



ALLIED MACHINE & ENGINEERING

Holemaking Solutions for Today's Manufacturing

AYMA
HERRAMIENTAS



Master Product CATALOG



Drilling



Boring



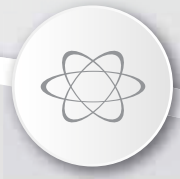
Reaming



Burnishing



Threading



Specials

www.alliedmachine.com

AYMA
HERRAMIENTAS

C1395.00 09/17IN

It's so much easier when you make
BETTER CHIPS

Allied Machine specializes in developing innovative solutions designed to *pulverize* material. Our tools achieve the chip formation and chip evacuation you need to increase your production.



Allied Machine & Engineering
Registered to ISO 9001
10001329



Our Commitment to YOU



Manufacturing is the DNA of success everywhere in the world. When you're manufacturing, you're building, creating, and developing something that physically didn't exist before.

At Allied Machine, our core purpose is to provide practical and dependable solutions to improve your manufacturing processes. We know you face challenges and difficulties every day, so we're here to simplify your holmaking processes and improve your production.

However, many factors must be incorporated to truly improve production.

Some of those factors include increasing penetration rates while also improving chip formation and evacuation, reducing scrap rates by producing better parts, reducing set-up times, and increasing tool life to get the most from your investment.

Not only does our tooling achieve these results, but our customer service is also an extension of our tooling advantages. Our Application Engineers and Field Sales Engineers are available to assist with any problems you encounter. Don't hesitate to put their skills and knowledge to the test. They won't disappoint.

This is our commitment to manufacturing, and it's our promise to you.



**ALLIED MACHINE
& ENGINEERING**

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.



