ALLIED MACHINE & ENGINEERING

Holemaking Solutions for Today's Manufacturing

Boring

Reaming

Burnishing

Threading

Specials

T-A® Drilling System

▶ *DRILLING*

Replaceable Insert Drilling System

North America

Allied Machine
120 Deeds Drive
Dover, OH 44622
United States

Allied Machine
485 West 3rd Street
Dover, OH 44622
United States

ThreadMills USA™
4185 Crosstowne Ct #B
Evans, GA 30809
United States

Superion™
1285 S Patton St.
Xenia, OH 45385
United States

Europe

Allied Machine Europe
93 Vantage Point
Pensnett Estate
Kingswinford
West Midlands
DY6 7FR, United Kingdom

Wohlhaupter® GmbH
Maybachstrasse 4
Postfach 1264
72636 Frickenhausen
Germany

Asia

Wohlhaupter® India
B-23, 2nd Floor
B Block Community Centre
Janakpuri, New Delhi - 110058
India

Allied Machine & Engineering is a worldwide leader in holemaking and finishing solutions. We are committed to providing practical and dependable solutions to our customers through innovative designs and superior customer and technical support.

We continue to expand our product offering in order to provide new and different solutions. With Field Sales Engineers located around the world, we position ourselves to provide technical support on site, right at your spindle.

ALLIED MACHINE & ENGINEERING®

www.alliedmachine.com

ALLIED MACHINE & ENGINEERING

Holemaking Solutions for Today's Manufacturing

T-A® Drilling System

The Foundation

Since 1941, Allied Machine & Engineering has provided dependable and practical holemaking solutions to the world. What was once a small job shop in Ohio is now a worldwide leader in cutting tool technology. With three manufacturing facilities in Ohio, one in Georgia, another in Germany, and headquarters in both the United States and Europe, Allied Machine is positioned to bring innovative solutions and technical expertise directly to the customers' hands.

The Beginning

Harold E. Stokey founded Allied Machine & Engineering to aid the war effort, manufacturing taper bearing lock nuts for the production of M1 tanks. Years later, after a sales meeting gone wrong, Stokey possessed a warehouse stocked with spade drill inserts. He set forth into the industry that would become Allied Machine's thriving identity: holemaking.

The T-A®

When Harold's son, William H. Stokey, became the president and CEO, he developed the Throw Away, or T-A, spade drill insert system. The T-A revolutionized the holemaking industry, launching Allied Machine ahead of the competition. Since then, numerous innovations and advancements have been created from the T-A's inspiration.

The Innovation

Since the development of the T-A, Allied Machine has expanded its product offering to support a vast range of customer applications, including large diameter and deep hole drilling, boring, reaming, burnishing, porting, and threading.

The People

Allied Machine understands that high quality products are only one facet of success. Our customer support is crucial to what we do, and that's why we make sure the best engineers and customer service associates are in place to assist our customers around the world.

The Future

With over 75 years of experience, Allied Machine has encountered the challenges of growth and success. By investing in cutting edge technology and the brightest and sharpest minds, our knowledge and capabilities continue to expand and grow every day.

Steve Stokey
Executive Vice President

William H. Stokey
President and CEO

Mike Stokey
Executive Vice President

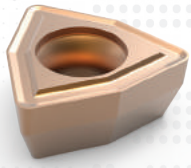
WOHLHAUPTER® ThreadMills USA SUPERION™ CRITERION™

Replaceable Insert Drills

- Reduce costs by decreasing set-up time and utilizing a single holder for the lives of multiple inserts
- Provide flexibility to quickly switch between inserts with different geometries
- Products:
  - **GEN3SYS® XT | GEN3SYS® XT Pro**
  - **Original T-A® | GEN2 T-A®**
  - **High Performance | Universal**

Indexable Insert Drills

- Protect your investment and reduce your inventory with replaceable cartridges that allow the same holder to be used repeatedly
- Indexable inserts increase productivity and tool life while reducing costs
- Products:
  - **4TEX® Drill**
  - **Revolution Drill®**
  - **Opening Drill®**



Replaceable / Indexable Insert Drills

- Allow for higher spindle speeds and take advantage of the power curve on modern CNC machines
- Achieve maximum penetration rates in deep hole drilling applications
- Holders cover a range of sizes with the replaceable heads determining the cutting diameter
- Products:
  - **APX™ Drill**

Solid Carbide Drills

- Offer greater strength and stability when drilling tougher materials
- Available in diameters from 3mm - 20mm
- Can be made-to-order specifically for your application (Superion™ quoted specials)
  - **ASC 320®**
  - **Superion™**

Structural Steel Solutions

- Deliver outstanding performance and durability in structural steel applications
- Designed to produce optimal results in difficult-to-machine materials
- Available in multiple lengths and diameters
- T-A® style drills have different insert geometry options to improve performance depending on material
- Products:
  - **Original T-A®** | **GEN2 T-A®**
  - **GEN3SYS® XT Pro**

BTA (STS) Machining Solutions

- The internal ejection system flushes chips and debris from the hole with no interference to the cutting process
- Utilizes the advantages of the T-A® drill insert
- Designed to significantly increase penetration rates over brazed heads and traditional gun drills
- Products:
  - **BT-A Drill**

Hydraulic Port Contour Cutters

- Save significant time and money by performing four processes in one step
- Replaceable insert design reduces costs, inventory, and set-up times
- Available in 4 industry specifications:
  - Imperial: SAE J-1926
  - Metric: ISO 6149-1:2006
  - Military: SAE AS5202
  - John Deere: JDS-G173.1
- Products:
  - **AccuPort 432®**

4 IN 1

Enhanced Special Drilling Capabilities

- Allied Machine Engineers are available to meet with you to evaluate your application and recommend the best solution for you
- Special drilling solutions can incorporate advanced features such as adjustable diameter locations, multiple steps, additional coolant designs, special lengths and diameters, and more
- Special drills can drastically reduce your cost-per-hole and increase your overall productivity by eliminating multiple processes and increasing tool life

WOHLHAUPTER®
High Precision Boring Systems

- Designs available for high volume applications that increase rigidity to improve performance
- Versatile boring heads that are flexible with changing applications while maintaining excellent performance
- Provides high precision with absolute repeatability to ensure every part is held to tolerance
- Offers an industry leading modular shank connection that maintains rigidity and reduces inventory on your boring system
- Available with both digital and analog settings
- Products:
  - **Wohlhaupter® Boring Tools**

CRITERION®
Modular Boring Systems

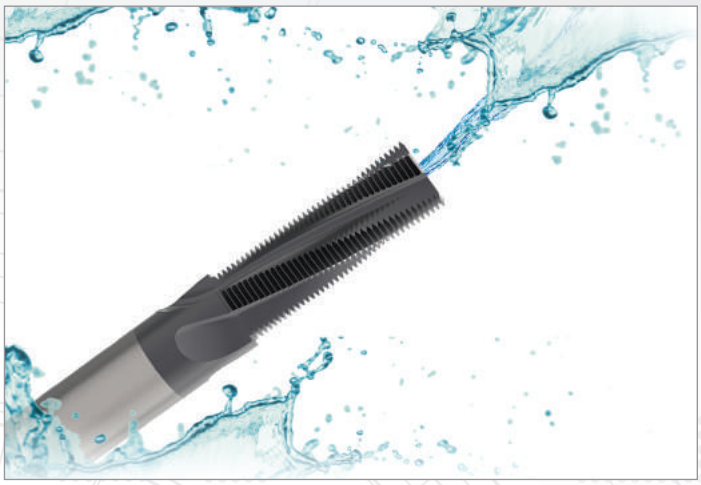
- The modular capabilities are ideal for use across multiple different projects
- Offers versatile boring heads suitable for all job shops and tooling rooms
- Provides an economical solution for low volume and/or short-term production applications
- Offers both rough and finish boring solutions
- Products:
  - **Criterion® Boring Tools**

S.C.A.M.I.®
Expandable Reaming Solutions

- Expandable cutting diameters accommodate for wear, which extends tool life
- Replaceable cutting heads and rings reduce waste and improve production time versus solid high speed steel and carbide reamers
- Hold tight tolerances to ensure processes are performed to accurate specifications
- Reduce tooling costs because many items are available for recondition
- Products:
  - **ALVAN® Reamers**

S.C.A.M.I.®
Roller Burnishing Solutions

- Produce excellent surface finishes
- Provide accurate size control
- Increase surface hardness
- Solutions for both through hole and blind hole applications
- Products:
  - **S.C.A.M.I.® Roller Burnishing Tools**



Solid Carbide Thread Mills

- Available with coolant through options
- Cover a wide range of thread forms
- Provide optimal solutions for both high production projects and short-run applications
- Products
  - **AccuThread™ 856**
  - **AccuThread™ T3**
  - **ThreadMills USA™**

Replaceable Insert Thread Mills

- 3 insert lengths are available that cover a wide range of thread forms
- Holders can utilize inserts with different pitches and thread forms
- Repeatability is achieved by both the bolt-in style and the pin style locking systems
- Increase tool life by 25 - 50% with Allied Machine's AM210® coating
- Products
  - **AccuThread™ 856: Bolt-in Style**
  - **AccuThread™ 856: Pin Style**

SPECIAL CAPABILITIES

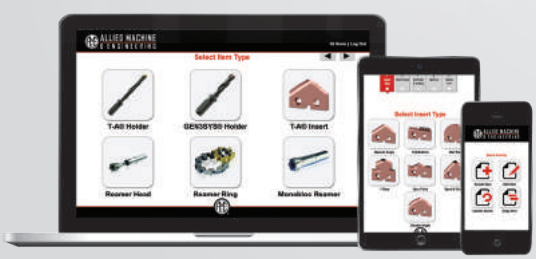
When it comes to designing and developing special solutions for customers, Allied Machine is the top choice. If your application requires special tooling, give us a call. Our engineered specials are developed by the brightest engineers in the industry. Most of our standard tooling can be altered as specials, or we can create entirely new concepts for particularly unique applications.

One special tooling solution is Insta-Quote®, the online system that allows you to design your own special tooling 24/7. Receive a quote and drawings within minutes just by following the steps.

And with the addition of Superion™ technology and capabilities, we can customize made-to-order solid carbide tools to achieve optimal results for your applications.

Whatever your application, Allied Machine has the answer.

Insta-Quote®



SUPERION™

ToolMD™

Increase the production and success of your applications today.

- Offers direct access to 2D drawings and 3D models
- Assemble and view tool images in your browser
- Download drawings for use in most machining software programs
- Browse products, search item numbers, and save assemblies for future use

toolmd.com

WOHLHAUPTER® Tool-Architect

Find the right Wohlhaupter® solution for your application.

- Configure your complete tool assembly
- Compile an order list to be quoted
- Search and quickly find components using various criteria
- Adjust your language and measurement preferences

tool-architect.com

Insta-Quote®

Design your custom tooling and receive a drawing and quote...all within minutes.

- Design and quote your own tooling
- Guides you through steps to generate the solution you need
- Features the following products
  - **T-A® Inserts**
  - **T-A® Holders**
  - **GEN3SYS® XT Holders**
  - **ALVAN® Reamers**

iq.alliedmachine.com

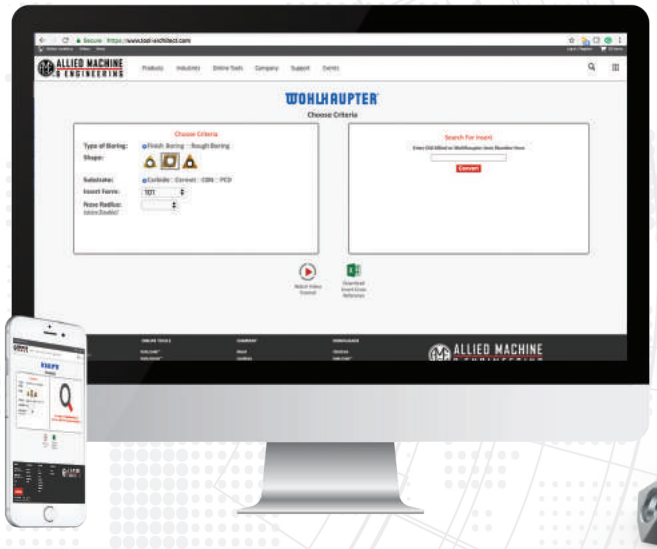
Insta-Code®

Eliminate the wait. Get your program now.

- Choose the best thread mill for your application
- Create program code for your machine
- Available as a PC download app (that can be used offline)
- Website app available 24/7

Insta-Code also has a **Cycle Time Calculator**

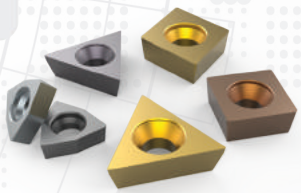
alliedmachine.com/InstaCode



WOHLHAUPTER® Boring Insert Selector

Find the best insert for your application.

- Generate the correct boring insert for your job in just six easy steps
- Choose type, shape, substrate, insert form, nose radius, and material
- Easily order by adding the item to your cart



www.alliedmachine.com/bis

Product Selector

Use the product selector to find the right tool for your application.

- Guides you through steps to generate the right tool for your application
- Learn about your recommended tool and how to maximize its performance

www.alliedmachine.com/productselector

Machinist Tool App

Quickly convert cutting tool parameters for the machine inputs you need.

- Input data to calculate the RPM and speed and feed rates
- Also features the Boring Insert Selector
- Access product literature right at your fingertips

ANDROID APP ON Google play

Available on the App Store

T-A® Drilling System

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

- **Diameter Range:** 0.374" - 4.507" (9.50mm - 114.48mm)

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 Original T-A, this drilling system provides benefits and performance that spade blade inserts of the past never could.

With constant innovations in holder designs, insert geometries and coatings, and coolant dispersion, the T-A drilling system continues to evolve and become much more productive and powerful than ever before.

Excellent hole size and finish	Optimizes chip evacuation	Wide range of geometry options available

Applicable Industries

Aerospace | Agriculture | Automotive | Firearms | General Machining | Oil & Gas | Renewable Energy

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

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

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

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

⚠ WARNING

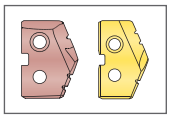
WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

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

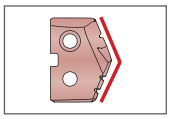
NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

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

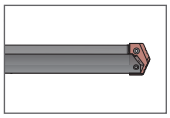
Reference Icons
The following icons will appear throughout the catalog to help you navigate between products.



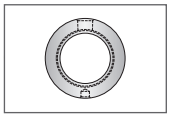
T-A Inserts
Refers to the range of inserts that connect with the corresponding holders



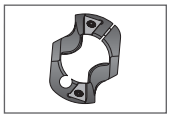
Available Insert Geometries
Details for the different geometry options available for each T-A insert style



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

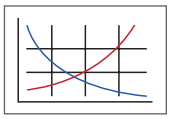


Rotary Coolant Adapter (RCA) Information
Detailed instructions and information regarding the corresponding part(s)



T-ACR 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	
	Imperial (inch)	Metric (mm)
Y	0.374 - 0.436	9.50 - 11.07
Z	0.437 - 0.510	11.10 - 12.95
0	0.511 - 0.695	12.98 - 17.65
1	0.690 - 0.960	17.53 - 24.38
2	0.961 - 1.380	24.41 - 35.05
3	1.353 - 1.882	34.36 - 47.80
4	1.850 - 2.570	46.99 - 65.28
5	2.456 - 3.000	62.38 - 76.20
6	3.001 - 3.507	76.22 - 89.08
7	3.508 - 4.000	89.10 - 101.60
8	4.001 - 4.507	101.63 - 114.48

T-A® Drilling System Contents

T-A Drilling System Overview | Drill Inserts

Series	Y Series	Z Series	0 Series	1 Series	2 Series	3 Series	4 Series
GEN2 T-A							
D_1 inch	0.374 - 0.436	0.437 - 0.510	0.511 - 0.695	0.690 - 0.960	0.961 - 1.380	1.353 - 1.882	1.850 - 2.570
D_1 mm	9.5 - 11.07	11.10 - 12.95	12.98 - 17.65	17.53 - 24.38	24.41 - 35.05	34.36 - 47.80	46.99 - 65.28
Half Series Option*	✗	✗	✓	✓	✓	✗	✗
HSS Substrates	Super Cobalt	Super Cobalt	Super Cobalt	Super Cobalt	Super Cobalt	HSS Super Cobalt Premium Cobalt	HSS Super Cobalt
Carbide Substrates	C1 (K35) C2 (K20)	C1 (K35) C2 (K20)	C1 (K35) C2 (K20)	C1 (K35) C2 (K20)	C1 (K35) C2 (K20)	–	–
Coatings	AM200® AM300®	AM200® AM300®	AM200® AM300®	AM200® AM300®	AM200® AM300®	AM200® TiN	AM200® TiN

*See page A30: 7 for more information regarding half series options

Series	Y Series	Z Series	0 Series	1 Series	2 Series	3 Series	4 Series
Original T-A							
D_1 inch	0.374 - 0.436	0.437 - 0.510	0.511 - 0.695	0.690 - 0.960	0.961 - 1.380	1.353 - 1.882	1.850 - 2.570
D_1 mm	9.5 - 11.07	11.10 - 12.95	12.98 - 17.65	17.53 - 24.38	24.41 - 35.05	34.36 - 47.80	46.99 - 65.28
Half Series Option*	✗	✗	✓	✓	✓	✗	✗
HSS Substrates	Super Cobalt Premium Cobalt	Super Cobalt Premium Cobalt	Super Cobalt Premium Cobalt	HSS Super Cobalt Premium Cobalt	HSS Super Cobalt Premium Cobalt	Super Cobalt	Super Cobalt
Carbide Substrates	C2 (K20) C3 (K10) C5 (P40) N2	C2 (K20) C3 (K10) C5 (P40) N2	C2 (K20) C3 (K10) C5 (P40) N2	C2 (K20) C3 (K10) C5 (P40) N2	C2 (K20) C3 (K10) C5 (P40) N2	C2 (K20) C5 (P40)	–
Coatings	TiN TiAlN TiCN	TiN TiAlN TiCN	TiN TiAlN TiCN	TiN TiAlN TiCN	TiN TiAlN TiCN	TiN	TiN

*See page A30: 7 for more information regarding half series options

Drill Insert Coatings

AM300®

- Increased heat resistance over AM200® coating
- Up to 20% increased tool life over AM200 coating
- Provides superior tool life at high penetration rates
- Color: copper/orange

AM200®

- First choice for increased heat resistance over TiN, TiCN, and TiALN with improved wear capabilities
- Allows for improved tool life and higher penetration rates
- Over 20% increase in tool life compared to TiAlN coating
- Color: copper/bronze

TiN

- General purpose coating
- Improved tool life over non-coated inserts
- Excellent choice for aluminum
- Color: gold/yellow

TiAlN

- Excellent choice for wear resistance over high surface speeds
- Excellent oxidation resistance
- Maximum working temperature 800°C
- Color: violet/gray

TiCN

- Excellent choice for wear resistance over low surface speeds
- High hardness/wear resistance
- Maximum working temperature 400°C
- Color: blue/gray

5 Series	6 Series	7 Series	8 Series
			
2.456 - 3.000	3.001 - 3.507	3.508 - 4.000	4.001 - 4.507
62.38 - 76.20	76.22 - 89.08	89.10 - 101.60	101.63 - 114.48
✖	✖	✖	✖
HSS Super Cobalt	HSS Super Cobalt	HSS Super Cobalt	HSS Super Cobalt
–	–	–	–
AM200® TiN	AM200® TiN	AM200® TiN	AM200® TiN

5 Series	6 Series	7 Series	8 Series
			
2.456 - 3.000	3.001 - 3.507	3.508 - 4.000	4.001 - 4.507
62.38 - 76.20	76.22 - 89.08	89.10 - 101.60	101.63 - 114.48
✖	✖	✖	✖
HSS Super Cobalt	HSS Super Cobalt	HSS Super Cobalt	HSS Super Cobalt
–	–	–	–
TiN	TiN	TiN	TiN

Drill Insert Grades			
HSS (Original / GEN2) First choice for general purpose use. Suited for difficult machining applications with low rigidity, as well as deep hole drilling. Recommended for drilling most steels, cast irons, and aluminum alloys up to 275 BHN 96.	**HSS Super Cobalt** (Original / GEN2) 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 121.	**HSS Premium Cobalt** (Original / GEN2) 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 139.	**Carbide C5 (P40)** (Original only) Excellent for drilling free machining steel, low/medium carbon steels, alloy steels, high strength steels, tool steels, and hardened steels.
Carbide C3 (K10) (Original only) Designed for drilling grey/white cast irons. The special geometry offers substantial increase in penetration rates and provides exceptional edge strength and tool life.	**Carbide C2 (K20)** (Original / GEN2) Excellent for drilling high temperature alloys, titanium alloys, cast aluminum, SG/Nodular cast iron, grey/white iron, aluminum bronze, brass, copper, and certain stainless steels.	**Carbide C1 (K35)** (Original / GEN2) Excellent for drilling free machining steel, low/medium carbon steels, alloy steels, high strength steels, tool steels, and hardened steels.	**Carbide N2** (Original only) 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.

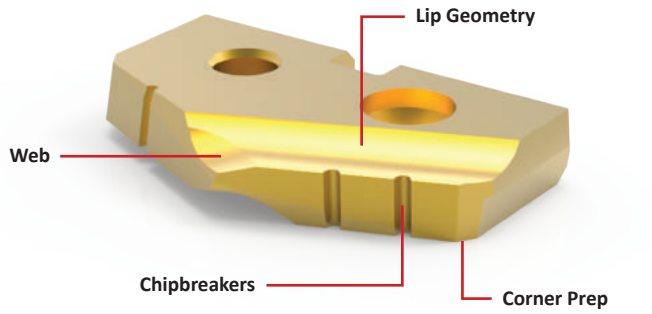
Insert Geometries

There's a Geometry for That

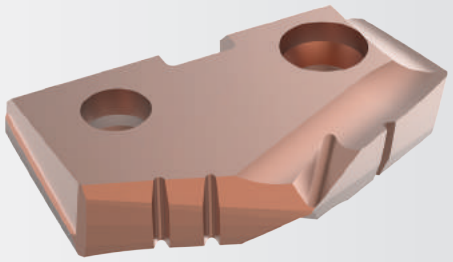
Allied Machine knows there isn't a one-size-fits-all solution when it comes to holemaking. To better accommodate the countless holes our customers drill, we have developed multiple geometry options, with new geometries in development at all times.

If you're unsure which geometry would be best for your application, give our Application Engineers a call. They're standing by, ready to point you in the right direction.

1.330.343.4283
1.800.321.5537 (toll free United States and Canada)
appeng@alliedmachine.com

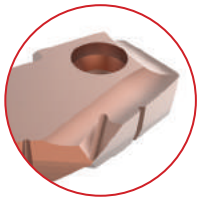


GEN2 T-A Drill Inserts



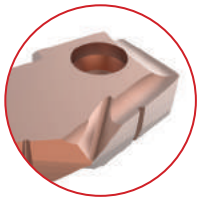
Standard

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

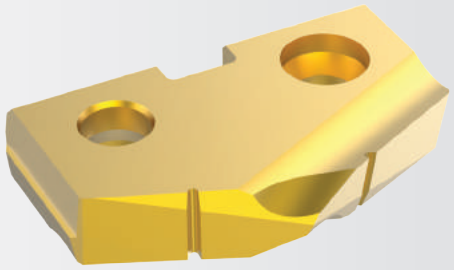


High Efficiency (-HE)

- Excellent chip formation in materials with very high elasticity/ductility and poor chip forming conditions
- Effective in lower powered machines
- Material example: low carbon steel (not suitable for stainless steel)

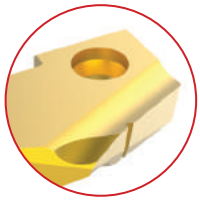


Original T-A Drill Inserts



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

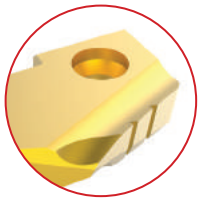


Tiny Chip (-TC)

- Unique lip and point design for excellent chip control
- Improves drilling capabilities in long-chipping materials
- Enhanced performance in lower-powered machines

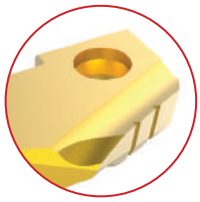
Corner Radius (-CR)

- 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)

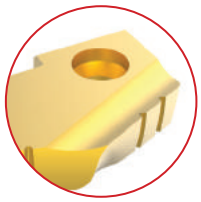
- Ideal for machining cast iron materials
- Larger than a standard corner clip
- Improves heat resistance
- Standard feature on CI, HI, and HR geometries



continued on next page

Cam Point (-CP)

- Helical cam ground point
- Improves drill stability and centering characteristics
- Reduces bell mouthing when using longer holders
- Target materials: steels, cast/forged steels, cast iron

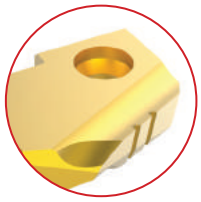


Notch Point® (-NP)

- Reduces bell mouth and lead-off
- Increases stability in deep hole applications
- Reduces thrust
- Can be used in addition to other geometries like Cast Iron, High Rake, and High Impact

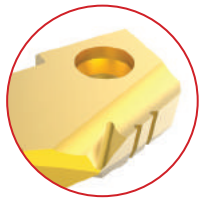
High Impact (-HI)

- Designed for materials with hardness > 200 BHN (700 N/mm^2)
- 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)



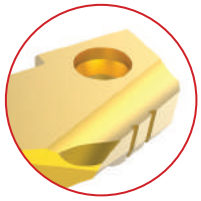
High Impact Notch Point® (-IN)

- 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



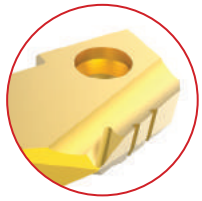
High Rake (-HR)

- Designed for materials with hardness < 200 BHN (700 N/mm^2)
- Improves chip formation in materials with very high elasticity/ductility, extremely poor chip forming characteristics, and low material hardness
- SK corner clip improves tool life
- Target materials: soft steels, steel castings and forgings (not suitable for stainless steel)



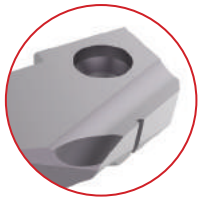
High Rake Notch Point® (-RN)

- Combination of High Rake and Notch Point geometries
- Reduces bell mouth and lead-off
- Improves chip formation in materials with very high elasticity/ductility, extremely poor chip forming characteristics, and low material hardness



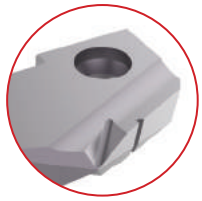
Cast Iron (-CI)

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



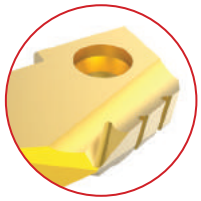
Cast Iron Notch Point® (-CN)

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



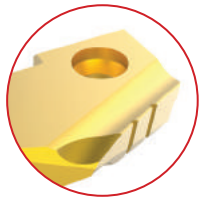
Aluminum (-AN)

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



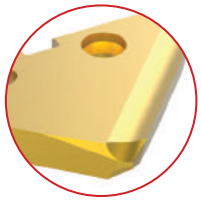
Brass (-BR)

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



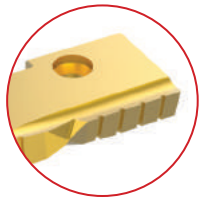
90° Spot and Chamfer (-SP)

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



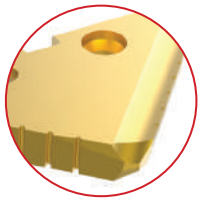
Flat Bottom (-FB)

- Ideal for flattening or squaring the bottom of pre-existing holes with high rigidity
- Includes small 10° point on the nose of the insert
- Available without chipbreakers (see -FN below)



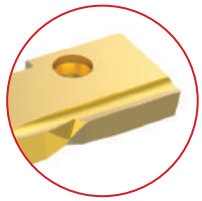
90° Spot and Chamfer (-SW)

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



Flat Bottom (-FN)

- Ideal for flattening or squaring the bottom of 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			Original T-A						
					HSS Inserts				Carbide Inserts		
		Y - 2 Series	3 - 4 Series	5 - 8 Series	Y - 2 Series	3 Series	4 Series	5 - 8 Series	Y - Z Series	0 - 2 Series	3 Series
-AN	Aluminum				●				●	●	
-BT	BT-A Specific									●	●
-BR	Brass		●	●	●	●	●	●	●	●	●
-CI	Cast Iron		●		●	●	●		●	●	●
-CN	Notch Point® Cast Iron				●				●	●	●
-CP	Cam Point				●				●	●	
-CR	Corner Radius		●	●	●	●	●	●	●	●	●
-FB	Flat Bottom				●	●	●				
-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		●	●	●	●	●	●	●	●	●
-SP	90° Spot and Chamfer				●	●					
-SS	150° Structural Steel				●	●					
-TC	Tiny Chip				●				●	●	
-TW	Thin Wall				●	●					
-WC	No Corner Clips		●	●	●	●	●	●	●	●	●

Drill Holders

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

Stub Length | Series: Y - 3 (straight flute flanged shank only)

Short Length | Series: ALL

Intermediate Length | Series: ALL

Standard Length | Series: ALL

⚠ **Standard Plus Length** | Series: Y - 2 (helical flute flanged shank only)

⚠ **Extended Length** | Series: 0 - 3

⚠ **Long Length** | Series: 0 - 2

⚠ **Long Plus Length** | Series: 0

⚠ **XL Length** | Series: ALL

⚠ **3XL Length** | Series: ALL

Holder Shank Options

ER Collet Shank
Series: Y, Z, 0

Straight Shank
Series: ALL

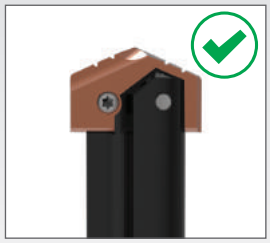
Morse Taper Shank
Series: ALL

Flanged Shank
Series: ALL

Half Series Holders (0.5, 1.5, 2.5)

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

Standard Series Insert +
Standard Series Holder



Half Series Insert +
Standard Series Holder

Half Series Insert +
Half Series Holder

Standard Series Insert +
Half Series Holder

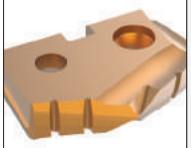
⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

Technical Information

Next Level Solutions: GEN2 T-A

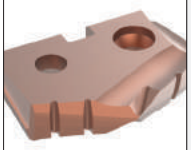
What takes a solution to the next level? When you make innovative designs and enhancements to a product that already achieves high performance results, you push the boundaries of what is known. And when you push the known boundaries, the unknown becomes the next level.

After all, everything begins as unknown.



AM300® Coating

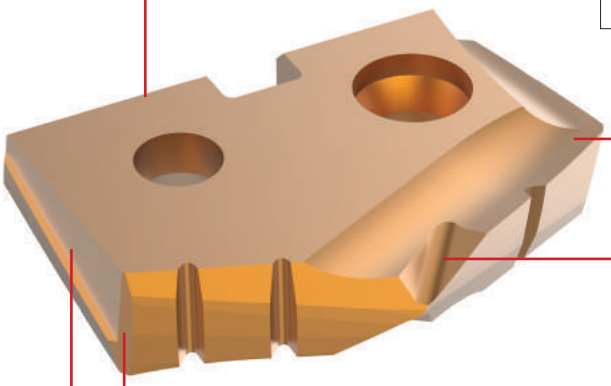
- ***Provides superior tool life*** at high penetration rates
- ***Improves heat resistance*** over AM200® coating
- ***Increases tool life*** up to 20% over AM200 coating



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

Ground Back Location
- Ensures accurate positioning

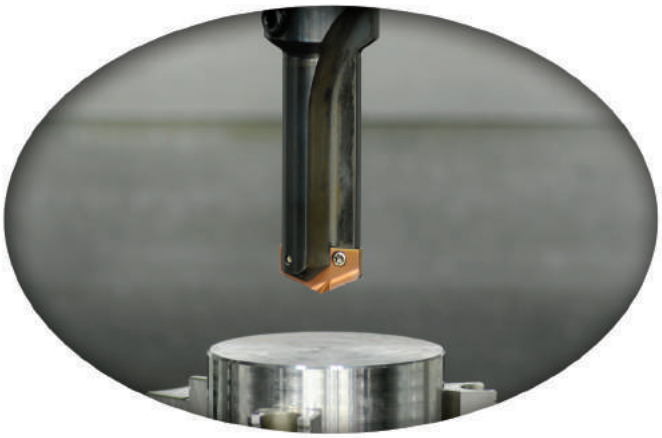


Curved Cutting Edge (not all series)
- Enhances chip formation

Notch Point® Geometry
- Improves stability and hole straightness
- Reduces thrust

Corner Clip
- Improves heat dispersion
- Increases tool life

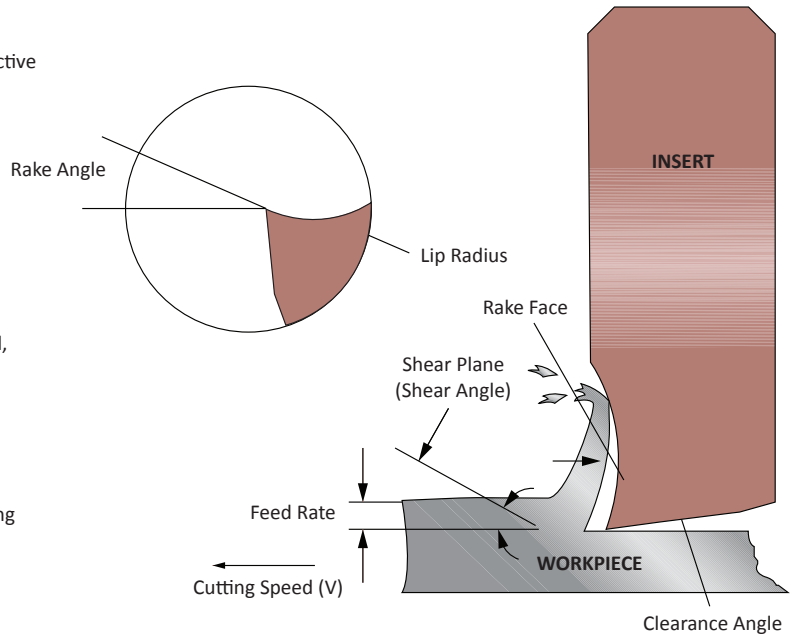
Helical Margin (not all series)
- Increases drill stability



Improving Chip Formation

Achieving optimal chip formation is crucial. The quality of the chips being produced directly affects everything in the entire process: the cycle time, the tool life, the scrap rate, and the quality and condition of the final machined hole.

We know how important chip formation is. That's why we constantly improve and develop new geometries to create a better, more productive T-A product.



Setting Up New Applications

- Check coolant flows adequately through the tool before beginning
- Drill a short hole 1xD deep initially
- The chips produced should be short in length and material colored, not straw or blue
- Measure the hole produced to check that it is within the desired tolerance
- If all is correct, continue to machine the remainder of the hole
- Ensure the drilling process is quiet and smooth with no chip packing

Wear vs Toughness

When selecting a grade of cutting tool material for your application, both wear resistance and grade toughness should be considered. The greater the wear resistance a cutting tool material exhibits, the more likely chipping or fracture is to occur. This requires more rigid machining conditions.

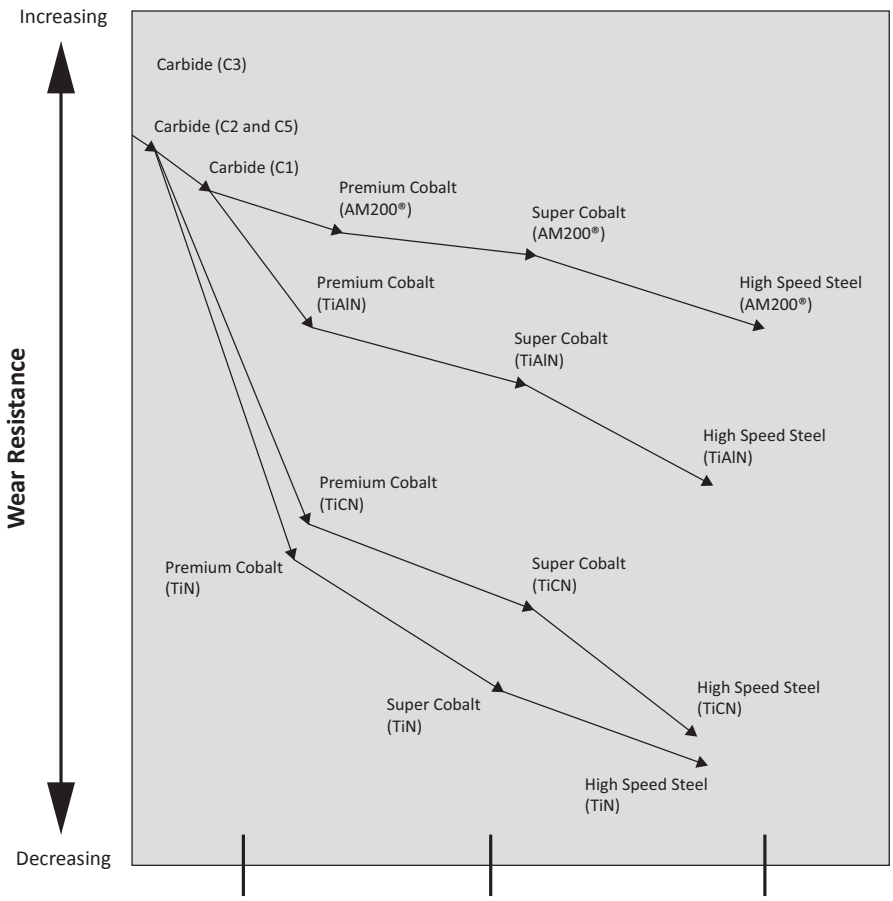
On the other hand, to effectively machine some materials, cobalt or carbide grades of cutting tool material may be required. The graph will aid you in the selection of a cutting tool material with the right combination of wear resistance and toughness to make your application both efficient and cost effective.

AM200®

TiN

TiAlN

TiCN



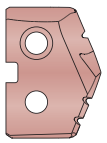
T-A System Guidelines for Use

- Select the shortest holder possible for the application
- Ensure the T-A holder is held securely and is within 0.003” (0.08mm) of center line
- The T-A insert should be installed in the slot of the holder using the TORX Plus screws provided. These should be tightened to the values listed on the T-A holder pages
- The holder slot should be clean from dirt or debris
- Check that the insert outer diameter is a minimum of 0.012” (0.30mm) larger than the holder body diameter
- Use the recommended cutting data section for guidance when selecting correct insert grades, along with speeds and feeds
- **NOTE:** These cutting parameters are starting conditions only and make no allowance for machine or component rigidity

Product Nomenclature

T-A Drill Inserts

4	5	3	H	–	0115
1	2	3	4		5



1. Insert	2. Material	3. Series	4. Coating	5. Diameter
1 = Original T-A	**3** = HSS	**Y** = Y series	**P** = AM300®	**0017** = Inch
4 = GEN2 T-A	**5** = Super cobalt	**Z** = Z series	**H** = AM200®	**.515** = Decimal
	8 = Premium cobalt	**0** = 0 series	**A** = TiAlN	**13** = Metric
	C1 = C1 (K35) carbide	**1** = 1 series	**N** = TiCN	
	C2 = C2 (K20) carbide	**2** = 2 series	**T** = TiN	
	C3 = C3 (K10) carbide	**3** = 3 series		
	C5 = C5 (P40) carbide	**4** = 4 series		
		5 = 5 series		
		6 = 6 series		
		7 = 7 series		
		8 = 8 series		

Ordering Instructions

▸ **Standard Items:**

All orders are processed through Allied Machine's computerized order entry and invoicing system. Please specify the correct catalog number as well as a full description of the desired item(s) so we can process your order accurately and efficiently. Incorrect item numbers and/or descriptions will cause unnecessary delays and possible returns that are subject to a 10% restocking charge. Your assistance is critical if we are to achieve our goal of processing orders and shipping in-stock items error free within 24 hours.

▸ **Non-Standard Sizes and Geometries:**

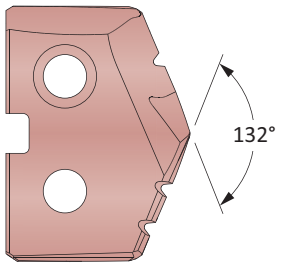
Non-standard diameter	Substitute the required diameter in place of the standard diameter.	
	Ex: Standard item number	**132T-0101**
	Non-standard diameter with standard geometry (inch)	**132T-1.0200** (Note: 4 decimal places)
	Non-standard diameter with standard geometry (metric)	**132T-34.20** (Note: 2 decimal places)

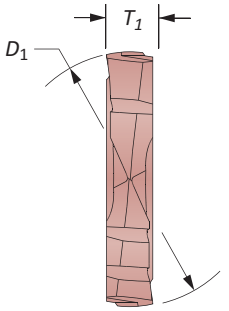
Special geometry	Add the special geometry code at the end of the standard item number (see pages A30: 4 - 6 for geometry options).	
	Ex: Standard item number	**132T-0101**
	Standard diameter with special geometry (inch)	**132T-0101-SK**

Non-standard diameter with special geometry	Replace the standard diameter and add the special geometry code.	
	Ex: Standard item number	**132T-0101**
	Non-standard diameter with special geometry (inch)	**132T-1.0200-SK** (Note: 4 decimal places)

Reference Key

Symbol	Attribute
D_1	Insert diameter
T_1	Insert thickness

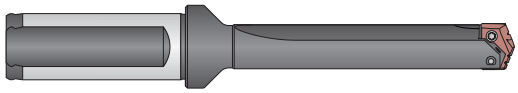




Product Nomenclature

T-A Drill Holders

2	30	20	S	–	004	I
1	2	3	4		5	6



1. Holder

2 = T-A holder

2. Length

10 = Stub
20 = Short
30 = Intermediate
40 = Standard
45 = Standard Plus
50 = Extended
60 = Long
65 = Long Plus
70 = XL
90 = 3XL

3. Series

Y0 = Y series
Z0 = Z series
00 = 0 series
05 = 0.5 series
10 = 1 series
15 = 1.5 series
20 = 2 series
25 = 2.5 series
30 = 3 series
40 = 4 series
50 = 5 series
70 = 7 series

4. Flute

S = Straight
H = Helical

5. Shank Designator

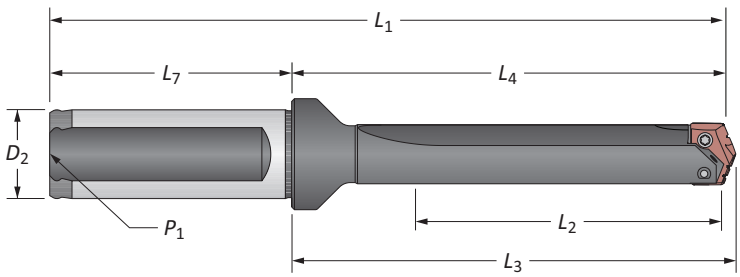
Morse Taper	Imperial	Metric
002 = 2MT	**063** = 5/8"	**16** = 16mm
003 = 3MT	**075** = 3/4"	**20** = 20mm
004 = 4MT	**100** = 1"	**25** = 25mm
005 = 5MT	**125** = 1-1/4"	**32** = 32mm
	150 = 1-1/2"	**40** = 40mm
	175 = 1-3/4"	**50** = 50mm
	200 = 2"	
	300 = 3"	

6. Shank Code

I = Imperial Morse taper
M = Metric Morse taper
L = Lathe shank
F = Flanged shank
FM = Flanged metric shank

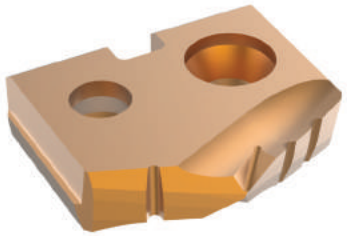
Reference Key

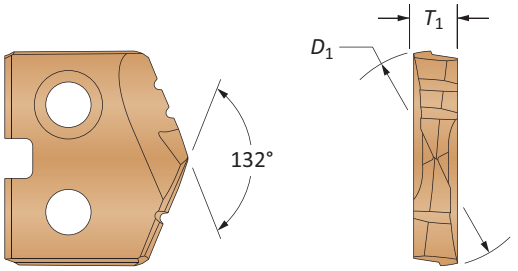
Symbol	Attribute
D_2	Shank diameter
L_1	Overall length
L_2	Drill depth
L_3	Holder reference length
L_4	Holder length
L_7	Shank length
P_1	Rear pipe tap
P_2	Side pipe tap
RCA	Corresponding RCA item number
MT	Morse taper size
ER	ER collet size



GEN2 T-A Drill Inserts

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

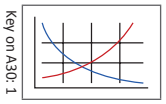




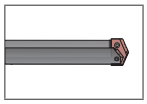
HSS Inserts – Super Cobalt • Carbide Inserts – C2 (K20) | C1 (K35)

Insert				HSS Part No.	Carbide Part No.	
Fractional Equivalent	D_1 inch	D_1 mm	T_1	AM200® Super Cobalt	AM300® C2 (K20)	AM300® C1 (K35)
–	0.3740	9.50	3/32	**45YH-9.5**	**4C2YP-9.5**	**4C1YP-9.5**
3/8	0.3750	9.53	3/32	**45YH-0012**	**4C2YP-0012**	**4C1YP-0012**
W	0.3860	9.80	3/32	**45YH-.386**	**4C2YP-.386**	**4C1YP-.386**
25/64	0.3906	9.92	3/32	**45YH-.390**	**4C2YP-.390**	**4C1YP-.390**
–	0.3937	10.00	3/32	**45YH-10**	**4C2YP-10**	**4C1YP-10**
–	0.4016	10.20	3/32	**45YH-10.2**	**4C2YP-10.2**	**4C1YP-10.2**
13/32	0.4063	10.32	3/32	**45YH-0013**	**4C2YP-0013**	**4C1YP-0013**
–	0.4134	10.50	3/32	**45YH-10.5**	**4C2YP-10.5**	**4C1YP-10.5**
27/64	0.4219	10.72	3/32	**45YH-.421**	**4C2YP-.421**	**4C1YP-.421**
–	0.4252	10.80	3/32	**45YH-10.8**	**4C2YP-10.8**	**4C1YP-10.8**
–	0.4331	11.00	3/32	**45YH-11**	**4C2YP-11**	**4C1YP-11**

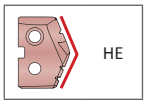
A30: 112 - 143



A30: 18 - 21



A30: 4 - 6



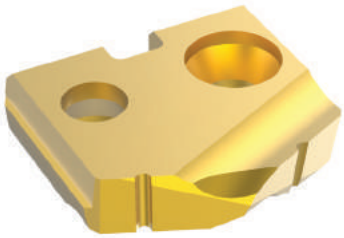
Inserts sold in quantities of 2

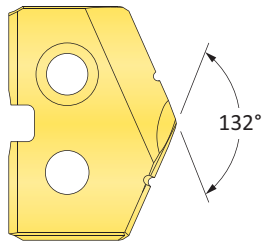
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

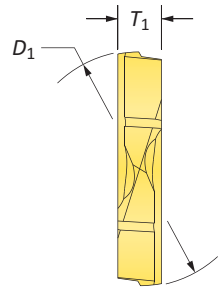
TiN = 45YT-XXXX	**TiAlN** = 45YA-XXXX
TiCN = 45YN-XXXX	**AM200®** = 45YH-XXXX

Original T-A Drill Inserts

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





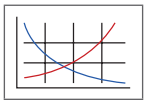


HSS Inserts – Premium Cobalt

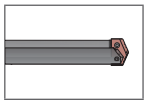
Insert				Part No.		
Fractional Equivalent	D_1 inch	D_1 mm	T_1	 TiN	 TiAlN	 TiCN
–	0.3740	9.50	3/32	**18YT-9.5**	**18YA-9.5**	**18YN-9.5**
3/8	0.3750	9.53	3/32	**18YT-0012**	**18YA-0012**	**18YN-0012**
W	0.3860	9.80	3/32	**18YT-.386**	**18YA-.386**	**18YN-.386**
25/64	0.3906	9.92	3/32	**18YT-.390**	**18YA-.390**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

A30: 112 - 143

Key on A30: 1



A30: 18 - 21



A30: 4 - 6

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

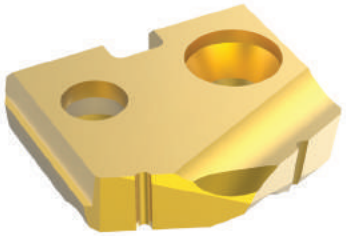
Inserts sold in quantities of 2

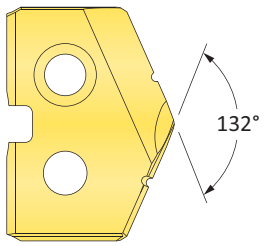
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

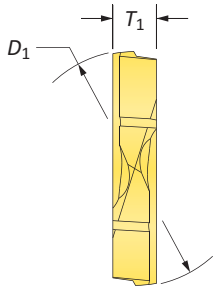
TiN = 18YT-XXXX	**TiAlN** = 18YA-XXXX
TiCN = 18YN-XXXX	**AM200®** = 18YH-XXXX

Original T-A Drill Inserts

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



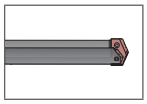




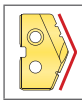
HSS Inserts – Super Cobalt

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

A30: 112 - 143
Key on A30: 1



A30: 18 - 21



A30: 4 - 6

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

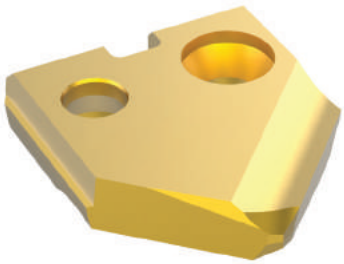
Inserts sold in quantities of 2

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

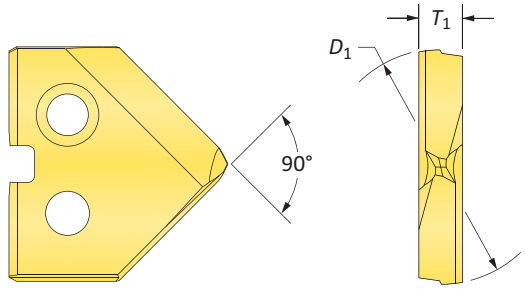
TiN = 15YT-XXXX	**TiAlN** = 15YA-XXXX
TiCN = 15YN-XXXX	**AM200®** = 15YH-XXXX

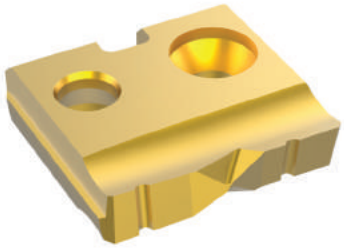
Original T-A Drill Inserts

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

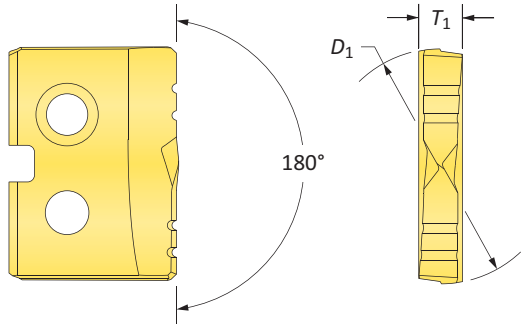


90° Spot & Chamfer





Flat Bottom

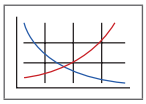


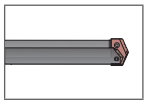
HSS Inserts – Super Cobalt

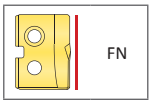
Insert				90° Spot & Chamfer Part No.			Flat Bottom Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiAlN	TiCN	TiN
–	0.3740	9.50	3/32	**15YT-9.5-SP**	**15YA-9.5-SP**	**15YN-9.5-SP**	**15YT-9.5-FB**
3/8	0.3750	9.53	3/32	**15YT-0012-SP**	**15YA-0012-SP**	**15YN-0012-SP**	**15YT-0012-FB**
W	0.3860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

A30: 112 - 143 | A30: 18 - 21 | A30: 4 - 6 | A30: 4 - 6

Key on A30: 1







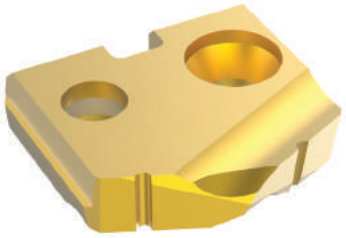
Inserts sold in quantities of 2

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

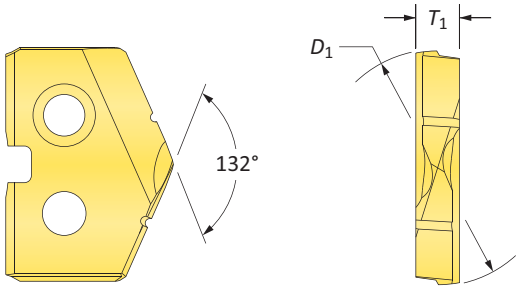
TiN = 15YT-XXXX	**TiAlN** = 15YA-XXXX
TiCN = 15YN-XXXX	**AM200®** = 15YH-XXXX

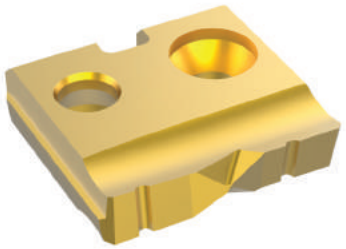
Original T-A Drill Inserts

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

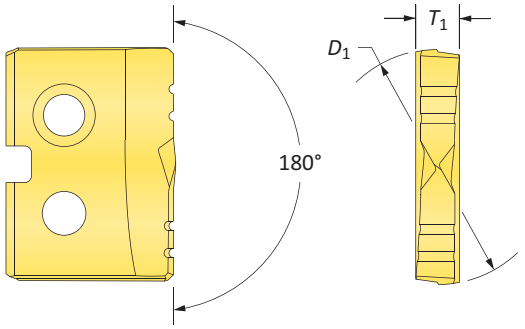


Standard





Flat Bottom

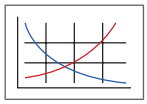


Carbide Inserts – C2 (K20)

