17.53mm - 24.38mm (0.690" - 0.960")



Carbide Inserts – P35 (C5) | K10 (C3) | N2

Series	Insert				C5 Part No.		C3 Part No.	N2 Part No.
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁ mm	 TiN	 TiAlN	 TiAlN (Cast Iron)	 Diamond Film
1	17.86	0.7031	45/64	4.00	1C51T-.703	1C51A-.703	1C31A-.703-CI	1N21D-.703
	18.00	0.7087	–		1C51T-18	1C51A-18	1C31A-18-CI	1N21D-18
	18.26	0.7188	23/32		1C51T-0023	1C51A-0023	1C31A-0023-CI	1N21D-0023
	18.50	0.7283	–		1C51T-18.5	1C51A-18.5	1C31A-18.5-CI	1N21D-18.5
	18.65	0.7344	47/64		1C51T-.734	1C51A-.734	1C31A-.734-CI	1N21D-.734
	19.00	0.7480	–		1C51T-19	1C51A-19	1C31A-19-CI	1N21D-19
	19.05	0.7500	3/4		1C51T-0024	1C51A-0024	1C31A-0024-CI	1N21D-0024
	19.45	0.7656	49/64		1C51T-.765	1C51A-.765	1C31A-.765-CI	1N21D-.765
	19.50	0.7677	–		1C51T-19.5	1C51A-19.5	1C31A-19.5-CI	1N21D-19.5
	19.84	0.7813	25/32		1C51T-0025	1C51A-0025	1C31A-0025-CI	1N21D-0025
	20.00	0.7874	–		1C51T-20	1C51A-20	1C31A-20-CI	1N21D-20
	20.24	0.7969	51/64		1C51T-.796	1C51A-.796	1C31A-.796-CI	1N21D-.796
	20.34	0.8010	–		1C51T-.801	1C51A-.801	1C31A-.801-CI	1N21D-.801
	20.50	0.8071	–		1C51T-20.5	1C51A-20.5	1C31A-20.5-CI	1N21D-20.5
	20.64	0.8125	13/16		1C51T-0026	1C51A-0026	1C31A-0026-CI	1N21D-0026
	21.00	0.8268	–		1C51T-21	1C51A-21	1C31A-21-CI	1N21D-21
21.43	0.8438	27/32	1C51T-0027	1C51A-0027	1C31A-0027-CI	1N21D-0027		
21.50	0.8465	–	1C51T-21.5	1C51A-21.5	1C31A-21.5-CI	1N21D-21.5		
1.5	21.83	0.8594	55/64	4.00	1C51T-.859	1C51A-.859	1C31A-.859-CI	1N21D-.859
	22.00	0.8661	–		1C51T-22	1C51A-22	1C31A-22-CI	1N21D-22
	22.23	0.8750	7/8		1C51T-0028	1C51A-0028	1C31A-0028-CI	1N21D-0028
	22.50	0.8858	–		1C51T-22.5	1C51A-22.5	1C31A-22.5-CI	1N21D-22.5
	20.62	0.8906	57/64		1C51T-.890	1C51A-.890	1C31A-.890-CI	1N21D-.890
	23.00	0.9055	–		1C51T-23	1C51A-23	1C31A-23-CI	1N21D-23
	23.02	0.9063	29/32		1C51T-0029	1C51A-0029	1C31A-0029-CI	1N21D-0029
	23.42	0.9219	59/64		1C51T-.921	1C51A-.921	1C31A-.921-CI	1N21D-.921
	23.50	0.9252	–		1C51T-23.5	1C51A-23.5	1C31A-23.5-CI	1N21D-23.5
	23.81	0.9375	15/16		1C51T-0030	1C51A-0030	1C31A-0030-CI	1N21D-0030
	24.00	0.9449	–		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.



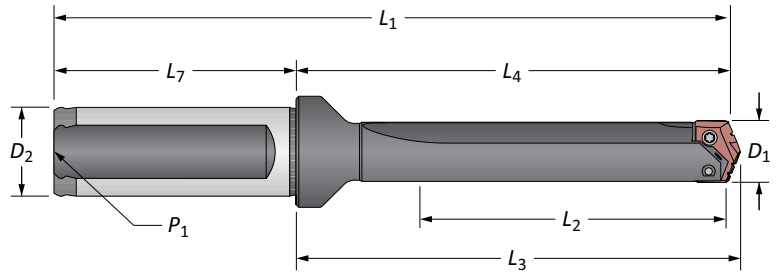
Coatings not listed above can be supplied as non-stocked standards.

Inserts sold in quantities of 2

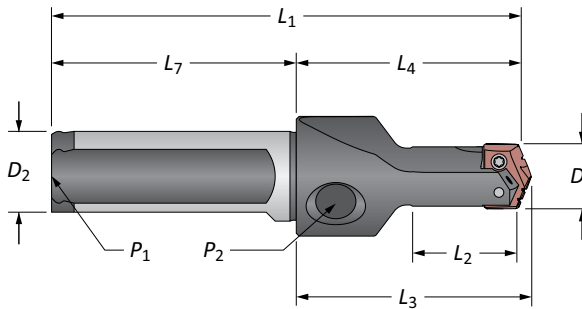
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Drill Insert Holders

1 Series | Flanged Shank



Stub Length



Straight Flute

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
1	Stub	18.0 - 24.0	47.6	75.8	79.4	131.8	25.0	56.0	1/8*	21010S-25FM
	Short	18.0 - 24.0	66.7	107.2	110.7	163.2	25.0	56.0	1/8*	22010S-25FM
	XL	18.0 - 24.0	457.0	494.5	498.1	550.5	25.0	56.0	1/8*	27010S-25FM
	3XL	18.0 - 24.0	569.0	602.5	606.1	658.5	25.0	56.0	1/8*	29010S-25FM
1.5	Stub	22.0 - 24.0	57.2	88.5	92.1	144.5	25.0	56.0	1/8*	21015S-25FM
	Short	22.0 - 24.0	66.7	107.2	110.7	163.2	25.0	56.0	1/8*	22015S-25FM
1	Stub	45/64 - 15/16	1-7/8	2-63/64	3-1/8	5-17/64	1	2-9/32	1/8	21010S-100F
	Short	45/64 - 15/16	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8	22010S-100F
	Intermediate	45/64 - 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	23010S-100F
	Standard	45/64 - 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	24010S-100F
	Extended	45/64 - 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	25010S-100F
1.5	Stub	55/64 - 15/16	2-1/4	3-31/64	3-5/8	5-49/64	1	2-9/32	1/8	21015S-100F
	Short	55/64 - 15/16	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8	22015S-100F
	Intermediate	55/64 - 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	23015S-100F
	Standard	55/64 - 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	24015S-100F
	Extended	55/64 - 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	25015S-100F

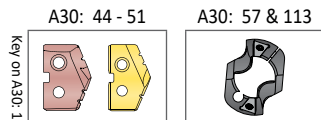
*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/8" side pipe tap (P₂)

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	305 N-cm (27.0 in-lbs)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	305 N-cm (27.0 in-lbs)

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

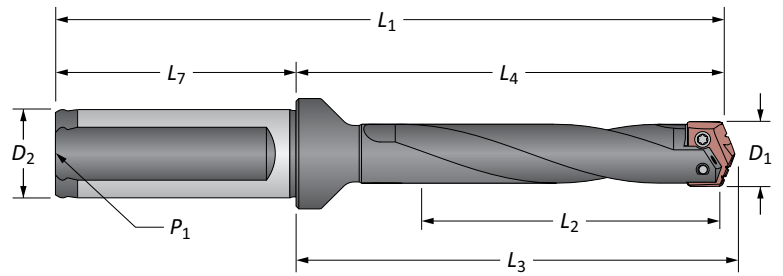


mm = Metric (mm)
 i = Imperial (in)
 Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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 | Flanged Shank



Helical Flute

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Intermediate	18.0 - 24.0	117.5	154.8	158.4	210.8	25.0	56.0	1/8*	23010H-25FM
	Standard	18.0 - 24.0	168.3	205.6	209.2	261.6	25.0	56.0	1/8*	24010H-25FM
	Standard Plus	18.0 - 24.0	219.0	256.3	259.9	312.3	25.0	56.0	1/8*	⚠ 24510H-25FM
	Extended	18.0 - 24.0	269.9	307.2	310.8	363.2	25.0	56.0	1/8*	⚠ 25010H-25FM
	Long	18.0 - 24.0	365.0	402.3	405.9	458.3	25.0	56.0	1/8*	⚠ 26010H-25FM
1.5	Intermediate	22.0 - 24.0	117.5	154.8	158.4	210.8	25.0	56.0	1/8*	23015H-25FM
	Standard	22.0 - 24.0	168.3	205.6	209.2	261.6	25.0	56.0	1/8*	24015H-25FM
	Extended	22.0 - 24.0	269.9	307.2	310.8	363.2	25.0	56.0	1/8*	⚠ 25015H-25FM
i	Intermediate	45/64 - 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	23010H-100F
	Standard	45/64 - 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	24010H-100F
	Standard Plus	45/64 - 15/16	8-5/8	10-3/32	10-15/64	12-33/64	1	2-9/32	1/8	⚠ 24510H-100F
	Extended	45/64 - 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	⚠ 25010H-100F
	Long	45/64 - 15/16	14-3/8	15-27/32	15-63/64	18-17/64	1	2-9/32	1/8	⚠ 26010H-100F
1.5	Intermediate	55/64 - 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	23015H-100F
	Standard	55/64 - 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	24015H-100F
	Extended	55/64 - 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	⚠ 25015H-100F

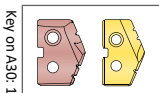
*Metric thread to BSP and ISO 7-1

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	305 N-cm (27.0 in-lbs)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	305 N-cm (27.0 in-lbs)

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

A30: 44 - 51



m = Metric (mm)

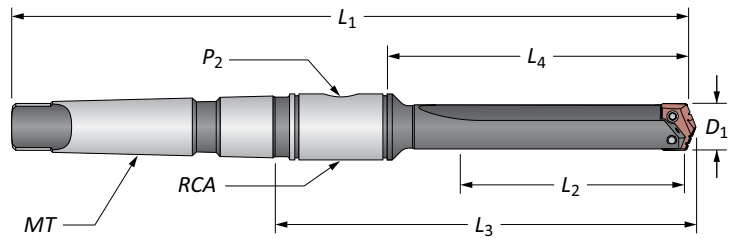
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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



Straight Flute

Series	Length	D ₁	Body					Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	MT	P ₂	RCA		
m 1	Short	18.0 - 24.0	69.8	98.4	142.5	232.5	#3**	1/8*	2T-3SRM	22010S-003M	
1.5	Short	22.0 - 24.0	69.8	98.4	142.5	232.5	#3**	1/8*	2T-3SRM	22015S-003M	
i 1	Short	45/64 - 15/16	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	2T-3SR	22010S-003I	
	Short	45/64 - 15/16	2-3/4	3-7/8	5-39/64	10-5/32	#4	1/8	2T-3SR	22010S-004I	
	Intermediate	45/64 - 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	23010S-003I	
	Standard	45/64 - 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	24010S-003I	
	Standard	45/64 - 15/16	6-3/4	7-7/8	9-39/64	14-5/32	#4	1/8	2T-3SR	24010S-004I	
i 1.5	Extended	45/64 - 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	25010S-003I	
	Short	55/64 - 15/16	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	2T-3SR	22015S-003I	
	Short	55/64 - 15/16	2-3/4	3-7/8	5-39/64	10-5/32	#4	1/8	2T-3SR	22015S-004I	
	Intermediate	55/64 - 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	23015S-003I	
	Standard	55/64 - 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	24015S-003I	
	Standard	55/64 - 15/16	6-3/4	7-7/8	9-39/64	14-5/32	#4	1/8	2T-3SR	24015S-004I	
	Extended	55/64 - 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	25015S-003I	

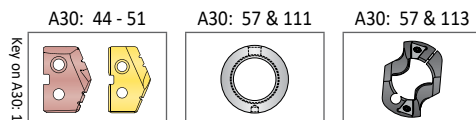
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

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	305 N-cm (27.0 in-lbs)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	305 N-cm (27.0 in-lbs)

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



m = Metric (mm)

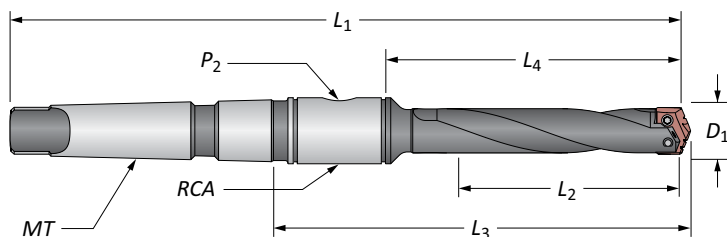
i = Imperial (in)

Screws sold in quantities of 10

! WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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



Helical Flute

Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₄	L ₃	L ₁	MT	P ₂	RCA		
m	1	Intermediate	18.0 - 24.0	120.7	149.2	193.3	283.3	#3**	1/8*	2T-3SRM	23010H-003M
		Standard	18.0 - 24.0	171.5	200.0	244.1	334.2	#3**	1/8*	2T-3SRM	24010H-003M
		Extended	18.0 - 24.0	273.1	301.6	345.7	435.8	#3**	1/8*	2T-3SRM	⚠ 25010H-003M
i	1.5	Intermediate	22.0 - 24.0	120.7	149.2	193.3	283.3	#3**	1/8*	2T-3SRM	23015H-003M
		Standard	22.0 - 24.0	171.5	200.0	244.1	334.2	#3**	1/8*	2T-3SRM	24015H-003M
		Extended	22.0 - 24.0	273.1	301.6	345.7	435.8	#3**	1/8*	2T-3SRM	⚠ 25015H-003M
i	1	Intermediate	45/64 - 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	23010H-003I
		Standard	45/64 - 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	24010H-003I
		Standard	45/64 - 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	2T-3SR	24010H-004I
		Extended	45/64 - 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	⚠ 25010H-003I
	1.5	Intermediate	55/64 - 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	23015H-003I
		Standard	55/64 - 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	24015H-003I
		Standard	55/64 - 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	2T-3SR	24015H-004I
	Extended	55/64 - 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	⚠ 25015H-003I	

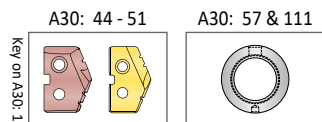
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

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	305 N-cm (27.0 in-lbs)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	305 N-cm (27.0 in-lbs)

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



m = Metric (mm)

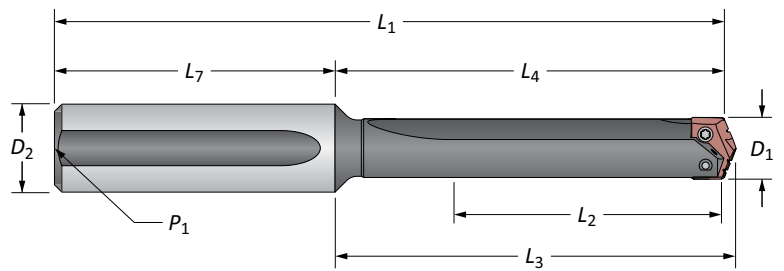
i = Imperial (in)

Screws sold in quantities of 10





⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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 | Straight Shank | ER Collet



Straight Flute

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
1	Short	45/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8	22010S-075L
	Short	45/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8	22010S-100L
	Intermediate	45/64 - 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8	23010S-100L
	Standard	45/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8	24010S-075L
	Standard	45/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8	24010S-100L
	Extended	45/64 - 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8	 25010S-100L
	XL	45/64 - 15/16	18	19-1/4	19-25/64	22-1/4	1	3	1/8	 27010S-100L
1.5	3XL	45/64 - 15/16	22-1/4	23-1/2	23-41/64	26-1/2	1	3	1/8	 29010S-100L
	Short	55/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8*	22015S-075L
	Short	55/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8*	22015S-100L
	Intermediate	55/64 - 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8*	23015S-100L
	Standard	55/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8*	24015S-075L
	Standard	55/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8*	24015S-100L
	Extended	55/64 - 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8*	 25015S-100L

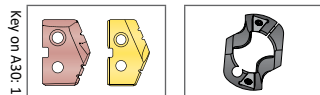
Connection Accessories

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	305 N-cm (27.0 in-lbs)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	305 N-cm (27.0 in-lbs)


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

A30: 44 - 51


A30: 57 & 113



 = Metric (mm)

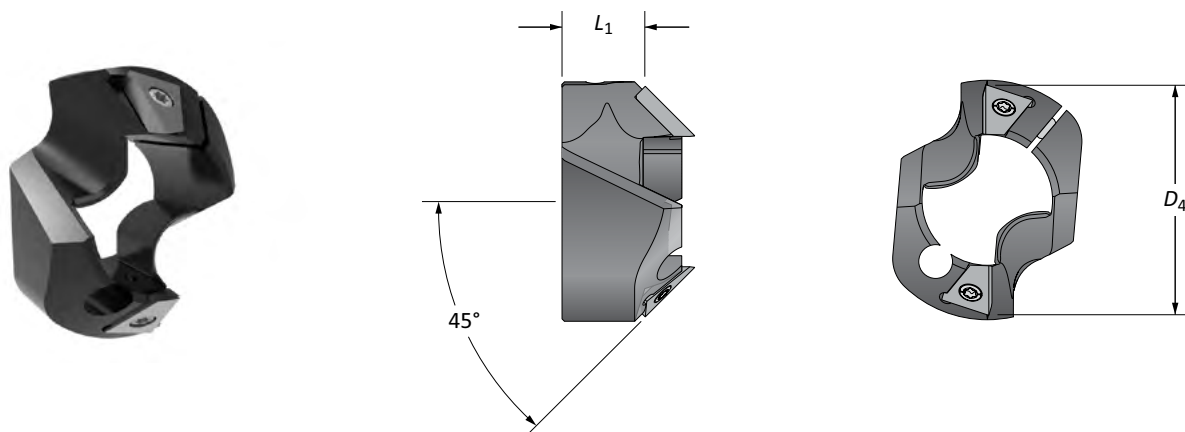
 = Imperial (in)

Screws sold in quantities of 10




 **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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

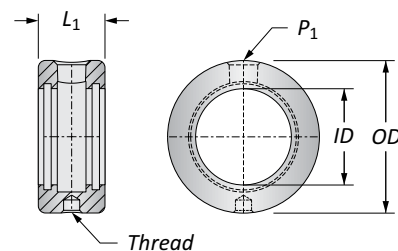


T-ACR 45 Chamfer Ring

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	17.53 - 21.69	26.59	20.24	T-ACR-45-1	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7495-IP15-1	8IP-15
1.5	21.70 - 24.38	28.58	22.62	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
 25.40	53.97	28.57	M8 x 1.25	1/8*	 2T-3SRM	2T1-3SR	2T1-3OR-10
 1	2-1/8	1-1/8	5/16-18	1/8	 2T-3SR	2T1-3SR	2T1-3OR-10








*Thread to BSP and ISO 7-1

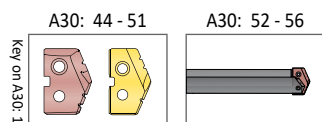
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers


 Refer to page A30: 111 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	305 N-cm (27.0 in-lbs)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	305 N-cm (27.0 in-lbs)

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



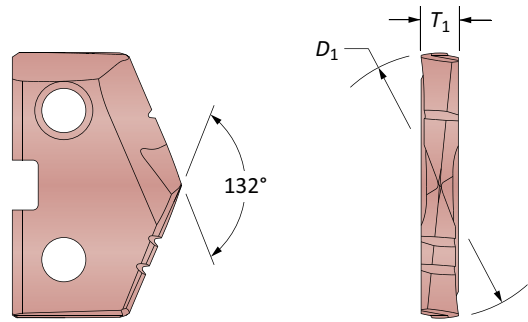
 = Metric (mm)
 = Imperial (in)

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: 24.41mm - 35.05mm (0.961" - 1.380")

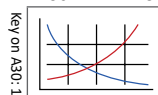


HSS Inserts – Super Cobalt • Carbide Inserts – K20 (C2) | K35 (C1)

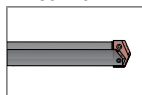
Series	Insert				HSS Part No.		
	D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	Super Cobalt	C2	C1
2	24.50	0.9646	–	4.76	452H-24.5	4C22H-24.5	4C12H-24.5
	24.61	0.9688	31/32		452H-0031	4C22H-0031	4C12H-0031
	24.79	0.9760	–		452H-.976	4C22H-.976	4C12H-.976
	25.00	0.9843	63/64		452H-25	4C22H-25	4C12H-25
	25.40	1.0000	1		452H-0100	4C22H-0100	4C12H-0100
	25.50	1.0039	–		452H-25.5	4C22H-25.5	4C12H-25.5
	25.80	1.0156	1-1/64		452H-1.015	4C22H-1.015	4C12H-1.015
	26.00	1.0236	–		452H-26	4C22H-26	4C12H-26
	26.19	1.0313	1-1/32		452H-0101	4C22H-0101	4C12H-0101
	26.50	1.0433	–		452H-26.5	4C22H-26.5	4C12H-26.5
	26.59	1.0469	1-3/64		452H-1.046	4C22H-1.046	4C12H-1.046
	26.99	1.0625	1-1/16		452H-0102	4C22H-0102	4C12H-0102
	27.00	1.0630	–		452H-27	4C22H-27	4C12H-27
	27.50	1.0827	–		452H-27.5	4C22H-27.5	4C12H-27.5
	27.78	1.0938	1-3/32		452H-0103	4C22H-0103	4C12H-0103
	28.00	1.1024	–		452H-28	4C22H-28	4C12H-28
	28.18	1.1094	1-7/64		452H-1.109	4C22H-1.109	4C12H-1.109
	28.50	1.1220	–		452H-28.5	4C22H-28.5	4C12H-28.5
	28.58	1.1250	1-1/8		452H-0104	4C22H-0104	4C12H-0104
	29.00	1.1417	–		452H-29	4C22H-29	4C12H-29
29.37	1.1563	1-5/32	452H-0105	4C22H-0105	4C12H-0105		
29.50	1.1614	–	452H-29.5	4C22H-29.5	4C12H-29.5		
30.00	1.1811	–	452H-30	4C22H-30	4C12H-30		
2.5	30.16	1.1875	1-3/16	4.76	452H-0106	4C22H-0106	4C12H-0106
	30.50	1.2008	–		452H-30.5	4C22H-30.5	4C12H-30.5
	30.96	1.2188	1-7/32		452H-0107	4C22H-0107	4C12H-0107
	31.00	1.2205	–		452H-31	4C22H-31	4C12H-31
	31.14	1.2260	–		452H-1.226	4C22H-1.226	4C12H-1.226
	31.26	1.2310	–		452H-1.231	4C22H-1.231	4C12H-1.231
	31.34	1.2340	–		452H-1.234	4C22H-1.234	4C12H-1.234
	31.50	1.2402	–		452H-31.5	4C22H-31.5	4C12H-31.5
	31.75	1.2500	1-1/4		452H-0108	4C22H-0108	4C12H-0108
	32.00	1.2598	–		452H-32	4C22H-32	4C12H-32
	32.50	1.2795	–		452H-32.5	4C22H-32.5	4C12H-32.5
	32.54	1.2813	1-9/32		452H-0109	4C22H-0109	4C12H-0109
	33.00	1.2992	–		452H-33	4C22H-33	4C12H-33
	33.34	1.3125	1-5/16		452H-0110	4C22H-0110	4C12H-0110
	33.50	1.3189	–		452H-33.5	4C22H-33.5	4C12H-33.5
	34.00	1.3386	–		452H-34	4C22H-34	4C12H-34
	34.13	1.3438	1-11/32		452H-0111	4C22H-0111	4C12H-0111
	34.50	1.3582	–		452H-34.5	4C22H-34.5	4C12H-34.5
	34.93	1.3750	1-3/8		452H-0112	4C22H-0112	4C12H-0112
	35.00	1.3780	–		452H-35	4C22H-35	4C12H-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: 114 - 145



A30: 70 - 74



A30: 4 - 6



Coatings not listed above can be supplied as non-stocked standards.

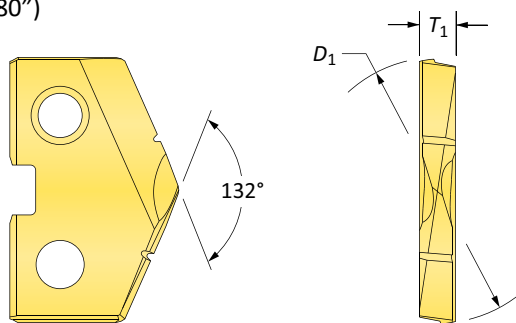


Inserts sold in quantities of 2




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TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

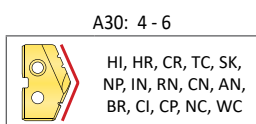
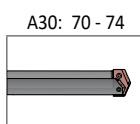
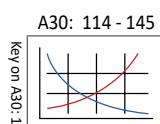
2 Series | HSS | Diameter Range: 24.41mm - 35.05mm (0.961" - 1.380")



HSS Inserts – Premium Cobalt

Series	Insert				Part No.		
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁ mm	 TiN	 TiAlN	 TiCN
2	24.50	0.9646	–	4.76	182T-24.5	182A-24.5	182N-24.5
	24.61	0.9688	31/32		182T-0031	182A-0031	182N-0031
	24.79	0.9760	–		182T-976	182A-976	182N-976
	25.00	0.9843	63/64		182T-25	182A-25	182N-25
	25.40	1.0000	1		182T-0100	182A-0100	182N-0100
	25.50	1.0039	–		182T-25.5	182A-25.5	182N-25.5
	25.80	1.0156	1-1/64		182T-1.015	182A-1.015	182N-1.015
	26.00	1.0236	–		182T-26	182A-26	182N-26
	26.19	1.0313	1-1/32		182T-0101	182A-0101	182N-0101
	26.50	1.0433	–		182T-26.5	182A-26.5	182N-26.5
	26.59	1.0469	1-3/64		182T-1.046	182A-1.046	182N-1.046
	26.99	1.0625	1-1/16		182T-0102	182A-0102	182N-0102
	27.00	1.0630	–		182T-27	182A-27	182N-27
	27.50	1.0827	–		182T-27.5	182A-27.5	182N-27.5
	27.78	1.0938	1-3/32		182T-0103	182A-0103	182N-0103
	28.00	1.1024	–		182T-28	182A-28	182N-28
	28.18	1.1094	1-7/64		182T-1.109	182A-1.109	182N-1.109
	28.50	1.1220	–		182T-28.5	182A-28.5	182N-28.5
	28.58	1.1250	1-1/8		182T-0104	182A-0104	182N-0104
	29.00	1.1417	–		182T-29	182A-29	182N-29
29.37	1.1563	1-5/32	182T-0105	182A-0105	182N-0105		
29.50	1.1614	–	182T-29.5	182A-29.5	182N-29.5		
30.00	1.1811	–	182T-30	182A-30	182N-30		
2.5	30.16	1.1875	1-3/16	4.76	182T-0106	182A-0106	182N-0106
	30.50	1.2008	–		182T-30.5	182A-30.5	182N-30.5
	30.96	1.2188	1-7/32		182T-0107	182A-0107	182N-0107
	31.00	1.2205	–		182T-31	182A-31	182N-31
	31.14	1.2260	–		182T-1.226	182A-1.226	182N-1.226
	31.26	1.2310	–		182T-1.231	182A-1.231	182N-1.231
	31.34	1.2340	–		182T-1.234	182A-1.234	182N-1.234
	31.50	1.2402	–		182T-31.5	182A-31.5	182N-31.5
	31.75	1.2500	1-1/4		182T-0108	182A-0108	182N-0108
	32.00	1.2598	–		182T-32	182A-32	182N-32
	32.50	1.2795	–		182T-32.5	182A-32.5	182N-32.5
	32.54	1.2813	1-9/32		182T-0109	182A-0109	182N-0109
	33.00	1.2992	–		182T-33	182A-33	182N-33
	33.34	1.3125	1-5/16		182T-0110	182A-0110	182N-0110
	33.50	1.3189	–		182T-33.5	182A-33.5	182N-33.5
	34.00	1.3386	–		182T-34	182A-34	182N-34
	34.13	1.3438	1-11/32		182T-0111	182A-0111	182N-0111
	34.50	1.3582	–		182T-34.5	182A-34.5	182N-34.5
	34.93	1.3750	1-3/8		182T-0112	182A-0112	182N-0112
	35.00	1.3780	–		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.



Coatings not listed above can be supplied as non-stocked standards.

Inserts sold in quantities of 2

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

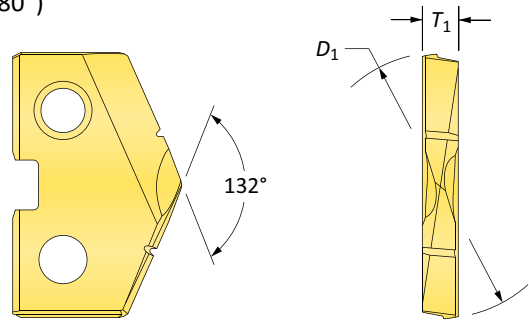
THREADING

X




SPECIALS

T-A® Original Drill Inserts

2 Series | HSS | Diameter Range: 24.41mm - 35.05mm (0.961" - 1.380")



HSS Inserts – Super Cobalt

Series	Insert			T ₁	Part No.		
	D ₁ mm	D ₁ inch	Fractional Equivalent		 TiN	 TiAlN	 TiCN
2	24.50	0.9646	–	4.76	152T-24.5	152A-24.5	152N-24.5
	24.61	0.9688	31/32		152T-0031	152A-0031	152N-0031
	24.79	0.9760	–		152T-.976	152A-.976	152N-.976
	25.00	0.9843	63/64		152T-25	152A-25	152N-25
	25.40	1.0000	1		152T-0100	152A-0100	152N-0100
	25.50	1.0039	–		152T-25.5	152A-25.5	152N-25.5
	25.80	1.0156	1-1/64		152T-1.015	152A-1.015	152N-1.015
	26.00	1.0236	–		152T-26	152A-26	152N-26
	26.19	1.0313	1-1/32		152T-0101	152A-0101	152N-0101
	26.50	1.0433	–		152T-26.5	152A-26.5	152N-26.5
	26.59	1.0469	1-3/64		152T-1.046	152A-1.046	152N-1.046
	26.99	1.0625	1-1/16		152T-0102	152A-0102	152N-0102
	27.00	1.0630	–		152T-27	152A-27	152N-27
	27.50	1.0827	–		152T-27.5	152A-27.5	152N-27.5
	27.78	1.0938	1-3/32		152T-0103	152A-0103	152N-0103
	28.00	1.1024	–		152T-28	152A-28	152N-28
	28.18	1.1094	1-7/64		152T-1.109	152A-1.109	152N-1.109
	28.50	1.1220	–		152T-28.5	152A-28.5	152N-28.5
	28.58	1.1250	1-1/8		152T-0104	152A-0104	152N-0104
	29.00	1.1417	–		152T-29	152A-29	152N-29
29.37	1.1563	1-5/32	152T-0105	152A-0105	152N-0105		
29.50	1.1614	–	152T-29.5	152A-29.5	152N-29.5		
30.00	1.1811	–	152T-30	152A-30	152N-30		
2.5	30.16	1.1875	1-3/16	4.76	152T-0106	152A-0106	152N-0106
	30.50	1.2008	–		152T-30.5	152A-30.5	152N-30.5
	30.96	1.2188	1-7/32		152T-0107	152A-0107	152N-0107
	31.00	1.2205	–		152T-31	152A-31	152N-31
	31.14	1.2260	–		152T-1.226	152A-1.226	152N-1.226
	31.26	1.2310	–		152T-1.231	152A-1.231	152N-1.231
	31.34	1.2340	–		152T-1.234	152A-1.234	152N-1.234
	31.50	1.2402	–		152T-31.5	152A-31.5	152N-31.5
	31.75	1.2500	1-1/4		152T-0108	152A-0108	152N-0108
	32.00	1.2598	–		152T-32	152A-32	152N-32
	32.50	1.2795	–		152T-32.5	152A-32.5	152N-32.5
	32.54	1.2813	1-9/32		152T-0109	152A-0109	152N-0109
	33.00	1.2992	–		152T-33	152A-33	152N-33
	33.34	1.3125	1-5/16		152T-0110	152A-0110	152N-0110
	33.50	1.3189	–		152T-33.5	152A-33.5	152N-33.5
	34.00	1.3386	–		152T-34	152A-34	152N-34
	34.13	1.3438	1-11/32		152T-0111	152A-0111	152N-0111
	34.50	1.3582	–		152T-34.5	152A-34.5	152N-34.5
	34.93	1.3750	1-3/8		152T-0112	152A-0112	152N-0112
	35.00	1.3780	–		152T-35	152A-35	152N-35

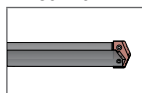
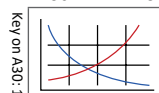
NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

Inserts sold in quantities of 2

A30: 114 - 145

A30: 70 - 74

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.