www.alliedmachine.com

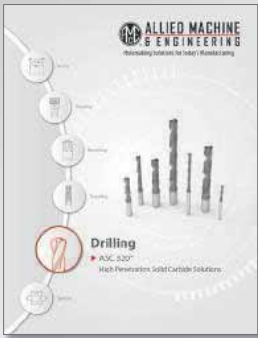


Master Product

CATALOG

Flipbooks and Digital PDF Downloads

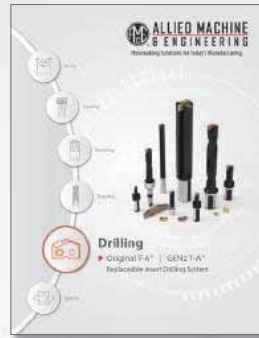
Every Section Available Online



Section A10
ASC 320®



Section A20 (*AMPC-A2)
GEN3SYS® XT and XT Pro



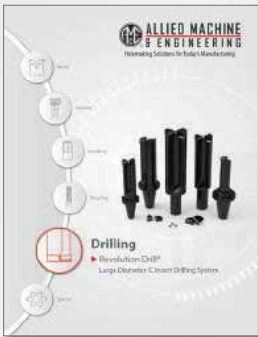
Section A30
Original T-A® and GEN2 T-A®



Section A40 (*AMPC-A4)
High Performance / Universal



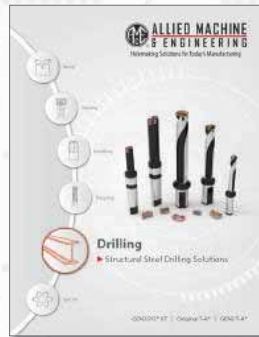
Section A50
APX Drill



Section A60
Revolution Drill®



Section A70
Opening Drill®



Section A91
Structural Steel Solutions



Section A92
AccuPort 432®



Section A93
BT-A Drill



Section B10 (*WOHLCAT)
Wohlhaupter® Boring Systems



Section B20 (*AMPC-B2)
Criterion™ Modular Boring



Section C
Reaming



Section D (*AMPC-D)
Burnishing



Section E
Threading



Section X
Special Tooling Solutions

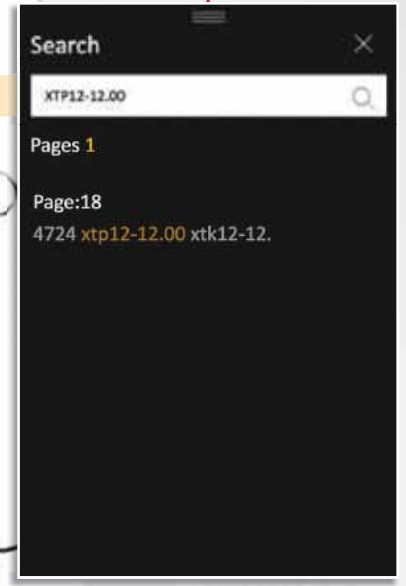
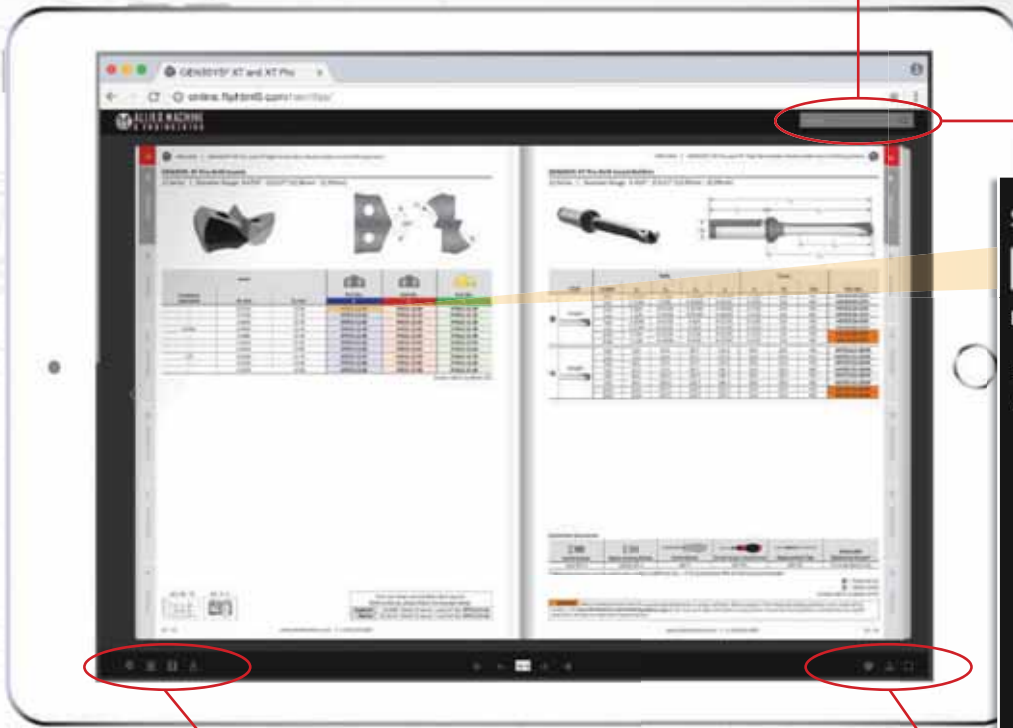
*Also available in print

View, download, and share individual product line sections at
www.alliedmachine.com/Literature



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Zoom in for a closer look

Scroll through the pages in thumbnail view

Set the catalog to auto flip

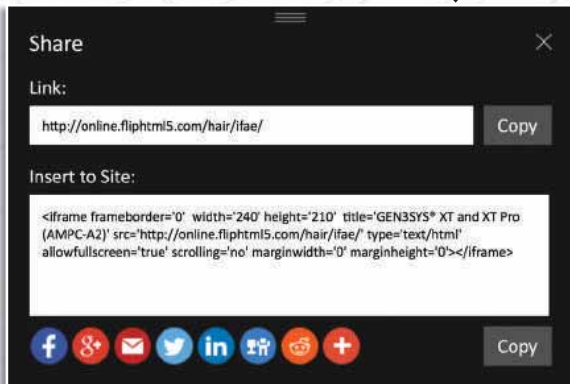
Share the Flipbook with others



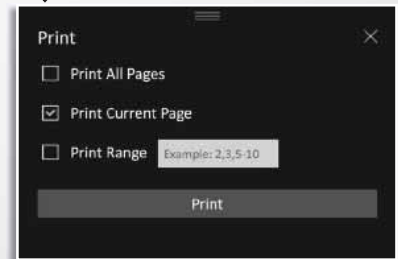
Print the full catalog or specific pages