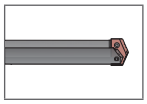
Insert				Part No.		Flat Bottom Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiAlN	TiN
–	0.3740	9.50	3/32	**1C2YT-9.5**	**1C2YA-9.5**	**1C2YT-9.5-FB**
3/8	0.3750	9.53	3/32	**1C2YT-0012**	**1C2YA-0012**	**1C2YT-0012-FB**
W	0.3860	9.80	3/32	**1C2YT-.386**	**1C2YA-.386**	**1C2YT-.386-FB**
25/64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

A30: 112 - 143

Key on A30: 1



A30: 18 - 21



A30: 4 - 6

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

A30: 4 - 6

FN

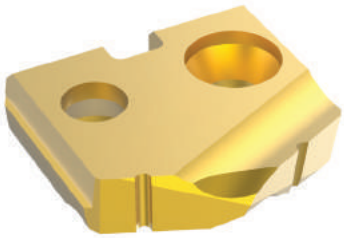
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

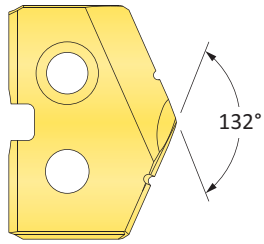
Inserts sold in quantities of 1

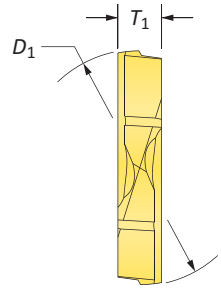
TiN = 1C2YT-XXXX	**TiAlN** = 1C2YA-XXXX
TiCN = 1C2YN-XXXX	**AM200®** = 1C2YH-XXXX

Original T-A Drill Inserts

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





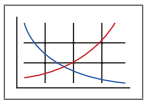


Carbide Inserts – C5 (P40) | C3 (K10) | N2

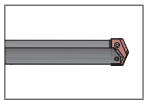
Insert				C5 Part No.		C3 Part No.	N2 Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiAlN	TiAlN (Cast Iron)	Diamond Film
–	0.3740	9.50	3/32	**1C5YT-9.5**	**1C5YA-9.5**	**1C3YA-9.5-CI**	**1N2YD-9.5**
3/8	0.3750	9.53	3/32	**1C5YT-0012**	**1C5YA-0012**	**1C3YA-0012-CI**	**1N2YD-0012**
W	0.3860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

A30: 112 - 143

Key on A30: 1



A30: 18 - 21



A30: 4 - 6

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

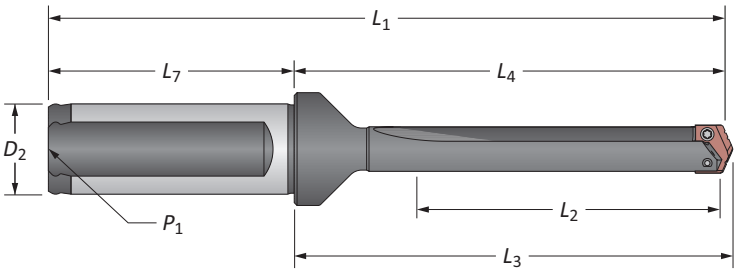
Inserts sold in quantities of 1

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

TiN = 1C5YT-XXXX	**TiAlN** = 1C5YA-XXXX
TiCN = 1C5YN-XXXX	**AM200®** = 1C5YH-XXXX

T-A Drill Insert Holders

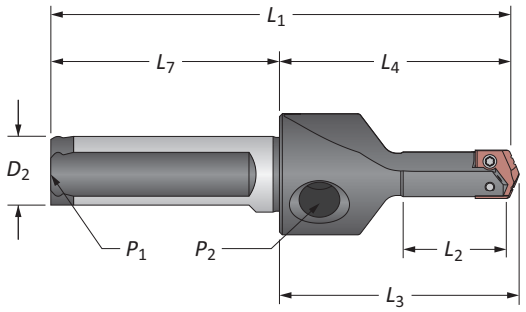
Y Series | Flange Shank | Diameter Range: 0.374” - 0.436” (9.5mm - 11.07mm)



Straight Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	Short	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8	**220Y0S-075F**
ⓘ	Standard	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	**240Y0S-075F**
ⓘ	Extended	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	⚠ **250Y0S-075F**
ⓜ	Short	31.8	61.1	63.5	111.1	20.0	50.0	1/8*	**220Y0S-20FM**
ⓜ	XL	222	251.7	254.1	301.7	20.0	50.0	1/8*	⚠ **270Y0S-20FM**
ⓜ	3XL	290	319.9	322.3	369.9	20.0	50.0	1/8*	⚠ **290Y0S-20FM**

*Metric thread to BSP and ISO 7-1
NOTE: Stub length holders have a 1/8” side pipe tap (P_2)

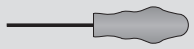


Straight Flute (Stub Length)

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	Stub	3/4	1-7/8	1-31/32	3-3/4	5/8	1-7/8	1/16	**210Y0S-063F**
ⓜ	Stub	19.1	47.6	50.0	95.6	16.0	48.0	1/16*	**210Y0S-16FM**

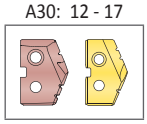
*Metric thread to BSP and ISO 7-1
NOTE: Stub length holders have a 1/8” side pipe tap (P_2)

Connection Accessories

 Insert Screws	 Nylon Locking Screws	 Insert Driver	 Preset Torque Hand Driver	 Replacement Tips	Admissible Tightening Torque*
724-IP7-1	724N-IP7-1	8IP-7	8IP-7TL	8IP-7B	7.4 in-lbs (84 N-cm)

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

A30: 12 - 17
Key on A30: 1

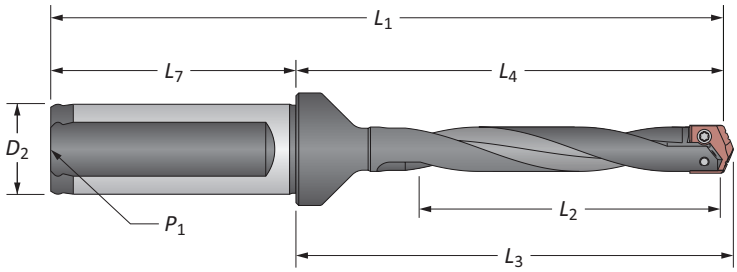


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

Y Series | Flange Shank | Diameter Range: 0.374” - 0.436” (9.5mm - 11.07mm)

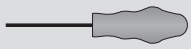


Helical Flute

		Body				Shank			
	Length	L_2	L_4	L_3	L_1	D_2	L_7	P_1	Part No.
ⓘ	Standard	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	240Y0H-075F
ⓘ	Standard Plus	3-3/8	4-35/64	4-41/64	6-43/64	3/4	2-1/32	1/8	⚠ 245Y0H-075F
ⓘ	Extended	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	⚠ 250Y0H-075F
ⓜ	Standard	60.3	89.7	92.1	139.7	20.0	50.0	1/8*	240Y0H-20FM
ⓜ	Standard Plus	86.0	115.4	117.8	165.4	20.0	50.0	1/8*	⚠ 245Y0H-20FM
ⓜ	Extended	111.1	140.5	142.9	190.5	20.0	50.0	1/8*	⚠ 250Y0H-20FM

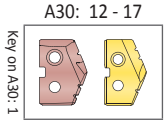
*Metric thread to BSP and ISO 7-1

Connection Accessories

 Insert Screws	 Nylon Locking Screws	 Insert Driver	 Preset Torque Hand Driver	 Replacement Tips	Admissible Tightening Torque*
724-IP7-1	724N-IP7-1	8IP-7	8IP-7TL	8IP-7B	7.4 in-lbs (84 N-cm)

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

A30: 12 - 17

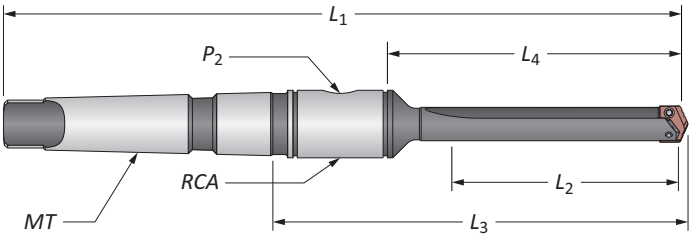


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

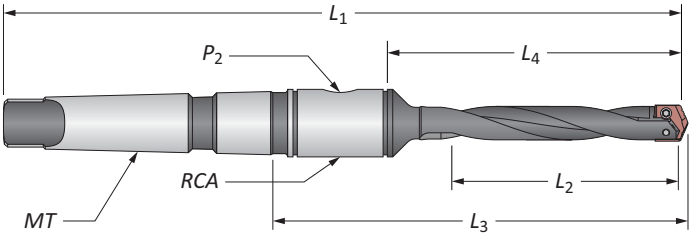
Y Series | Taper Shank | Diameter Range: 0.374" - 0.436" (9.5mm - 11.07mm)



Straight Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓘ	Short	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	2T-2SR	**220Y0S-002I**
ⓘ	Standard	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	2T-2SR	**240Y0S-002I**
ⓘ	Extended	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	2T-2SR	⚠ **250Y0S-002I**
ⓜ	Short	31.8	51.5	88.0	160.3	#2**	1/16*	2T-2SRM	**220Y0S-002M**

*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK

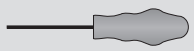
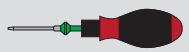


Helical Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓘ	Standard	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	2T-2SR	**240Y0H-002I**
ⓘ	Extended	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	2T-2SR	⚠ **250Y0H-002I**
ⓜ	Standard	60.3	80.2	116.7	188.9	#2**	1/16*	2T-2SRM	**240Y0H-002M**
ⓜ	Extended	111.1	130.9	167.4	239.7	#2**	1/16*	2T-2SRM	⚠ **250Y0H-002M**

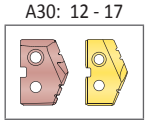
*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK

Connection Accessories

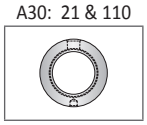
 Insert Screws	 Nylon Locking Screws	 Insert Driver	 Preset Torque Hand Driver	 Replacement Tips	Admissible Tightening Torque*
724-IP7-1	724N-IP7-1	8IP-7	8IP-7TL	8IP-7B	7.4 in-lbs (84 N-cm)

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

A30: 12 - 17



A30: 21 & 110

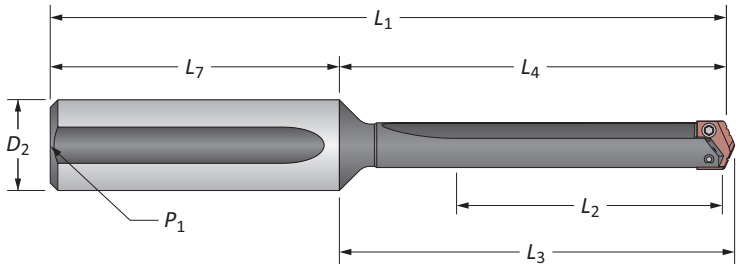


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

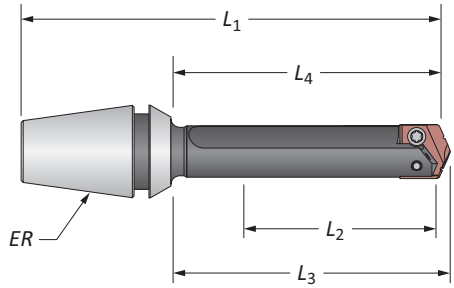
T-A Drill Insert Holders

Y Series | Straight Shank | ER Collet | Diameter Range: 0.374” - 0.436” (9.5mm - 11.07mm)



Straight Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	Short	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8	**220Y0S-075L**
ⓘ	Standard	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8	**240Y0S-075L**
ⓘ	Extended	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8	⚠ **250Y0S-075L**
ⓘ	XL	8-3/4	9-17/32	9-5/8	11-29/32	3/4	2-3/8	1/8	⚠ **270Y0S-075L**
ⓘ	3XL	11-7/16	12-7/32	12-5/16	14-19/32	3/4	2-3/8	1/8	⚠ **290Y0S-075L**



ER Collet Holder

	Body L_2	Body L_4	Body L_3	Body L_1	Body *ER*	Part No.	Collet Nut without Retaining Ring
ⓘ	1-3/8	1-29/32	2	3-5/64	ER-16	**210Y0S-16ER**	ER-16N
ⓘ	1-3/8	1-29/32	2	3-15/64	ER-20	**210Y0S-20ER**	ER-20N

T-A Drill Accessories

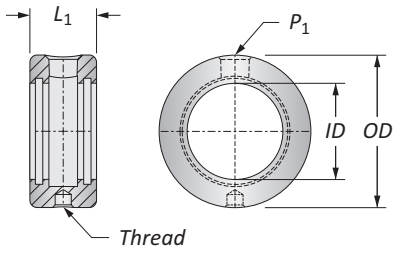
Y Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter (RCA) and Accessories

	ID	*OD*	L_1	Driving Rod Thread	P_1	Part No.	RCA O-Rings Kit Part No.**	RCA O-Rings Replacements
ⓘ	3/4	1-3/4	7/8	5/16-18	1/8	⚠ **2T-2SR**	2T1-2SR	2T1-2OR-10
ⓜ	19.05	44.45	22.23	M8 x 1.25	1/8*	⚠ **2T-2SRM**	2T1-2SR	2T1-2OR-10

*Thread to BSP and ISO 7-1 | **RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

⚠ Refer to page A30: 110 for proper RCA assembly and safety information



Connection Accessories

Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
724-IP7-1	724N-IP7-1	8IP-7	8IP-7TL	8IP-7B	7.4 in-lbs (84 N-cm)

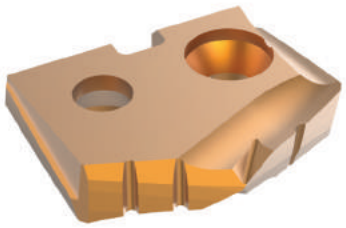
*Tightening torques are calculated with a friction coefficient of μ = 0.14 and develop 90% of ultimate yield strength

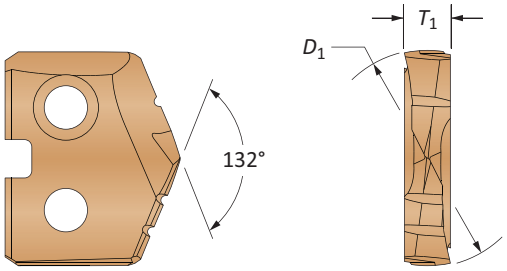
⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

GEN2 T-A Drill Inserts

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

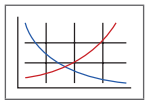




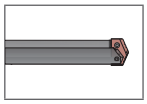
HSS Inserts – Super Cobalt • Carbide Inserts – C2 (K20) | C1 (K35)

Insert				HSS Part No.	Carbide Part No.	
Fractional Equivalent	D_1 inch	D_1 mm	T_1	AM200® Super Cobalt	AM300® C2 (K20)	AM300® C1 (K35)
7/16	0.4375	11.11	3/32	**45ZH-0014**	**4C2ZP-0014**	**4C1ZP-0014**
–	0.4510	11.46	3/32	**45ZH-.451**	**4C2ZP-.451**	**4C1ZP-.451**
–	0.4528	11.50	3/32	**45ZH-11.5**	**4C2ZP-11.5**	**4C1ZP-11.5**
29/64	0.4531	11.51	3/32	**45ZH-.453**	**4C2ZP-.453**	**4C1ZP-.453**
15/32	0.4688	11.91	3/32	**45ZH-0015**	**4C2ZP-0015**	**4C1ZP-0015**
–	0.4724	12.00	3/32	**45ZH-12**	**4C2ZP-12**	**4C1ZP-12**
31/64	0.4844	12.30	3/32	**45ZH-.484**	**4C2ZP-.484**	**4C1ZP-.484**
–	0.4921	12.50	3/32	**45ZH-12.5**	**4C2ZP-12.5**	**4C1ZP-12.5**
1/2	0.5000	12.70	3/32	**45ZH-0016**	**4C2ZP-0016**	**4C1ZP-0016**
–	0.5060	12.85	3/32	**45ZH-.506**	**4C2ZP-.506**	**4C1ZP-.506**
–	0.5100	12.95	3/32	**45ZH-.510**	**4C2ZP-.510**	**4C1ZP-.510**

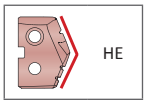
A30: 112 - 143



A30: 28 - 31



A30: 4 - 6



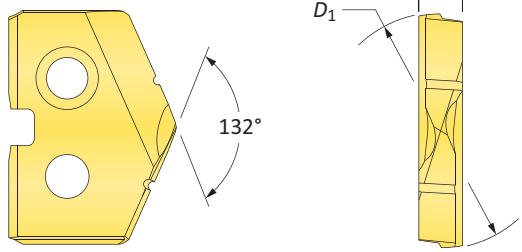
Inserts sold in quantities of 2

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

TiN = 45ZT-XXXX	**TiAlN** = 45ZA-XXXX
TiCN = 45ZN-XXXX	**AM200®** = 45ZH-XXXX

Original T-A Drill Inserts

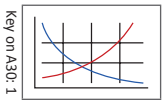
Z Series | HSS | Diameter Range: 0.437” - 0.510” (11.10mm - 12.95mm)



HSS Inserts – Premium Cobalt

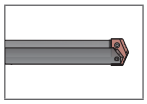
Insert				Part No.		
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiAlN	TiCN
7/16	0.4375	11.11	3/32	**18ZT-0014**	**18ZA-0014**	**18ZN-0014**
–	0.4510	11.46	3/32	**18ZT-.451**	**18ZA-.451**	**18ZN-.451**
–	0.4528	11.50	3/32	**18ZT-11.5**	**18ZA-11.5**	**18ZN-11.5**
29/64	0.4531	11.51	3/32	**18ZT-.453**	**18ZA-.453**	**18ZN-.453**
15/32	0.4688	11.91	3/32	**18ZT-0015**	**18ZA-0015**	**18ZN-0015**
–	0.4724	12.00	3/32	**18ZT-12**	**18ZA-12**	**18ZN-12**
31/64	0.4844	12.30	3/32	**18ZT-.484**	**18ZA-.484**	**18ZN-.484**
–	0.4921	12.50	3/32	**18ZT-12.5**	**18ZA-12.5**	**18ZN-12.5**
1/2	0.5000	12.70	3/32	**18ZT-0016**	**18ZA-0016**	**18ZN-0016**
–	0.5060	12.85	3/32	**18ZT-.506**	**18ZA-.506**	**18ZN-.506**
–	0.5100	12.95	3/32	**18ZT-.510**	**18ZA-.510**	**18ZN-.510**

A30: 112 - 143

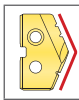


Key on A30: 1

A30: 28 - 31



A30: 4 - 6



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

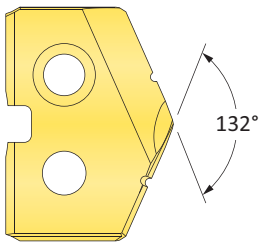
Inserts sold in quantities of 2

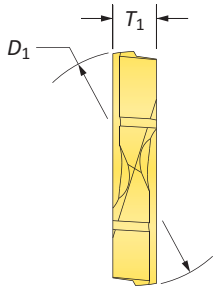
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 18ZT-XXXX	**TiAlN** = 18ZA-XXXX
TiCN = 18ZN-XXXX	**AM200®** = 18ZH-XXXX

Original T-A Drill Inserts

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

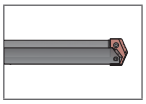




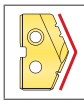
HSS Inserts – Super Cobalt

Insert				Part No.		
Fractional Equivalent	D_1 inch	D_1 mm	T_1	 TiN	 TiAlN	 TiCN
7/16	0.4375	11.11	3/32	**15ZT-0014**	**15ZA-0014**	**15ZN-0014**
–	0.4510	11.46	3/32	**15ZT-.451**	**15ZA-.451**	**15ZN-.451**
–	0.4528	11.50	3/32	**15ZT-11.5**	**15ZA-11.5**	**15ZN-11.5**
29/64	0.4531	11.51	3/32	**15ZT-.453**	**15ZA-.453**	**15ZN-.453**
15/32	0.4688	11.91	3/32	**15ZT-0015**	**15ZA-0015**	**15ZN-0015**
–	0.4724	12.00	3/32	**15ZT-12**	**15ZA-12**	**15ZN-12**
31/64	0.4844	12.30	3/32	**15ZT-.484**	**15ZA-.484**	**15ZN-.484**
–	0.4921	12.50	3/32	**15ZT-12.5**	**15ZA-12.5**	**15ZN-12.5**
1/2	0.5000	12.70	3/32	**15ZT-0016**	**15ZA-0016**	**15ZN-0016**
–	0.5060	12.85	3/32	**15ZT-.506**	**15ZA-.506**	**15ZN-.506**
–	0.5100	12.95	3/32	**15ZT-.510**	**15ZA-.510**	**15ZN-.510**

A30: 112 - 143
Key on A30: 1



A30: 28 - 31



A30: 4 - 6

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

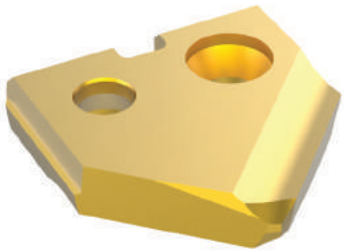
Inserts sold in quantities of 2

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

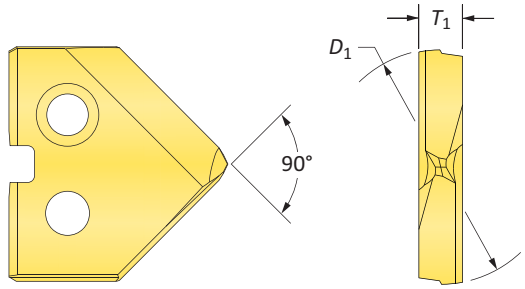
TiN = 15ZT-XXXX	**TiAlN** = 15ZA-XXXX
TiCN = 15ZN-XXXX	**AM200®** = 15ZH-XXXX

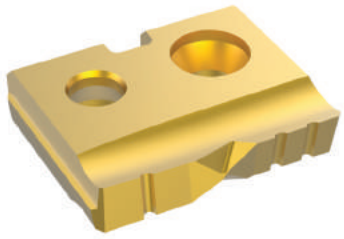
Original T-A Drill Inserts

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

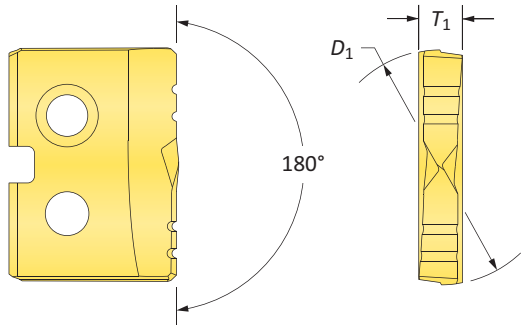


90° Spot & Chamfer





Flat Bottom

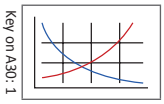


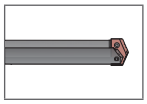
HSS Inserts – Super Cobalt

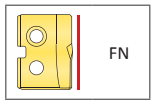
Insert				90° Spot & Chamfer Part No.			Flat Bottom Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiAlN	TiCN	TiN
7/16	0.4375	11.11	3/32	**15ZT-0014-SP**	**15ZA-0014-SP**	**15ZN-0014-SP**	**15ZT-0014-FB**
–	0.4510	11.46	3/32	**15ZT-.451-SP**	**15ZA-.451-SP**	**15ZN-.451-SP**	**15ZT-.451-FB**
–	0.4528	11.50	3/32	**15ZT-11.5-SP**	**15ZA-11.5-SP**	**15ZN-11.5-SP**	**15ZT-11.5-FB**
29/64	0.4531	11.51	3/32	**15ZT-.453-SP**	**15ZA-.453-SP**	**15ZN-.453-SP**	**15ZT-.453-FB**
15/32	0.4688	11.91	3/32	**15ZT-0015-SP**	**15ZA-0015-SP**	**15ZN-0015-SP**	**15ZT-0015-FB**
–	0.4724	12.00	3/32	**15ZT-12-SP**	**15ZA-12-SP**	**15ZN-12-SP**	**15ZT-12-FB**
31/64	0.4844	12.30	3/32	**15ZT-.484-SP**	**15ZA-.484-SP**	**15ZN-.484-SP**	**15ZT-.484-FB**
–	0.4921	12.50	3/32	**15ZT-12.5-SP**	**15ZA-12.5-SP**	**15ZN-12.5-SP**	**15ZT-12.5-FB**
1/2	0.5000	12.70	3/32	**15ZT-0016-SP**	**15ZA-0016-SP**	**15ZN-0016-SP**	**15ZT-0016-FB**
–	0.5060	12.85	3/32	**15ZT-.506-SP**	**15ZA-.506-SP**	**15ZN-.506-SP**	**15ZT-.506-FB**
–	0.5100	12.95	3/32	**15ZT-.510-SP**	**15ZA-.510-SP**	**15ZN-.510-SP**	**15ZT-.510-FB**

A30: 112 - 143 | A30: 28 - 31 | A30: 4 - 6 | A30: 4 - 6

Key on A30: 1







Inserts sold in quantities of 2

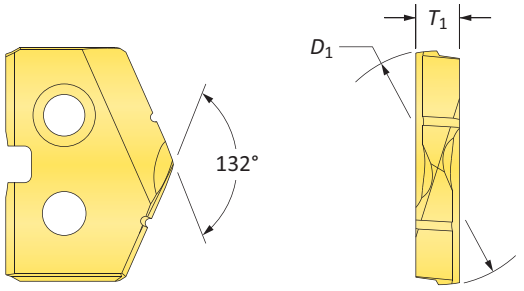
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

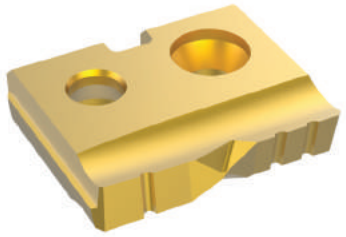
TiN = 15ZT-XXXX	**TiAlN** = 15ZA-XXXX
TiCN = 15ZN-XXXX	**AM200®** = 15ZH-XXXX

Original T-A Drill Inserts

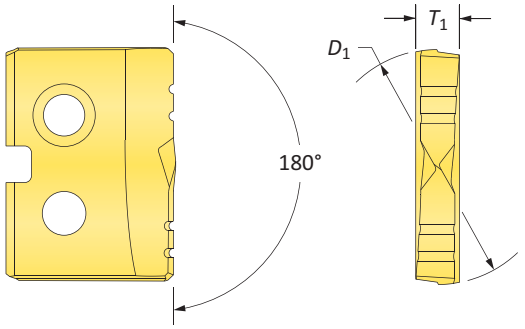
Z Series | Carbide | Diameter Range: 0.437” - 0.510” (11.10mm - 12.95mm)

Standard





Flat Bottom

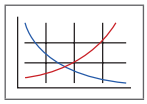


Carbide Inserts – C2 (K20)

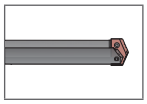
Insert				Part No.		Flat Bottom Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiAlN	TiN
7/16	0.4375	11.11	3/32	**1C2ZT-0014**	**1C2ZA-0014**	**1C2ZT-0014-FB**
–	0.4510	11.46	3/32	**1C2ZT-.451**	**1C2ZA-.451**	**1C2ZT-.451-FB**
–	0.4528	11.50	3/32	**1C2ZT-11.5**	**1C2ZA-11.5**	**1C2ZT-11.5-FB**
29/64	0.4531	11.51	3/32	**1C2ZT-.453**	**1C2ZA-.453**	**1C2ZT-.453-FB**
15/32	0.4688	11.91	3/32	**1C2ZT-0015**	**1C2ZA-0015**	**1C2ZT-0015-FB**
–	0.4724	12.00	3/32	**1C2ZT-12**	**1C2ZA-12**	**1C2ZT-12-FB**
31/64	0.4844	12.30	3/32	**1C2ZT-.484**	**1C2ZA-.484**	**1C2ZT-.484-FB**
–	0.4921	12.50	3/32	**1C2ZT-12.5**	**1C2ZA-12.5**	**1C2ZT-12.5-FB**
1/2	0.5000	12.70	3/32	**1C2ZT-0016**	**1C2ZA-0016**	**1C2ZT-0016-FB**
–	0.5060	12.85	3/32	**1C2ZT-.506**	**1C2ZA-.506**	**1C2ZT-.506-FB**
–	0.5100	12.95	3/32	**1C2ZT-.510**	**1C2ZA-.510**	**1C2ZT-.510-FB**

A30: 112 - 143

Key on A30: 1



A30: 28 - 31



A30: 4 - 6

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

A30: 4 - 6

FN

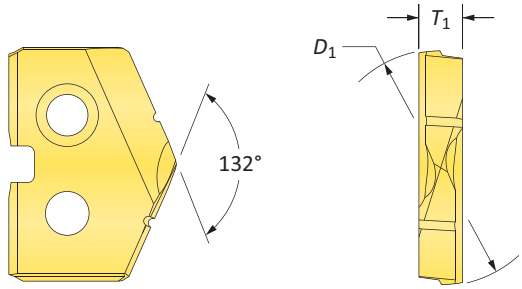
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

Inserts sold in quantities of 1

TiN = 1C2ZT-XXXX	**TiAlN** = 1C2ZA-XXXX
TiCN = 1C2ZN-XXXX	**AM200®** = 1C2ZH-XXXX

Original T-A Drill Inserts

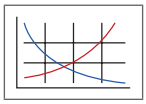
Z Series | Carbide | Diameter Range: 0.437” - 0.510” (11.10mm - 12.95mm)



Carbide Inserts – C5 (P40) | C3 (K10) | N2

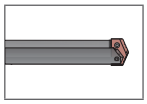
Insert				C5 Part No.		C3 Part No.	N2 Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiAlN	TiAlN (Cast Iron)	Diamond Film
7/16	0.4375	11.11	3/32	**1C5ZT-0014**	**1C5ZA-0014**	**1C3ZA-0014-CI**	**1N2ZD-0014**
–	0.4510	11.46	3/32	**1C5ZT-.451**	**1C5ZA-.451**	**1C3ZA-.451-CI**	**1N2ZD-.451**
–	0.4528	11.50	3/32	**1C5ZT-11.5**	**1C5ZA-11.5**	**1C3ZA-11.5-CI**	**1N2ZD-11.5**
29/64	0.4531	11.51	3/32	**1C5ZT-.453**	**1C5ZA-.453**	**1C3ZA-.453-CI**	**1N2ZD-.453**
15/32	0.4688	11.91	3/32	**1C5ZT-0015**	**1C5ZA-0015**	**1C3ZA-0015-CI**	**1N2ZD-0015**
–	0.4724	12.00	3/32	**1C5ZT-12**	**1C5ZA-12**	**1C3ZA-12-CI**	**1N2ZD-12**
31/64	0.4844	12.30	3/32	**1C5ZT-.484**	**1C5ZA-.484**	**1C3ZA-.484-CI**	**1N2ZD-.484**
–	0.4921	12.50	3/32	**1C5ZT-12.5**	**1C5ZA-12.5**	**1C3ZA-12.5-CI**	**1N2ZD-12.5**
1/2	0.5000	12.70	3/32	**1C5ZT-0016**	**1C5ZA-0016**	**1C3ZA-0016-CI**	**1N2ZD-0016**
–	0.5060	12.85	3/32	**1C5ZT-.506**	**1C5ZA-.506**	**1C3ZA-.506-CI**	**1N2ZD-.506**
–	0.5100	12.95	3/32	**1C5ZT-.510**	**1C5ZA-.510**	**1C3ZA-.510-CI**	**1N2ZD-.510**

A30: 112 - 143



Key on A30: 1

A30: 28 - 31



A30: 4 - 6

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

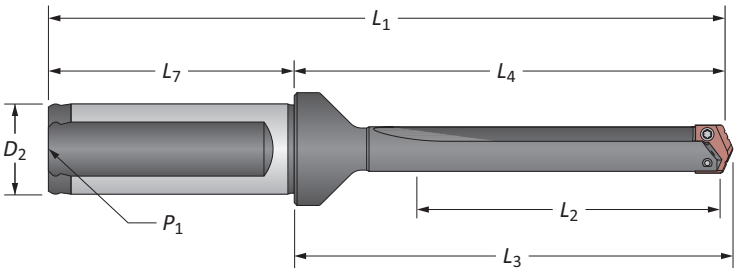
Inserts sold in quantities of 1

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

TiN = 1C5ZT-XXXX	**TiAlN** = 1C5ZA-XXXX
TiCN = 1C5ZN-XXXX	**AM200®** = 1C5ZH-XXXX

T-A Drill Insert Holders

Z Series | Flange Shank | Diameter Range: 0.437” - 0.510” (11.10mm - 12.95mm)

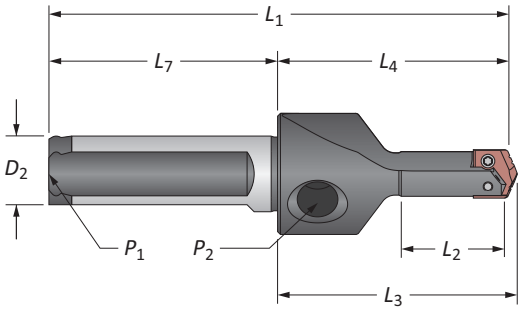


Straight Flute

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

*Metric thread to BSP and ISO 7-1

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



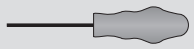
Straight Flute (Stub Length)

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	Stub	3/4	1-7/8	1-31/32	3-3/4	5/8	1-7/8	1/16	**210Z0S-063F**
ⓜ	Stub	19.1	47.6	50.0	95.6	16.0	48.0	1/16*	**210Z0S-16FM**

*Metric thread to BSP and ISO 7-1

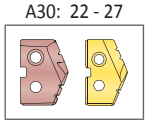
NOTE: Stub length holders have a 1/8” side pipe tap (P_2)

Connection Accessories

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

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

A30: 22 - 27

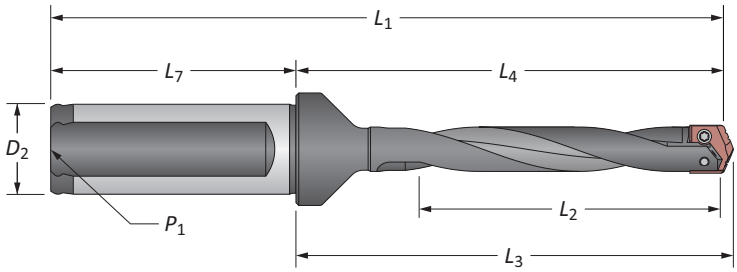


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

Z Series | Flange Shank | Diameter Range: 0.437” - 0.510” (11.10mm - 12.95mm)

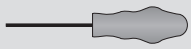
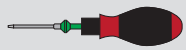


Helical Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	Standard	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	**240Z0H-075F**
ⓘ	Standard Plus	3-3/8	4-35/64	4-41/64	6-43/64	3/4	2-1/32	1/8	**245Z0H-075F**
ⓘ	Extended	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	⚠ **250Z0H-075F**
ⓘ	Long	7-1/16	8-1/4	8-11/32	10-3/8	3/4	2-1/32	1/8	⚠ **260Z0H-075F**
ⓜ	Standard	60.3	89.7	92.1	139.7	20.0	50.0	1/8*	**240Z0H-20FM**
ⓜ	Standard Plus	86.0	115.4	117.8	165.4	20.0	50.0	1/8*	**245Z0H-20FM**
ⓜ	Extended	111.1	140.5	142.9	190.5	20.0	50.0	1/8*	⚠ **250Z0H-20FM**
ⓜ	Long	180.0	209.4	211.8	259.4	20.0	50.0	1/8*	⚠ **260Z0H-20FM**

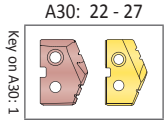
*Metric thread to BSP and ISO 7-1

Connection Accessories

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

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

A30: 22 - 27

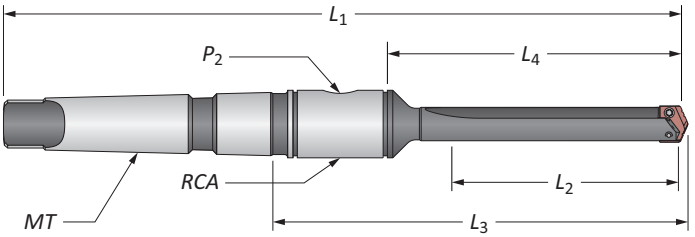


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

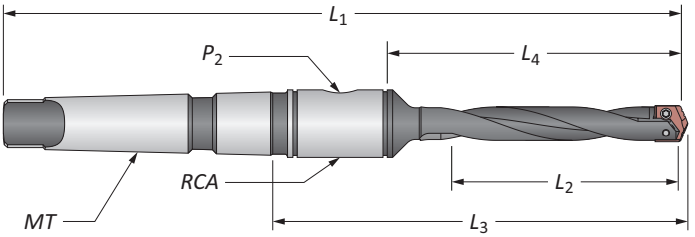
Z Series | Taper Shank | Diameter Range: 0.437” - 0.510” (11.10mm - 12.95mm)



Straight Flute

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

*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK

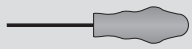
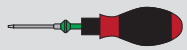


Helical Flute

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

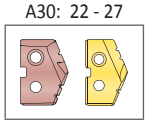
*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK

Connection Accessories

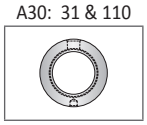
 Insert Screws	 Nylon Locking Screws	 Insert Driver	 Preset Torque Hand Driver	 Replacement Tips	Admissible Tightening Torque*
7247-IP7-1	7247N-IP7-1	8IP-7	8IP-7TL	8IP-7B	7.4 in-lbs (84 N-cm)

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

A30: 22 - 27



A30: 31 & 110

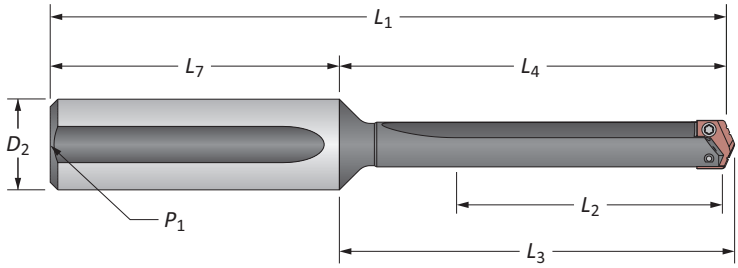


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

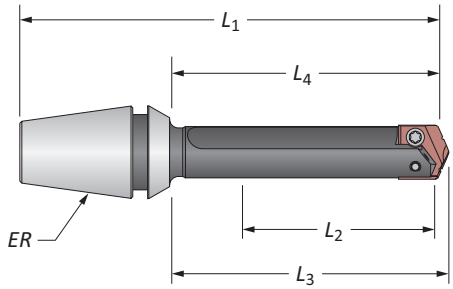
T-A Drill Insert Holders

Z Series | Straight Shank | ER Collet | Diameter Range: 0.437” - 0.510” (11.10mm - 12.95mm)



Straight Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
	Short	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8	**220Z0S-075L**
	Standard	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8	**240Z0S-075L**
ⓘ	Extended	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8	⚠ **250Z0S-075L**
	XL	8-3/4	9-17/32	9-5/8	11-29/32	3/4	2-3/8	1/8	⚠ **270Z0S-075L**
	3XL	11-7/16	12-7/32	12-5/16	14-19/32	3/4	2-3/8	1/8	⚠ **290Z0S-075L**



ER Collet Holder

	Body L_2	Body L_4	Body L_3	Body L_1	Body *ER*	Part No.	Collet Nut without Retaining Ring
ⓘ	1-3/8	1-29/32	2	3-5/64	ER-16	**210Z0S-16ER**	ER-16N
	1-3/8	1-29/32	2	3-15/64	ER-20	**210Z0S-20ER**	ER-20N

T-A Drill Accessories

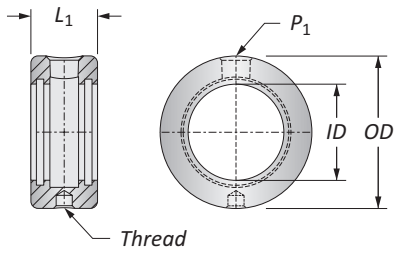
Z Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter (RCA) and Accessories

	ID	*OD*	L_1	Driving Rod Thread	P_1	Part No.	RCA O-Rings Kit Part No.**	RCA O-Rings Replacements
ⓘ	3/4	1-3/4	7/8	5/16-18	1/8	⚠ **2T-2SR**	2T1-2SR	2T1-2OR-10
ⓜ	19.05	44.45	22.23	M8 x 1.25	1/8*	⚠ **2T-2SRM**	2T1-2SR	2T1-2OR-10

*Thread to BSP and ISO 7-1 | **RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

⚠ Refer to page A30: 110 for proper RCA assembly and safety information



Connection Accessories

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

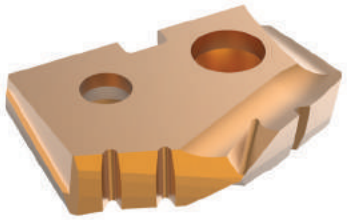
*Tightening torques are calculated with a friction coefficient of μ = 0.14 and develop 90% of ultimate yield strength

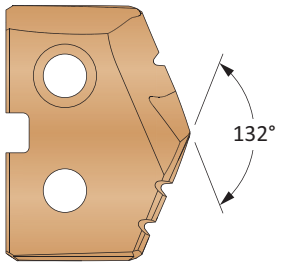
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

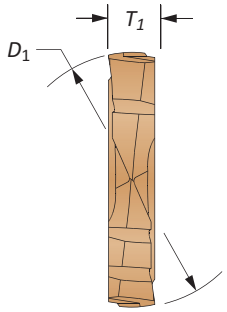
ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in packs of 10
O-rings sold in packs of 10

GEN2 T-A Drill Inserts

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





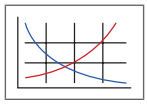


HSS Inserts – Super Cobalt • Carbide Inserts – C2 (K20) | C1 (K35)

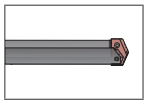
Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	HSS Part No.  AM200® Super Cobalt	Carbide Part No.  AM300® C2 (K20)	Carbide Part No.  AM300® C1 (K35)
0	–	0.5118	13.00	1/8	450H-13	4C20P-13	4C10P-13
	33/64	0.5156	13.10	1/8	450H-.515	4C20P-.515	4C10P-.515
	17/32	0.5313	13.49	1/8	450H-0017	4C20P-0017	4C10P-0017
	–	0.5315	13.50	1/8	450H-13.5	4C20P-13.5	4C10P-13.5
	35/64	0.5469	13.89	1/8	450H-.546	4C20P-.546	4C10P-.546
	–	0.5512	14.00	1/8	450H-14	4C20P-14	4C10P-14
	9/16	0.5625	14.29	1/8	450H-0018	4C20P-0018	4C10P-0018
	–	0.5709	14.50	1/8	450H-14.5	4C20P-14.5	4C10P-14.5
	37/64	0.5781	14.68	1/8	450H-.578	4C20P-.578	4C10P-.578
	–	0.5906	15.00	1/8	450H-15	4C20P-15	4C10P-15
	19/32	0.5938	15.08	1/8	450H-0019	4C20P-0019	4C10P-0019
0.5	39/64	0.6094	15.48	1/8	450H-.609	4C20P-.609	4C10P-.609
	–	0.6102	15.50	1/8	450H-15.5	4C20P-15.5	4C10P-15.5
	5/8	0.6250	15.88	1/8	450H-0020	4C20P-0020	4C10P-0020
	–	0.6299	16.00	1/8	450H-16	4C20P-16	4C10P-16
	41/64	0.6406	16.27	1/8	450H-.640	4C20P-.640	4C10P-.640
	–	0.6496	16.50	1/8	450H-16.5	4C20P-16.5	4C10P-16.5
	21/32	0.6563	16.67	1/8	450H-0021	4C20P-0021	4C10P-0021
	–	0.6693	17.00	1/8	450H-17	4C20P-17	4C10P-17
	43/64	0.6719	17.07	1/8	450H-.671	4C20P-.671	4C10P-.671
	11/16	0.6875	17.46	1/8	450H-0022	4C20P-0022	4C10P-0022
	–	0.6890	17.50	1/8	450H-17.5	4C20P-17.5	4C10P-17.5

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

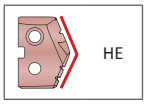
A30: 112 - 143
Key on A30: 1



A30: 38 - 42



A30: 4 - 6



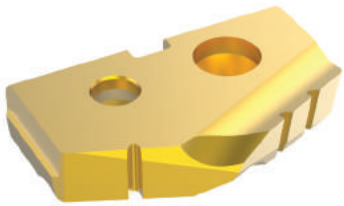
Inserts sold in quantities of 2

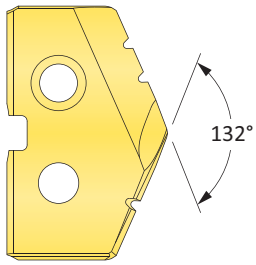
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

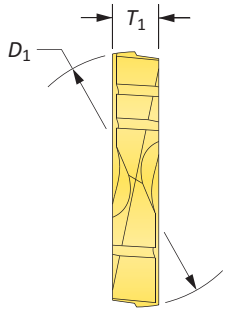
TiN = 450T-XXXX	**TiAlN** = 450A-XXXX
TiCN = 450N-XXXX	**AM200®** = 450H-XXXX

Original T-A Drill Inserts

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





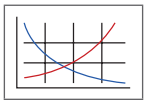


HSS Inserts – Premium Cobalt

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: TiN	Part No.: TiAlN	Part No.: TiCN
0	–	0.5118	13.00	1/8	**180T-13**	**180A-13**	**180N-13**
	33/64	0.5156	13.10	1/8	**180T-.515**	**180A-.515**	**180N-.515**
	17/32	0.5313	13.49	1/8	**180T-0017**	**180A-0017**	**180N-0017**
	–	0.5315	13.50	1/8	**180T-13.5**	**180A-13.5**	**180N-13.5**
	35/64	0.5469	13.89	1/8	**180T-.546**	**180A-.546**	**180N-.546**
	–	0.5512	14.00	1/8	**180T-14**	**180A-14**	**180N-14**
	9/16	0.5625	14.29	1/8	**180T-0018**	**180A-0018**	**180N-0018**
	–	0.5709	14.50	1/8	**180T-14.5**	**180A-14.5**	**180N-14.5**
	37/64	0.5781	14.68	1/8	**180T-.578**	**180A-.578**	**180N-.578**
	–	0.5906	15.00	1/8	**180T-15**	**180A-15**	**180N-15**
	19/32	0.5938	15.08	1/8	**180T-0019**	**180A-0019**	**180N-0019**
0.5	39/64	0.6094	15.48	1/8	**180T-.609**	**180A-.609**	**180N-.609**
	–	0.6102	15.50	1/8	**180T-15.5**	**180A-15.5**	**180N-15.5**
	5/8	0.6250	15.88	1/8	**180T-0020**	**180A-0020**	**180N-0020**
	–	0.6299	16.00	1/8	**180T-16**	**180A-16**	**180N-16**
	41/64	0.6406	16.27	1/8	**180T-.640**	**180A-.640**	**180N-.640**
	–	0.6496	16.50	1/8	**180T-16.5**	**180A-16.5**	**180N-16.5**
	21/32	0.6563	16.67	1/8	**180T-0021**	**180A-0021**	**180N-0021**
	–	0.6693	17.00	1/8	**180T-17**	**180A-17**	**180N-17**
	43/64	0.6719	17.07	1/8	**180T-.671**	**180A-.671**	**180N-.671**
	11/16	0.6875	17.46	1/8	**180T-0022**	**180A-0022**	**180N-0022**
	–	0.6890	17.50	1/8	**180T-17.5**	**180A-17.5**	**180N-17.5**

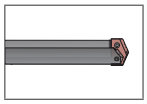
NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

A30: 112 - 143



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

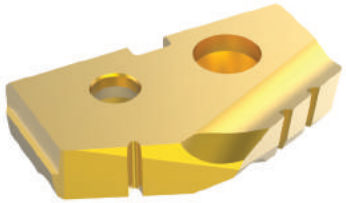
Inserts sold in quantities of 2

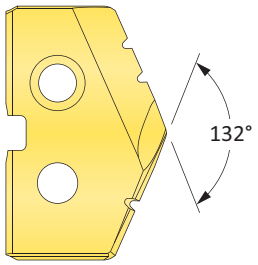
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

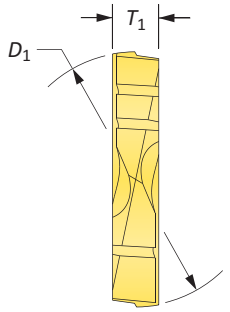
TiN = 180T-XXXX	**TiAlN** = 180A-XXXX
TiCN = 180N-XXXX	**AM200®** = 180H-XXXX

Original T-A Drill Inserts

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





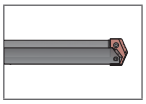


HSS Inserts – Super Cobalt

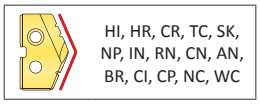
Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: TiN	Part No.: TiAlN	Part No.: TiCN
0	–	0.5118	13.00	1/8	**150T-13**	**150A-13**	**150N-13**
	33/64	0.5156	13.10	1/8	**150T-.515**	**150A-.515**	**150N-.515**
	17/32	0.5313	13.49	1/8	**150T-0017**	**150A-0017**	**150N-0017**
	–	0.5315	13.50	1/8	**150T-13.5**	**150A-13.5**	**150N-13.5**
	35/64	0.5469	13.89	1/8	**150T-.546**	**150A-.546**	**150N-.546**
	–	0.5512	14.00	1/8	**150T-14**	**150A-14**	**150N-14**
	9/16	0.5625	14.29	1/8	**150T-0018**	**150A-0018**	**150N-0018**
	–	0.5709	14.50	1/8	**150T-14.5**	**150A-14.5**	**150N-14.5**
	37/64	0.5781	14.68	1/8	**150T-.578**	**150A-.578**	**150N-.578**
	–	0.5906	15.00	1/8	**150T-15**	**150A-15**	**150N-15**
	19/32	0.5938	15.08	1/8	**150T-0019**	**150A-0019**	**150N-0019**
0.5	39/64	0.6094	15.48	1/8	**150T-.609**	**150A-.609**	**150N-.609**
	–	0.6102	15.50	1/8	**150T-15.5**	**150A-15.5**	**150N-15.5**
	5/8	0.6250	15.88	1/8	**150T-0020**	**150A-0020**	**150N-0020**
	–	0.6299	16.00	1/8	**150T-16**	**150A-16**	**150N-16**
	41/64	0.6406	16.27	1/8	**150T-.640**	**150A-.640**	**150N-.640**
	–	0.6496	16.50	1/8	**150T-16.5**	**150A-16.5**	**150N-16.5**
	21/32	0.6563	16.67	1/8	**150T-0021**	**150A-0021**	**150N-0021**
	–	0.6693	17.00	1/8	**150T-17**	**150A-17**	**150N-17**
	43/64	0.6719	17.07	1/8	**150T-.671**	**150A-.671**	**150N-.671**
	11/16	0.6875	17.46	1/8	**150T-0022**	**150A-0022**	**150N-0022**
	–	0.6890	17.50	1/8	**150T-17.5**	**150A-17.5**	**150N-17.5**

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

A30: 112 - 143
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

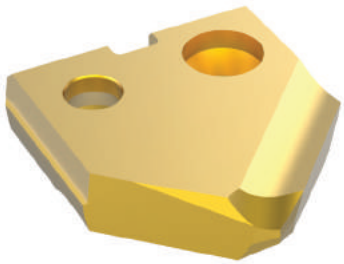
Inserts sold in quantities of 2

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

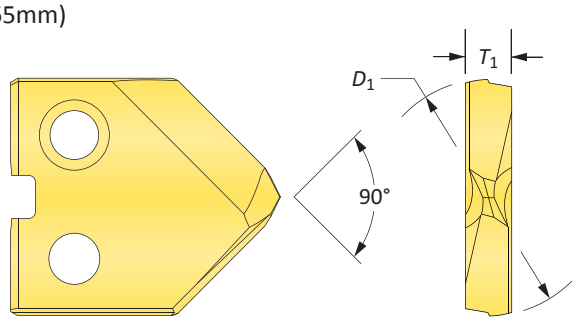
TiN = 150T-XXXX	**TiAlN** = 150A-XXXX
TiCN = 150N-XXXX	**AM200®** = 150H-XXXX