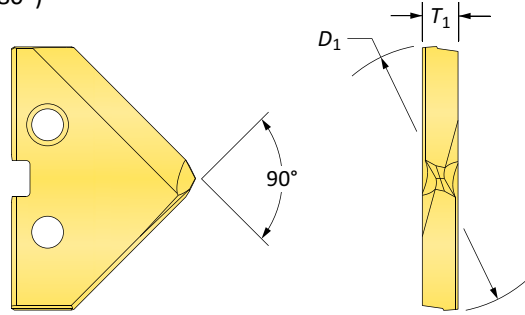
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts




2 Series | HSS | Diameter Range: 24.41mm - 35.05mm (0.961" - 1.380")



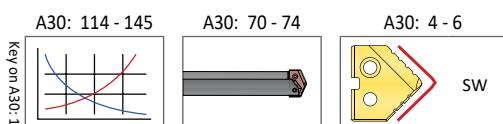
90° Spot & Chamfer



HSS Inserts – Super Cobalt

Series	Insert				90° Spot & Chamfer Part No.		
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁ mm	 TiN	 TiAlN	 TiCN
2	24.50	0.9646	–	4.76	152T-24.5-SP	152A-24.5-SP	152N-24.5-SP
	24.61	0.9688	31/32		152T-0031-SP	152A-0031-SP	152N-0031-SP
	24.79	0.9760	–		152T-.976-SP	152A-.976-SP	152N-.976-SP
	25.00	0.9843	63/64		152T-25-SP	152A-25-SP	152N-25-SP
	25.40	1.0000	1		152T-0100-SP	152A-0100-SP	152N-0100-SP
	25.50	1.0039	–		152T-25.5-SP	152A-25.5-SP	152N-25.5-SP
	25.80	1.0156	1-1/64		152T-1.015-SP	152A-1.015-SP	152N-1.015-SP
	26.00	1.0236	–		152T-26-SP	152A-26-SP	152N-26-SP
	26.19	1.0313	1-1/32		152T-0101-SP	152A-0101-SP	152N-0101-SP
	26.50	1.0433	–		152T-26.5-SP	152A-26.5-SP	152N-26.5-SP
	26.59	1.0469	1-3/64		152T-1.046-SP	152A-1.046-SP	152N-1.046-SP
	26.99	1.0625	1-1/16		152T-0102-SP	152A-0102-SP	152N-0102-SP
	27.00	1.0630	–		152T-27-SP	152A-27-SP	152N-27-SP
	27.50	1.0827	–		152T-27.5-SP	152A-27.5-SP	152N-27.5-SP
	27.78	1.0938	1-3/32		152T-0103-SP	152A-0103-SP	152N-0103-SP
	28.00	1.1024	–		152T-28-SP	152A-28-SP	152N-28-SP
	28.18	1.1094	1-7/64		152T-1.109-SP	152A-1.109-SP	152N-1.109-SP
	28.50	1.1220	–		152T-28.5-SP	152A-28.5-SP	152N-28.5-SP
	28.58	1.1250	1-1/8		152T-0104-SP	152A-0104-SP	152N-0104-SP
	29.00	1.1417	–		152T-29-SP	152A-29-SP	152N-29-SP
29.37	1.1563	1-5/32	152T-0105-SP	152A-0105-SP	152N-0105-SP		
29.50	1.1614	–	152T-29.5-SP	152A-29.5-SP	152N-29.5-SP		
30.00	1.1811	–	152T-30-SP	152A-30-SP	152N-30-SP		
2.5	30.16	1.1875	1-3/16	4.76	152T-0106-SP	152A-0106-SP	152N-0106-SP
	30.50	1.2008	–		152T-30.5-SP	152A-30.5-SP	152N-30.5-SP
	30.96	1.2188	1-7/32		152T-0107-SP	152A-0107-SP	152N-0107-SP
	31.00	1.2205	–		152T-31-SP	152A-31-SP	152N-31-SP
	31.14	1.2260	–		152T-1.226-SP	152A-1.226-SP	152N-1.226-SP
	31.26	1.2310	–		152T-1.231-SP	152A-1.231-SP	152N-1.231-SP
	31.34	1.2340	–		152T-1.234-SP	152A-1.234-SP	152N-1.234-SP
	31.50	1.2402	–		152T-31.5-SP	152A-31.5-SP	152N-31.5-SP
	31.75	1.2500	1-1/4		152T-0108-SP	152A-0108-SP	152N-0108-SP
	32.00	1.2598	–		152T-32-SP	152A-32-SP	152N-32-SP
	32.50	1.2795	–		152T-32.5-SP	152A-32.5-SP	152N-32.5-SP
	32.54	1.2813	1-9/32		152T-0109-SP	152A-0109-SP	152N-0109-SP
	33.00	1.2992	–		152T-33-SP	152A-33-SP	152N-33-SP
	33.34	1.3125	1-5/16		152T-0110-SP	152A-0110-SP	152N-0110-SP
	33.50	1.3189	–		152T-33.5-SP	152A-33.5-SP	152N-33.5-SP
	34.00	1.3386	–		152T-34-SP	152A-34-SP	152N-34-SP
	34.13	1.3438	1-11/32		152T-0111-SP	152A-0111-SP	152N-0111-SP
	34.50	1.3582	–		152T-34.5-SP	152A-34.5-SP	152N-34.5-SP
	34.93	1.3750	1-3/8		152T-0112-SP	152A-0112-SP	152N-0112-SP
	35.00	1.3780	–		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.



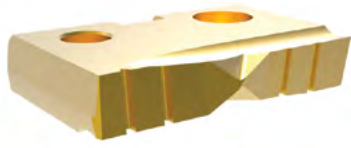
Coatings not listed above can be supplied as non-stocked standards.

Inserts sold in quantities of 2

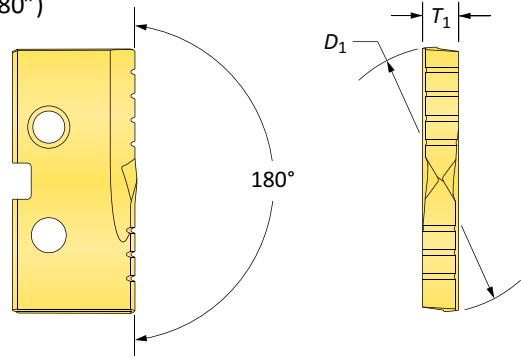
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200* = 131H-XXXX

T-A® Original Drill Inserts

2 Series | HSS | Diameter Range: 24.41mm - 35.05mm (0.961" - 1.380")



Flat Bottom

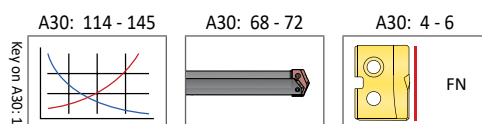


HSS Inserts – Super Cobalt

Series	Insert			T ₁ mm	Flat Bottom Part No.
	D ₁ mm	D ₁ inch	Fractional Equivalent		TiN
2	24.50	0.9646	–	4.76	152T-24.5-FB
	24.61	0.9688	31/32		152T-0031-FB
	24.79	0.9760	–		152T-.976-FB
	25.00	0.9843	63/64		152T-25-FB
	25.40	1.0000	1		152T-0100-FB
	25.50	1.0039	–		152T-25.5-FB
	25.80	1.0156	1-1/64		152T-1.015-FB
	26.00	1.0236	–		152T-26-FB
	26.19	1.0313	1-1/32		152T-0101-FB
	26.50	1.0433	–		152T-26.5-FB
	26.59	1.0469	1-3/64		152T-1.046-FB
	26.99	1.0625	1-1/16		152T-0102-FB
	27.00	1.0630	–		152T-27-FB
	27.50	1.0827	–		152T-27.5-FB
	27.78	1.0938	1-3/32		152T-0103-FB
	28.00	1.1024	–		152T-28-FB
	28.18	1.1094	1-7/64		152T-1.109-FB
	28.50	1.1220	–		152T-28.5-FB
	28.58	1.1250	1-1/8		152T-0104-FB
	29.00	1.1417	–		152T-29-FB
29.37	1.1563	1-5/32	152T-0105-FB		
29.50	1.1614	–	152T-29.5-FB		
30.00	1.1811	–	152T-30-FB		
2.5	30.16	1.1875	1-3/16	4.76	152T-0106-FB
	30.50	1.2008	–		152T-30.5-FB
	30.96	1.2188	1-7/32		152T-0107-FB
	31.00	1.2205	–		152T-31-FB
	31.14	1.2260	–		152T-1.226-FB
	31.26	1.2310	–		152T-1.231-FB
	31.34	1.2340	–		152T-1.234-FB
	31.50	1.2402	–		152T-31.5-FB
	31.75	1.2500	1-1/4		152T-0108-FB
	32.00	1.2598	–		152T-32-FB
	32.50	1.2795	–		152T-32.5-FB
	32.54	1.2813	1-9/32		152T-0109-FB
	33.00	1.2992	–		152T-33-FB
	33.34	1.3125	1-5/16		152T-0110-FB
	33.50	1.3189	–		152T-33.5-FB
	34.00	1.3386	–		152T-34-FB
	34.13	1.3438	1-11/32		152T-0111-FB
	34.50	1.3582	–		152T-34.5-FB
	34.93	1.3750	1-3/8		152T-0112-FB
	35.00	1.3780	–		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



Coatings not listed above can be supplied as non-stocked standards.



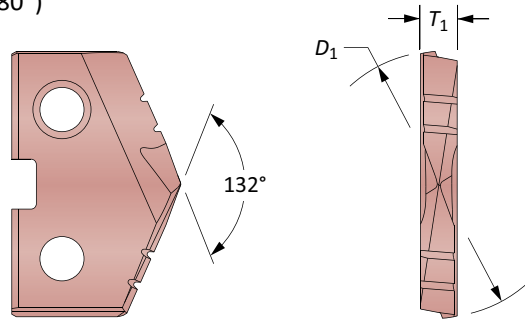
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts



2 Series | HSS | Diameter Range: 24.41mm - 35.05mm (0.961" - 1.380")



Tube Sheet



HSS Inserts – Super Cobalt | HSS

Series	Insert				Part No.	
	D_1 mm	D_1 inch	Fractional Equivalent	T_1	 Super Cobalt	 HSS
2	25.60	1.0080	–	4.76	152H-1.0080-IN	132H-1.0080-IN
	25.80	1.0156	1-1/64		152H-1.015-IN	132H-1.015-IN
	26.19	1.0313	1-1/32		152H-0101-IN	132H-0101-IN

A

DRILLING

B

BORING

C

REAMING

D

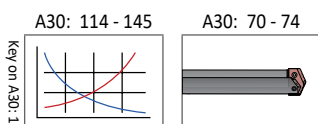
BURNISHING


F

THREADING

X

SPECIALS

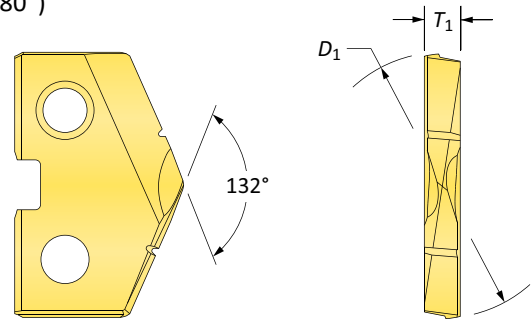


Coatings not listed above can be supplied as non-stocked standards. 




Inserts sold in quantities of 2	
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

2 Series | HSS | Diameter Range: 24.41mm - 35.05mm (0.961" - 1.380")



HSS Inserts – HSS

Series	Insert			T ₁ mm	Part No.		
	D ₁ mm	D ₁ inch	Fractional Equivalent		 TiN	 TiAlN	 TiCN
2	24.50	0.9646	–	4.76	132T-24.5	132A-24.5	132N-24.5
	24.61	0.9688	31/32		132T-0031	132A-0031	132N-0031
	24.79	0.9760	–		132T-.976	132A-.976	132N-.976
	25.00	0.9843	63/64		132T-25	132A-25	132N-25
	25.40	1.0000	1		132T-0100	132A-0100	132N-0100
	25.50	1.0039	–		132T-25.5	132A-25.5	132N-25.5
	25.80	1.0156	1-1/64		132T-1.015	132A-1.015	132N-1.015
	26.00	1.0236	–		132T-26	132A-26	132N-26
	26.19	1.0313	1-1/32		132T-0101	132A-0101	132N-0101
	26.50	1.0433	–		132T-26.5	132A-26.5	132N-26.5
	26.59	1.0469	1-3/64		132T-1.046	132A-1.046	132N-1.046
	26.99	1.0625	1-1/16		132T-0102	132A-0102	132N-0102
	27.00	1.0630	–		132T-27	132A-27	132N-27
	27.50	1.0827	–		132T-27.5	132A-27.5	132N-27.5
	27.78	1.0938	1-3/32		132T-0103	132A-0103	132N-0103
	28.00	1.1024	–		132T-28	132A-28	132N-28
	28.18	1.1094	1-7/64		132T-1.109	132A-1.109	132N-1.109
	28.50	1.1220	–		132T-28.5	132A-28.5	132N-28.5
	28.58	1.1250	1-1/8		132T-0104	132A-0104	132N-0104
	29.00	1.1417	–		132T-29	132A-29	132N-29
29.37	1.1563	1-5/32	132T-0105	132A-0105	132N-0105		
29.50	1.1614	–	132T-29.5	132A-29.5	132N-29.5		
30.00	1.1811	–	132T-30	132A-30	132N-30		
2.5	30.16	1.1875	1-3/16	4.76	132T-0106	132A-0106	132N-0106
	30.50	1.2008	–		132T-30.5	132A-30.5	132N-30.5
	30.96	1.2188	1-7/32		132T-0107	132A-0107	132N-0107
	31.00	1.2205	–		132T-31	132A-31	132N-31
	31.14	1.2260	–		132T-1.226	132A-1.226	132N-1.226
	31.26	1.2310	–		132T-1.231	132A-1.231	132N-1.231
	31.34	1.2340	–		132T-1.234	132A-1.234	132N-1.234
	31.50	1.2402	–		132T-31.5	132A-31.5	132N-31.5
	31.75	1.2500	1-1/4		132T-0108	132A-0108	132N-0108
	32.00	1.2598	–		132T-32	132A-32	132N-32
	32.50	1.2795	–		132T-32.5	132A-32.5	132N-32.5
	32.54	1.2813	1-9/32		132T-0109	132A-0109	132N-0109
	33.00	1.2992	–		132T-33	132A-33	132N-33
	33.34	1.3125	1-5/16		132T-0110	132A-0110	132N-0110
	33.50	1.3189	–		132T-33.5	132A-33.5	132N-33.5
	34.00	1.3386	–		132T-34	132A-34	132N-34
	34.13	1.3438	1-11/32		132T-0111	132A-0111	132N-0111
	34.50	1.3582	–		132T-34.5	132A-34.5	132N-34.5
	34.93	1.3750	1-3/8		132T-0112	132A-0112	132N-0112
	35.00	1.3780	–		132T-35	132A-35	132N-35

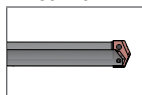
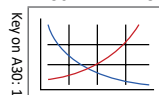
NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

Inserts sold in quantities of 2

A30: 114 - 145

A30: 70 - 74

A30: 4 - 6



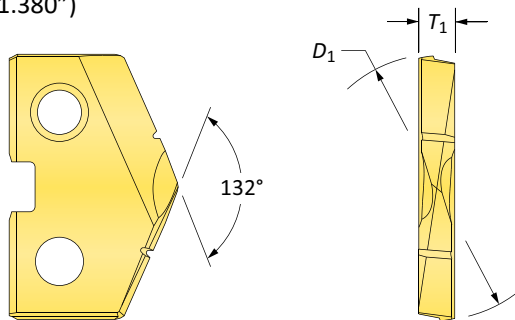
HI, HR, CR, TC, SK,
NP, IN, RN, CN, AN,
BR, CI, CP, NC, WC

Coatings not listed above
can be supplied as
non-stocked standards.



TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

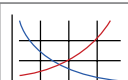
2 Series | Carbide | Diameter Range: 24.41mm - 35.05mm (0.961" - 1.380")





Carbide Inserts – K20 (C2)

Series	Insert				Part No.	
	D ₁ mm	D ₁ inch	Fractional Equivalent	T ₁	 TiN	 TiAlN
2	24.50	0.9646	–	4.76	1C22T-24.5	1C22A-24.5
	24.61	0.9688	31/32		1C22T-0031	1C22A-0031
	24.79	0.9760	–		1C22T-.976	1C22A-.976
	25.00	0.9843	63/64		1C22T-25	1C22A-25
	25.40	1.0000	1		1C22T-0100	1C22A-0100
	25.50	1.0039	–		1C22T-25.5	1C22A-25.5
	25.80	1.0156	1-1/64		1C22T-1.015	1C22A-1.015
	26.00	1.0236	–		1C22T-26	1C22A-26
	26.19	1.0313	1-1/32		1C22T-0101	1C22A-0101
	26.50	1.0433	–		1C22T-26.5	1C22A-26.5
	26.59	1.0469	1-3/64		1C22T-1.046	1C22A-1.046
	26.99	1.0625	1-1/16		1C22T-0102	1C22A-0102
	27.00	1.0630	–		1C22T-27	1C22A-27
	27.50	1.0827	–		1C22T-27.5	1C22A-27.5
	27.78	1.0938	1-3/32		1C22T-0103	1C22A-0103
	28.00	1.1024	–		1C22T-28	1C22A-28
	28.18	1.1094	1-7/64		1C22T-1.109	1C22A-1.109
	28.50	1.1220	–		1C22T-28.5	1C22A-28.5
	28.58	1.1250	1-1/8		1C22T-0104	1C22A-0104
	29.00	1.1417	–		1C22T-29	1C22A-29
29.37	1.1563	1-5/32	1C22T-0105	1C22A-0105		
29.50	1.1614	–	1C22T-29.5	1C22A-29.5		
30.00	1.1811	–	1C22T-30	1C22A-30		
2.5	30.16	1.1875	1-3/16	4.76	1C22T-0106	1C22A-0106
	30.50	1.2008	–		1C22T-30.5	1C22A-30.5
	30.96	1.2188	1-7/32		1C22T-0107	1C22A-0107
	31.00	1.2205	–		1C22T-31	1C22A-31
	31.14	1.2260	–		1C22T-1.226	1C22A-1.226
	31.26	1.2310	–		1C22T-1.231	1C22A-1.231
	31.34	1.2340	–		1C22T-1.234	1C22A-1.234
	31.50	1.2402	–		1C22T-31.5	1C22A-31.5
	31.75	1.2500	1-1/4		1C22T-0108	1C22A-0108
	32.00	1.2598	–		1C22T-32	1C22A-32
	32.50	1.2795	–		1C22T-32.5	1C22A-32.5
	32.54	1.2813	1-9/32		1C22T-0109	1C22A-0109
	33.00	1.2992	–		1C22T-33	1C22A-33
	33.34	1.3125	1-5/16		1C22T-0110	1C22A-0110
	33.50	1.3189	–		1C22T-33.5	1C22A-33.5
	34.00	1.3386	–		1C22T-34	1C22A-34
	34.13	1.3438	1-11/32		1C22T-0111	1C22A-0111
	34.50	1.3582	–		1C22T-34.5	1C22A-34.5
	34.93	1.3750	1-3/8		1C22T-0112	1C22A-0112
	35.00	1.3780	–		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.

A30: 114 - 145

 Key on A30: 1

A30: 70 - 74


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. →

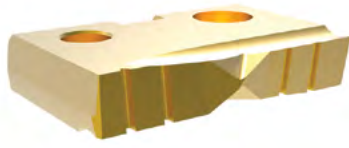
Inserts sold in quantities of 2

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

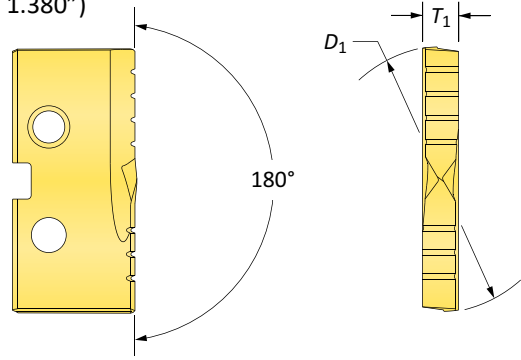
A DRILLING
 B BORING
 C REAMING
 D BURISHING
 E THREADING
 X SPECIALS

T-A® Original Drill Inserts


2 Series | Carbide | Diameter Range: 24.41mm - 35.05mm (0.961" - 1.380")



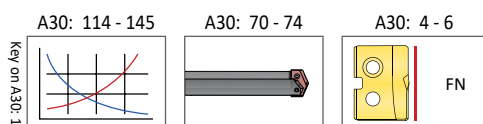
Flat Bottom



Carbide Inserts – K20 (C2)

Series	Insert			Flat Bottom Part No.	
	D_1 mm	D_1 inch	Fractional Equivalent		
2	24.50	0.9646	–	4.76	 1C22T-24.5-FB
	24.61	0.9688	31/32		1C22T-0031-FB
	24.79	0.9760	–		1C22T-.976-FB
	25.00	0.9843	63/64		1C22T-25-FB
	25.40	1.0000	1		1C22T-0100-FB
	25.50	1.0039	–		1C22T-25.5-FB
	25.80	1.0156	1-1/64		1C22T-1.015-FB
	26.00	1.0236	–		1C22T-26-FB
	26.19	1.0313	1-1/32		1C22T-0101-FB
	26.50	1.0433	–		1C22T-26.5-FB
	26.59	1.0469	1-3/64		1C22T-1.046-FB
	26.99	1.0625	1-1/16		1C22T-0102-FB
	27.00	1.0630	–		1C22T-27-FB
	27.50	1.0827	–		1C22T-27.5-FB
	27.78	1.0938	1-3/32		1C22T-0103-FB
	28.00	1.1024	–		1C22T-28-FB
	28.18	1.1094	1-7/64		1C22T-1.109-FB
	28.50	1.1220	–		1C22T-28.5-FB
	28.58	1.1250	1-1/8		1C22T-0104-FB
	29.00	1.1417	–		1C22T-29-FB
29.37	1.1563	1-5/32	1C22T-0105-FB		
29.50	1.1614	–	1C22T-29.5-FB		
30.00	1.1811	–	1C22T-30-FB		
2.5	30.16	1.1875	1-3/16	4.76	1C22T-0106-FB
	30.50	1.2008	–		1C22T-30.5-FB
	30.96	1.2188	1-7/32		1C22T-0107-FB
	31.00	1.2205	–		1C22T-31-FB
	31.14	1.2260	–		1C22T-1.226-FB
	31.26	1.2310	–		1C22T-1.231-FB
	31.34	1.2340	–		1C22T-1.234-FB
	31.50	1.2402	–		1C22T-31.5-FB
	31.75	1.2500	1-1/4		1C22T-0108-FB
	32.00	1.2598	–		1C22T-32-FB
	32.50	1.2795	–		1C22T-32.5-FB
	32.54	1.2813	1-9/32		1C22T-0109-FB
	33.00	1.2992	–		1C22T-33-FB
	33.34	1.3125	1-5/16		1C22T-0110-FB
	33.50	1.3189	–		1C22T-33.5-FB
	34.00	1.3386	–		1C22T-34-FB
	34.13	1.3438	1-11/32		1C22T-0111-FB
	34.50	1.3582	–		1C22T-34.5-FB
	34.93	1.3750	1-3/8		1C22T-0112-FB
	35.00	1.3780	–		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.



Coatings not listed above can be supplied as non-stocked standards.

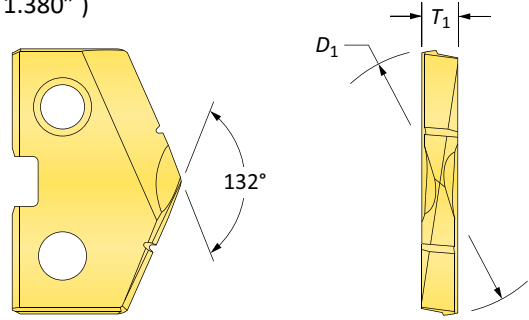


TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

Inserts sold in quantities of 2

T-A® Original Drill Inserts

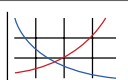


2 Series | Carbide | Diameter Range: 24.41mm - 35.05mm (0.961" - 1.380")




Carbide Inserts – P35 (C5) | K10 (C3) | N2

Series	Insert			T ₁ mm	C5 Part No.		C3 Part No.	N2 Part No.
	D ₁ mm	D ₁ inch	Fractional Equivalent		TiN	TiAlN	TiAlN (Cast Iron)	Diamond Film
2	24.50	0.9646	–	4.76	1C52T-24.5	1C52A-24.5	1C32A-24.5-CI	1N22D-24.5
	24.61	0.9688	31/32		1C52T-0031	1C52A-0031	1C32A-0031-CI	1N22D-0031
	24.79	0.9760	–		1C52T-976	1C52A-.976	1C32A-.976-CI	1N22D-.976
	25.00	0.9843	63/64		1C52T-25	1C52A-25	1C32A-25-CI	1N22D-25
	25.40	1.0000	1		1C52T-0100	1C52A-0100	1C32A-0100-CI	1N22D-0100
	25.50	1.0039	–		1C52T-25.5	1C52A-25.5	1C32A-25.5-CI	1N22D-25.5
	25.80	1.0156	1-1/64		1C52T-1.015	1C52A-1.015	1C32A-1.015-CI	1N22D-1.015
	26.00	1.0236	–		1C52T-26	1C52A-26	1C32A-26-CI	1N22D-26
	26.19	1.0313	1-1/32		1C52T-0101	1C52A-0101	1C32A-0101-CI	1N22D-0101
	26.50	1.0433	–		1C52T-26.5	1C52A-26.5	1C32A-26.5-CI	1N22D-26.5
	26.59	1.0469	1-3/64		1C52T-1.046	1C52A-1.046	1C32A-1.046-CI	1N22D-1.046
	26.99	1.0625	1-1/16		1C52T-0102	1C52A-0102	1C32A-0102-CI	1N22D-0102
	27.00	1.0630	–		1C52T-27	1C52A-27	1C32A-27-CI	1N22D-27
	27.50	1.0827	–		1C52T-27.5	1C52A-27.5	1C32A-27.5-CI	1N22D-27.5
	27.78	1.0938	1-3/32		1C52T-0103	1C52A-0103	1C32A-0103-CI	1N22D-0103
	28.00	1.1024	–		1C52T-28	1C52A-28	1C32A-28-CI	1N22D-28
	28.18	1.1094	1-7/64		1C52T-1.109	1C52A-1.109	1C32A-1.109-CI	1N22D-1.109
	28.50	1.1220	–		1C52T-28.5	1C52A-28.5	1C32A-28.5-CI	1N22D-28.5
	28.58	1.1250	1-1/8		1C52T-0104	1C52A-0104	1C32A-0104-CI	1N22D-0104
	29.00	1.1417	–		1C52T-29	1C52A-29	1C32A-29-CI	1N22D-29
29.37	1.1563	1-5/32	1C52T-0105	1C52A-0105	1C32A-0105-CI	1N22D-0105		
29.50	1.1614	–	1C52T-29.5	1C52A-29.5	1C32A-29.5-CI	1N22D-29.5		
30.00	1.1811	–	1C52T-30	1C52A-30	1C32A-30-CI	1N22D-30		
2.5	30.16	1.1875	1-3/16	4.76	1C52T-0106	1C52A-0106	1C32A-0106-CI	1N22D-0106
	30.50	1.2008	–		1C52T-30.5	1C52A-30.5	1C32A-30.5-CI	1N22D-30.5
	30.96	1.2188	1-7/32		1C52T-0107	1C52A-0107	1C32A-0107-CI	1N22D-0107
	31.00	1.2205	–		1C52T-31	1C52A-31	1C32A-31-CI	1N22D-31
	31.14	1.2260	–		1C52T-1.226	1C52A-1.226	1C32A-1.226-CI	1N22D-1.226
	31.26	1.2310	–		1C52T-1.231	1C52A-1.231	1C32A-1.231-CI	1N22D-1.231
	31.34	1.2340	–		1C52T-1.234	1C52A-1.234	1C32A-1.234-CI	1N22D-1.234
	31.50	1.2402	–		1C52T-31.5	1C52A-31.5	1C32A-31.5-CI	1N22D-31.5
	31.75	1.2500	1-1/4		1C52T-0108	1C52A-0108	1C32A-0108-CI	1N22D-0108
	32.00	1.2598	–		1C52T-32	1C52A-32	1C32A-32-CI	1N22D-32
	32.50	1.2795	–		1C52T-32.5	1C52A-32.5	1C32A-32.5-CI	1N22D-32.5
	32.54	1.2813	1-9/32		1C52T-0109	1C52A-0109	1C32A-0109-CI	1N22D-0109
	33.00	1.2992	–		1C52T-33	1C52A-33	1C32A-33-CI	1N22D-33
	33.34	1.3125	1-5/16		1C52T-0110	1C52A-0110	1C32A-0110-CI	1N22D-0110
	33.50	1.3189	–		1C52T-33.5	1C52A-33.5	1C32A-33.5-CI	1N22D-33.5
	34.00	1.3386	–		1C52T-34	1C52A-34	1C32A-34-CI	1N22D-34
	34.13	1.3438	1-11/32		1C52T-0111	1C52A-0111	1C32A-0111-CI	1N22D-0111
	34.50	1.3582	–		1C52T-34.5	1C52A-34.5	1C32A-34.5-CI	1N22D-34.5
	34.93	1.3750	1-3/8		1C52T-0112	1C52A-0112	1C32A-0112-CI	1N22D-0112
	35.00	1.3780	–		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.

A30: 114 - 145  A30: 70 - 74  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. 