Download the catalog PDF

View in full screen mode



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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



**ALLIED MACHINE
& ENGINEERING**

Holemaking Solutions for Today's Manufacturing

WOHLHAUPTER®



SUPERION™

CRITERION™

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Visit www.alliedmachine.com/Literature to access the Wohlhaupter® product catalogs.

For Guaranteed Test/Demo Application, see the last page of this book.

Product Offering Overview

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:
 - 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 - 50mm
- Can be made-to-order specifically for your application (Superion™ quoted specials)
 - ASC 320®
 - Superion™



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

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

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®



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



Product Offering Overview

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

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**
 - **ThreadMills USA**



Indexable 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 Superior™ 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™**



Customer Support

Support You Can Count On

Allied Machine has many lines of support to ensure we're available to assist you at all times. It's important to establish relationships with new customers, but we also know it's equally important to strengthen and support relationships with existing customers. Whether you need help with an order or you need someone to come assist you at the spindle, we have the right people to get you what you need.






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

1

Inside Sales Support

Our inside sales team is trained to handle your account information and general inquiries. We are happy to assist you and find the answers to your questions.




-  1.330.343.4283 ext. 8610
-  1.800.321.5537 (toll free United States and Canada)
-  insidesales@alliedmachine.com



2

Engineering Support

Our highly trained and skilled Application Engineers are here to assist you. If you are experiencing technical difficulties, our engineers will recommend the best solutions to the problem. Speeds and feeds, coolant pressure, and other machining components all affect the performance of our tooling. Our AEs are experienced in working with difficult materials in many different environments. Give us a call and put our knowledge to the test.




-  1.330.343.4283 ext. 7611
-  1.800.321.5537 (toll free United States and Canada)
-  appeng@alliedmachine.com

3

Field Support

Allied Machine provides local engineering support all over the world. Our Field Sales Engineers (FSEs) spend months training in-house before going to the field. This support line allows us to provide assistance to our customers right at the spindle. They are available to visit your facility, run demos and tests, and work hand-in-hand with machine operators and engineers to find the best possible tooling solutions.

NOTE: If you do not know your local FSE, please contact us

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



Customer Training

An Opportunity You Don't Want to Miss

Allied Machine's Technical Education Seminar (TES) puts the attendees in front of the machines. When you attend TES, you'll gain first-hand experience in real-life application situations. Test and experiment with different speeds and feeds, observe the results, and discover the best solution.

The training is conducted by Allied's skilled engineers, giving you the opportunity to work alongside the people who have the answers for all your application problems. You will also take guided tours of Allied Machine's two manufacturing facilities in Dover, Ohio.

TES

Technical Education Seminar



Register online today:

www.alliedmachine.com/tes



Training Lab

- In-depth training at the spindle allows you to choose the speeds and feeds
- Test the products the way you need to in order to discover the potential and the limitations in various applications
- Work side-by-side with Allied Machine's training technicians and engineers
- Witness the action of your tests and see the results up close

Learning Lab

- Quick, brief sessions in Allied Machine's learning lab provide basic knowledge to get you acclimated with the products
- Interact with Application Engineers and discuss specific issues you're experiencing in your applications
- Prepare for the training lab sessions and take your understanding and confidence in Allied Machine products to the next level



Facility Tours

- Take guided tours of Allied Machine's two manufacturing facilities located in Dover, Ohio
- Follow the path of production and see the different steps and processes involved in the manufacturing of Allied Machine products
- See the magnitude of our capabilities and learn what's in store for the future



**Allied Machine
Training Facility**
485 West 3rd Street
Dover, OH 44622

Navigating the Catalog

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

Category Identifier

This indicates the specific category within the section. For example, T-A® products are broken into series from Y to 8, so the Category Identifier will indicate which series you are viewing.