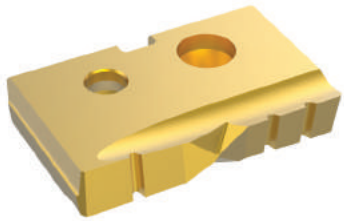
Original T-A Drill Inserts

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

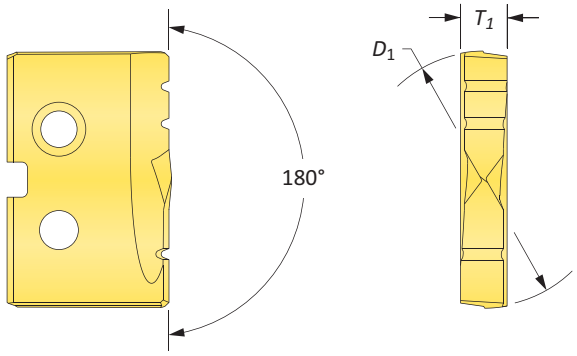


90° Spot & Chamfer





Flat Bottom



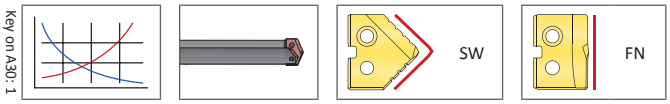
HSS Inserts – Super Cobalt

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	90° Spot & Chamfer Part No.: TiN	90° Spot & Chamfer Part No.: TiAlN	90° Spot & Chamfer Part No.: TiCN	Flat Bottom Part No.: TiN
0	–	0.5118	13.00	1/8	**150T-13-SP**	**150A-13-SP**	**150N-13-SP**	**150T-13-FB**
	33/64	0.5156	13.10	1/8	**150T-.515-SP**	**150A-.515-SP**	**150N-.515-SP**	**150T-.515-FB**
	17/32	0.5313	13.49	1/8	**150T-0017-SP**	**150A-0017-SP**	**150N-0017-SP**	**150T-0017-FB**
	–	0.5315	13.50	1/8	**150T-13.5-SP**	**150A-13.5-SP**	**150N-13.5-SP**	**150T-13.5-FB**
	35/64	0.5469	13.89	1/8	**150T-.546-SP**	**150A-.546-SP**	**150N-.546-SP**	**150T-.546-FB**
	–	0.5512	14.00	1/8	**150T-14-SP**	**150A-14-SP**	**150N-14-SP**	**150T-14-FB**
	9/16	0.5625	14.29	1/8	**150T-0018-SP**	**150A-0018-SP**	**150N-0018-SP**	**150T-0018-FB**
	–	0.5709	14.50	1/8	**150T-14.5-SP**	**150A-14.5-SP**	**150N-14.5-SP**	**150T-14.5-FB**
	37/64	0.5781	14.68	1/8	**150T-.578-SP**	**150A-.578-SP**	**150N-.578-SP**	**150T-.578-FB**
	–	0.5906	15.00	1/8	**150T-15-SP**	**150A-15-SP**	**150N-15-SP**	**150T-15-FB**
	19/32	0.5938	15.08	1/8	**150T-0019-SP**	**150A-0019-SP**	**150N-0019-SP**	**150T-0019-FB**
0.5	39/64	0.6094	15.48	1/8	**150T-.609-SP**	**150A-.609-SP**	**150N-.609-SP**	**150T-.609-FB**
	–	0.6102	15.50	1/8	**150T-15.5-SP**	**150A-15.5-SP**	**150N-15.5-SP**	**150T-15.5-FB**
	5/8	0.6250	15.88	1/8	**150T-0020-SP**	**150A-0020-SP**	**150N-0020-SP**	**150T-0020-FB**
	–	0.6299	16.00	1/8	**150T-16-SP**	**150A-16-SP**	**150N-16-SP**	**150T-16-FB**
	41/64	0.6406	16.27	1/8	**150T-.640-SP**	**150A-.640-SP**	**150N-.640-SP**	**150T-.640-FB**
	–	0.6496	16.50	1/8	**150T-16.5-SP**	**150A-16.5-SP**	**150N-16.5-SP**	**150T-16.5-FB**
	21/32	0.6563	16.67	1/8	**150T-0021-SP**	**150A-0021-SP**	**150N-0021-SP**	**150T-0021-FB**
	–	0.6693	17.00	1/8	**150T-17-SP**	**150A-17-SP**	**150N-17-SP**	**150T-17-FB**
	43/64	0.6719	17.07	1/8	**150T-.671-SP**	**150A-.671-SP**	**150N-.671-SP**	**150T-.671-FB**
	11/16	0.6875	17.46	1/8	**150T-0022-SP**	**150A-0022-SP**	**150N-0022-SP**	**150T-0022-FB**
	–	0.6890	17.50	1/8	**150T-17.5-SP**	**150A-17.5-SP**	**150N-17.5-SP**	**150T-17.5-FB**

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

A30: 112 - 143 | A30: 38 - 42 | A30: 4 - 6 | A30: 4 - 6

Key on A30: 1



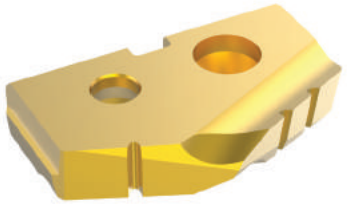
Inserts sold in quantities of 2

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

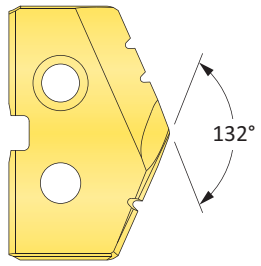
TiN = 150T-XXXX	**TiAlN** = 150A-XXXX
TiCN = 150N-XXXX	**AM200®** = 150H-XXXX

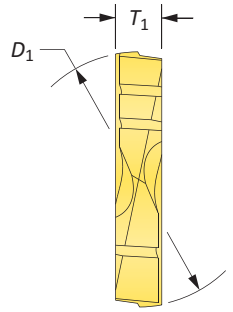
Original T-A Drill Inserts

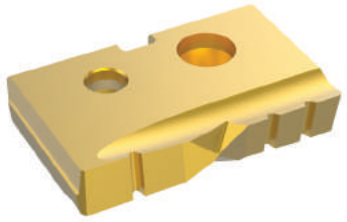
0 Series | Carbide | Diameter Range: 0.511” - 0.695” (12.98mm - 17.65mm)



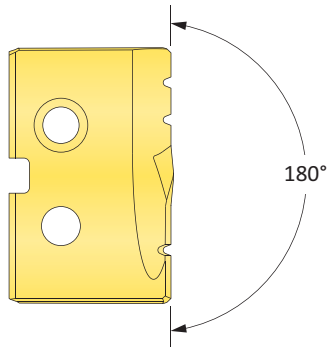
Standard

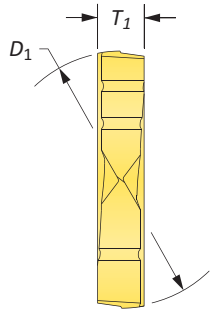






Flat Bottom



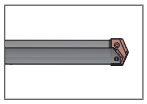


Carbide Inserts – C2 (K20)

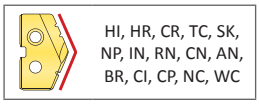
Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: TiN	Part No.: TiAlN	Flat Bottom Part No.: TiN
0	–	0.5118	13.00	1/8	**1C20T-13**	**1C20A-13**	**1C20T-13-FB**
	33/64	0.5156	13.10	1/8	**1C20T-.515**	**1C20A-.515**	**1C20T-.515-FB**
	17/32	0.5313	13.49	1/8	**1C20T-0017**	**1C20A-0017**	**1C20T-0017-FB**
	–	0.5315	13.50	1/8	**1C20T-13.5**	**1C20A-13.5**	**1C20T-13.5-FB**
	35/64	0.5469	13.89	1/8	**1C20T-.546**	**1C20A-.546**	**1C20T-.546-FB**
	–	0.5512	14.00	1/8	**1C20T-14**	**1C20A-14**	**1C20T-14-FB**
	9/16	0.5625	14.29	1/8	**1C20T-0018**	**1C20A-0018**	**1C20T-0018-FB**
	–	0.5709	14.50	1/8	**1C20T-14.5**	**1C20A-14.5**	**1C20T-14.5-FB**
	37/64	0.5781	14.68	1/8	**1C20T-.578**	**1C20A-.578**	**1C20T-.578-FB**
	–	0.5906	15.00	1/8	**1C20T-15**	**1C20A-15**	**1C20T-15-FB**
	19/32	0.5938	15.08	1/8	**1C20T-0019**	**1C20A-0019**	**1C20T-0019-FB**
0.5	39/64	0.6094	15.48	1/8	**1C20T-.609**	**1C20A-.609**	**1C20T-.609-FB**
	–	0.6102	15.50	1/8	**1C20T-15.5**	**1C20A-15.5**	**1C20T-15.5-FB**
	5/8	0.6250	15.88	1/8	**1C20T-0020**	**1C20A-0020**	**1C20T-0020-FB**
	–	0.6299	16.00	1/8	**1C20T-16**	**1C20A-16**	**1C20T-16-FB**
	41/64	0.6406	16.27	1/8	**1C20T-.640**	**1C20A-.640**	**1C20T-.640-FB**
	–	0.6496	16.50	1/8	**1C20T-16.5**	**1C20A-16.5**	**1C20T-16.5-FB**
	21/32	0.6563	16.67	1/8	**1C20T-0021**	**1C20A-0021**	**1C20T-0021-FB**
	–	0.6693	17.00	1/8	**1C20T-17**	**1C20A-17**	**1C20T-17-FB**
	43/64	0.6719	17.07	1/8	**1C20T-.671**	**1C20A-.671**	**1C20T-.671-FB**
	11/16	0.6875	17.46	1/8	**1C20T-0022**	**1C20A-0022**	**1C20T-0022-FB**
	–	0.6890	17.50	1/8	**1C20T-17.5**	**1C20A-17.5**	**1C20T-17.5-FB**

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

A30: 112 - 143
Key on A30: 1



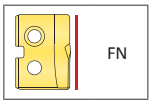
A30: 38 - 42



A30: 4 - 6

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

A30: 4 - 6



FN

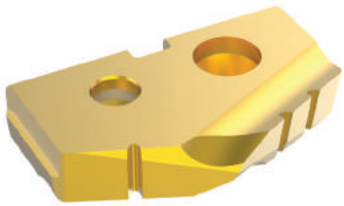
Inserts sold in quantities of 1

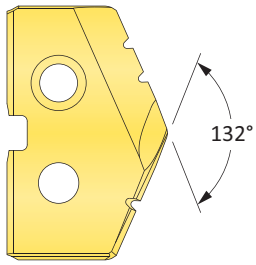
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

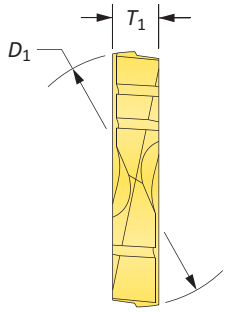
TiN = 1C20T-XXXX	**TiAlN** = 1C20A-XXXX
TiCN = 1C20N-XXXX	**AM200®** = 1C20H-XXXX

Original T-A Drill Inserts

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





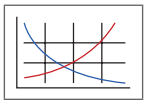


Carbide Inserts – C5 (P40) | C3 (K10) | N2

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	C5 Part No. TiN	C5 Part No. TiAlN	C3 Part No. TiAlN (Cast Iron)	N2 Part No. Diamond Film
0	–	0.5118	13.00	1/8	**1C50T-13**	**1C50A-13**	**1C30A-13-CI**	**1N20D-13**
	33/64	0.5156	13.10	1/8	**1C50T-.515**	**1C50A-.515**	**1C30A-.515-CI**	**1N20D-.515**
	17/32	0.5313	13.49	1/8	**1C50T-0017**	**1C50A-0017**	**1C30A-0017-CI**	**1N20D-0017**
	–	0.5315	13.50	1/8	**1C50T-13.5**	**1C50A-13.5**	**1C30A-13.5-CI**	**1N20D-13.5**
	35/64	0.5469	13.89	1/8	**1C50T-.546**	**1C50A-.546**	**1C30A-.546-CI**	**1N20D-.546**
	–	0.5512	14.00	1/8	**1C50T-14**	**1C50A-14**	**1C30A-14-CI**	**1N20D-14**
	9/16	0.5625	14.29	1/8	**1C50T-0018**	**1C50A-0018**	**1C30A-0018-CI**	**1N20D-0018**
	–	0.5709	14.50	1/8	**1C50T-14.5**	**1C50A-14.5**	**1C30A-14.5-CI**	**1N20D-14.5**
	37/64	0.5781	14.68	1/8	**1C50T-.578**	**1C50A-.578**	**1C30A-.578-CI**	**1N20D-.578**
	–	0.5906	15.00	1/8	**1C50T-15**	**1C50A-15**	**1C30A-15-CI**	**1N20D-15**
	19/32	0.5938	15.08	1/8	**1C50T-0019**	**1C50A-0019**	**1C30A-0019-CI**	**1N20D-0019**
0.5	39/64	0.6094	15.48	1/8	**1C50T-.609**	**1C50A-.609**	**1C30A-.609-CI**	**1N20D-.609**
	–	0.6102	15.50	1/8	**1C50T-15.5**	**1C50A-15.5**	**1C30A-15.5-CI**	**1N20D-15.5**
	5/8	0.6250	15.88	1/8	**1C50T-0020**	**1C50A-0020**	**1C30A-0020-CI**	**1N20D-0020**
	–	0.6299	16.00	1/8	**1C50T-16**	**1C50A-16**	**1C30A-16-CI**	**1N20D-16**
	41/64	0.6406	16.27	1/8	**1C50T-.640**	**1C50A-.640**	**1C30A-.640-CI**	**1N20D-.640**
	–	0.6496	16.50	1/8	**1C50T-16.5**	**1C50A-16.5**	**1C30A-16.5-CI**	**1N20D-16.5**
	21/32	0.6563	16.67	1/8	**1C50T-0021**	**1C50A-0021**	**1C30A-0021-CI**	**1N20D-0021**
	–	0.6693	17.00	1/8	**1C50T-17**	**1C50A-17**	**1C30A-17-CI**	**1N20D-17**
	43/64	0.6719	17.07	1/8	**1C50T-.671**	**1C50A-.671**	**1C30A-.671-CI**	**1N20D-.671**
	11/16	0.6875	17.46	1/8	**1C50T-0022**	**1C50A-0022**	**1C30A-0022-CI**	**1N20D-0022**
	–	0.6890	17.50	1/8	**1C50T-17.5**	**1C50A-17.5**	**1C30A-17.5-CI**	**1N20D-17.5**

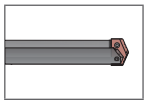
NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

A30: 112 - 143



Key on A30: 1

A30: 38 - 42



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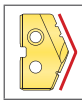


HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC

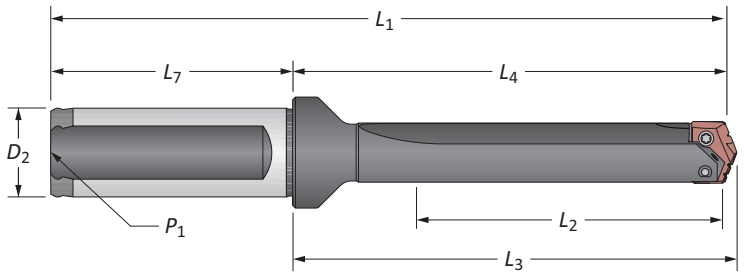
Inserts sold in quantities of 1

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

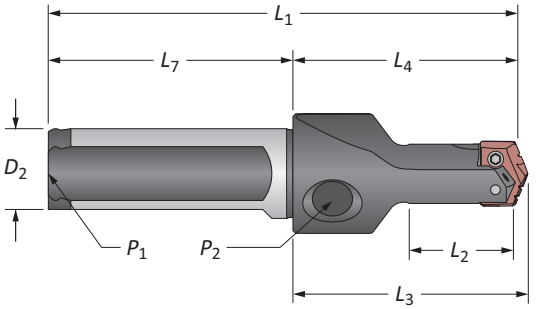
TiN = 1C50T-XXXX	**TiAlN** = 1C50A-XXXX
TiCN = 1C50N-XXXX	**AM200®** = 1C50H-XXXX

T-A Drill Insert Holders

0 Series | Flange Shank | Diameter Range: 0.511” - 0.695” (12.98mm - 17.65mm)



Stub Length



Straight Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	0	Stub	7/8	1-7/8	1-63/64	3-29/32	3/4	2-1/32	1/8	**21000S-075F**
		Short	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8	**22000S-075F**
		Standard	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	**24000S-075F**
		Extended	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	⚠ **25000S-075F**
	0.5	Stub	7/8	1-7/8	1-63/64	3-29/32	3/4	2-1/32	1/8	**21005S-075F**
		Short	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8	**22005S-075F**
		Standard	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	**24005S-075F**
		Extended	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	⚠ **25005S-075F**
ⓜ	0	Stub	22.2	47.6	50.4	97.6	20.0	50.0	1/8*	**21000S-20FM**
		Short	34.9	63.5	66.3	113.5	20.0	50.0	1/8*	**22000S-20FM**
		XL	295.0	323.9	326.7	373.9	20.0	50.0	1/8*	⚠ **27000S-20FM**
		3XL	387.0	416.0	418.8	466.0	20.0	50.0	1/8*	⚠ **29000S-20FM**
	0.5	Stub	22.2	47.6	50.4	97.6	20.0	50.0	1/8*	**21005S-20FM**
		Short	34.9	63.5	66.3	113.5	20.0	50.0	1/8*	**22005S-20FM**

*Metric thread to BSP and ISO 7-1

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

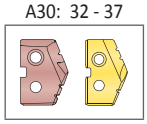
NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

Connection Accessories

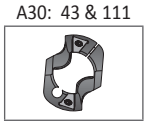
Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
0	72556-IP8-1	72556N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)

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

A30: 32 - 37



A30: 43 & 111

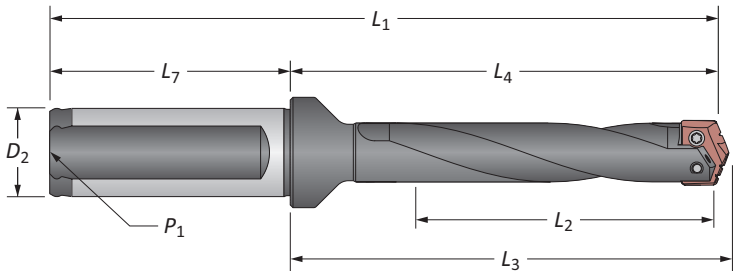


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

0 Series | Flange Shank | Diameter Range: 0.511” - 0.695” (12.98mm - 17.65mm)



Helical Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	0	Standard	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	24000H-075F
ⓘ	0	Standard Plus	3-1/2	4-5/8	4-37/64	6-39/64	3/4	2-1/32	1/8	24500H-075F
ⓘ	0	Extended	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	⚠ 25000H-075F
ⓘ	0	Long	7	8-1/8	8-15/64	10-5/32	3/4	2-1/32	1/8	⚠ 26000H-075F
ⓘ	0	Long Plus	9-7/16	10-37/64	10-11/16	12-23/32	3/4	2-1/32	1/8	⚠ 26500H-075F
ⓘ	0.5	Standard	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	24005H-075F
ⓘ	0.5	Extended	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	⚠ 25005H-075F
ⓘ	0.5	Long	7	8-1/8	8-15/64	10-5/32	3/4	2-1/32	1/8	⚠ 26005H-075F
ⓜ	0	Standard	63.5	92.1	94.9	142.1	20.0	50.0	1/8*	24000H-20FM
ⓜ	0	Standard Plus	89.0	117.6	120.4	167.6	20.0	50.0	1/8*	24500H-20FM
ⓜ	0	Extended	114.3	142.9	145.7	192.9	20.0	50.0	1/8*	⚠ 25000H-20FM
ⓜ	0	Long	177.8	206.4	209.1	256.4	20.0	50.0	1/8*	⚠ 26000H-20FM
ⓜ	0	Long Plus	240.0	268.6	271.4	318.6	20.0	50.0	1/8*	⚠ 26500H-20FM
ⓜ	0.5	Standard	63.5	92.1	94.9	142.1	20.0	50.0	1/8*	24005H-20FM
ⓜ	0.5	Extended	114.3	142.9	145.7	192.9	20.0	50.0	1/8*	⚠ 25005H-20FM
ⓜ	0.5	Long	177.8	206.4	209.1	256.4	20.0	50.0	1/8*	⚠ 26005H-20FM

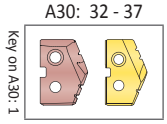
*Metric thread to BSP and ISO 7-1**NTE:** 0.5 hold)
NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

Connection Accessories

Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
0	72556-IP8-1	72556N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)

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

A30: 32 - 37

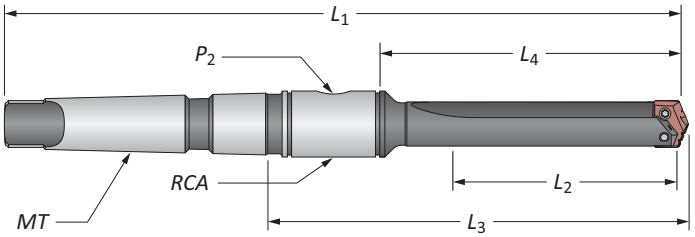


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

0 Series | Taper Shank | Diameter Range: 0.511” - 0.695” (12.98mm - 17.65mm)



Straight Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓘ	0	Short	1-3/8	2-3/16	3-41/64	6-15/32	#2	1/16	2T-2SR	**22000S-002I**
		Standard	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	2T-2SR	**24000S-002I**
		Extended	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	2T-2SR	⚠ **25000S-002I**
	0.5	Short	1-3/8	2-3/16	3-41/64	6-15/32	#2	1/16	2T-2SR	**22005S-002I**
		Standard	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	2T-2SR	**24005S-002I**
		Extended	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	2T-2SR	⚠ **25005S-002I**
ⓜ	0	Short	35.0	55.5	92.4	164.3	#2**	1/16*	2T-2SRM	**22000S-002M**
	0.5	Short	35.0	55.5	92.4	164.3	#2**	1/16*	2T-2SRM	**22005S-002M**

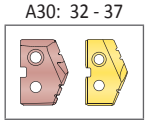
*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK
NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

Connection Accessories

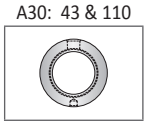
Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
0	72556-IP8-1	72556N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)

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

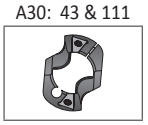
A30: 32 - 37 (Key on A30: 1)



A30: 43 & 110



A30: 43 & 111



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

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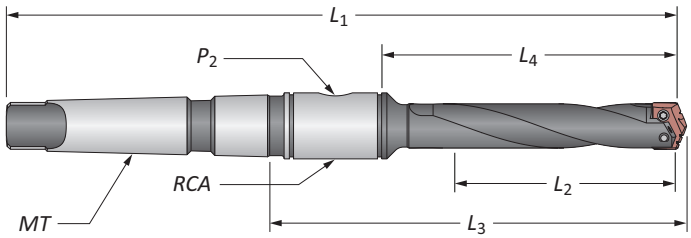
T-A Drill Insert Holders

0 Series | Taper Shank | Diameter Range: 0.511” - 0.695” (12.98mm - 17.65mm)



Helical Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
i	0	Standard	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	2T-2SR	24000H-002I
		Extended	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	2T-2SR	⚠ 25000H-002I
		Long	7	7-13/16	8-17/64	12-3/32	#2	1/16	2T-2SR	⚠ 26000H-002I
	0.5	Standard	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	2T-2SR	24005H-002I
		Extended	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	2T-2SR	⚠ 25005H-002I
		Long	7	7-13/16	8-17/64	12-3/32	#2	1/16	2T-2SR	⚠ 26005H-002I
m	0	Standard	63.5	84.1	121.0	192.9	#2**	1/16*	2T-2SRM	24000H-002M
		Extended	114.3	135.0	171.8	243.7	#2**	1/16*	2T-2SRM	⚠ 25000H-002M
		Long	177.8	198.5	235.3	307.2	#2**	1/16*	2T-2SRM	⚠ 26000H-002M
	0.5	Standard	63.5	84.1	121.0	192.9	#2**	1/16*	2T-2SRM	24005H-002M
		Extended	114.3	135.0	171.8	243.7	#2**	1/16*	2T-2SRM	⚠ 25005H-002M
		Long	177.8	198.5	235.3	307.2	#2**	1/16*	2T-2SRM	⚠ 26005H-002M

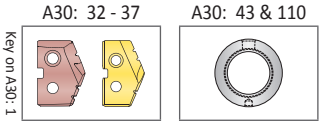
*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK
NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.

Connection Accessories

Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
0	72556-IP8-1	72556N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)

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

A30: 32 - 37 A30: 43 & 110



Key on A30: 1

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Screws sold in quantities of 10

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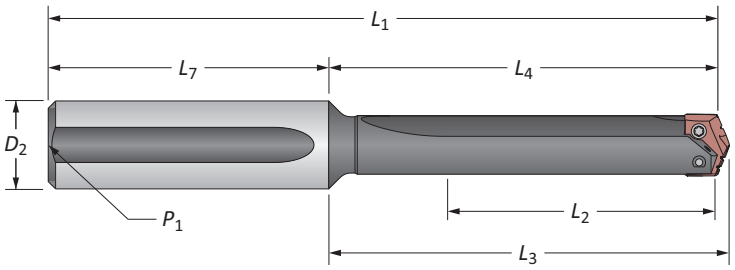
T-A Drill Insert Holders

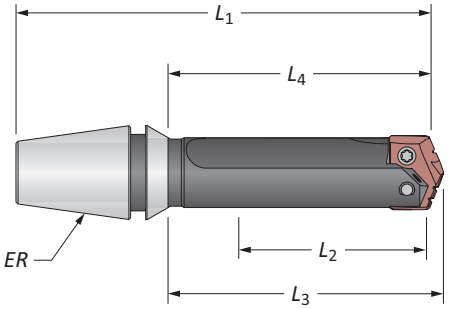
0 Series | Straight Shank | ER Collet | Diameter Range: 0.511" - 0.695" (12.98mm - 17.65mm)



Straight Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
	0	Short	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8	**22000S-075L**
		Standard	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8	**24000S-075L**
		Extended	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8	⚠ **25000S-075L**
		Long	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8	⚠ **26000S-075L**
ⓘ		XL	11-5/8	12-7/16	12-35/64	14-13/16	3/4	2-3/8	1/8	⚠ **27000S-075L**
		3XL	15-1/4	16-1/16	16-11/64	18-7/16	3/4	2-3/8	1/8	⚠ **29000S-075L**
	0.5	Short	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8*	**22005S-075L**
		Standard	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8*	**24005S-075L**
		Extended	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8*	⚠ **25005S-075L**
		Long	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8*	⚠ **26005S-075L**

NOTE: 0.5 series inserts fit into both 0 and 0.5 series holders. However, 0 series inserts ONLY fit into 0 series holders. See page A30: 7 for visual.



ER Collet Holder

	Series	Body L_2	Body L_4	Body L_3	Body L_1	*ER*	Part No.	Collet Nut without Retaining Ring
ⓘ	0	1-3/8	1-57/64	2	3-5/64	ER-16	**21000S-16ER**	ER-16N
		1-3/8	1-57/64	2	3-15/64	ER-20	**21000S-20ER**	ER-20N

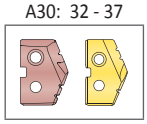
Connection Accessories

Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
0	72556-IP8-1	72556N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)

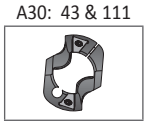
*Tightening torques are calculated with a friction coefficient of μ = 0.14 and develop 90% of ultimate yield strength

A30: 32 - 37

Key on A30: 1



A30: 43 & 111



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

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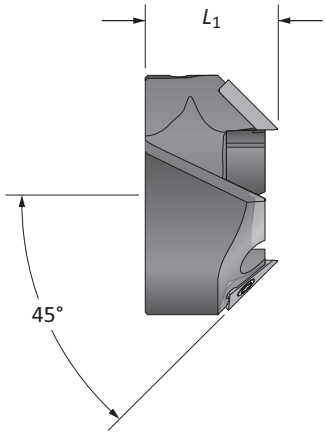
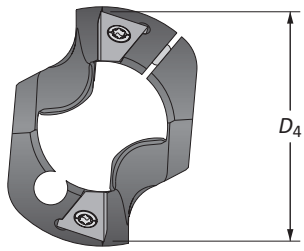
T-A Drill Accessories

0 Series | Chamfer Rings | Rotary Coolant Adapters | Torx® Plus Screws



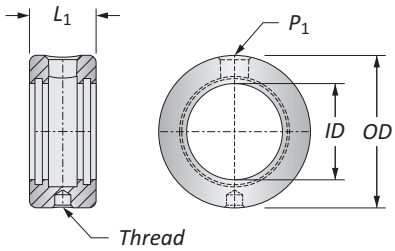


T-ACR 45 Chamfer Ring

Holder Series	D_1 Range	Chamfer Ring D_4	Chamfer Ring L_1	Part No.	Insert Part No.	Insert Screw	Insert Driver	Clamping Screw	Insert Driver
0	0.5118 - 0.6890	13/16	0.676	**T-ACR-45-0**	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7375-IP9-1	8IP-9

Rotary Coolant Adapter (RCA) and Accessories

	ID	*OD*	L_1	Driving Rod Thread	P_1	Part No.	RCA O-Rings Kit Part No.**	RCA O-Rings Replacements
ⓘ	3/4	1-3/4	7/8	5/16-18	1/8	⚠ **2T-2SR**	2T1-2SR	2T1-2OR-10
ⓜ	19.05	44.45	22.23	M8 x 1.25	1/8*	⚠ **2T-2SRM**	2T1-2SR	2T1-2OR-10



*Thread to BSP and ISO 7-1

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

⚠ Refer to page A30: 110 for proper RCA assembly and safety information

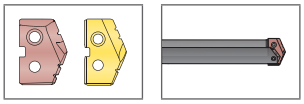
Connection Accessories

Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
0	72556-IP8-1	72556N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)
0.5	72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)

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

A30: 32 - 37 A30: 38 - 42

Key on A30: 1

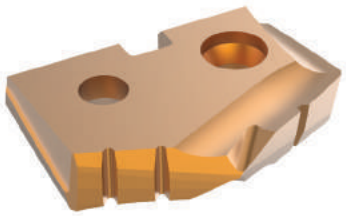


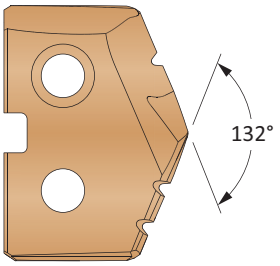
ⓘ = Imperial (in)
ⓜ = Metric (mm)
Chamfer Ring Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

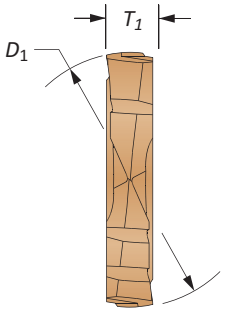
⚠ **WARNING** RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.

GEN2 T-A Drill Inserts

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



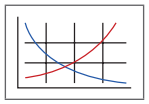
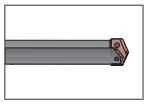
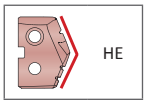




HSS Inserts – Super Cobalt • Carbide Inserts – C2 (K20) | C1 (K35)

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	HSS Part No.  AM200® Super Cobalt	Carbide Part No.  AM300® C2 (K20)	Carbide Part No.  AM300® C1 (K35)
1	45/64	0.7031	17.86	5/32	451H-.703	4C21P-.703	4C11P-.703
	–	0.7087	18.00	5/32	451H-18	4C21P-18	4C11P-18
	23/32	0.7188	18.26	5/32	451H-0023	4C21P-0023	4C11P-0023
	–	0.7283	18.50	5/32	451H-18.5	4C21P-18.5	4C11P-18.5
	47/64	0.7344	18.65	5/32	451H-.734	4C21P-.734	4C11P-.734
	–	0.7480	19.00	5/32	451H-19	4C21P-19	4C11P-19
	3/4	0.7500	19.05	5/32	451H-0024	4C21P-0024	4C11P-0024
	49/64	0.7656	19.45	5/32	451H-.765	4C21P-.765	4C11P-.765
	–	0.7677	19.50	5/32	451H-19.5	4C21P-19.5	4C11P-19.5
	25/32	0.7813	19.84	5/32	451H-0025	4C21P-0025	4C11P-0025
	–	0.7874	20.00	5/32	451H-20	4C21P-20	4C11P-20
	51/64	0.7969	20.24	5/32	451H-.796	4C21P-.796	4C11P-.796
	–	0.8010	20.34	5/32	451H-.801	4C21P-.801	4C11P-.801
	–	0.8071	20.50	5/32	451H-20.5	4C21P-20.5	4C11P-20.5
	13/16	0.8125	20.64	5/32	451H-0026	4C21P-0026	4C11P-0026
	–	0.8268	21.00	5/32	451H-21	4C21P-21	4C11P-21
	27/32	0.8438	21.43	5/32	451H-0027	4C21P-0027	4C11P-0027
	–	0.8465	21.50	5/32	451H-21.5	4C21P-21.5	4C11P-21.5
1.5	55/64	0.8594	21.83	5/32	451H-.859	4C21P-.859	4C11P-.859
	–	0.8661	22.00	5/32	451H-22	4C21P-22	4C11P-22
	7/8	0.8750	22.23	5/32	451H-0028	4C21P-0028	4C11P-0028
	–	0.8858	22.50	5/32	451H-22.5	4C21P-22.5	4C11P-22.5
	57/64	0.8906	22.62	5/32	451H-.890	4C21P-.890	4C11P-.890
	–	0.9055	23.00	5/32	451H-23	4C21P-23	4C11P-23
	29/32	0.9063	23.02	5/32	451H-0029	4C21P-0029	4C11P-0029
	59/64	0.9219	23.42	5/32	451H-.921	4C21P-.921	4C11P-.921
	–	0.9252	23.50	5/32	451H-23.5	4C21P-23.5	4C11P-23.5
	15/16	0.9375	23.81	5/32	451H-0030	4C21P-0030	4C11P-0030
	–	0.9449	24.00	5/32	451H-24	4C21P-24	4C11P-24

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

A30: 112 - 143
Key on A30: 1

A30: 52 - 56

A30: 4 - 6


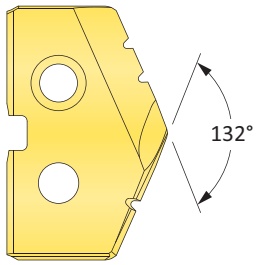
Inserts sold in quantities of 2

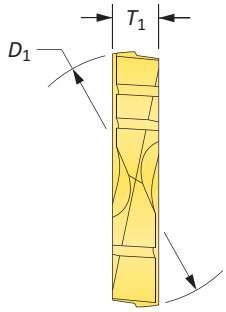
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 451T-XXXX	**TiAlN** = 451A-XXXX
TiCN = 451N-XXXX	**AM200®** = 451H-XXXX

Original T-A Drill Inserts

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



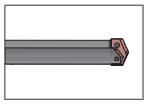


HSS Inserts – Premium Cobalt

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: TiN	Part No.: TiAlN	Part No.: TiCN
1	45/64	0.7031	17.86	5/32	**181T-.703**	**181A-.703**	**181N-.703**
	–	0.7087	18.00	5/32	**181T-18**	**181A-18**	**181N-18**
	23/32	0.7188	18.26	5/32	**181T-0023**	**181A-0023**	**181N-0023**
	–	0.7283	18.50	5/32	**181T-18.5**	**181A-18.5**	**181N-18.5**
	47/64	0.7344	18.65	5/32	**181T-.734**	**181A-.734**	**181N-.734**
	–	0.7480	19.00	5/32	**181T-19**	**181A-19**	**181N-19**
	3/4	0.7500	19.05	5/32	**181T-0024**	**181A-0024**	**181N-0024**
	49/64	0.7656	19.45	5/32	**181T-.765**	**181A-.765**	**181N-.765**
	–	0.7677	19.50	5/32	**181T-19.5**	**181A-19.5**	**181N-19.5**
	25/32	0.7813	19.84	5/32	**181T-0025**	**181A-0025**	**181N-0025**
	–	0.7874	20.00	5/32	**181T-20**	**181A-20**	**181N-20**
	51/64	0.7969	20.24	5/32	**181T-.796**	**181A-.796**	**181N-.796**
	–	0.8010	20.34	5/32	**181T-.801**	**181A-.801**	**181N-.801**
	–	0.8071	20.50	5/32	**181T-20.5**	**181A-20.5**	**181N-20.5**
	13/16	0.8125	20.64	5/32	**181T-0026**	**181A-0026**	**181N-0026**
	–	0.8268	21.00	5/32	**181T-21**	**181A-21**	**181N-21**
	27/32	0.8438	21.43	5/32	**181T-0027**	**181A-0027**	**181N-0027**
	–	0.8465	21.50	5/32	**181T-21.5**	**181A-21.5**	**181N-21.5**
1.5	55/64	0.8594	21.83	5/32	**181T-.859**	**181A-.859**	**181N-.859**
	–	0.8661	22.00	5/32	**181T-22**	**181A-22**	**181N-22**
	7/8	0.8750	22.23	5/32	**181T-0028**	**181A-0028**	**181N-0028**
	–	0.8858	22.50	5/32	**181T-22.5**	**181A-22.5**	**181N-22.5**
	57/64	0.8906	22.62	5/32	**181T-.890**	**181A-.890**	**181N-.890**
	–	0.9055	23.00	5/32	**181T-23**	**181A-23**	**181N-23**
	29/32	0.9063	23.02	5/32	**181T-0029**	**181A-0029**	**181N-0029**
	59/64	0.9219	23.42	5/32	**181T-.921**	**181A-.921**	**181N-.921**
	–	0.9252	23.50	5/32	**181T-23.5**	**181A-23.5**	**181N-23.5**
	15/16	0.9375	23.81	5/32	**181T-0030**	**181A-0030**	**181N-0030**
	–	0.9449	24.00	5/32	**181T-24**	**181A-24**	**181N-24**

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

A30: 112 - 143
Key on A30: 1



A30: 52 - 56

A30: 4 - 6

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

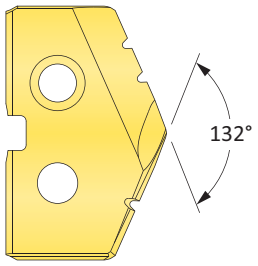
Inserts sold in quantities of 2

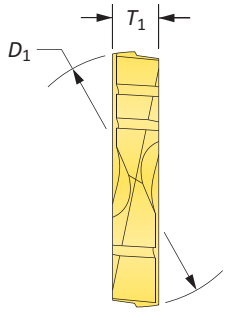
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 181T-XXXX	**TiAlN** = 181A-XXXX
TiCN = 181N-XXXX	**AM200®** = 181H-XXXX

Original T-A Drill Inserts

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



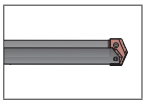


HSS Inserts – Super Cobalt

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: TiN	Part No.: TiAlN	Part No.: TiCN
1	45/64	0.7031	17.86	5/32	**151T-.703**	**151A-.703**	**151N-.703**
	–	0.7087	18.00	5/32	**151T-18**	**151A-18**	**151N-18**
	23/32	0.7188	18.26	5/32	**151T-0023**	**151A-0023**	**151N-0023**
	–	0.7283	18.50	5/32	**151T-18.5**	**151A-18.5**	**151N-18.5**
	47/64	0.7344	18.65	5/32	**151T-.734**	**151A-.734**	**151N-.734**
	–	0.7480	19.00	5/32	**151T-19**	**151A-19**	**151N-19**
	3/4	0.7500	19.05	5/32	**151T-0024**	**151A-0024**	**151N-0024**
	49/64	0.7656	19.45	5/32	**151T-.765**	**151A-.765**	**151N-.765**
	–	0.7677	19.50	5/32	**151T-19.5**	**151A-19.5**	**151N-19.5**
	25/32	0.7813	19.84	5/32	**151T-0025**	**151A-0025**	**151N-0025**
	–	0.7874	20.00	5/32	**151T-20**	**151A-20**	**151N-20**
	51/64	0.7969	20.24	5/32	**151T-.796**	**151A-.796**	**151N-.796**
	–	0.8010	20.34	5/32	**151T-.801**	**151A-.801**	**151N-.801**
	–	0.8071	20.50	5/32	**151T-20.5**	**151A-20.5**	**151N-20.5**
	13/16	0.8125	20.64	5/32	**151T-0026**	**151A-0026**	**151N-0026**
	–	0.8268	21.00	5/32	**151T-21**	**151A-21**	**151N-21**
	27/32	0.8438	21.43	5/32	**151T-0027**	**151A-0027**	**151N-0027**
	–	0.8465	21.50	5/32	**151T-21.5**	**151A-21.5**	**151N-21.5**
1.5	55/64	0.8594	21.83	5/32	**151T-.859**	**151A-.859**	**151N-.859**
	–	0.8661	22.00	5/32	**151T-22**	**151A-22**	**151N-22**
	7/8	0.8750	22.23	5/32	**151T-0028**	**151A-0028**	**151N-0028**
	–	0.8858	22.50	5/32	**151T-22.5**	**151A-22.5**	**151N-22.5**
	57/64	0.8906	22.62	5/32	**151T-.890**	**151A-.890**	**151N-.890**
	–	0.9055	23.00	5/32	**151T-23**	**151A-23**	**151N-23**
	29/32	0.9063	23.02	5/32	**151T-0029**	**151A-0029**	**151N-0029**
	59/64	0.9219	23.42	5/32	**151T-.921**	**151A-.921**	**151N-.921**
	–	0.9252	23.50	5/32	**151T-23.5**	**151A-23.5**	**151N-23.5**
	15/16	0.9375	23.81	5/32	**151T-0030**	**151A-0030**	**151N-0030**
	–	0.9449	24.00	5/32	**151T-24**	**151A-24**	**151N-24**

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

A30: 112 - 143
Key on A30: 1



A30: 52 - 56

A30: 4 - 6

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

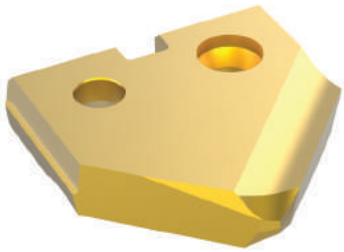
Inserts sold in quantities of 2

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

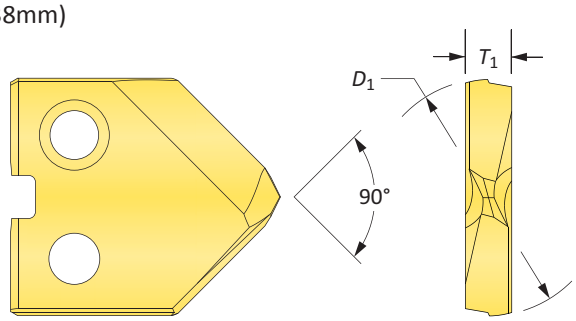
TiN = 151T-XXXX	**TiAlN** = 151A-XXXX
TiCN = 151N-XXXX	**AM200®** = 151H-XXXX

Original T-A Drill Inserts

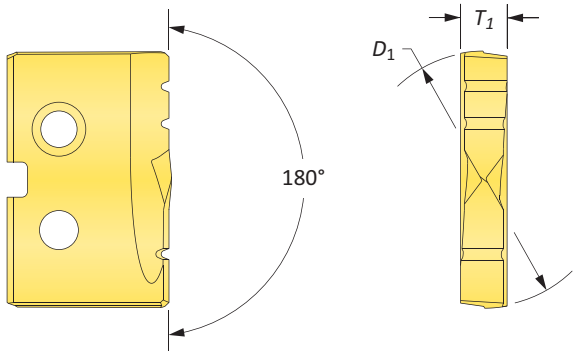
1 Series | HSS | Diameter Range: 0.690” - 0.960” (17.53mm - 24.38mm)



90° Spot & Chamfer



Flat Bottom



HSS Inserts – Super Cobalt

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	90° Spot & Chamfer Part No.: TiN	90° Spot & Chamfer Part No.: TiAlN	90° Spot & Chamfer Part No.: TiCN	Flat Bottom Part No.: TiN
1	45/64	0.7031	17.86	5/32	151T-.703-SP	151A-.703-SP	151N-.703-SP	151T-.703-FB
	–	0.7087	18.00	5/32	151T-18-SP	151A-18-SP	151N-18-SP	151T-18-FB
	23/32	0.7188	18.26	5/32	151T-0023-SP	151A-0023-SP	151N-0023-SP	151T-0023-FB
	–	0.7283	18.50	5/32	151T-18.5-SP	151A-18.5-SP	151N-18.5-SP	151T-18.5-FB
	47/64	0.7344	18.65	5/32	151T-.734-SP	151A-.734-SP	151N-.734-SP	151T-.734-FB
	–	0.7480	19.00	5/32	151T-19-SP	151A-19-SP	151N-19-SP	151T-19-FB
	3/4	0.7500	19.05	5/32	151T-0024-SP	151A-0024-SP	151N-0024-SP	151T-0024-FB
	49/64	0.7656	19.45	5/32	151T-.765-SP	151A-.765-SP	151N-.765-SP	151T-.765-FB
	–	0.7677	19.50	5/32	151T-19.5-SP	151A-19.5-SP	151N-19.5-SP	151T-19.5-FB
	25/32	0.7813	19.84	5/32	151T-0025-SP	151A-0025-SP	151N-0025-SP	151T-0025-FB
	–	0.7874	20.00	5/32	151T-20-SP	151A-20-SP	151N-20-SP	151T-20-FB
	51/64	0.7969	20.24	5/32	151T-.796-SP	151A-.796-SP	151N-.796-SP	151T-.796-FB
	–	0.8010	20.34	5/32	151T-.801-SP	151A-.801-SP	151N-.801-SP	151T-.801-FB
	–	0.8071	20.50	5/32	151T-20.5-SP	151A-20.5-SP	151N-20.5-SP	151T-20.5-FB
	13/16	0.8125	20.64	5/32	151T-0026-SP	151A-0026-SP	151N-0026-SP	151T-0026-FB
	–	0.8268	21.00	5/32	151T-21-SP	151A-21-SP	151N-21-SP	151T-21-FB
	27/32	0.8438	21.43	5/32	151T-0027-SP	151A-0027-SP	151N-0027-SP	151T-0027-FB
	–	0.8465	21.50	5/32	151T-21.5-SP	151A-21.5-SP	151N-21.5-SP	151T-21.5-FB
1.5	55/64	0.8594	21.83	5/32	151T-.859-SP	151A-.859-SP	151N-.859-SP	151T-.859-FB
	–	0.8661	22.00	5/32	151T-22-SP	151A-22-SP	151N-22-SP	151T-22-FB
	7/8	0.8750	22.23	5/32	151T-0028-SP	151A-0028-SP	151N-0028-SP	151T-0028-FB
	–	0.8858	22.50	5/32	151T-22.5-SP	151A-22.5-SP	151N-22.5-SP	151T-22.5-FB
	57/64	0.8906	22.62	5/32	151T-.890-SP	151A-.890-SP	151N-.890-SP	151T-.890-FB
	–	0.9055	23.00	5/32	151T-23-SP	151A-23-SP	151N-23-SP	151T-23-FB
	29/32	0.9063	23.02	5/32	151T-0029-SP	151A-0029-SP	151N-0029-SP	151T-0029-FB
	59/64	0.9219	23.42	5/32	151T-.921-SP	151A-.921-SP	151N-.921-SP	151T-.921-FB
	–	0.9252	23.50	5/32	151T-23.5-SP	151A-23.5-SP	151N-23.5-SP	151T-23.5-FB
	15/16	0.9375	23.81	5/32	151T-0030-SP	151A-0030-SP	151N-0030-SP	151T-0030-FB
	–	0.9449	24.00	5/32	151T-24-SP	151A-24-SP	151N-24-SP	151T-24-FB

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

A30: 112 - 143 | A30: 52 - 56 | A30: 4 - 6 SW | A30: 4 - 6 FN

Key on A30: 1

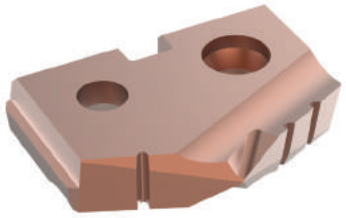
Inserts sold in quantities of 2

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

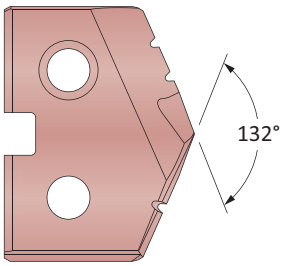
TiN = 151T-XXXX	TiAlN = 151A-XXXX
TiCN = 151N-XXXX	AM200® = 151H-XXXX

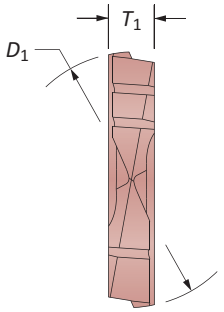
Original T-A Drill Inserts

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



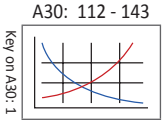
Tube Sheet

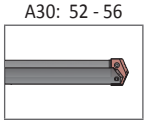




HSS Inserts – Super Cobalt | HSS

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: Super Cobalt	Part No.: HSS
1	–	0.7580	19.25	5/32	**151H-.7580-IN**	**131H-.7580-IN**
	49/64	0.7656	19.45	5/32	**151H-.765-IN**	**131H-.765-IN**
	25/32	0.7813	19.85	5/32	**151H-0025-IN**	**131H-0025-IN**





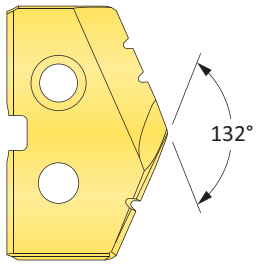
Inserts sold in quantities of 2

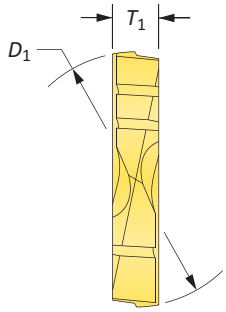
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 151T-XXXX	**TiAlN** = 151A-XXXX
TiCN = 151N-XXXX	**AM200®** = 151H-XXXX

Original T-A Drill Inserts

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





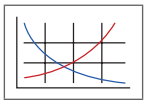
HSS Inserts – HSS

Series	Insert: Fractional Equivalent	D_1 inch	D_1 mm	T_1	Part No.: TiN	TiAlN	TiCN
1	45/64	0.7031	17.86	5/32	**131T-.703**	**131A-.703**	**131N-.703**
	–	0.7087	18.00	5/32	**131T-18**	**131A-18**	**131N-18**
	23/32	0.7188	18.26	5/32	**131T-0023**	**131A-0023**	**131N-0023**
	–	0.7283	18.50	5/32	**131T-18.5**	**131A-18.5**	**131N-18.5**
	47/64	0.7344	18.65	5/32	**131T-.734**	**131A-.734**	**131N-.734**
	–	0.7480	19.00	5/32	**131T-19**	**131A-19**	**131N-19**
	3/4	0.7500	19.05	5/32	**131T-0024**	**131A-0024**	**131N-0024**
	49/64	0.7656	19.45	5/32	**131T-.765**	**131A-.765**	**131N-.765**
	–	0.7677	19.50	5/32	**131T-19.5**	**131A-19.5**	**131N-19.5**
	25/32	0.7813	19.84	5/32	**131T-0025**	**131A-0025**	**131N-0025**
	–	0.7874	20.00	5/32	**131T-20**	**131A-20**	**131N-20**
	51/64	0.7969	20.24	5/32	**131T-.796**	**131A-.796**	**131N-.796**
	–	0.8010	20.34	5/32	**131T-.801**	**131A-.801**	**131N-.801**
	–	0.8071	20.50	5/32	**131T-20.5**	**131A-20.5**	**131N-20.5**
	13/16	0.8125	20.64	5/32	**131T-0026**	**131A-0026**	**131N-0026**
	–	0.8268	21.00	5/32	**131T-21**	**131A-21**	**131N-21**
	27/32	0.8438	21.43	5/32	**131T-0027**	**131A-0027**	**131N-0027**
	–	0.8465	21.50	5/32	**131T-21.5**	**131A-21.5**	**131N-21.5**
1.5	55/64	0.8594	21.83	5/32	**131T-.859**	**131A-.859**	**131N-.859**
	–	0.8661	22.00	5/32	**131T-22**	**131A-22**	**131N-22**
	7/8	0.8750	22.23	5/32	**131T-0028**	**131A-0028**	**131N-0028**
	–	0.8858	22.50	5/32	**131T-22.5**	**131A-22.5**	**131N-22.5**
	57/64	0.8906	22.62	5/32	**131T-.890**	**131A-.890**	**131N-.890**
	–	0.9055	23.00	5/32	**131T-23**	**131A-23**	**131N-23**
	29/32	0.9063	23.02	5/32	**131T-0029**	**131A-0029**	**131N-0029**
	59/64	0.9219	23.42	5/32	**131T-.921**	**131A-.921**	**131N-.921**
	–	0.9252	23.50	5/32	**131T-23.5**	**131A-23.5**	**131N-23.5**
	15/16	0.9375	23.81	5/32	**131T-0030**	**131A-0030**	**131N-0030**
	–	0.9449	24.00	5/32	**131T-24**	**131A-24**	**131N-24**

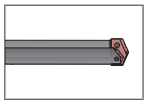
NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

A30: 112 - 143

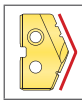
Key on A30: 1



A30: 52 - 56



A30: 4 - 6



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

Inserts sold in quantities of 2

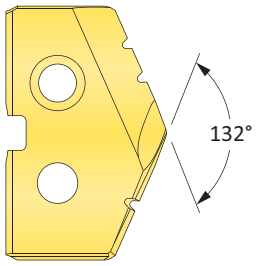
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

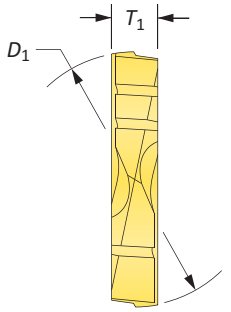
TiN = 131T-XXXX	**TiAlN** = 131A-XXXX
TiCN = 131N-XXXX	**AM200®** = 131H-XXXX