Inserts sold in quantities of 2

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

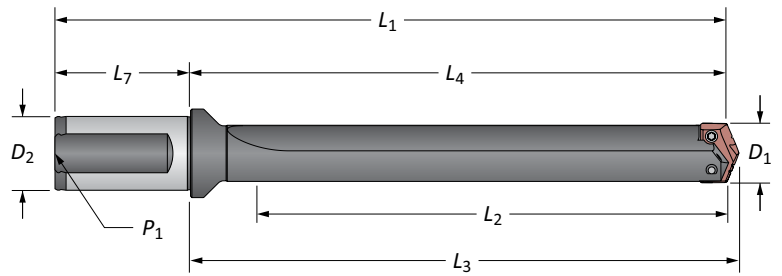
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Drill Insert Holders

2 Series | Flanged Shank

A

DRILLING

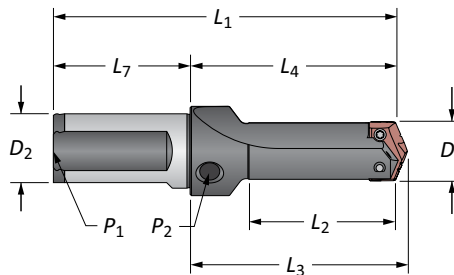


B

BORING



Stub Length



C

REAMING

Straight Flute

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
2	Stub	25.0 - 35.0	57.2	88.5	92.1	148.5	32.0	60.0	1/4*	21020S-32FM
	Short	25.0 - 35.0	85.7	128.6	132.2	188.6	32.0	60.0	1/4*	22020S-32FM
	XL	25.0 - 35.0	511.0	554.1	557.7	614.1	32.0	60.0	1/4*	27020S-32FM
	3XL	25.0 - 35.0	692.0	735.1	738.7	795.1	32.0	60.0	1/4*	29020S-32FM
2.5	Stub	30.0 - 35.0	92.1	123.4	127.0	183.4	32.0	60.0	1/4*	21025S-32FM
	Short	30.0 - 35.0	85.7	128.6	132.2	188.6	32.0	60.0	1/4*	22025S-32FM
2	Stub	31/32 - 1-3/8	2-1/4	3-31/64	3-5/8	5-49/64	1-1/4	2-9/32	1/4	21020S-125F
	Short	31/32 - 1-3/8	3-5/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4	22020S-125F
	Intermediate	31/32 - 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	23020S-125F
	Standard	31/32 - 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	24020S-125F
	Extended	31/32 - 1-3/8	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	1-3/16 - 1-3/8	3-5/8	4-55/64	5	7-9/64	1-1/4	2-9/32	1/4	21025S-125F
	Short	1-3/16 - 1-3/8	3-5/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4	22025S-125F
	Intermediate	1-3/16 - 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	23025S-125F
	Standard	1-3/16 - 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	24025S-125F
	Extended	1-3/16 - 1-3/8	11-3/8	13-1-16	13-13/64	15-11/32	1-1/4	2-9/32	1/4	25025S-125F

*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/8" side pipe tap (P₂)

D

BURNISHING

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	690 N-cm (61.0 in-lbs)

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

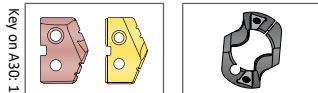
F THREADING

X

SPECIALS

A30: 58 - 67

A30: 73 & 113



Ⓜ = Metric (mm)

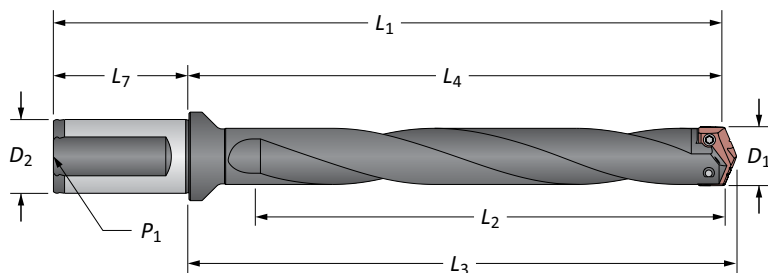
Ⓢ = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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 | Flanged Shank



Helical Flute

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Intermediate	25.0 - 35.0	136.5	179.4	183.0	239.4	32.0	60.0	1/4*	23020H-32FM
	Standard	25.0 - 35.0	187.3	230.2	233.8	290.2	32.0	60.0	1/4*	24020H-32FM
	Standard Plus	25.0 - 35.0	238.0	280.9	284.5	340.9	32.0	60.0	1/4*	24520H-32FM
	Extended	25.0 - 35.0	288.9	331.8	335.4	391.8	32.0	60.0	1/4*	25020H-32FM
	Long	25.0 - 35.0	410.0	452.9	456.5	512.9	32.0	60.0	1/4*	26020H-32FM
2.5	Intermediate	30.0 - 35.0	136.5	179.4	183.0	239.4	32.0	60.0	1/4*	23025H-32FM
	Standard	30.0 - 35.0	187.3	230.2	233.8	290.2	32.0	60.0	1/4*	24025H-32FM
	Extended	30.0 - 35.0	288.9	331.8	335.4	391.8	32.0	60.0	1/4*	25025H-32FM
i	Intermediate	31/32 - 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	23020H-125F
	Standard	31/32 - 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	24020H-125F
	Standard Plus	31/32 - 1-3/8	9-3/8	11-1/16	11-13/64	13-31/64	1-1/4	2-9/32	1/4	24520H-125F
	Extended	31/32 - 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4	25020H-125F
	Long	31/32 - 1-3/8	16-1/8	17-53/64	7-31/32	20-1/4	1-1/4	2-9/32	1/4	26020H-125F
2.5	Intermediate	1-3/16 - 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	23025H-125F
	Standard	1-3/16 - 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	24025H-125F
	Extended	1-3/16 - 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4	25025H-125F

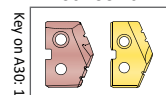
*Metric thread to BSP and ISO 7-1

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	690 N-cm (61.0 in-lbs)

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

A30: 58 - 67



m = Metric (mm)

i = Imperial (in)

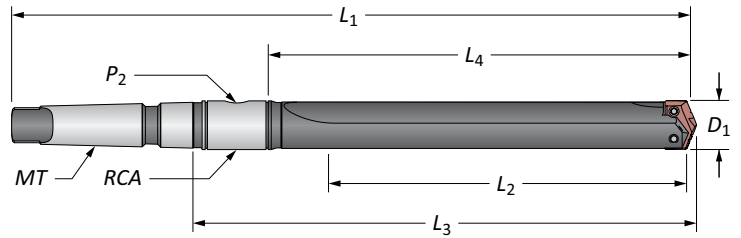
Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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 | Taper Shank



Straight Flute

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	MT	P ₂	RCA	
m 2	Short	25.0 - 35.0	69.8	98.4	142.5	232.5	#4**	1/8*	2T-3SRM	22020S-004M
2.5	Short	30.0 - 35.0	69.8	98.4	142.5	232.5	#4**	1/8*	2T-4SRM	22025S-004M
i 2	Short	31/32 - 1-3/8	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	2T-3SR	22020S-003I
	Short	31/32 - 1-3/8	3-3/8	4-1/2	6-19/64	10-25/32	#4	1/8	2T-3SR	22020S-004I
	Intermediate	31/32 - 1-3/8	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	2T-3SR	23020S-004I
	Standard	31/32 - 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	24020S-003I
	Standard	31/32 - 1-3/8	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	2T-3SR	24020S-004I
i 2.5	Extended	31/32 - 1-3/8	11-3/8	12-1/2	14-15/64	18-25/32	#4	1/4	2T-3SR	25020S-004I
	Short	1-3/16 - 1-3/8	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	2T-3SR	22025S-003I
	Short	1-3/16 - 1-3/8	3-3/8	4-1/2	6-37/64	11-1/16	#4	1/4	2T-4SR	22025S-004I
	Intermediate	1-3/16 - 1-3/8	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	2T-4SR	23025S-004I
	Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	24025S-003I
i 2.5	Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	10-37/64	15-1/16	#4	1/8	2T-4SR	24025S-004I
	Extended	1-3/16 - 1-3/8	11-3/8	12-1/2	14-37/64	19-1/16	#4	1/4	2T-4SR	25025S-004I

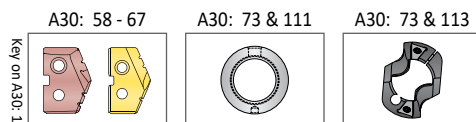
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

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

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



Key on A30: 1

m = Metric (mm)

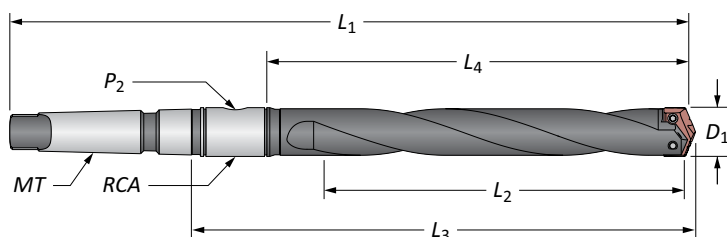
i = Imperial (in)

Screws sold in quantities of 10

! WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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



Helical Flute

Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₄	L ₃	L ₁	MT	P ₂	RCA		
ii	2	Intermediate	25.0 - 35.0	136.5	165.1	211.2	324.6	#4**	1/8*	2T-3SRM	23020H-004M
		Standard	25.0 - 35.0	187.3	215.9	262.0	375.4	#4**	1/8*	2T-3SRM	24020H-004M
		Extended	25.0 - 35.0	289.0	317.5	363.6	477.0	#4**	1/8*	2T-3SRM	⚠ 25020H-004M
ii	2.5	Intermediate	30.0 - 35.0	136.5	165.1	218.4	331.8	#4**	1/4*	2T-4SRM	23025H-004M
		Standard	30.0 - 35.0	187.3	215.9	269.2	382.6	#4**	1/4*	2T-4SRM	24025H-004M
		Extended	30.0 - 35.0	289.0	317.5	370.8	484.2	#4**	1/4*	2T-4SRM	⚠ 25025H-004M
i	2	Intermediate	31/32 - 1-3/8	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	2T-3SR	23020H-004I
		Standard	31/32 - 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	24020H-003I
		Standard	31/32 - 1-3/8	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	2T-3SR	24020H-004I
		Extended	31/32 - 1-3/8	11-3/8	12-1/2	14-15/64	18-25/32	#4	1/8	2T-3SR	⚠ 25020H-004I
	2.5	Intermediate	1-3/16 - 1-3/8	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	2T-4SR	23025H-004I
		Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	24025H-003I
		Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	10-37/64	15-1/6	#4	1/4	2T-4SR	24025H-004I
	Extended	1-3/16 - 1-3/8	11-3/8	12-1/2	14-37/64	19-1/16	#4	1/4	2T-4SR	⚠ 25025H-004I	

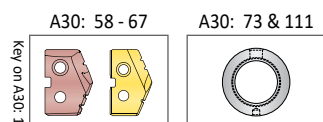
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

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

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

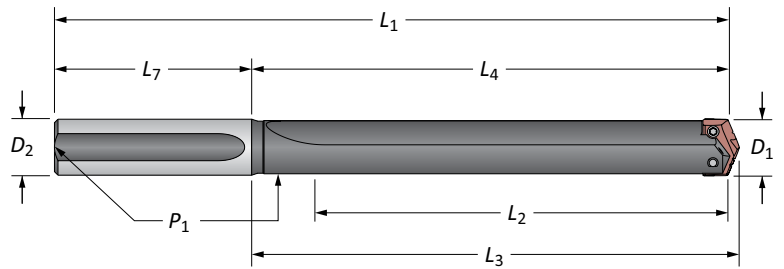


m = Metric (mm)
i = Imperial (in)
Screws sold in quantities of 10





⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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 | Straight Shank



Straight Flute

Series	Length	D_1	Body				Shank			Part No.
			L_2	L_4	L_3	L_1	D_2	L_7	P_1	
2	Short	31/32 - 1-3/8	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8	22020S-100L
	Short	31/32 - 1-3/8	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8	22020S-125L
	Intermediate	31/32 - 1-3/8	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8	23020S-125L
	Standard	31/32 - 1-3/8	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8	24020S-100L
	Standard	31/32 - 1-3/8	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8	24020S-125L
	Extended	31/32 - 1-3/8	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8	 25020S-125L
	XL	31/32 - 1-3/8	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	31/32 - 1-3/8	27-1/4	28-3/8	28-33/64	31-7/8	1-1/4	3-1/2	1/8	 29020S-125L
	Short	1-3/16 - 1-3/8	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8*	22025S-100L
	Short	1-3/16 - 1-3/8	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8*	22025S-125L
	Intermediate	1-3/16 - 1-3/8	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8*	23025S-125L
	Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8*	24025S-100L
	Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8*	24025S-125L
	Extended	1-3/16 - 1-3/8	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8*	 25025S-125L

Connection Accessories

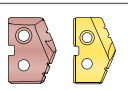
					Admissible Tightening Torque*
7495-IP15-1	7495N-IP15-1	8IP-15	8IP-15TL	8IP-15B	

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


A30: 58 - 67

A30: 73


Key on A30: 1



 = Metric (mm)

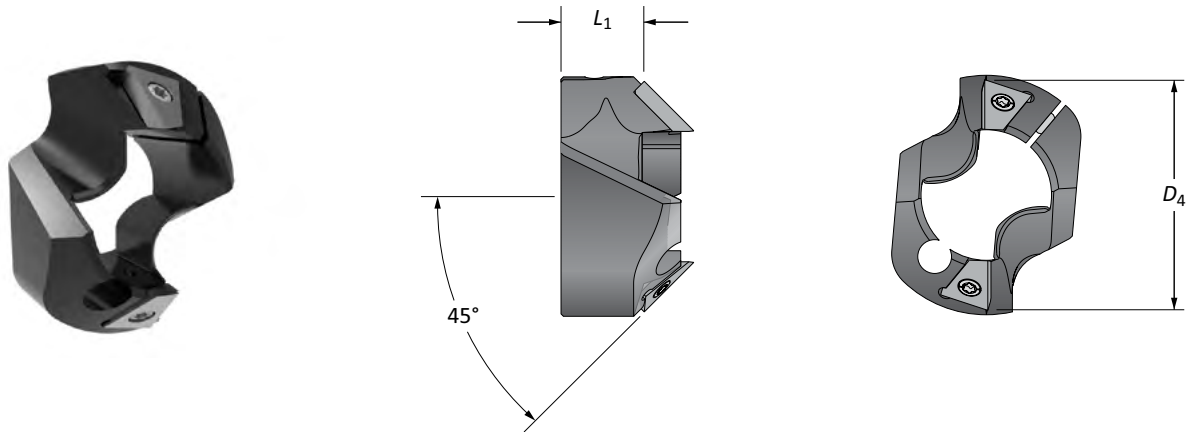
 = Imperial (in)

Screws sold in quantities of 10

 **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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

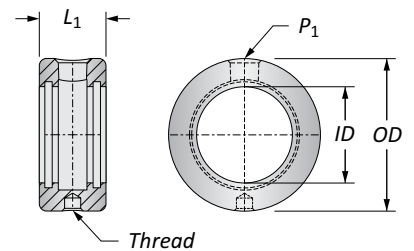


T-A®CR 45 Chamfer Ring

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	25.00 - 35.00	39.70	25.40	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

Metric (m)	ID	OD	L ₁	Driving Rod Thread	P ₁	Part No.	RCA O-Rings	
							Kit Part No.**	Replacements
	25.40	53.97	28.57	M8 x 1.25	1/8*	 2T-3SRM	2T1-3SR	2T1-3OR-10
	31.75	63.50	34.92	M10 x 1.50	1/4*	 2T-4SRM	2T1-4SR	2T1-4OR-10
Imperial (i)	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	1-3/8	3/8-16	1/4	 2T-4SR	2T1-4SR	2T1-4OR-10



*Thread to BSP and ISO 7-1

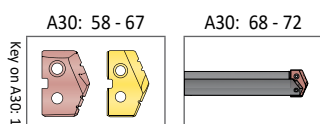
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers



 Refer to page A30: 111 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	690 N-cm (61.0 in-lbs)

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



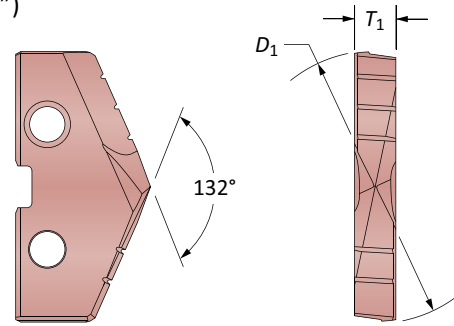
 = Metric (mm)
 = Imperial (in)

Inserts sold separately
 Screws sold in packs of 10
 O-rings sold in packs of 10

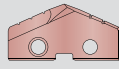
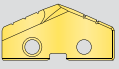
 **WARNING** RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.

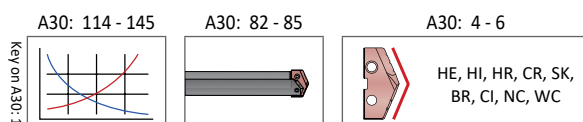
GEN2 T-A® Drill Inserts

3 Series | HSS | Diameter Range: 34.36mm - 47.80mm (1.353" - 1.882")



HSS Inserts – Premium Cobalt

Insert			T ₁ mm	Part No.	
D ₁ mm	D ₁ inch	Fractional Equivalent		 AM200®	 TiN
35.72	1.4063	1-13/32	6.35	483H-0113	483T-0113
36.00	1.4173	-		483H-36	483T-36
36.51	1.4375	1-7/16		483H-0114	483T-0114
37.00	1.4567	-		483H-37	483T-37
37.31	1.4688	1-15/32		483H-0115	483T-0115
38.00	1.4961	-		483H-38	483T-38
38.10	1.5000	1-1/2		483H-0116	483T-0116
38.89	1.5313	1-17/32		483H-0117	483T-0117
39.00	1.5354	-		483H-39	483T-39
39.29	1.5470	-		483H-1.547	483T-1.547
39.69	1.5625	1-9/16		483H-0118	483T-0118
40.00	1.5748	-		483H-40	483T-40
40.48	1.5938	1-19/32		483H-0119	483T-0119
41.00	1.6142	-		483H-41	483T-41
41.28	1.6250	1-5/8		483H-0120	483T-0120
42.00	1.6535	-		483H-42	483T-42
42.07	1.6563	1-21/32		483H-0121	483T-0121
42.86	1.6875	1-11/16		483H-0122	483T-0122
43.00	1.6929	-		483H-43	483T-43
43.66	1.7188	1-23/32		483H-0123	483T-0123
44.00	1.7323	-		483H-44	483T-44
44.45	1.7500	1-3/4		483H-0124	483T-0124
45.00	1.7717	-		483H-45	483T-45
45.24	1.7813	1-25/32		483H-0125	483T-0125
45.50	1.7913	-		483H-45.5	483T-45.5
45.64	1.7970	-		483H-1.797	483T-1.797
46.00	1.8110	-		483H-46	483T-46
46.04	1.8125	1-13/16		483H-0126	483T-0126
46.83	1.8438	1-27/32	483H-0127	483T-0127	
47.00	1.8504	-	483H-47	483T-47	
47.63	1.8750	1-7/8	483H-0128	483T-0128	



Inserts sold in quantities of 1

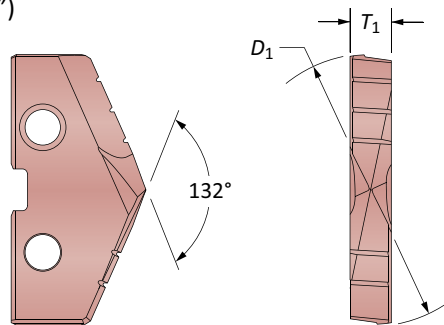
Coatings not listed above can be supplied as non-stocked standards.



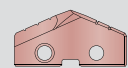
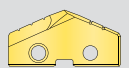
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

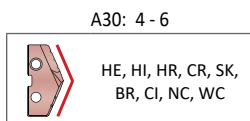
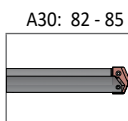
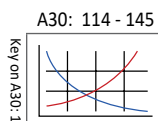
GEN2 T-A® Drill Inserts

3 Series | HSS | Diameter Range: 34.36mm - 47.80mm (1.353" - 1.882")



HSS Inserts – Super Cobalt

Insert				Part No.	
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 AM200®	 TiN
35.72	1.4063	1-13/32	6.35	453H-0113	453T-0113
36.00	1.4173	-		453H-36	453T-36
36.51	1.4375	1-7/16		453H-0114	453T-0114
37.00	1.4567	-		453H-37	453T-37
37.31	1.4688	1-15/32		453H-0115	453T-0115
38.00	1.4961	-		453H-38	453T-38
38.10	1.5000	1-1/2		453H-0116	453T-0116
38.89	1.5313	1-17/32		453H-0117	453T-0117
39.00	1.5354	-		453H-39	453T-39
39.29	1.5470	-		453H-1.547	453T-1.547
39.69	1.5625	1-9/16		453H-0118	453T-0118
40.00	1.5748	-		453H-40	453T-40
40.48	1.5938	1-19/32		453H-0119	453T-0119
41.00	1.6142	-		453H-41	453T-41
41.28	1.6250	1-5/8		453H-0120	453T-0120
42.00	1.6535	-		453H-42	453T-42
42.07	1.6563	1-21/32		453H-0121	453T-0121
42.86	1.6875	1-11/16		453H-0122	453T-0122
43.00	1.6929	-		453H-43	453T-43
43.66	1.7188	1-23/32		453H-0123	453T-0123
44.00	1.7323	-		453H-44	453T-44
44.45	1.7500	1-3/4		453H-0124	453T-0124
45.00	1.7717	-		453H-45	453T-45
45.24	1.7813	1-25/32		453H-0125	453T-0125
45.50	1.7913	-		453H-45.5	453T-45.5
45.64	1.7970	-		453H-1.797	453T-1.797
46.00	1.8110	-		453H-46	453T-46
46.04	1.8125	1-13/16		453H-0126	453T-0126
46.83	1.8438	1-27/32		453H-0127	453T-0127
47.00	1.8504	-		453H-47	453T-47
47.63	1.8750	1-7/8	453H-0128	453T-0128	



Coatings not listed above can be supplied as non-stocked standards.

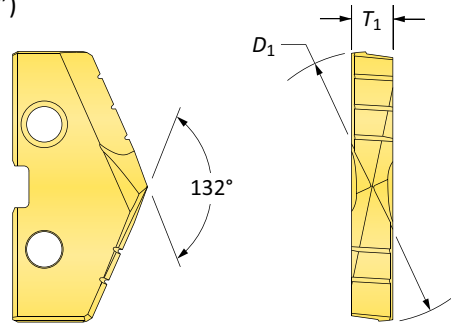
Inserts sold in quantities of 1

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

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

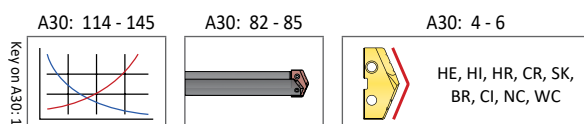
GEN2 T-A® Drill Inserts

3 Series | HSS | Diameter Range: 34.36mm - 47.80mm (1.353" - 1.882")



HSS Inserts – Premium Cobalt

Insert				Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	TiN
35.72	1.4063	1-13/32	6.35	483T-0113
36.00	1.4173	–		483T-36
36.51	1.4375	1-7/16		483T-0114
37.00	1.4567	–		483T-37
37.31	1.4688	1-15/32		483T-0115
38.00	1.4961	–		483T-38
38.10	1.5000	1-1/2		483T-0116
38.89	1.5313	1-17/32		483T-0117
39.00	1.5354	–		483T-39
39.29	1.5470	–		483T-1.547
39.69	1.5625	1-9/16		483T-0118
40.00	1.5748	–		483T-40
40.48	1.5938	1-19/32		483T-0119
41.00	1.6142	–		483T-41
41.28	1.6250	1-5/8		483T-0120
42.00	1.6535	–		483T-42
42.07	1.6563	1-21/32		483T-0121
42.86	1.6875	1-11/16		483T-0122
43.00	1.6929	–		483T-43
43.66	1.7188	1-23/32		483T-0123
44.00	1.7323	–	483T-44	
44.45	1.7500	1-3/4	483T-0124	
45.00	1.7717	–	483T-45	
45.24	1.7813	1-25/32	483T-0125	
45.50	1.7913	–	483T-45.5	
45.64	1.7970	–	483T-1.797	
46.00	1.8110	–	483T-46	
46.04	1.8125	1-13/16	483T-0126	
46.83	1.8438	1-27/32	483T-0127	
47.00	1.8504	–	483T-47	
47.63	1.8750	1-7/8	483T-0128	



Coatings not listed above can be supplied as non-stocked standards.

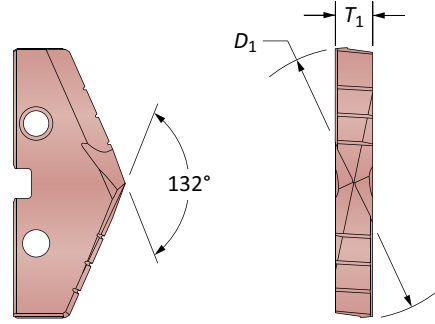


TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

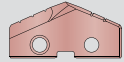
Inserts sold in quantities of 1

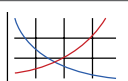
T-A® Original Drill Inserts


3 Series | HSS | Diameter Range: 34.36mm - 47.80mm (1.353" - 1.882")





HSS Inserts – Super Cobalt

Insert				Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 AM200®
35.72	1.4063	1-13/32	6.35	153H-0113
36.00	1.4173	-		153H-36
36.51	1.4375	1-7/16		153H-0114
37.00	1.4567	-		153H-37
37.31	1.4688	1-15/32		153H-0115
38.00	1.4961	-		153H-38
38.10	1.5000	1-1/2		153H-0116
38.89	1.5313	1-17/32		153H-0117
39.00	1.5354	-		153H-39
39.29	1.5470	-		153H-1.547
39.69	1.5625	1-9/16		153H-0118
40.00	1.5748	-		153H-40
40.48	1.5938	1-19/32		153H-0119
41.00	1.6142	-		153H-41
41.28	1.6250	1-5/8		153H-0120
42.00	1.6535	-		153H-42
42.07	1.6563	1-21/32		153H-0121
42.86	1.6875	1-11/16		153H-0122
43.00	1.6929	-		153H-43
43.66	1.7188	1-23/32		153H-0123
44.00	1.7323	-		153H-44
44.45	1.7500	1-3/4		153H-0124
45.00	1.7717	-		153H-45
45.24	1.7813	1-25/32		153H-0125
45.50	1.7913	-		153H-45.5
45.64	1.7970	-		153H-1.797
46.00	1.8110	-		153H-46
46.04	1.8125	1-13/16		153H-0126
46.83	1.8438	1-27/32		153H-0127
47.00	1.8504	-		153H-47
47.63	1.8750	1-7/8	153H-0128	

A30: 114 - 145

 Key on A30: 1

A30: 82 - 85


A30: 4 - 6
 HI, HR, CR, SK, BR, CI, NC, WC

Coatings not listed above can be supplied as non-stocked standards. 

Inserts sold in quantities of 1

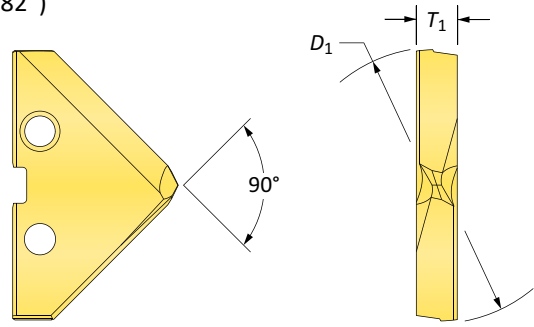
TIN = 131T-XXXX	TA1N = 131A-XXXX
TICN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts




3 Series | HSS | Diameter Range: 34.36mm - 47.80mm (1.353" - 1.882")



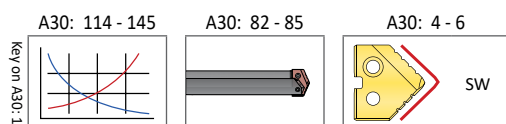
90° Spot & Chamfer



HSS Inserts – Super Cobalt

Insert				Part No.		
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN	 TiCN
35.72	1.4063	1-13/32	6.35	153T-0113-SP	153A-0113-SP	153N-0113-SP
36.00	1.4173	-		153T-36-SP	153A-36-SP	153N-36-SP
36.51	1.4375	1-7/16		153T-0114-SP	153A-0114-SP	153N-0114-SP
37.00	1.4567	-		153T-37-SP	153A-37-SP	153N-37-SP
37.31	1.4688	1-15/32		153T-0115-SP	153A-0115-SP	153N-0115-SP
38.00	1.4961	-		153T-38-SP	153A-38-SP	153N-38-SP
38.10	1.5000	1-1/2		153T-0116-SP	153A-0116-SP	153N-0116-SP
38.89	1.5313	1-17/32		153T-0117-SP	153A-0117-SP	153N-0117-SP
39.00	1.5354	-		153T-39-SP	153A-39-SP	153N-39-SP
39.29	1.5470	-		153T-1.547-SP	153A-1.547-SP	153N-1.547-SP
39.69	1.5625	1-9/16		153T-0118-SP	153A-0118-SP	153N-0118-SP
40.00	1.5748	-		153T-40-SP	153A-40-SP	153N-40-SP
40.48	1.5938	1-19/32		153T-0119-SP	153A-0119-SP	153N-0119-SP
41.00	1.6142	-		153T-41-SP	153A-41-SP	153N-41-SP
41.28	1.6250	1-5/8		153T-0120-SP	153A-0120-SP	153N-0120-SP
42.00	1.6535	-		153T-42-SP	153A-42-SP	153N-42-SP
42.07	1.6563	1-21/32		153T-0121-SP	153A-0121-SP	153N-0121-SP
42.86	1.6875	1-11/16		153T-0122-SP	153A-0122-SP	153N-0122-SP
43.00	1.6929	-		153T-43-SP	153A-43-SP	153N-43-SP
43.66	1.7188	1-23/32		153T-0123-SP	153A-0123-SP	153N-0123-SP
44.00	1.7323	-		153T-44-SP	153A-44-SP	153N-44-SP
44.45	1.7500	1-3/4		153T-0124-SP	153A-0124-SP	153N-0124-SP
45.00	1.7717	-		153T-45-SP	153A-45-SP	153N-45-SP
45.24	1.7813	1-25/32		153T-0125-SP	153A-0125-SP	153N-0125-SP
45.50	1.7913	-		153T-45.5-SP	153A-45.5-SP	153N-45.5-SP
45.64	1.7970	-		153T-1.797-SP	153A-1.797-SP	153N-1.797-SP
46.00	1.8110	-		153T-46-SP	153A-46-SP	153N-46-SP
46.04	1.8125	1-13/16		153T-0126-SP	153A-0126-SP	153N-0126-SP
46.83	1.8438	1-27/32		153T-0127-SP	153A-0127-SP	153N-0127-SP
47.00	1.8504	-		153T-47-SP	153A-47-SP	153N-47-SP
47.63	1.8750	1-7/8		153T-0128-SP	153A-0128-SP	153N-0128-SP

Inserts sold in quantities of 1



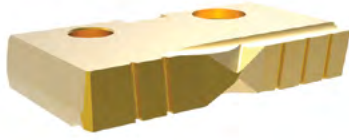
Coatings not listed above can be supplied as non-stocked standards.



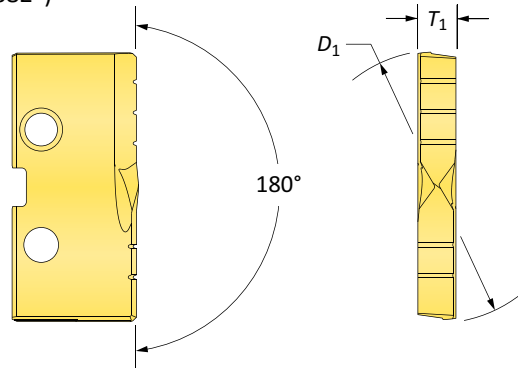
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

3 Series | HSS | Diameter Range: 34.36mm - 47.80mm (1.353" - 1.882")



Flat Bottom



HSS Inserts – Super Cobalt

Insert			T ₁ mm	Part No.
D ₁ mm	D ₁ inch	Fractional Equivalent		TiN
35.72	1.4063	1-13/32	6.35	153T-0113-FB
36.00	1.4173	-		153T-36-FB
36.51	1.4375	1-7/16		153T-0114-FB
37.00	1.4567	-		153T-37-FB
37.31	1.4688	1-15/32		153T-0115-FB
38.00	1.4961	-		153T-38-FB
38.10	1.5000	1-1/2		153T-0116-FB
38.89	1.5313	1-17/32		153T-0117-FB
39.00	1.5354	-		153T-39-FB
39.29	1.5470	-		153T-1.547-FB
39.69	1.5625	1-9/16		153T-0118-FB
40.00	1.5748	-		153T-40-FB
40.48	1.5938	1-19/32		153T-0119-FB
41.00	1.6142	-		153T-41-FB
41.28	1.6250	1-5/8		153T-0120-FB
42.00	1.6535	-		153T-42-FB
42.07	1.6563	1-21/32		153T-0121-FB
42.86	1.6875	1-11/16		153T-0122-FB
43.00	1.6929	-		153T-43-FB
43.66	1.7188	1-23/32		153T-0123-FB
44.00	1.7323	-		153T-44-FB
44.45	1.7500	1-3/4		153T-0124-FB
45.00	1.7717	-		153T-45-FB
45.24	1.7813	1-25/32		153T-0125-FB
45.50	1.7913	-		153T-45.5-FB
45.64	1.7970	-		153T-1.797-FB
46.00	1.8110	-		153T-46-FB
46.04	1.8125	1-13/16		153T-0126-FB
46.83	1.8438	1-27/32	153T-0127-FB	
47.00	1.8504	-	153T-47-FB	
47.63	1.8750	1-7/8	153T-0128-FB	

A30: 114 - 145

A30: 82 - 85

A30: 4 - 6

Coatings not listed above can be supplied as non-stocked standards.

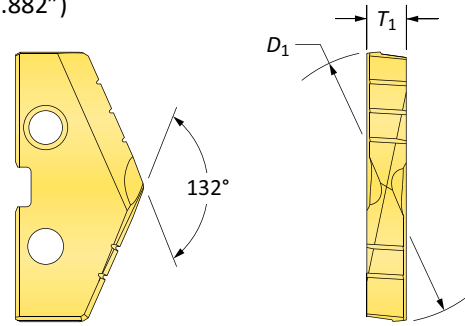


Inserts sold in quantities of 1

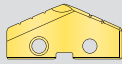
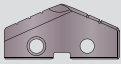
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

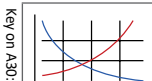


T-A® Original Drill Inserts

3 Series | Carbide | Diameter Range: 34.36mm - 47.80mm (1.353" - 1.882")



Carbide Inserts – K20 (C2)

Insert			T ₁ mm	Part No.	
D ₁ mm	D ₁ inch	Fractional Equivalent		 TiN	 TiAlN
35.72	1.4063	1-13/32	6.35	1C23T-0113	1C23A-0113
36.00	1.4173	–		1C23T-36	1C23A-36
36.51	1.4375	1-7/16		1C23T-0114	1C23A-0114
37.00	1.4567	–		1C23T-37	1C23A-37
37.31	1.4688	1-15/32		1C23T-0115	1C23A-0115
38.00	1.4961	–		1C23T-38	1C23A-38
38.10	1.5000	1-1/2		1C23T-0116	1C23A-0116
38.89	1.5313	1-17/32		1C23T-0117	1C23A-0117
39.00	1.5354	–		1C23T-39	1C23A-39
39.29	1.5470	–		1C23T-1.547	1C23A-1.547
39.69	1.5625	1-9/16		1C23T-0118	1C23A-0118
40.00	1.5748	–		1C23T-40	1C23A-40
40.48	1.5938	1-19/32		1C23T-0119	1C23A-0119
41.00	1.6142	–		1C23T-41	1C23A-41
41.28	1.6250	1-5/8		1C23T-0120	1C23A-0120
42.00	1.6535	–		1C23T-42	1C23A-42
42.07	1.6563	1-21/32		1C23T-0121	1C23A-0121
42.86	1.6875	1-11/16		1C23T-0122	1C23A-0122
43.00	1.6929	–		1C23T-43	1C23A-43
43.66	1.7188	1-23/32		1C23T-0123	1C23A-0123
44.00	1.7323	–		1C23T-44	1C23A-44
44.45	1.7500	1-3/4		1C23T-0124	1C23A-0124
45.00	1.7717	–		1C23T-45	1C23A-45
45.24	1.7813	1-25/32		1C23T-0125	1C23A-0125
45.50	1.7913	–		1C23T-45.5	1C23A-45.5
45.64	1.7970	–		1C23T-1.797	1C23A-1.797
46.00	1.8110	–		1C23T-46	1C23A-46
46.04	1.8125	1-13/16		1C23T-0126	1C23A-0126
46.83	1.8438	1-27/32	1C23T-0127	1C23A-0127	
47.00	1.8504	–	1C23T-47	1C23A-47	
47.63	1.8750	1-7/8	1C23T-0128	1C23A-0128	

A30: 114 - 145  A30: 82 - 85  A30: 4 - 6  HI, HR, CR, SK, NP, IN, RN, CN, AN, BR, NC, WC

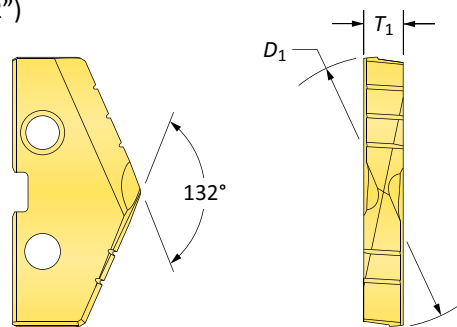
Coatings not listed above can be supplied as non-stocked standards. →

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

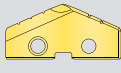
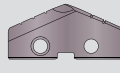
Inserts sold in quantities of 1

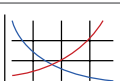
T-A® Original Drill Inserts


3 Series | HSS | Diameter Range: 34.36mm - 47.80mm (1.353" - 1.882")





Carbide Inserts – P35 (C5)

Insert				Part No.	
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiAlN
35.72	1.4063	1-13/32	6.35	1C53T-0113	1C53A-0113
36.00	1.4173	–		1C53T-36	1C53A-36
36.51	1.4375	1-7/16		1C53T-0114	1C53A-0114
37.00	1.4567	–		1C53T-37	1C53A-37
37.31	1.4688	1-15/32		1C53T-0115	1C53A-0115
38.00	1.4961	–		1C53T-38	1C53A-38
38.10	1.5000	1-1/2		1C53T-0116	1C53A-0116
38.89	1.5313	1-17/32		1C53T-0117	1C53A-0117
39.00	1.5354	–		1C53T-39	1C53A-39
39.29	1.5470	–		1C53T-1.547	1C53A-1.547
39.69	1.5625	1-9/16		1C53T-0118	1C53A-0118
40.00	1.5748	–		1C53T-40	1C53A-40
40.48	1.5938	1-19/32		1C53T-0119	1C53A-0119
41.00	1.6142	–		1C53T-41	1C53A-41
41.28	1.6250	1-5/8		1C53T-0120	1C53A-0120
42.00	1.6535	–		1C53T-42	1C53A-42
42.07	1.6563	1-21/32		1C53T-0121	1C53A-0121
42.86	1.6875	1-11/16		1C53T-0122	1C53A-0122
43.00	1.6929	–		1C53T-43	1C53A-43
43.66	1.7188	1-23/32		1C53T-0123	1C53A-0123
44.00	1.7323	–		1C53T-44	1C53A-44
44.45	1.7500	1-3/4		1C53T-0124	1C53A-0124
45.00	1.7717	–		1C53T-45	1C53A-45
45.24	1.7813	1-25/32		1C53T-0125	1C53A-0125
45.50	1.7913	–		1C53T-45.5	1C53A-45.5
45.64	1.7970	–		1C53T-1.797	1C53A-1.797
46.00	1.8110	–		1C53T-46	1C53A-46
46.04	1.8125	1-13/16		1C53T-0126	1C53A-0126
46.83	1.8438	1-27/32		1C53T-0127	1C53A-0127
47.00	1.8504	–		1C53T-47	1C53A-47
47.63	1.8750	1-7/8	1C53T-0128	1C53A-0128	

A30: 114 - 145

 Key on A30: 1

A30: 82 - 85


A30: 4 - 6
 HI, HR, CR, SK, NP, IN, RN, CN, AN, BR, NC, WC

Coatings not listed above can be supplied as non-stocked standards. 