Application Identifier

The tabs along the side will help guide you to products designed for different application processes.

Imperial / Metric Identifier

These symbols will appear in the tables when it is necessary to distinguish between imperial items and metric items (most commonly noted on holders).

Safety Warnings

The safety warnings/indicators (in the table below) will appear throughout the catalog to help protect you from operations that can potentially be harmful if not performed correctly.

For items that classify as deep hole applicable, a warning is displayed to inform the user of the potential risk and direct them to the deep hole drilling guidelines for that item.

Navigation Icons

These icons will direct you to other relevant parts of the section/book. The icon reference list for each section is located on the contents page of each section.

Section Identifier and Page Number

The letter (or letter/number combination) before the page number indicates which section you are in.

NOTE: Page numbers begin at 1 in each section.

DRILLING | T-A® Replaceable Insert Drilling System

T-A Drill Insert Holders

1 Series | Straight Shank | ER Collet

Series	Length	Body					Shank			Part No.
		D ₁	L ₂	L ₄	L ₃	L ₅	D ₂	L ₇	P ₁	
1	Short	45/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8	220105-075L
	Short	45/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8	220105-100L
	Intermediate	45/64 - 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8	220105-100L
	Standard	45/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8	240105-075L
	Standard	45/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8	240105-100L
1.5	Extended	45/64 - 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8	250105-100L
	XL	45/64 - 15/16	18	19-1/4	19-25/64	22-1/4	1	3	1/8	270105-100L
	3XL	45/64 - 15/16	22-1/4	23-1/2	23-41/64	26-1/2	1	3	1/8	290105-100L
	Short	55/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8*	220155-075L
	Short	55/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8*	220155-100L
1.5	Intermediate	55/64 - 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8*	230155-100L
	Standard	55/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8*	240155-075L
	Standard	55/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8*	240155-100L
	Extended	55/64 - 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8*	250155-100L

Connection Accessories

Series	Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	Admissible Tightening Torque*
1	735-IP9-1	737SN-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (30 N-cm)
1.5	739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (30 N-cm)

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

Legend:
 Imperial (in)
 Metric (mm)
 Screw sold in quantities of 10

Navigation icons:
 A30: 44-51
 A30: 57 & 111

Section Identifier and Page Number: **A30: 56**

www.alliedmachine.com | 1.330.343.4283

Safety Information

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 (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.

Patent Information


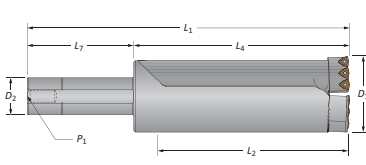
Allied Machine & Engineering patent information can be found at www.alliedmachine.com/patents



48 DRILLING | Revolution Drill® Large Diameter Replaceable IC Insert Drilling System

Revolution Drill Holders
48 Series | Diameter Range: 3.000" - 3.200" (76.2mm - 81.3mm)

A DRILLING


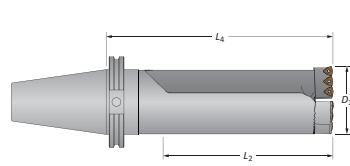
B BORING

Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges
			L ₂	L ₄	L ₁	D ₂	L ₂	P ₁		
Standard	1.0xD	3.000 - 3.200	3-5/32	4-33/64	9-1/64	2	4-1/2	1/4	R48X10-200L	C48...
Standard	2.5xD	3.000 - 3.200	7-29/32	9-17/64	13-49/64	2	4-1/2	1/4	R48X25-200L	C48...
Stacked Plate	1.0xD	3.000 - 3.200	3-15/64	4-19/32	9-3/32	2	4-1/2	1/4	SP48X10-200L	C48SP...
Stacked Plate	2.5xD	3.000 - 3.200	7-63/64	9-11/32	13-27/32	2	4-1/2	1/4	SP48X25-200L	C48SP...