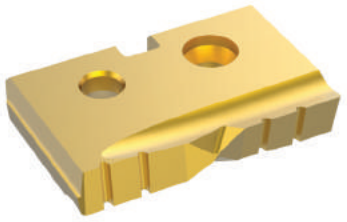
Original T-A Drill Inserts

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

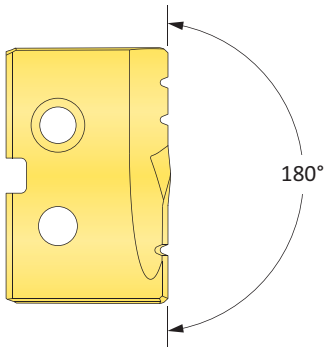
Standard

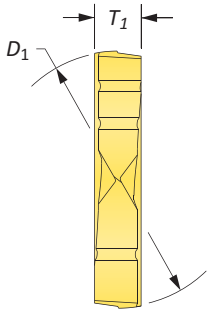






Flat Bottom



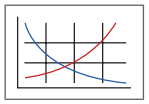


Carbide Inserts – C2 (K20)

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: TiN	Part No.: TiAlN	Flat Bottom Part No.: TiN
1	45/64	0.7031	17.86	5/32	**1C21T-.703**	**1C21A-.703**	**1C21T-.703-FB**
	–	0.7087	18.00	5/32	**1C21T-18**	**1C21A-18**	**1C21T-18-FB**
	23/32	0.7188	18.26	5/32	**1C21T-0023**	**1C21A-0023**	**1C21T-0023-FB**
	–	0.7283	18.50	5/32	**1C21T-18.5**	**1C21A-18.5**	**1C21T-18.5-FB**
	47/64	0.7344	18.65	5/32	**1C21T-.734**	**1C21A-.734**	**1C21T-.734-FB**
	–	0.7480	19.00	5/32	**1C21T-19**	**1C21A-19**	**1C21T-19-FB**
	3/4	0.7500	19.05	5/32	**1C21T-0024**	**1C21A-0024**	**1C21T-0024-FB**
	49/64	0.7656	19.45	5/32	**1C21T-.765**	**1C21A-.765**	**1C21T-.765-FB**
	–	0.7677	19.50	5/32	**1C21T-19.5**	**1C21A-19.5**	**1C21T-19.5-FB**
	25/32	0.7813	19.84	5/32	**1C21T-0025**	**1C21A-0025**	**1C21T-0025-FB**
	–	0.7874	20.00	5/32	**1C21T-20**	**1C21A-20**	**1C21T-20-FB**
	51/64	0.7969	20.24	5/32	**1C21T-.796**	**1C21A-.796**	**1C21T-.796-FB**
	–	0.8010	20.34	5/32	**1C21T-.801**	**1C21A-.801**	**1C21T-.801-FB**
	–	0.8071	20.50	5/32	**1C21T-20.5**	**1C21A-20.5**	**1C21T-20.5-FB**
	13/16	0.8125	20.64	5/32	**1C21T-0026**	**1C21A-0026**	**1C21T-0026-FB**
	–	0.8268	21.00	5/32	**1C21T-21**	**1C21A-21**	**1C21T-21-FB**
	27/32	0.8438	21.43	5/32	**1C21T-0027**	**1C21A-0027**	**1C21T-0027-FB**
	–	0.8465	21.50	5/32	**1C21T-21.5**	**1C21A-21.5**	**1C21T-21.5-FB**
1.5	55/64	0.8594	21.83	5/32	**1C21T-.859**	**1C21A-.859**	**1C21T-.859-FB**
	–	0.8661	22.00	5/32	**1C21T-22**	**1C21A-22**	**1C21T-22-FB**
	7/8	0.8750	22.23	5/32	**1C21T-0028**	**1C21A-0028**	**1C21T-0028-FB**
	–	0.8858	22.50	5/32	**1C21T-22.5**	**1C21A-22.5**	**1C21T-22.5-FB**
	57/64	0.8906	22.62	5/32	**1C21T-.890**	**1C21A-.890**	**1C21T-.890-FB**
	–	0.9055	23.00	5/32	**1C21T-23**	**1C21A-23**	**1C21T-23-FB**
	29/32	0.9063	23.02	5/32	**1C21T-0029**	**1C21A-0029**	**1C21T-0029-FB**
	59/64	0.9219	23.42	5/32	**1C21T-.921**	**1C21A-.921**	**1C21T-.921-FB**
	–	0.9252	23.50	5/32	**1C21T-23.5**	**1C21A-23.5**	**1C21T-23.5-FB**
	15/16	0.9375	23.81	5/32	**1C21T-0030**	**1C21A-0030**	**1C21T-0030-FB**
	–	0.9449	24.00	5/32	**1C21T-24**	**1C21A-24**	**1C21T-24-FB**

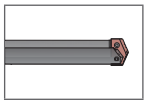
NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

A30: 112 - 143



Key on A30: 1

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

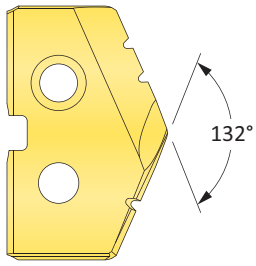
Inserts sold in quantities of 2

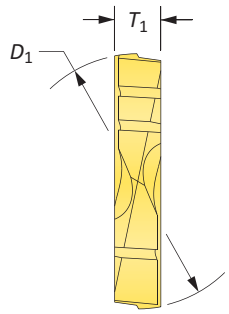
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 1C21T-XXXX	**TiAlN** = 1C21A-XXXX
TiCN = 1C21N-XXXX	**AM200®** = 1C21H-XXXX

Original T-A Drill Inserts

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



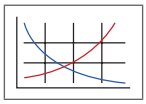


Carbide Inserts – C5 (P40) | C3 (K10) | N2

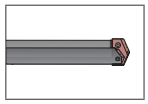
Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	C5 Part No. TiN	C5 Part No. TiAlN	C3 Part No. TiAlN (Cast Iron)	N2 Part No. Diamond Film
1	45/64	0.7031	17.86	5/32	**1C51T-.703**	**1C51A-.703**	**1C31A-.703-CI**	**1N21D-.703**
	–	0.7087	18.00	5/32	**1C51T-18**	**1C51A-18**	**1C31A-18-CI**	**1N21D-18**
	23/32	0.7188	18.26	5/32	**1C51T-0023**	**1C51A-0023**	**1C31A-0023-CI**	**1N21D-0023**
	–	0.7283	18.50	5/32	**1C51T-18.5**	**1C51A-18.5**	**1C31A-18.5-CI**	**1N21D-18.5**
	47/64	0.7344	18.65	5/32	**1C51T-.734**	**1C51A-.734**	**1C31A-.734-CI**	**1N21D-.734**
	–	0.7480	19.00	5/32	**1C51T-19**	**1C51A-19**	**1C31A-19-CI**	**1N21D-19**
	3/4	0.7500	19.05	5/32	**1C51T-0024**	**1C51A-0024**	**1C31A-0024-CI**	**1N21D-0024**
	49/64	0.7656	19.45	5/32	**1C51T-.765**	**1C51A-.765**	**1C31A-.765-CI**	**1N21D-.765**
	–	0.7677	19.50	5/32	**1C51T-19.5**	**1C51A-19.5**	**1C31A-19.5-CI**	**1N21D-19.5**
	25/32	0.7813	19.84	5/32	**1C51T-0025**	**1C51A-0025**	**1C31A-0025-CI**	**1N21D-0025**
	–	0.7874	20.00	5/32	**1C51T-20**	**1C51A-20**	**1C31A-20-CI**	**1N21D-20**
	51/64	0.7969	20.24	5/32	**1C51T-.796**	**1C51A-.796**	**1C31A-.796-CI**	**1N21D-.796**
	–	0.8010	20.34	5/32	**1C51T-.801**	**1C51A-.801**	**1C31A-.801-CI**	**1N21D-.801**
	–	0.8071	20.50	5/32	**1C51T-20.5**	**1C51A-20.5**	**1C31A-20.5-CI**	**1N21D-20.5**
	13/16	0.8125	20.64	5/32	**1C51T-0026**	**1C51A-0026**	**1C31A-0026-CI**	**1N21D-0026**
	–	0.8268	21.00	5/32	**1C51T-21**	**1C51A-21**	**1C31A-21-CI**	**1N21D-21**
	27/32	0.8438	21.43	5/32	**1C51T-0027**	**1C51A-0027**	**1C31A-0027-CI**	**1N21D-0027**
	–	0.8465	21.50	5/32	**1C51T-21.5**	**1C51A-21.5**	**1C31A-21.5-CI**	**1N21D-21.5**
1.5	55/64	0.8594	21.83	5/32	**1C51T-.859**	**1C51A-.859**	**1C31A-.859-CI**	**1N21D-.859**
	–	0.8661	22.00	5/32	**1C51T-22**	**1C51A-22**	**1C31A-22-CI**	**1N21D-22**
	7/8	0.8750	22.23	5/32	**1C51T-0028**	**1C51A-0028**	**1C31A-0028-CI**	**1N21D-0028**
	–	0.8858	22.50	5/32	**1C51T-22.5**	**1C51A-22.5**	**1C31A-22.5-CI**	**1N21D-22.5**
	57/64	0.8906	22.62	5/32	**1C51T-.890**	**1C51A-.890**	**1C31A-.890-CI**	**1N21D-.890**
	–	0.9055	23.00	5/32	**1C51T-23**	**1C51A-23**	**1C31A-23-CI**	**1N21D-23**
	29/32	0.9063	23.02	5/32	**1C51T-0029**	**1C51A-0029**	**1C31A-0029-CI**	**1N21D-0029**
	59/64	0.9219	23.42	5/32	**1C51T-.921**	**1C51A-.921**	**1C31A-.921-CI**	**1N21D-.921**
	–	0.9252	23.50	5/32	**1C51T-23.5**	**1C51A-23.5**	**1C31A-23.5-CI**	**1N21D-23.5**
	15/16	0.9375	23.81	5/32	**1C51T-0030**	**1C51A-0030**	**1C31A-0030-CI**	**1N21D-0030**
	–	0.9449	24.00	5/32	**1C51T-24**	**1C51A-24**	**1C31A-24-CI**	**1N21D-24**

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

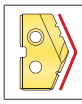
A30: 112 - 143
Key on A30: 1



A30: 52 - 56



A30: 4 - 6



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

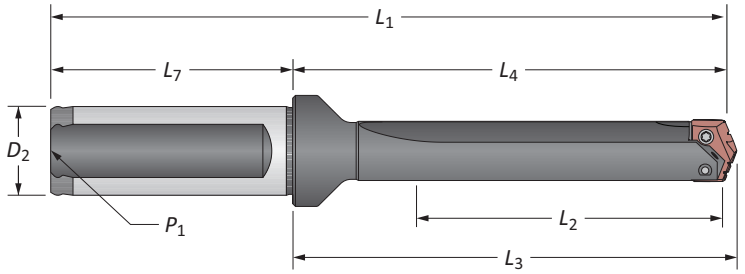
Inserts sold in quantities of 2

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

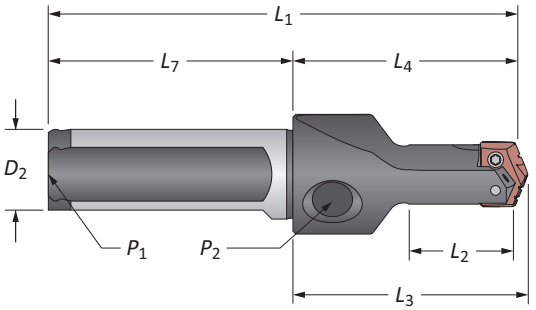
TiN = 1C51T-XXXX	**TiAlN** = 1C51A-XXXX
TiCN = 1C51N-XXXX	**AM200®** = 1C51H-XXXX

T-A Drill Insert Holders

1 Series | Flange Shank | Diameter Range: 0.690” - 0.960” (17.53mm - 24.38mm)



Stub Length



Straight Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	1	Stub	1-7/8	2-63/64	3-1/8	5-17/64	1	2-9/32	1/8	**21010S-100F**
		Short	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8	**22010S-100F**
		Intermediate	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	**23010S-100F**
		Standard	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	**24010S-100F**
		Extended	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	⚠ **25010S-100F**
	1.5	Stub	2-1/4	3-31/64	3-5/8	5-49/64	1	2-9/32	1/8	**21015S-100F**
		Short	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8	**22015S-100F**
		Intermediate	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	**23015S-100F**
		Standard	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	**24015S-100F**
		Extended	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	⚠ **25015S-100F**
ⓜ	1	Stub	47.6	75.8	79.4	131.8	25.0	56.0	1/8*	**21010S-25FM**
		Short	66.7	107.2	110.7	163.2	25.0	56.0	1/8*	**22010S-25FM**
		XL	457.0	494.5	498.1	550.5	25.0	56.0	1/8*	⚠ **27010S-25FM**
		3XL	569.0	602.5	606.1	658.5	25.0	56.0	1/8*	⚠ **29010S-25FM**
	1.5	Stub	57.2	88.5	92.1	144.5	25.0	56.0	1/8*	**21015S-25FM**
		Short	66.7	107.2	110.7	163.2	25.0	56.0	1/8*	**22015S-25FM**

*Metric thread to BSP and ISO 7-1

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

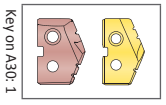
NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

Connection Accessories

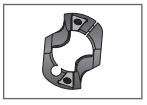
Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
1	7375-IP9-1	7375N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)

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

A30: 44 - 51



A30: 57 & 111

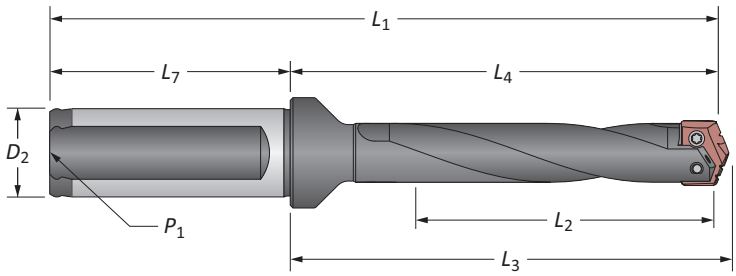


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

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



Helical Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	1	Intermediate	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	**23010H-100F**
ⓘ	1	Standard	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	**24010H-100F**
ⓘ	1	Standard Plus	8-5/8	10-3/32	10-15/64	12-33/64	1	2-9/32	1/8	⚠ **24510H-100F**
ⓘ	1	Extended	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	⚠ **25010H-100F**
ⓘ	1	Long	14-3/8	15-27/32	15-63/64	18-17/64	1	2-9/32	1/8	⚠ **26010H-100F**
ⓘ	1.5	Intermediate	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	**23015H-100F**
ⓘ	1.5	Standard	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	**24015H-100F**
ⓘ	1.5	Extended	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	⚠ **25015H-100F**
ⓜ	1	Intermediate	117.5	154.8	158.4	210.8	25.0	56.0	1/8*	**23010H-25FM**
ⓜ	1	Standard	168.3	205.6	209.2	261.6	25.0	56.0	1/8*	**24010H-25FM**
ⓜ	1	Standard Plus	219.0	256.3	259.9	312.3	25.0	56.0	1/8*	⚠ **24510H-25FM**
ⓜ	1	Extended	269.9	307.2	310.8	363.2	25.0	56.0	1/8*	⚠ **25010H-25FM**
ⓜ	1	Long	365.0	402.3	405.9	458.3	25.0	56.0	1/8*	⚠ **26010H-25FM**
ⓜ	1.5	Intermediate	117.5	154.8	158.4	210.8	25.0	56.0	1/8*	**23015H-25FM**
ⓜ	1.5	Standard	168.3	205.6	209.2	261.6	25.0	56.0	1/8*	**24015H-25FM**
ⓜ	1.5	Extended	269.9	307.2	310.8	363.2	25.0	56.0	1/8*	⚠ **25015H-25FM**

*Metric thread to BSP and ISO 7-1

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

Connection Accessories

Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
1	7375-IP9-1	7375N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)

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

A30: 44 - 51

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

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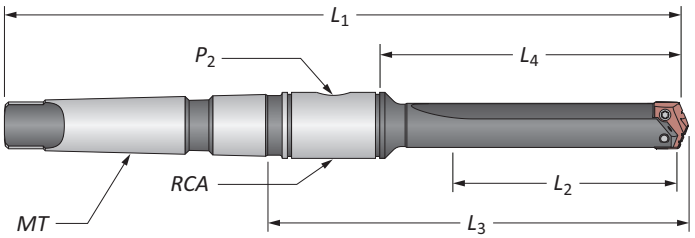
T-A Drill Insert Holders

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



Straight Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
i	1	Short	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	2T-3SR	**22010S-003I**
		Short	2-3/4	3-7/8	5-39/64	10-5/32	#4	1/8	2T-3SR	**22010S-004I**
		Intermediate	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	**23010S-003I**
		Standard	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	**24010S-003I**
		Standard	6-3/4	7-7/8	9-39/64	14-5/32	#4	1/8	2T-3SR	**24010S-004I**
		Extended	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	⚠ **25010S-003I**
	1.5	Short	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	2T-3SR	**22015S-003I**
		Short	2-3/4	3-7/8	5-39/64	10-5/32	#4	1/8	2T-3SR	**22015S-004I**
		Intermediate	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	**23015S-003I**
		Standard	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	**24015S-003I**
		Standard	6-3/4	7-7/8	9-39/64	14-5/32	#4	1/8	2T-3SR	**24015S-004I**
		Extended	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	⚠ **25015S-003I**
m	1	Short	69.8	98.4	142.5	232.5	#3**	1/8*	2T-3SRM	**22010S-003M**
	1.5	Short	69.8	98.4	142.5	232.5	#3**	1/8*	2T-3SRM	**22015S-003M**

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

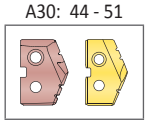
NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

Connection Accessories

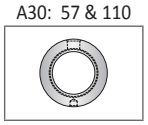
Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
1	7375-IP9-1	7375N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)

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

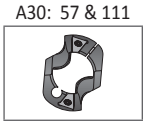
A30: 44 - 51 (Key on A30: 1)



A30: 57 & 110



A30: 57 & 111



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

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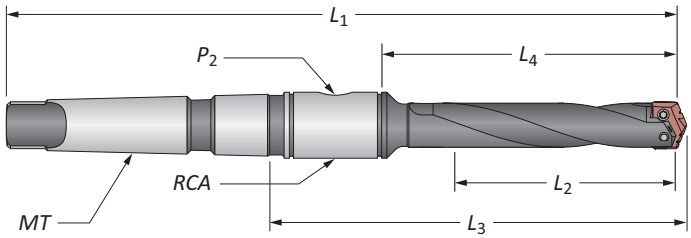
T-A Drill Insert Holders

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



Helical Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓘ	1	Intermediate	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	**23010H-003I**
		Standard	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	**24010H-003I**
		Standard	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	2T-3SR	**24010H-004I**
		Extended	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	⚠ **25010H-003I**
	1.5	Intermediate	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	**23015H-003I**
		Standard	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	**24015H-003I**
		Standard	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	2T-3SR	**24015H-004I**
		Extended	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	⚠ **25015H-003I**
ⓜ	1	Intermediate	120.7	149.2	193.3	283.3	#3**	1/8*	2T-3SRM	**23010H-003M**
		Standard	171.5	200.0	244.1	334.2	#3**	1/8*	2T-3SRM	**24010H-003M**
		Extended	273.1	301.6	345.7	435.8	#3**	1/8*	2T-3SRM	⚠ **25010H-003M**
	1.5	Intermediate	120.7	149.2	193.3	283.3	#3**	1/8*	2T-3SRM	**23015H-003M**
		Standard	171.5	200.0	244.1	334.2	#3**	1/8*	2T-3SRM	**24015H-003M**
		Extended	273.1	301.6	345.7	435.8	#3**	1/8*	2T-3SRM	⚠ **25015H-003M**

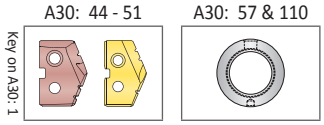
*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK
NOTE: 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

Connection Accessories

Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
1	7375-IP9-1	7375N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)

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

A30: 44 - 51 A30: 57 & 110



ⓘ = Imperial (in)
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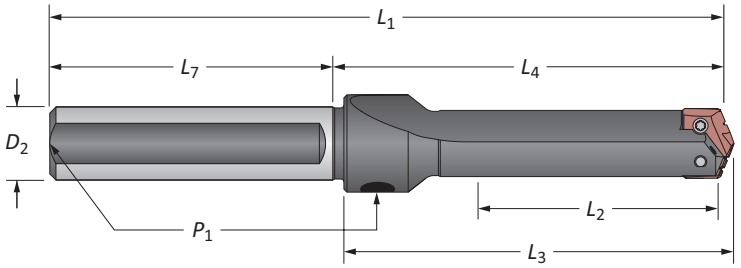
1 Series | Straight Shank | Diameter Range: 0.690" - 0.960" (17.53mm - 24.38mm)



Straight Flute

Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
1	Short	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8	22010S-075L
1	Short	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8	22010S-100L
1	Intermediate	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8	23010S-100L
1	Standard	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8	24010S-075L
1	Standard	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8	24010S-100L
1	Extended	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8	⚠ 25010S-100L
1	XL	18	19-1/4	19-25/64	22-1/4	1	3	1/8	⚠ 27010S-100L
1	3XL	22-1/4	23-1/2	23-41/64	26-1/2	1	3	1/8	⚠ 29010S-100L
1.5	Short	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8*	22015S-075L
1.5	Short	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8*	22015S-100L
1.5	Intermediate	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8*	23015S-100L
1.5	Standard	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8*	24015S-075L
1.5	Standard	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8*	24015S-100L
1.5	Extended	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8*	⚠ 25015S-100L

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

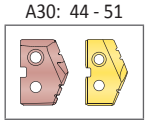
Connection Accessories

Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
1	7375-IP9-1	7375N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)

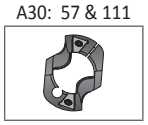
*Tightening torques are calculated with a friction coefficient of μ = 0.14 and develop 90% of ultimate yield strength

A30: 44 - 51

Key on A30: 1



A30: 57 & 111

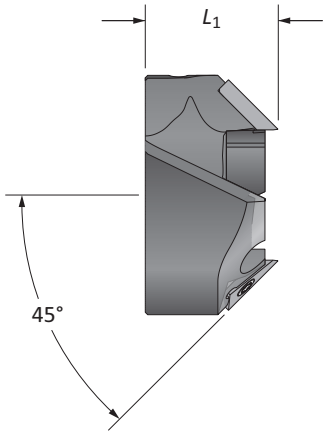


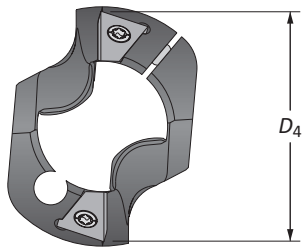
ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Accessories

1 Series | Chamfer Rings | Rotary Coolant Adapters | Torx® Plus Screws |





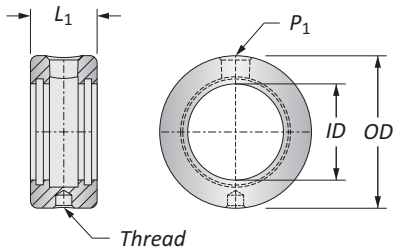
T-ACR 45 Chamfer Ring

Holder Series	D_1 Range	Chamfer Ring D_4	Chamfer Ring L_1	Part No.	Insert Part No.	Insert Screw	Insert Driver	Clamping Screw	Insert Driver
1	0.6900 - 0.9600	1-3/64	51/64	**T-ACR-45-1**	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7495-IP15-1	8IP-15
1.5	0.8540 - 0.9600	1-1/8	57/64	**T-ACR-45-1.5**	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7495-IP15-1	8IP-15

Rotary Coolant Adapter (RCA) and Accessories

	ID	OD	L_1	Driving Rod Thread	P_1	Part No.	RCA O-Rings Kit Part No.**	RCA O-Rings Replacements
ⓘ	1	2-1/8	1-1/8	5/16-18	1/8	⚠ **2T-3SR**	2T1-3SR	2T1-3OR-10
ⓜ	25.40	53.97	28.57	M8 x 1.25	1/8*	⚠ **2T-3SRM**	2T1-3SR	2T1-3OR-10

*Thread to BSP and ISO 7-1
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers
⚠ Refer to page A30: 110 for proper RCA assembly and safety information

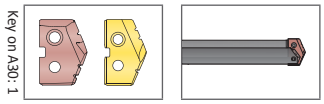


Connection Accessories

Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
1	7375-IP9-1	7375N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)

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

A30: 44 - 51 | A30: 52 - 56

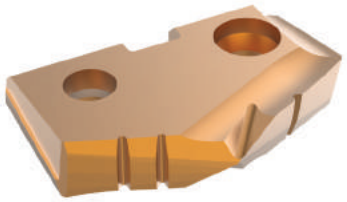


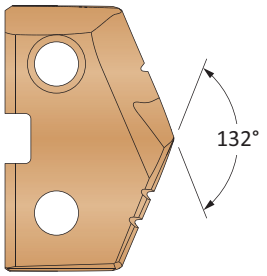
ⓘ = Imperial (in)
ⓜ = Metric (mm)
Chamfer Ring Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

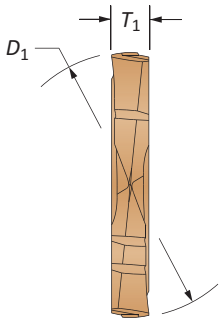
⚠ **WARNING** RCA rotation during drilling can cause hose and/or hose fitting failure, machinery damage, and/or serious injury. To prevent, use RCA and positive stop studs when drilling. Factory technical assistance is also available for your specific applications.

GEN2 T-A Drill Inserts

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





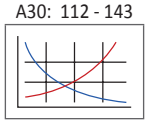


HSS Inserts – Super Cobalt • Carbide Inserts – C2 (K20) | C1 (K35)

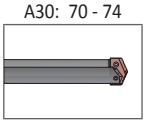
Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	HSS Part No. AM200® Super Cobalt	Carbide Part No. AM300® C2 (K20)	Carbide Part No. AM300® C1 (K35)
2	–	0.9646	24.50	3/16	452H-24.5	4C22P-24.5	4C12P-24.5
	31/32	0.9688	24.61	3/16	452H-0031	4C22P-0031	4C12P-0031
	–	0.9760	24.79	3/16	452H-.976	4C22P-.976	4C12P-.976
	63/64	0.9843	25.00	3/16	452H-25	4C22P-25	4C12P-25
	1	1.0000	25.40	3/16	452H-0100	4C22P-0100	4C12P-0100
	–	1.0039	25.50	3/16	452H-25.5	4C22P-25.5	4C12P-25.5
	1-1/64	1.0156	25.80	3/16	452H-1.015	4C22P-1.015	4C12P-1.015
	–	1.0236	26.00	3/16	452H-26	4C22P-26	4C12P-26
	1-1/32	1.0313	26.19	3/16	452H-0101	4C22P-0101	4C12P-0101
	–	1.0433	26.50	3/16	452H-26.5	4C22P-26.5	4C12P-26.5
	1-3/64	1.0469	26.59	3/16	452H-1.046	4C22P-1.046	4C12P-1.046
	1-1/16	1.0625	26.99	3/16	452H-0102	4C22P-0102	4C12P-0102
	–	1.0630	27.00	3/16	452H-27	4C22P-27	4C12P-27
	–	1.0827	27.50	3/16	452H-27.5	4C22P-27.5	4C12P-27.5
	1-3/32	1.0938	27.78	3/16	452H-0103	4C22P-0103	4C12P-0103
	–	1.1024	28.00	3/16	452H-28	4C22P-28	4C12P-28
	1-7/64	1.1094	28.18	3/16	452H-1.109	4C22P-1.109	4C12P-1.109
	–	1.1220	28.50	3/16	452H-28.5	4C22P-28.5	4C12P-28.5
	1-1/8	1.1250	28.58	3/16	452H-0104	4C22P-0104	4C12P-0104
	–	1.1417	29.00	3/16	452H-29	4C22P-29	4C12P-29
	1-5/32	1.1563	29.37	3/16	452H-0105	4C22P-0105	4C12P-0105
	–	1.1614	29.50	3/16	452H-29.5	4C22P-29.5	4C12P-29.5
	–	1.1811	30.00	3/16	452H-30	4C22P-30	4C12P-30
2.5	1-3/16	1.1875	30.16	3/16	452H-0106	4C22P-0106	4C12P-0106
	–	1.2008	30.50	3/16	452H-30.5	4C22P-30.5	4C12P-30.5
	1-7/32	1.2188	30.96	3/16	452H-0107	4C22P-0107	4C12P-0107
	–	1.2205	31.00	3/16	452H-31	4C22P-31	4C12P-31
	–	1.2260	31.14	3/16	452H-1.226	4C22P-1.226	4C12P-1.226
	–	1.2310	31.26	3/16	452H-1.231	4C22P-1.231	4C12P-1.231
	–	1.2340	31.34	3/16	452H-1.234	4C22P-1.234	4C12P-1.234
	–	1.2402	31.50	3/16	452H-31.5	4C22P-31.5	4C12P-31.5
	1-1/4	1.2500	31.75	3/16	452H-0108	4C22P-0108	4C12P-0108
	–	1.2598	32.00	3/16	452H-32	4C22P-32	4C12P-32
	–	1.2795	32.50	3/16	452H-32.5	4C22P-32.5	4C12P-32.5
	1-9/32	1.2813	32.54	3/16	452H-0109	4C22P-0109	4C12P-0109
	–	1.2992	33.00	3/16	452H-33	4C22P-33	4C12P-33
	1-5/16	1.3125	33.34	3/16	452H-0110	4C22P-0110	4C12P-0110
	–	1.3189	33.50	3/16	452H-33.5	4C22P-33.5	4C12P-33.5
	–	1.3386	34.00	3/16	452H-34	4C22P-34	4C12P-34
	1-11/32	1.3438	34.13	3/16	452H-0111	4C22P-0111	4C12P-0111
	–	1.3582	34.50	3/16	452H-34.5	4C22P-34.5	4C12P-34.5
	1-3/8	1.3750	34.93	3/16	452H-0112	4C22P-0112	4C12P-0112
	–	1.3780	35.00	3/16	452H-35	4C22P-35	4C12P-35

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

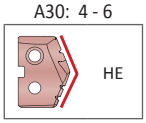
A30: 112 - 143
Key on A30: 1



A30: 70 - 74



A30: 4 - 6



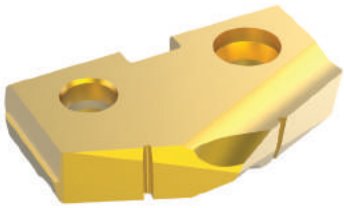
Inserts sold in quantities of 2

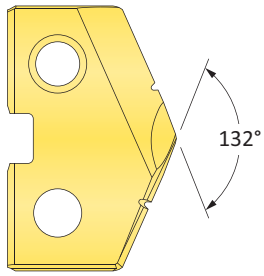
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

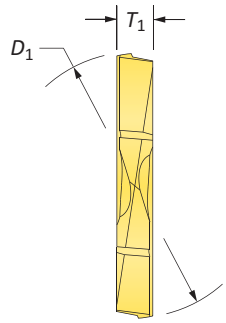
TiN = 452T-XXXX	TiAlN = 452A-XXXX
TiCN = 452N-XXXX	AM200® = 452H-XXXX

Original T-A Drill Inserts

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





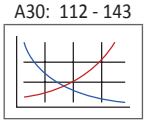


HSS Inserts – Premium Cobalt

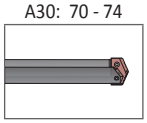
Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: TiN	Part No.: TiAlN	Part No.: TiCN
2	–	0.9646	24.50	3/16	**182T-24.5**	**182A-24.5**	**182N-24.5**
	31/32	0.9688	24.61	3/16	**182T-0031**	**182A-0031**	**182N-0031**
	–	0.9760	24.79	3/16	**182T-.976**	**182A-.976**	**182N-.976**
	63/64	0.9843	25.00	3/16	**182T-25**	**182A-25**	**182N-25**
	1	1.0000	25.40	3/16	**182T-0100**	**182A-0100**	**182N-0100**
	–	1.0039	25.50	3/16	**182T-25.5**	**182A-25.5**	**182N-25.5**
	1-1/64	1.0156	25.80	3/16	**182T-1.015**	**182A-1.015**	**182N-1.015**
	–	1.0236	26.00	3/16	**182T-26**	**182A-26**	**182N-26**
	1-1/32	1.0313	26.19	3/16	**182T-0101**	**182A-0101**	**182N-0101**
	–	1.0433	26.50	3/16	**182T-26.5**	**182A-26.5**	**182N-26.5**
	1-3/64	1.0469	26.59	3/16	**182T-1.046**	**182A-1.046**	**182N-1.046**
	1-1/16	1.0625	26.99	3/16	**182T-0102**	**182A-0102**	**182N-0102**
	–	1.0630	27.00	3/16	**182T-27**	**182A-27**	**182N-27**
	–	1.0827	27.50	3/16	**182T-27.5**	**182A-27.5**	**182N-27.5**
	1-3/32	1.0938	27.78	3/16	**182T-0103**	**182A-0103**	**182N-0103**
	–	1.1024	28.00	3/16	**182T-28**	**182A-28**	**182N-28**
	1-7/64	1.1094	28.18	3/16	**182T-1.109**	**182A-1.109**	**182N-1.109**
	–	1.1220	28.50	3/16	**182T-28.5**	**182A-28.5**	**182N-28.5**
	1-1/8	1.1250	28.58	3/16	**182T-0104**	**182A-0104**	**182N-0104**
	–	1.1417	29.00	3/16	**182T-29**	**182A-29**	**182N-29**
	1-5/32	1.1563	29.37	3/16	**182T-0105**	**182A-0105**	**182N-0105**
	–	1.1614	29.50	3/16	**182T-29.5**	**182A-29.5**	**182N-29.5**
	–	1.1811	30.00	3/16	**182T-30**	**182A-30**	**182N-30**
2.5	1-3/16	1.1875	30.16	3/16	**182T-0106**	**182A-0106**	**182N-0106**
	–	1.2008	30.50	3/16	**182T-30.5**	**182A-30.5**	**182N-30.5**
	1-7/32	1.2188	30.96	3/16	**182T-0107**	**182A-0107**	**182N-0107**
	–	1.2205	31.00	3/16	**182T-31**	**182A-31**	**182N-31**
	–	1.2260	31.14	3/16	**182T-1.226**	**182A-1.226**	**182N-1.226**
	–	1.2310	31.26	3/16	**182T-1.231**	**182A-1.231**	**182N-1.231**
	–	1.2340	31.34	3/16	**182T-1.234**	**182A-1.234**	**182N-1.234**
	–	1.2402	31.50	3/16	**182T-31.5**	**182A-31.5**	**182N-31.5**
	1-1/4	1.2500	31.75	3/16	**182T-0108**	**182A-0108**	**182N-0108**
	–	1.2598	32.00	3/16	**182T-32**	**182A-32**	**182N-32**
	–	1.2795	32.50	3/16	**182T-32.5**	**182A-32.5**	**182N-32.5**
	1-9/32	1.2813	32.54	3/16	**182T-0109**	**182A-0109**	**182N-0109**
	–	1.2992	33.00	3/16	**182T-33**	**182A-33**	**182N-33**
	1-5/16	1.3125	33.34	3/16	**182T-0110**	**182A-0110**	**182N-0110**
	–	1.3189	33.50	3/16	**182T-33.5**	**182A-33.5**	**182N-33.5**
	–	1.3386	34.00	3/16	**182T-34**	**182A-34**	**182N-34**
	1-11/32	1.3438	34.13	3/16	**182T-0111**	**182A-0111**	**182N-0111**
	–	1.3582	34.50	3/16	**182T-34.5**	**182A-34.5**	**182N-34.5**
	1-3/8	1.3750	34.93	3/16	**182T-0112**	**182A-0112**	**182N-0112**
	–	1.3780	35.00	3/16	**182T-35**	**182A-35**	**182N-35**

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

A30: 112 - 143
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

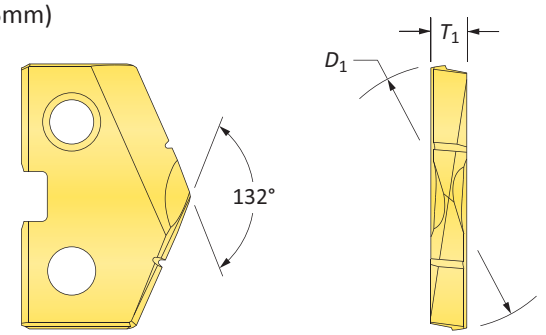
Inserts sold in quantities of 2

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

TiN = 182T-XXXX	**TiAlN** = 182A-XXXX
TiCN = 182N-XXXX	**AM200®** = 182H-XXXX

Original T-A Drill Inserts

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

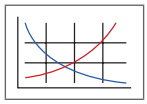


HSS Inserts – Super Cobalt

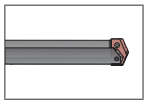
Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: TiN	Part No.: TiAlN	Part No.: TiCN
2	–	0.9646	24.50	3/16	**152T-24.5**	**152A-24.5**	**152N-24.5**
	31/32	0.9688	24.61	3/16	**152T-0031**	**152A-0031**	**152N-0031**
	–	0.9760	24.79	3/16	**152T-.976**	**152A-.976**	**152N-.976**
	63/64	0.9843	25.00	3/16	**152T-25**	**152A-25**	**152N-25**
	1	1.0000	25.40	3/16	**152T-0100**	**152A-0100**	**152N-0100**
	–	1.0039	25.50	3/16	**152T-25.5**	**152A-25.5**	**152N-25.5**
	1-1/64	1.0156	25.80	3/16	**152T-1.015**	**152A-1.015**	**152N-1.015**
	–	1.0236	26.00	3/16	**152T-26**	**152A-26**	**152N-26**
	1-1/32	1.0313	26.19	3/16	**152T-0101**	**152A-0101**	**152N-0101**
	–	1.0433	26.50	3/16	**152T-26.5**	**152A-26.5**	**152N-26.5**
	1-3/64	1.0469	26.59	3/16	**152T-1.046**	**152A-1.046**	**152N-1.046**
	1-1/16	1.0625	26.99	3/16	**152T-0102**	**152A-0102**	**152N-0102**
	–	1.0630	27.00	3/16	**152T-27**	**152A-27**	**152N-27**
	–	1.0827	27.50	3/16	**152T-27.5**	**152A-27.5**	**152N-27.5**
	1-3/32	1.0938	27.78	3/16	**152T-0103**	**152A-0103**	**152N-0103**
	–	1.1024	28.00	3/16	**152T-28**	**152A-28**	**152N-28**
	1-7/64	1.1094	28.18	3/16	**152T-1.109**	**152A-1.109**	**152N-1.109**
	–	1.1220	28.50	3/16	**152T-28.5**	**152A-28.5**	**152N-28.5**
	1-1/8	1.1250	28.58	3/16	**152T-0104**	**152A-0104**	**152N-0104**
	–	1.1417	29.00	3/16	**152T-29**	**152A-29**	**152N-29**
	1-5/32	1.1563	29.37	3/16	**152T-0105**	**152A-0105**	**152N-0105**
	–	1.1614	29.50	3/16	**152T-29.5**	**152A-29.5**	**152N-29.5**
	–	1.1811	30.00	3/16	**152T-30**	**152A-30**	**152N-30**
2.5	1-3/16	1.1875	30.16	3/16	**152T-0106**	**152A-0106**	**152N-0106**
	–	1.2008	30.50	3/16	**152T-30.5**	**152A-30.5**	**152N-30.5**
	1-7/32	1.2188	30.96	3/16	**152T-0107**	**152A-0107**	**152N-0107**
	–	1.2205	31.00	3/16	**152T-31**	**152A-31**	**152N-31**
	–	1.2260	31.14	3/16	**152T-1.226**	**152A-1.226**	**152N-1.226**
	–	1.2310	31.26	3/16	**152T-1.231**	**152A-1.231**	**152N-1.231**
	–	1.2340	31.34	3/16	**152T-1.234**	**152A-1.234**	**152N-1.234**
	–	1.2402	31.50	3/16	**152T-31.5**	**152A-31.5**	**152N-31.5**
	1-1/4	1.2500	31.75	3/16	**152T-0108**	**152A-0108**	**152N-0108**
	–	1.2598	32.00	3/16	**152T-32**	**152A-32**	**152N-32**
	–	1.2795	32.50	3/16	**152T-32.5**	**152A-32.5**	**152N-32.5**
	1-9/32	1.2813	32.54	3/16	**152T-0109**	**152A-0109**	**152N-0109**
	–	1.2992	33.00	3/16	**152T-33**	**152A-33**	**152N-33**
	1-5/16	1.3125	33.34	3/16	**152T-0110**	**152A-0110**	**152N-0110**
	–	1.3189	33.50	3/16	**152T-33.5**	**152A-33.5**	**152N-33.5**
	–	1.3386	34.00	3/16	**152T-34**	**152A-34**	**152N-34**
	1-11/32	1.3438	34.13	3/16	**152T-0111**	**152A-0111**	**152N-0111**
	–	1.3582	34.50	3/16	**152T-34.5**	**152A-34.5**	**152N-34.5**
	1-3/8	1.3750	34.93	3/16	**152T-0112**	**152A-0112**	**152N-0112**
	–	1.3780	35.00	3/16	**152T-35**	**152A-35**	**152N-35**

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

A30: 112 - 143



A30: 70 - 74



A30: 4 - 6

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

Inserts sold in quantities of 2

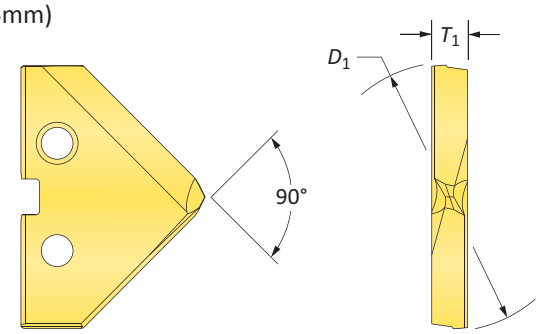
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 152T-XXXX	**TiAlN** = 152A-XXXX
TiCN = 152N-XXXX	**AM200®** = 152H-XXXX

Original T-A Drill Inserts

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

90° Spot & Chamfer



HSS Inserts – Super Cobalt

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	90° Spot & Chamfer Part No.: TiN	TiAlN	TiCN
2	–	0.9646	24.50	3/16	152T-24.5-SP	152A-24.5-SP	152N-24.5-SP
	31/32	0.9688	24.61	3/16	152T-0031-SP	152A-0031-SP	152N-0031-SP
	–	0.9760	24.79	3/16	152T-.976-SP	152A-.976-SP	152N-.976-SP
	63/64	0.9843	25.00	3/16	152T-25-SP	152A-25-SP	152N-25-SP
	1	1.0000	25.40	3/16	152T-0100-SP	152A-0100-SP	152N-0100-SP
	–	1.0039	25.50	3/16	152T-25.5-SP	152A-25.5-SP	152N-25.5-SP
	1-1/64	1.0156	25.80	3/16	152T-1.015-SP	152A-1.015-SP	152N-1.015-SP
	–	1.0236	26.00	3/16	152T-26-SP	152A-26-SP	152N-26-SP
	1-1/32	1.0313	26.19	3/16	152T-0101-SP	152A-0101-SP	152N-0101-SP
	–	1.0433	26.50	3/16	152T-26.5-SP	152A-26.5-SP	152N-26.5-SP
	1-3/64	1.0469	26.59	3/16	152T-1.046-SP	152A-1.046-SP	152N-1.046-SP
	1-1/16	1.0625	26.99	3/16	152T-0102-SP	152A-0102-SP	152N-0102-SP
	–	1.0630	27.00	3/16	152T-27-SP	152A-27-SP	152N-27-SP
	–	1.0827	27.50	3/16	152T-27.5-SP	152A-27.5-SP	152N-27.5-SP
	1-3/32	1.0938	27.78	3/16	152T-0103-SP	152A-0103-SP	152N-0103-SP
	–	1.1024	28.00	3/16	152T-28-SP	152A-28-SP	152N-28-SP
	1-7/64	1.1094	28.18	3/16	152T-1.109-SP	152A-1.109-SP	152N-1.109-SP
	–	1.1220	28.50	3/16	152T-28.5-SP	152A-28.5-SP	152N-28.5-SP
	1-1/8	1.1250	28.58	3/16	152T-0104-SP	152A-0104-SP	152N-0104-SP
	–	1.1417	29.00	3/16	152T-29-SP	152A-29-SP	152N-29-SP
	1-5/32	1.1563	29.37	3/16	152T-0105-SP	152A-0105-SP	152N-0105-SP
	–	1.1614	29.50	3/16	152T-29.5-SP	152A-29.5-SP	152N-29.5-SP
	–	1.1811	30.00	3/16	152T-30-SP	152A-30-SP	152N-30-SP
2.5	1-3/16	1.1875	30.16	3/16	152T-0106-SP	152A-0106-SP	152N-0106-SP
	–	1.2008	30.50	3/16	152T-30.5-SP	152A-30.5-SP	152N-30.5-SP
	1-7/32	1.2188	30.96	3/16	152T-0107-SP	152A-0107-SP	152N-0107-SP
	–	1.2205	31.00	3/16	152T-31-SP	152A-31-SP	152N-31-SP
	–	1.2260	31.14	3/16	152T-1.226-SP	152A-1.226-SP	152N-1.226-SP
	–	1.2310	31.26	3/16	152T-1.231-SP	152A-1.231-SP	152N-1.231-SP
	–	1.2340	31.34	3/16	152T-1.234-SP	152A-1.234-SP	152N-1.234-SP
	–	1.2402	31.50	3/16	152T-31.5-SP	152A-31.5-SP	152N-31.5-SP
	1-1/4	1.2500	31.75	3/16	152T-0108-SP	152A-0108-SP	152N-0108-SP
	–	1.2598	32.00	3/16	152T-32-SP	152A-32-SP	152N-32-SP
	–	1.2795	32.50	3/16	152T-32.5-SP	152A-32.5-SP	152N-32.5-SP
	1-9/32	1.2813	32.54	3/16	152T-0109-SP	152A-0109-SP	152N-0109-SP
	–	1.2992	33.00	3/16	152T-33-SP	152A-33-SP	152N-33-SP
	1-5/16	1.3125	33.34	3/16	152T-0110-SP	152A-0110-SP	152N-0110-SP
	–	1.3189	33.50	3/16	152T-33.5-SP	152A-33.5-SP	152N-33.5-SP
	–	1.3386	34.00	3/16	152T-34-SP	152A-34-SP	152N-34-SP
	1-11/32	1.3438	34.13	3/16	152T-0111-SP	152A-0111-SP	152N-0111-SP
	–	1.3582	34.50	3/16	152T-34.5-SP	152A-34.5-SP	152N-34.5-SP
	1-3/8	1.3750	34.93	3/16	152T-0112-SP	152A-0112-SP	152N-0112-SP
	–	1.3780	35.00	3/16	152T-35-SP	152A-35-SP	152N-35-SP

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

A30: 112 - 143 | A30: 70 - 74 | A30: 4 - 6

Key on A30: 1

SW

Inserts sold in quantities of 2

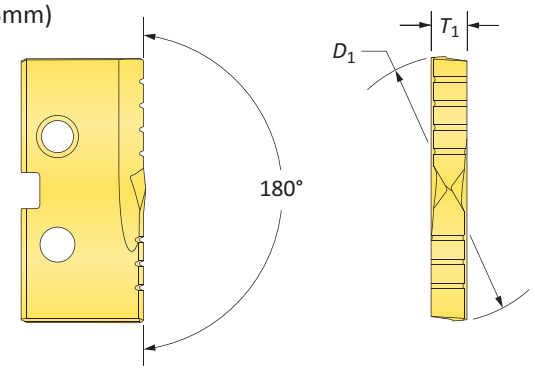
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 152T-XXXX	TiAlN = 152A-XXXX
TiCN = 152N-XXXX	AM200® = 152H-XXXX

Original T-A Drill Inserts

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

Flat Bottom

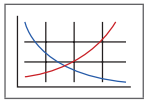


HSS Inserts – Super Cobalt

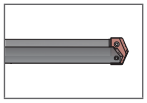
Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Flat Bottom Part No. TiN
2	–	0.9646	24.50	3/16	**152T-24.5-FB**
	31/32	0.9688	24.61	3/16	**152T-0031-FB**
	–	0.9760	24.79	3/16	**152T-.976-FB**
	63/64	0.9843	25.00	3/16	**152T-25-FB**
	1	1.0000	25.40	3/16	**152T-0100-FB**
	–	1.0039	25.50	3/16	**152T-25.5-FB**
	1-1/64	1.0156	25.80	3/16	**152T-1.015-FB**
	–	1.0236	26.00	3/16	**152T-26-FB**
	1-1/32	1.0313	26.19	3/16	**152T-0101-FB**
	–	1.0433	26.50	3/16	**152T-26.5-FB**
	1-3/64	1.0469	26.59	3/16	**152T-1.046-FB**
	1-1/16	1.0625	26.99	3/16	**152T-0102-FB**
	–	1.0630	27.00	3/16	**152T-27-FB**
	–	1.0827	27.50	3/16	**152T-27.5-FB**
	1-3/32	1.0938	27.78	3/16	**152T-0103-FB**
	–	1.1024	28.00	3/16	**152T-28-FB**
	1-7/64	1.1094	28.18	3/16	**152T-1.109-FB**
	–	1.1220	28.50	3/16	**152T-28.5-FB**
	1-1/8	1.1250	28.58	3/16	**152T-0104-FB**
	–	1.1417	29.00	3/16	**152T-29-FB**
	1-5/32	1.1563	29.37	3/16	**152T-0105-FB**
	–	1.1614	29.50	3/16	**152T-29.5-FB**
	–	1.1811	30.00	3/16	**152T-30-FB**
2.5	1-3/16	1.1875	30.16	3/16	**152T-0106-FB**
	–	1.2008	30.50	3/16	**152T-30.5-FB**
	1-7/32	1.2188	30.96	3/16	**152T-0107-FB**
	–	1.2205	31.00	3/16	**152T-31-FB**
	–	1.2260	31.14	3/16	**152T-1.226-FB**
	–	1.2310	31.26	3/16	**152T-1.231-FB**
	–	1.2340	31.34	3/16	**152T-1.234-FB**
	–	1.2402	31.50	3/16	**152T-31.5-FB**
	1-1/4	1.2500	31.75	3/16	**152T-0108-FB**
	–	1.2598	32.00	3/16	**152T-32-FB**
	–	1.2795	32.50	3/16	**152T-32.5-FB**
	1-9/32	1.2813	32.54	3/16	**152T-0109-FB**
	–	1.2992	33.00	3/16	**152T-33-FB**
	1-5/16	1.3125	33.34	3/16	**152T-0110-FB**
	–	1.3189	33.50	3/16	**152T-33.5-FB**
	–	1.3386	34.00	3/16	**152T-34-FB**
	1-11/32	1.3438	34.13	3/16	**152T-0111-FB**
	–	1.3582	34.50	3/16	**152T-34.5-FB**
	1-3/8	1.3750	34.93	3/16	**152T-0112-FB**
	–	1.3780	35.00	3/16	**152T-35-FB**

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

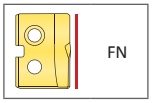
A30: 112 - 143
Key on A30: 1



A30: 70 - 74



A30: 4 - 6



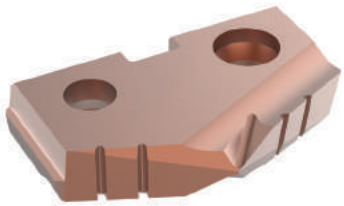
Inserts sold in quantities of 2

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

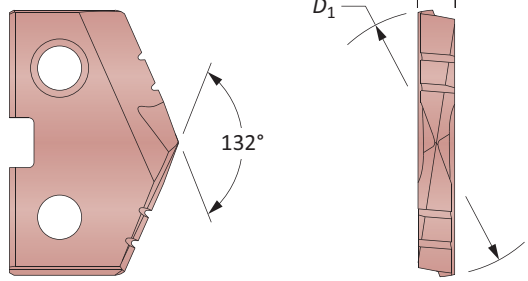
TiN = 152T-XXXX	**TiAlN** = 152A-XXXX
TiCN = 152N-XXXX	**AM200®** = 152H-XXXX

Original T-A Drill Inserts

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



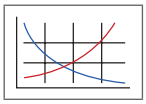
Tube Sheet



HSS Inserts – Super Cobalt | HSS

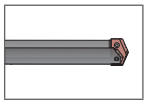
Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: Super Cobalt	Part No.: HSS
2	–	1.0080	25.60	3/16	**152H-1.0080-IN**	**132H-1.0080-IN**
	1-1/64	1.0156	25.80	3/16	**152H-1.015-IN**	**132H-1.015-IN**
	1-1/32	1.0313	26.19	3/16	**152H-0101-IN**	**132H-0101-IN**