Inserts sold in quantities of 1

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

3

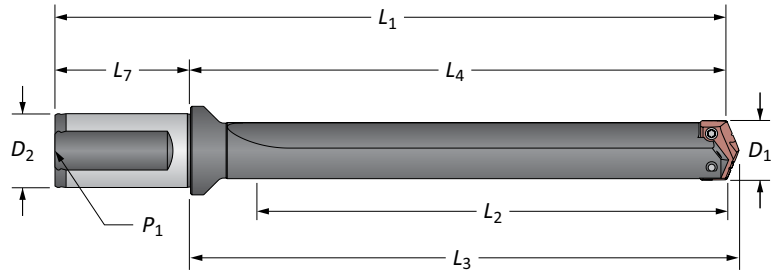
 DRILLING | T-A® Replaceable Insert Drilling System

T-A® Drill Insert Holders

3 Series | Flanged Shank

A

DRILLING

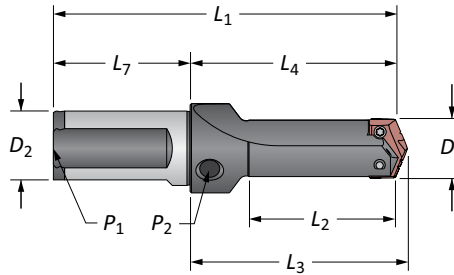



B

BORING



Stub Length



C

REAMING

Straight Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Stub	36.0 - 47.0	76.2	125.0	129.8	195.0	40.0	70.0	1/4*	21030S-40FM
	Short	36.0 - 47.0	120.7	173.0	177.8	243.0	40.0	70.0	1/4*	22030S-40FM
	Extended	36.0 - 47.0	349.3	401.6	406.4	471.6	40.0	70.0	1/4*	25030S-40FM
	XL	36.0 - 47.0	558.8	611.1	615.9	681.1	40.0	70.0	1/4*	27030S-40FM
	3XL	36.0 - 47.0	787.4	839.7	844.5	909.7	40.0	70.0	1/4*	29030S-40FM
i	Stub	1-13/32 - 1-7/8	3	4-59/64	5-7/64	7-39/64	1-1/2	2-11/16	1/4	21030S-150F
	Short	1-13/32 - 1-7/8	4-3/4	6-13/16	7	9-1/2	1-1/2	2-11/16	1/4	22030S-150F
	Intermediate	1-13/32 - 1-7/8	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/16	1/4	23030S-150F
	Standard	1-13/32 - 1-7/8	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4	24030S-150F

*Metric thread to BSP and ISO 7-1

NOTE: Stub length holders have a 1/4" side pipe tap (P₂)

D

BURNISHING

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	8IP-20TL	8IP-20B	1370 N-cm (121.3 in-lbs)

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

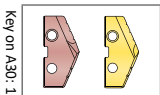
E

THREADING

X

SPECIALS

A30: 74 - 81



m = Metric (mm)

i = Imperial (in)

Screws sold in quantities of 10

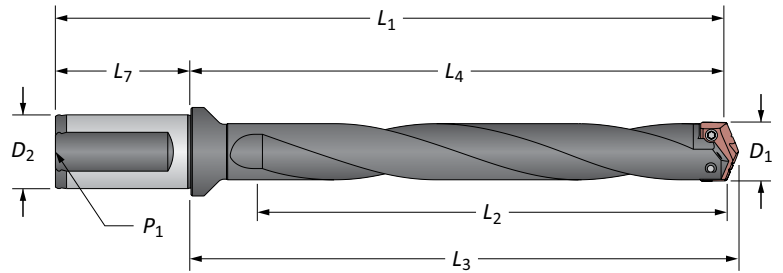
WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

A30: 82

www.alliedmachine.com | +44 (0) 1384 400 900 | enquiries.eu@alliedmachine.com

T-A® Drill Insert Holders

3 Series | Flanged Shank








Helical Flute

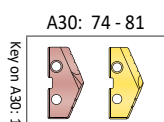
	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Intermediate	36.0 - 47.0	165.1	217.5	222.3	287.5	40.0	70.0	1/4*	23030H-40FM
	Standard	36.0 - 47.0	209.6	261.9	266.7	331.9	40.0	70.0	1/4*	24030H-40FM
i	Intermediate	1-13/32 - 1-7/8	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/16	1/4	23030H-150F
	Standard	1-13/32 - 1-7/8	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4	24030H-150F

*Metric thread to BSP and ISO 7-1

Connection Accessories

					Admissible Tightening Torque*
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B	1370 N-cm (121.3 in-lbs)

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



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

Screws sold in quantities of 10

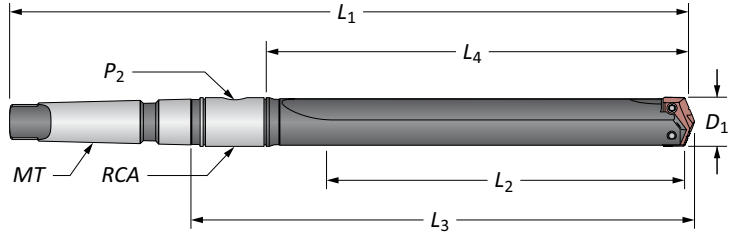
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Drill Insert Holders

3 Series | Taper Shank

A

DRILLING



Straight Flute

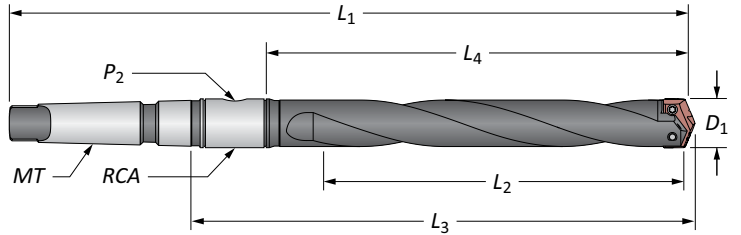
	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	MT	P ₂	RCA	
Ⓜ	Short	36.0 - 47.0	120.6	152.4	206.4	319.1	#4**	1/4*	2T-4SRM	22030S-004M
	Extended	36.0 - 47.0	349.3	381.0	435.0	547.7	#4**	1/4*	2T-4SRM	25030S-004M
	XL	36.0 - 47.0	558.8	590.6	644.6	757.2	#4**	1/4*	2T-4SRM	27030S-004M
	3XL	36.0 - 47.0	787.4	819.2	873.2	985.8	#4**	1/4*	2T-4SRM	29030S-004M
i	Short	1-13/32 - 1-7/8	4-3/4	6	8-1/8	12-9/16	#4	1/4	2T-4SR	22030S-004I
	Short	1-13/32 - 1-7/8	4-3/4	6	8-1/8	13-13/16	#5	1/4	2T-5SR	22030S-005I
	Intermediate	1-13/32 - 1-7/8	6-1/2	7-3/4	9-7/8	14-5/16	#4	1/4	2T-4SR	23030S-004I
	Standard	1-13/32 - 1-7/8	8-1/4	9-1/2	11-5/8	16-1/16	#4	1/4	2T-4SR	24030S-004I
	Standard	1-13/32 - 1-7/8	8-1/4	9-1/2	11-5/8	17-5/16	#5	1/4	2T-5SR	24030S-005I
	Extended	1-13/32 - 1-7/8	13-3/4	15	17-1/8	21-9/16	#4	1/4	2T-4SR	25030S-004I
	XL	1-13/32 - 1-7/8	22	22-1/4	25-3/8	29-13/16	#4	1/4	2T-4SR	27030S-004I
	3XL	1-13/32 - 1-7/8	31	32-1/4	34-3/8	38-13/16	#4	1/4	2T-4SR	29030S-004I

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

B BORING

C REAMING



Helical Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	RCA	
Ⓜ	Intermediate	36.0 - 47.0	165.1	196.9	250.9	363.6	#4	1/4*	2T-4SRM	23030H-004M
	Standard	36.0 - 47.0	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

D BURNISHING

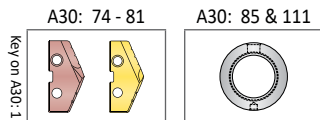
Connection Accessories

Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B	1370 N-cm (121.3 in-lbs)

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

F THREADING

X SPECIALS



Ⓜ = Metric (mm)

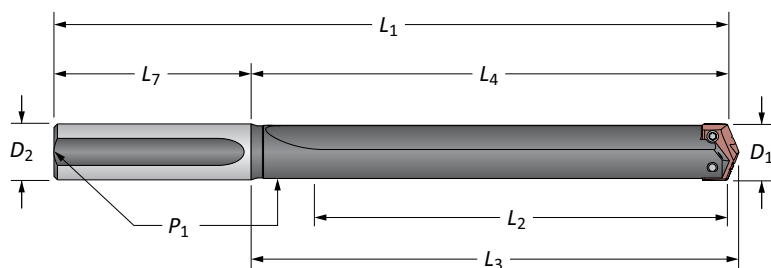
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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



Straight Flute

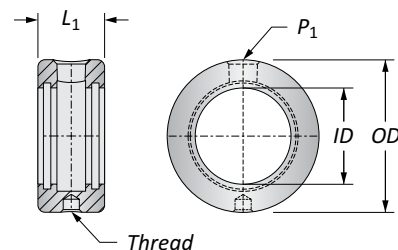
Length	D ₁	Body				Shank			Part No.
		L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Short	1-13/32 - 1-7/8	4-3/4	6	6-3/16	10	1-1/4	4	1/4	22030S-125L
Short	1-13/32 - 1-7/8	4-3/4	6	6-3/16	10	1-1/2	4	1/4	22030S-150L
Intermediate	1-13/32 - 1-7/8	6-1/2	7-3/4	7-15/16	11-3/4	1-1/2	4	1/4	23030S-150L
Standard	1-13/32 - 1-7/8	8-1/4	9-1/2	9-11/16	13-1/2	1-1/4	4	1/4	24030S-125L
Standard	1-13/32 - 1-7/8	8-1/4	9-1/2	9-11/16	13-1/2	1-1/2	4	1/4	24030S-150L
Extended	1-13/32 - 1-7/8	13-3/4	15-3/16	15-3/16	19	1-1/4	4	1/4	25030S-125L
XL	1-13/32 - 1-7/8	22	23-7/16	23-7/16	27-1/4	1-1/2	4	1/4	27030S-150L
3XL	1-13/32 - 1-7/8	31	32-7/16	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
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
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



*Thread to BSP and ISO 7-1

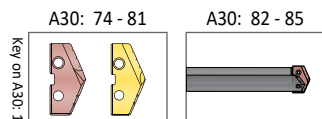
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

⚠ Refer to page A30: 111 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	8IP-20TL	8IP-20B	1370 N-cm (121.3 in-lbs)

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



Ⓜ = Metric (mm)

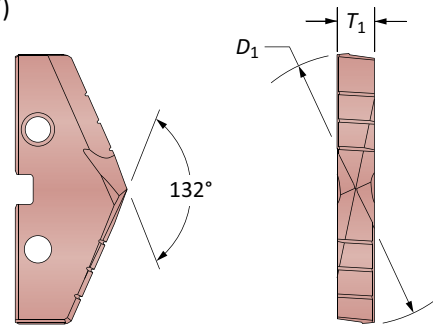
Ⓜ = Imperial (in)

Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

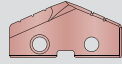

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

GEN2 T-A® Drill Inserts

4 Series | HSS | Diameter Range: 46.99mm - 65.28mm (1.850" - 2.570")



HSS Inserts – Super Cobalt

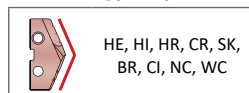
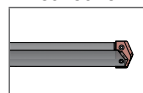
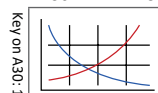
Insert				Part No.	
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 AM200®	 TiN
48.00	1.8898	–	7.94	454H-48	454T-48
48.42	1.9063	1-29/32		454H-0129	454T-0129
49.00	1.9291	–		454H-49	454T-49
49.21	1.9375	1-15/16		454H-0130	454T-0130
50.00	1.9685	–		454H-50	454T-50
50.01	1.9688	1-31/32		454H-0131	454T-0131
50.80	2.0000	2		454H-0200	454T-0200
51.00	2.0079	–		454H-51	454T-51
51.59	2.0313	2-1/32		454H-0201	454T-0201
52.00	2.0472	2-3/64		454H-52	454T-52
52.39	2.0625	2-1/16		454H-0202	454T-0202
53.00	2.0866	–		454H-53	454T-53
53.18	2.0938	2-3/32		454H-0203	454T-0203
53.98	2.1250	2-1/8		454H-0204	454T-0204
54.00	2.1260	–		454H-54	454T-54
54.77	2.1563	2-5/32		454H-0205	454T-0205
55.00	2.1654	–		454H-55	454T-55
55.56	2.1875	2-3/16		454H-0206	454T-0206
56.00	2.2047	–		454H-56	454T-56
56.36	2.2188	2-7/32		454H-0207	454T-0207
57.00	2.2441	–		454H-57	454T-57
57.15	2.2500	2-1/4		454H-0208	454T-0208
57.94	2.2813	2-9/32		454H-0209	454T-0209
58.00	2.2835	–		454H-58	454T-58
58.74	2.3125	2-5/16		454H-0210	454T-0210
59.00	2.3228	–		454H-59	454T-59
59.53	2.3438	2-11/32		454H-0211	454T-0211
60.00	2.3622	–		454H-60	454T-60
60.33	2.3750	2-3/8		454H-0212	454T-0212
61.00	2.4016	–		454H-61	454T-61
61.12	2.4063	2-13/32		454H-0213	454T-0213
61.91	2.4375	2-7/16		454H-0214	454T-0214
62.00	2.4409	–	454H-62	454T-62	
62.71	2.4688	2-15/32	454H-0215	454T-0215	
63.00	2.4803	–	454H-63	454T-63	
63.50	2.5000	2-1/2	454H-0216	454T-0216	
64.00	2.5197	–	454H-64	454T-64	
64.29	2.5313	2-17/32	454H-0217	454T-0217	
65.00	2.5591	–	454H-65	454T-65	
65.09	2.5625	2-9/16	454H-0218	454T-0218	

Inserts sold in quantities of 1

A30: 114 - 145

A30: 90 - 92

A30: 4 - 6



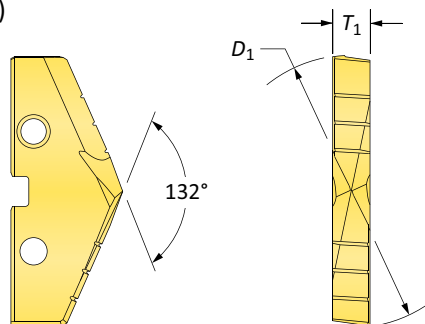
Coatings not listed above
can be supplied as
non-stocked standards.




TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

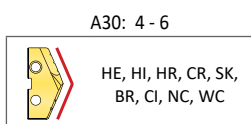
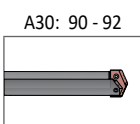
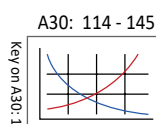
GEN2 T-A® Drill Inserts

4 Series | HSS | Diameter Range: 46.99mm - 65.28mm (1.850" - 2.570")



HSS Inserts – HSS

Insert				Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN
48.00	1.8898	-	7.94	434T-48
48.42	1.9063	1-29/32		434T-0129
49.00	1.9291	-		434T-49
49.21	1.9375	1-15/16		434T-0130
50.00	1.9685	-		434T-50
50.01	1.9688	1-31/32		434T-0131
50.80	2.0000	2		434T-0200
51.00	2.0079	-		434T-51
51.59	2.0313	2-1/32		434T-0201
52.00	2.0472	2-3/64		434T-52
52.39	2.0625	2-1/16		434T-0202
53.00	2.0866	-		434T-53
53.18	2.0938	2-3/32		434T-0203
53.98	2.1250	2-1/8		434T-0204
54.00	2.1260	-		434T-54
54.77	2.1563	2-5/32		434T-0205
55.00	2.1654	-		434T-55
55.56	2.1875	2-3/16		434T-0206
56.00	2.2047	-		434T-56
56.36	2.2188	2-7/32		434T-0207
57.00	2.2441	-		434T-57
57.15	2.2500	2-1/4		434T-0208
57.94	2.2813	2-9/32		434T-0209
58.00	2.2835	-		434T-58
58.74	2.3125	2-5/16		434T-0210
59.00	2.3228	-		434T-59
59.53	2.3438	2-11/32		434T-0211
60.00	2.3622	-		434T-60
60.33	2.3750	2-3/8		434T-0212
61.00	2.4016	-		434T-61
61.12	2.4063	2-13/32		434T-0213
61.91	2.4375	2-7/16		434T-0214
62.00	2.4409	-		434T-62
62.71	2.4688	2-15/32		434T-0215
63.00	2.4803	-		434T-63
63.50	2.5000	2-1/2		434T-0216
64.00	2.5197	-		434T-64
64.29	2.5313	2-17/32		434T-0217
65.00	2.5591	-		434T-65
65.09	2.5625	2-9/16		434T-0218



Coatings not listed above can be supplied as non-stocked standards.

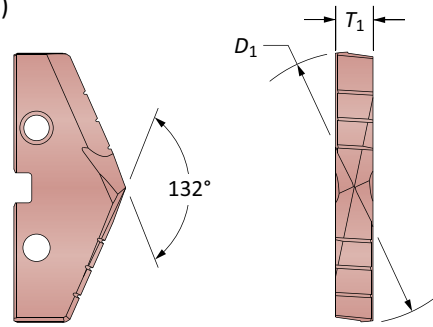


Inserts sold in quantities of 1

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

4 Series | HSS | Diameter Range: 46.99mm - 65.28mm (1.850" - 2.570")



HSS Inserts – Super Cobalt

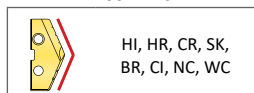
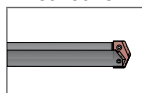
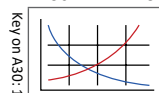
Insert				Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	AM200®
48.00	1.8898	–	7.94	154H-48
48.42	1.9063	1-29/32		154H-0129
49.00	1.9291	–		154H-49
49.21	1.9375	1-15/16		154H-0130
50.00	1.9685	–		154H-50
50.01	1.9688	1-31/32		154H-0131
50.80	2.0000	2		154H-0200
51.00	2.0079	–		154H-51
51.59	2.0313	2-1/32		154H-0201
52.00	2.0472	2-3/64		154H-52
52.39	2.0625	2-1/16		154H-0202
53.00	2.0866	–		154H-53
53.18	2.0938	2-3/32		154H-0203
53.98	2.1250	2-1/8		154H-0204
54.00	2.1260	–		154H-54
54.77	2.1563	2-5/32		154H-0205
55.00	2.1654	–		154H-55
55.56	2.1875	2-3/16		154H-0206
56.00	2.2047	–		154H-56
56.36	2.2188	2-7/32		154H-0207
57.00	2.2441	–		154H-57
57.15	2.2500	2-1/4		154H-0208
57.94	2.2813	2-9/32		154H-0209
58.00	2.2835	–		154H-58
58.74	2.3125	2-5/16		154H-0210
59.00	2.3228	–		154H-59
59.53	2.3438	2-11/32		154H-0211
60.00	2.3622	–		154H-60
60.33	2.3750	2-3/8		154H-0212
61.00	2.4016	–		154H-61
61.12	2.4063	2-13/32		154H-0213
61.91	2.4375	2-7/16		154H-0214
62.00	2.4409	–	154H-62	
62.71	2.4688	2-15/32	154H-0215	
63.00	2.4803	–	154H-63	
63.50	2.5000	2-1/2	154H-0216	
64.00	2.5197	–	154H-64	
64.29	2.5313	2-17/32	154H-0217	
65.00	2.5591	–	154H-65	
65.09	2.5625	2-9/16	154H-0218	

Inserts sold in quantities of 1

A30: 114 - 145

A30: 90 - 92

A30: 4 - 6



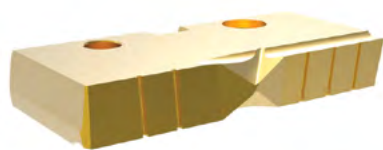
Coatings not listed above
can be supplied as
non-stocked standards.



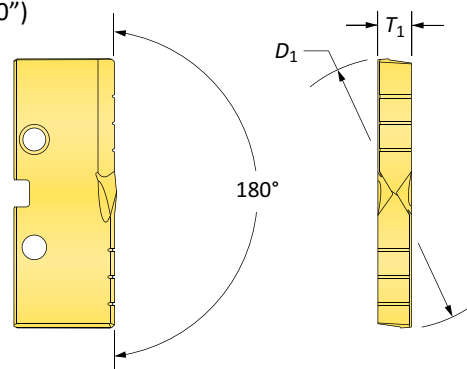
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

4 Series | HSS | Diameter Range: 46.99mm - 65.28mm (1.850" - 2.570")



Flat Bottom



HSS Inserts – Super Cobalt

Insert				Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	TiN
48.00	1.8898	-	7.94	-48-FB
48.42	1.9063	1-29/32		154T-0129-FB
49.00	1.9291	-		154T-49-FB
49.21	1.9375	1-15/16		154T-0130-FB
50.00	1.9685	-		154T-50-FB
50.01	1.9688	1-31/32		154T-0131-FB
50.80	2.0000	2		154T-0200-FB
51.00	2.0079	-		154T-51-FB
51.59	2.0313	2-1/32		154T-0201-FB
52.00	2.0472	2-3/64		154T-52-FB
52.39	2.0625	2-1/16		154T-0202-FB
53.00	2.0866	-		154T-53-FB
53.18	2.0938	2-3/32		154T-0203-FB
53.98	2.1250	2-1/8		154T-0204-FB
54.00	2.1260	-		154T-54-FB
54.77	2.1563	2-5/32		154T-0205-FB
55.00	2.1654	-		154T-55-FB
55.56	2.1875	2-3/16		154T-0206-FB
56.00	2.2047	-		154T-56-FB
56.36	2.2188	2-7/32		154T-0207-FB
57.00	2.2441	-		154T-57-FB
57.15	2.2500	2-1/4		154T-0208-FB
57.94	2.2813	2-9/32		154T-0209-FB
58.00	2.2835	-		154T-58-FB
58.74	2.3125	2-5/16		154T-0210-FB
59.00	2.3228	-		154T-59-FB
59.53	2.3438	2-11/32		154T-0211-FB
60.00	2.3622	-		154T-60-FB
60.33	2.3750	2-3/8		154T-0212-FB
61.00	2.4016	-		154T-61-FB
61.12	2.4063	2-13/32		154T-0213-FB
61.91	2.4375	2-7/16		154T-0214-FB
62.00	2.4409	-	154T-62-FB	
62.71	2.4688	2-15/32	154T-0215-FB	
63.00	2.4803	-	154T-63-FB	
63.50	2.5000	2-1/2	154T-0216-FB	
64.00	2.5197	-	154T-64-FB	
64.29	2.5313	2-17/32	154T-0217-FB	
65.00	2.5591	-	154T-65-FB	
65.09	2.5625	2-9/16	154T-0218-FB	



TiN

A30: 114 - 145

A30: 90 - 92

A30: 4 - 6

Coatings not listed above can be supplied as non-stocked standards.

Inserts sold in quantities of 1

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

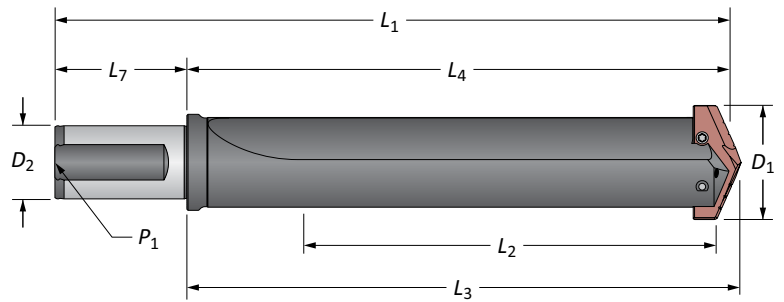
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Drill Insert Holders

4 Series | Flanged Shank

A

DRILLING



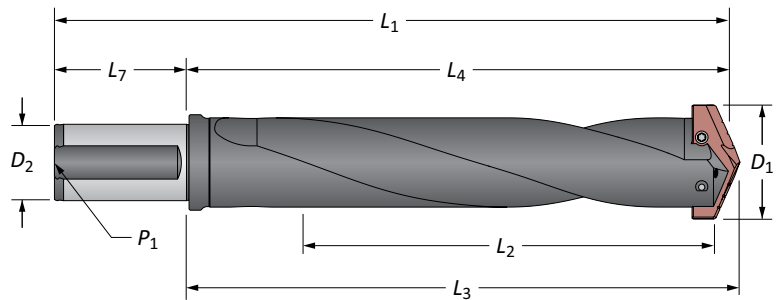
Straight Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Short	48.0 - 65.0	130.2	179.4	184.0	249.4	40.0	70.0	1/4*	22040S-40FM
	Extended	48.0 - 65.0	422.3	471.5	476.0	541.5	40.0	70.0	1/4*	25040S-40FM
	XL	48.0 - 65.0	625.0	674.7	679.0	744.7	40.0	70.0	1/4*	27040S-40FM
	3XL	48.0 - 65.0	879.0	928.7	933.0	998.7	40.0	70.0	1/4*	29040S-40FM
i	Short	1-29/32 - 2-9/16	5-1/8	7-1/6	7-1/4	9-3/4	1-1/2	2-11/16	1/4	22040S-150F
	Standard	1-29/32 - 2-9/16	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4	24040S-150F

*Metric thread to BSP and ISO 7-1

C

REAMING



Helical Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Standard	48.0 - 65.0	231.8	281.0	285.8	351.0	40.0	70.0	1/4*	24040H-40FM
i	Standard	1-29/32 - 2-9/16	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4	24040H-150F

*Metric thread to BSP and ISO 7-1

F

THREADING

Connection Accessories

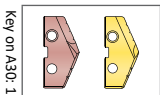
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B	1370 N-cm (121.3 in-lbs)

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

X

SPECIALS

A30: 86 - 89



m = Metric (mm)

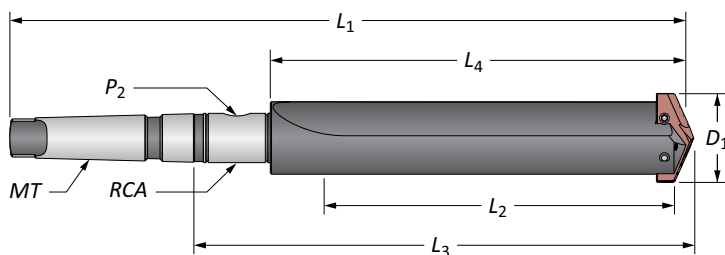
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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

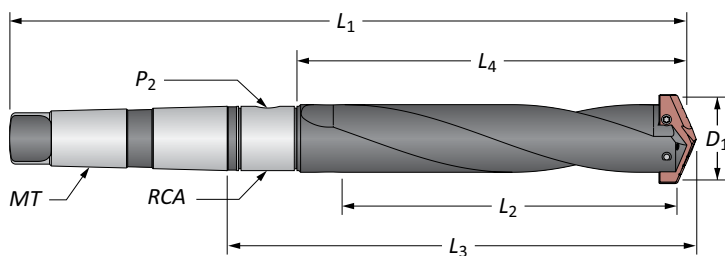


Straight Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	MT	P ₂	RCA	
m	Short	48.0 - 65.0	130.1	165.1	219.1	363.5	#5**	1/4*	2T-5SRM	22040S-005M
	Extended	48.0 - 65.0	422.3	457.2	511.2	655.6	#5**	1/4*	2T-5SRM	25040S-005M
	XL	48.0 - 65.0	625.0	660.4	714.4	858.8	#5**	1/4*	2T-5SRM	27040S-005M
	3XL	48.0 - 65.0	879.0	914.4	968.4	1112.8	#5**	1/4*	2T-5SRM	29040S-005M
i	Short	1-29/32 - 2-9/16	5-1/8	6-1/2	8-5/8	13-1/16	#4	1/4	2T-4SR	22040S-004I
	Short	1-29/32 - 2-9/16	5-1/8	6-1/2	8-5/8	14-5/16	#5	1/4	2T-5SR	22040S-005I
	Standard	1-29/32 - 2-9/16	9-1/8	10-1/2	12-5/8	17-1/16	#4	1/4	2T-4SR	24040S-004I
	Standard	1-29/32 - 2-9/16	9-1/8	10-1/2	12-5/8	18-5/16	#5	1/4	2T-5SR	24040S-005I
	Extended	1-29/32 - 2-9/16	16-5/8	18	20-1/8	25-13/16	#5	1/4	2T-5SR	25040S-005I
	XL	1-29/32 - 2-9/16	24-5/8	26	28-1/8	33-13/16	#5	1/4	2T-5SR	27040S-005I
	3XL	1-29/32 - 2-9/16	34-5/8	36	38-1/8	43-13/16	#5	1/4	2T-5SR	29040S-005I

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Helical Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	RCA	
m	Standard	48.0 - 65.0	231.8	266.7	320.7	465.1	#5**	1/4*	2T-5SRM	24040H-005M

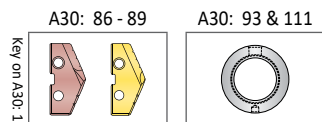
*Metric thread to BSP and ISO 7-1

**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	8IP-20TL	8IP-20B	1370 N-cm (121.3 in-lbs)

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



m = Metric (mm)

i = Imperial (in)

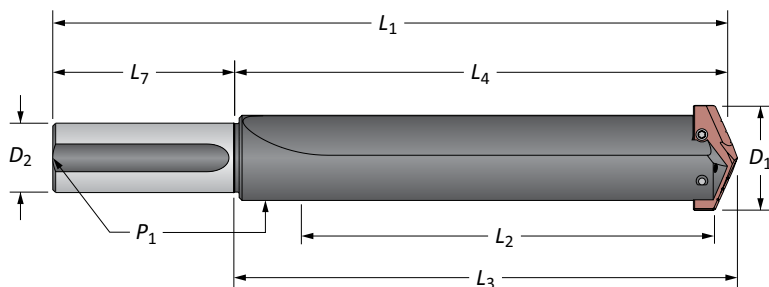
Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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



Straight Flute

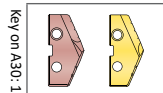
Length	D ₁	Body				Shank			Part No.
		L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Short	1-29/32 - 2-9/16	5-1/8	6-1/2	6-11/16	10-1/2	1-1/2	4	1/4	22040S-150L
Short	1-29/32 - 2-9/16	5-1/8	6-1/2	6-11/16	10-1/2	1-3/4	4	1/4	22040S-175L
Standard	1-29/32 - 2-9/16	9-1/8	10-1/2	10-11/16	14-1/2	1-1/2	4	1/4	24040S-150L
Standard	1-29/32 - 2-9/16	9-1/8	10-1/2	10-11/16	14-1/2	1-3/4	4	1/4	24040S-175L
Extended	1-29/32 - 2-9/16	16-5/8	18	18-3/16	22	1-1/2	4	1/4	⚠ 25040S-150L
XL	1-29/32 - 2-9/16	24-5/8	26	26-3/16	30	1-1/2	4	1/4	⚠ 27040S-150L
3XL	1-29/32 - 2-9/16	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	8IP-20TL	8IP-20B	1370 N-cm (121.3 in-lbs)

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

A30: 86 - 89



Ⓜ = Metric (mm)

Ⓜ = Imperial (in)





Screws sold in quantities of 10

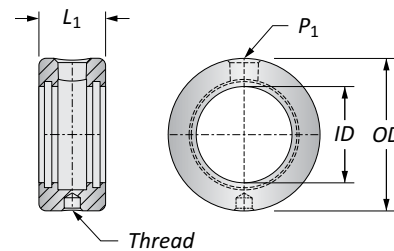
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available 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
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
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




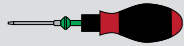



*Thread to BSP and ISO 7-1

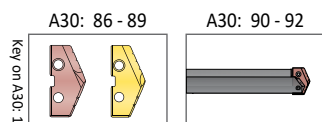
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

 Refer to page A30: 111 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	8IP-20TL	8IP-20B	1370 N-cm (121.3 in-lbs)

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



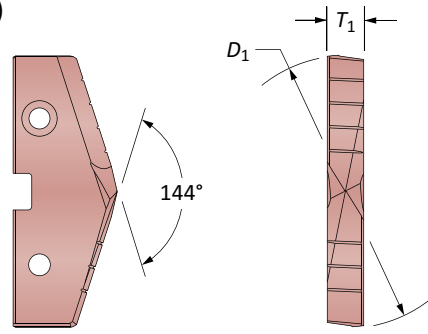
m = Metric (mm)
i = Imperial (in)

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: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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: 62.38mm - 76.20mm (2.456" - 3.000")



HSS Inserts – Super Cobalt | HSS

Insert			T ₁ mm	Super Cobalt Part No.	HSS Part No.
D ₁ mm	D ₁ inch	Fractional Equivalent		AM200®	TiN
63.50	2.5000	2-1/2	11.11	455H-0216	435T-0216
64.00	2.5197	-		455H-64	435T-64
64.29	2.5313	2-17/32		455H-0217	435T-0217
65.09	2.5625	2-9/16		455H-0218	435T-0218
65.88	2.5938	2-19/32		455H-0219	435T-0219
66.00	2.5984	-		455H-66	435T-66
66.68	2.6250	2-5/8		455H-0220	435T-0220
67.47	2.6563	2-21/32		455H-0221	435T-0221
68.00	2.6772	-		455H-68	435T-68
68.26	2.6875	2-11/16		455H-0222	435T-0222
69.05	2.7188	2-23/32		455H-0223	435T-0223
69.85	2.7500	2-3/4		455H-0224	435T-0224
70.00	2.7559	-		455H-70	435T-70
70.64	2.7813	2-25/32		455H-0225	435T-0225
71.44	2.8125	2-13/16		455H-0226	435T-0226
72.00	2.8346	-		455H-72	435T-72
72.23	2.8438	2-27/32		455H-0227	435T-0227
73.03	2.8750	2-7/8		455H-0228	435T-0228
73.82	2.9063	2-29/32		455H-0229	435T-0229
74.00	2.9134	-		455H-74	435T-74
74.41	2.9375	2-15/16	455H-0230	435T-0230	
75.61	2.9688	2-31/32	455H-0231	435T-0231	
76.00	2.9921	-	455H-76	435T-76	
76.20	3.0000	3	455H-0300	435T-0300	

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

A30: 114 - 145 A30: 98 - 100 A30: 4 - 6 HI, HR, CR, SK, BR, CI, NC, WC

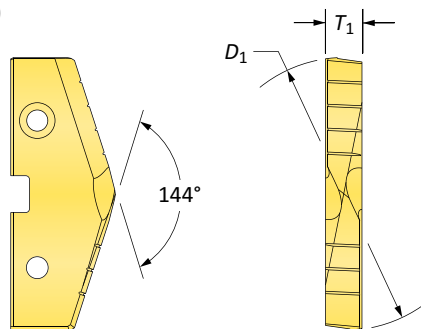
Coatings not listed above can be supplied as non-stocked standards.