C REAMING

Style	Length	D ₁ Range	Holder			Shank	Part No.	Cartridges	
			L ₂	L ₄	L ₁				
Standard	1.0xD	76.2 - 81.3	80.2	114.5	194.5	50	80	R48X10-50M	C48...
Standard	2.5xD	76.2 - 81.3	200.9	235.2	315.2	50	80	R48X25-50M	C48...
Stacked Plate	1.0xD	76.2 - 81.3	82.2	116.5	196.5	50	80	SP48X10-50M	C48SP...
Stacked Plate	2.5xD	76.2 - 81.3	202.9	237.2	317.2	50	80	SP48X25-50M	C48SP...

D BURRISHING

E THREADING

Style	Length	D ₁ Range	Holder			Shank	Part No.	Cartridges
			L ₂	L ₄	L ₁			
Standard	1.0xD	3.000 - 3.200	3-5/32	5-57/64	CAT50	R48X10-CV50	C48...	
Standard	2.5xD	3.000 - 3.200	7-29/32	10-41/64	CAT50	R48X25-CV50	C48...	
Stacked Plate	1.0xD	3.000 - 3.200	3-15/64	5-31/32	CAT50	SP48X10-CV50	C48SP...	
Stacked Plate	2.5xD	3.000 - 3.200	7-63/64	10-23/32	CAT50	SP48X25-CV50	C48SP...	

X SPECIALS

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw	Carbide Grade	Geometry	Part No.			Insert Screws
							AM300*	AM200*	TIN	
R48...	C48-FIX	3	MS-21M-1	AS-18T9-1	C5 (P35)	Standard	OP-05T308-P	OP-05T308-H	OP-05T308-T	IS-10-1
R48...	C48-ADJ	3	MS-21M-1	AS-18T9-1	C1 (K35)	Standard	OP-05T308-1P	OP-05T308-1H	OP-05T308-1T	IS-10-1
SP48...	C48SP-FIX	3	MS-21M-1	AS-18T9-1	C2 (K25)	Standard	OP-05T308-2P	OP-05T308-2H	-	IS-10-1
SP48...	C48SP-ADJ	3	MS-21M-1	AS-18T9-1	C5 (P35)	High Rate	OP-05T308-PHR	OP-05T308-HHR	-	IS-10-1

AG0: 22 - 23 | AG0: 2 - 4

Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4 | Imperial (in) | IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10 | Metric (mm)

www.alliedmachine.com | 1.330.343.4283

Keeping the Things Together

The sections in this catalog have been organized to keep related items together. For example, Revolution Drill® holders, cartridges, inserts, assembly screws, and accessories are all listed together by series. Therefore, you won't need to flip back and forth between pages to find all the parts needed to build a complete tool.

However, there are some instances where like items are separated. For example, T-A® inserts are grouped together by series, immediately followed by the holders and accessories for the same series. In this situation, you will need to flip between inserts and holders, but all items will still be grouped together by series.

This is when the Navigation Icons come in handy.

Series Holders

48 Series Cartridges and Screws

Inserts and Screws

You Can Find Your Item in the Index

If you have an item number and you're looking for that item in the catalog, you can use the index located in the back of the catalog.








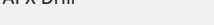
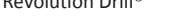
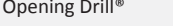
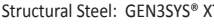

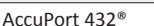

Index entries will reference the first part of the item number, which will direct you to the page where your item is listed.

Example: Your item number is R48X10-CV50. In the index, you will find "R48X10..." listed on page A60: 16, which is where items beginning with R48X10 can be found.