A30: 112 - 143



Key on A30: 1

A30: 70 - 74



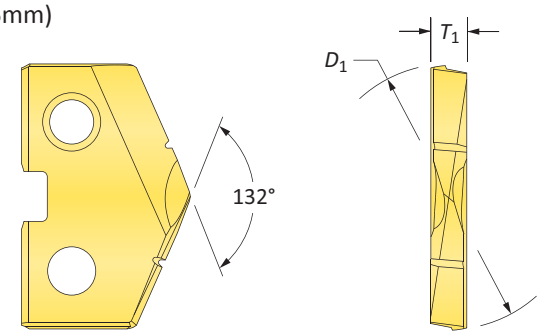
Inserts sold in quantities of 2

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

TiN = 152T-XXXX	**TiAlN** = 152A-XXXX
TiCN = 152N-XXXX	**AM200®** = 152H-XXXX

Original T-A Drill Inserts

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

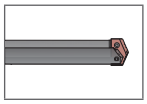


HSS Inserts – HSS

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: TiN	Part No.: TiAlN	Part No.: TiCN
2	–	0.9646	24.50	3/16	**132T-24.5**	**132A-24.5**	**132N-24.5**
	31/32	0.9688	24.61	3/16	**132T-0031**	**132A-0031**	**132N-0031**
	–	0.9760	24.79	3/16	**132T-.976**	**132A-.976**	**132N-.976**
	63/64	0.9843	25.00	3/16	**132T-25**	**132A-25**	**132N-25**
	1	1.0000	25.40	3/16	**132T-0100**	**132A-0100**	**132N-0100**
	–	1.0039	25.50	3/16	**132T-25.5**	**132A-25.5**	**132N-25.5**
	1-1/64	1.0156	25.80	3/16	**132T-1.015**	**132A-1.015**	**132N-1.015**
	–	1.0236	26.00	3/16	**132T-26**	**132A-26**	**132N-26**
	1-1/32	1.0313	26.19	3/16	**132T-0101**	**132A-0101**	**132N-0101**
	–	1.0433	26.50	3/16	**132T-26.5**	**132A-26.5**	**132N-26.5**
	1-3/64	1.0469	26.59	3/16	**132T-1.046**	**132A-1.046**	**132N-1.046**
	1-1/16	1.0625	26.99	3/16	**132T-0102**	**132A-0102**	**132N-0102**
	–	1.0630	27.00	3/16	**132T-27**	**132A-27**	**132N-27**
	–	1.0827	27.50	3/16	**132T-27.5**	**132A-27.5**	**132N-27.5**
	1-3/32	1.0938	27.78	3/16	**132T-0103**	**132A-0103**	**132N-0103**
	–	1.1024	28.00	3/16	**132T-28**	**132A-28**	**132N-28**
	1-7/64	1.1094	28.18	3/16	**132T-1.109**	**132A-1.109**	**132N-1.109**
	–	1.1220	28.50	3/16	**132T-28.5**	**132A-28.5**	**132N-28.5**
	1-1/8	1.1250	28.58	3/16	**132T-0104**	**132A-0104**	**132N-0104**
	–	1.1417	29.00	3/16	**132T-29**	**132A-29**	**132N-29**
	1-5/32	1.1563	29.37	3/16	**132T-0105**	**132A-0105**	**132N-0105**
	–	1.1614	29.50	3/16	**132T-29.5**	**132A-29.5**	**132N-29.5**
	–	1.1811	30.00	3/16	**132T-30**	**132A-30**	**132N-30**
2.5	1-3/16	1.1875	30.16	3/16	**132T-0106**	**132A-0106**	**132N-0106**
	–	1.2008	30.50	3/16	**132T-30.5**	**132A-30.5**	**132N-30.5**
	1-7/32	1.2188	30.96	3/16	**132T-0107**	**132A-0107**	**132N-0107**
	–	1.2205	31.00	3/16	**132T-31**	**132A-31**	**132N-31**
	–	1.2260	31.14	3/16	**132T-1.226**	**132A-1.226**	**132N-1.226**
	–	1.2310	31.26	3/16	**132T-1.231**	**132A-1.231**	**132N-1.231**
	–	1.2340	31.34	3/16	**132T-1.234**	**132A-1.234**	**132N-1.234**
	–	1.2402	31.50	3/16	**132T-31.5**	**132A-31.5**	**132N-31.5**
	1-1/4	1.2500	31.75	3/16	**132T-0108**	**132A-0108**	**132N-0108**
	–	1.2598	32.00	3/16	**132T-32**	**132A-32**	**132N-32**
	–	1.2795	32.50	3/16	**132T-32.5**	**132A-32.5**	**132N-32.5**
	1-9/32	1.2813	32.54	3/16	**132T-0109**	**132A-0109**	**132N-0109**
	–	1.2992	33.00	3/16	**132T-33**	**132A-33**	**132N-33**
	1-5/16	1.3125	33.34	3/16	**132T-0110**	**132A-0110**	**132N-0110**
	–	1.3189	33.50	3/16	**132T-33.5**	**132A-33.5**	**132N-33.5**
	–	1.3386	34.00	3/16	**132T-34**	**132A-34**	**132N-34**
	1-11/32	1.3438	34.13	3/16	**132T-0111**	**132A-0111**	**132N-0111**
	–	1.3582	34.50	3/16	**132T-34.5**	**132A-34.5**	**132N-34.5**
	1-3/8	1.3750	34.93	3/16	**132T-0112**	**132A-0112**	**132N-0112**
	–	1.3780	35.00	3/16	**132T-35**	**132A-35**	**132N-35**

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

A30: 112 - 143
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

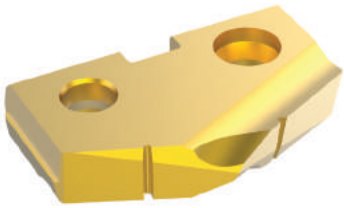
Inserts sold in quantities of 2

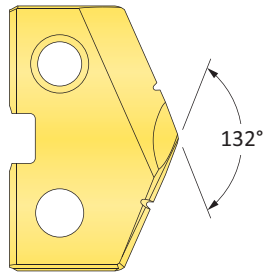
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

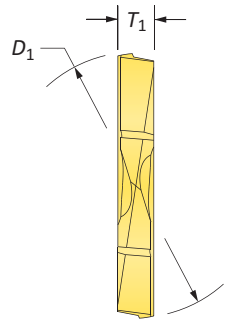
TiN = 132T-XXXX	**TiAlN** = 132A-XXXX
TiCN = 132N-XXXX	**AM200®** = 132H-XXXX

Original T-A Drill Inserts

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







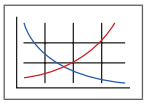
Carbide Inserts – C2 (K20)

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Part No.: TiN	Part No.: TiAlN
2	–	0.9646	24.50	3/16	**1C22T-24.5**	**1C22A-24.5**
	31/32	0.9688	24.61	3/16	**1C22T-0031**	**1C22A-0031**
	–	0.9760	24.79	3/16	**1C22T-.976**	**1C22A-.976**
	63/64	0.9843	25.00	3/16	**1C22T-25**	**1C22A-25**
	1	1.0000	25.40	3/16	**1C22T-0100**	**1C22A-0100**
	–	1.0039	25.50	3/16	**1C22T-25.5**	**1C22A-25.5**
	1-1/64	1.0156	25.80	3/16	**1C22T-1.015**	**1C22A-1.015**
	–	1.0236	26.00	3/16	**1C22T-26**	**1C22A-26**
	1-1/32	1.0313	26.19	3/16	**1C22T-0101**	**1C22A-0101**
	–	1.0433	26.50	3/16	**1C22T-26.5**	**1C22A-26.5**
	1-3/64	1.0469	26.59	3/16	**1C22T-1.046**	**1C22A-1.046**
	1-1/16	1.0625	26.99	3/16	**1C22T-0102**	**1C22A-0102**
	–	1.0630	27.00	3/16	**1C22T-27**	**1C22A-27**
	–	1.0827	27.50	3/16	**1C22T-27.5**	**1C22A-27.5**
	1-3/32	1.0938	27.78	3/16	**1C22T-0103**	**1C22A-0103**
	–	1.1024	28.00	3/16	**1C22T-28**	**1C22A-28**
	1-7/64	1.1094	28.18	3/16	**1C22T-1.109**	**1C22A-1.109**
	–	1.1220	28.50	3/16	**1C22T-28.5**	**1C22A-28.5**
	1-1/8	1.1250	28.58	3/16	**1C22T-0104**	**1C22A-0104**
	–	1.1417	29.00	3/16	**1C22T-29**	**1C22A-29**
	1-5/32	1.1563	29.37	3/16	**1C22T-0105**	**1C22A-0105**
	–	1.1614	29.50	3/16	**1C22T-29.5**	**1C22A-29.5**
	–	1.1811	30.00	3/16	**1C22T-30**	**1C22A-30**
2.5	1-3/16	1.1875	30.16	3/16	**1C22T-0106**	**1C22A-0106**
	–	1.2008	30.50	3/16	**1C22T-30.5**	**1C22A-30.5**
	1-7/32	1.2188	30.96	3/16	**1C22T-0107**	**1C22A-0107**
	–	1.2205	31.00	3/16	**1C22T-31**	**1C22A-31**
	–	1.2260	31.14	3/16	**1C22T-1.226**	**1C22A-1.226**
	–	1.2310	31.26	3/16	**1C22T-1.231**	**1C22A-1.231**
	–	1.2340	31.34	3/16	**1C22T-1.234**	**1C22A-1.234**
	–	1.2402	31.50	3/16	**1C22T-31.5**	**1C22A-31.5**
	1-1/4	1.2500	31.75	3/16	**1C22T-0108**	**1C22A-0108**
	–	1.2598	32.00	3/16	**1C22T-32**	**1C22A-32**
	–	1.2795	32.50	3/16	**1C22T-32.5**	**1C22A-32.5**
	1-9/32	1.2813	32.54	3/16	**1C22T-0109**	**1C22A-0109**
	–	1.2992	33.00	3/16	**1C22T-33**	**1C22A-33**
	1-5/16	1.3125	33.34	3/16	**1C22T-0110**	**1C22A-0110**
	–	1.3189	33.50	3/16	**1C22T-33.5**	**1C22A-33.5**
	–	1.3386	34.00	3/16	**1C22T-34**	**1C22A-34**
	1-11/32	1.3438	34.13	3/16	**1C22T-0111**	**1C22A-0111**
	–	1.3582	34.50	3/16	**1C22T-34.5**	**1C22A-34.5**
	1-3/8	1.3750	34.93	3/16	**1C22T-0112**	**1C22A-0112**
	–	1.3780	35.00	3/16	**1C22T-35**	**1C22A-35**

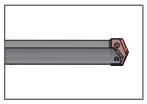
NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

A30: 112 - 143

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

Inserts sold in quantities of 1

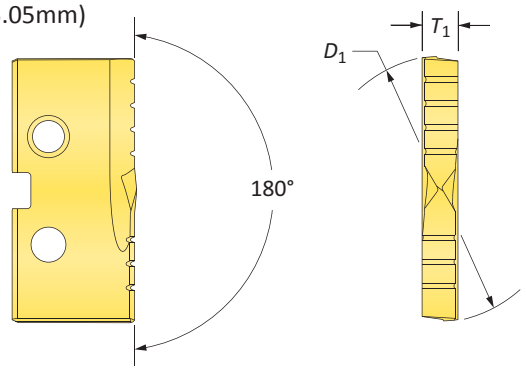
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 1C22T-XXXX	**TiAlN** = 1C22A-XXXX
TiCN = 1C22N-XXXX	**AM200®** = 1C22H-XXXX

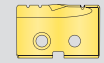
Original T-A Drill Inserts

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

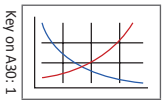
Flat Bottom

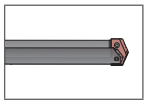


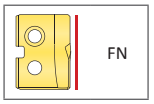
Carbide Inserts – C2 (K20)

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	Flat Bottom Part No.  TiN
2	–	0.9646	24.50	3/16	**1C22T-24.5-FB**
	31/32	0.9688	24.61	3/16	**1C22T-0031-FB**
	–	0.9760	24.79	3/16	**1C22T-.976-FB**
	63/64	0.9843	25.00	3/16	**1C22T-25-FB**
	1	1.0000	25.40	3/16	**1C22T-0100-FB**
	–	1.0039	25.50	3/16	**1C22T-25.5-FB**
	1-1/64	1.0156	25.80	3/16	**1C22T-1.015-FB**
	–	1.0236	26.00	3/16	**1C22T-26-FB**
	1-1/32	1.0313	26.19	3/16	**1C22T-0101-FB**
	–	1.0433	26.50	3/16	**1C22T-26.5-FB**
	1-3/64	1.0469	26.59	3/16	**1C22T-1.046-FB**
	1-1/16	1.0625	26.99	3/16	**1C22T-0102-FB**
	–	1.0630	27.00	3/16	**1C22T-27-FB**
	–	1.0827	27.50	3/16	**1C22T-27.5-FB**
	1-3/32	1.0938	27.78	3/16	**1C22T-0103-FB**
	–	1.1024	28.00	3/16	**1C22T-28-FB**
	1-7/64	1.1094	28.18	3/16	**1C22T-1.109-FB**
	–	1.1220	28.50	3/16	**1C22T-28.5-FB**
	1-1/8	1.1250	28.58	3/16	**1C22T-0104-FB**
	–	1.1417	29.00	3/16	**1C22T-29-FB**
	1-5/32	1.1563	29.37	3/16	**1C22T-0105-FB**
	–	1.1614	29.50	3/16	**1C22T-29.5-FB**
	–	1.1811	30.00	3/16	**1C22T-30-FB**
2.5	1-3/16	1.1875	30.16	3/16	**1C22T-0106-FB**
	–	1.2008	30.50	3/16	**1C22T-30.5-FB**
	1-7/32	1.2188	30.96	3/16	**1C22T-0107-FB**
	–	1.2205	31.00	3/16	**1C22T-31-FB**
	–	1.2260	31.14	3/16	**1C22T-1.226-FB**
	–	1.2310	31.26	3/16	**1C22T-1.231-FB**
	–	1.2340	31.34	3/16	**1C22T-1.234-FB**
	–	1.2402	31.50	3/16	**1C22T-31.5-FB**
	1-1/4	1.2500	31.75	3/16	**1C22T-0108-FB**
	–	1.2598	32.00	3/16	**1C22T-32-FB**
	–	1.2795	32.50	3/16	**1C22T-32.5-FB**
	1-9/32	1.2813	32.54	3/16	**1C22T-0109-FB**
	–	1.2992	33.00	3/16	**1C22T-33-FB**
	1-5/16	1.3125	33.34	3/16	**1C22T-0110-FB**
	–	1.3189	33.50	3/16	**1C22T-33.5-FB**
	–	1.3386	34.00	3/16	**1C22T-34-FB**
	1-11/32	1.3438	34.13	3/16	**1C22T-0111-FB**
	–	1.3582	34.50	3/16	**1C22T-34.5-FB**
	1-3/8	1.3750	34.93	3/16	**1C22T-0112-FB**
	–	1.3780	35.00	3/16	**1C22T-35-FB**

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

A30: 112 - 143

Key on A30: 1

A30: 70 - 74


A30: 4 - 6


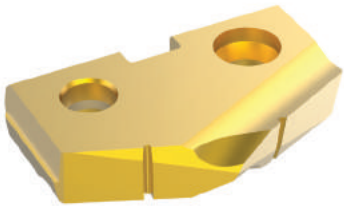
Inserts sold in quantities of 1

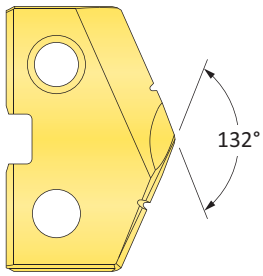
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

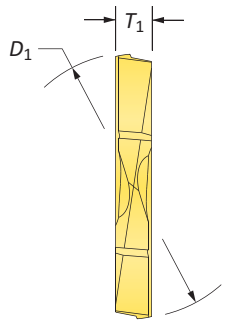
TiN = 1C22T-XXXX	**TiAlN** = 1C22A-XXXX
TiCN = 1C22N-XXXX	**AM200®** = 1C22H-XXXX

Original T-A Drill Inserts

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







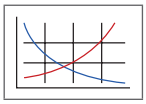
Carbide Inserts – C5 (P40) | C3 (K10) | N2

Series	Insert: Fractional Equivalent	Insert: D_1 inch	Insert: D_1 mm	Insert: T_1	C5 Part No. TiN	C5 Part No. TiAlN	C3 Part No. TiAlN (Cast Iron)	N2 Part No. Diamond Film
2	–	0.9646	24.50	3/16	1C52T-24.5	1C52A-24.5	1C32A-24.5-CI	1N22D-24.5
	31/32	0.9688	24.61	3/16	1C52T-0031	1C52A-0031	1C32A-0031-CI	1N22D-0031
	–	0.9760	24.79	3/16	1C52T-.976	1C52A-.976	1C32A-.976-CI	1N22D-.976
	63/64	0.9843	25.00	3/16	1C52T-25	1C52A-25	1C32A-25-CI	1N22D-25
	1	1.0000	25.40	3/16	1C52T-0100	1C52A-0100	1C32A-0100-CI	1N22D-0100
	–	1.0039	25.50	3/16	1C52T-25.5	1C52A-25.5	1C32A-25.5-CI	1N22D-25.5
	1-1/64	1.0156	25.80	3/16	1C52T-1.015	1C52A-1.015	1C32A-1.015-CI	1N22D-1.015
	–	1.0236	26.00	3/16	1C52T-26	1C52A-26	1C32A-26-CI	1N22D-26
	1-1/32	1.0313	26.19	3/16	1C52T-0101	1C52A-0101	1C32A-0101-CI	1N22D-0101
	–	1.0433	26.50	3/16	1C52T-26.5	1C52A-26.5	1C32A-26.5-CI	1N22D-26.5
	1-3/64	1.0469	26.59	3/16	1C52T-1.046	1C52A-1.046	1C32A-1.046-CI	1N22D-1.046
	1-1/16	1.0625	26.99	3/16	1C52T-0102	1C52A-0102	1C32A-0102-CI	1N22D-0102
	–	1.0630	27.00	3/16	1C52T-27	1C52A-27	1C32A-27-CI	1N22D-27
	–	1.0827	27.50	3/16	1C52T-27.5	1C52A-27.5	1C32A-27.5-CI	1N22D-27.5
	1-3/32	1.0938	27.78	3/16	1C52T-0103	1C52A-0103	1C32A-0103-CI	1N22D-0103
	–	1.1024	28.00	3/16	1C52T-28	1C52A-28	1C32A-28-CI	1N22D-28
	1-7/64	1.1094	28.18	3/16	1C52T-1.109	1C52A-1.109	1C32A-1.109-CI	1N22D-1.109
	–	1.1220	28.50	3/16	1C52T-28.5	1C52A-28.5	1C32A-28.5-CI	1N22D-28.5
	1-1/8	1.1250	28.58	3/16	1C52T-0104	1C52A-0104	1C32A-0104-CI	1N22D-0104
	–	1.1417	29.00	3/16	1C52T-29	1C52A-29	1C32A-29-CI	1N22D-29
	1-5/32	1.1563	29.37	3/16	1C52T-0105	1C52A-0105	1C32A-0105-CI	1N22D-0105
	–	1.1614	29.50	3/16	1C52T-29.5	1C52A-29.5	1C32A-29.5-CI	1N22D-29.5
	–	1.1811	30.00	3/16	1C52T-30	1C52A-30	1C32A-30-CI	1N22D-30
2.5	1-3/16	1.1875	30.16	3/16	1C52T-0106	1C52A-0106	1C32A-0106-CI	1N22D-0106
	–	1.2008	30.50	3/16	1C52T-30.5	1C52A-30.5	1C32A-30.5-CI	1N22D-30.5
	1-7/32	1.2188	30.96	3/16	1C52T-0107	1C52A-0107	1C32A-0107-CI	1N22D-0107
	–	1.2205	31.00	3/16	1C52T-31	1C52A-31	1C32A-31-CI	1N22D-31
	–	1.2260	31.14	3/16	1C52T-1.226	1C52A-1.226	1C32A-1.226-CI	1N22D-1.226
	–	1.2310	31.26	3/16	1C52T-1.231	1C52A-1.231	1C32A-1.231-CI	1N22D-1.231
	–	1.2340	31.34	3/16	1C52T-1.234	1C52A-1.234	1C32A-1.234-CI	1N22D-1.234
	–	1.2402	31.50	3/16	1C52T-31.5	1C52A-31.5	1C32A-31.5-CI	1N22D-31.5
	1-1/4	1.2500	31.75	3/16	1C52T-0108	1C52A-0108	1C32A-0108-CI	1N22D-0108
	–	1.2598	32.00	3/16	1C52T-32	1C52A-32	1C32A-32-CI	1N22D-32
	–	1.2795	32.50	3/16	1C52T-32.5	1C52A-32.5	1C32A-32.5-CI	1N22D-32.5
	1-9/32	1.2813	32.54	3/16	1C52T-0109	1C52A-0109	1C32A-0109-CI	1N22D-0109
	–	1.2992	33.00	3/16	1C52T-33	1C52A-33	1C32A-33-CI	1N22D-33
	1-5/16	1.3125	33.34	3/16	1C52T-0110	1C52A-0110	1C32A-0110-CI	1N22D-0110
	–	1.3189	33.50	3/16	1C52T-33.5	1C52A-33.5	1C32A-33.5-CI	1N22D-33.5
	–	1.3386	34.00	3/16	1C52T-34	1C52A-34	1C32A-34-CI	1N22D-34
	1-11/32	1.3438	34.13	3/16	1C52T-0111	1C52A-0111	1C32A-0111-CI	1N22D-0111
	–	1.3582	34.50	3/16	1C52T-34.5	1C52A-34.5	1C32A-34.5-CI	1N22D-34.5
	1-3/8	1.3750	34.93	3/16	1C52T-0112	1C52A-0112	1C32A-0112-CI	1N22D-0112
	–	1.3780	35.00	3/16	1C52T-35	1C52A-35	1C32A-35-CI	1N22D-35

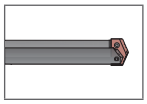
NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

A30: 112 - 143

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

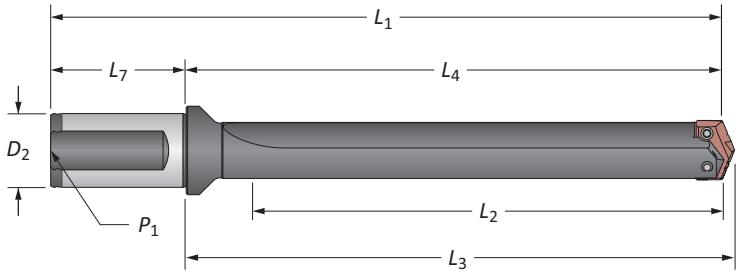
Inserts sold in quantities of 1

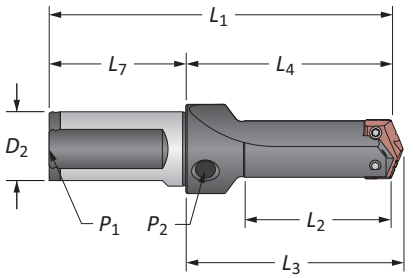
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 1C52T-XXXX	**TiAlN** = 1C52A-XXXX
TiCN = 1C52N-XXXX	**AM200®** = 1C52H-XXXX

T-A Drill Insert Holders

2 Series | Flange Shank | Diameter Range: 0.961” - 1.380” (24.41mm - 35.05mm)





Stub Length

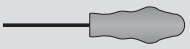
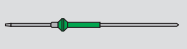
Straight Flute

Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
2	Stub	2-1/4	3-31/64	3-5/8	5-49/64	1-1/4	2-9/32	1/4	**21020S-125F**
2	Short	3-5/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4	**22020S-125F**
2	Intermediate	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	**23020S-125F**
2	Standard	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	**24020S-125F**
2	Extended	11-3/8	13-1-16	13-13/64	15-11/32	1-1/4	2-9/32	1/4	⚠ **25020S-125F**
2.5	Stub	3-5/8	4-55/64	5	7-9/64	1-1/4	2-9/32	1/4	**21025S-125F**
2.5	Short	3-5/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4	**22025S-125F**
2.5	Intermediate	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	**23025S-125F**
2.5	Standard	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	**24025S-125F**
2.5	Extended	11-3/8	13-1-16	13-13/64	15-11/32	1-1/4	2-9/32	1/4	⚠ **25025S-125F**
2	Stub	57.2	88.5	92.1	148.5	32.0	60.0	1/4*	**21020S-32FM**
2	Short	85.7	128.6	132.2	188.6	32.0	60.0	1/4*	**22020S-32FM**
2	XL	511.0	554.1	557.7	614.1	32.0	60.0	1/4*	⚠ **27020S-32FM**
2	3XL	692.0	735.1	738.7	795.1	32.0	60.0	1/4*	⚠ **29020S-32FM**
2.5	Stub	92.1	123.4	127.0	183.4	32.0	60.0	1/4*	**21025S-32FM**
2.5	Short	85.7	128.6	132.2	188.6	32.0	60.0	1/4*	**22025S-32FM**

*Metric thread to BSP and ISO 7-1

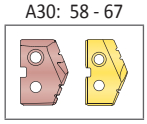
NOTE: Stub length holders have a 1/8” side pipe tap (P_2)

Connection Accessories

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

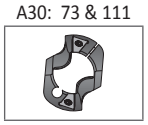
*Tightening torques are calculated with a friction coefficient of μ = 0.14 and develop 90% of ultimate yield strength

A30: 58 - 67



Key on A30: 1

A30: 73 & 111

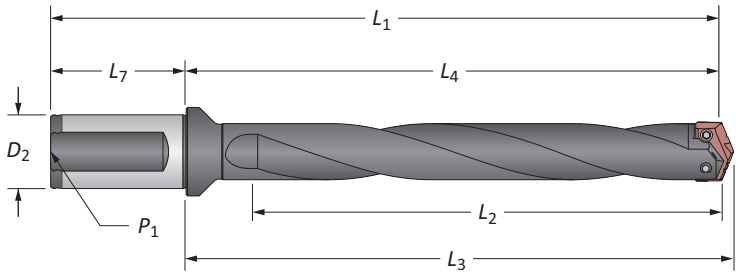


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

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

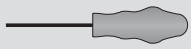
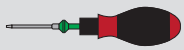


Helical Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	2	Intermediate	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	**23020H-125F**
		Standard	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	**24020H-125F**
		Standard Plus	9-3/8	11-1/16	11-13/64	13-31/64	1-1/4	2-9/32	1/4	**24520H-125F**
		Extended	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4	⚠ **25020H-125F**
		Long	16-1/8	17-53/64	7-31/32	20-1/4	1-1/4	2-9/32	1/4	⚠ **26020H-125F**
	2.5	Intermediate	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	**23025H-125F**
		Standard	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	**24025H-125F**
		Extended	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4	⚠ **25025H-125F**
ⓜ	2	Intermediate	136.5	179.4	183.0	239.4	32.0	60.0	1/4*	**23020H-32FM**
		Standard	187.3	230.2	233.8	290.2	32.0	60.0	1/4*	**24020H-32FM**
		Standard Plus	238.0	280.9	284.5	340.9	32.0	60.0	1/4*	**24520H-32FM**
		Extended	288.9	331.8	335.4	391.8	32.0	60.0	1/4*	⚠ **25020H-32FM**
		Long	410.0	452.9	456.5	512.9	32.0	60.0	1/4*	⚠ **26020H-32FM**
	2.5	Intermediate	136.5	179.4	183.0	239.4	32.0	60.0	1/4*	**23025H-32FM**
		Standard	187.3	230.2	233.8	290.2	32.0	60.0	1/4*	**24025H-32FM**
		Extended	288.9	331.8	335.4	391.8	32.0	60.0	1/4*	⚠ **25025H-32FM**

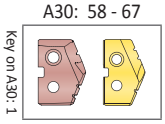
*Metric thread to BSP and ISO 7-1

Connection Accessories

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

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

A30: 58 - 67



ⓘ = Imperial (in)
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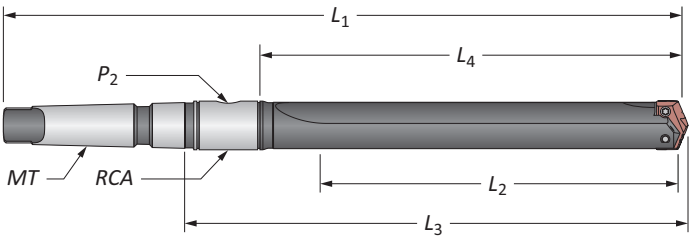
T-A Drill Insert Holders

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

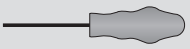


Straight Flute

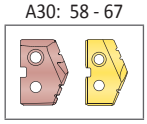
	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓘ	2	Short	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	2T-3SR	**22020S-003I**
		Short	3-3/8	4-1/2	6-19/64	10-25/32	#4	1/8	2T-3SR	**22020S-004I**
		Intermediate	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	2T-3SR	**23020S-004I**
		Standard	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	**24020S-003I**
		Standard	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	2T-3SR	**24020S-004I**
		Extended	11-3/8	12-1/2	14-15/64	18-25/32	#4	1/4	2T-3SR	⚠ **25020S-004I**
	2.5	Short	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	2T-3SR	**22025S-003I**
		Short	3-3/8	4-1/2	6-37/64	11-1/16	#4	1/4	2T-4SR	**22025S-004I**
		Intermediate	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	2T-4SR	**23025S-004I**
		Standard	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	**24025S-003I**
		Standard	7-3/8	8-1/2	10-37/64	15-1/16	#4	1/8	2T-4SR	**24025S-004I**
		Extended	11-3/8	12-1/2	14-37/64	19-1/16	#4	1/4	2T-4SR	⚠ **25025S-004I**
ⓜ	2	Short	69.8	98.4	142.5	232.5	#4**	1/8*	2T-3SRM	**22020S-004M**
	2.5	Short	69.8	98.4	142.5	232.5	#4**	1/8*	2T-4SRM	**22025S-004M**

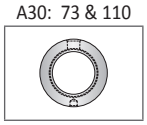
*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK
NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

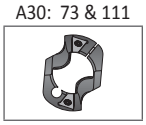
Connection Accessories

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

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

A30: 58 - 67 
Key on A30: 1

A30: 73 & 110 

A30: 73 & 111 

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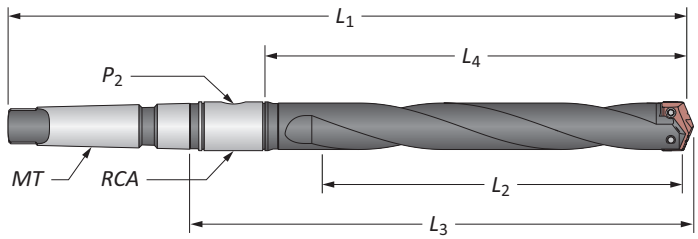
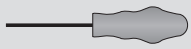
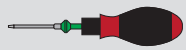


Helical Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
i	2	Intermediate	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	2T-3SR	**23020H-004I**
		Standard	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	**24020H-003I**
		Standard	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	2T-3SR	**24020H-004I**
		Extended	11-3/8	12-1/2	14-15/64	18-25/32	#4	1/8	2T-3SR	⚠ **25020H-004I**
	2.5	Intermediate	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	2T-4SR	**23025H-004I**
		Standard	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	**24025H-003I**
		Standard	7-3/8	8-1/2	10-37/64	15-1/6	#4	1/4	2T-4SR	**24025H-004I**
		Extended	11-3/8	12-1/2	14-37/64	19-1/16	#4	1/4	2T-4SR	⚠ **25025H-004I**
m	2	Intermediate	136.5	165.1	211.2	324.6	#4**	1/8*	2T-3SRM	**23020H-004M**
		Standard	187.3	215.9	262.0	375.4	#4**	1/8*	2T-3SRM	**24020H-004M**
		Extended	289.0	317.5	363.6	477.0	#4**	1/8*	2T-3SRM	⚠ **25020H-004M**
	2.5	Intermediate	136.5	165.1	218.4	331.8	#4**	1/4*	2T-4SRM	**23025H-004M**
		Standard	187.3	215.9	269.2	382.6	#4**	1/4*	2T-4SRM	**24025H-004M**
		Extended	289.0	317.5	370.8	484.2	#4**	1/4*	2T-4SRM	⚠ **25025H-004M**

*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK
NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

Connection Accessories

 Insert Screws	 Nylon Locking Screws	 Insert Driver	 Preset Torque Hand Driver	 Replacement Tips	Admissible Tightening Torque*
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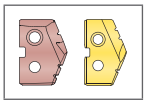
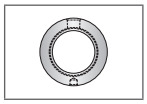
*Tightening torques are calculated with a friction coefficient of μ = 0.14 and develop 90% of ultimate yield strength

A30: 58 - 67



Key on A30: 1

A30: 73 & 110

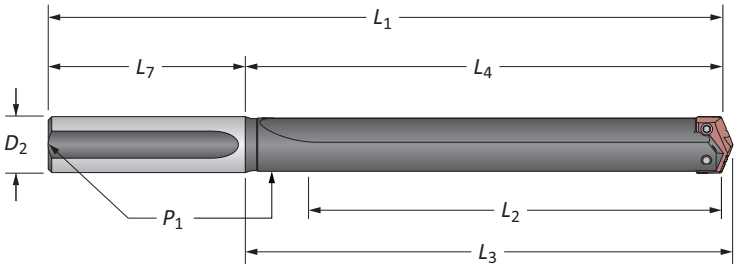


i = Imperial (in)
m = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

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



Straight Flute

	Series	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
	2	Short	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8	**22020S-100L**
		Short	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8	**22020S-125L**
		Intermediate	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8	**23020S-125L**
		Standard	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8	**24020S-100L**
		Standard	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8	**24020S-125L**
		Extended	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8	⚠ **25020S-125L**
ⓘ		XL	20-1/8	21-1/4	21-25/64	24-3/4	1-1/4	3-1/2	1/8	⚠ **27020S-125L**
		3XL	27-1/4	28-3/8	28-33/64	31-7/8	1-1/4	3-1/2	1/8	⚠ **29020S-125L**
	2.5	Short	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8*	**22025S-100L**
		Short	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8*	**22025S-125L**
		Intermediate	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8*	**23025S-125L**
		Standard	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8*	**24025S-100L**
		Standard	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8*	**24025S-125L**
		Extended	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8*	⚠ **25025S-125L**

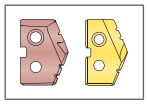
NOTE: 2.5 series inserts fit into both 2 and 2.5 series holders. However, 2 series inserts ONLY fit into 2 series holders. See page A30: 7 for visual.

Connection Accessories

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

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

A30: 58 - 67



Key on A30: 1

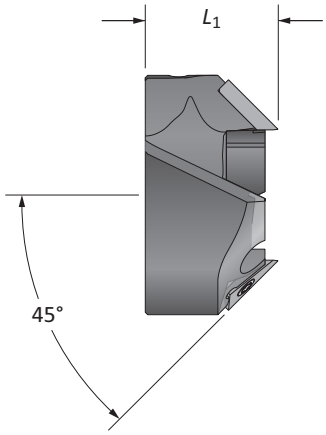
A30: 73 & 111

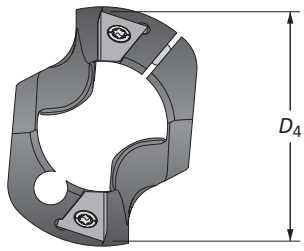
ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Accessories

2 Series | Chamfer Rings | Rotary Coolant Adapters | Torx® Plus Screws



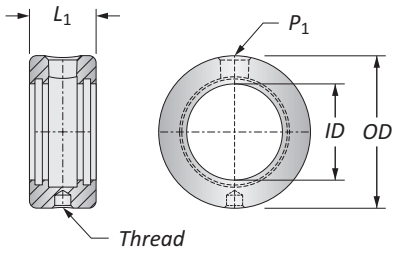


T-ACR 45 Chamfer Ring

Holder Series	D_1 Range	Chamfer Ring D_4	Chamfer Ring L_1	Part No.	Insert Part No.	Insert Screw	Insert Driver	Clamping Screw	Insert Driver
2	0.9610 - 1.3800	1-9/16	1	**T-ACR-45-2**	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7514-IP20-1	8IP-20

Rotary Coolant Adapter (RCA) and Accessories

	ID	OD	L_1	Driving Rod Thread	P_1	Part No.	RCA O-Rings Kit Part No.**	RCA O-Rings Replacements
ⓘ	1	2-1/8	1-1/8	5/16-18	1/8	⚠ **2T-3SR**	2T1-3SR	2T1-3OR-10
	1-1/4	2-1/2	1-3/8	3/8-16	1/4	⚠ **2T-4SR**	2T1-4SR	2T1-4OR-10
ⓜ	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



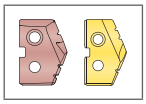
*Thread to BSP and ISO 7-1
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers
⚠ Refer to page A30: 110 for proper RCA assembly and safety information

Connection Accessories

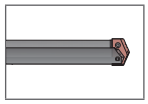
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
7495-IP15-1	7495N-IP15-1	8IP-15	8IP-15TL	8IP-15B	61.0 in-lbs (690 N-cm)

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

A30: 58 - 67



A30: 68 - 72

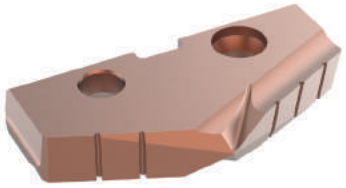


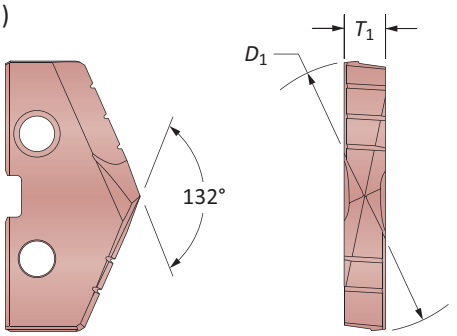
ⓘ = Imperial (in)
ⓜ = Metric (mm)
Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

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

GEN2 T-A Drill Inserts

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

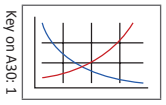




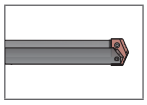
HSS Inserts – Premium Cobalt

Insert				Part No.	
Fractional Equivalent	D_1 inch	D_1 mm	T_1	AM200®	TiN
1-13/32	1.4063	35.72	1/4	**483H-0113**	**483T-0113**
–	1.4173	36.00	1/4	**483H-36**	**483T-36**
1-7/16	1.4375	36.51	1/4	**483H-0114**	**483T-0114**
–	1.4567	37.00	1/4	**483H-37**	**483T-37**
1-15/32	1.4688	37.31	1/4	**483H-0115**	**483T-0115**
–	1.4961	38.00	1/4	**483H-38**	**483T-38**
1-1/2	1.5000	38.10	1/4	**483H-0116**	**483T-0116**
1-17/32	1.5313	38.89	1/4	**483H-0117**	**483T-0117**
–	1.5354	39.00	1/4	**483H-39**	**483T-39**
–	1.5470	39.29	1/4	**483H-1.547**	**483T-1.547**
1-9/16	1.5625	39.69	1/4	**483H-0118**	**483T-0118**
–	1.5748	40.00	1/4	**483H-40**	**483T-40**
1-19/32	1.5938	40.48	1/4	**483H-0119**	**483T-0119**
–	1.6142	41.00	1/4	**483H-41**	**483T-41**
1-5/8	1.6250	41.28	1/4	**483H-0120**	**483T-0120**
–	1.6535	42.00	1/4	**483H-42**	**483T-42**
1-21/32	1.6563	42.07	1/4	**483H-0121**	**483T-0121**
1-11/16	1.6875	42.86	1/4	**483H-0122**	**483T-0122**
–	1.6929	43.00	1/4	**483H-43**	**483T-43**
1-23/32	1.7188	43.66	1/4	**483H-0123**	**483T-0123**
–	1.7323	44.00	1/4	**483H-44**	**483T-44**
1-3/4	1.7500	44.45	1/4	**483H-0124**	**483T-0124**
–	1.7717	45.00	1/4	**483H-45**	**483T-45**
1-25/32	1.7813	45.24	1/4	**483H-0125**	**483T-0125**
–	1.7913	45.50	1/4	**483H-45.5**	**483T-45.5**
–	1.7970	45.64	1/4	**483H-1.797**	**483T-1.797**
–	1.8110	46.00	1/4	**483H-46**	**483T-46**
1-13/16	1.8125	46.04	1/4	**483H-0126**	**483T-0126**
1-27/32	1.8438	46.83	1/4	**483H-0127**	**483T-0127**
–	1.8504	47.00	1/4	**483H-47**	**483T-47**
1-7/8	1.8750	47.63	1/4	**483H-0128**	**483T-0128**

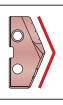
A30: 112 - 143



A30: 82 - 85



A30: 4 - 6



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

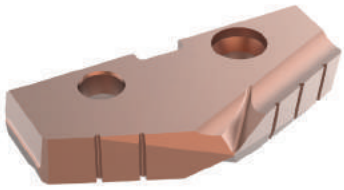
Inserts sold in quantities of 1

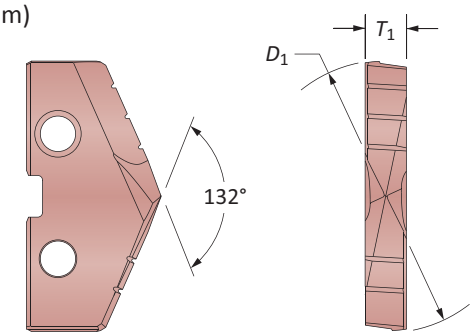
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 483T-XXXX	**TiAlN** = 483A-XXXX
TiCN = 483N-XXXX	**AM200®** = 483H-XXXX

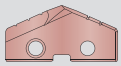
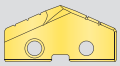
GEN2 T-A Drill Inserts

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

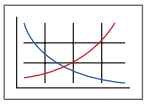




HSS Inserts – Super Cobalt

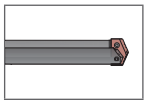
Insert				Part No.	
Fractional Equivalent	D_1 inch	D_1 mm	T_1	 AM200®	 TiN
1-13/32	1.4063	35.72	1/4	**453H-0113**	**453T-0113**
–	1.4173	36.00	1/4	**453H-36**	**453T-36**
1-7/16	1.4375	36.51	1/4	**453H-0114**	**453T-0114**
–	1.4567	37.00	1/4	**453H-37**	**453T-37**
1-15/32	1.4688	37.31	1/4	**453H-0115**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

A30: 112 - 143



Key on A30: 1

A30: 82 - 85



A30: 4 - 6

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

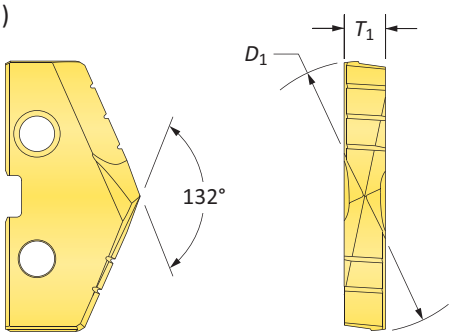
Inserts sold in quantities of 1

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

TiN = 453T-XXXX	**TiAlN** = 453A-XXXX
TiCN = 453N-XXXX	**AM200®** = 453H-XXXX

GEN2 T-A Drill Inserts

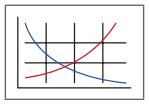
3 Series | HSS | Diameter Range: 1.353” - 1.882” (34.36mm - 47.80mm)



HSS Inserts – HSS

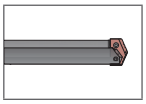
Insert				Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN
1-13/32	1.4063	35.72	1/4	**433T-0113**
–	1.4173	36.00	1/4	**433T-36**
1-7/16	1.4375	36.51	1/4	**433T-0114**
–	1.4567	37.00	1/4	**433T-37**
1-15/32	1.4688	37.31	1/4	**433T-0115**
–	1.4961	38.00	1/4	**433T-38**
1-1/2	1.5000	38.10	1/4	**433T-0116**
1-17/32	1.5313	38.89	1/4	**433T-0117**
–	1.5354	39.00	1/4	**433T-39**
–	1.5470	39.29	1/4	**433T-1.547**
1-9/16	1.5625	39.69	1/4	**433T-0118**
–	1.5748	40.00	1/4	**433T-40**
1-19/32	1.5938	40.48	1/4	**433T-0119**
–	1.6142	41.00	1/4	**433T-41**
1-5/8	1.6250	41.28	1/4	**433T-0120**
–	1.6535	42.00	1/4	**433T-42**
1-21/32	1.6563	42.07	1/4	**433T-0121**
1-11/16	1.6875	42.86	1/4	**433T-0122**
–	1.6929	43.00	1/4	**433T-43**
1-23/32	1.7188	43.66	1/4	**433T-0123**
–	1.7323	44.00	1/4	**433T-44**
1-3/4	1.7500	44.45	1/4	**433T-0124**
–	1.7717	45.00	1/4	**433T-45**
1-25/32	1.7813	45.24	1/4	**433T-0125**
–	1.7913	45.50	1/4	**433T-45.5**
–	1.7970	45.64	1/4	**433T-1.797**
–	1.8110	46.00	1/4	**433T-46**
1-13/16	1.8125	46.04	1/4	**433T-0126**
1-27/32	1.8438	46.83	1/4	**433T-0127**
–	1.8504	47.00	1/4	**433T-47**
1-7/8	1.8750	47.63	1/4	**433T-0128**

A30: 112 - 143

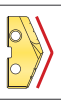


Key on A30: 1

A30: 82 - 85



A30: 4 - 6



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

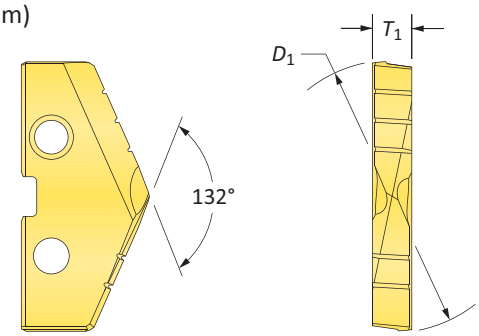
Inserts sold in quantities of 1

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

TiN = 433T-XXXX	**TiAlN** = 433A-XXXX
TiCN = 433N-XXXX	**AM200®** = 433H-XXXX

Original T-A Drill Inserts

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

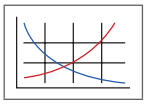


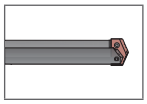
HSS Inserts – Super Cobalt

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

A30: 112 - 143 | A30: 82 - 85 | A30: 4 - 6

Key on A30: 1





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

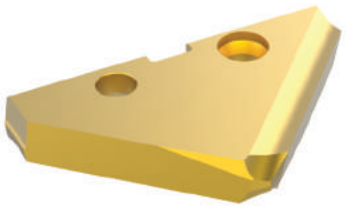
Inserts sold in quantities of 1

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

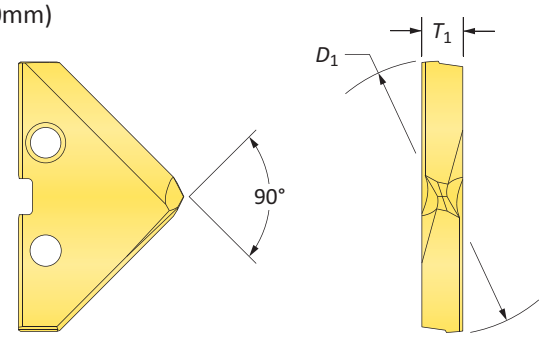
TiN = 153T-XXXX	**TiAlN** = 153A-XXXX
TiCN = 153N-XXXX	**AM200®** = 153H-XXXX

Original T-A Drill Inserts

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



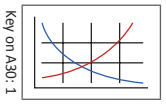
90° Spot & Chamfer



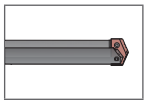
HSS Inserts – Super Cobalt

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

A30: 112 - 143



A30: 82 - 85



A30: 4 - 6

Inserts sold in quantities of 1

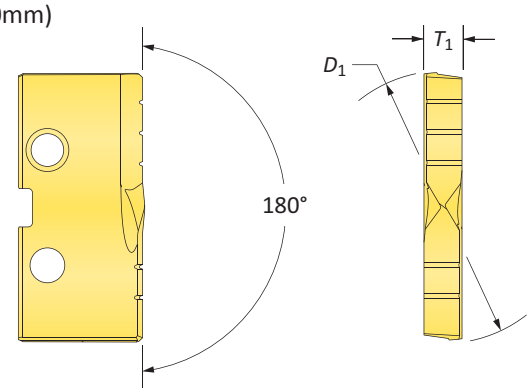
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 153T-XXXX	**TiAlN** = 153A-XXXX
TiCN = 153N-XXXX	**AM200®** = 153H-XXXX

Original T-A Drill Inserts

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

Flat Bottom

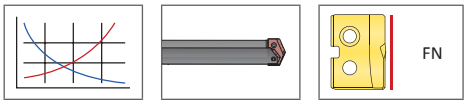


HSS Inserts – Super Cobalt

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

A30: 112 - 143 | A30: 82 - 85 | A30: 4 - 6

Key on A30: 1



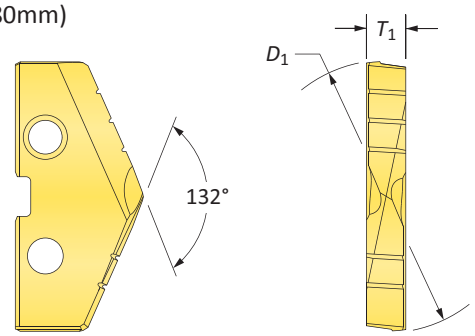
Inserts sold in quantities of 1

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

TiN = 153T-XXXX	**TiAlN** = 153A-XXXX
TiCN = 153N-XXXX	**AM200®** = 153H-XXXX

Original T-A Drill Inserts

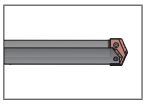
3 Series | Carbide | Diameter Range: 1.353” - 1.882” (34.36mm - 47.80mm)



Carbide Inserts – C2 (K20)

Insert				Part No.	
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiAlN
1-13/32	1.4063	35.72	1/4	**1C23T-0113**	**1C23A-0113**
–	1.4173	36.00	1/4	**1C23T-36**	**1C23A-36**
1-7/16	1.4375	36.51	1/4	**1C23T-0114**	**1C23A-0114**
–	1.4567	37.00	1/4	**1C23T-37**	**1C23A-37**
1-15/32	1.4688	37.31	1/4	**1C23T-0115**	**1C23A-0115**
–	1.4961	38.00	1/4	**1C23T-38**	**1C23A-38**
1-1/2	1.5000	38.10	1/4	**1C23T-0116**	**1C23A-0116**
1-17/32	1.5313	38.89	1/4	**1C23T-0117**	**1C23A-0117**
–	1.5354	39.00	1/4	**1C23T-39**	**1C23A-39**
–	1.5470	39.29	1/4	**1C23T-1.547**	**1C23A-1.547**
1-9/16	1.5625	39.69	1/4	**1C23T-0118**	**1C23A-0118**
–	1.5748	40.00	1/4	**1C23T-40**	**1C23A-40**
1-19/32	1.5938	40.48	1/4	**1C23T-0119**	**1C23A-0119**
–	1.6142	41.00	1/4	**1C23T-41**	**1C23A-41**
1-5/8	1.6250	41.28	1/4	**1C23T-0120**	**1C23A-0120**
–	1.6535	42.00	1/4	**1C23T-42**	**1C23A-42**
1-21/32	1.6563	42.07	1/4	**1C23T-0121**	**1C23A-0121**
1-11/16	1.6875	42.86	1/4	**1C23T-0122**	**1C23A-0122**
–	1.6929	43.00	1/4	**1C23T-43**	**1C23A-43**
1-23/32	1.7188	43.66	1/4	**1C23T-0123**	**1C23A-0123**
–	1.7323	44.00	1/4	**1C23T-44**	**1C23A-44**
1-3/4	1.7500	44.45	1/4	**1C23T-0124**	**1C23A-0124**
–	1.7717	45.00	1/4	**1C23T-45**	**1C23A-45**
1-25/32	1.7813	45.24	1/4	**1C23T-0125**	**1C23A-0125**
–	1.7913	45.50	1/4	**1C23T-45.5**	**1C23A-45.5**
–	1.7970	45.64	1/4	**1C23T-1.797**	**1C23A-1.797**
–	1.8110	46.00	1/4	**1C23T-46**	**1C23A-46**
1-13/16	1.8125	46.04	1/4	**1C23T-0126**	**1C23A-0126**
1-27/32	1.8438	46.83	1/4	**1C23T-0127**	**1C23A-0127**
–	1.8504	47.00	1/4	**1C23T-47**	**1C23A-47**
1-7/8	1.8750	47.63	1/4	**1C23T-0128**	**1C23A-0128**

A30: 112 - 143
Key on A30: 1



A30: 82 - 85

A30: 4 - 6

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

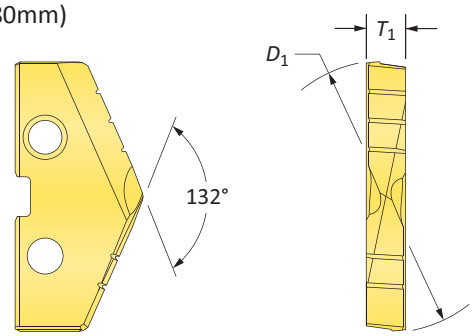
Inserts sold in quantities of 1

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

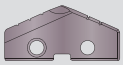
TiN = 1C23T-XXXX	**TiAlN** = 1C23A-XXXX
TiCN = 1C23N-XXXX	**AM200®** = 1C23H-XXXX

Original T-A Drill Inserts

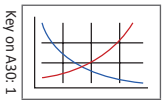
3 Series | Carbide | Diameter Range: 1.353” - 1.882” (34.36mm - 47.80mm)



Carbide Inserts – C5 (P40)

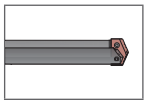
Insert				Part No.	
Fractional Equivalent	D_1 inch	D_1 mm	T_1	 TiN	 TiAlN
1-13/32	1.4063	35.72	1/4	**1C53T-0113**	**1C53A-0113**
–	1.4173	36.00	1/4	**1C53T-36**	**1C53A-36**
1-7/16	1.4375	36.51	1/4	**1C53T-0114**	**1C53A-0114**
–	1.4567	37.00	1/4	**1C53T-37**	**1C53A-37**
1-15/32	1.4688	37.31	1/4	**1C53T-0115**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