Inserts sold in quantities of 1


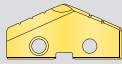
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

5 Series | HSS | Diameter Range: 62.38mm - 76.20mm (2.456" - 3.000")



HSS Inserts – Super Cobalt | HSS

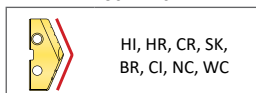
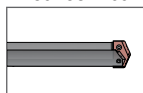
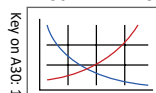
Insert			T ₁ mm	Super Cobalt Part No.*	HSS Part No.
D ₁ mm	D ₁ inch	Fractional Equivalent		 TiN	 TiN
63.50	2.5000	2-1/2	11.11	155T-0216	135T-0216
64.00	2.5197	-		155T-64	135T-64
64.29	2.5313	2-17/32		155T-0217	135T-0217
65.09	2.5625	2-9/16		155T-0218	135T-0218
65.88	2.5938	2-19/32		155T-0219	135T-0219
66.00	2.5984	-		155T-66	135T-66
66.68	2.6250	2-5/8		155T-0220	135T-0220
67.47	2.6563	2-21/32		155T-0221	135T-0221
68.00	2.6772	-		155T-68	135T-68
68.26	2.6875	2-11/16		155T-0222	135T-0222
69.05	2.7188	2-23/32		155T-0223	135T-0223
69.85	2.7500	2-3/4		155T-0224	135T-0224
70.00	2.7559	-		155T-70	135T-70
70.64	2.7813	2-25/32		155T-0225	135T-0225
71.44	2.8125	2-13/16		155T-0226	135T-0226
72.00	2.8346	-		155T-72	135T-72
72.23	2.8438	2-27/32		155T-0227	135T-0227
73.03	2.8750	2-7/8		155T-0228	135T-0228
73.82	2.9063	2-29/32		155T-0229	135T-0229
74.00	2.9134	-		155T-74	135T-74
74.41	2.9375	2-15/16	155T-0230	135T-0230	
75.61	2.9688	2-31/32	155T-0231	135T-0231	
76.00	2.9921	-	155T-76	135T-76	
76.20	3.0000	3	155T-0300	135T-0300	

*Available as non-stocked standard

A30: 114 - 145

A30: 98 - 100

A30: 4 - 6



Coatings not listed above can be supplied as non-stocked standards.



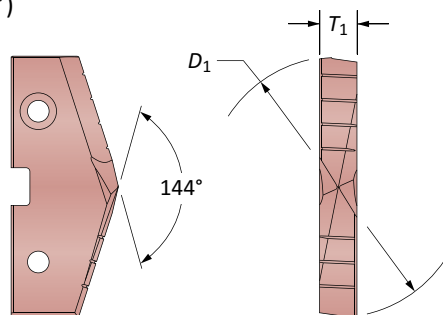
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

Inserts sold in quantities of 1

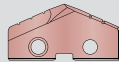
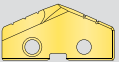
GEN2 T-A® Drill Inserts

6 Series | HSS | Diameter Range: 76.22mm - 89.08mm (3.001" - 3.507")

(for use with 5 series holders)



HSS Inserts – Super Cobalt | HSS

Insert			T ₁ mm	Super Cobalt Part No.	HSS Part No.
D ₁ mm	D ₁ inch	Fractional Equivalent		 AM200®	 TiN
76.99	3.0313	3-1/32	11.11	456H-0301	436T-0301
77.79	3.0625	3-1/16		456H-0302	436T-0302
78.00	3.0709	-		456H-78	436T-78
78.58	3.0938	3-3/32		456H-0303	436T-0303
79.38	3.1250	3-1/8		456H-0304	436T-0304
80.00	3.1496	-		456H-80	436T-80
80.17	3.1563	3-5/32		456H-0305	436T-0305
80.96	3.1875	3-3/16		456H-0306	436T-0306
81.76	3.2188	3-7/32		456H-0307	436T-0307
82.00	3.2283	-		456H-82	436T-82
82.55	3.2500	3-1/4		456H-0308	436T-0308
83.34	3.2813	3-9/32		456H-0309	436T-0309
84.00	3.3071	-		456H-84	436T-84
84.14	3.3125	3-5/16		456H-0310	436T-0310
84.93	3.3438	3-11/32		456H-0311	436T-0311
85.73	3.3750	3-3/8		456H-0312	436T-0312
86.00	3.3858	-		456H-86	436T-86
86.52	3.4063	3-13/32		456H-0313	436T-0313
87.31	3.4375	3-7/16		456H-0314	436T-0314
88.00	3.4646	-		456H-88	436T-88
88.11	3.4688	3-15/32	456H-0315	436T-0315	
88.90	3.5000	3-1/2	456H-0316	436T-0316	

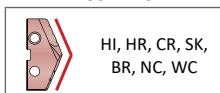
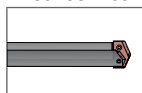
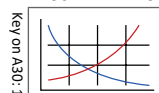
F
THREADING

X
SPECIALS

A30: 114 - 145

A30: 98 - 100

A30: 4 - 6



Coatings not listed above
can be supplied as
non-stocked standards.

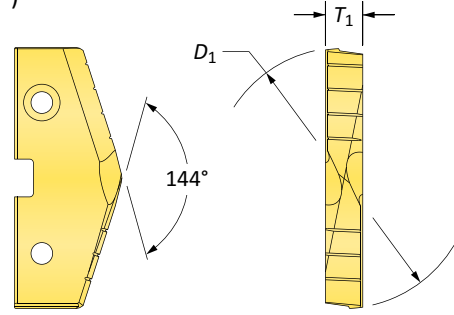


Inserts sold in quantities of 1

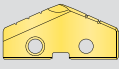
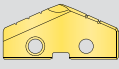
TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

6 Series | HSS | Diameter Range: 76.22mm - 89.08mm (3.001" - 3.507")
(for use with 5 series holders)



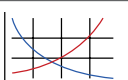
HSS Inserts – Super Cobalt | HSS

Insert				Super Cobalt Part No.*	HSS Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 TiN	 TiN
76.99	3.0313	3-1/32	11.11	156T-0301	136T-0301
77.79	3.0625	3-1/16		156T-0302	136T-0302
78.00	3.0709	-		156T-78	136T-78
78.58	3.0938	3-3/32		156T-0303	136T-0303
79.38	3.1250	3-1/8		156T-0304	136T-0304
80.00	3.1496	-		156T-80	136T-80
80.17	3.1563	3-5/32		156T-0305	136T-0305
80.96	3.1875	3-3/16		156T-0306	136T-0306
81.76	3.2188	3-7/32		156T-0307	136T-0307
82.00	3.2283	-		156T-82	136T-82
82.55	3.2500	3-1/4		156T-0308	136T-0308
83.34	3.2813	3-9/32		156T-0309	136T-0309
84.00	3.3071	-		156T-84	136T-84
84.14	3.3125	3-5/16		156T-0310	136T-0310
84.93	3.3438	3-11/32		156T-0311	136T-0311
85.73	3.3750	3-3/8		156T-0312	136T-0312
86.00	3.3858	-	156T-86	136T-86	
86.52	3.4063	3-13/32	156T-0313	136T-0313	
87.31	3.4375	3-7/16	156T-0314	136T-0314	
88.00	3.4646	-	156T-88	136T-88	
88.11	3.4688	3-15/32	156T-0315	136T-0315	
88.90	3.5000	3-1/2	156T-0316	136T-0316	


*Available as non-stocked standard

Key on A30:1


A30: 114 - 145



A30: 98 - 100



A30: 4 - 6



HI, HR, CR, SK,
BR, NC, WC

Coatings not listed above can be supplied as non-stocked standards.



Inserts sold in quantities of 1

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

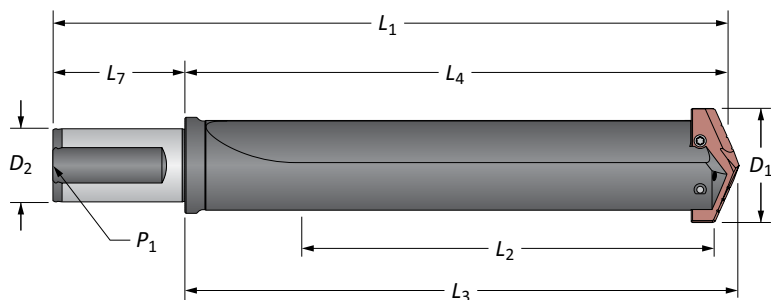
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

T-A® Drill Insert Holders

5 Series | Flanged Shank

A

DRILLING



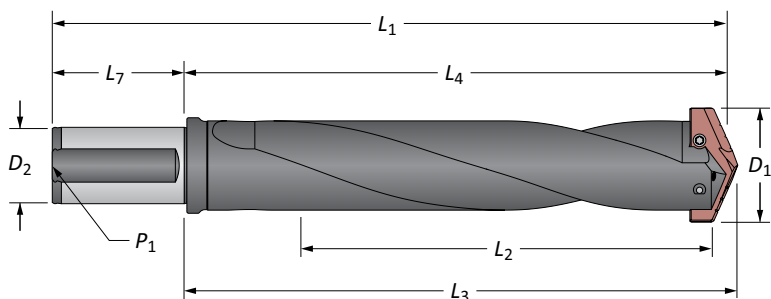
Straight Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Short	64.00 - 88.00	172	215.9	222.3	302.3	50.0	80.0	1/2*	22050S-50FM
	Extended	64.00 - 88.00	464	508	514.4	594.4	50.0	80.0	1/2*	25050S-50FM
i	Short	2-1/2 - 3-1/2	6-49/64	8-1/2	8-3/4	13-1/4	2	4-1/2	1/2	22050S-200F
	Extended	2-1/2 - 3-1/2	18-17/64	20	20-1/4	24-3/4	2	4-1/2	1/2	25050S-200F

*Metric thread to BSP and ISO 7-1

C

REAMING



Helical Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Standard	64.0 - 88.0	273	317.5	323.9	403.9	50.0	80.0	1/2*	24050H-50FM
i	Standard	2-1/2 - 3-1/2	10-3/4	12-1/2	12-3/4	17-1/4	2	4-1/2	1/2	24050H-200F

*Metric thread to BSP and ISO 7-1

F

THREADING

Connection Accessories

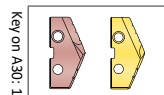
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
7619-IP25-1	-	8IP-25	-	-	1750 N-cm (155.0 in-lbs)

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

X

SPECIALS

A30: 94 - 97



m = Metric (mm)

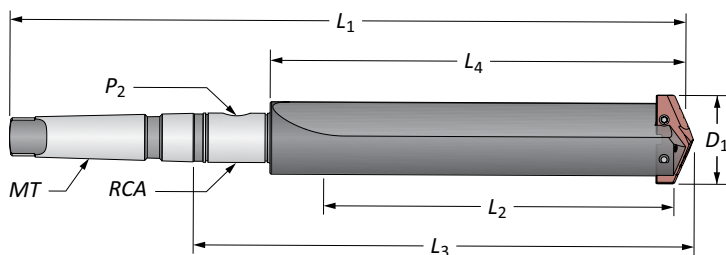
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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

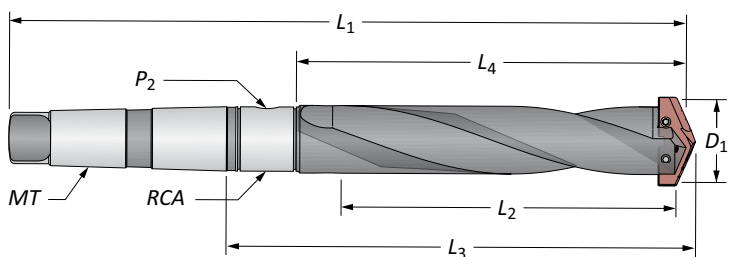


Straight Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	MT	P ₂	RCA	
M	Short	64.0 - 88.0	171.5	215.9	287.3	430.2	#5**	1/2*	2T-6SRM	22050S-005M
	Extended	64.0 - 88.0	463.6	508.0	579.4	722.3	#5**	1/2*	2T-6SRM	⚠ 25050S-005M
	XL	64.0 - 88.0	660.0	704.8	776.2	919.1	#5**	1/2*	2T-6SRM	⚠ 27050S-005M
	3XL	64.0 - 88.0	889.0	933.4	1004.8	1147.7	#5**	1/2*	2T-6SRM	⚠ 29050S-005M
I	Short	2-1/2 - 3-1/2	6-3/4	8-1/2	11-5/16	16-15/16	#5	1/2	2T-6SR	22050S-005I
	Standard	2-1/2 - 3-1/2	10-3/4	12-1/2	15-5/16	20-15/16	#5	1/2	2T-6SR	24050S-005I
	Extended	2-1/2 - 3-1/2	18-1/4	20	22-13/16	28-7/16	#5	1/2	2T-6SR	⚠ 25050S-005I
	XL	2-1/2 - 3-1/2	26	27-3/4	30-9/16	36-3/16	#5	1/2	2T-6SR	⚠ 27050S-005I
	3XL	2-1/2 - 3-1/2	35	36-3/4	39-9/16	45-3/16	#5	1/2	2T-6SR	⚠ 29050S-005I

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Helical Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	MT	P ₂	RCA	
M	Standard	64.0 - 88.0	273.1	317.5	388.9	531.8	#5**	1/2*	2T-6SRM	24050H-005M

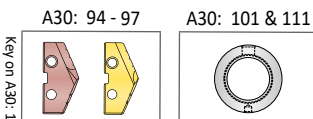
*Metric thread to BSP and ISO 7-1

**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	-	-	1750 N-cm (155.0 in-lbs)

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



M = Metric (mm)

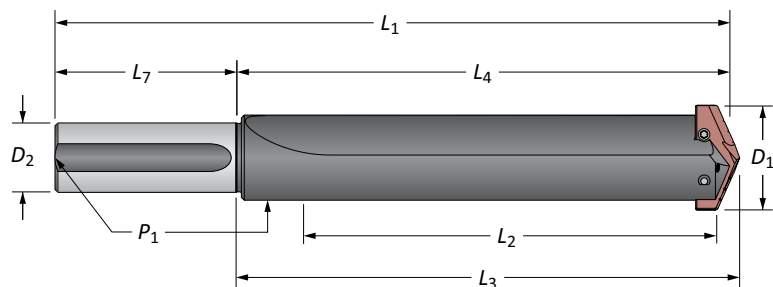
I = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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



Straight Flute

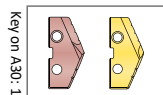
Length	D_1	Body				Shank			Part No.
		L_2	L_4	L_3	L_1	D_2	L_7	P_1	
Short	2-1/2 - 3-1/2	6-3/4	8-1/2	8-3/4	12-1/2	2	4	1/2	22050S-200L
Standard	2-1/2 - 3-1/2	10-3/4	12-1/2	12-3/4	16-1/2	2	4	1/2	24050S-200L
Extended	2-1/2 - 3-1/2	18-1/4	20	20-1/4	24	2	4	1/2	⚠ 25050S-200L
XL	2-1/2 - 3-1/2	26	27-3/4	28	31-3/4	2	4	1/2	⚠ 27050S-200L
3XL	2-1/2 - 3-1/2	35	36-3/4	37	40-3/4	2	4	1/2	⚠ 29050S-200L

Connection Accessories

Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
7619-IP25-1	-	8IP-25	-	-	1750 N-cm (155.0 in-lbs)

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

A30: 94 - 97



m = Metric (mm)

i = Imperial (in)





Screws sold in quantities of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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


5/6 Series | Rotary Coolant Adapters | Torx® Plus Screws

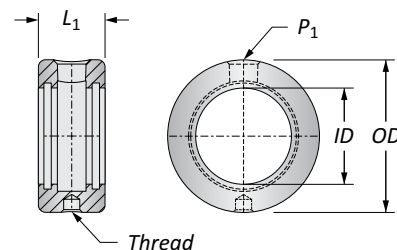
Rotary Coolant Adapter (RCA) and Accessories

ID	OD	L ₁	Driving Rod Thread	P ₁	Part No.	RCA O-Rings	
						Kit Part No.**	Replacements
 57.15	95.27	44.45	M12 x 1.75	1/2*	 2T-6SRM	2T1-6SR	2T1-6OR-10
 2-1/4	3-3/4	1-3/4	1/2-13	1/2	 2T-6SR	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

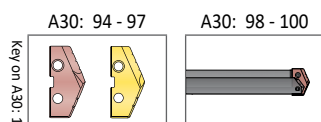
 Refer to page A30: 111 for proper RCA assembly and safety information






Connection Accessories

Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
7619-IP25-1	–	8IP-25	–	–	1750 N-cm (155.0 in-lbs)

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

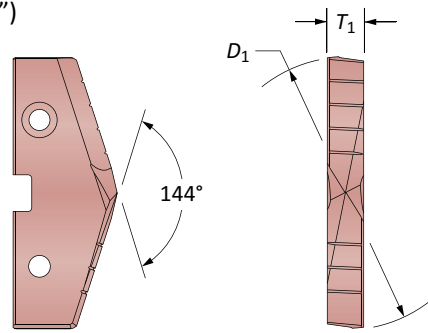


 = Metric (mm)
 = Imperial (in)
 Inserts sold separately
 Screws sold in packs of 10
 O-rings sold in packs of 10

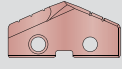
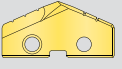
 **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

GEN2 T-A® Drill Inserts

7 Series | HSS | Diameter Range: 89.10mm - 101.60mm (3.508" - 4.000")



HSS Inserts – Super Cobalt | HSS

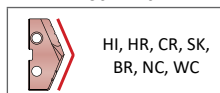
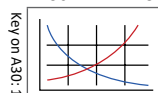
Insert			T ₁ mm	Super Cobalt Part No.	HSS Part No.
D ₁ mm	D ₁ inch	Fractional Equivalent		 AM200®	 TiN
89.69	3.5313	3-17/32	11.11	457H-0317	437T-0317
90.00	3.5433	-		457H-90	437T-90
90.49	3.5625	3-9/16		457H-0318	437T-0318
91.28	3.5938	3-19/32		457H-0319	437T-0319
92.00	3.6221	-		457H-92	437T-92
92.08	3.6250	3-5/8		457H-0320	437T-0320
92.87	3.6563	3-21/32		457H-0321	437T-0321
93.66	3.6875	3-11/16		457H-0322	437T-0322
94.00	3.7008	-		457H-94	437T-94
94.46	3.7188	3-23/32		457H-0323	437T-0323
95.25	3.7500	3-3/4		457H-0324	437T-0324
96.00	3.7795	-		457H-96	437T-96
96.04	3.7813	3-25/32		457H-0325	437T-0325
96.84	3.8125	3-13/16		457H-0326	437T-0326
97.63	3.8438	3-27/32		457H-0327	437T-0327
98.00	3.8583	-		457H-98	437T-98
98.43	3.8750	3-7/8		457H-0328	437T-0328
99.22	3.9063	3-29/32		457H-0329	437T-0329
100.00	3.9370	-		457H-100	437T-100
100.01	3.9375	3-15/16		457H-0330	437T-0330
100.81	3.9688	3-31/32	457H-0331	437T-0331	
101.60	4.0000	4	457H-0400	437T-0400	

Inserts sold in quantities of 1

A30: 114 - 145

A30: 106 - 108

A30: 4 - 6



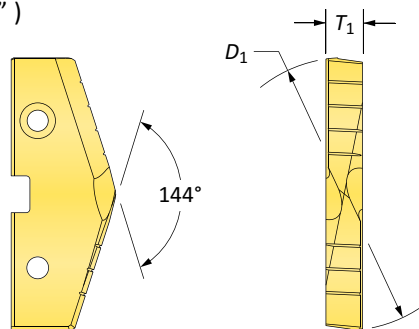
Coatings not listed above
can be supplied as
non-stocked standards.



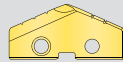

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Original Drill Inserts

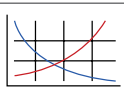
7 Series | HSS | Diameter Range: 89.10mm - 101.60mm (3.508" - 4.000")





HSS Inserts – Super Cobalt | HSS

Insert			T ₁ mm	Super Cobalt Part No.*	HSS Part No.
D ₁ mm	D ₁ inch	Fractional Equivalent		 TiN	 TiN
89.69	3.5313	3-17/32	11.11	157T-0317	137T-0317
90.00	3.5433	–		157T-90	137T-90
90.49	3.5625	3-9/16		157T-0318	137T-0318
91.28	3.5938	3-19/32		157T-0319	137T-0319
92.00	3.6221	–		157T-92	137T-92
92.08	3.6250	3-5/8		157T-0320	137T-0320
92.87	3.6563	3-21/32		157T-0321	137T-0321
93.66	3.6875	3-11/16		157T-0322	137T-0322
94.00	3.7008	–		157T-94	137T-94
94.46	3.7188	3-23/32		157T-0323	137T-0323
95.25	3.7500	3-3/4		157T-0324	137T-0324
96.00	3.7795	–		157T-96	137T-96
96.04	3.7813	3-25/32		157T-0325	137T-0325
96.84	3.8125	3-13/16		157T-0326	137T-0326
97.63	3.8438	3-27/32		157T-0327	137T-0327
98.00	3.8583	–		157T-98	137T-98
98.43	3.8750	3-7/8		157T-0328	137T-0328
99.22	3.9063	3-29/32		157T-0329	137T-0329
100.00	3.9370	–		157T-100	137T-100
100.01	3.9375	3-15/16		157T-0330	137T-0330
100.81	3.9688	3-31/32	157T-0331	137T-0331	
101.60	4.0000	4	157T-0400	137T-0400	

*Available as non-stocked standard

A30: 114 - 145

 Key on A30: 1

A30: 106 - 108


A30: 4 - 6
 HI, HR, CR, SK, BR, NC, WC

Coatings not listed above can be supplied as non-stocked standards. →

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

Inserts sold in quantities of 1

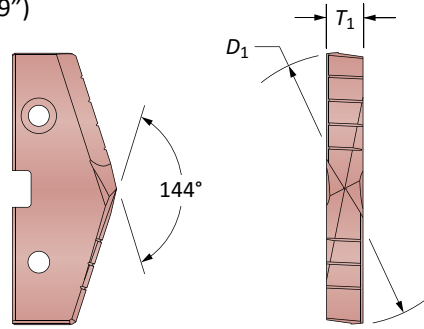
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS



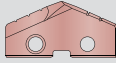

GEN2 T-A® Drill Inserts

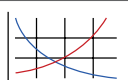
8 Series | HSS | Diameter Range: 101.63mm - 160.00mm (4.001" - 6.299")


(for use with 7 series holders)





HSS Inserts – Super Cobalt | HSS

Insert				Super Cobalt Part No.	HSS Part No.
D_1 mm	D_1 inch	Fractional Equivalent	T_1 mm	 AM200®	 TiN
102.00	4.0157	4-1/64	11.11	458H-102	438T-102
103.19	4.0625	4-1/16		458H-0402	438T-0402
104.00	4.0945	4-3/32		458H-104	438T-104
104.75	4.1250	4-1/8		458H-0404	438T-0404
106.00	4.1732	-		458H-106	438T-106
106.36	4.1875	4-3/16		458H-0406	438T-0406
107.95	4.2500	4-1/4		458H-0408	438T-0408
108.00	4.2520	-		458H-108	438T-108
109.54	4.3125	4-5/16		458H-0410	438T-0410
110.00	4.3307	-		458H-110	438T-110
111.13	4.3750	4-3/8		458H-0412	438T-0412
112.00	4.4094	-		458H-112	438T-112
112.71	4.4375	4-7/16		458H-0414	438T-0414
114.00	4.4882	-		458H-114	438T-114
114.30	4.5000	4-1/2		458H-0416	438T-0416

A30: 114 - 145  Key on A30: 1

A30: 106 - 108 

A30: 4 - 6  HI, HR, CR, SK, BR, NC, WC

Coatings not listed above can be supplied as non-stocked standards. 

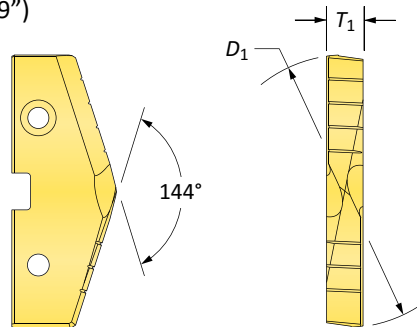
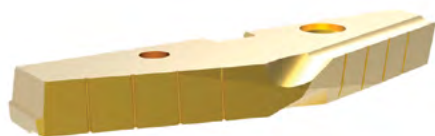
Inserts sold in quantities of 1

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

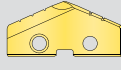
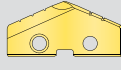
T-A® Original Drill Inserts

8 Series | HSS | Diameter Range: 101.63mm - 160.00mm (4.001" - 6.299")

(for use with 7 series holders)



HSS Inserts – Super Cobalt | HSS

Insert			T ₁ mm	Super Cobalt Part No.*	HSS Part No.
D ₁ mm	D ₁ inch	Fractional Equivalent			
102.00	4.0157	4-1/64	11.11	158T-102	138T-102
103.19	4.0625	4-1/16		158T-0402	138T-0402
104.00	4.0945	4-3/32		158T-104	138T-104
104.75	4.1250	4-1/8		158T-0404	138T-0404
106.00	4.1732	-		158T-106	138T-106
106.36	4.1875	4-3/16		158T-0406	138T-0406
107.95	4.2500	4-1/4		158T-0408	138T-0408
108.00	4.2520	-		158T-108	138T-108
109.54	4.3125	4-5/16		158T-0410	138T-0410
110.00	4.3307	-		158T-110	138T-110
111.13	4.3750	4-3/8		158T-0412	138T-0412
112.00	4.4094	-		158T-112	138T-112
112.71	4.4375	4-7/16		158T-0414	138T-0414
114.00	4.4882	-		158T-114	138T-114
114.30	4.5000	4-1/2		158T-0416	138T-0416

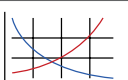


*Available as non-stocked standard

DOUBLE WIDE (Oversized)

Grade	Diameter		Part Number & Coating
	mm	Inch	AM200®
HSS Super Cobalt	110.00	4.3307	158H-110DW
	120.00	4.7244	158H-120DW
	125.00	4.9213	158H-125DW
	130.00	5.1181	158H-130DW
	140.00	5.5118	158H-140DW
	150.00	5.9055	158H-150DW
	160.00	6.2992	158H-160DW

*Available as non-stocked standard. Additional Diameters up to 200mm available on request. 120mm maximum diameter for Stainless Steel

Supplied in packs of 1

A30: 114 - 145  A30: 106 - 108  A30: 4 - 6  HI, HR, CR, SK, BR, NC, WC

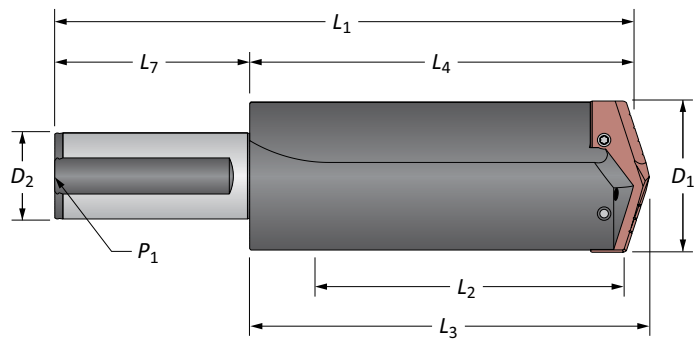
Coatings not listed above can be supplied as non-stocked standards.