A30: 112 - 143

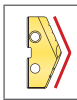


Key on A30: 1

A30: 82 - 85



A30: 4 - 6



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

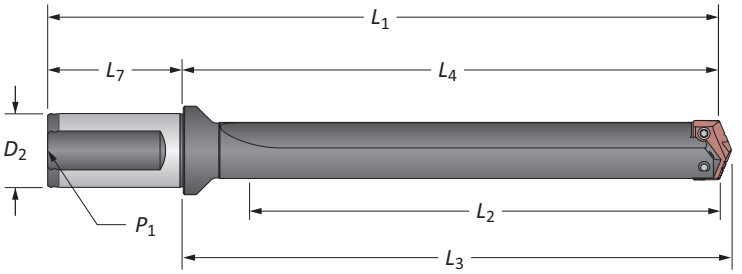
Inserts sold in quantities of 1

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

TiN = 1C53T-XXXX	**TiAlN** = 1C53A-XXXX
TiCN = 1C53N-XXXX	**AM200®** = 1C53H-XXXX

T-A Drill Insert Holders

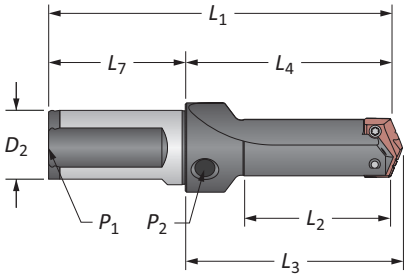
3 Series | Flange Shank | Diameter Range: 1.353” - 1.882” (34.36mm - 47.80mm)



Straight Flute

		Body				Shank			
	Length	L_2	L_4	L_3	L_1	D_2	L_7	P_1	Part No.
ⓘ	Short	4-3/4	6-13/16	7	9-1/2	1-1/2	2-11/16	1/4	**22030S-150F**
ⓘ	Intermediate	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/16	1/4	**23030S-150F**
ⓘ	Standard	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4	**24030S-150F**
ⓘ	Short	120.7	173.0	177.8	243.0	40.0	70.0	1/4*	**22030S-40FM**
ⓘ	Extended	349.3	401.6	406.4	471.6	40.0	70.0	1/4*	⚠ **25030S-40FM**
ⓘ	XL	558.8	611.1	615.9	681.1	40.0	70.0	1/4*	⚠ **27030S-40FM**
ⓘ	3XL	787.4	839.7	844.5	909.7	40.0	70.0	1/4*	⚠ **29030S-40FM**

*Metric thread to BSP and ISO 7-1
NOTE: Stub length holders have a 1/4” side pipe tap (P_2)

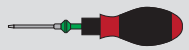


Straight Flute (Stub Length)

		Body				Shank			
	Length	L_2	L_4	L_3	L_1	D_2	L_7	P_1	Part No.
ⓘ	Stub	3	4-59/64	5-7/64	7-39-64	1-1/2	2-11/16	1/4	**21030S-150F**
ⓜ	Stub	76.2	125.0	129.8	195.0	40.0	70.0	1/4*	**21030S-40FM**

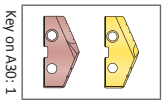
*Metric thread to BSP and ISO 7-1
NOTE: Stub length holders have a 1/4” side pipe tap (P_2)

Connection Accessories

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

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

A30: 74 - 81

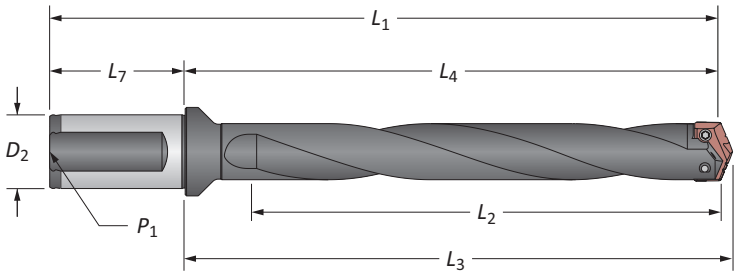


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

3 Series | Flange Shank | Diameter Range: 1.353” - 1.882” (34.36mm - 47.80mm)



Helical Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	Intermediate	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/16	1/4	**23030H-150F**
	Standard	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4	**24030H-150F**
ⓜ	Intermediate	165.1	217.5	222.3	287.5	40.0	70.0	1/4*	**23030H-40FM**
	Standard	209.6	261.9	266.7	331.9	40.0	70.0	1/4*	**24030H-40FM**

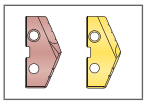
*Metric thread to BSP and ISO 7-1

Connection Accessories

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

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

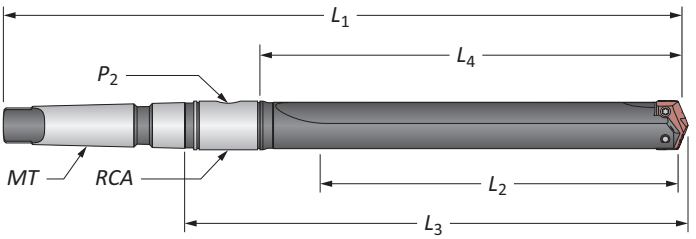
A30: 74 - 81



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

T-A Drill Insert Holders

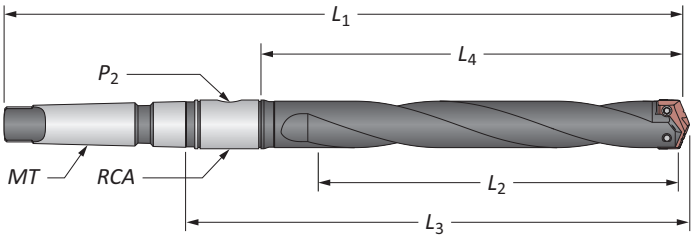
3 Series | Taper Shank | Diameter Range: 1.353” - 1.882” (34.36mm - 47.80mm)



Straight Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓘ	Short	4-3/4	6	8-1/8	12-9/16	#4	1/4	2T-4SR	**22030S-004I**
ⓘ	Short	4-3/4	6	8-1/8	13-13/16	#5	1/4	2T-5SR	**22030S-005I**
ⓘ	Intermediate	6-1/2	7-3/4	9-7/8	14-5/16	#4	1/4	2T-4SR	**23030S-004I**
ⓘ	Standard	8-1/4	9-1/2	11-5/8	16-1/16	#4	1/4	2T-4SR	**24030S-004I**
ⓘ	Standard	8-1/4	9-1/2	11-5/8	17-5/16	#5	1/4	2T-5SR	**24030S-005I**
ⓘ	Extended	13-3/4	15	17-1/8	21-9/16	#4	1/4	2T-4SR	⚠ **25030S-004I**
ⓘ	XL	22	22-1/4	25-3/8	29-13/16	#4	1/4	2T-4SR	⚠ **27030S-004I**
ⓘ	3XL	31	32-1/4	34-3/8	38-13/16	#4	1/4	2T-4SR	⚠ **29030S-004I**
ⓜ	Short	120.6	152.4	206.4	319.1	#4**	1/4*	2T-4SRM	**22030S-004M**
ⓜ	Extended	349.3	381.0	435.0	547.7	#4**	1/4*	2T-4SRM	⚠ **25030S-004M**
ⓜ	XL	558.8	590.6	644.6	757.2	#4**	1/4*	2T-4SRM	⚠ **27030S-004M**
ⓜ	3XL	787.4	819.2	873.2	985.8	#4**	1/4*	2T-4SRM	⚠ **29030S-004M**

*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK



Helical Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓜ	Intermediate	165.1	196.9	250.9	363.6	#4**	1/4*	2T-4SRM	**23030H-004M**
ⓜ	Standard	209.5	241.3	295.3	408.0	#4**	1/4*	2T-4SRM	**24030H-004M**

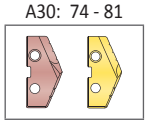
*Metric thread to BSP and ISO 7-1 | **Per ISO 296 type BEK

Connection Accessories

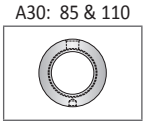
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
7514-IP20-1	7514N-IP20-1	8IP-20	–	–	121.3 in-lbs (1370 N-cm)

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

A30: 74 - 81



A30: 85 & 110

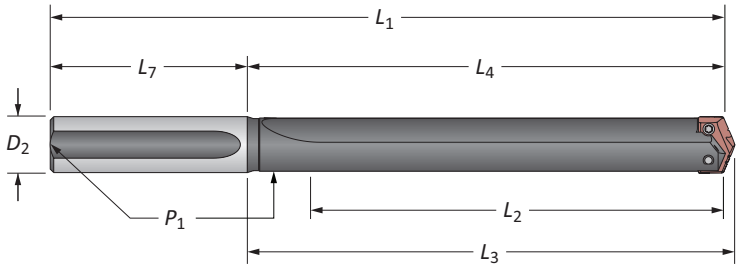


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

3 Series | Straight Shank | Diameter Range: 1.353” - 1.882” (34.36mm - 47.80mm)



Straight Flute

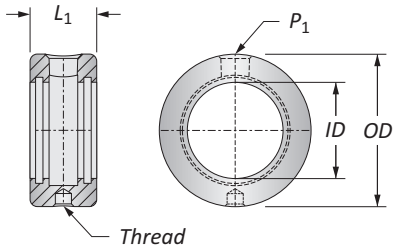
	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
	Short	4-3/4	6	6-3/16	10	1-1/4	4	1/4	**22030S-125L**
	Short	4-3/4	6	6-3/16	10	1-1/2	4	1/4	**22030S-150L**
	Intermediate	6-1/2	7-3/4	7-15/16	11-3/4	1-1/2	4	1/4	**23030S-150L**
ⓘ	Standard	8-1/4	9-1/2	9-11/16	13-1/2	1-1/4	4	1/4	**24030S-125L**
	Standard	8-1/4	9-1/2	9-11/16	13-1/2	1-1/2	4	1/4	**24030S-150L**
	Extended	13-3/4	15-3/16	15-3/16	19	1-1/4	4	1/4	⚠ **25030S-125L**
	XL	22	23-7/16	23-7/16	27-1/4	1-1/2	4	1/4	⚠ **27030S-150L**
	3XL	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

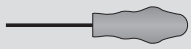
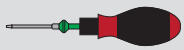
Rotary Coolant Adapter (RCA) and Accessories

	ID	OD	L_1	Driving Rod Thread	P_1	Part No.	RCA O-Rings Kit Part No.**	RCA O-Rings Replacements
ⓘ	1-1/4	2-1/2	1-3/8	3/8-16	1/4	⚠ **2T-4SR**	2T1-4SR	2T1-4OR-10
	1-3/4	3	1-3/8	3/8-16	1/4	⚠ **2T-5SR**	2T1-5SR	2T1-5OR-10
ⓜ	31.75	63.50	34.92	M10 x 1.50	1/4*	⚠ **2T-4SRM**	2T1-4SR	2T1-4OR-10
	44.45	76.20	34.92	M10 x 1.50	1/4*	⚠ **2T-5SRM**	2T1-5SR	2T1-5OR-10



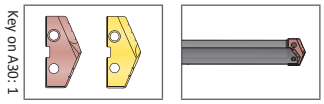
*Thread to BSP and ISO 7-1
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers
⚠ Refer to page A30: 110 for proper RCA assembly and safety information

Connection Accessories

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

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

A30: 74 - 81 A30: 82 - 85

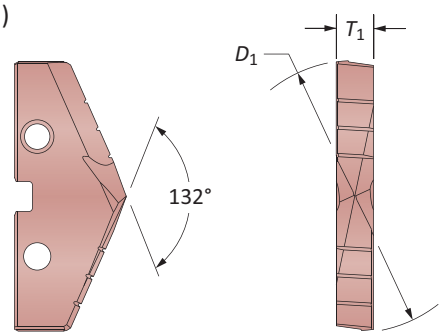


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

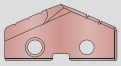
⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

GEN2 T-A Drill Inserts

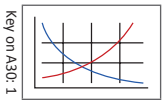
4 Series | HSS | Diameter Range: 1.850” - 2.570” (46.99mm - 65.28mm)



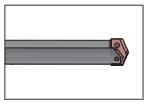
HSS Inserts – Super Cobalt

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

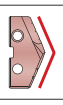
A30: 112 - 143



A30: 90 - 92



A30: 4 - 6



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

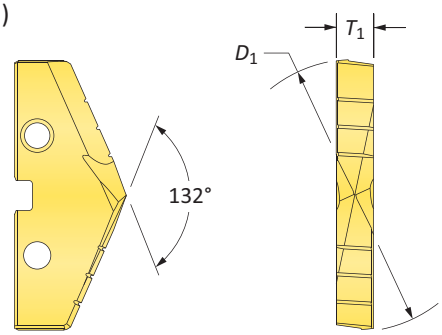
Inserts sold in quantities of 1

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

TiN = 454T-XXXX	**TiAlN** = 454A-XXXX
TiCN = 454N-XXXX	**AM200®** = 454H-XXXX

GEN2 T-A Drill Inserts

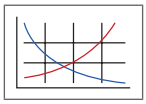
4 Series | HSS | Diameter Range: 1.850” - 2.570” (46.99mm - 65.28mm)



HSS Inserts – HSS

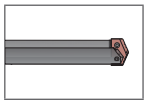
Insert				Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN
–	1.8898	48.00	5/16	**434T-48**
1-29/32	1.9063	48.42	5/16	**434T-0129**
–	1.9291	49.00	5/16	**434T-49**
1-15/16	1.9375	49.21	5/16	**434T-0130**
–	1.9685	50.00	5/16	**434T-50**
1-31/32	1.9688	50.01	5/16	**434T-0131**
2	2.0000	50.80	5/16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

A30: 112 - 143



Key on A30: 1

A30: 90 - 92



A30: 4 - 6

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

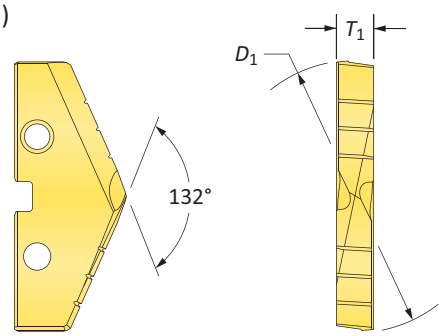
Inserts sold in quantities of 1

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

TiN = 434T-XXXX	**TiAlN** = 434A-XXXX
TiCN = 434N-XXXX	**AM200®** = 434H-XXXX

Original T-A Drill Inserts

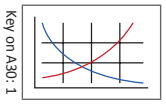
4 Series | HSS | Diameter Range: 1.850” - 2.570” (46.99mm - 65.28mm)



HSS Inserts – Super Cobalt

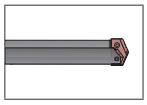
Insert				Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN
–	1.8898	48.00	5/16	**154T-48**
1-29/32	1.9063	48.42	5/16	**154T-0129**
–	1.9291	49.00	5/16	**154T-49**
1-15/16	1.9375	49.21	5/16	**154T-0130**
–	1.9685	50.00	5/16	**154T-50**
1-31/32	1.9688	50.01	5/16	**154T-0131**
2	2.0000	50.80	5/16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

A30: 112 - 143



Key on A30: 1

A30: 90 - 92



A30: 4 - 6

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

Inserts sold in quantities of 1

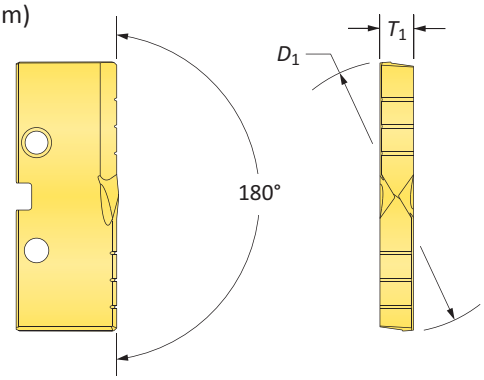
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 154T-XXXX	**TiAlN** = 154A-XXXX
TiCN = 154N-XXXX	**AM200®** = 154H-XXXX

Original T-A Drill Inserts

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

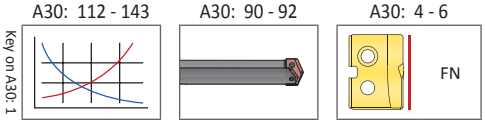
Flat Bottom



HSS Inserts – Super Cobalt

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

A30: 112 - 143 | A30: 90 - 92 | A30: 4 - 6



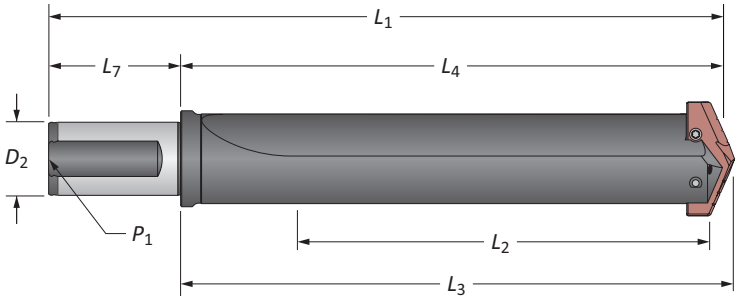
Inserts sold in quantities of 1

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

TiN = 154T-XXXX	**TiAlN** = 154A-XXXX
TiCN = 154N-XXXX	**AM200®** = 154H-XXXX

T-A Drill Insert Holders

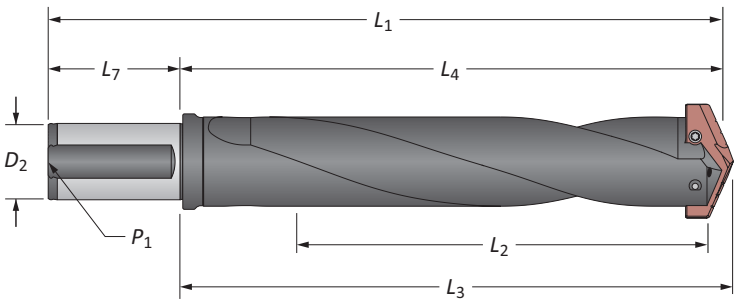
4 Series | Flange Shank | Diameter Range: 1.850” - 2.570” (46.99mm - 65.28mm)



Straight Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
i	Short	5-1/8	7-1/6	7-1/4	9-3/4	1-1/2	2-11/16	1/4	**22040S-150F**
	Standard	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4	**24040S-150F**
m	Short	130.2	179.4	184.0	249.4	40.0	70.0	1/4*	**22040S-40FM**
	Extended	422.3	471.5	476.0	541.5	40.0	70.0	1/4*	⚠ **25040S-40FM**
	XL	625.0	674.7	679.0	744.7	40.0	70.0	1/4*	⚠ **27040S-40FM**
	3XL	879.0	928.7	933.0	998.7	40.0	70.0	1/4*	⚠ **29040S-40FM**

*Metric thread to BSP and ISO 7-1

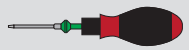
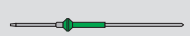


Helical Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
i	Standard	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4	**24040H-150F**
m	Standard	231.8	281.0	285.8	351.0	40.0	70.0	1/4*	**24040H-40FM**

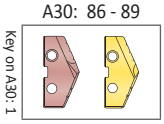
*Metric thread to BSP and ISO 7-1

Connection Accessories

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

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

A30: 86 - 89

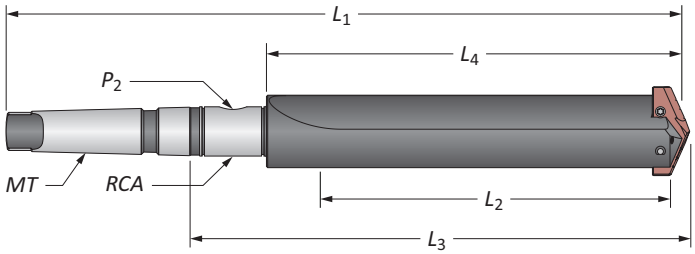


i = Imperial (in)
m = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

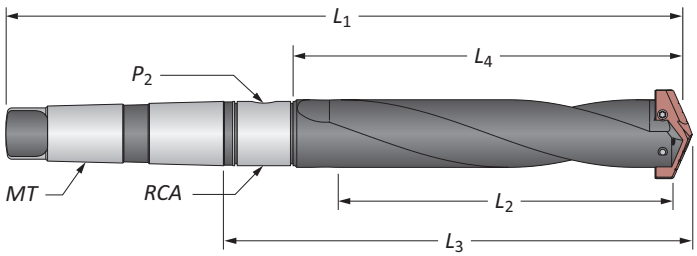
4 Series | Taper Shank | Diameter Range: 1.850" - 2.570" (46.99mm - 65.28mm)



Straight Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
	Short	5-1/8	6-1/2	8-5/8	13-1/16	#4	1/4	2T-4SR	**22040S-004I**
	Short	5-1/8	6-1/2	8-5/8	14-5/16	#5	1/4	2T-5SR	**22040S-005I**
	Standard	9-1/8	10-1/2	12-5/8	17-1/16	#4	1/4	2T-4SR	**24040S-004I**
ⓘ	Standard	9-1/8	10-1/2	12-5/8	18-5/16	#5	1/4	2T-5SR	**24040S-005I**
	Extended	16-5/8	18	20-1/8	25-13/16	#5	1/4	2T-5SR	⚠ **25040S-005I**
	XL	24-5/8	26	28-1/8	33-13/16	#5	1/4	2T-5SR	⚠ **27040S-005I**
	3XL	34-5/8	36	38-1/8	43-13/16	#5	1/4	2T-5SR	⚠ **29040S-005I**
	Short	130.1	165.1	219.1	363.5	#5**	1/4*	2T-5SRM	**22040S-005M**
ⓜ	Extended	422.3	457.2	511.2	655.6	#5**	1/4*	2T-5SRM	⚠ **25040S-005M**
	XL	625.0	660.4	714.4	858.8	#5**	1/4*	2T-5SRM	⚠ **27040S-005M**
	3XL	879.0	914.4	968.4	1112.8	#5**	1/4*	2T-5SRM	⚠ **29040S-005M**

*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK

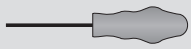
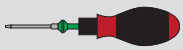


Helical Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓜ	Standard	231.8	266.7	320.7	465.1	#5**	1/4*	2T-5SRM	**24040H-005M**

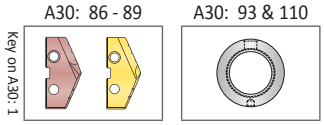
*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK

Connection Accessories

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

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

A30: 86 - 89 | A30: 93 & 110

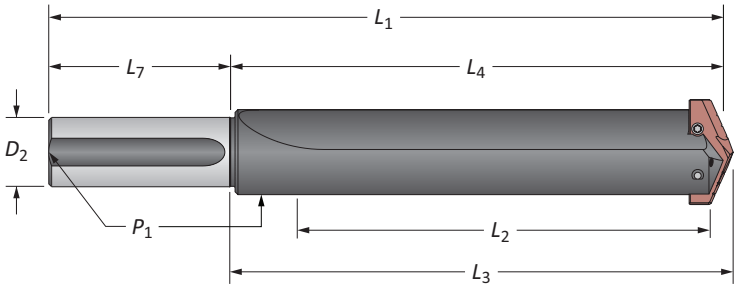


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

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



Straight Flute

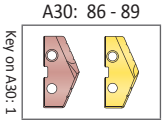
	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
	Short	5-1/8	6-1/2	6-11/16	10-1/2	1-1/2	4	1/4	**22040S-150L**
	Short	5-1/8	6-1/2	6-11/16	10-1/2	1-3/4	4	1/4	**22040S-175L**
	Standard	9-1/8	10-1/2	10-11/16	14-1/2	1-1/2	4	1/4	**24040S-150L**
ⓘ	Standard	9-1/8	10-1/2	10-11/16	14-1/2	1-3/4	4	1/4	**24040S-175L**
	Extended	16-5/8	18	18-3/16	22	1-1/2	4	1/4	⚠ **25040S-150L**
	XL	24-5/8	26	26-3/16	30	1-1/2	4	1/4	⚠ **27040S-150L**
	3XL	34-5/8	36	36-3/16	40	1-1/2	4	1/4	⚠ **29040S-150L**

Connection Accessories

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

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

A30: 86 - 89



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

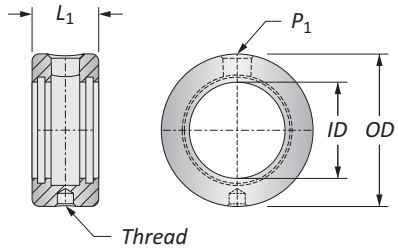
⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Accessories

4 Series | Rotary Coolant Adapters | Torx® Plus Screws

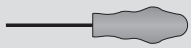
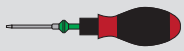
Rotary Coolant Adapter (RCA) and Accessories

	ID	*OD*	L_1	Driving Rod Thread	P_1	Part No.	RCA O-Rings	
							Kit Part No.**	Replacements
i	1-1/4	2-1/2	1-3/8	3/8-16	1/4	⚠ 2T-4SR	2T1-4SR	2T1-4OR-10
	1-3/4	3	1-3/8	3/8-16	1/4	⚠ 2T-5SR	2T1-5SR	2T1-5OR-10
m	31.75	63.50	34.92	M10 x 1.50	1/4*	⚠ 2T-4SRM	2T1-4SR	2T1-4OR-10
	44.45	76.20	34.92	M10 x 1.50	1/4*	⚠ 2T-5SRM	2T1-5SR	2T1-5OR-10



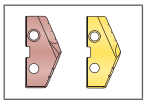
*Thread to BSP and ISO 7-1
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers
⚠ Refer to page A30: 110 for proper RCA assembly and safety information

Connection Accessories

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

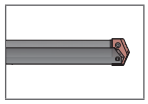
*Tightening torques are calculated with a friction coefficient of μ = 0.14 and develop 90% of ultimate yield strength

A30: 86 - 89



Key on A30: 1

A30: 90 - 92

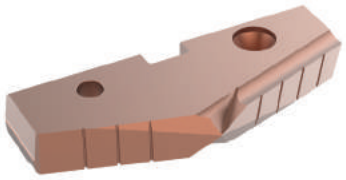


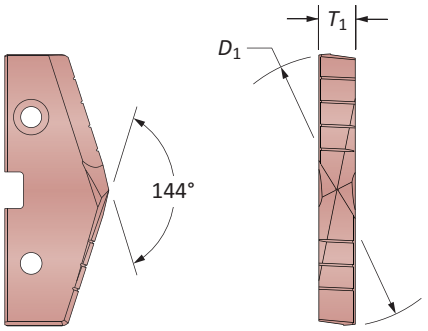
i = Imperial (in)
m = Metric (mm)
Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

GEN2 T-A Drill Inserts

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

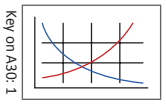




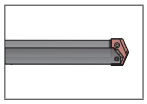
HSS Inserts – Super Cobalt | HSS

Insert				Super Cobalt Part No.	HSS Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	AM200®	TiN
2-1/2	2.5000	63.50	7/16	**455H-0216**	**435T-0216**
–	2.5197	64.00	7/16	**455H-64**	**435T-64**
2-17/32	2.5313	64.29	7/16	**455H-0217**	**435T-0217**
2-9/16	2.5625	65.09	7/16	**455H-0218**	**435T-0218**
2-19/32	2.5938	65.88	7/16	**455H-0219**	**435T-0219**
–	2.5984	66.00	7/16	**455H-66**	**435T-66**
2-5/8	2.6250	66.68	7/16	**455H-0220**	**435T-0220**
2-21/32	2.6563	67.47	7/16	**455H-0221**	**435T-0221**
–	2.6772	68.00	7/16	**455H-68**	**435T-68**
2-11/16	2.6875	68.26	7/16	**455H-0222**	**435T-0222**
2-23/32	2.7188	69.05	7/16	**455H-0223**	**435T-0223**
2-3/4	2.7500	69.85	7/16	**455H-0224**	**435T-0224**
–	2.7559	70.00	7/16	**455H-70**	**435T-70**
2-25/32	2.7813	70.64	7/16	**455H-0225**	**435T-0225**
2-13/16	2.8125	71.44	7/16	**455H-0226**	**435T-0226**
–	2.8346	72.00	7/16	**455H-72**	**435T-72**
2-27/32	2.8438	72.23	7/16	**455H-0227**	**435T-0227**
2-7/8	2.8750	73.03	7/16	**455H-0228**	**435T-0228**
2-29/32	2.9063	73.82	7/16	**455H-0229**	**435T-0229**
–	2.9134	74.00	7/16	**455H-74**	**435T-74**
2-15/16	2.9375	74.41	7/16	**455H-0230**	**435T-0230**
2-31/32	2.9688	75.61	7/16	**455H-0231**	**435T-0231**
–	2.9921	76.00	7/16	**455H-76**	**435T-76**
3	3.0000	76.20	7/16	**455H-0300**	**435T-0300**

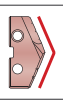
A30: 112 - 143



A30: 98 - 100



A30: 4 - 6



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

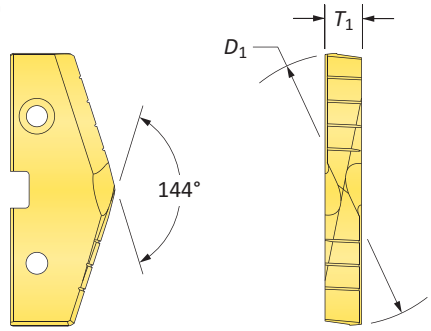
Inserts sold in quantities of 1

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

TiN = 455T-XXXX	**TiAlN** = 455A-XXXX
TiCN = 455N-XXXX	**AM200®** = 455H-XXXX

Original T-A Drill Inserts

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



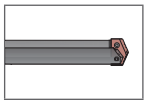
HSS Inserts – Super Cobalt | HSS

Insert				Super Cobalt Part No.*	HSS Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiN
2-1/2	2.5000	63.50	7/16	**155T-0216**	**135T-0216**
–	2.5197	64.00	7/16	**155T-64**	**135T-64**
2-17/32	2.5313	64.29	7/16	**155T-0217**	**135T-0217**
2-9/16	2.5625	65.09	7/16	**155T-0218**	**135T-0218**
2-19/32	2.5938	65.88	7/16	**155T-0219**	**135T-0219**
–	2.5984	66.00	7/16	**155T-66**	**135T-66**
2-5/8	2.6250	66.68	7/16	**155T-0220**	**135T-0220**
2-21/32	2.6563	67.47	7/16	**155T-0221**	**135T-0221**
–	2.6772	68.00	7/16	**155T-68**	**135T-68**
2-11/16	2.6875	68.26	7/16	**155T-0222**	**135T-0222**
2-23/32	2.7188	69.05	7/16	**155T-0223**	**135T-0223**
2-3/4	2.7500	69.85	7/16	**155T-0224**	**135T-0224**
–	2.7559	70.00	7/16	**155T-70**	**135T-70**
2-25/32	2.7813	70.64	7/16	**155T-0225**	**135T-0225**
2-13/16	2.8125	71.44	7/16	**155T-0226**	**135T-0226**
–	2.8346	72.00	7/16	**155T-72**	**135T-72**
2-27/32	2.8438	72.23	7/16	**155T-0227**	**135T-0227**
2-7/8	2.8750	73.03	7/16	**155T-0228**	**135T-0228**
2-29/32	2.9063	73.82	7/16	**155T-0229**	**135T-0229**
–	2.9134	74.00	7/16	**155T-74**	**135T-74**
2-15/16	2.9375	74.41	7/16	**155T-0230**	**135T-0230**
2-31/32	2.9688	75.61	7/16	**155T-0231**	**135T-0231**
–	2.9921	76.00	7/16	**155T-76**	**135T-76**
3	3.0000	76.20	7/16	**155T-0300**	**135T-0300**

*Available as non-stocked standard

A30: 112 - 143 | A30: 98 - 100 | A30: 4 - 6

Key on A30: 1



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

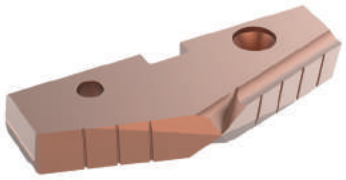
Inserts sold in quantities of 1

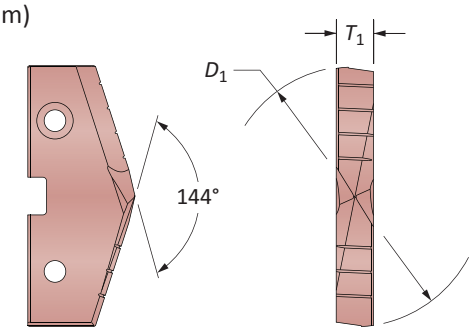
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 155T-XXXX	**TiAlN** = 155A-XXXX
TiCN = 155N-XXXX	**AM200®** = 155H-XXXX

GEN2 T-A Drill Inserts

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

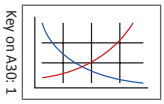




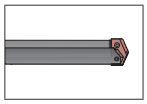
HSS Inserts – Super Cobalt | HSS

Insert				Super Cobalt Part No.	HSS Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	AM200®	TiN
3-1/32	3.0313	76.99	7/16	**456H-0301**	**436T-0301**
3-1/16	3.0625	77.79	7/16	**456H-0302**	**436T-0302**
–	3.0709	78.00	7/16	**456H-78**	**436T-78**
3-3/32	3.0938	78.58	7/16	**456H-0303**	**436T-0303**
3-1/8	3.1250	79.38	7/16	**456H-0304**	**436T-0304**
–	3.1496	80.00	7/16	**456H-80**	**436T-80**
3-5/32	3.1563	80.17	7/16	**456H-0305**	**436T-0305**
3-3/16	3.1875	80.96	7/16	**456H-0306**	**436T-0306**
3-7/32	3.2188	81.76	7/16	**456H-0307**	**436T-0307**
–	3.2283	82.00	7/16	**456H-82**	**436T-82**
3-1/4	3.2500	82.55	7/16	**456H-0308**	**436T-0308**
3-9/32	3.2813	83.34	7/16	**456H-0309**	**436T-0309**
–	3.3071	84.00	7/16	**456H-84**	**436T-84**
3-5/16	3.3125	84.14	7/16	**456H-0310**	**436T-0310**
3-11/32	3.3438	84.93	7/16	**456H-0311**	**436T-0311**
3-3/8	3.3750	85.73	7/16	**456H-0312**	**436T-0312**
–	3.3858	86.00	7/16	**456H-86**	**436T-86**
3-13/32	3.4063	86.52	7/16	**456H-0313**	**436T-0313**
3-7/16	3.4375	87.31	7/16	**456H-0314**	**436T-0314**
–	3.4646	88.00	7/16	**456H-88**	**436T-88**
3-15/32	3.4688	88.11	7/16	**456H-0315**	**436T-0315**
3-1/2	3.5000	88.90	7/16	**456H-0316**	**436T-0316**

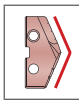
A30: 112 - 143
Key on A30: 1



A30: 98 - 100



A30: 4 - 4 - 6



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

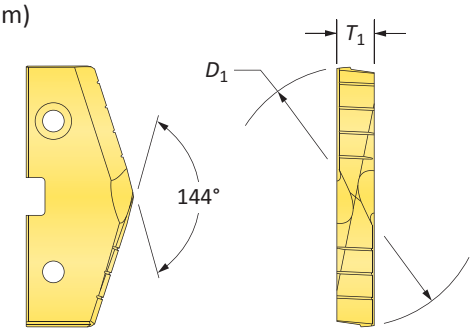
Inserts sold in quantities of 1

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

TiN = 456T-XXXX	**TiAlN** = 456A-XXXX
TiCN = 456N-XXXX	**AM200®** = 456H-XXXX

Original T-A Drill Inserts

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



HSS Inserts – Super Cobalt | HSS

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

*Available as non-stocked standard

A30: 112 - 143 | A30: 98 - 100 | A30: 4 - 6

Key on A30: 1

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

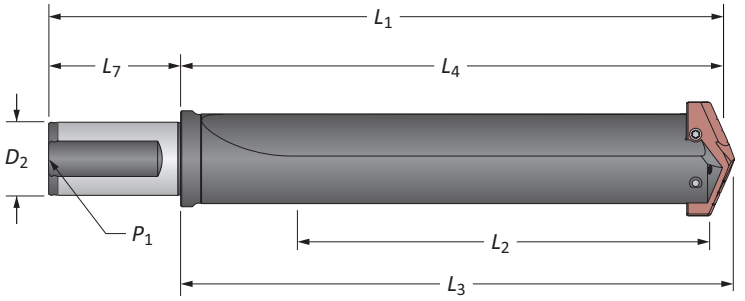
Inserts sold in quantities of 1

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

TiN = 156T-XXXX	**TiAlN** = 156A-XXXX
TiCN = 156N-XXXX	**AM200®** = 156H-XXXX

T-A Drill Insert Holders

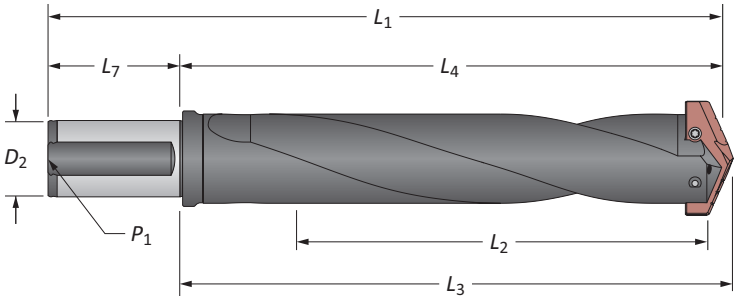
5 Series | Flange Shank | Diameter Range: 2.456" - 3.507" (62.38mm - 89.08mm)



Straight Flute

		Body				Shank			
	Length	L_2	L_4	L_3	L_1	D_2	L_7	P_1	Part No.
ⓘ	Short	6-49/64	8-1/2	8-3/4	13-1/4	2	4-1/2	1/2	**22050S-200F**
	Extended	18-17/64	20	20-1/4	24-3/4	2	4-1/2	1/2	⚠ **25050S-200F**
ⓜ	Short	172	215.9	222.3	302.3	50.0	80.0	1/2*	**22050S-50FM**
	Extended	464	508	514.4	594.4	50.0	80.0	1/2*	⚠ **25050S-50FM**

*Metric thread to BSP and ISO 7-1

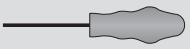


Helical Flute

		Body				Shank			
	Length	L_2	L_4	L_3	L_1	D_2	L_7	P_1	Part No.
ⓘ	Standard	10-3/4	12-1/2	12-3/4	17-1/4	2	4-1/2	1/2	**24050H-200F**
ⓜ	Standard	273	317.5	323.9	403.9	50.0	80.0	1/2*	**24050H-50FM**

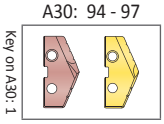
*Metric thread to BSP and ISO 7-1

Connection Accessories

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

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

A30: 94 - 97

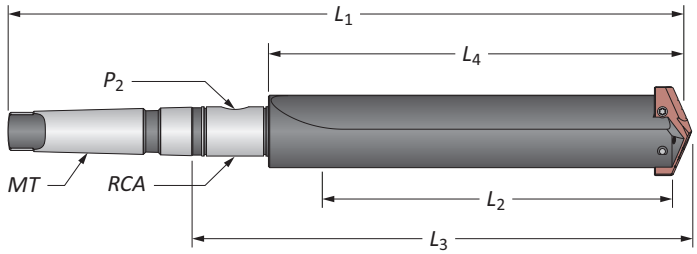


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

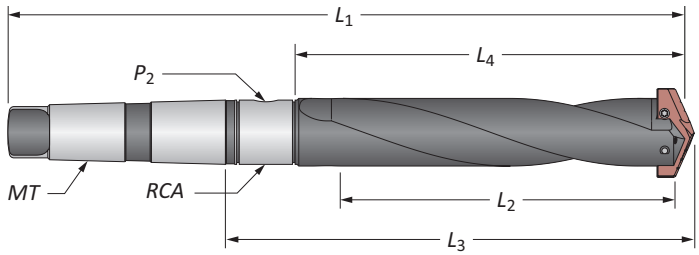
5 Series | Taper Shank | Diameter Range: 2.456" - 3.507" (62.38mm - 89.08mm)



Straight Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓘ	Short	6-3/4	8-1/2	11-5/16	16-15/16	#5	1/2	2T-6SR	**22050S-005I**
ⓘ	Standard	10-3/4	12-1/2	15-5/16	20-15/16	#5	1/2	2T-6SR	**24050S-005I**
ⓘ	Extended	18-1/4	20	22-13/16	28-7/16	#5	1/2	2T-6SR	⚠ **25050S-005I**
ⓘ	XL	26	27-3/4	30-9/16	36-3/16	#5	1/2	2T-6SR	⚠ **27050S-005I**
ⓘ	3XL	35	36-3/4	39-9/16	45-3/16	#5	1/2	2T-6SR	⚠ **29050S-005I**
ⓜ	Short	171.5	215.9	287.3	430.2	#5**	1/2*	2T-6SRM	**22050S-005M**
ⓜ	Extended	463.6	508.0	579.4	722.3	#5**	1/2*	2T-6SRM	⚠ **25050S-005M**
ⓜ	XL	660.0	704.8	776.2	919.1	#5**	1/2*	2T-6SRM	⚠ **27050S-005M**
ⓜ	3XL	889.0	933.4	1004.8	1147.7	#5**	1/2*	2T-6SRM	⚠ **29050S-005M**

*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK

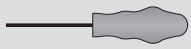
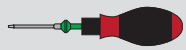


Helical Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓜ	Standard	273.1	317.5	388.9	531.8	#5**	1/2*	2T-6SRM	**24050H-005M**

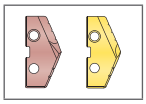
*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK

Connection Accessories

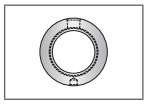
 Insert Screws	 Nylon Locking Screws	 Insert Driver	 Preset Torque Hand Driver	 Replacement Tips	Admissible Tightening Torque*
7619-IP25-1	–	8IP-25	–	–	155.0 in-lbs (1750 N-cm)

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

A30: 94 - 97



A30: 101 & 110

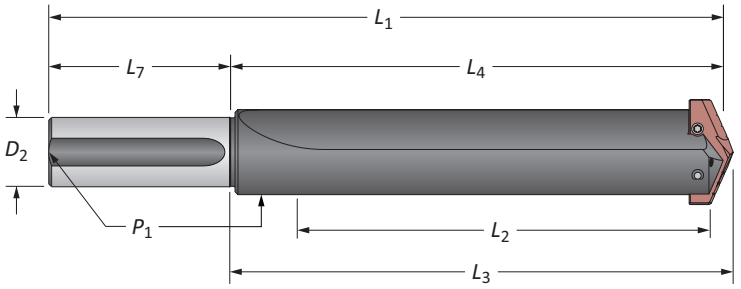


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

5 Series | Straight Shank | Diameter Range: 2.456" - 3.507" (62.38mm - 89.08mm)



Straight Flute

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

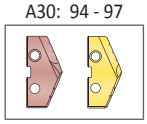
Connection Accessories

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

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

A30: 94 - 97

Key on A30: 1



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

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Accessories

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

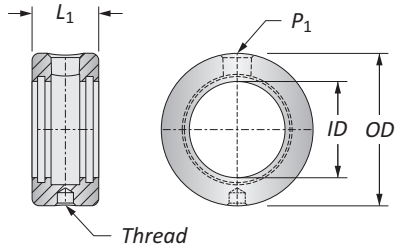
Rotary Coolant Adapter (RCA) and Accessories

	ID	*OD*	L_1	Driving Rod Thread	P_1	Part No.	RCA O-Rings	
							Kit Part No.**	Replacements
i	2-1/4	3-3/4	1-3/4	1/2-13	1/2	⚠ 2T-6SR	2T1-6SR	2T1-6OR-10
m	57.15	95.27	44.45	M12 x 1.75	1/2*	⚠ 2T-6SRM	2T1-6SR	2T1-6OR-10

*Thread to BSP and ISO 7-1

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

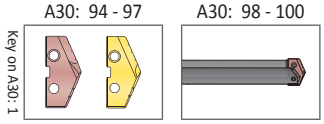
⚠ Refer to page A30: 110 for proper RCA assembly and safety information



Connection Accessories

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

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

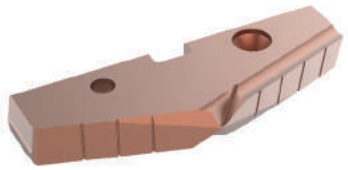


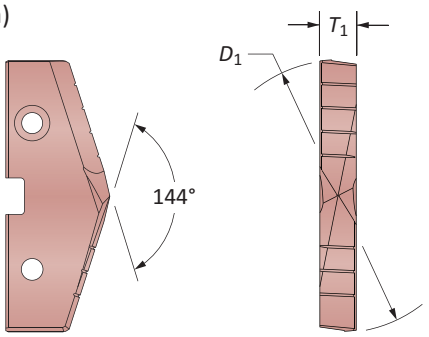
i = Imperial (in)
m = Metric (mm)
Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

GEN2 T-A Drill Inserts

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

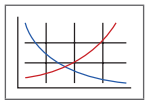




HSS Inserts – Super Cobalt | HSS

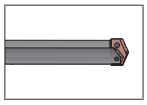
Insert				Super Cobalt Part No.	HSS Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	AM200®	TiN
3-17/32	3.5313	89.69	7/16	**457H-0317**	**437T-0317**
–	3.5433	90.00	7/16	**457H-90**	**437T-90**
3-9/16	3.5625	90.49	7/16	**457H-0318**	**437T-0318**
3-19/32	3.5938	91.28	7/16	**457H-0319**	**437T-0319**
–	3.6221	92.00	7/16	**457H-92**	**437T-92**
3-5/8	3.6250	92.08	7/16	**457H-0320**	**437T-0320**
3-21/32	3.6563	92.87	7/16	**457H-0321**	**437T-0321**
3-11/16	3.6875	93.66	7/16	**457H-0322**	**437T-0322**
–	3.7008	94.00	7/16	**457H-94**	**437T-94**
3-23/32	3.7188	94.46	7/16	**457H-0323**	**437T-0323**
3-3/4	3.7500	95.25	7/16	**457H-0324**	**437T-0324**
–	3.7795	96.00	7/16	**457H-96**	**437T-96**
3-25/32	3.7813	96.04	7/16	**457H-0325**	**437T-0325**
3-13/16	3.8125	96.84	7/16	**457H-0326**	**437T-0326**
3-27/32	3.8438	97.63	7/16	**457H-0327**	**437T-0327**
–	3.8583	98.00	7/16	**457H-98**	**437T-98**
3-7/8	3.8750	98.43	7/16	**457H-0328**	**437T-0328**
3-29/32	3.9063	99.22	7/16	**457H-0329**	**437T-0329**
–	3.9370	100.00	7/16	**457H-100**	**437T-100**
3-15/16	3.9375	100.01	7/16	**457H-0330**	**437T-0330**
3-31/32	3.9688	100.81	7/16	**457H-0331**	**437T-0331**
4	4.0000	101.60	7/16	**457H-0400**	**437T-0400**

A30: 112 - 143

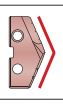


Key on A30: 1

A30: 106 - 108



A30: 4 - 4 - 6



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

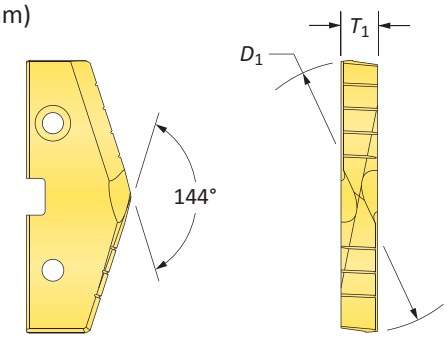
Inserts sold in quantities of 1

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

TiN = 457T-XXXX	**TiAlN** = 457A-XXXX
TiCN = 457N-XXXX	**AM200®** = 457H-XXXX

Original T-A Drill Inserts

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



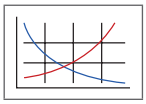
HSS Inserts – Super Cobalt | HSS

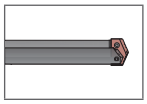
Insert				Super Cobalt Part No.*	HSS Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiN
3-17/32	3.5313	89.69	7/16	**157T-0317**	**137T-0317**
–	3.5433	90.00	7/16	**157T-90**	**137T-90**
3-9/16	3.5625	90.49	7/16	**157T-0318**	**137T-0318**
3-19/32	3.5938	91.28	7/16	**157T-0319**	**137T-0319**
–	3.6221	92.00	7/16	**157T-92**	**137T-92**
3-5/8	3.6250	92.08	7/16	**157T-0320**	**137T-0320**
3-21/32	3.6563	92.87	7/16	**157T-0321**	**137T-0321**
3-11/16	3.6875	93.66	7/16	**157T-0322**	**137T-0322**
–	3.7008	94.00	7/16	**157T-94**	**137T-94**
3-23/32	3.7188	94.46	7/16	**157T-0323**	**137T-0323**
3-3/4	3.7500	95.25	7/16	**157T-0324**	**137T-0324**
–	3.7795	96.00	7/16	**157T-96**	**137T-96**
3-25/32	3.7813	96.04	7/16	**157T-0325**	**137T-0325**
3-13/16	3.8125	96.84	7/16	**157T-0326**	**137T-0326**
3-27/32	3.8438	97.63	7/16	**157T-0327**	**137T-0327**
–	3.8583	98.00	7/16	**157T-98**	**137T-98**
3-7/8	3.8750	98.43	7/16	**157T-0328**	**137T-0328**
3-29/32	3.9063	99.22	7/16	**157T-0329**	**137T-0329**
–	3.9370	100.00	7/16	**157T-100**	**137T-100**
3-15/16	3.9375	100.01	7/16	**157T-0330**	**137T-0330**
3-31/32	3.9688	100.81	7/16	**157T-0331**	**137T-0331**
4	4.0000	101.60	7/16	**157T-0400**	**137T-0400**

*Available as non-stocked standard

A30: 112 - 143 | A30: 106 - 108 | A30: 4 - 6

Key on A30: 1





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

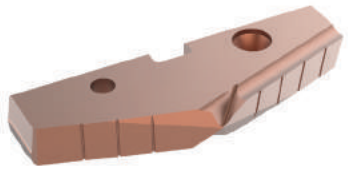
Inserts sold in quantities of 1

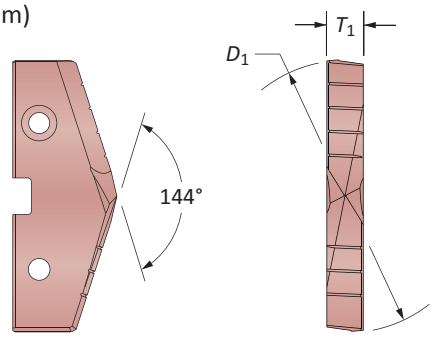
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

TiN = 157T-XXXX	**TiAlN** = 157A-XXXX
TiCN = 157N-XXXX	**AM200®** = 157H-XXXX

GEN2 T-A Drill Inserts

8 Series | HSS | Diameter Range: 4.001” - 4.507” (101.63mm - 114.48mm)
(for use with 7 series holders)

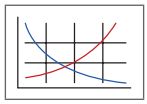




HSS Inserts – Super Cobalt | HSS

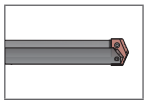
Insert				Super Cobalt Part No.	HSS Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	AM200®	TiN
4-1/64	4.0157	102.00	7/16	**458H-102**	**438T-102**
4-1/16	4.0625	103.19	7/16	**458H-0402**	**438T-0402**
4-3/32	4.0945	104.00	7/16	**458H-104**	**438T-104**
4-1/8	4.1250	104.75	7/16	**458H-0404**	**438T-0404**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

A30: 112 - 143

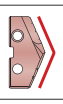


Key on A30: 1

A30: 106 - 108



A30: 4 - 6



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

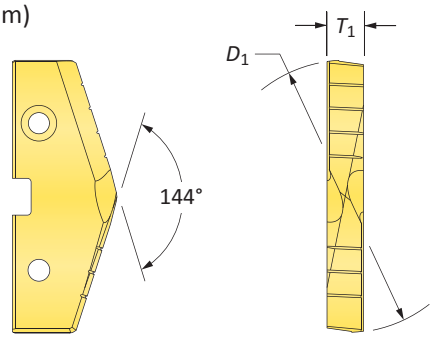
Inserts sold in quantities of 1

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

TiN = 458T-XXXX	**TiAlN** = 458A-XXXX
TiCN = 458N-XXXX	**AM200®** = 458H-XXXX

Original T-A Drill Inserts

8 Series | HSS | Diameter Range: 4.001” - 4.507” (101.63mm - 114.48mm)
(for use with 7 series holders)



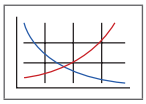
HSS Inserts – Super Cobalt | HSS

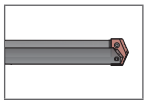
Insert				Super Cobalt Part No.*	HSS Part No.
Fractional Equivalent	D_1 inch	D_1 mm	T_1	TiN	TiN
4-1/64	4.0157	102.00	7/16	**158T-102**	**138T-102**
4-1/16	4.0625	103.19	7/16	**158T-0402**	**138T-0402**
4-3/32	4.0945	104.00	7/16	**158T-104**	**138T-104**
4-1/8	4.1250	104.75	7/16	**158T-0404**	**138T-0404**
–	4.1732	106.00	7/16	**158T-106**	**138T-106**
4-3/16	4.1875	106.36	7/16	**158T-0406**	**138T-0406**
4-1/4	4.2500	107.95	7/16	**158T-0408**	**138T-0408**
–	4.2520	108.00	7/16	**158T-108**	**138T-108**
4-5/16	4.3125	109.54	7/16	**158T-0410**	**138T-0410**
–	4.3307	110.00	7/16	**158T-110**	**138T-110**
4-3/8	4.3750	111.13	7/16	**158T-0412**	**138T-0412**
–	4.4094	112.00	7/16	**158T-112**	**138T-112**
4-7/16	4.4375	112.71	7/16	**158T-0414**	**138T-0414**
–	4.4882	114.00	7/16	**158T-114**	**138T-114**
4-1/2	4.5000	114.30	7/16	**158T-0416**	**138T-0416**

*Available as non-stocked standard

A30: 112 - 143 | A30: 106 - 108 | A30: 4 - 6

Key on A30: 1





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

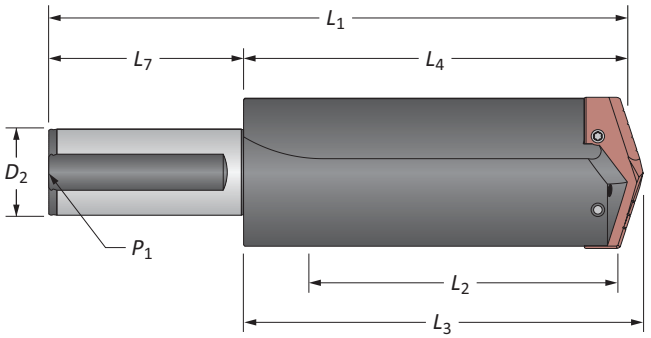
Inserts sold in quantities of 1

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

TiN = 158T-XXXX	**TiAlN** = 158A-XXXX
TiCN = 158N-XXXX	**AM200®** = 158H-XXXX

T-A Drill Insert Holders

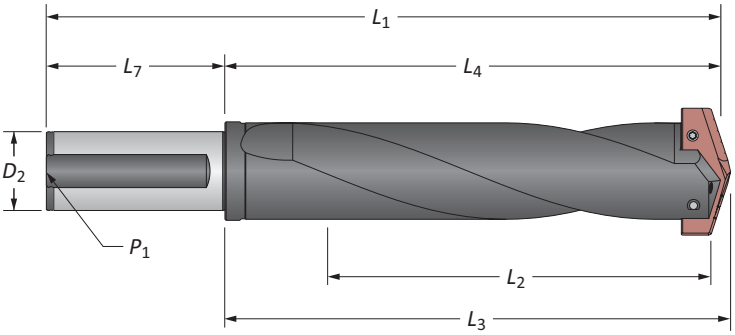
7 Series | Flange Shank | Diameter Range: 3.508” - 4.507” (89.10mm - 101.60mm)



Straight Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	Short	6-49/64	8-7/8	9-1/8	13-5/8	2	4-1/2	1/2	**22070S-200F**
ⓘ	Extended	21-57/64	23-57/64	24-1/4	27-3/4	2	4-1/2	1/2	⚠ **25070S-200F**
ⓜ	Short	172	225.4	231.8	311.8	50.0	80.0	1/2*	**22070S-50FM**
ⓜ	Extended	556	606.9	616	696	50.0	80.0	1/2*	⚠ **25070S-50FM**

*Metric thread to BSP and ISO 7-1

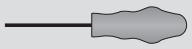


Helical Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
ⓘ	Standard	10-3/4	12-7/8	13-1/8	17-5/8	2	4-1/2	1/2	**24070H-200F**
ⓜ	Standard	273	327	333.4	413.4	50.0	80.0	1/2*	**24070H-50FM**

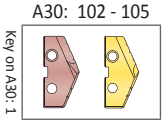
*Metric thread to BSP and ISO 7-1

Connection Accessories

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

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

A30: 102 - 105

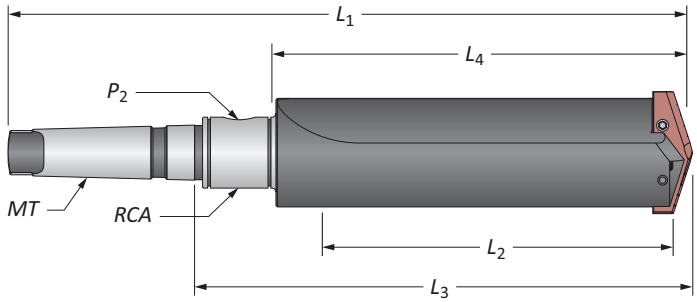


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

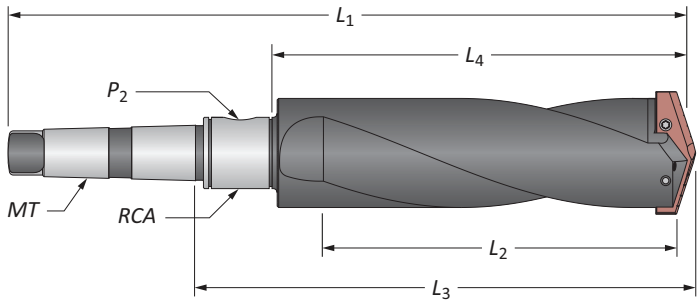
7 Series | Taper Shank | Diameter Range: 3.508” - 4.507” (89.10mm - 101.60mm)



Straight Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓘ	Short	6-3/4	8-7/8	11-11/16	17-5/16	#5	1/2	2T-6SR	**22070S-005I**
ⓘ	Standard	10-3/4	12-7/8	15-11/16	21-5/16	#5	1/2	2T-6SR	**24070S-005I**
ⓘ	Extended	21-7/8	24	26-13/16	32-7/16	#5	1/2	2T-6SR	⚠ **25070S-005I**
ⓘ	XL	27	29-1/8	31-15/16	37-9/16	#5	1/2	2T-6SR	⚠ **27070S-005I**
ⓘ	3XL	37	39-1/8	41-5/16	47-9/16	#5	1/2	2T-6SR	⚠ **29070S-005I**
ⓜ	Short	171.5	225.4	296.8	439.7	#5**	1/2*	2T-6SRM	**22070S-005M**
ⓜ	Extended	555.6	609.6	681.1	823.9	#5**	1/2*	2T-6SRM	⚠ **25070S-005M**
ⓜ	XL	685.0	739.7	811.2	954.0	#5**	1/2*	2T-6SRM	⚠ **27070S-005M**
ⓜ	3XL	939.0	993.7	1065.2	1208.0	#5**	1/2*	2T-6SRM	⚠ **29070S-005M**

*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK

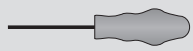
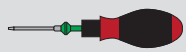


Helical Flute

	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank MT	Shank P_2	Shank RCA	Part No.
ⓜ	Standard	273.1	327.0	398.5	541.3	#5**	1/2*	2T-6SRM	**24070H-005M**

*Metric thread to BSP and ISO 7-1
**Per ISO 296 type BEK

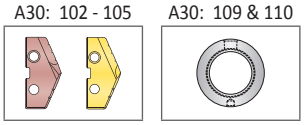
Connection Accessories

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

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

A30: 102 - 105 | A30: 109 & 110

Key on A30: 1

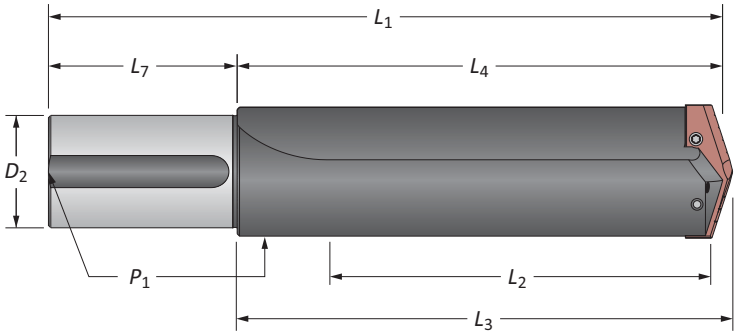


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Screws sold in quantities of 10

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

T-A Drill Insert Holders

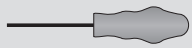
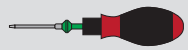
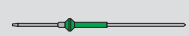
7 Series | Straight Shank | Diameter Range: 3.508” - 4.507” (89.10mm - 101.60mm)



Straight Flute

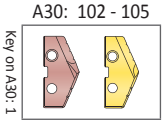
	Length	Body L_2	Body L_4	Body L_3	Body L_1	Shank D_2	Shank L_7	Shank P_1	Part No.
	Short	6-3/4	8-7/8	9-1/8	13-7/8	3	5	1/2	**22070S-300L**
	Standard	10-3/4	12-7/8	13-1/8	17-7/8	3	5	1/2	**24070S-300L**
ⓘ	Extended	21-7/8	24	24-1/4	29	3	5	1/2	⚠ **25070S-300L**
	XL	27	29-1/8	29-3/8	34-1/8	3	5	1/2	⚠ **27070S-300L**
	3XL	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	–	–	155.0 in-lbs (1750 N-cm)

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

A30: 102 - 105



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

⚠ **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

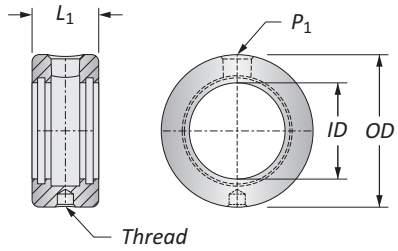
T-A Drill Accessories

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

*Thread to BSP and ISO 7-1
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers
⚠ Refer to page A30: 110 for proper RCA assembly and safety information

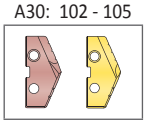


Connection Accessories

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

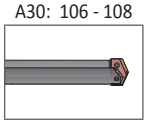
*Tightening torques are calculated with a friction coefficient of μ = 0.14 and develop 90% of ultimate yield strength

A30: 102 - 105



Key on A30: 1

A30: 106 - 108

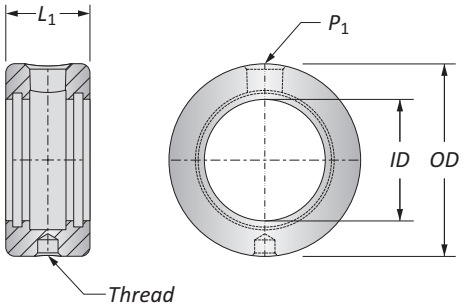


ⓘ = Imperial (in)
ⓜ = Metric (mm)
Inserts sold separately
Screws sold in packs of 10
O-rings sold in packs of 10

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

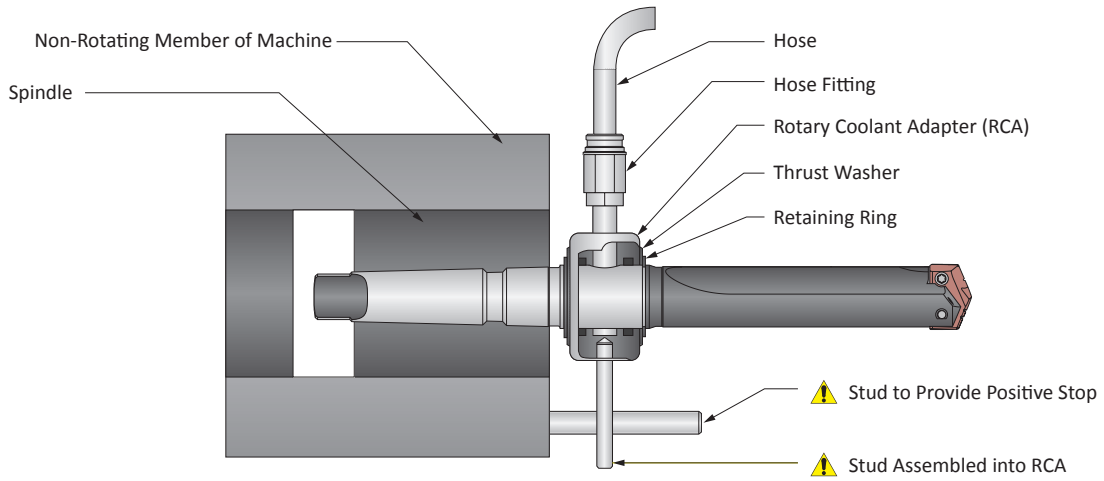
Rotary Coolant Adapters (RCA)

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.**	RCA O-Rings Replacements
	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
	Y, Z, 0	19.05	44.45	22.23	M8 x 1.25	1/8*	⚠ 2T-2SRM	3500	2T1-2SR	2T1-2OR-10
	1, 2	25.40	53.97	28.57	M8 x 1.25	1/8*	⚠ 2T-3SRM	2500	2T1-3SR	2T1-3OR-10
ⓜ	2, 3, 4	31.75	63.50	34.92	M10 x 1.50	1/4*	⚠ 2T-4SRM	2000	2T1-4SR	2T1-4OR-10
	3, 4	44.45	76.20	34.92	M10 x 1.50	1/4*	⚠ 2T-5SRM	1500	2T1-5SR	2T1-5OR-10
	5, 7	57.15	95.27	44.45	M12 x 1.75	1/2*	⚠ 2T-6SRM	1100	2T1-6SR	2T1-6OR-10

*Thread to BSP and ISO 7-1
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers
NOTE: Max recommended pressure is 600 PSI (42 bar)
NOTE: Recommendations above are based on water and oil based coolants

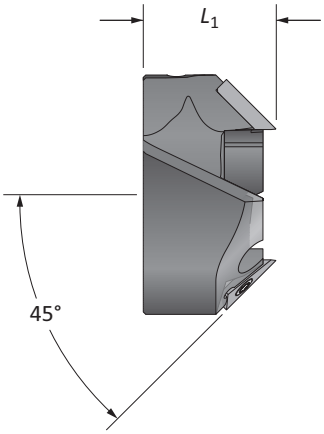


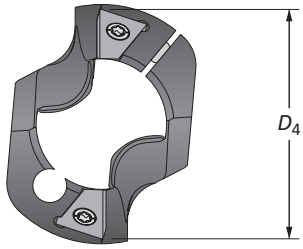
ⓘ = Imperial (in)
ⓜ = Metric (mm)
O-rings sold in packs of 10

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

T-ACR 45 Chamfer Rings

Straight Flute Holders





Holder Series	D_1 Range	Chamfer Ring D_4	Chamfer Ring L_1	Part No.	Insert Part No.	Insert Screw	Insert Driver	Clamping Screw	Insert Driver
0	0.5118 - 0.6890	13/16	0.676	**T-ACR-45-0**	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7375-IP9-1	8IP-9
1	0.6900 - 0.9600	1-3/64	51/64	**T-ACR-45-1**	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7495-IP15-1	8IP-15
1.5	0.8540 - 0.9600	1-1/8	57/64	**T-ACR-45-1.5**	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7495-IP15-1	8IP-15
2	0.9610 - 1.3800	1-9/16	1	**T-ACR-45-2**	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7514-IP20-1	8IP-20

Highlights and Other Information

- Produces a 45° chamfer only
- Clamping screw allows for setting at any length along the flute
- Double effective cutting with face mounted inserts provides increased feed rates and greater insert strength
- The ring is balanced to match the holder center of gravity to ensure stability
- Inserts only available in C5 carbide and 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 | Imperial (inch)

HSS Inserts

ISO	Material	Hardness (BHN)	HSS Grade	SFM TiN	SFM AM200®	Feed Rate (IPR) by Diameter 3/8 - 1/2	Feed Rate (IPR) by Diameter 33/64 - 11/16
P	**Free Machining Steel** 1118, 1215, 12L14, etc.	100 - 150	HSS	200	325	0.008	0.012
		150 - 200	HSS	180	300	0.007	0.011
		200 - 250	HSS	160	280	0.006	0.010
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	HSS	170	290	0.008 ❖	0.010
		125 - 175	HSS	160	275	0.007 ❖	0.010
		175 - 225	HSS	150	260	0.006 ❖	0.009
		225 - 275	HSS	140	240	0.005 ❖	0.009
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	HSS	160	275	0.007	0.010
		175 - 225	HSS	150	260	0.006	0.009
		225 - 275	HSS	140	240	0.006	0.009
		275 - 325	SC	130	225	0.005	0.008
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	HSS	150	240	0.007	0.010
		175 - 225	HSS	140	225	0.006	0.009
		225 - 275	HSS	130	210	0.006	0.009
		275 - 325	SC	120	195	0.005	0.008
		325 - 375	SC	110	180	0.004	0.007
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	SC	80	125	0.006 ❖	0.009
		300 - 350	SC	60	100	0.005 ❖	0.008
		350 - 400	SC	50	80	0.004 ❖	0.007
	Structural Steel A36, A285, A516, etc.	100 - 150	HSS	140	235	0.008 ❖	0.011
		150 - 250	HSS	120	190	0.006 ❖	0.010
		250 - 350	SC	100	160	0.005 ❖	0.009
	Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	SC	80	125	0.004	0.007
		200 - 250	SC	60	105	0.004	0.007
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 220	SC	30	45	0.004 ❖	0.007
		220 - 310	SC	25	40	0.004 ❖	0.006
	Titanium Alloy	140 - 220	SC	35	55	0.004 ❖	0.007
		220 - 310	SC	30	50	0.003 ❖	0.006
	Aerospace Alloy S82	185 - 275	SC	75	110	0.006 ❖	0.008
		275 - 350	SC	60	100	0.005 ❖	0.007
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 275	SC	75	110	0.006 ❖	0.008
		275 - 350	SC	60	100	0.005 ❖	0.007
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	SC	75	110	0.003 ❖	0.007
		185 - 275	SC	60	100	0.003 ❖	0.006
	Super Duplex Stainless Steel	135 - 185	SC	60	85	0.003 ❖	0.007
		185 - 275	SC	50	70	0.003 ❖	0.006
H	**Wear Plate** Hardox, AR400, T-1, etc.	400	SC	45	70	0.003 ❖	0.006
		500	SC	35	45	0.002 ❖	0.005
		600	–	–	–	0.004 ❖	0.006
	Hardened Steel	300 - 400	SC	50	95	–	–
		400 - 500	SC	35	45	0.002 ❖	0.005
K	**Nodular, Grey, Ductile Cast Iron**	120 - 150	HSS	170	290	0.008	0.012
		150 - 200	HSS	150	260	0.007	0.011
		200 - 220	HSS	130	225	0.006	0.009
		220 - 260	SC	110	190	0.005	0.008
		260 - 320	SC	90	155	0.005	0.007
N	**Cast Aluminum**	30	HSS	600	–	0.009	0.015
		180	HSS	300	–	0.008	0.013
	Wrought Aluminum	30	HSS	600	900	0.005	0.013
		180	HSS	300	650	0.005	0.007
	Aluminum Bronze	100 - 200	SC	170	270	0.006	0.009
		200 - 250	SC	130	210	0.005	0.007
	Brass	100	HSS	300	470	0.007	0.011
	Copper	60	SC	130	190	0.003 ❖	0.004

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

Feed Rate (IPR) by Diameter				
45/64 - 15/16	31/32 - 1-3/8	1-13/32 - 1-7/8	1-29/32 - 2-9/16	2-19/32 - 4-1/2
0.016	0.019	0.020	0.023	0.028
0.015	0.017	0.020	0.023	0.028
0.014	0.016	0.020	0.023	0.028
0.014	0.018	0.019	0.023	0.027
0.014	0.017	0.019	0.023	0.027
0.013	0.016	0.018	0.021	0.024
0.013	0.016	0.018	0.021	0.024
0.014	0.017	0.019	0.023	0.027
0.013	0.016	0.018	0.021	0.024
0.013	0.016	0.018	0.021	0.024
0.012	0.015	0.016	0.019	0.022
0.014	0.017	0.017	0.019	0.022
0.013	0.016	0.017	0.019	0.022
0.013	0.016	0.017	0.019	0.022
0.012	0.015	0.015	0.017	0.020
0.011	0.014	0.015	0.017	0.020
0.011	0.013	0.014	0.017	0.020
0.010	0.012	0.014	0.017	0.020
0.009	0.011	0.012	0.015	0.018
0.015	0.017	0.018	0.021	0.026
0.013	0.015	0.016	0.019	0.024
0.012	0.013	0.014	0.017	0.020
0.010	0.012	0.012	0.015	0.017
0.010	0.012	0.012	0.015	0.017
0.009	0.011	0.012	0.015	0.017
0.008	0.010	0.010	0.012	0.014
0.008	0.010	0.012	0.015	0.017
0.007	0.009	0.010	0.012	0.014
0.009	0.011	0.014	0.016	0.020
0.008	0.010	0.012	0.014	0.018
0.009	0.011	0.014	0.016	0.020
0.008	0.010	0.012	0.014	0.018
0.008	0.011	0.014	0.016	0.020
0.007	0.010	0.012	0.014	0.018
0.008	0.011	0.014	0.016	0.020
0.007	0.010	0.012	0.014	0.018
0.008	0.009	0.012	0.016	0.018
0.007	0.008	0.010	0.012	0.016
0.009	0.011	0.012	0.016	0.018
–	–	–	–	–
0.007	0.009	0.010	0.012	0.016
0.016	0.020	0.024	0.027	0.030
0.015	0.019	0.022	0.025	0.028
0.013	0.017	0.018	0.021	0.024
0.011	0.014	0.014	0.017	0.020
0.010	0.012	0.012	0.014	0.016
0.018	0.023	0.022	0.025	0.025
0.016	0.020	0.022	0.025	0.025
0.016	0.020	0.022	0.025	0.025
0.012	0.014	0.022	0.025	0.025
0.012	0.015	0.017	0.019	0.021
0.009	0.011	0.014	0.016	0.018
0.013	0.018	0.019	0.021	0.023
0.007	0.010	0.009	0.011	0.012

Deep Hole Drilling Speed and Feed Adjustment

	⚠ Holder Length				
	Extended	Long	Long Plus	XL	3XL
Speed	0.90	0.85	0.80	0.80	0.75
Feed	–	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

200 • 0.75 = 150 SFM	0.008 • 0.90 = 0.007 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)

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

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

Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Carbide Inserts

ISO	Material	Hardness (BHN)	Carbide Grade	SFM AM300®	Feed Rate (IPR) by Diameter 3/8 - 1/2	33/64 - 11/16	45/64 - 15/16	31/32 - 1-3/8
P	**Free Machining Steel** 1118, 1215, 12L14, etc.	100 - 150	C1	480	0.008	0.012	0.016	0.019
		150 - 200	C1	415	0.007	0.011	0.015	0.017
		200 - 250	C1	390	0.006	0.010	0.014	0.016
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	C1	450	0.008 ❖	0.010	0.014	0.018
		125 - 175	C1	390	0.007 ❖	0.010	0.014	0.017
		175 - 225	C1	355	0.006 ❖	0.009	0.013	0.016
		225 - 275	C1	310	0.005 ❖	0.009	0.013	0.016
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	C1	390	0.007	0.010	0.014	0.017
		175 - 225	C1	355	0.006	0.009	0.013	0.016
		225 - 275	C1	310	0.006	0.009	0.013	0.016
		275 - 325	C1	265	0.005	0.008	0.012	0.015
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	C1	375	0.007	0.010	0.014	0.017
		175 - 225	C1	345	0.006	0.009	0.013	0.016
		225 - 275	C1	310	0.006	0.009	0.013	0.016
		275 - 325	C1	285	0.005	0.008	0.012	0.015
		325 - 375	C1	255	0.004	0.007	0.011	0.014
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	C1	230	0.006 ❖	0.009	0.011	0.013
		300 - 350	C1	205	0.005 ❖	0.008	0.010	0.012
		350 - 400	C1	185	0.004 ❖	0.007	0.009	0.011
	Structural Steel A36, A285, A516, etc.	100 - 150	C1	355	0.008 ❖	0.011	0.015	0.017
		150 - 250	C1	285	0.006 ❖	0.010	0.013	0.015
		250 - 350	C1	265	0.005 ❖	0.009	0.012	0.013
	Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	C1	255	0.007	0.007	0.010	0.012
		200 - 250	C1	195	0.007	0.007	0.010	0.012
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 220	C2	120	0.004 ❖	0.007	0.009	0.011
		220 - 310	C2	95	0.004 ❖	0.006	0.008	0.010
	Titanium Alloy	140 - 220	C2	140	0.004 ❖	0.007	0.008	0.011
		220 - 310	C2	110	0.003 ❖	0.006	0.007	0.009
	Aerospace Alloy S82	185 - 275	C2	240	0.005 ❖	0.006	0.007	0.009
		275 - 350	C2	180	0.004 ❖	0.005	0.006	0.008
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 275	C2	240	0.007 ❖	0.009	0.012	0.014
		275 - 350	C2	180	0.006 ❖	0.008	0.011	0.012
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	C2	240	0.006 ❖	0.007	0.009	0.012
		185 - 275	C2	180	0.005 ❖	0.006	0.008	0.009
	Super Duplex Stainless Steel	135 - 185	C2	125	0.005 ❖	0.007	0.008	0.010
		185 - 275	C2	100	0.004 ❖	0.006	0.007	0.009

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

ISO	Material	Hardness (BHN)	Carbide Grade	SFM AM300®	Feed Rate (IPR) by Diameter 3/8 - 1/2	33/64 - 11/16	45/64 - 15/16	31/32 - 1-3/8
H	**Wear Plate** Hardox, AR400, T-1, etc.	400	C2	150	0.003 ❖	0.005	0.008	0.010
		500	C2	120	0.002 ❖	0.004	0.006	0.008
		600	C2	100	0.001 ❖	0.003	0.005	0.006
	Hardened Steel	300 - 400	C1	150	0.004 ❖	0.006	0.009	0.011
		400 - 500	C1	120	0.003 ❖	0.005	0.008	0.010
K	**Nodular, Grey, Ductile Cast Iron**	120 - 150	C2	500	0.008	0.012	0.015	0.019
		150 - 200	C2	480	0.007	0.011	0.013	0.017
		200 - 220	C2	430	0.006	0.009	0.012	0.015
		220 - 260	C2	370	0.005	0.008	0.011	0.013
		260 - 320	C2	335	0.005	0.007	0.010	0.011
N	**Cast Aluminum**	30	C2	975	0.009	0.015	0.018	0.023
		180	C2	730	0.008	0.013	0.016	0.020
	Wrought Aluminum	30	C2	1385	0.005	0.013	0.016	0.020
		180	C2	975	0.005	0.007	0.012	0.014
	Aluminum Bronze	100 - 200	C2	360	0.006	0.009	0.012	0.015
		200 - 250	C2	300	0.005	0.007	0.009	0.011
	Brass	100	C2	650	0.007	0.011	0.013	0.018
	Copper	60	C2	420	0.003 ❖	0.004	0.007	0.010

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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 • 0.75 = 150 SFM	0.008 • 0.90 = 0.007 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)

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

HSS Inserts

ISO	Material	Hardness (BHN)	HSS Grade	SFM TiN	SFM TiAlN	SFM TiCN	Feed Rate (IPR) by Diameter 3/8 - 1/2	Feed Rate (IPR) by Diameter 33/64 - 11/16
P	**Free Machining Steel** 1118, 1215, 12L14, etc.	100 - 150	HSS	200	280	260	0.007	0.010
		150 - 200	HSS	180	260	235	0.007	0.010
		200 - 250	HSS	160	240	210	0.006	0.010
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	HSS	170	250	220	0.006 ❖	0.009
		125 - 175	HSS	160	240	210	0.006 ❖	0.009
		175 - 225	HSS	150	225	195	0.005 ❖	0.008
		225 - 275	HSS	140	210	180	0.005 ❖	0.008
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	HSS	160	240	210	0.006	0.009
		175 - 225	HSS	150	225	195	0.005	0.008
		225 - 275	HSS	140	210	180	0.005	0.008
		275 - 325	SC, PC	130	195	170	0.004	0.007
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	HSS	150	210	195	0.006	0.008
		175 - 225	HSS	140	195	180	0.005	0.008
		225 - 275	HSS	130	180	170	0.005	0.007
		275 - 325	SC, PC	120	170	155	0.004	0.006
		325 - 375	SC, PC	110	155	145	0.003	0.006
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	SC, PC	80	110	100	0.005 ❖	0.007
		300 - 350	SC, PC	60	85	80	0.004 ❖	0.007
		350 - 400	PC	50	70	65	0.003 ❖	0.006
	Structural Steel A36, A285, A516, etc.	100 - 150	HSS	140	200	180	0.006 ❖	0.010
		150 - 250	HSS	120	170	155	0.005 ❖	0.009
		250 - 350	SC, PC	100	140	130	0.003 ❖	0.008
	Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	SC	80	110	105	0.004	0.006
		200 - 250	SC, PC	60	90	85	0.004	0.006
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 220	SC, PC	30	40	35	0.003 ❖	0.007
		220 - 310	PC	25	35	30	0.003 ❖	0.006
	Titanium Alloy	140 - 220	SC, PC	35	50	45	0.003 ❖	0.007
		220 - 310	PC	30	45	35	0.003 ❖	0.006
	Aerospace Alloy S82	185 - 275	SC, PC	75	105	95	0.006 ❖	0.008
		275 - 350	SC, PC	60	90	80	0.005 ❖	0.007
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 275	SC, PC	75	105	95	0.009	0.010
		275 - 350	SC, PC	60	90	80	0.008	0.009
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	SC, PC	75	105	95	0.007	0.007
		185 - 275	SC, PC	60	90	80	0.006	0.006
	Super Duplex Stainless Steel	135 - 185	SC, PC	60	80	70	0.005	0.005
		185 - 275	SC, PC	50	65	60	0.004	0.005
H	**Wear Plate** Hardox, AR400, T-1, etc.	400	SC, PC	45	70	55	0.003 ❖	0.006
		500	PC	35	45	40	0.002 ❖	0.005
		600	N/A	–	–	–	–	–
	Hardened Steel	300 - 400	PC	50	95	70	0.003 ❖	0.006
		400 - 500	PC	35	45	40	0.002 ❖	0.005
K	**Nodular, Grey, Ductile Cast Iron**	120 - 150	HSS	170	250	220	0.007	0.012
		150 - 200	HSS	150	225	195	0.006	0.011
		200 - 220	HSS	130	195	170	0.006	0.009
		220 - 260	SC, PC	110	165	145	0.005	0.007
		260 - 320	SC, PC	90	135	120	0.004	0.006
N	**Cast Aluminum**	30	HSS	600	850	750	0.008	0.013
		180	HSS	300	450	400	0.008	0.013
	Wrought Aluminum	30	HSS	600	850	750	0.004	0.006
		180	HSS	300	450	400	0.008	0.013
	Aluminum Bronze	100 - 200	SC	170	250	220	0.006	0.011
		200 - 250	SC	130	190	170	0.005	0.007
	Brass	100	HSS	300	445	400	0.007	0.012
	Copper	60	SC	130	165	150	0.002 ❖	0.003

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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.

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 • 0.75 = 150 SFM	0.008 • 0.90 = 0.007 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)

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

Carbide Inserts

ISO	Material	Hardness (BHN)	Carbide Grade	SFM TiN	SFM TiAlN	SFM TiCN	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
P	**Free Machining Steel**	100 - 150	C5	320	420	375	0.008	0.012	0.015	0.018	0.021
	1118, 1215, 12L14, etc.	150 - 200	C5	280	360	325	0.007	0.011	0.014	0.016	0.019
		200 - 250	C5	260	340	295	0.006	0.010	0.013	0.015	0.017
	Low Carbon Steel	85 - 125	C5	300	390	360	0.008 ❖	0.010	0.013	0.017	0.019
	1010, 1020, 1025, 1522,	125 - 175	C5	260	340	295	0.007 ❖	0.010	0.013	0.016	0.018
	1144, etc.	175 - 225	C5	240	310	270	0.006 ❖	0.009	0.012	0.015	0.017
		225 - 275	C5	210	270	245	0.005 ❖	0.009	0.012	0.015	0.017
	Medium Carbon Steel	125 - 175	C5	260	340	295	0.007	0.010	0.013	0.016	0.018
	1030, 1040, 1050, 1527,	175 - 225	C5	240	310	275	0.006	0.009	0.012	0.015	0.017
	1140, 1151, etc.	225 - 275	C5	210	270	235	0.006	0.009	0.012	0.015	0.017
		275 - 325	C5	180	230	205	0.005	0.008	0.011	0.014	0.016
	Alloy Steel	125 - 175	C5	250	325	285	0.007	0.010	0.013	0.016	0.018
	4140, 5140, 8640, etc.	175 - 225	C5	230	300	260	0.006	0.009	0.012	0.015	0.017
		225 - 275	C5	210	270	235	0.006	0.009	0.012	0.015	0.017
		275 - 325	C5	200	250	225	0.005	0.008	0.011	0.014	0.016
		325 - 375	C5	170	220	195	0.004	0.007	0.010	0.013	0.015
	High Strength Alloy	225 - 300	C5	160	200	180	0.006 ❖	0.009	0.010	0.012	0.015
	4340, 4330V, 300M, etc.	300 - 350	C5	140	180	160	0.005 ❖	0.008	0.009	0.011	0.014
		350 - 400	C5	120	160	140	0.004 ❖	0.007	0.008	0.010	0.012
	Structural Steel	100 - 150	C5	240	310	275	0.008 ❖	0.011	0.014	0.016	0.018
	A36, A285, A516, etc.	150 - 250	C5	200	250	225	0.006 ❖	0.010	0.012	0.014	0.016
		250 - 350	C5	180	230	205	0.005 ❖	0.009	0.011	0.012	0.014
	Tool Steel	150 - 200	C5	160	220	190	0.004	0.007	0.009	0.011	0.013
	H-13, H-21, A-4, 0-2, S-3, etc.	200 - 250	C5	120	170	145	0.004	0.007	0.009	0.011	0.013
S	**High Temp Alloy**	140 - 220	C2	80	105	90	0.004 ❖	0.007	0.009	0.011	0.013
	Hastelloy B, Inconel 600, etc.	220 - 310	C2	60	85	70	0.004 ❖	0.006	0.008	0.010	0.012
	Titanium Alloy	140 - 220	C2	100	125	105	0.004 ❖	0.007	0.009	0.011	0.013
		220 - 310	C2	80	110	90	0.004 ❖	0.006	0.008	0.010	0.012
	Aerospace Alloy	185 - 275	C2	160	210	185	0.007 ❖	0.006	0.011	0.014	0.016
	S82	275 - 350	C2	120	160	140	0.006 ❖	0.008	0.010	0.012	0.014
M	**Stainless Steel 400 Series**	185 - 275	C2	160	210	185	0.007 ❖	0.008	0.011	0.014	0.016
	416, 420, etc.	275 - 350	C2	120	160	140	0.006 ❖	0.007	0.010	0.012	0.014
	Stainless Steel 300 Series	135 - 185	C2	160	210	185	0.005 ❖	0.007	0.009	0.010	0.012
	304, 316, 17-4PH, etc.	185 - 275	C2	120	160	140	0.004 ❖	0.006	0.008	0.009	0.010
	Super Duplex Stainless Steel	135 - 185	C2	80	110	95	0.004 ❖	0.007	0.008	0.009	0.011
		185 - 275	C2	60	80	70	0.003 ❖	0.006	0.007	0.008	0.009

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

ISO	Material	Hardness (BHN)	Carbide Grade	SFM TiN	SFM TiAlN	SFM TiCN	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
H	**Wear Plate**	400	C5	75	115	100	0.003 ❖	0.006	0.008	0.010	0.012
	Hardox, AR400, T-1, etc.	500	C5	50	85	70	0.002 ❖	0.005	0.006	0.008	0.010
		600	C5	35	75	55	0.001 ❖	0.004	0.005	0.006	0.008
	Hardened Steel	300 - 400	C5	110	140	130	0.004 ❖	0.006	0.009	0.011	0.013
		400 - 500	C5	65	85	75	0.003 ❖	0.005	0.008	0.009	0.011
K	**Nodular, Grey, Ductile Cast Iron**	120 - 150	C2, C3	320	460	415	0.008	0.012	0.015	0.019	0.023
		150 - 200	C2, C3	270	400	335	0.007	0.011	0.013	0.017	0.021
		200 - 220	C2, C3	240	360	305	0.006	0.009	0.012	0.015	0.018
		220 - 260	C2, C3	210	310	260	0.005	0.008	0.011	0.013	0.015
		260 - 320	C2, C3	180	270	225	0.005	0.007	0.010	0.011	0.013
N	**Cast Aluminum**	30	C2	1200	1500	1330	0.010	0.013	0.018	0.020	0.022
		180	C2	800	1000	900	0.009	0.013	0.016	0.018	0.020
	Wrought Aluminum	30	C2	1200	1500	1330	0.004	0.006	0.010	0.012	0.014
		180	C2	800	1000	900	0.008	0.013	0.014	0.018	0.020
	Aluminum Bronze	100 - 200	C2	275	360	325	0.005	0.008	0.010	0.014	0.017
		200 - 250	C2	210	305	260	0.004	0.007	0.007	0.010	0.013
	Brass	100	C2	425	600	520	0.006	0.009	0.011	0.015	0.018
	Copper	60	C2	260	390	325	0.002 ❖	0.003	0.004	0.006	0.010

❖ Contact our Application Engineering department for assistance when machining these materials

Deep Hole Drilling Speed and Feed Adjustment

	Holder Length				
	Extended	**Long**	**Long Plus**	**XL**	**3XL**
Speed	0.90	0.85	0.80	0.80	0.75
Feed	–	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

200 • 0.75 = 150 SFM	0.008 • 0.90 = 0.007 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)

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

HSS Inserts | Flat Bottom Geometry

ISO	Material	Hardness (BHN)	HSS Grade	SFM TiN	TiAlN	TiCN	AM200®
P	**Free Machining Steel** 1118, 1215, 12L14, etc.	100 - 150	HSS	170	250	230	290
		150 - 200	HSS	155	230	205	265
		200 - 250	HSS	140	210	185	245
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	HSS	150	220	195	255
		125 - 175	HSS	140	210	185	245
		175 - 225	HSS	130	195	175	225
		225 - 275	HSS	120	185	155	215
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	HSS	140	210	185	245
		175 - 225	HSS	130	195	175	225
		225 - 275	HSS	120	185	155	215
		275 - 325	SC	110	175	150	205
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	HSS	130	185	175	215
		175 - 225	HSS	120	175	155	205
		225 - 275	HSS	110	155	145	180
		275 - 325	SC	105	145	135	170
		325 - 375	SC	95	135	125	155
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	SC	70	95	85	110
		300 - 350	SC	50	75	70	90
		350 - 400	SC	45	65	60	75
	Structural Steel A36, A285, A516, etc.	100 - 150	HSS	120	170	155	195
		150 - 250	HSS	105	145	135	170
		250 - 350	SC	85	120	110	140
	Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	SC	70	95	90	110
		200 - 250	SC	50	80	75	95
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 220	SC	25	35	30	40
		220 - 310	SC	20	30	25	35
	Titanium Alloy	140 - 220	SC	35	45	40	50
		220 - 310	SC	26	40	35	45
	Aerospace Alloy S82	185 - 275	SC	65	90	85	110
		275 - 350	SC	50	80	70	90
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 275	SC	65	90	85	110
		275 - 350	SC	50	80	70	90
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	SC	65	90	85	110
		185 - 275	SC	50	80	70	90
	Super Duplex Stainless Steel	135 - 185	SC	65	90	85	110
		185 - 275	SC	50	80	70	90
H	**Wear Plate** Hardox, AR400, T-1, etc.	400	SC	–	–	–	–
		500	SC	–	–	–	–
		600	N/A	–	–	–	–
	Hardened Steel	300 - 400	SC	45	65	60	80
		400 - 500	SC	25	40	35	45
K	**Nodular, Grey, Ductile Cast Iron**	120 - 150	HSS	150	220	195	255
		150 - 200	HSS	130	195	175	225
		200 - 220	HSS	110	175	150	205
		220 - 260	SC	95	150	125	175
		260 - 320	SC	80	120	105	140
N	**Cast Aluminum**	30	HSS	520	750	650	–
		180	HSS	260	400	350	–
	Wrought Aluminum	30	HSS	520	750	650	850
		180	HSS	260	400	350	450
	Aluminum Bronze	100 - 200	SC	130	190	175	230
		200 - 250	SC	95	150	125	165
	Brass	100	HSS	150	220	190	250
	Copper	60	SC	115	150	130	170

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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.

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 • 0.75 = 150 SFM	0.008 • 0.90 = 0.007 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)

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

Carbide Inserts | Flat Bottom Geometry

ISO	Material	Hardness (BHN)	Carbide Grade	SFM				Feed Rate (IPR) by Diameter			
				 TiN	 TiAlN	 TiCN	 AM200®	3/8 - 1/2	33/64 - 11/16	45/64 - 15/16	13/32 - 1-7/8
P	**Free Machining Steel**	100 - 150	C2	270	380	325	425	0.007	0.010	0.013	0.015
	1118, 1215, 12L14, etc.	150 - 200	C2	240	320	280	375	0.006	0.009	0.012	0.014
		200 - 250	C2	220	300	260	350	0.005	0.009	0.011	0.013
	Low Carbon Steel	85 - 125	C2	260	345	315	410	0.007 ❖	0.009	0.011	0.014
	1010, 1020, 1025, 1522,	125 - 175	C2	220	300	260	350	0.006 ❖	0.009	0.011	0.014
	1144, etc.	175 - 225	C2	200	280	235	320	0.005 ❖	0.008	0.010	0.013
		225 - 275	C2	180	240	215	285	0.004 ❖	0.008	0.010	0.013
	Medium Carbon Steel	125 - 175	C2	220	300	260	350	0.006	0.009	0.011	0.014
	1030, 1040, 1050, 1527,	175 - 225	C2	200	280	240	320	0.005	0.008	0.010	0.013
	1140, 1151, etc.	225 - 275	C2	180	240	210	285	0.005	0.008	0.010	0.013
		275 - 325	C2	150	210	180	240	0.004	0.007	0.009	0.012
	Alloy Steel	125 - 175	C2	215	290	250	340	0.006	0.009	0.011	0.014
	4140, 5140, 8640, etc.	175 - 225	C2	200	270	230	320	0.005	0.008	0.010	0.013
		225 - 275	C2	180	230	205	290	0.005	0.008	0.010	0.013
		275 - 325	C2	175	215	190	280	0.004	0.007	0.009	0.012
		325 - 375	C2	145	190	170	230	0.003	0.006	0.009	0.011
	High Strength Alloy	225 - 300	C2	140	170	160	220	0.005 ❖	0.008	0.009	0.010
	4340, 4330V, 300M, etc.	300 - 350	C2	120	160	140	190	0.004 ❖	0.007	0.008	0.009
		350 - 400	C2	100	145	120	160	0.003 ❖	0.006	0.007	0.009
	Structural Steel	100 - 150	C2	205	265	240	325	0.007 ❖	0.009	0.012	0.014
	A36, A285, A516, etc.	150 - 250	C2	170	215	200	270	0.005 ❖	0.009	0.010	0.012
		250 - 350	C2	155	200	180	240	0.004 ❖	0.008	0.009	0.010
	Tool Steel	150 - 200	C2	140	190	160	220	0.003	0.006	0.008	0.009
	H-13, H-21, A-4, 0-2, S-3, etc.	200 - 250	C2	100	150	120	160	0.003	0.006	0.008	0.009
S	**High Temp Alloy**	140 - 220	C2	70	90	80	110	0.003 ❖	0.006	0.008	0.009
	Hastelloy B, Inconel 600, etc.	220 - 310	C2	50	70	60	80	0.003 ❖	0.005	0.007	0.009
	Titanium Alloy	140 - 220	C2	85	110	90	130	0.003 ❖	0.005	0.006	0.008
		220 - 310	C2	70	95	80	100	0.003 ❖	0.004	0.005	0.007
	Aerospace Alloy	185 - 275	C2	140	120	165	130	0.006 ❖	0.006	0.010	0.012
	S82	275 - 350	C2	110	90	125	105	0.005 ❖	0.005	0.009	0.010
M	**Stainless Steel 400 Series**	185 - 275	C2	140	180	165	210	0.006 ❖	0.008	0.010	0.012
	416, 420, etc.	275 - 350	C2	110	140	125	160	0.005 ❖	0.007	0.009	0.010
	Stainless Steel 300 Series	135 - 185	C2	90	120	110	130	0.005 ❖	0.007	0.008	0.010
	304, 316, 17-4PH, etc.	185 - 275	C2	70	90	80	105	0.004 ❖	0.006	0.007	0.009
	Super Duplex Stainless Steel	135 - 185	C2	70	95	85	110	0.004 ❖	0.006	0.007	0.008
		185 - 275	C2	55	70	60	85	0.003 ❖	0.005	0.006	0.007

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

ISO	Material	Hardness (BHN)	Carbide Grade	SFM TiN	SFM TiAlN	SFM TiCN	SFM AM200®	Feed Rate (IPR) by Diameter 3/8 - 1/2	33/64 - 11/16	45/64 - 15/16	13/32 - 1-7/8
H	**Wear Plate**	400	C2	65	100	85	130	0.003 ❖	0.004	0.006	0.008
	Hardox, AR400, T-1, etc.	500	C2	45	75	60	100	0.002 ❖	0.003	0.005	0.006
		600	C2	35	65	45	80	0.001 ❖	0.002	0.004	0.005
	Hardened Steel	300 - 400	C2	100	125	110	135	0.004 ❖	0.006	0.007	0.009
		400 - 500	C2	60	75	65	110	0.003 ❖	0.005	0.06	0.007
K	**Nodular, Grey, Ductile Cast Iron**	120 - 150	C2	270	405	360	450	0.007	0.010	0.013	0.016
		150 - 200	C2	230	350	290	390	0.006	0.009	0.011	0.014
		200 - 220	C2	200	320	260	350	0.005	0.008	0.010	0.013
		220 - 260	C2	180	270	220	300	0.004	0.007	0.009	0.011
		260 - 320	C2	160	240	200	265	0.004	0.006	0.009	0.009
N	**Cast Aluminum**	30	C2	520	750	650	–	0.009	0.013	0.016	0.017
		180	C2	260	400	350	–	0.008	0.012	0.014	0.015
	Wrought Aluminum	30	C2	950	1200	1070	1270	0.005	0.007	0.009	0.010
		180	C2	630	800	715	850	0.004	0.006	0.008	0.009
	Aluminum Bronze	100 - 200	C2	240	310	280	340	0.004	0.006	0.008	0.011
		200 - 250	C2	180	265	220	285	0.003	0.005	0.006	0.008
	Brass	100	C2	370	520	450	600	0.005	0.006	0.008	0.012
	Copper	60	C2	220	345	280	380	0.002 ❖	0.002	0.003	0.005

❖ Contact our Application Engineering department for assistance when machining these materials

Deep Hole Drilling Speed and Feed Adjustment

	Holder Length				
	Extended	**Long**	**Long Plus**	**XL**	**3XL**
Speed	0.90	0.85	0.80	0.80	0.75
Feed	–	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

200 • 0.75 = 150 SFM	0.008 • 0.90 = 0.007 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)

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

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

Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Carbide Inserts | Diamond Coating

	Material	Carbide Grade	SFM  Diamond Coating	Feed Rate (IPR) by Diameter 3/8 - 1/2	33/64 - 11/16	45/64 - 15/16	31/32 - 1-3/8
Polymer Matrix Composites	Carbon (hard)	N2	1000 - 1500	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Carbon Fiber	N2	1000 - 1500	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Carbon / Glass Fiber	N2	1000 - 1500	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Fiberglass	N2	1000 - 1500	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Graphite	N2	1000 - 1500	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Plastics	N2	250 - 1000	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Epoxy Resin	N2	250 - 1000	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Bismaleimide Resin	N2	250 - 1000	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Polyester Resin	N2	250 - 1000	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Phenolic Resin	N2	250 - 1000	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Rubber	N2	250 - 1000	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
Metal Matrix Composites	Aluminum	N2	1000	0.008	0.013	0.016	0.020
	Si < 10%	N2	1000	0.008	0.013	0.016	0.020
	10% < Si < 15%	N2	850 - 1000	0.008	0.013	0.016	0.020
	15% < SI < 20%	N2	650 - 850	0.008	0.013	0.016	0.020
	20% < Si < 25%	N2	500 - 650	0.008	0.013	0.016	0.020
	25% < Si	N2	200 - 500	0.008	0.013	0.016	0.020
	Brass	N2	250 - 500	0.008	0.013	0.016	0.020
	Bronze	N2	250 - 500	0.008	0.013	0.016	0.020
	Copper	N2	100 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Copper Alloys	N2	100 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Lead Alloys	N2	100 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Magnesium Alloys	N2	100 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Precious Metals	N2	100 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
Ceramic Matrix Composites	Carbide (green)	N2	50 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Ceramic (green)	N2	50 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Ceramic (pre-sintered)	N2	50 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014

Deep Hole Drilling Speed and Feed Adjustment

	⚠ Holder Length				
	Extended	Long	Long Plus	XL	3XL
Speed	0.90	0.85	0.80	0.80	0.75
Feed	–	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.008 IPR for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 150 SFM and 0.007 IPR.

200 • 0.75 = 150 SFM	0.008 • 0.90 = 0.007 IPR

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

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
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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:

$$\text{\% Thread} = \text{\# of Thread per Inch} \left[\frac{\text{Basic Major Diameter of Thread} - \text{Drill Hole Size}}{0.0130} \right]$$

Formulas

1. **RPM = (3.82 • SFM) / DIA**
   where:
   RPM = revolutions per minute (rev/min)
   SFM = speed (ft/min)
   DIA = diameter of drill (inch)

2. **IPM = RPM • IPR**
   where:
   IPM = inches per minute (in/min)
   RPM = revolutions per minute (rev/min)
   IPR = feed rate (in/rev)

3. **SFM = RPM • 0.262 • DIA**
   where:
   SFM = speed (ft/min)
   RPM = revolutions per minute (rev/min)
   DIA = diameter of drill (inch)

4. **Thrust = 153,700 • IPR • DIA • K_m**
   where:
   Thrust = axial thrust (lbs)
   IPR = feed rate (in/rev)
   DIA = diameter of drill (inch)
   K_m = specific cutting energy (lbs/in^2)

5. **Tool Power = .6283 • IPR • RPM • K_m • DIA^2**
   where:
   Tool Power = tool power (HP)
   IPR = feed rate (in/rev)
   RPM = revolutions per minute (rev/min)
   K_m = specific cutting energy (lbs/in^2)
   DIA = diameter of drill (inch)

Material Constants

Type of Material	Hardness	K_m (lbs/in^2)
Plain Carbon and Alloy Steel	85 - 200 BHN	0.79
	200 - 275 BHN	0.94
	275 - 375 BHN	1.00
	375 - 425 BHN	1.15
High Temperature Alloys	–	1.44
Stainless Steels	135 - 275 BHN	0.94
	30 - 45 RC	1.08
Cast Iron	100 - 200 BHN	0.50
	200 - 300 BHN	1.08
Copper Alloy	20 - 80 RB	0.43
	80 - 100 RB	0.72
Titanium Alloy	–	0.72
Aluminum Alloy	–	0.22
Magnesium Alloy	–	0.16

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*.

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**	PSI	175 - 185	100 - 120	105 - 140	80 - 115	75 - 100	40 - 50	65 - 90
	1118, 1215, 12L14, etc.	GPM	2.5 - 2.6	2.8 - 3.0	4.4 - 5.2	7 - 8	12 - 14	30 - 33	38 - 44
	Low Carbon Steel	PSI	165 - 170	75 - 90	75 - 95	60 - 80	55 - 75	30 - 40	50 - 65
	1010, 1020, 1025, 1522, 1144, etc.	GPM	2.4 - 2.5	2.4 - 2.6	3.7 - 4.2	6 - 7	11 - 12	26 - 30	33 - 38
	Medium Carbon Steel	PSI	160 - 165	70 - 85	70 - 90	55 - 75	50 - 70	30 - 40	50 - 65
	1030, 1040, 1050, 1527, 1140, 1151, etc.	GPM	2.3 - 2.4	2.3 - 2.6	3.7 - 4.2	5 - 6	10 - 12	26 - 30	33 - 38
	Alloy Steel	PSI	160 - 165	65 - 75	65 - 80	50 - 70	45 - 60	30 - 35	40 - 50
	4140, 5140, 8640, etc.	GPM	2.3 - 2.4	2.2 - 2.4	3.5 - 3.9	5 - 6	10 - 11	26 - 28	30 - 33
	High Strength Alloy	PSI	150 - 155	55 - 60	45 - 50	25 - 30	25 - 30	20 - 25	40 - 50
	4340, 4330V, 300M, etc.	GPM	2.3 - 2.4	2.1 - 2.2	2.9 - 3.1	4 - 5	7 - 8	21 - 23	23 - 26
	Structural Steel	PSI	160 - 165	75 - 85	65 - 80	40 - 55	40 - 50	25 - 30	40 - 50
	A36, A285, A516, etc.	GPM	2.3 - 2.4	2.4 - 2.6	3.5 - 3.9	5 - 6	9 - 10	23 - 26	30 - 33
	Tool Steel	PSI	150 - 155	55 - 60	45 - 50	25 - 30	25 - 30	20 - 25	25 - 30
	H-13, H-21, A-4, 0-2, S-3, etc.	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**	PSI	150 - 155	60 - 65	50 - 55	30 - 35	25 - 30	25 - 30	44
	Hastelloy B, Inconel 600, etc.	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	PSI	150 - 155	60 - 65	50 - 55	30 - 35	25 - 30	25 - 30	44
	S82	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**	PSI	171	86	75	55	51	29	45
	416, 420, etc.	GPM	3	3	4	6	10	26	31
	Stainless Steel 300 Series	PSI	171	86	75	55	51	29	45
	304, 316, 17-4PH, etc.	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**	PSI	155	61	51	29	29	25	29
	Hardox, AR400, T-1, etc.	GPM	2	2	3	5	8	23	26
	Hardened Steel	PSI	155	61	51	29	29	25	29
		GPM	2	2	3	5	8	23	26
K	**SG / Nodular Cast Iron**	PSI	160	65	61	41	35	29	35
		GPM	2	2	3	5	9	26	28
	Grey / White Iron	PSI	160	65	61	41	35	29	35
		GPM	2	2	3	5	9	26	28
N	**Cast Aluminum**	PSI	210	180	230	159	125	51	80
		GPM	3	4	6	9	16	33	42
	Wrought Aluminum	PSI	210	180	230	159	125	51	80
		GPM	3	4	6	9	16	33	42
	Aluminum Bronze	PSI	186	120	140	115	100	51	90
		GPM	2.5	3	5	8	14	33	44
	Brass	PSI	159	65	61	41	35	29	35
		GPM	2	2	3	5	9	26	28
	Copper	PSI	186	120	140	115	100	51	90
		GPM	2.5	3	5	8	14	33	44

Deep Hole Drilling Coolant Adjustment

	⚠ Holder Length				
	Extended	Long	Long Plus	XL	3XL
Pressure and Flow	1.3	1.5	2	2	3

Recommended Coolant Example

If the recommended pressure and flow is 150 PSI and 2.4 GPM for a standard length holder, then the adjusted pressure and flow for a 3XL holder would be 450 PSI and 7.2 GPM.