Inserts sold in quantities of 1

TiN = 131T-XXXX	TiAlN = 131A-XXXX
TiCN = 131N-XXXX	AM200® = 131H-XXXX

T-A® Drill Insert Holders

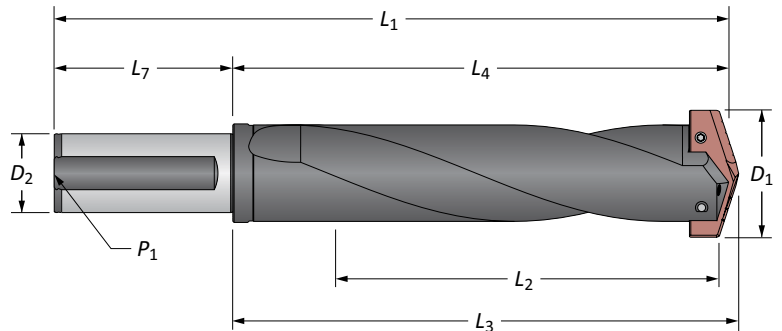
7 Series | Flanged Shank



Straight Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Short	90.0 - 114.0	172	225.4	231.8	311.8	50.0	80.0	1/2*	22070S-50FM
	Extended	90.0 - 114.0	556	606.9	616	696	50.0	80.0	1/2*	↑ 25070S-50FM
i	Short	3-17/32 - 4-1/2	6-49/64	8-7/8	9-1/8	13-5/8	2	4-1/2	1/2	22070S-200F
	Extended	3-17/32 - 4-1/2	21-57/64	23-57/64	24-1/4	27-3/4	2	4-1/2	1/2	↑ 25070S-200F

*Metric thread to BSP and ISO 7-1



Helical Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
m	Standard	90.0 - 114.0	273	327	333.4	413.4	50.0	80.0	1/2*	24070H-50FM
i	Standard	3-17/32 - 4-1/2	10-3/4	12-7/8	13-1/8	17-5/8	2	4-1/2	1/2	24070H-200F

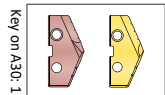
*Metric thread to BSP and ISO 7-1

Connection Accessories

Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
7619-IP25-1	-	8IP-25	-	-	1750 N-cm (155.0 in-lbs)

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

A30: 102 - 105



m = Metric (mm)

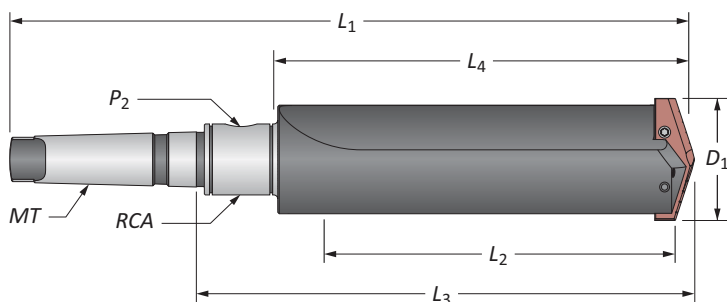
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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

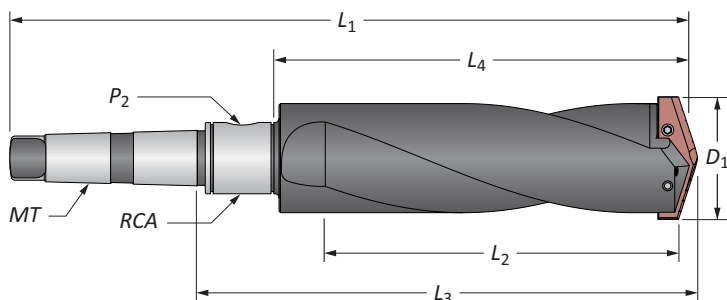


Straight Flute

	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	RCA	
m	Short	90.0 - 114.0	171.5	296.8	225.4	439.7	#5**	1/2*	2T-6SRM	22070S-005M
	Extended	90.0 - 114.0	555.6	681.1	609.6	823.9	#5**	1/2*	2T-6SRM	⚠ 25070S-005M
	XL	90.0 - 114.0	685.0	811.2	739.7	954.0	#5**	1/2*	2T-6SRM	⚠ 27070S-005M
	3XL	90.0 - 114.0	939.0	1065.2	993.7	1208.0	#5**	1/2*	2T-6SRM	⚠ 29070S-005M
i	Short	3-17/32 - 4-1/2	6-3/4	11-11/16	8-7/8	17-5/16	#5	1/2	2T-6SR	22070S-005I
	Standard	3-17/32 - 4-1/2	10-3/4	15-11/16	12-7/8	21-5/16	#5	1/2	2T-6SR	24070S-005I
	Extended	3-17/32 - 4-1/2	21-7/8	26-13/16	24	32-7/16	#5	1/2	2T-6SR	⚠ 25070S-005I
	XL	3-17/32 - 4-1/2	27	31-15/16	29-1/8	37-9/16	#5	1/2	2T-6SR	⚠ 27070S-005I
	3XL	3-17/32 - 4-1/2	37	41-5/16	39-1/8	47-9/16	#5	1/2	2T-6SR	⚠ 29070S-005I

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Helical Flute

	Length	D ₁	Body			Shank			Part No.	
			L ₂	L ₄	L ₃	L ₁	MT	P ₂		RCA
m	Standard	90.0 - 114.0	273.1	327.0	398.5	541.3	#5**	1/2*	2T-6SRM	24070H-005M

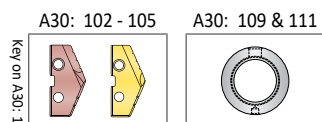
*Metric thread to BSP and ISO 7-1

**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	-	-	1750 N-cm (155.0 in-lbs)

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



m = Metric (mm)

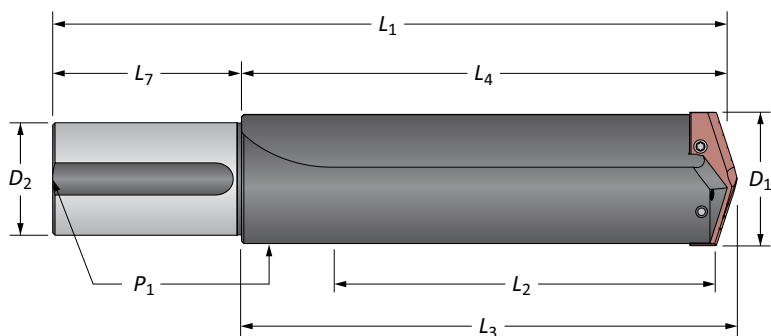
i = Imperial (in)

Screws sold in quantities of 10

WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com 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



Straight Flute

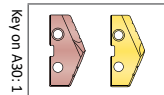
Length	D ₁	Body				Shank			Part No.
		L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Short	3-17/32 - 4-1/2	6-3/4	8-7/8	9-1/8	13-7/8	3	5	1/2	22070S-300L
Standard	3-17/32 - 4-1/2	10-3/4	12-7/8	13-1/8	17-7/8	3	5	1/2	24070S-300L
i Extended	3-17/32 - 4-1/2	21-7/8	24	24-1/4	29	3	5	1/2	⚠ 25070S-300L
XL	3-17/32 - 4-1/2	27	29-1/8	29-3/8	34-1/8	3	5	1/2	⚠ 27070S-300L
3XL	3-17/32 - 4-1/2	37	39-1/8	39-3/8	44-1/8	3	5	1/2	⚠ 29070S-300L

Connection Accessories

Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
7619-IP25-1	-	8IP-25	-	-	1750 N-cm (155.0 in-lbs)

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

A30: 102 - 105



m = Metric (mm)

i = Imperial (in)

Screws sold in quantities of 10

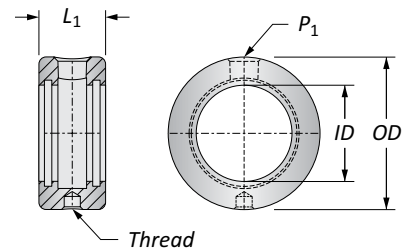
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A® Drill Accessories

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
m 57.15	95.27	44.45	M12 x 1.75	1/2*	2T-6SRM	2T1-6SR	2T1-6OR-10
i 2-1/4	3-3/4	1-3/4	1/2-13	1/2	2T-6SR	2T1-6SR	2T1-6OR-10



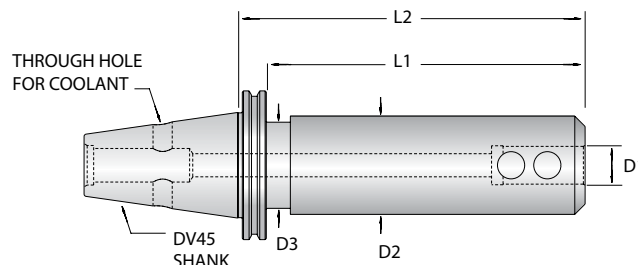
*Thread to BSP and ISO 7-1
 **RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers
 ⚠ Refer to page A30: 111 for proper RCA assembly and safety information

Connection Accessories

Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
7619-IP25-1	-	8IP-25	-	-	1750 N-cm (155.0 in-lbs)

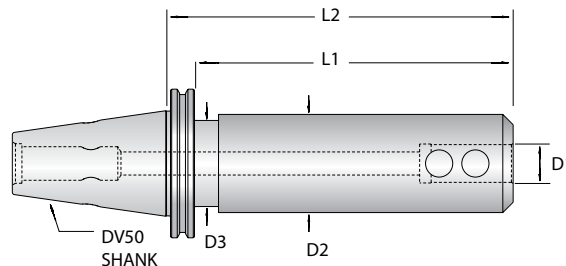
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

DV45 & DV50 Adaptors



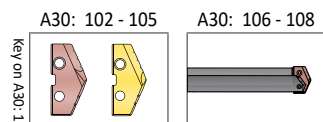
DV45 Adaptor

Item Number	Outer Taper	D1 Inner ϕ mm	D2 ϕ	D3 ϕ	L1	L2	Qty of Clamping Screws
AMDV45-EM20-120	DV45	20	52	57	101	120	1
AMDV45-EM25-120	DV45	25	65	57	101	120	2
AMDV45-EM32-120	DV45	32	78	57	101	120	2
AMDV45-EM20-230	DV45	20	52	57	211	230	1
AMDV45-EM25-230	DV45	25	65	57	211	230	2
AMDV45-EM32-230	DV45	32	78	57	211	230	2



DV50 Adaptor

Item Number	Outer Taper	D1 Inner ϕ mm	D2 ϕ	D3 ϕ	L1	L2	Qty of Clamping Screws
AMDV45-EM50-120	DV50	50	100	69.858	100	120	2



m = Metric (mm)
i = Imperial (in)
 Inserts sold separately
 Screws sold in packs of 10
 O-rings sold in packs of 10

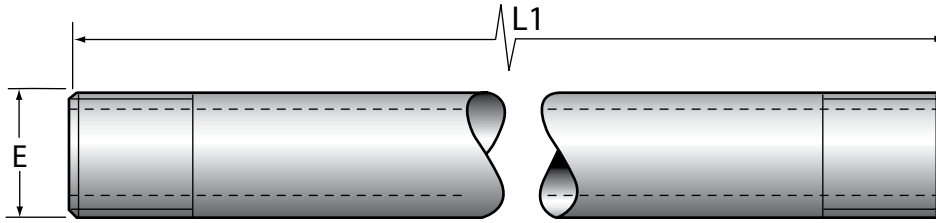
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 148 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

T-A® Drill Accessories

A
DRILLING

Coolant Pipe Extension/Steady Bar



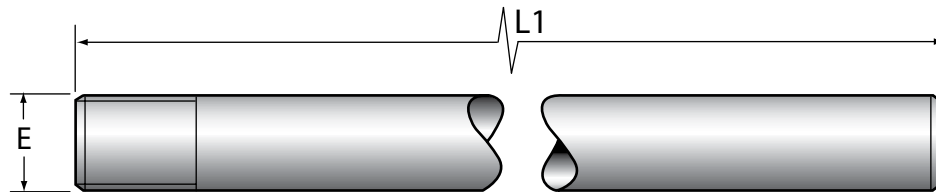
B
BORING

Item Number	Normal Pipe Thread E	L1 mm
302T-2SRM	1/8"	150
302T-3SRM	1/8"	150
302T-4SRM	1/4"	200
302T-5SRM	1/4"	200
302T-6SRM	1/2"	200

Note: Always use a steady bar when using a RCA adaptor

C
REAMING

Solid Steady Bar

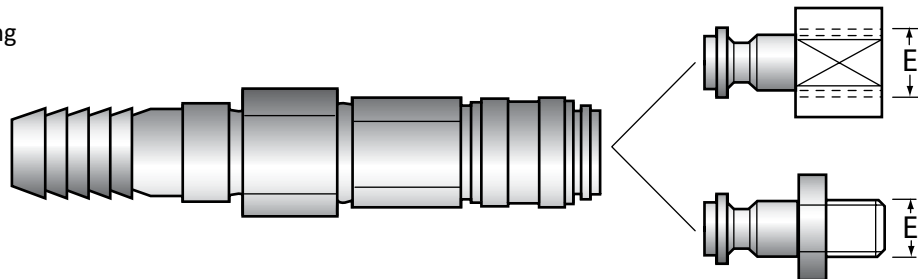


D
BURNISHING

Item Number	Thread Size E	L1 mm
312T-2SRM	M8	250
312T-3SRM	M8	250
312T-4SRM	M10	250
312T-5SRM	M10	250
312T-6SRM	M12	250

F
THREADING

Fast Action Coupling

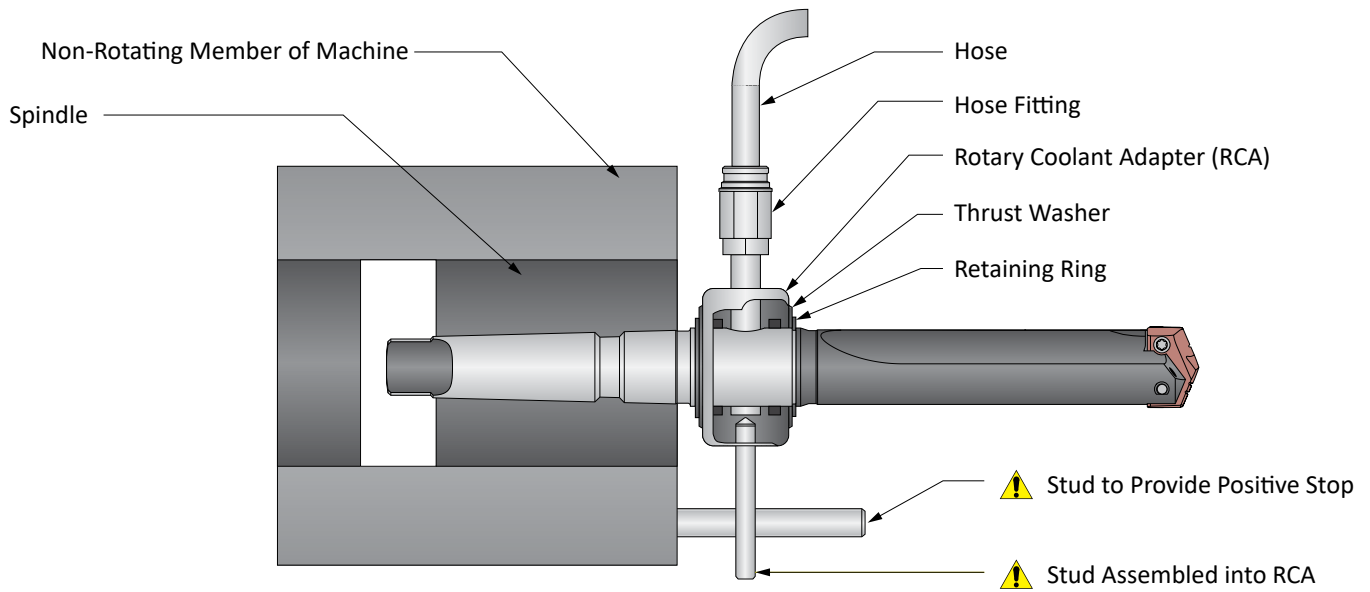


X
SPECIALS

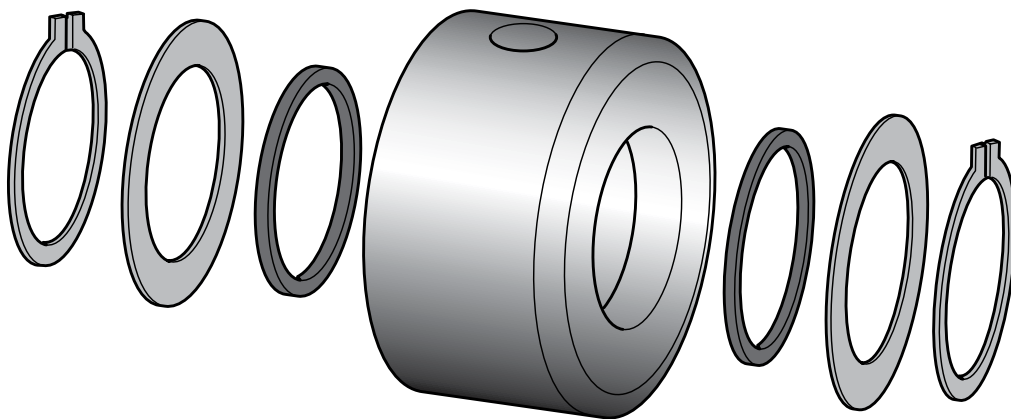
Item Number	Normal Pipe Thread E	Hose Ø
322T-2SRM	1/8"	9mm
322T-3SRM	1/8"	9mm
322T-4SRM	1/4"	9mm
322T-5SRM	1/4"	12mm
322T-6SRM	1/2"	12mm

Rotary Coolant Adapters (RCA)

RCA Assembly



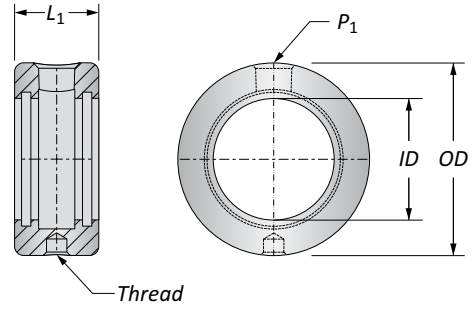
RCA Assembly and Repair Kit



Item Number	Drill Range	Catalogue Number
		RCA Repair Kit
2T-2SRM	9.50 - 11.07mm	2T1-2SR
2T-2SRM	11.10 - 12.95mm	2T1-2SR
2T-2SRM	12.98 - 17.65mm	2T1-2SR
2T-3SRM	17.63 - 24.38mm	2T1-3SR
2T-3SRM	24.41 - 35.05mm	2T1-3SR
2T-4SRM	30.00 - 35.05mm	2T1-4SR
2T-4SRM	34.37 - 47.80mm	2T1-4SR
2T-5SRM	46.99 - 65.28mm	2T1-5SR
2T-6SRM	62.38 - 89.08mm	2T1-6SR
2T-6SRM	87.76 - 160.00mm	2T1-6SR

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
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	53.98	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	95.25	44.45	M12 x 1.75	1/2*	⚠ 2T-6SRM	1100	2T1-6SR	2T1-6OR-10
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

*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 42 bar (600 PSI)

NOTE: Recommendations above are based on water and oil based coolants

M = Metric (mm)

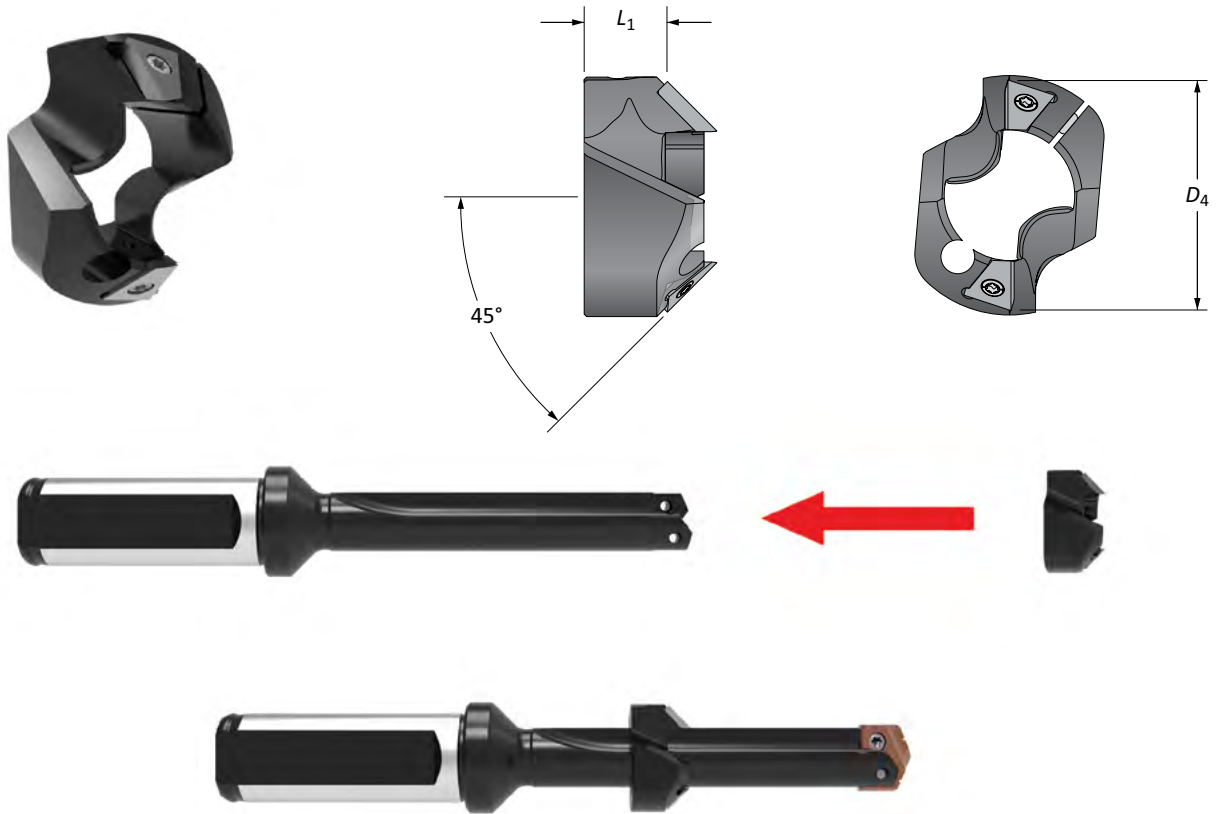
I = Imperial (in)




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	13.0 - 17.5	20.63	17.17	T-ACR-45-0	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7375-IP9-1	8IP-9
1	18.0 - 24.0	26.59	20.24	T-ACR-45-1	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7495-IP15-1	8IP-15
1.5	22.0 - 24.0	28.58	22.62	T-ACR-45-1.5	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7495-IP15-1	8IP-15
2	25.0 - 35.0	39.68	25.40	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 centre of gravity to ensure stability
- Inserts only available in C5 carbide and TiAlN coating
- Ideal for short-run or time sensitive jobs that require quick delivery

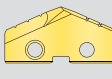
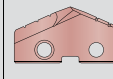


IMPORTANT: T-A® chamfer rings can only be used with straight flute T-A® holders

Inserts sold in quantities of 2
Screws sold in quantities of 10

GEN2 T-A® Recommended Drilling Data | Metric (mm)

HSS Inserts

ISO	Material	Hardness			Carbide Grade	M/min		Feed Rate (mm/rev) by Diameter	
		(BHN)	kg	N/mm ²		 TiN	 AM200®	9.50 - 12.95	12.98 - 17.52
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	38 - 50	370-500	HSS	61	99	0.20	0.30
		150 - 200	50 - 70	500-700	HSS	55	91	0.18	0.28
		200 - 250	70 - 88	700-870	HSS	49	85	0.15	0.25
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	30 - 46	300-450	HSS	52	88	0.20 ❖	0.25
		125 - 175	46 - 62	450 - 600	HSS	49	83	0.18 ❖	0.25
		175 - 225	62 - 77	600 - 775	HSS	46	79	0.15 ❖	0.23
		225 - 275	77 - 96	775 - 940	HSS	43	73	0.13 ❖	0.23
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	46 - 62	450 - 600	HSS	49	83	0.18	0.25
		175 - 225	62 - 77	600 - 775	HSS	46	79	0.15	0.23
		225 - 275	77 - 96	775 - 940	HSS	43	73	0.15	0.23
		275 - 325	96 - 111	940 - 1090	C1	40	68	0.13	0.20
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	46 - 62	450 - 600	HSS	46	73	0.18	0.25
		175 - 225	62 - 77	600 - 775	HSS	43	68	0.15	0.23
		225 - 275	77 - 96	775 - 940	HSS	40	64	0.15	0.23
		275 - 325	96 - 111	940 - 1090	C1	37	59	0.13	0.20
		325 - 375	111 - 129	1090 - 1265	C1	34	54	0.10	0.18
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	77 - 104	600 - 1020	C1	24	38	0.15 ❖	0.23
		300 - 350	104 - 121	1020 - 1180	C1	18	30	0.13 ❖	0.20
350 - 400		121 - 139	1180 - 1365	PC	15	24	0.10 ❖	0.18	
Structural Steel A36, A285, A516, etc.	100 - 150	38 - 50	370 - 500	HSS	43	71	0.20 ❖	0.28	
	150 - 250	50 - 88	500 - 850	HSS	37	57	0.15 ❖	0.25	
	250 - 350	88 - 121	850 - 1180	C1	30	48	0.13 ❖	0.23	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	50 - 70	500 - 700	SC	24	38	0.10	0.18	
	200 - 250	70 - 88	700 - 870	C1	18	32	0.10	0.18	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	49 - 77	480 - 755	SC, PC	9	13	0.10 ❖	0.18
		220 - 310	77 - 101	755 - 990	PC	8	12	0.10 ❖	0.15
	Titanium Alloy	140 - 220	49 - 77	480 - 755	SC, PC	11	16	0.10 ❖	0.18
		220 - 310	77 - 101	755 - 990	PC	10	15	0.08 ❖	0.15
Aerospace Alloy S82	185 - 275	65 - 96	640 - 940	SC, PC	23	35	0.15 ❖	0.20	
	275 - 350	96 - 121	940 - 1180	SC, PC	18	31	0.13 ❖	0.18	
M	Stainless Steel 400 Series 416, 420, etc.	185 - 275	65 - 96	640 - 940	SC, PC	23	35	0.15 ❖	0.20
		275 - 350	96 - 121	940 - 1180	SC, PC	18	31	0.13 ❖	0.18
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	49 - 65	480 - 640	SC, PC	23	35	0.08 ❖	0.18
		185 - 275	65 - 96	640 - 940	SC, PC	18	31	0.08 ❖	0.15
	Super Duplex Stainless Steel	135 - 185	49 - 65	480 - 640	SC, PC	18	26	0.08 ❖	0.18
185 - 275		65 - 96	640 - 940	SC, PC	15	22	0.08 ❖	0.15	
H	Wear Plate Hardox, AR400, T-1, etc.	400	139	1365	SC, PC	14	21	0.08 ❖	0.15
		500	160	1600	PC	10	14	0.05 ❖	0.12
		600	210	2000	N/A	-	-	-	-
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	PC	15	29	0.10 ❖	0.15
400 - 500		139+	1365+	PC	10	14	0.06 ❖	0.12	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	HSS	52	84	0.20	0.30
		150 - 200	50 - 70	500 - 700	HSS	46	79	0.18	0.28
		200 - 220	70 - 77	700 - 755	HSS	40	68	0.15	0.23
		220 - 260	77 - 90	755 - 890	SC, PC	34	57	0.13	0.20
		260 - 320	90 - 104	890 - 1020	SC, PC	27	47	0.13	0.18
N	Cast Aluminium	30	10	100	HSS	183	-	0.23	0.38
		180	62	600	HSS	91	-	0.20	0.33
	Wrought Aluminium	30	10	100	HSS	183	280	0.12	0.33
		180	62	600	HSS	91	200	0.12	0.18
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	SC	52	82	0.15	0.24
		200 - 250	68 - 87	670 - 855	SC	40	65	0.12	0.18
Brass	100	38	370	HSS	91	144	0.18	0.27	
Copper	60	21	200	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.

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 • 0.75 = 37.5 M/min 0.20 • 0.90 = 0.18 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)

Feed Rate (mm/rev) by Diameter				
17.53 - 24.38	24.41 - 35.00	35.01 - 47.80	47.85 - 65.99	66.00 - 114.48
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	0.28	0.36	0.41	0.51
0.18	0.25	0.30	0.36	0.46
0.20	0.28	0.36	0.41	0.51
0.18	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

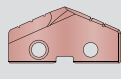
⚠ WARNING Tool failure can cause serious injury. To prevent:

- 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 for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

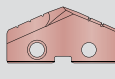
GEN2 T-A® Recommended Drilling Data | Metric (mm)

Carbide Inserts

ISO	Material	Hardness			Carbide Grade	M/min  AM200®	Feed Rate (mm/rev) by Diameter			
		(BHN)	kg	N/mm²			9.50 - 12.95	12.98 - 17.53	17.54 - 24.38	24.41 - 35.00
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	38 - 50	370-500	C1	146	0.20	0.30	0.41	0.48
		150 - 200	50 - 70	500-700	C1	126	0.18	0.28	0.38	0.43
		200 - 250	70 - 88	700-870	C1	119	0.15	0.25	0.36	0.41
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	30 - 46	300-450	C1	137	0.20 ❖	0.25	0.36	0.46
		125 - 175	46 - 62	450 - 600	C1	119	0.18 ❖	0.25	0.36	0.43
		175 - 225	62 - 77	600 - 775	C1	108	0.15 ❖	0.23	0.33	0.41
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	77 - 96	775 - 940	C1	95	0.13 ❖	0.23	0.33	0.41
		125 - 175	46 - 62	450 - 600	C1	119	0.18	0.25	0.36	0.43
		175 - 225	62 - 77	600 - 775	C1	108	0.15	0.23	0.33	0.41
	Alloy Steel 4140, 5140, 8640, etc.	225 - 275	77 - 96	775 - 940	C1	95	0.15	0.23	0.33	0.41
		275 - 325	96 - 111	940 - 1090	C1	80	0.13	0.20	0.30	0.38
		125 - 175	46 - 62	450 - 600	C1	115	0.18	0.25	0.36	0.43
175 - 225		62 - 77	600 - 775	C1	105	0.15	0.23	0.33	0.43	
High Strength Alloy 4340, 4330V, 300M, etc.	225 - 275	77 - 96	775 - 940	C1	95	0.15	0.23	0.33	0.41	
	275 - 325	96 - 111	940 - 1090	C1	87	0.13	0.20	0.30	0.38	
	325 - 375	111 - 129	1090 - 1265	C1	78	0.10	0.18	0.28	0.36	
Structural Steel A36, A285, A516, etc.	225 - 300	77 - 104	600 - 1020	C1	70	0.15 ❖	0.23	0.28	0.33	
	300 - 350	104 - 121	1020 - 1180	C1	63	0.13 ❖	0.20	0.25	0.30	
	350 - 400	121 - 139	1180 - 1365	C1	56	0.10 ❖	0.18	0.23	0.28	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	100 - 150	38 - 50	370 - 500	C1	108	0.20 ❖	0.28	0.38	0.43	
	150 - 250	50 - 88	500 - 850	C1	87	0.15 ❖	0.25	0.33	0.38	
	250 - 350	88 - 121	850 - 1180	C1	80	0.13 ❖	0.23	0.30	0.33	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	150 - 200	50 - 70	500 - 700	C1	78	0.10	0.18	0.25	0.30
		200 - 250	70 - 88	700 - 870	C1	59	0.10	0.18	0.25	0.30
	140 - 220	49 - 77	480 - 755	C2	37	0.10 ❖	0.18	0.23	0.28	
	220 - 310	77 - 101	755 - 990	C2	29	0.10 ❖	0.15	0.20	0.25	
	Titanium Alloy	140 - 220	49 - 77	480 - 755	C2	42	0.10 ❖	0.18	0.21	0.27
220 - 310		77 - 101	755 - 990	C2	33	0.08 ❖	0.15	0.18	0.23	
Aerospace Alloy S82	185 - 275	65 - 96	640 - 940	C2	73	0.12 ❖	0.16	0.18	0.22	
	275 - 350	96 -121	940 - 1180	C2	56	0.10 ❖	0.14	0.16	0.19	
M	Stainless Steel 400 Series 416, 420, etc.	185 - 275	65 - 96	640 - 940	C2	73	0.18 ❖	0.23	0.30	0.36
		275 - 350	96 - 121	940 - 1180	C2	56	0.15 ❖	0.20	0.28	0.30
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	49 - 65	480 - 640	C2	73	0.14 ❖	0.18	0.24	0.29
		185 - 275	65 - 96	640 - 940	C2	56	0.12 ❖	0.16	0.22	0.24
	Super Duplex Stainless Steel	135 - 185	49 - 65	480 - 640	C2	38	0.12 ❖	0.17	0.22	0.26
185 - 275		65 - 96	640 - 940	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			Car-bide Grade	M/min  AM200®	Feed Rate (mm/rev) by Diameter			
		(BHN)	kg	N/mm ²			9.50 - 12.95	12.98 - 17.53	17.54 - 24.38	24.41 - 35.00
H	Wear Plate Hardox, AR400, T-1, etc.	400	139	1365	C2	45	0.07 ❖	0.12	0.20	0.25
		500	160	1600	C2	37	0.05 ❖	0.10	0.15	0.20
		600	210	2000	C2	30	0.04 ❖	0.08	0.12	0.16
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	C1	47	0.10 ❖	0.18	0.23	0.27
400 - 500		139+	1365+	C1	37	0.06 ❖	0.12	0.18	0.24	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	C2	152	0.20	0.30	0.38	0.48
		150 - 200	50 - 70	500 - 700	C2	146	0.18	0.28	0.33	0.43
		200 - 220	70 - 77	700 - 755	C2	131	0.15	0.23	0.30	0.38
		220 - 260	77 - 90	755 - 890	C2	113	0.13	0.20	0.28	0.33
		260 - 320	90 - 104	890 - 1020	C2	102	0.13	0.18	0.25	0.28
N	Cast Aluminium	30	10	100	C2	300	0.23	0.38	0.46	0.58
		180	62	600	C2	225	0.20	0.33	0.40	0.50
	Wrought Aluminium	30	10	100	C2	426	0.12	0.33	0.40	0.50
		180	62	600	C2	300	0.12	0.18	0.30	0.35
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	C2	110	0.15	0.24	0.30	0.38
		200 - 250	68 - 87	670 - 855	C2	90	0.12	0.18	0.23	0.28
	Brass	100	38	370	C2	200	0.18	0.27	0.33	0.45
Copper	60	21	200	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 • M/min) / DIA <i>where:</i> RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm)	2. mm/min = RPM • mm/rev <i>where:</i> 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 <i>where:</i> M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm)
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


⚠ 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 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® Original Recommended Drilling Data | Metric (mm)

HSS Inserts

ISO	Material	Hardness			HSS Grade	M/min			Feed Rate (mm/rev) by Diameter	
		(BHN)	kg	N/mm ²		 TiN	 TiAlN	 TiCN	9.50 - 12.95	12.98 - 17.52
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	38 - 50	370-500	HSS	61	85	79	0.18	0.25
		150 - 200	50 - 70	500-700	HSS	55	79	72	0.18	0.25
		200 - 250	70 - 88	700-870	HSS	49	73	64	0.15	0.25
	Low Carbon Steel 1010, 1020, 1025, 1522, , 1144, etc.	85 - 125	30 - 46	300-450	HSS	52	76	67	0.15 ❖	0.23
		125 - 175	46 - 62	450 - 600	HSS	49	73	64	0.15 ❖	0.23
		175 - 225	62 - 77	600 - 775	HSS	46	69	59	0.13 ❖	0.20
		225 - 275	77 - 96	775 - 940	HSS	43	64	55	0.13 ❖	0.20
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	46 - 62	450 - 600	HSS	49	73	64	0.15	0.23
		175 - 225	62 - 77	600 - 775	HSS	46	69	59	0.13	0.20
		225 - 275	77 - 96	775 - 940	HSS	43	64	55	0.13	0.20
		275 - 325	96 - 111	940 - 1090	SC, PC	40	59	52	0.10	0.18
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	46 - 62	450 - 600	HSS	46	64	59	0.15	0.20
175 - 225		62 - 77	600 - 775	HSS	43	59	55	0.13	0.20	
225 - 275		77 - 96	775 - 940	HSS	40	55	52	0.13	0.18	
275 - 325		96 - 111	940 - 1090	SC, PC	37	52	47	0.10	0.15	
325 - 375		111 - 129	1090 - 1265	SC, PC	34	47	44	0.08	0.15	
High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	77 - 104	600 - 1020	SC, PC	24	34	30	0.13 ❖	0.18	
	300 - 350	104 - 121	1020 - 1180	SC, PC	18	26	24	0.10 ❖	0.18	
	350 - 400	121 - 139	1180 - 1365	PC	15	21	20	0.08 ❖	0.15	
Structural Steel A36, A285, A516, etc.	100 - 150	38 - 50	370 - 500	HSS	43	61	55	0.15 ❖	0.25	
	150 - 250	50 - 88	500 - 850	HSS	37	52	47	0.13 ❖	0.23	
	250 - 350	88 - 121	850 - 1180	SC, PC	30	43	40	0.10 ❖	0.20	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	50 - 70	500 - 700	SC	24	34	32	0.10	0.15	
	200 - 250	70 - 88	700 - 870	SC, PC	18	27	26	0.10	0.15	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	49 - 77	480 - 755	SC, PC	9	12	11	0.08 ❖	0.18
		220 - 310	77 - 101	755 - 990	PC	8	11	9	0.08 ❖	0.15
	Titanium Alloy	140 - 220	49 - 77	480 - 755	SC, PC	11	15	14	0.08 ❖	0.18
		220 - 310	77 - 101	755 - 990	PC	9	14	11	0.08 ❖	0.15
	Aerospace Alloy S82	185 - 275	65 - 96	640 - 940	SC, PC	23	32	29	0.15 ❖	0.20
275 - 350		96 - 121	940 - 1180	SC, PC	18	27	24	0.13 ❖	0.18	
M	Stainless Steel 400 Series 416, 420, etc.	185 - 275	65 - 96	640 - 940	SC, PC	23	32	29	0.15 ❖	0.20
		275 - 350	96 - 121	940 - 1180	SC, PC	18	27	24	0.13 ❖	0.18
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	49 - 65	480 - 640	SC, PC	23	32	29	0.08 ❖	0.18
		185 - 275	65 - 96	640 - 940	SC, PC	18	27	24	0.08 ❖	0.15
	Super Duplex Stainless Steel	135 - 185	49 - 65	480 - 640	SC, PC	18	24	21	0.08 ❖	0.18
185 - 275		65 - 96	640 - 940	SC, PC	15	20	18	0.08 ❖	0.15	
H	Wear Plate Hardox, AR400, T-1, etc.	400	139	1365	SC, PC	14	21	17	0.08 ❖	0.15
		500	160	1600	PC	11	14	12	0.05 ❖	0.13
		600	210	2000	N/A	-	-	-	-	-
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	PC	15	29	21	0.08 ❖	0.15
400 - 500		139+	1365+	PC	11	14	12	0.05 ❖	0.13	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	HSS	52	76	67	0.18	0.30
		150 - 200	50 - 70	500 - 700	HSS	46	69	59	0.15	0.28
		200 - 220	70 - 77	700 - 755	HSS	40	59	52	0.15	0.23
		220 - 260	77 - 90	755 - 890	SC, PC	34	50	44	0.13	0.18
		260 - 320	90 - 104	890 - 1020	SC, PC	27	41	37	0.10	0.15
N	Cast Aluminium	30	10	100	HSS	183	259	229	0.20	0.33
		180	62	600	HSS	91	137	122	0.20	0.33
	Wrought Aluminium	30	10	100	HSS	183	259	229	0.10	0.15
		180	62	600	HSS	91	137	122	0.20	0.33
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	SC	52	76	67	0.15	0.28
		200 - 250	68 - 87	670 - 855	SC	40	58	52	0.13	0.18
	Brass	100	38	370	HSS	91	136	122	0.18	0.30
Copper	60	21	200	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.

Feed Rate (mm/rev) by Diameter					DW Cutting Data	
17.53 - 24.38	24.41 - 35.00	35.01 - 47.80	47.85 - 65.99	66.00 - 114.48	Speed m/min	Feed (mm/rev)
0.33	0.41	0.51	0.58	0.71	58-76	0.35
0.33	0.41	0.51	0.58	0.71		
0.33	0.41	0.51	0.58	0.71		
0.30	0.38	0.48	0.58	0.69	48-66	0.3
0.30	0.38	0.48	0.58	0.69		
0.25	0.36	0.46	0.53	0.61		
0.25	0.36	0.46	0.53	0.61	48-66	0.3
0.30	0.38	0.48	0.58	0.69		
0.25	0.36	0.46	0.53	0.61		
0.25	0.36	0.46	0.53	0.61	30.36	0.28
0.23	0.30	0.41	0.48	0.56		
0.25	0.36	0.43	0.48	0.56		
0.25	0.36	0.43	0.48	0.56	22-26	0.25
0.23	0.30	0.38	0.43	0.51		
0.23	0.30	0.38	0.43	0.51		
0.23	0.25	0.36	0.43	0.51	16-20	0.25
0.23	0.25	0.36	0.43	0.51		
0.20	0.23	0.30	0.38	0.46		
0.30	0.36	0.46	0.53	0.66	42-54	0.3
0.25	0.30	0.41	0.48	0.61		
0.23	0.25	0.36	0.43	0.51		
0.20	0.25	0.30	0.38	0.43	31-38	0.23
0.20	0.25	0.30	0.38	0.43		
0.20	0.25	0.30	0.38	0.43		
0.20	0.25	0.30	0.38	-	N/A	N/A
0.18	0.20	0.25	0.30	-		
0.20	0.25	0.30	0.38	-		
0.18	0.20	0.25	0.30	-	N/A	N/A
0.23	0.25	0.36	0.41	0.51		
0.20	0.20	0.30	0.36	0.46		
0.23	0.25	0.36	0.41	0.51	22-29*	0.23*
0.20	0.20	0.30	0.36	0.46	22-29*	0.23*
0.20	0.25	0.36	0.41	0.51		
0.18	0.20	0.30	0.36	0.46		
0.20	0.25	0.36	0.41	0.51	16-20*	0.23*
0.18	0.20	0.30	0.36	0.46	N/A	N/A
0.20	0.23	0.30	0.41	0.46		
0.18	0.20	0.25	0.30	0.41		
-	-	-	-	-	N/A	N/A
0.20	0.23	0.30	0.41	0.46		
0.18	0.20	0.25	0.30	0.41		
0.41	0.51	0.61	0.69	0.76	53-62	0.3
0.36	0.46	0.56	0.64	0.71		
0.30	0.41	0.46	0.53	0.61		
0.23	0.30	0.36	0.43	0.51	109-146	0.32
0.18	0.23	0.30	0.36	0.41		
0.41	0.51	0.56	0.64	0.64		
0.41	0.46	0.56	0.64	0.64	109-146	0.32
0.25	0.30	0.56	0.64	0.64		
0.41	0.46	0.56	0.64	0.64		
0.36	0.46	0.56	0.66	0.71	35-44	0.3
0.23	0.30	0.36	0.43	0.51		
0.41	0.51	0.61	0.71	0.76		
0.23	0.30	0.36	0.43	0.51	79-99	0.38
0.41	0.51	0.61	0.71	0.76	29-32	0.2
0.15	0.20	0.30	0.36	0.41		

*only applicable up to 120mm

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.

$$50 \cdot 0.75 = 37.5 \text{ M/min} \quad 0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$$

Formulas

1.	RPM	=	$(318.47 \cdot \text{M/min}) / \text{DIA}$
	where:		
	RPM	=	revolutions per minute (rev/min)
	M/min	=	speed (M/min)
	DIA	=	diameter of drill (mm)
2.	mm/min	=	$\text{RPM} \cdot \text{mm/rev}$
	where:		
	mm/min	=	mm per minute (mm/min)
	RPM	=	revolutions per minute (rev/min)
	mm/rev	=	feed rate (mm/rev)
3.	M/min	=	$\text{RPM} \cdot 0.003 \cdot \text{DIA}$
	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 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® Original Recommended Drilling Data | Metric (mm)

Carbide Inserts

ISO	Material	Hardness			Carbide Grade	M/min			Feed Rate (mm/rev) by Diameter				
		(BHN)	kg	N/mm ²		 TiN	 TiAlN	 TiCN	9.50 - 12.95	12.98 - 17.52	17.53 - 24.38	24.41 - 35.00	35.01 - 47.80
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	38 - 50	370-500	C5	96	128	115	0.20	0.30	0.38	0.45	0.53
		150 - 200	50 - 70	500-700	C5	85	110	100	0.18	0.28	0.35	0.40	0.48
		200 - 250	70 - 88	700-870	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	30 - 46	300-450	C5	91	119	110	0.20 ❖	0.25	0.33	0.43	0.48
		125 - 175	46 - 62	450 - 600	C5	79	104	90	0.18 ❖	0.25	0.33	0.40	0.45
		175 - 225	62 - 77	600 - 775	C5	73	95	82	0.15 ❖	0.23	0.30	0.38	0.43
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	77 - 96	775 - 940	C5	64	83	75	0.13 ❖	0.23	0.30	0.38	0.43
		125 - 175	46 - 62	450 - 600	C5	79	104	90	0.18	0.25	0.33	0.40	0.45
		175 - 225	62 - 77	600 - 775	C5	73	95	84	0.15	0.23	0.30	0.38	0.43
	Alloy Steel 4140, 5140, 8640, etc.	225 - 275	77 - 96	775 - 940	C5	67	83	72	0.15	0.23	0.30	0.38	0.43
		275 - 325	96 - 111	940 - 1090	C5	55	70	62	0.13	0.20	0.28	0.35	0.40
		125 - 175	46 - 62	450 - 600	C5	76	99	87	0.18	0.25	0.33	0.40	0.45
High Strength Alloy 4340, 4330V, 300M, etc.	175 - 225	62 - 77	600 - 775	C5	70	92	80	0.15	0.23	0.30	0.38	0.43	
	225 - 275	77 - 96	775 - 940	C5	64	83	72	0.15	0.23	0.30	0.38	0.43	
	275 - 325	96 - 111	940 - 1090	C5	61	76	68	0.13	0.20	0.28	0.35	0.40	
Structural Steel A36, A285, A516, etc.	325 - 375	111 - 129	1090 - 1265	C5	52	67	60	0.10	0.18	0.25	0.33	0.38	
	225 - 300	77 - 104	600 - 1020	C5	49	61	55	0.15 ❖	0.23	0.25	0.30	0.38	
	300 - 350	104 - 121	1020 - 1180	C5	43	55	49	0.13 ❖	0.20	0.23	0.28	0.35	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	350 - 400	121 - 139	1180 - 1365	C5	37	49	43	0.10 ❖	0.18	0.20	0.25	0.30	
	100 - 150	38 - 50	370 - 500	C5	73	95	84	0.20 ❖	0.28	0.35	0.40	0.45	
	150 - 250	50 - 88	500 - 850	C5	61	76	68	0.15 ❖	0.25	0.30	0.35	0.40	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	250 - 350	88 - 121	850 - 1180	C5	55	70	62	0.13 ❖	0.23	0.28	0.30	0.35
		150 - 200	50 - 70	500 - 700	C5	49	67	58	0.10	0.18	0.23	0.28	0.33
	200 - 250	70 - 88	700 - 870	C5	37	52	45	0.10	0.18	0.23	0.28	0.33	
	Titanium Alloy	140 - 220	49 - 77	480 - 755	C2	24	32	28	0.10 ❖	0.18	0.23	0.28	0.33
		220 - 310	77 - 101	755 - 990	C2	18	26	22	0.10 ❖	0.15	0.20	0.25	0.30
	Aerospace Alloy S82	140 - 220	49 - 77	480 - 755	C2	30	38	32	0.10 ❖	0.18	0.23	0.28	0.33
220 - 310		77 - 101	755 - 990	C2	24	33	28	0.10 ❖	0.15	0.20	0.25	0.30	
M	Stainless Steel 400 Series 416, 420, etc.	185 - 275	65 - 96	640 - 940	C2	49	64	57	0.17 ❖	0.22	0.29	0.35	0.40
		275 - 350	96 - 121	940 - 1180	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	49 - 65	480 - 640	C2	49	64	57	0.13 ❖	0.17	0.22	0.26	0.30
		185 - 275	65 - 96	640 - 940	C2	37	49	43	0.11 ❖	0.14	0.20	0.22	0.25
	Super Duplex Stainless Steel	135 - 185	49 - 65	480 - 640	C2	25	33	29	0.11 ❖	0.15	0.19	0.23	0.27
		185 - 275	65 - 96	640 - 940	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			Carbide Grade	M/min			Feed Rate (mm/rev) by Diameter				
		(BHN)	kg	N/mm ²		 TiN	 TiAlN	 TiCN	9.50 - 12.95	12.98 - 17.52	17.53 - 24.38	24.41 - 35.00	35.01 - 47.80
H	Wear Plate Hardox, AR400, T-1, etc.	400	139	1365	C5	23	35	30	0.07	0.12	0.20	0.25	0.30
		500	160	1600	C5	15	26	21	0.05	0.10	0.15	0.20	0.25
		600	210	2000	C5	11	22	16	0.04	0.08	0.12	0.16	0.20
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	C5	34	43	39	0.10 ❖	0.18	0.23	0.28	0.33
400 - 500		139+	1365+	C5	20	25	23	0.08 ❖	0.15	0.20	0.23	0.28	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	C2, C3	98	141	127	0.20	0.30	0.38	0.48	0.58
		150 - 200	50 - 70	500 - 700	C2, C3	82	122	102	0.18	0.28	0.33	0.43	0.53
		200 - 220	70 - 77	700 - 755	C2, C3	73	110	93	0.15	0.23	0.30	0.38	0.45
		220 - 260	77 - 90	755 - 890	C2, C3	64	95	79	0.13	0.20	0.28	0.33	0.38
		260 - 320	90 - 104	890 - 1020	C2, C3	55	83	69	0.13	0.18	0.25	0.28	0.33
N	Cast Aluminium	30	10	100	C2	366	460	410	0.25	0.38	0.45	0.50	0.55
		180	62	600	C2	244	306	275	0.23	0.33	0.40	0.45	0.50
	Wrought Aluminium	30	10	100	C2	366	460	410	0.10	0.15	0.25	0.30	0.36
		180	62	600	C2	244	306	275	0.20	0.28	0.36	0.45	0.50
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	C2	85	110	100	0.13	0.20	0.25	0.36	0.42
		200 - 250	68 - 87	670 - 855	C2	64	94	79	0.10	0.15	0.18	0.25	0.33
	Brass	100	38	370	C2	130	184	160	0.15	0.23	0.28	0.38	0.45
Copper	60	21	200	C2	80	120	100	0.05 ❖	0.08	0.10	0.15	0.25	

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 <i>where:</i> RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm)	2. mm/min = RPM • mm/rev <i>where:</i> 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 <i>where:</i> M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm)
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⚠ 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.
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T-A® Original Recommended Drilling Data | Metric (mm)

HSS Inserts | Flat Bottom Geometry

ISO	Material	Hardness			Car-bide Grade	M/min			
		(BHN)	kg	N/mm ²		 TiN	 TiAlN	 TiCN	 AM200®
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	38 - 50	370-500	HSS	52	76	70	88
		150 - 200	50 - 70	500-700	HSS	47	70	62	81
		200 - 250	70 - 88	700-870	HSS	43	64	56	74
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	30 - 46	300-450	HSS	46	67	59	77
		125 - 175	46 - 62	450 - 600	HSS	43	64	56	74
		175 - 225	62 - 77	600 - 775	HSS	40	59	53	68
		225 - 275	77 - 96	775 - 940	HSS	37	56	47	65
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	46 - 62	450 - 600	HSS	43	64	56	74
		175 - 225	62 - 77	600 - 775	HSS	40	59	53	68
		225 - 275	77 - 96	775 - 940	HSS	37	56	47	65
		275 - 325	96 - 111	940 - 1090	SC	34	53	46	61
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	46 - 62	450 - 600	HSS	40	56	53	65
		175 - 225	62 - 77	600 - 775	HSS	37	53	47	61
		225 - 275	77 - 96	775 - 940	HSS	34	47	44	54
		275 - 325	96 - 111	940 - 1090	SC	32	44	41	51
		325 - 375	111 - 129	1090 - 1265	SC	29	41	38	47
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	77 - 104	600 - 1020	SC	21	29	26	33
		300 - 350	104 - 121	1020 - 1180	SC	15	23	21	27
		350 - 400	121 - 139	1180 - 1365	SC	13	20	18	23
	Structural Steel A36, A285, A516, etc.	100 - 150	38 - 50	370 - 500	HSS	36	52	47	60
		150 - 250	50 - 88	500 - 850	HSS	32	44	41	51
		250 - 350	88 - 121	850 - 1180	SC	26	37	34	43
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	50 - 70	500 - 700	SC	21	29	27	33
		200 - 250	70 - 88	700 - 870	SC	15	24	23	28
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	49 - 77	480 - 755	SC	7	10	9	13
		220 - 310	77 - 101	755 - 990	SC	6	9	7	10
	Titanium Alloy	140 - 220	49 - 77	480 - 755	SC	10	14	12	16
		220 - 310	77 - 101	755 - 990	SC	8	12	11	14
	Aerospace Alloy S82	185 - 275	65 - 96	640 - 940	SC	20	27	26	34
275 - 350		96 - 121	940 - 1180	SC	15	24	21	28	
M	Stainless Steel 400 Series 416, 420, etc.	185 - 275	65 - 96	640 - 940	SC	20	27	26	34
		275 - 350	96 - 121	940 - 1180	SC	15	24	21	28
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	49 - 65	480 - 640	SC	20	27	26	34
		185 - 275	65 - 96	640 - 940	SC	15	24	21	28
	Super Duplex Stainless Steel	135 - 185	49 - 65	480 - 640	SC	20	27	26	34
185 - 275	65 - 96	640 - 940	SC	15	24	21	28		
H	Wear Plate Hardox, AR400, T-1, etc.	400	139	1365	SC	-	-	-	-
		500	160	1600	SC	-	-	-	-
		600	210	2000	N/A	-	-	-	-
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	SC	13	20	18	24
400 - 500		139+	1365+	SC	8	12	10	13	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	HSS	46	67	59	77
		150 - 200	50 - 70	500 - 700	HSS	40	59	53	68
		200 - 220	70 - 77	700 - 755	HSS	34	53	46	61
		220 - 260	77 - 90	755 - 890	SC	29	46	38	53
		260 - 320	90 - 104	890 - 1020	SC	24	37	32	43
N	Cast Aluminium	30	10	100	HSS	160	228	198	-
		180	62	600	HSS	79	122	107	-
	Wrought Aluminium	30	10	100	HSS	160	228	198	261
		180	62	600	HSS	79	122	107	141
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	SC	40	59	53	70
		200 - 250	68 - 87	670 - 855	SC	29	46	38	50
	Brass	100	38	370	HSS	46	67	59	78
Copper	60	21	200	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.

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.

$50 \cdot 0.75 = 37.5 \text{ M/min}$	$0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$
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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)

Feed Rate (mm/rev) by Diameter					
9.50 - 12.95	12.98 - 17.53	17.53 - 24.38	24.21 - 35.00	35.01 - 47.80	47.85 - 65.99
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
0.13 ❖	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

⚠ 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 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® Original 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 - 12.95	12.98 - 17.53	17.54 - 24.38	24.41 - 35.00
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
		125 - 175	C2	64	85	75	99	0.15	0.22	0.28	0.35
High Strength Alloy 4340, 4330V, 300M, etc.	175 - 225	C2	59	79	67	91	0.13	0.19	0.26	0.32	
	225 - 275	C2	55	70	61	81	0.13	0.19	0.26	0.32	
	275 - 325	C2	52	66	58	76	0.11	0.17	0.24	0.30	
Structural Steel A36, A285, A516, etc.	325 - 375	C2	44	58	50	67	0.09	0.15	0.22	0.28	
	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	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	350 - 400	C2	30	41	37	47	0.09 ❖	0.15	0.17	0.22	
	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	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	250 - 350	C2	47	61	53	70	0.11 ❖	0.19	0.25	0.26
		150 - 200	C2	41	58	49	67	0.09	0.15	0.19	0.24
	Titanium Alloy	200 - 250	C2	30	44	37	50	0.09	0.15	0.19	0.24
		140 - 220	C2	21	27	23	32	0.09 ❖	0.15	0.19	0.24
Aerospace Alloy S82	220 - 310	C2	15	21	18	24	0.09 ❖	0.13	0.17	0.22	
	140 - 220	C2	26	33	28	40	0.08 ❖	0.14	0.17	0.20	
M	Stainless Steel 400 Series 416, 420, etc.	220 - 310	C2	21	29	25	30	0.08 ❖	0.12	0.15	0.18
		185 - 275	C2	43	37	50	40	0.15 ❖	0.17	0.25	0.30
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	275 - 350	C2	33	28	38	32	0.13 ❖	0.15	0.23	0.25
		135 - 185	C2	28	37	33	40	0.13 ❖	0.17	0.21	0.25
	Super Duplex Stainless Steel	185 - 275	C2	21	28	25	32	0.11 ❖	0.15	0.19	0.21
		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 - 12.95	12.98 - 17.53	17.54 - 24.38	24.41 - 35.00
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 Aluminium	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 Aluminium	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
	Aluminium 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	

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.

$50 \cdot 0.75 = 37.5 \text{ M/min}$	$0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$
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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 = diameter of drill (mm)</p>	<p>2. $mm/min = RPM \cdot mm/rev$</p> <p>where:</p> <p>mm/min = mm per minute (mm/min)</p> <p>RPM = revolutions per minute (rev/min)</p> <p>mm/rev = feed rate (mm/rev)</p>	<p>3. $M/min = RPM \cdot 0.003 \cdot DIA$</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>
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⚠ 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.

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T-A® Original Recommended Drilling Data | Metric (mm)

Carbide Inserts | Diamond Coating

Material	Carbide Grade	M/min  Diamond Coating	Feed Rate (mm/rev) by Diameter				
			9.5 - 12.5	13 - 17.5	18 - 24	25 - 35	
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 Fibre	N2	305 - 450	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Carbon / Glass Fibre	N2	305 - 450	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Fibreglass	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	Aluminium	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.

$50 \cdot 0.75 = 37.5 \text{ M/min}$	$0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$
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⚠ 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.

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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	10.2mm	0.4016"	79%	0.075mm	10.28mm	76%
12 x 1.75	13/32"	0.4063"	74%	0.075mm	10.40mm	71%
12 x 1.25	27/64"	0.4219"	79%	0.075mm	10.79mm	74%
12 x 1.25	10.8mm	0.4252"	74%	0.075mm	10.88mm	69%
14 x 20	15/32"	0.4688"	81%	0.075mm	11.98mm	78%
14 x 20	12.0mm	0.4724"	77%	0.075mm	12.08mm	74%
14 x 1.5	12.5mm	0.4921"	77%	0.075mm	12.58mm	73%
16 x 2.0	14.0mm	0.5512"	77%	0.075mm	14.08mm	74%
16 x 1.5	14.5mm	0.5709"	77%	0.075mm	14.58mm	73%
16 x 1.5	37/64"	0.5781"	68%	0.075mm	14.76mm	64%
18 x 2.5	15.5mm	0.6102"	77%	0.075mm	15.58mm	75%
18 x 1.5	16.5mm	0.6496"	77%	0.075mm	16.58mm	73%
18 x 1.5	21/32"	0.6563"	68%	0.075mm	16.75mm	64%
20 x 2.5	11/16"	0.6875"	78%	0.075mm	17.54mm	76%
20 x 2.5	17.5mm	0.6890"	77%	0.075mm	17.58mm	74%
20 x 1.5	18.5mm	0.7283"	77%	0.075mm	18.58mm	73%
20 x 1.5	47/64"	0.7344"	69%	0.075mm	18.66mm	65%
22 x 2.5	49/64"	0.7656"	79%	0.075mm	19.52mm	76%
22 x 2.5	19.5mm	0.7677"	77%	0.075mm	19.58mm	75%
22 x 1.5	20.5mm	0.8071"	77%	0.075mm	20.58mm	73%
22 x 1.5	13/16"	0.8125"	70%	0.075mm	20.71mm	66%
24 x 3	13/16"	0.8125"	86%	0.075mm	20.71mm	84%
24 x 3	21.0mm	0.8268"	76%	0.075mm	21.08mm	75%
24 x 2	22.0mm	0.8661"	77%	0.075mm	22.08mm	74%
24 x 2	7/8"	0.8750"	68%	0.075mm	22.30mm	65%
27 x 3	24.0mm	0.9449"	77%	0.075mm	24.08mm	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	-	0.075mm	11.19mm	-
3/8 - 18	9/16	0.5625	-	0.075mm	14.76mm	-
1/2 - 14	45/64	0.7031	-	0.075mm	18.33mm	-
3/4 - 14	29/32	0.9063	-	0.075mm	23.89mm	-

* Based on nominal tap drill diameter

** Based on .003" 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 .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	= (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 (bar)
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 (bar)
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
High Temperature Alloys	375 - 425 BHN	7.93
	-	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
Aluminium Alloy	-	1.52
Magnesium Alloy	-	1.10

Coolant Recommendations | Metric (mm)

HSS Drill Inserts

ISO	Material	Pressure or Flow Rate	9.5 - 12.5	13 - 17	18 - 24	25 - 35	36 - 50	51 - 76	76 - 102
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 Aluminium	BAR	14.5	12.4	15.8	11	8.6	3.5	5.5
		LPM	10	14	23	34	61	125	159
	Wrought Aluminium	BAR	14.5	12.4	15.8	11	8.6	3.5	5.5
		LPM	10	14	23	34	61	125	159
	Aluminium 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 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 - 12.5	13 - 17	18 - 24	25 - 35	36 - 47
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 Aluminium	BAR	24.1	22	21.7	19.6	13.8
		LPM	13.4	18.8	29	47.2	77
	Wrought Aluminium	BAR	24.1	22	21.7	19.6	13.8
		LPM	13.4	18.8	29	47.2	77
	Aluminium 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

Pressure and Flow	⚠ Holder Length				
	Extended	Long	Long Plus	XL	3XL
	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.

$12 \cdot 3 = 36 \text{ bar}$	$22 \cdot 3 = 66 \text{ LPM}$
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⚠ WARNING

Tool failure can cause serious injury. To prevent:

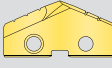
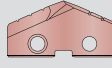
- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com 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.

GEN2 T-A® Recommended Drilling Data | Imperial (inch)

HSS Inserts

ISO	Material	Hardness			Car- bide Grade	SFM		Feed Rate (IPR) by Diameter	
		(BHN)	kg	N/mm ²		 TiN	 AM200®	3/8 - 1/2	33/64 - 11/16
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	38 - 50	370-500	HSS	200	325	0.008	0.012
		150 - 200	50 - 70	500-700	HSS	180	300	0.007	0.011
		200 - 250	70 - 88	700-870	HSS	160	280	0.006	0.010
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	30 - 46	300-450	HSS	170	290	0.008 ❖	0.010
		125 - 175	46 - 62	450 - 600	HSS	160	275	0.007 ❖	0.010
		175 - 225	62 - 77	600 - 775	HSS	150	260	0.006 ❖	0.009
		225 - 275	77 - 96	775 - 940	HSS	140	240	0.005 ❖	0.009
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	46 - 62	450 - 600	HSS	160	275	0.007	0.010
		175 - 225	62 - 77	600 - 775	HSS	150	260	0.006	0.009
		225 - 275	77 - 96	775 - 940	HSS	140	240	0.006	0.009
		275 - 325	96 - 111	940 - 1090	SC	130	225	0.005	0.008
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	46 - 62	450 - 600	HSS	150	240	0.007	0.010
175 - 225		62 - 77	600 - 775	HSS	140	225	0.006	0.009	
225 - 275		77 - 96	775 - 940	HSS	130	210	0.006	0.009	
275 - 325		96 - 111	940 - 1090	SC	120	195	0.005	0.008	
325 - 375		111 - 129	1090 - 1265	SC	110	180	0.004	0.007	
High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	77 - 104	600 - 1020	SC	80	125	0.006 ❖	0.009	
	300 - 350	104 - 121	1020 - 1180	SC	60	100	0.005 ❖	0.008	
	350 - 400	121 - 139	1180 - 1365	SC	50	80	0.004 ❖	0.007	
Structural Steel A36, A285, A516, etc.	100 - 150	38 - 50	370 - 500	HSS	140	235	0.008 ❖	0.011	
	150 - 250	50 - 88	500 - 850	HSS	120	190	0.006 ❖	0.010	
	250 - 350	88 - 121	850 - 1180	SC	100	160	0.005 ❖	0.009	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	50 - 70	500 - 700	SC	80	125	0.004	0.007	
	200 - 250	70 - 88	700 - 870	SC	60	105	0.004	0.007	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	49 - 77	480 - 755	SC	30	45	0.004 ❖	0.007
		220 - 310	77 - 101	755 - 990	SC	25	40	0.004 ❖	0.006
	Titanium Alloy	140 - 220	49 - 77	480 - 755	SC	35	55	0.004 ❖	0.007
		220 - 310	77 - 101	755 - 990	SC	30	50	0.003 ❖	0.006
	Aerospace Alloy S82	185 - 275	65 - 96	640 - 940	SC	75	110	0.006 ❖	0.008
275 - 350		96 - 121	940 - 1180	SC	60	100	0.005 ❖	0.007	
M	Stainless Steel 400 Series 416, 420, etc.	185 - 275	65 - 96	640 - 940	SC	75	110	0.006 ❖	0.008
		275 - 350	96 - 121	940 - 1180	SC	60	100	0.005 ❖	0.007
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	49 - 65	480 - 640	SC	75	110	0.003 ❖	0.007
		185 - 275	65 - 96	640 - 940	SC	60	100	0.003 ❖	0.006
	Super Duplex Stainless Steel	135 - 185	49 - 65	480 - 640	SC	60	85	0.003 ❖	0.007
185 - 275	65 - 96	640 - 940	SC	50	70	0.003 ❖	0.006		
H	Wear Plate Hardox, AR400, T-1, etc.	400	139	1365	SC	45	70	0.003 ❖	0.006
		500	160	1600	SC	35	45	0.002 ❖	0.005
		600	210	2000	-	-	-	0.004 ❖	0.006
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	SC	50	95	-	-
400 - 500		139+	1365+	SC	35	45	0.002 ❖	0.005	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	HSS	170	290	0.008	0.012
		150 - 200	50 - 70	500 - 700	HSS	150	260	0.007	0.011
		200 - 220	70 - 77	700 - 755	HSS	130	225	0.006	0.009
		220 - 260	77 - 90	755 - 890	SC	110	190	0.005	0.008
		260 - 320	90 - 104	890 - 1020	SC	90	155	0.005	0.007
N	Cast Aluminium	30	10	100	HSS	600	-	0.009	0.015
		180	62	600	HSS	300	-	0.008	0.013
	Wrought Aluminium	30	10	100	HSS	600	900	0.005	0.013
		180	62	600	HSS	300	650	0.005	0.007
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	SC	170	270	0.006	0.009
		200 - 250	68 - 87	670 - 855	SC	130	210	0.005	0.007
Brass	100	38	370	HSS	300	470	0.007	0.011	
Copper	60	21	200	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.

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 • 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)

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
0.009	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

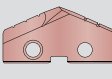
⚠ WARNING Tool failure can cause serious injury. To prevent:

- 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 for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

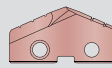
GEN2 T-A® Recommended Drilling Data | Imperial (inch)

Carbide Inserts

ISO	Material	Hardness			Carbide Grade	SFM  AM200®	Feed Rate (IPR) by Diameter			
		(BHN)	kg	N/mm ²			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	38 - 50	370-500	C1	480	0.008	0.012	0.016	0.019
		150 - 200	50 - 70	500-700	C1	415	0.007	0.011	0.015	0.017
		200 - 250	70 - 88	700-870	C1	390	0.006	0.010	0.014	0.016
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	30 - 46	300-450	C1	450	0.008 ❖	0.010	0.014	0.018
		125 - 175	46 - 62	450 - 600	C1	390	0.007 ❖	0.010	0.014	0.017
		175 - 225	62 - 77	600 - 775	C1	355	0.006 ❖	0.009	0.013	0.016
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	77 - 96	775 - 940	C1	310	0.005 ❖	0.009	0.013	0.016
		125 - 175	46 - 62	450 - 600	C1	390	0.007	0.010	0.014	0.017
		175 - 225	62 - 77	600 - 775	C1	355	0.006	0.009	0.013	0.016
	Alloy Steel 4140, 5140, 8640, etc.	225 - 275	77 - 96	775 - 940	C1	310	0.006	0.009	0.013	0.016
		275 - 325	96 - 111	940 - 1090	C1	265	0.005	0.008	0.012	0.015
		125 - 175	46 - 62	450 - 600	C1	375	0.007	0.010	0.014	0.017
		175 - 225	62 - 77	600 - 775	C1	345	0.006	0.009	0.013	0.016
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 275	77 - 96	775 - 940	C1	310	0.006	0.009	0.013	0.016
		275 - 325	96 - 111	940 - 1090	C1	285	0.005	0.008	0.012	0.015
		325 - 375	111 - 129	1090 - 1265	C1	255	0.004	0.007	0.011	0.014
	Structural Steel A36, A285, A516, etc.	225 - 300	77 - 104	600 - 1020	C1	230	0.006 ❖	0.009	0.011	0.013
		300 - 350	104 - 121	1020 - 1180	C1	205	0.005 ❖	0.008	0.010	0.012
350 - 400		121 - 139	1180 - 1365	C1	185	0.004 ❖	0.007	0.009	0.011	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	100 - 150	38 - 50	370 - 500	C1	355	0.008 ❖	0.011	0.015	0.017	
	150 - 250	50 - 88	500 - 850	C1	285	0.006 ❖	0.010	0.013	0.015	
	250 - 350	88 - 121	850 - 1180	C1	265	0.005 ❖	0.009	0.012	0.013	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	150 - 200	50 - 70	500 - 700	C1	255	0.007	0.007	0.010	0.012
		200 - 250	70 - 88	700 - 870	C1	195	0.007	0.007	0.010	0.012
	Titanium Alloy	140 - 220	49 - 77	480 - 755	C2	120	0.004 ❖	0.007	0.009	0.011
		220 - 310	77 - 101	755 - 990	C2	95	0.004 ❖	0.006	0.008	0.010
	Aerospace Alloy S82	140 - 220	49 - 77	480 - 755	C2	140	0.004 ❖	0.007	0.008	0.011
220 - 310		77 - 101	755 - 990	C2	110	0.003 ❖	0.006	0.007	0.009	
M	Stainless Steel 400 Series 416, 420, etc.	185 - 275	65 - 96	640 - 940	C2	240	0.007 ❖	0.009	0.012	0.014
		275 - 350	96 - 121	940 - 1180	C2	180	0.006 ❖	0.008	0.011	0.012
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	49 - 65	480 - 640	C2	240	0.006 ❖	0.007	0.009	0.012
		185 - 275	65 - 96	640 - 940	C2	180	0.005 ❖	0.006	0.008	0.009
	Super Duplex Stainless Steel	135 - 185	49 - 65	480 - 640	C2	125	0.005 ❖	0.007	0.008	0.010
		185 - 275	65 - 96	640 - 940	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			Carbide Grade	SFM  AM200®	Feed Rate (IPR) by Diameter			
		(BHN)	kg	N/mm ²			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	139	1365	C2	150	0.003 ❖	0.005	0.008	0.010
		500	160	1600	C2	120	0.002 ❖	0.004	0.006	0.008
		600	210	2000	C2	100	0.001 ❖	0.003	0.005	0.006
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	C1	150	0.004 ❖	0.006	0.009	0.011
400 - 500		139+	1365+	C1	120	0.003 ❖	0.005	0.008	0.010	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	C2	500	0.008	0.012	0.015	0.019
		150 - 200	50 - 70	500 - 700	C2	480	0.007	0.011	0.013	0.017
		200 - 220	70 - 77	700 - 755	C2	430	0.006	0.009	0.012	0.015
		220 - 260	77 - 90	755 - 890	C2	370	0.005	0.008	0.011	0.013
		260 - 320	90 - 104	890 - 1020	C2	335	0.005	0.007	0.010	0.011
N	Cast Aluminium	30	10	100	C2	975	0.009	0.015	0.018	0.023
		180	62	600	C2	730	0.008	0.013	0.016	0.020
	Wrought Aluminium	30	10	100	C2	1385	0.005	0.013	0.016	0.020
		180	62	600	C2	975	0.005	0.007	0.012	0.014
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	C2	360	0.006	0.009	0.012	0.015
		200 - 250	68 - 87	670 - 855	C2	300	0.005	0.007	0.009	0.011
	Brass	100	38	370	C2	650	0.007	0.011	0.013	0.018
Copper	60	21	200	C2	420	0.003 ❖	0.004	0.007	0.010	

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 • SFM) / DIA <i>where:</i> RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch)	2. IPM = RPM • IPR <i>where:</i> IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)	3. SFM = RPM • 0.262 • DIA <i>where:</i> SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch)
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⚠ 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.