150 • 3 = 450 PSI	2.4 • 3 = 7.2 GPM

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

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

Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied Machine recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the T-A® drilling system will still function at reduced penetration rates. Contact our Application Engineering department for a more specific recommendation of coolant requirements and/or speeds and feeds.

Coolant Recommendations | Imperial (inch)

Carbide Drill Inserts

ISO	Material	Pressure or Flow Rate	3/8 - 1/2	33/64 - 11/16	23/32 - 1	1 - 1-3/8	1-13/32 - 1-7/8
P	**Free Machining Steel**	PSI	195	140	160	140	155
	1118, 1215, 12L14, etc.	GPM	2.6	3.3	5.5	9	18
	Low Carbon Steel	PSI	180	105	105	110	115
	1010, 1020, 1025, 1522, 1144, etc.	GPM	2.5	2.9	4.4	8	15
	Medium Carbon Steel	PSI	175	100	90	70	75
	1030, 1040, 1050, 1527, 1140, 1151, etc.	GPM	2.5	2.8	4.1	7	13
	Alloy Steel	PSI	165	85	100	75	70
	4140, 5140, 8640, etc.	GPM	2.4	2.6	4.3	6	12
	High Strength Alloy	PSI	175	115	105	75	70
	4340, 4330V, 300M, etc.	GPM	2.4	2.3	3.2	5	8
	Structural Steel	PSI	175	115	105	75	70
	A36, A285, A516, etc.	GPM	2.5	3.0	4.4	6	12
	Tool Steel	PSI	155	60	55	40	35
	H-13, H-21, A-4, 0-2, S-3, etc.	GPM	2.4	2.2	3.2	5	8
S	**High Temp Alloy**	PSI	247	160	174	160	130
	Hastelloy B, Inconel 600, etc.	GPM	3	4	6	9	16
	Titanium Alloy	PSI	247	160	174	160	130
		GPM	3	4	6	9	16
	Aerospace Alloy	PSI	247	160	174	160	130
	S82	GPM	3	4	6	9	16
M	**Stainless Steel 400 Series**	PSI	329	239	260	250	190
	416, 420, etc.	GPM	3	4	7	12	20
	Stainless Steel 300 Series	PSI	329	239	260	250	190
	304, 316, 17-4PH, etc.	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**	PSI	210	75	70	49	45
	Hardox, AR400, T-1, etc.	GPM	3	2	4	5	10
	Hardened Steel	PSI	210	75	70	49	45
		GPM	3	2	4	5	10
K	**SG / Nodular Cast Iron**	PSI	225	104	90	90	80
		GPM	3	3	4	7	13
	Grey / White Iron	PSI	225	104	90	90	80
		GPM	3	3	4	7	13
N	**Cast Aluminum**	PSI	350	319	315	284	200
		GPM	4	5	8	12	20
	Wrought Aluminum	PSI	350	319	315	284	200
		GPM	4	5	8	12	20
	Aluminum Bronze	PSI	290	239	239	220	174
		GPM	3	4	7	11	19
	Brass	PSI	350	319	315	284	200
		GPM	4	5	7	12	20
	Copper	PSI	290	239	239	220	174
		GPM	3	4	7	11	19

Deep Hole Drilling Coolant Adjustment

	⚠ Holder Length				
	Extended	**Long**	**Long Plus**	**XL**	**3XL**
Pressure and Flow	1.3	1.5	2	2	3

Recommended Coolant Example

If the recommended pressure and flow is 150 PSI and 2.4 GPM for a standard length holder, then the adjusted pressure and flow for a 3XL holder would be 450 PSI and 7.2 GPM.

150 • 3 = 450 PSI	2.4 • 3 = 7.2 GPM

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

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

Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied Machine recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the T-A® drilling system will still function at reduced penetration rates. Contact our Application Engineering department for a more specific recommendation of coolant requirements and/or speeds and feeds.

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

HSS Inserts

ISO	Material	Hardness (BHN)	HSS Grade	M/min TiN	M/min AM200®	Feed Rate (mm/rev) by Diameter 9.50 - 12.95	Feed Rate (mm/rev) by Diameter 12.98 - 17.52
P	**Free Machining Steel** 1118, 1215, 12L14, etc.	100 - 150	HSS	61	99	0.20	0.30
		150 - 200	HSS	55	91	0.18	0.28
		200 - 250	HSS	49	85	0.15	0.25
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	HSS	52	88	0.20 ❖	0.25
		125 - 175	HSS	49	83	0.18 ❖	0.25
		175 - 225	HSS	46	79	0.15 ❖	0.23
		225 - 275	HSS	43	73	0.13 ❖	0.23
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	HSS	49	83	0.18	0.25
		175 - 225	HSS	46	79	0.15	0.23
		225 - 275	HSS	43	73	0.15	0.23
		275 - 325	SC, PC	40	68	0.13	0.20
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	HSS	46	73	0.18	0.25
		175 - 225	HSS	43	68	0.15	0.23
		225 - 275	HSS	40	64	0.15	0.23
		275 - 325	SC, PC	37	59	0.13	0.20
		325 - 375	SC, PC	34	54	0.10	0.18
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	SC, PC	24	38	0.15 ❖	0.23
		300 - 350	SC, PC	18	30	0.13 ❖	0.20
		350 - 400	PC	15	24	0.10 ❖	0.18
	Structural Steel A36, A285, A516, etc.	100 - 150	HSS	43	71	0.20 ❖	0.28
		150 - 250	HSS	37	57	0.15 ❖	0.25
		250 - 350	SC, PC	30	48	0.13 ❖	0.23
	Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	SC	24	38	0.10	0.18
		200 - 250	SC, PC	18	32	0.10	0.18
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 220	SC, PC	9	13	0.10 ❖	0.18
		220 - 310	PC	8	12	0.10 ❖	0.15
	Titanium Alloy	140 - 220	SC, PC	11	16	0.10 ❖	0.18
		220 - 310	PC	10	15	0.08 ❖	0.15
	Aerospace Alloy S82	185 - 275	SC, PC	23	35	0.15 ❖	0.20
		275 - 350	SC, PC	18	31	0.13 ❖	0.18
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 275	SC, PC	23	35	0.15 ❖	0.20
		275 - 350	SC, PC	18	31	0.13 ❖	0.18
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	SC, PC	23	35	0.08 ❖	0.18
		185 - 275	SC, PC	18	31	0.08 ❖	0.15
	Super Duplex Stainless Steel	135 - 185	SC, PC	18	26	0.08 ❖	0.18
		185 - 275	SC, PC	15	22	0.08 ❖	0.15
H	**Wear Plate** Hardox, AR400, T-1, etc.	400	SC, PC	14	21	0.08 ❖	0.15
		500	PC	10	14	0.05 ❖	0.12
		600	N/A	–	–	–	–
	Hardened Steel	300 - 400	PC	15	29	0.10 ❖	0.15
		400 - 500	PC	10	14	0.06 ❖	0.12
K	**Nodular, Grey, Ductile Cast Iron**	120 - 150	HSS	52	84	0.20	0.30
		150 - 200	HSS	46	79	0.18	0.28
		200 - 220	HSS	40	68	0.15	0.23
		220 - 260	SC, PC	34	57	0.13	0.20
		260 - 320	SC, PC	27	47	0.13	0.18
N	**Cast Aluminum**	30	HSS	183	–	0.23	0.38
		180	HSS	91	–	0.20	0.33
	Wrought Aluminum	30	HSS	183	280	0.12	0.33
		180	HSS	91	200	0.12	0.18
	Aluminum Bronze	100 - 200	SC	52	82	0.15	0.24
		200 - 250	SC	40	65	0.12	0.18
	Brass	100	HSS	91	144	0.18	0.27
	Copper	60	SC	40	58	0.07 ❖	0.10

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

Feed Rate (mm/rev) by Diameter				
17.53 - 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

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)

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

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- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

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

Carbide Inserts

ISO	Material	Hardness (BHN)	Carbide Grade	M/min AM300®	Feed Rate (mm/rev) by Diameter 9.50 - 12.95	12.98 - 17.53	17.54 - 24.38	24.41 - 35.00
P	**Free Machining Steel** 1118, 1215, 12L14, etc.	100 - 150	C1	146	0.20	0.30	0.41	0.48
		150 - 200	C1	126	0.18	0.28	0.38	0.43
		200 - 250	C1	119	0.15	0.25	0.36	0.41
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	C1	137	0.20 ❖	0.25	0.36	0.46
		125 - 175	C1	119	0.18 ❖	0.25	0.36	0.43
		175 - 225	C1	108	0.15 ❖	0.23	0.33	0.41
		225 - 275	C1	95	0.13 ❖	0.23	0.33	0.41
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	C1	119	0.18	0.25	0.36	0.43
		175 - 225	C1	108	0.15	0.23	0.33	0.41
		225 - 275	C1	95	0.15	0.23	0.33	0.41
		275 - 325	C1	80	0.13	0.20	0.30	0.38
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	C1	115	0.18	0.25	0.36	0.43
		175 - 225	C1	105	0.15	0.23	0.33	0.43
		225 - 275	C1	95	0.15	0.23	0.33	0.41
		275 - 325	C1	87	0.13	0.20	0.30	0.38
		325 - 375	C1	78	0.10	0.18	0.28	0.36
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	C1	70	0.15 ❖	0.23	0.28	0.33
		300 - 350	C1	63	0.13 ❖	0.20	0.25	0.30
		350 - 400	C1	56	0.10 ❖	0.18	0.23	0.28
	Structural Steel A36, A285, A516, etc.	100 - 150	C1	108	0.20 ❖	0.28	0.38	0.43
		150 - 250	C1	87	0.15 ❖	0.25	0.33	0.38
		250 - 350	C1	80	0.13 ❖	0.23	0.30	0.33
	Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	C1	78	0.10	0.18	0.25	0.30
		200 - 250	C1	59	0.10	0.18	0.25	0.30
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 220	C2	37	0.10 ❖	0.18	0.23	0.28
		220 - 310	C2	29	0.10 ❖	0.15	0.20	0.25
	Titanium Alloy	140 - 220	C2	42	0.10 ❖	0.18	0.21	0.27
		220 - 310	C2	33	0.08 ❖	0.15	0.18	0.23
	Aerospace Alloy S82	185 - 275	C2	73	0.12 ❖	0.16	0.18	0.22
		275 - 350	C2	56	0.10 ❖	0.14	0.16	0.19
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 275	C2	73	0.18 ❖	0.23	0.30	0.36
		275 - 350	C2	56	0.15 ❖	0.20	0.28	0.30
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	C2	73	0.14 ❖	0.18	0.24	0.29
		185 - 275	C2	56	0.12 ❖	0.16	0.22	0.24
	Super Duplex Stainless Steel	135 - 185	C2	38	0.12 ❖	0.17	0.22	0.26
		185 - 275	C2	30	0.10 ❖	0.15	0.18	0.22

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

ISO	Material	Hardness (BHN)	Carbide Grade	M/min AM300®	Feed Rate (mm/rev) by Diameter 9.50 - 12.95	12.98 - 17.53	17.54 - 24.38	24.41 - 35.00
H	**Wear Plate** Hardox, AR400, T-1, etc.	400	C2	45	0.07 ❖	0.12	0.20	0.25
		500	C2	37	0.05 ❖	0.10	0.15	0.20
		600	C2	30	0.04 ❖	0.08	0.12	0.16
	Hardened Steel	300 - 400	C1	47	0.10 ❖	0.18	0.23	0.27
		400 - 500	C1	37	0.06 ❖	0.12	0.18	0.24
K	**Nodular, Grey, Ductile Cast Iron**	120 - 150	C2	152	0.20	0.30	0.38	0.48
		150 - 200	C2	146	0.18	0.28	0.33	0.43
		200 - 220	C2	131	0.15	0.23	0.30	0.38
		220 - 260	C2	113	0.13	0.20	0.28	0.33
		260 - 320	C2	102	0.13	0.18	0.25	0.28
N	**Cast Aluminum**	30	C2	300	0.23	0.38	0.46	0.58
		180	C2	225	0.20	0.33	0.40	0.50
	Wrought Aluminum	30	C2	426	0.12	0.33	0.40	0.50
		180	C2	300	0.12	0.18	0.30	0.35
	Aluminum Bronze	100 - 200	C2	110	0.15	0.24	0.30	0.38
		200 - 250	C2	90	0.12	0.18	0.23	0.28
	Brass	100	C2	200	0.18	0.27	0.33	0.45
	Copper	60	C2	130	0.07 ❖	0.10	0.18	0.26

❖ Contact our Application Engineering department for assistance when machining these materials

Deep Hole Drilling Speed and Feed Adjustment

	⚠ Holder Length				
	Extended	Long	Long Plus	XL	3XL
Speed	0.90	0.85	0.80	0.80	0.75
Feed	–	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

50 • 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)

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

HSS Inserts

ISO	Material	Hardness (BHN)	HSS Grade	M/min TiN	M/min TiAlN	M/min TiCN	Feed Rate (mm/rev) by Diameter 9.50 - 12.95	Feed Rate (mm/rev) by Diameter 12.98 - 17.52
P	**Free Machining Steel** 1118, 1215, 12L14, etc.	100 - 150	HSS	61	85	79	0.18	0.25
		150 - 200	HSS	55	79	72	0.18	0.25
		200 - 250	HSS	49	73	64	0.15	0.25
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	HSS	52	76	67	0.15 ❖	0.23
		125 - 175	HSS	49	73	64	0.15 ❖	0.23
		175 - 225	HSS	46	69	59	0.13 ❖	0.20
		225 - 275	HSS	43	64	55	0.13 ❖	0.20
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	HSS	49	73	64	0.15	0.23
		175 - 225	HSS	46	69	59	0.13	0.20
		225 - 275	HSS	43	64	55	0.13	0.20
		275 - 325	SC, PC	40	59	52	0.10	0.18
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	HSS	46	64	59	0.15	0.20
		175 - 225	HSS	43	59	55	0.13	0.20
		225 - 275	HSS	40	55	52	0.13	0.18
		275 - 325	SC, PC	37	52	47	0.10	0.15
		325 - 375	SC, PC	34	47	44	0.08	0.15
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	SC, PC	24	34	30	0.13 ❖	0.18
		300 - 350	SC, PC	18	26	24	0.10 ❖	0.18
		350 - 400	PC	15	21	20	0.08 ❖	0.15
	Structural Steel A36, A285, A516, etc.	100 - 150	HSS	43	61	55	0.15 ❖	0.25
		150 - 250	HSS	37	52	47	0.13 ❖	0.23
		250 - 350	SC, PC	30	43	40	0.10 ❖	0.20
	Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	SC	24	34	32	0.10	0.15
		200 - 250	SC, PC	18	27	26	0.10	0.15
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 220	SC, PC	9	12	11	0.08 ❖	0.18
		220 - 310	PC	8	11	9	0.08 ❖	0.15
	Titanium Alloy	140 - 220	SC, PC	11	15	14	0.08 ❖	0.18
		220 - 310	PC	9	14	11	0.08 ❖	0.15
	Aerospace Alloy S82	185 - 275	SC, PC	23	32	29	0.15 ❖	0.20
		275 - 350	SC, PC	18	27	24	0.13 ❖	0.18
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 275	SC, PC	23	32	29	0.15 ❖	0.20
		275 - 350	SC, PC	18	27	24	0.13 ❖	0.18
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	SC, PC	23	32	29	0.08 ❖	0.18
		185 - 275	SC, PC	18	27	24	0.08 ❖	0.15
	Super Duplex Stainless Steel	135 - 185	SC, PC	18	24	21	0.08 ❖	0.18
		185 - 275	SC, PC	15	20	18	0.08 ❖	0.15
H	**Wear Plate** Hardox, AR400, T-1, etc.	400	SC, PC	14	21	17	0.08 ❖	0.15
		500	PC	11	14	12	0.05 ❖	0.13
		600	N/A	–	–	–	–	–
	Hardened Steel	300 - 400	PC	15	29	21	0.08 ❖	0.15
		400 - 500	PC	11	14	12	0.05 ❖	0.13
K	**Nodular, Grey, Ductile Cast Iron**	120 - 150	HSS	52	76	67	0.18	0.30
		150 - 200	HSS	46	69	59	0.15	0.28
		200 - 220	HSS	40	59	52	0.15	0.23
		220 - 260	SC, PC	34	50	44	0.13	0.18
		260 - 320	SC, PC	27	41	37	0.10	0.15
N	**Cast Aluminum**	30	HSS	183	259	229	0.20	0.33
		180	HSS	91	137	122	0.20	0.33
	Wrought Aluminum	30	HSS	183	259	229	0.10	0.15
		180	HSS	91	137	122	0.20	0.33
	Aluminum Bronze	100 - 200	SC	52	76	67	0.15	0.28
		200 - 250	SC	40	58	52	0.13	0.18
	Brass	100	HSS	91	136	122	0.18	0.30
	Copper	60	SC	40	50	46	0.05 ❖	0.08

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

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
0.33	0.41	0.51	0.58	0.71
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
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
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
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
0.25	0.36	0.43	0.48	0.56
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
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
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
0.20	0.25	0.30	0.38	0.43
0.20	0.25	0.30	0.38	–
0.18	0.20	0.25	0.30	–
0.20	0.25	0.30	0.38	–
0.18	0.20	0.25	0.30	–
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
0.20	0.20	0.30	0.36	0.46
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
0.18	0.20	0.30	0.36	0.46
0.20	0.23	0.30	0.41	0.46
0.18	0.20	0.25	0.30	0.41
–	–	–	–	–
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
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
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
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
0.23	0.30	0.36	0.43	0.51
0.41	0.51	0.61	0.71	0.76
0.15	0.20	0.30	0.36	0.41

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)

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

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

Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Carbide Inserts

ISO	Material	Hardness (BHN)	Carbide Grade	M/min TiN	M/min TiAlN	M/min TiCN	Feed Rate (mm/rev) by Diameter 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	C5	96	128	115	0.20	0.30	0.38	0.45	0.53
		150 - 200	C5	85	110	100	0.18	0.28	0.35	0.40	0.48
		200 - 250	C5	79	104	90	0.15	0.25	0.33	0.38	0.43
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	C5	91	119	110	0.20 ❖	0.25	0.33	0.43	0.48
		125 - 175	C5	79	104	90	0.18 ❖	0.25	0.33	0.40	0.45
		175 - 225	C5	73	95	82	0.15 ❖	0.23	0.30	0.38	0.43
		225 - 275	C5	64	83	75	0.13 ❖	0.23	0.30	0.38	0.43
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	C5	79	104	90	0.18	0.25	0.33	0.40	0.45
		175 - 225	C5	73	95	84	0.15	0.23	0.30	0.38	0.43
		225 - 275	C5	67	83	72	0.15	0.23	0.30	0.38	0.43
		275 - 325	C5	55	70	62	0.13	0.20	0.28	0.35	0.40
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	C5	76	99	87	0.18	0.25	0.33	0.40	0.45
		175 - 225	C5	70	92	80	0.15	0.23	0.30	0.38	0.43
		225 - 275	C5	64	83	72	0.15	0.23	0.30	0.38	0.43
		275 - 325	C5	61	76	68	0.13	0.20	0.28	0.35	0.40
		325 - 375	C5	52	67	60	0.10	0.18	0.25	0.33	0.38
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	C5	49	61	55	0.15 ❖	0.23	0.25	0.30	0.38
		300 - 350	C5	43	55	49	0.13 ❖	0.20	0.23	0.28	0.35
		350 - 400	C5	37	49	43	0.10 ❖	0.18	0.20	0.25	0.30
	Structural Steel A36, A285, A516, etc.	100 - 150	C5	73	95	84	0.20 ❖	0.28	0.35	0.40	0.45
		150 - 250	C5	61	76	68	0.15 ❖	0.25	0.30	0.35	0.40
		250 - 350	C5	55	70	62	0.13 ❖	0.23	0.28	0.30	0.35
	Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	C5	49	67	58	0.10	0.18	0.23	0.28	0.33
		200 - 250	C5	37	52	45	0.10	0.18	0.23	0.28	0.33
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 220	C2	24	32	28	0.10 ❖	0.18	0.23	0.28	0.33
		220 - 310	C2	18	26	22	0.10 ❖	0.15	0.20	0.25	0.30
	Titanium Alloy	140 - 220	C2	30	38	32	0.10 ❖	0.18	0.23	0.28	0.33
		220 - 310	C2	24	33	28	0.10 ❖	0.15	0.20	0.25	0.30
	Aerospace Alloy S82	185 - 275	C2	49	64	57	0.17 ❖	0.22	0.29	0.35	0.40
		275 - 350	C2	37	49	43	0.14 ❖	0.19	0.27	0.30	0.35
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 275	C2	49	64	57	0.17 ❖	0.22	0.29	0.35	0.40
		275 - 350	C2	37	49	43	0.14 ❖	0.19	0.27	0.30	0.35
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	C2	49	64	57	0.13 ❖	0.17	0.22	0.26	0.30
		185 - 275	C2	37	49	43	0.11 ❖	0.14	0.20	0.22	0.25
	Super Duplex Stainless Steel	135 - 185	C2	25	33	29	0.11 ❖	0.15	0.19	0.23	0.27
		185 - 275	C2	19	25	22	0.09 ❖	0.13	0.18	0.20	0.23

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

ISO	Material	Hardness (BHN)	Carbide Grade	M/min TiN	M/min TiAlN	M/min TiCN	Feed Rate (mm/rev) by Diameter 9.50 - 12.95	12.98 - 17.52	17.53 - 24.38	24.41 - 35.00	35.01 - 47.80
H	**Wear Plate**	400	C5	23	35	30	0.07	0.12	0.20	0.25	0.30
	Hardox, AR400, T-1, etc.	500	C5	15	26	21	0.05	0.10	0.15	0.20	0.25
		600	C5	11	22	16	0.04	0.08	0.12	0.16	0.20
	Hardened Steel	300 - 400	C5	34	43	39	0.10 ❖	0.18	0.23	0.28	0.33
		400 - 500	C5	20	25	23	0.08 ❖	0.15	0.20	0.23	0.28
K	**Nodular, Grey,**	120 - 150	C2, C3	98	141	127	0.20	0.30	0.38	0.48	0.58
	Ductile Cast Iron	150 - 200	C2, C3	82	122	102	0.18	0.28	0.33	0.43	0.53
		200 - 220	C2, C3	73	110	93	0.15	0.23	0.30	0.38	0.45
		220 - 260	C2, C3	64	95	79	0.13	0.20	0.28	0.33	0.38
		260 - 320	C2, C3	55	83	69	0.13	0.18	0.25	0.28	0.33
N	**Cast Aluminum**	30	C2	366	460	410	0.25	0.38	0.45	0.50	0.55
		180	C2	244	306	275	0.23	0.33	0.40	0.45	0.50
	Wrought Aluminum	30	C2	366	460	410	0.10	0.15	0.25	0.30	0.36
		180	C2	244	306	275	0.20	0.28	0.36	0.45	0.50
	Aluminum Bronze	100 - 200	C2	85	110	100	0.13	0.20	0.25	0.36	0.42
		200 - 250	C2	64	94	79	0.10	0.15	0.18	0.25	0.33
	Brass	100	C2	130	184	160	0.15	0.23	0.28	0.38	0.45
	Copper	60	C2	80	120	100	0.05 ❖	0.08	0.10	0.15	0.25

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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)

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

HSS Inserts | Flat Bottom Geometry

ISO	Material	Hardness (BHN)	HSS Grade	M/min TiN	TiAlN	TiCN	AM200®
P	**Free Machining Steel** 1118, 1215, 12L14, etc.	100 - 150	HSS	52	76	70	88
		150 - 200	HSS	47	70	62	81
		200 - 250	HSS	43	64	56	74
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	HSS	46	67	59	77
		125 - 175	HSS	43	64	56	74
		175 - 225	HSS	40	59	53	68
		225 - 275	HSS	37	56	47	65
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	HSS	43	64	56	74
		175 - 225	HSS	40	59	53	68
		225 - 275	HSS	37	56	47	65
		275 - 325	SC	34	53	46	61
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	HSS	40	56	53	65
		175 - 225	HSS	37	53	47	61
		225 - 275	HSS	34	47	44	54
		275 - 325	SC	32	44	41	51
		325 - 375	SC	29	41	38	47
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	SC	21	29	26	33
		300 - 350	SC	15	23	21	27
		350 - 400	SC	13	20	18	23
	Structural Steel A36, A285, A516, etc.	100 - 150	HSS	36	52	47	60
		150 - 250	HSS	32	44	41	51
		250 - 350	SC	26	37	34	43
	Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	SC	21	29	27	33
		200 - 250	SC	15	24	23	28
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 220	SC	7	10	9	13
		220 - 310	SC	6	9	7	10
	Titanium Alloy	140 - 220	SC	10	14	12	16
		220 - 310	SC	8	12	11	14
	Aerospace Alloy S82	185 - 275	SC	20	27	26	34
		275 - 350	SC	15	24	21	28
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 275	SC	20	27	26	34
		275 - 350	SC	15	24	21	28
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	SC	20	27	26	34
		185 - 275	SC	15	24	21	28
	Super Duplex Stainless Steel	135 - 185	SC	20	27	26	34
		185 - 275	SC	15	24	21	28
H	**Wear Plate** Hardox, AR400, T-1, etc.	400	SC	–	–	–	–
		500	SC	–	–	–	–
		600	N/A	–	–	–	–
	Hardened Steel	300 - 400	SC	13	20	18	24
		400 - 500	SC	8	12	10	13
K	**Nodular, Grey, Ductile Cast Iron**	120 - 150	HSS	46	67	59	77
		150 - 200	HSS	40	59	53	68
		200 - 220	HSS	34	53	46	61
		220 - 260	SC	29	46	38	53
		260 - 320	SC	24	37	32	43
N	**Cast Aluminum**	30	HSS	160	228	198	–
		180	HSS	79	122	107	–
	Wrought Aluminum	30	HSS	160	228	198	261
		180	HSS	79	122	107	141
	Aluminum Bronze	100 - 200	SC	40	59	53	70
		200 - 250	SC	29	46	38	50
	Brass	100	HSS	46	67	59	78
	Copper	60	SC	35	45	40	53

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

Feed Rate (mm/rev) by Diameter					
9.50 - 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

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)

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

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

Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Carbide Inserts | Flat Bottom Geometry

ISO	Material	Hardness (BHN)	Carbide Grade	M/min TiN	M/min TiAlN	M/min TiCN	M/min AM200®	Feed Rate (mm/rev) by Diameter 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
		225 - 275	C2	55	70	64	81	0.11 ❖	0.19	0.26	0.32
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	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
		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
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	C2	64	85	75	99	0.15	0.22	0.28	0.35
		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
		325 - 375	C2	44	58	50	67	0.09	0.15	0.22	0.28
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	C2	41	52	47	59	0.13 ❖	0.19	0.22	0.26
		300 - 350	C2	37	47	41	55	0.11 ❖	0.17	0.19	0.24
		350 - 400	C2	30	41	37	47	0.09 ❖	0.15	0.17	0.22
	Structural Steel A36, A285, A516, etc.	100 - 150	C2	62	81	72	93	0.17 ❖	0.24	0.30	0.35
		150 - 250	C2	52	66	58	76	0.13 ❖	0.22	0.28	0.30
		250 - 350	C2	47	61	53	70	0.11 ❖	0.19	0.25	0.26
	Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	C2	41	58	49	67	0.09	0.15	0.19	0.24
		200 - 250	C2	30	44	37	50	0.09	0.15	0.19	0.24
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 220	C2	21	27	23	32	0.09 ❖	0.15	0.19	0.24
		220 - 310	C2	15	21	18	24	0.09 ❖	0.13	0.17	0.22
	Titanium Alloy	140 - 220	C2	26	33	28	40	0.08 ❖	0.14	0.17	0.20
		220 - 310	C2	21	29	25	30	0.08 ❖	0.12	0.15	0.18
	Aerospace Alloy S82	185 - 275	C2	43	37	50	40	0.15 ❖	0.17	0.25	0.30
		275 - 350	C2	33	28	38	32	0.13 ❖	0.15	0.23	0.25
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 275	C2	43	56	50	64	0.15 ❖	0.20	0.25	0.30
		275 - 350	C2	33	43	38	49	0.13 ❖	0.18	0.23	0.25
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	C2	28	37	33	40	0.13 ❖	0.17	0.21	0.25
		185 - 275	C2	21	28	25	32	0.11 ❖	0.15	0.19	0.21
	Super Duplex Stainless Steel	135 - 185	C2	22	29	26	33	0.10 ❖	0.14	0.17	0.20
		185 - 275	C2	17	22	19	26	0.08 ❖	0.12	0.15	0.17

❖ Contact our Application Engineering department for assistance when machining these materials

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is available through our Application Engineering department. See adjustment examples on the following page.

ISO	Material	Hardness (BHN)	Carbide Grade	M/min TiN	M/min TiAlN	M/min TiCN	M/min AM200®	Feed Rate (mm/rev) by Diameter 9.50 - 12.95	12.98 - 17.53	17.54 - 24.38	24.41 - 35.00
H	**Wear Plate**	400	C2	20	31	26	39	0.06 ❖	0.10	0.16	0.20
	Hardox, AR400, T-1, etc.	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,**	120 - 150	C2	82	120	108	137	0.17	0.26	0.32	0.41
	Ductile Cast Iron	150 - 200	C2	70	104	87	119	0.15	0.24	0.28	0.38
		200 - 220	C2	61	94	79	108	0.13	0.19	0.26	0.32
		220 - 260	C2	55	81	67	93	0.11	0.17	0.24	0.28
		260 - 320	C2	47	70	58	81	0.11	0.15	0.22	0.24
N	**Cast Aluminum**	30	C2	160	228	198	–	0.22	0.32	0.41	0.43
		180	C2	79	122	107	–	0.19	0.28	0.35	0.39
	Wrought Aluminum	30	C2	292	368	328	390	0.12	0.18	0.23	0.25
		180	C2	195	245	220	260	0.10	0.16	0.20	0.22
	Aluminum Bronze	100 - 200	C2	73	95	85	105	0.10	0.16	0.20	0.29
		200 - 250	C2	55	81	68	87	0.08	0.12	0.14	0.20
	Brass	100	C2	112	160	138	185	0.12	0.18	0.22	0.30
	Copper	60	C2	68	105	85	117	0.04 ❖	0.06	0.08	0.12

❖ Contact our Application Engineering department for assistance when machining these materials

Deep Hole Drilling Speed and Feed Adjustment

	⚠ Holder Length				
	Extended	**Long**	**Long Plus**	**XL**	**3XL**
Speed	0.90	0.85	0.80	0.80	0.75
Feed	–	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

50 • 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)

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

Carbide Inserts | Diamond Coating

	Material	Carbide Grade	M/min  Diamond Coating	Feed Rate (mm/rev) by Diameter 9.5 - 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 Fiber	N2	305 - 450	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Carbon / Glass Fiber	N2	305 - 450	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Fiberglass	N2	305 - 450	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Graphite	N2	305 - 450	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Plastics	N2	76 - 305	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Epoxy Resin	N2	76 - 305	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Bismaleimide Resin	N2	76 - 305	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Polyester Resin	N2	76 - 305	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Phenolic Resin	N2	76 - 305	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Rubber	N2	76 - 305	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
Metal Matrix Composites	Aluminum	N2	305	0.20	0.33	0.41	0.51
	Si < 10%	N2	305	0.20	0.33	0.41	0.51
	10% < Si < 15%	N2	259 - 305	0.20	0.33	0.41	0.51
	15% < SI < 20%	N2	198 - 259	0.20	0.33	0.41	0.51
	20% < Si < 25%	N2	152 - 198	0.20	0.33	0.41	0.51
	25% < Si	N2	61 - 152	0.20	0.33	0.41	0.51
	Brass	N2	76 - 152	0.20	0.33	0.41	0.51
	Bronze	N2	76 - 152	0.20	0.33	0.41	0.51
	Copper	N2	30 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Copper Alloys	N2	30 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Lead Alloys	N2	30 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Magnesium Alloys	N2	30 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Precious Metals	N2	30 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
Ceramic Matrix Composites	Carbide (green)	N2	15 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Ceramic (green)	N2	15 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Ceramic (pre-sintered)	N2	15 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36

Deep Hole Drilling Speed and Feed Adjustment

	⚠ Holder Length				
	Extended	Long	Long Plus	XL	3XL
Speed	0.90	0.85	0.80	0.80	0.75
Feed	–	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

50 • 0.75 = 37.5 M/min	0.20 • 0.90 = 0.18 mm/rev

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

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

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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%

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)

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:

$$\% \text{ Thread} = \left[\frac{76.93}{\text{Pitch (mm)}}\right]\left[\text{Basic Major Diameter of Thread (mm)} - \text{Drill Hole Size (mm)}\right]$$

Material Constants

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

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*.

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**	BAR	12 - 13	7 - 8	7 - 10	6 - 8	5 - 7	4	5 - 6
	1118, 1215, 12L14, etc.	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	BAR	11 - 12	5 - 6	5 - 7	4 - 6	4 - 5	2 - 3	3 - 5
	1010, 1020, 1025, 1522, 1144, etc.	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	BAR	11	5 - 6	5 - 6	4 - 5	3 - 5	2 - 3	3 - 5
	1030, 1040, 1050, 1527, 1140, 1151, etc.	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	BAR	11	5	5 - 6	3 - 5	3 - 4	2	3
	4140, 5140, 8640, etc.	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	BAR	10 - 11	4	3	2	2	1 - 2	2
	4340, 4330V, 300M, etc.	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	BAR	11	5 - 6	5 - 6	3 - 4	3	2	3
	A36, A285, A516, etc.	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	BAR	10 - 11	4	3	2	2	1 - 2	2
	H-13, H-21, A-4, 0-2, S-3, etc.	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**	BAR	10 - 11	4 - 5	3 - 4	2	2	2	3
	Hastelloy B, Inconel 600, etc.	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	BAR	10 - 11	4 - 5	3 - 4	2	2	2	3
	S82	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**	BAR	11.8	5.9	5.2	3.8	3.5	2	3.1
	416, 420, etc.	LPM	9.5	9.8	14	23	38	98	117
	Stainless Steel 300 Series	BAR	11.8	5.9	5.2	3.8	3.5	2	3.1
	304, 316, 17-4PH, etc.	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**	BAR	10.7	4.2	3.5	2	2	1.7	2
	Hardox, AR400, T-1, etc.	LPM	9.1	8.3	11.7	19	30	87	98
	Hardened Steel	BAR	10.7	4.2	3.5	2	2	1.7	2
		LPM	9.1	8.3	11.7	19	30	87	98
K	**SG / Nodular Cast Iron**	BAR	11	4.5	4.2	2.8	2.4	2	2.4
		LPM	9.1	8.7	12.5	19	34	98	106
	Grey / White Iron	BAR	11	4.5	4.2	2.8	2.4	2	2.4
		LPM	9.1	8.7	12.5	19	34	98	106
N	**Cast Aluminum**	BAR	14.5	12.4	15.8	11	8.6	3.5	5.5
		LPM	10	14	23	34	61	125	159
	Wrought Aluminum	BAR	14.5	12.4	15.8	11	8.6	3.5	5.5
		LPM	10	14	23	34	61	125	159
	Aluminum Bronze	BAR	12.8	8.3	9.65	7.95	6.9	3.5	6.2
		LPM	9.6	11.4	19.7	30.3	53	125	167
	Brass	BAR	11	4.5	4.2	2.8	2.4	2	2.4
		LPM	9.1	8.7	12.5	19	34	98	106
	Copper	BAR	12.8	8.3	9.65	7.95	6.9	3.5	6.2
		LPM	9.6	11.4	19.7	30.3	53	125	167

Deep Hole Drilling Coolant Adjustment

	⚠ Holder Length				
	Extended	**Long**	**Long Plus**	**XL**	**3XL**
Pressure and Flow	1.3	1.5	2	2	3

Recommended Coolant Example

If the recommended pressure and flow is 12 bar and 22 LPM for a standard length holder, then the adjusted pressure and flow for a 3XL holder would be 36 bar and 66 LPM.

12 • 3 = 36 bar	22 • 3 = 66 LPM

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

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

Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied Machine recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the T-A® drilling system will still function at reduced penetration rates. Contact our Application Engineering department for a more specific recommendation of coolant requirements and/or speeds and feeds.

Coolant Recommendations | Metric (mm)

Carbide Drill Inserts

ISO	Material	Pressure or Flow Rate	9.5 - 12.5	13 - 17	18 - 24	25 - 35	36 - 47
P	**Free Machining Steel**	BAR	17 - 20	17	15	15	20
	1118, 1215, 12L14, etc.	LPM	12.2	16.3	25.2	41.5	71.9
	Low Carbon Steel	BAR	18	11	11	12	9
	1010, 1020, 1025, 1522, 1144, etc.	LPM	11.4	13.3	20.6	36.5	62.0
	Medium Carbon Steel	BAR	17	10	10	10	8
	1030, 1040, 1050, 1527, 1140, 1151, etc.	LPM	11.3	12.5	20.0	33.8	57.0
	Alloy Steel	BAR	17	9	10	8	7
	4140, 5140, 8640, etc.	LPM	11.1	12.3	19.3	30.0	55.8
	High Strength Alloy	BAR	15	5	4	3	3
	4340, 4330V, 300M, etc.	LPM	10.4	9.1	12.6	18.8	33.6
	Structural Steel	BAR	16	9	8	7	5
	A36, A285, A516, etc.	LPM	10.8	12.0	17.5	27.8	47.1
	Tool Steel	BAR	15	5	5	3	3
	H-13, H-21, A-4, 0-2, S-3, etc.	LPM	10.4	9.1	13.6	19.7	36.5
S	**High Temp Alloy**	BAR	17	11	12	11	9
	Hastelloy B, Inconel 600, etc.	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	BAR	17	11	12	11	9
	S82	LPM	11.1	13.5	21.9	35.4	62.0
M	**Stainless Steel 400 Series**	BAR	22.7	16.5	17.9	17.2	13.1
	416, 420, etc.	LPM	13	16.3	26.3	44.2	75
	Stainless Steel 300 Series	BAR	22.7	16.5	17.9	17.2	13.1
	304, 316, 17-4PH, etc.	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**	BAR	14.5	5.2	4.8	3.4	3.1
	Hardox, AR400, T-1, etc.	LPM	10.4	9.1	13.6	19.7	36.5
	Hardened Steel	BAR	14.5	5.2	4.8	3.4	3.1
		LPM	10.4	9.1	13.6	19.7	36.5
K	**SG / Nodular Cast Iron**	BAR	15.5	7.2	6.2	6.2	5.5
		LPM	10.7	10.8	15.4	26.5	48.7
	Grey / White Iron	BAR	15.5	7.2	6.2	6.2	5.5
		LPM	10.7	10.8	15.4	26.5	48.7
N	**Cast Aluminum**	BAR	24.1	22	21.7	19.6	13.8
		LPM	13.4	18.8	29	47.2	77
	Wrought Aluminum	BAR	24.1	22	21.7	19.6	13.8
		LPM	13.4	18.8	29	47.2	77
	Aluminum Bronze	BAR	20	16.5	16.5	15.2	12
		LPM	12.2	16.3	25.2	41.5	71.9
	Brass	BAR	24.1	22	21.7	19.6	13.8
		LPM	13.4	18.8	29	47.2	77
	Copper	BAR	20	16.5	16.5	15.2	12
		LPM	12.2	16.3	25.2	41.5	71.9

Deep Hole Drilling Coolant Adjustment

	⚠ Holder Length				
	Extended	**Long**	**Long Plus**	**XL**	**3XL**
Pressure and Flow	1.3	1.5	2	2	3

Recommended Coolant Example

If the recommended pressure and flow is 12 bar and 22 LPM for a standard length holder, then the adjusted pressure and flow for a 3XL holder would be 36 bar and 66 LPM.

12 • 3 = 36 bar	22 • 3 = 66 LPM

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

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

Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied Machine recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the T-A® drilling system will still function at reduced penetration rates. Contact our Application Engineering department for a more specific recommendation of coolant requirements and/or speeds and feeds.

Troubleshooting Guide

	Potential Problem																						
	Accelerated corner wear	Barber pole	Bell mouth hole	Insert chipping	Blue chips	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**
⚠ Use of Standard, Standard Plus, Extended, Long, Long Plus, XL, and 3XL holders. See page 8 for Deep Hole Drilling guidelines.		2	3				7		9				13	14			17				21		• Start with short holder and drill a minimum depth equal to 2xD (see page A30: 146 for instructions). • Spot hole with stub tool of same or greater included angle as T-A® drill insert. • Decrease feed a minimum of 50% until establishing full diameter. • Use special holder with wear pads or chrome bearing area to work with drill bushings.
Starting on an inclined surface.							7		9	10	11		13		15						21		• 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		• 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		• 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		• Provide additional support for the work piece.Reduce penetration rate to fall within the physical limits of the machine or setup (**NOTICE:** Do not reduce feed below threshold of good chip formation). • Use tougher tool steel grades with high wear resistant coatings.
Flood coolant, low coolant pressure or low coolant volume.	1				5	6		8		10		12					17	18	19	20		22	• Run coolant through tool holder when drilling greater than one times diameter. • Increase coolant pressure and volume through the tool holder. • Reduce penetration rate to fall within the coolant limitations (**NOTICE:** Do not reduce feed below threshold of good chip formation). • Add a peck cycle to help clear chips.

⚠ WARNING **Tool failure can cause serious injury. To prevent:**
- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit **www.alliedmachine.com/DeepHoleGuidelines** for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

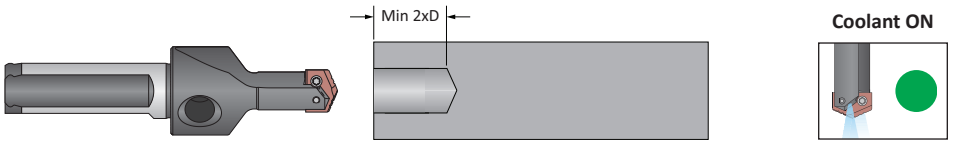
	Potential Problem																						
	Accelerated corner wear	Barber pole	Bell mouth hole	Insert chipping	Blue chips	Build Up Edge (BUE)	Chatter	Chip packing	Chipping of point	Damaged or broken tools	Excessive margin wear	High flank wear	Hole lead off	Hole out of position	Hole out of round	Notching 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**
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				• 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	• Reduce speed if a step is worn in the insert, calculate SFM at the worn diameter. Reduce this value by 10% and apply this new value to the original tool diameter. • Increase coolant pressure and volume. • Improve coolant condition by use of quality products and regular maintenance. • Select an insert grade (premium, super cobalt, or carbide) or coating (TiAlN, TiCN, or AM200®) that is more wear and heat resistant.
Poor material micro-structure or foreign particles (forgings and castings that have not been normalized or annealed, poorly prepared steel, flame cut parts and sand casting).				4		6				10		12	13			16			19				• Compare performance of other tools for similar wear problems, which may indicate poor micro-structure. Anneal or normalize parts to improve micro-structure for machining. • To improve tool life in materials with poor micro-structure, try carbide grades. • For hard spots or inclusions, use the tougher insert steel grade with high wear resistant coatings (TiAlN, TiCN, AM200®). • Reduce feeds (**NOTICE:** Do not reduce feed below threshold of good chip formation).
Poor chip control.								8		10	11		13				17	18	19	20			• 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 A30: 4 - 5 for special purpose geometries.
Spot drilled holes with included angle less than that matching T-A® or cored holes.	1			4			7						13			16			19				• 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													• Use tougher grade of T-A® (from carbide to cobalt to HSS). See wear versus toughness chart on page A30: 9. • Increase rigidity of setup.

Deep Hole Drilling Guidelines

For Lengths Greater Than 9xD (including Extended, Long, XL, 3XL, and Special Length)

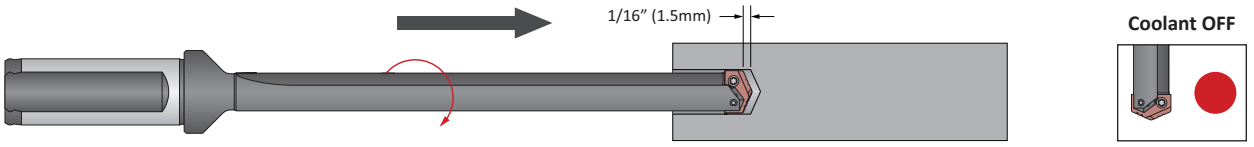
1. Pilot Hole
100 % RPM
100% IPR (mm/rev)

Establish the pilot hole using the same diameter short drill to a depth of 2xD minimum.
Utilize a pilot drill with the same or larger included point angle.



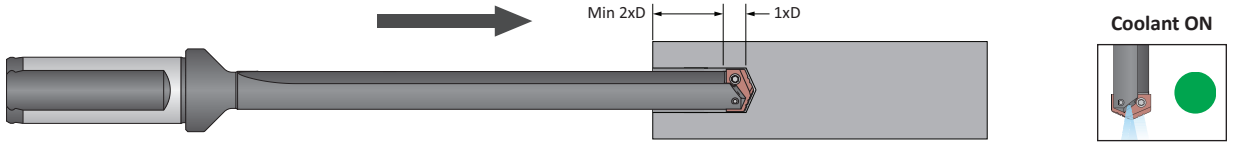
2. Feed-in
50 RPM max
12 IPM (300 mm/min)

Feed the longer drill within 1/16" (1.5mm) short of the established pilot hole bottom at a **maximum of 50 RPM** and 12 IPM (300 mm/min) feed rate.



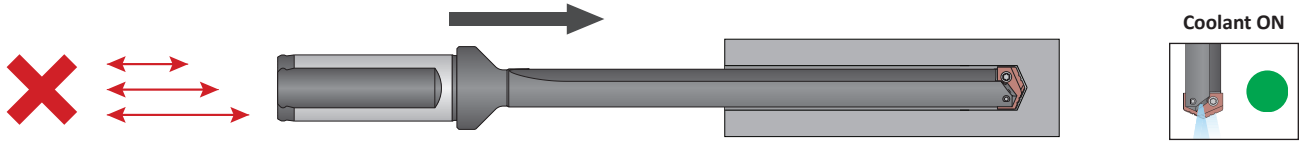
3. Deep Hole Transition Drilling
50 % RPM
75% IPR (mm/rev)

Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed.
Mimimum of 1 second dwell is required to meet full speed before feeding.



4. Deep Hole Drilling - Blind
100% RPM
100% IPR (mm/rev)

Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts.
No peck cycle recommended.

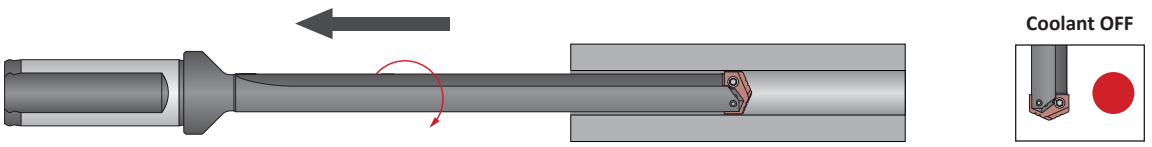


5. Deep Hole Drilling - at Breakout
50% RPM
75% IPR (mm/rev)

For through holes only:
Reduce speed by 50% and feed by 25% prior to breakout.
Do not break out more than 1/8" (3mm) past the full diameter of the drill.

6. Drill Retract
50 RPM max

Reduce speed to a **maximum of 50 RPM** before retracting from the hole.



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Notes

Guaranteed Test / Demo Application Form

Distributor PO #	

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

Distributor Information

Company Name: _____

Contact: _____

Account Number: _____

Phone: _____

Email: _____

End User Information

Company Name: _____

Contact: _____

Industry: _____

Phone: _____

Email: _____

Current Process

List all tooling, coatings, substrates, speeds and feeds, tool life, and any problems you are experiencing

_____

_____

Test Objective

List what would make this a successful test (i.e. penetration rate, finish, tool life, hole size, etc.)

_____

_____

Application Information

Hole Diameter: _____ in/mm

Tolerance: _____

Material: _____
(4150 / A36 / Cast Iron / etc.)

Pre-existing Diameter: _____ in/mm

Depth of Cut: _____ in/mm

Hardness: _____
(BHN / Rc)

Required Finish: _____ RMS

State: _____
(Casting / Hot rolled / Forging)

Machine Information

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

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

Model #: _____

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

Power: _____ HP/KW

Rigidity:
- ☐ Excellent
- ☐ Good
- ☐ Poor

Orientation:
- ☐ Vertical
- ☐ Horizontal

Tool Rotating:
- ☐ Yes
- ☐ No

Thrust: _____ lbs/N

Coolant Information

Coolant Delivery: _____
(Through tool / Flood)

Coolant Pressure: _____ PSI / bar

Coolant Type: _____
(Air mist, oil, synthetic, water soluble, etc.)

Coolant Volume: _____ GPM / LPM

Requested Tooling

QTY	Item Number

QTY	Item Number

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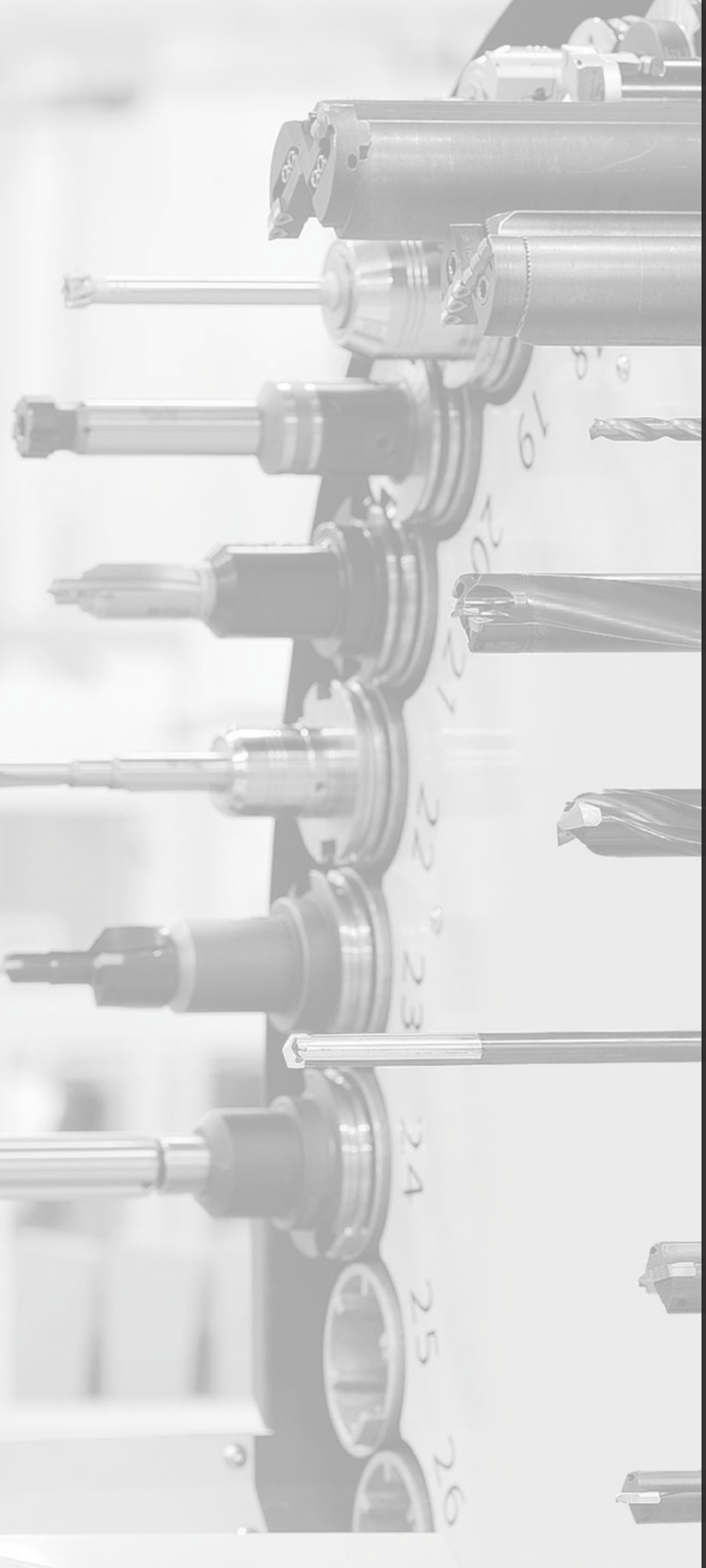

ALLIED MACHINE & ENGINEERING

Warranty Information

Allied Machine & Engineering warrants to original equipment manufacturers, distributors, industrial and commercial users of its products that each new product manufactured or supplied by Allied Machine shall be free from defects in material and workmanship.

Allied Machine's obligation under this warranty is limited to furnishing without additional charge a replacement or, at its option repairing or issuing credit for any product which shall within one year from the date of sale be returned freight prepaid to the plant designated by an Allied Machine representative and which upon inspection is determined by Allied Machine to be defective in materials or workmanship.

Complete information as to operating conditions, machine, set-up, and application of cutting fluid should accompany any product returned for inspection. The provisions of this warranty shall not apply to any Allied Machine products which have been subjected to misuse, improper operating conditions, machine set-up or application of cutting fluid or which have been repaired or altered if such repair or alteration in the judgment of Allied Machine would adversely affect performance of the product.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Allied Machine shall have no liability or responsibility on any claim of any kind, whether in contract, tort or otherwise, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery or use of any product sold hereunder, in excess of the cost of replacement or repair as provided herein.

ALL PRICES, DELIVERIES, DESIGNS, AND MATERIALS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

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