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T-A® Original Recommended Drilling Data | Imperial (inch)

HSS Inserts

ISO	Material	Hardness			HSS Grade	SFM			Feed Rate (IPR) by Diameter	
		(BHN)	kg	N/mm²		TIN	TiAIN	TiCN	3/8 - 1/2	33/64 - 11/16
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	38 - 50	370-500	HSS	200	280	260	0.007	0.010
		150 - 200	50 - 70	500-700	HSS	180	260	235	0.007	0.010
		200 - 250	70 - 88	700-870	HSS	160	240	210	0.006	0.010
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	30 - 46	300-450	HSS	170	250	220	0.006 ❖	0.009
		125 - 175	46 - 62	450 - 600	HSS	160	240	210	0.006 ❖	0.009
		175 - 225	62 - 77	600 - 775	HSS	150	225	195	0.005 ❖	0.008
		225 - 275	77 - 96	775 - 940	HSS	140	210	180	0.005 ❖	0.008
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	46 - 62	450 - 600	HSS	160	240	210	0.006	0.009
		175 - 225	62 - 77	600 - 775	HSS	150	225	195	0.005	0.008
		225 - 275	77 - 96	775 - 940	HSS	140	210	180	0.005	0.008
275 - 325		96 - 111	940 - 1090	SC, PC	130	195	170	0.004	0.007	
Alloy Steel 4140, 5140, 8640, etc.	125 - 175	46 - 62	450 - 600	HSS	150	210	195	0.006	0.008	
	175 - 225	62 - 77	600 - 775	HSS	140	195	180	0.005	0.008	
	225 - 275	77 - 96	775 - 940	HSS	130	180	170	0.005	0.007	
	275 - 325	96 - 111	940 - 1090	SC, PC	120	170	155	0.004	0.006	
	325 - 375	111 - 129	1090 - 1265	SC, PC	110	155	145	0.003	0.006	
High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	77 - 104	600 - 1020	SC, PC	80	110	100	0.005 ❖	0.007	
	300 - 350	104 - 121	1020 - 1180	SC, PC	60	85	80	0.004 ❖	0.007	
	350 - 400	121 - 139	1180 - 1365	PC	50	70	65	0.003 ❖	0.006	
Structural Steel A36, A285, A516, etc.	100 - 150	38 - 50	370 - 500	HSS	140	200	180	0.006 ❖	0.010	
	150 - 250	50 - 88	500 - 850	HSS	120	170	155	0.005 ❖	0.009	
	250 - 350	88 - 121	850 - 1180	SC, PC	100	140	130	0.003 ❖	0.008	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	50 - 70	500 - 700	SC	80	110	105	0.004	0.006	
	200 - 250	70 - 88	700 - 870	SC, PC	60	90	85	0.004	0.006	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	49 - 77	480 - 755	SC, PC	30	40	35	0.003 ❖	0.007
		220 - 310	77 - 101	755 - 990	PC	25	35	30	0.003 ❖	0.006
	Titanium Alloy	140 - 220	49 - 77	480 - 755	SC, PC	35	50	45	0.003 ❖	0.007
		220 - 310	77 - 101	755 - 990	PC	30	45	35	0.003 ❖	0.006
	Aerospace Alloy S82	185 - 275	65 - 96	640 - 940	SC, PC	75	105	95	0.006 ❖	0.008
275 - 350		96 - 121	940 - 1180	SC, PC	60	90	80	0.005 ❖	0.007	
M	Stainless Steel 400 Series 416, 420, etc.	185 - 275	65 - 96	640 - 940	SC, PC	75	105	95	0.009	0.010
		275 - 350	96 - 121	940 - 1180	SC, PC	60	90	80	0.008	0.009
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	49 - 65	480 - 640	SC, PC	75	105	95	0.007	0.007
		185 - 275	65 - 96	640 - 940	SC, PC	60	90	80	0.006	0.006
	Super Duplex Stainless Steel	135 - 185	49 - 65	480 - 640	SC, PC	60	80	70	0.005	0.005
185 - 275		65 - 96	640 - 940	SC, PC	50	65	60	0.004	0.005	
H	Wear Plate Hardox, AR400, T-1, etc.	400	139	1365	SC, PC	45	70	55	0.003 ❖	0.006
		500	160	1600	PC	35	45	40	0.002 ❖	0.005
		600	210	2000	N/A	-	-	-	-	-
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	PC	50	95	70	0.003 ❖	0.006
400 - 500		139+	1365+	PC	35	45	40	0.002 ❖	0.005	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	HSS	170	250	220	0.007	0.012
		150 - 200	50 - 70	500 - 700	HSS	150	225	195	0.006	0.011
		200 - 220	70 - 77	700 - 755	HSS	130	195	170	0.006	0.009
		220 - 260	77 - 90	755 - 890	SC, PC	110	165	145	0.005	0.007
		260 - 320	90 - 104	890 - 1020	SC, PC	90	135	120	0.004	0.006
N	Cast Aluminium	30	10	100	HSS	600	850	750	0.008	0.013
		180	62	600	HSS	300	450	400	0.008	0.013
	Wrought Aluminium	30	10	100	HSS	600	850	750	0.004	0.006
		180	62	600	HSS	300	450	400	0.008	0.013
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	SC	170	250	220	0.006	0.011
		200 - 250	68 - 87	670 - 855	SC	130	190	170	0.005	0.007
	Brass	100	38	370	HSS	300	445	400	0.007	0.012
Copper	60	21	200	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	-
0.007	0.008	0.010	0.012	-
0.008	0.010	0.012	0.015	-
0.007	0.008	0.010	0.012	-
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.

$200 \cdot 0.75 = 150 \text{ SFM}$	$0.008 \cdot 0.90 = 0.007 \text{ IPR}$
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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)

⚠ 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 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® Original Recommended Drilling Data | Imperial (inch)

Carbide Inserts

ISO	Material	Hardness			Carbide Grade	SFM			Feed Rate (IPR) by Diameter					
		(BHN)	kg	N/mm ²		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	38 - 50	370-500	C5	320	420	375	0.008	0.012	0.015	0.018	0.021	
		150 - 200	50 - 70	500-700	C5	280	360	325	0.007	0.011	0.014	0.016	0.019	
		200 - 250	70 - 88	700-870	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	30 - 46	300-450	C5	300	390	360	0.008 ❖	0.010	0.013	0.017	0.019	
		125 - 175	46 - 62	450 - 600	C5	260	340	295	0.007 ❖	0.010	0.013	0.016	0.018	
		175 - 225	62 - 77	600 - 775	C5	240	310	270	0.006 ❖	0.009	0.012	0.015	0.017	
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	77 - 96	775 - 940	C5	210	270	245	0.005 ❖	0.009	0.012	0.015	0.017	
		125 - 175	46 - 62	450 - 600	C5	260	340	295	0.007	0.010	0.013	0.016	0.018	
		175 - 225	62 - 77	600 - 775	C5	240	310	275	0.006	0.009	0.012	0.015	0.017	
	Alloy Steel 4140, 5140, 8640, etc.	225 - 275	77 - 96	775 - 940	C5	210	270	235	0.006	0.009	0.012	0.015	0.017	
		275 - 325	96 - 111	940 - 1090	C5	180	230	205	0.005	0.008	0.011	0.014	0.016	
		325 - 375	111 - 129	1090 - 1265	C5	170	220	195	0.004	0.007	0.010	0.013	0.015	
125 - 175		46 - 62	450 - 600	C5	250	325	285	0.007	0.010	0.013	0.016	0.018		
High Strength Alloy 4340, 4330V, 300M, etc.	175 - 225	62 - 77	600 - 775	C5	230	300	260	0.006	0.009	0.012	0.015	0.017		
	225 - 275	77 - 96	775 - 940	C5	210	270	235	0.006	0.009	0.012	0.015	0.017		
	275 - 325	96 - 111	940 - 1090	C5	200	250	225	0.005	0.008	0.011	0.014	0.016		
Structural Steel A36, A285, A516, etc.	325 - 375	111 - 129	1090 - 1265	C5	170	220	195	0.004	0.007	0.010	0.013	0.015		
	225 - 300	77 - 104	600 - 1020	C5	160	200	180	0.006 ❖	0.009	0.010	0.012	0.015		
	300 - 350	104 - 121	1020 - 1180	C5	140	180	160	0.005 ❖	0.008	0.009	0.011	0.014		
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	350 - 400	121 - 139	1180 - 1365	C5	120	160	140	0.004 ❖	0.007	0.008	0.010	0.012		
	100 - 150	38 - 50	370 - 500	C5	240	310	275	0.008 ❖	0.011	0.014	0.016	0.018		
	150 - 250	50 - 88	500 - 850	C5	200	250	225	0.006 ❖	0.010	0.012	0.014	0.016		
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	250 - 350	88 - 121	850 - 1180	C5	180	230	205	0.005 ❖	0.009	0.011	0.012	0.014	
		150 - 200	50 - 70	500 - 700	C5	160	220	190	0.004	0.007	0.009	0.011	0.013	
	Titanium Alloy	200 - 250	70 - 88	700 - 870	C5	120	170	145	0.004	0.007	0.009	0.011	0.013	
		140 - 220	49 - 77	480 - 755	C2	80	105	90	0.004 ❖	0.007	0.009	0.011	0.013	
	Aerospace Alloy S82	220 - 310	77 - 101	755 - 990	C2	60	85	70	0.004 ❖	0.006	0.008	0.010	0.012	
		140 - 220	49 - 77	480 - 755	C2	100	125	105	0.004 ❖	0.007	0.009	0.011	0.013	
	M	Stainless Steel 400 Series 416, 420, etc.	220 - 310	77 - 101	755 - 990	C2	80	110	90	0.004 ❖	0.006	0.008	0.010	0.012
			185 - 275	65 - 96	640 - 940	C2	160	210	185	0.007 ❖	0.006	0.011	0.014	0.016
		Stainless Steel 300 Series 304, 316, 17-4PH, etc.	275 - 350	96 - 121	940 - 1180	C2	120	160	140	0.006 ❖	0.007	0.010	0.012	0.014
			135 - 185	49 - 65	480 - 640	C2	160	210	185	0.005 ❖	0.007	0.009	0.010	0.012
		Super Duplex Stainless Steel	185 - 275	65 - 96	640 - 940	C2	120	160	140	0.004 ❖	0.006	0.008	0.009	0.010
			135 - 185	49 - 65	480 - 640	C2	80	110	95	0.004 ❖	0.007	0.008	0.009	0.011
185 - 275	65 - 96	640 - 940	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			Carbide Grade	SFM			Feed Rate (IPR) by Diameter				
		(BHN)	kg	N/mm ²		 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	139	1365	C5	75	115	100	0.003 ❖	0.006	0.008	0.010	0.012
		500	160	1600	C5	50	85	70	0.002 ❖	0.005	0.006	0.008	0.010
		600	210	2000	C5	35	75	55	0.001 ❖	0.004	0.005	0.006	0.008
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	C5	110	140	130	0.004 ❖	0.006	0.009	0.011	0.013
400 - 500		139+	1365+	C5	65	85	75	0.003 ❖	0.005	0.008	0.009	0.011	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	C2, C3	320	460	415	0.008	0.012	0.015	0.019	0.023
		150 - 200	50 - 70	500 - 700	C2, C3	270	400	335	0.007	0.011	0.013	0.017	0.021
		200 - 220	70 - 77	700 - 755	C2, C3	240	360	305	0.006	0.009	0.012	0.015	0.018
		220 - 260	77 - 90	755 - 890	C2, C3	210	310	260	0.005	0.008	0.011	0.013	0.015
		260 - 320	90 - 104	890 - 1020	C2, C3	180	270	225	0.005	0.007	0.010	0.011	0.013
N	Cast Aluminium	30	10	100	C2	1200	1500	1330	0.010	0.013	0.018	0.020	0.022
		180	62	600	C2	800	1000	900	0.009	0.013	0.016	0.018	0.020
	Wrought Aluminium	30	10	100	C2	1200	1500	1330	0.004	0.006	0.010	0.012	0.014
		180	62	600	C2	800	1000	900	0.008	0.013	0.014	0.018	0.020
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	C2	275	360	325	0.005	0.008	0.010	0.014	0.017
		200 - 250	68 - 87	670 - 855	C2	210	305	260	0.004	0.007	0.007	0.010	0.013
	Brass	100	38	370	C2	425	600	520	0.006	0.009	0.011	0.015	0.018
	Copper	60	21	200	C2	260	390	325	0.002 ❖	0.003	0.004	0.006	0.010

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 • SFM) / DIA <i>where:</i> RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch)	2. IPM = RPM • IPR <i>where:</i> IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)	3. SFM = RPM • 0.262 • DIA <i>where:</i> SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch)
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⚠ WARNING Tool failure can cause serious injury. To prevent:





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

T-A® Original Recommended Drilling Data | Imperial (inch)

HSS Inserts | Flat Bottom Geometry

ISO	Material	Hardness			Car- bide Grade	SFM			
		(BHN)	kg	N/mm ²		 TiN	 TiAlN	 TiCN	 AM200®
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	38 - 50	370-500	HSS	170	250	230	290
		150 - 200	50 - 70	500-700	HSS	155	230	205	265
		200 - 250	70 - 88	700-870	HSS	140	210	185	245
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	30 - 46	300-450	HSS	150	220	195	255
		125 - 175	46 - 62	450 - 600	HSS	140	210	185	245
		175 - 225	62 - 77	600 - 775	HSS	130	195	175	225
		225 - 275	77 - 96	775 - 940	HSS	120	185	155	215
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	46 - 62	450 - 600	HSS	140	210	185	245
		175 - 225	62 - 77	600 - 775	HSS	130	195	175	225
		225 - 275	77 - 96	775 - 940	HSS	120	185	155	215
		275 - 325	96 - 111	940 - 1090	SC	110	175	150	205
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	46 - 62	450 - 600	HSS	130	185	175	215
		175 - 225	62 - 77	600 - 775	HSS	120	175	155	205
		225 - 275	77 - 96	775 - 940	HSS	110	155	145	180
		275 - 325	96 - 111	940 - 1090	SC	105	145	135	170
		325 - 375	111 - 129	1090 - 1265	SC	95	135	125	155
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	77 - 104	600 - 1020	SC	70	95	85	110
		300 - 350	104 - 121	1020 - 1180	SC	50	75	70	90
		350 - 400	121 - 139	1180 - 1365	SC	45	65	60	75
	Structural Steel A36, A285, A516, etc.	100 - 150	38 - 50	370 - 500	HSS	120	170	155	195
150 - 250		50 - 88	500 - 850	HSS	105	145	135	170	
250 - 350		88 - 121	850 - 1180	SC	85	120	110	140	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	50 - 70	500 - 700	SC	70	95	90	110	
	200 - 250	70 - 88	700 - 870	SC	50	80	75	95	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	49 - 77	480 - 755	SC	25	35	30	40
		220 - 310	77 - 101	755 - 990	SC	20	30	25	35
	Titanium Alloy	140 - 220	49 - 77	480 - 755	SC	35	45	40	50
		220 - 310	77 - 101	755 - 990	SC	26	40	35	45
	Aerospace Alloy S82	185 - 275	65 - 96	640 - 940	SC	65	90	85	110
275 - 350		96 - 121	940 - 1180	SC	50	80	70	90	
M	Stainless Steel 400 Series 416, 420, etc.	185 - 275	65 - 96	640 - 940	SC	65	90	85	110
		275 - 350	96 - 121	940 - 1180	SC	50	80	70	90
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	49 - 65	480 - 640	SC	65	90	85	110
		185 - 275	65 - 96	640 - 940	SC	50	80	70	90
	Super Duplex Stainless Steel	135 - 185	49 - 65	480 - 640	SC	65	90	85	110
185 - 275	65 - 96	640 - 940	SC	50	80	70	90		
H	Wear Plate Hardox, AR400, T-1, etc.	400	139	1365	SC	-	-	-	-
		500	160	1600	SC	-	-	-	-
		600	210	2000	N/A	-	-	-	-
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	SC	45	65	60	80
400 - 500		139+	1365+	SC	25	40	35	45	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	HSS	150	220	195	255
		150 - 200	50 - 70	500 - 700	HSS	130	195	175	225
		200 - 220	70 - 77	700 - 755	HSS	110	175	150	205
		220 - 260	77 - 90	755 - 890	SC	95	150	125	175
		260 - 320	90 - 104	890 - 1020	SC	80	120	105	140
N	Cast Aluminium	30	10	100	HSS	520	750	650	-
		180	62	600	HSS	260	400	350	-
	Wrought Aluminium	30	10	100	HSS	520	750	650	850
		180	62	600	HSS	260	400	350	450
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	SC	130	190	175	230
		200 - 250	68 - 87	670 - 855	SC	95	150	125	165
Brass	100	38	370	HSS	150	220	190	250	
Copper	60	21	200	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
0.005 ❖	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.

$200 \cdot 0.75 = 150 \text{ SFM}$	$0.008 \cdot 0.90 = 0.007 \text{ IPR}$
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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)





⚠ 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.

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



T-A® Original Recommended Drilling Data | Imperial (inch)

Carbide Inserts | Flat Bottom Geometry

ISO	Material	Hardness			Carbide Grade	SFM				Feed Rate (IPR) by Diameter				
		(BHN)	kg	N/mm ²		 TiN	 TiAlN	 TiCN	 AM200®	3/8 - 1/2	33/64 - 11/16	45/64 - 15/16	13/32 - 1-7/8	
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	38 - 50	370-500	C2	270	380	325	425	0.007	0.010	0.013	0.015	
		150 - 200	50 - 70	500-700	C2	240	320	280	375	0.006	0.009	0.012	0.014	
		200 - 250	70 - 88	700-870	C2	220	300	260	350	0.005	0.009	0.011	0.013	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	30 - 46	300-450	C2	260	345	315	410	0.007 ❖	0.009	0.011	0.014	
		125 - 175	46 - 62	450 - 600	C2	220	300	260	350	0.006 ❖	0.009	0.011	0.014	
		175 - 225	62 - 77	600 - 775	C2	200	280	235	320	0.005 ❖	0.008	0.010	0.013	
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	77 - 96	775 - 940	C2	180	240	215	285	0.004 ❖	0.008	0.010	0.013	
		125 - 175	46 - 62	450 - 600	C2	220	300	260	350	0.006	0.009	0.011	0.014	
		175 - 225	62 - 77	600 - 775	C2	200	280	240	320	0.005	0.008	0.010	0.013	
	Alloy Steel 4140, 5140, 8640, etc.	225 - 275	77 - 96	775 - 940	C2	180	240	210	285	0.005	0.008	0.010	0.013	
		275 - 325	96 - 111	940 - 1090	C2	150	210	180	240	0.004	0.007	0.009	0.012	
		325 - 375	111 - 129	1090 - 1265	C2	145	190	170	230	0.003	0.006	0.009	0.011	
125 - 175		46 - 62	450 - 600	C2	215	290	250	340	0.006	0.009	0.011	0.014		
High Strength Alloy 4340, 4330V, 300M, etc.	175 - 225	62 - 77	600 - 775	C2	200	270	230	320	0.005	0.008	0.010	0.013		
	225 - 275	77 - 96	775 - 940	C2	180	230	205	290	0.005	0.008	0.010	0.013		
	275 - 325	96 - 111	940 - 1090	C2	175	215	190	280	0.004	0.007	0.009	0.012		
Structural Steel A36, A285, A516, etc.	325 - 375	111 - 129	1090 - 1265	C2	145	190	170	230	0.003	0.006	0.009	0.011		
	225 - 300	77 - 104	600 - 1020	C2	140	170	160	220	0.005 ❖	0.008	0.009	0.010		
	300 - 350	104 - 121	1020 - 1180	C2	120	160	140	190	0.004 ❖	0.007	0.008	0.009		
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	350 - 400	121 - 139	1180 - 1365	C2	100	145	120	160	0.003 ❖	0.006	0.007	0.009		
	100 - 150	38 - 50	370 - 500	C2	205	265	240	325	0.007 ❖	0.009	0.012	0.014		
	150 - 250	50 - 88	500 - 850	C2	170	215	200	270	0.005 ❖	0.009	0.010	0.012		
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	250 - 350	88 - 121	850 - 1180	C2	155	200	180	240	0.004 ❖	0.008	0.009	0.010	
		150 - 200	50 - 70	500 - 700	C2	140	190	160	220	0.003	0.006	0.008	0.009	
	Titanium Alloy	200 - 250	70 - 88	700 - 870	C2	100	150	120	160	0.003	0.006	0.008	0.009	
		140 - 220	49 - 77	480 - 755	C2	70	90	80	110	0.003 ❖	0.006	0.008	0.009	
	Aerospace Alloy S82	220 - 310	77 - 101	755 - 990	C2	50	70	60	80	0.003 ❖	0.005	0.007	0.009	
		140 - 220	49 - 77	480 - 755	C2	85	110	90	130	0.003 ❖	0.005	0.006	0.008	
	M	Stainless Steel 400 Series 416, 420, etc.	220 - 310	77 - 101	755 - 990	C2	70	95	80	100	0.003 ❖	0.004	0.005	0.007
			185 - 275	65 - 96	640 - 940	C2	140	120	165	130	0.006 ❖	0.006	0.010	0.012
		Stainless Steel 300 Series 304, 316, 17-4PH, etc.	275 - 350	96 - 121	940 - 1180	C2	110	140	125	160	0.005 ❖	0.005	0.009	0.010
			135 - 185	49 - 65	480 - 640	C2	90	120	110	130	0.005 ❖	0.007	0.008	0.010
		Super Duplex Stainless Steel	185 - 275	65 - 96	640 - 940	C2	70	90	80	105	0.004 ❖	0.006	0.007	0.009
			135 - 185	49 - 65	480 - 640	C2	70	95	85	110	0.004 ❖	0.006	0.007	0.008
185 - 275	65 - 96	640 - 940	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			Carbide Grade	SFM				Feed Rate (IPR) by Diameter			
		(BHN)	kg	N/mm ²		 TiN	 TiAlN	 TiCN	 AM200®	3/8 - 1/2	33/64 - 11/16	45/64 - 15/16	13/32 - 1-7/8
H	Wear Plate Hardox, AR400, T-1, etc.	400	139	1365	C2	65	100	85	130	0.003 ❖	0.004	0.006	0.008
		500	160	1600	C2	45	75	60	100	0.002 ❖	0.003	0.005	0.006
		600	210	2000	C2	35	65	45	80	0.001 ❖	0.002	0.004	0.005
	Hardened Steel	300 - 400	104 - 139	1020 - 1365	C2	100	125	110	135	0.004 ❖	0.006	0.007	0.009
400 - 500		139+	1365+	C2	60	75	65	110	0.003 ❖	0.005	0.06	0.007	
K	Nodular, Grey, Ductile Cast Iron	120 - 150	44 - 50	430 - 500	C2	270	405	360	450	0.007	0.010	0.013	0.016
		150 - 200	50 - 70	500 - 700	C2	230	350	290	390	0.006	0.009	0.011	0.014
		200 - 220	70 - 77	700 - 755	C2	200	320	260	350	0.005	0.008	0.010	0.013
		220 - 260	77 - 90	755 - 890	C2	180	270	220	300	0.004	0.007	0.009	0.011
		260 - 320	90 - 104	890 - 1020	C2	160	240	200	265	0.004	0.006	0.009	0.009
N	Cast Aluminium	30	10	100	C2	520	750	650	-	0.009	0.013	0.016	0.017
		180	62	600	C2	260	400	350	-	0.008	0.012	0.014	0.015
	Wrought Aluminium	30	10	100	C2	950	1200	1070	1270	0.005	0.007	0.009	0.010
		180	62	600	C2	630	800	715	850	0.004	0.006	0.008	0.009
	Aluminium Bronze	100 - 200	38 - 68	370 - 670	C2	240	310	280	340	0.004	0.006	0.008	0.011
		200 - 250	68 - 87	670 - 855	C2	180	265	220	285	0.003	0.005	0.006	0.008
	Brass	100	38	370	C2	370	520	450	600	0.005	0.006	0.008	0.012
Copper	60	21	200	C2	220	345	280	380	0.002 ❖	0.002	0.003	0.005	

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 • SFM) / DIA <i>where:</i> RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch)	2. IPM = RPM • IPR <i>where:</i> IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)	3. SFM = RPM • 0.262 • DIA <i>where:</i> SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch)
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⚠ 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 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® Original 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
A DRILLING B BORING	Carbon (hard)	N2	1000 - 1500	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Carbon Fibre	N2	1000 - 1500	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Carbon / Glass Fibre	N2	1000 - 1500	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Fibreglass	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
C REAMING	Aluminium	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
D BURNISHING	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.

$$200 \cdot 0.75 = 150 \text{ SFM}$$

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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	10.5mm	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	12.0mm	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	13.0mm	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	14.5mm	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	16.5mm	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	17.5mm	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	22.0mm	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%	0.075mm	22.30mm	65%
27 x 3	24.0mm	0.9449"	77%	0.075mm	24.08mm	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 .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 .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
Aluminium 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 Aluminium	PSI	210	180	230	159	125	51	80
		GPM	3	4	6	9	16	33	42
	Wrought Aluminium	PSI	210	180	230	159	125	51	80
		GPM	3	4	6	9	16	33	42
	Aluminium 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.

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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 Aluminium	PSI	350	319	315	284	200
		GPM	4	5	8	12	20
	Wrought Aluminium	PSI	350	319	315	284	200
		GPM	4	5	8	12	20
	Aluminium 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.

$$150 \cdot 3 = 450 \text{ PSI} \qquad 2.4 \cdot 3 = 7.2 \text{ GPM}$$

⚠ 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 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	Build 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	Retract spiral	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	22	Possible Solutions
<p>⚠ Use of Standard, Standard Plus, Extended, Long, Long Plus, XL, and 3XL holders.</p> <p>See page 148 for Deep Hole Drilling guidelines.</p>		2	3				7		9				13	14			17				21		<ul style="list-style-type: none"> Start with short holder and drill a minimum depth equal to 2xD (see page 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.							7		9	10	11		13		15						21		<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		3				7		9	10	11		13				17	18			21		<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							21		<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			21	<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		11						17	18	18	20	21	<ul style="list-style-type: none"> Run through coolant 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.

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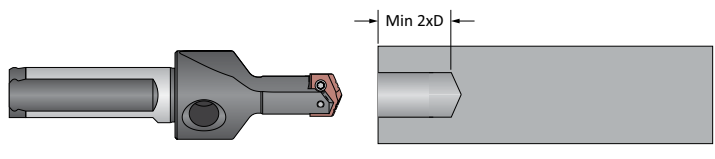
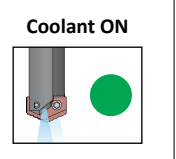
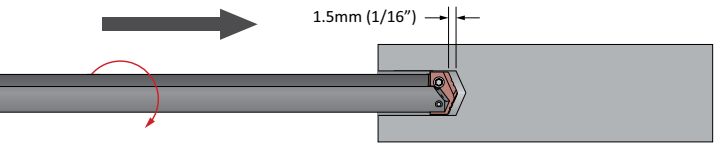
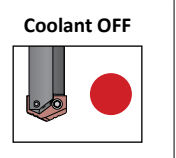
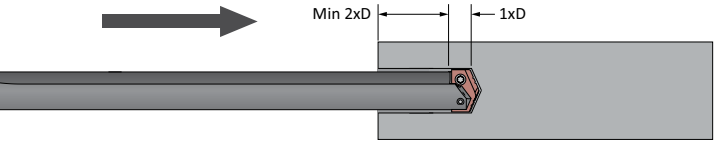
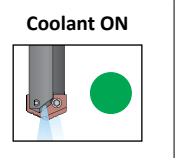
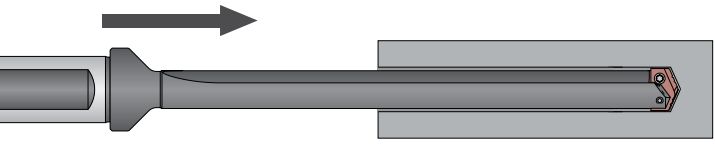
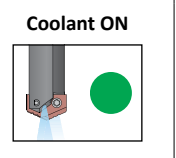
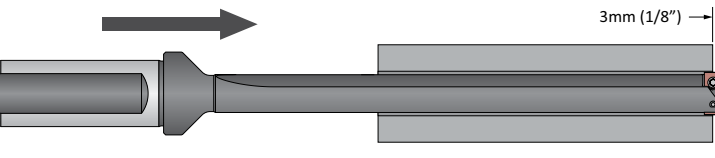
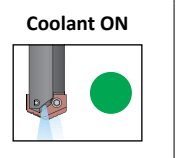
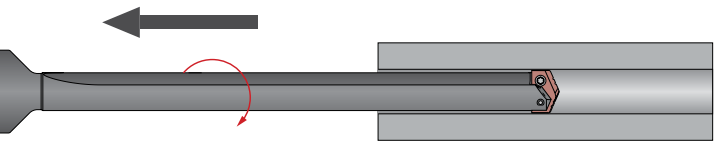
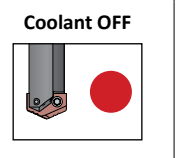
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	Potential Problem																						
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Setup Condition	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Possible Solutions
Interrupted cuts. Entry or exit surfaces that are not perpendicular 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"> Pre-mill (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			22	<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 normalised 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 normalise 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 Application Engineering team for technical recommendations. Increase coolant pressure and volume. Improve coolant condition by use of quality products and regular maintenance. See pages 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 #. Increase rigidity of setup.

Deep Hole Drilling Guidelines

For Lengths greater than 9xD (including Extended, Long, XL, 3XL, and Special Length)

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

<p>1. Pilot Hole 100 % RPM 100% mm/rev (IPR)</p>	<p>Establish the pilot hole using the same diameter short drill to a depth of 2xD minimum. Utilise a pilot drill with the same or larger included point angle.</p> 	<p>Coolant ON</p> 
<p>2. Feed-in ⚠️ 50 RPM max 300 mm/min (12 IPM)</p>	<p>Feed the longer drill within 1.5mm (1/16") short of the established pilot hole bottom at a maximum of 50 RPM and 300 mm/min (12 IPM) feed rate.</p> 	<p>Coolant OFF</p> 
<p>3. Deep Hole Transition Drilling 50 % RPM 75% mm/rev (IPR)</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% mm/rev (IPR)</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% mm/rev (IPR)</p>	<p>For through holes only: Reduce speed by 50% and feed by 25% prior to breakout. Do not break out more than 3mm (1/8") 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> 

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Europe

Allied Machine & Engineering Co. (Europe) Ltd.

93 Vantage Point
Pensnett Estate
Kingswinford
West Midlands
DY6 7FR England

Phone:

+44 (0)1384 400900

Email:

enquiries.eu@alliedmachine.com

Web:

www.alliedmachine.com

Wohlhaupter GmbH

Maybachstraße 4
72636 Frickenhausen
Germany

Phone:

+49 (0)7022 408 0

Email:

info@wohlhaupter.de

Web:

www.wohlhaupter.com

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

Asia

Wohlhaupter India Pvt. Ltd.

B-23, 3rd Floor
B Block Community Centre
Janakpuri, New Delhi - 110058
India

Phone:

+91 11 41827044

Your local Allied Machine representative:



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