R44X35...	A60: 14
R46X22...	A60: 15
R46X35...	A60: 15
R48X10...	A60: 16
R48X25...	A60: 16
R52X10...	A60: 17
R52X25...	A60: 17

Product Selection Guide

Drilling

Product	Diameter Range (inch / mm)												
	0.2500 6.3500	0.3150 8.0000	0.3937 10.0000	0.5000 12.7000	0.6250 15.8750	0.7500 19.0500	0.8750 22.2250	1.0000 25.4000	1.1250 28.5750	1.2500 31.7500	1.3750 34.9250	1.5000 38.1000	1.6250 41.2750
 ASC 320® 0.2500 0.3150 (3.00 - 20.00)													
 GEN3SYS® XT Pro 0.3150 0.3937 (11.00 - 35.00)													
 GEN3SYS® XT 0.3150 0.3937 (11.00 - 35.00)													
 GEN2 T-A® 0.5000 0.7500 (9.50 - 114.30)													
 Original T-A® 0.5000 0.7500 (9.50 - 114.30)													
 High Performance 0.3150 0.7500 (24.60 - 127.00)													
 Universal 0.3150 0.7500 (24.60 - 215.90)													
 APX Drill 0.3150 0.7500 (38.00 - 101.630)													
 Revolution Drill® 0.3150 0.7500 (47.60 - 101.60)													
 Opening Drill® 0.3150 0.7500 (50.80 - 142.80)													
 Structural Steel: GEN3SYS® XT 0.3150 0.3937 (11.00 - 35.00)													
 Structural Steel: T-A® 0.3150 0.3937 (12.98 - 47.80)													
 AccuPort 432® 0.3150 0.7500 (9.80 - 61.50)													
 BT-A Drill 0.3150 0.7500 (12.95 - 47.80)													

▶ Any product line with a black arrow indicates that larger non-standard diameters can be ordered by contacting Application Engineering:
 ☎ 1.330.343.4283 ext. 7611 ☎ 1.800.321.5537 (toll free United States and Canada) ✉ appeng@alliedmachine.com



Online Product Selector

Have an application in your sights? You can utilize our Product Selector online to find the right tool for the job. Product Selector will provide run time parameters along with detailed information about the item(s) you need. Visit www.alliedmachine.com/ProductSelector to get started.

Length to Diameter Ratio	Machining Application					Material						Section
	General Purpose	High Penetration	Deep Groove	Large Diameter	Industry Specific	P	S	M	HT	HT	N	
3.5xD, 6xD, 9xD	●	●	○			●	●	●		●	●	A10
Stub, 3xD, 5xD, 7xD, 10xD	●	●	●			●				●	●	A20
Stub, 3xD, 5xD, 7xD	●	●				●	●	●	○	●	●	A20
1xD to 28xD	●	○	●	●		●	●	●		●	●	A30
1xD to 28xD	●	○	●	●		●	●	●	○	●	●	A30
	●		●	●		●	○	●		○	●	A40
	●		●	●		○	○	○		○	○	A40
3xD, 5xD, 8xD, 10xD	●		●	●		●	○	●		●	●	A50
1xD, 2.2xD, 2.5xD, 3.5xD, 4.5xD,	○	●		●		●		●	○	●	●	A60
	○	●		●		●		●	○	●	●	A70
3xD, 5xD, 7xD		○	●		●	●						A91
2xD, 4xD, 5xD, 6xD	○				●	●						A91
					●	●		○		●	●	A92
		●	●		●	●	○	○		●	●	A93

● Best ● Better ○ Good

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

High Penetration Solid Carbide Drilling System

► Diameter Range: 0.1181" - 0.7874" (3.00mm - 20.00mm)



Beyond the Cutting Edge

The ASC 320 range of solid carbide high penetration drills has been specifically engineered to deliver high productivity in difficult-to-machine materials, including stainless steels, Inconel, Hastelloy, and Titanium.

The unique combination of cutting edge geometry and high performance coatings provides excellent chip control, hole quality, and extended tool life, making ASC 320 ideal for use in a wide range of challenging applications and market sectors.

Extended tool life	3.5xD, 6xD, and 9xD	Excellent chip control
--------------------	---------------------	------------------------

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.ascdrill.com for the most up-to-date information and procedures.

Applications Industries



Aerospace



Agriculture



Automotive



Firearms



General Machining



Oil & Gas



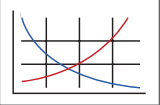
Renewable Energy

Reference Icons

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



Setup / Assembly Information
Detailed instructions and information regarding the corresponding part(s)



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

Introduction Information

Product Overview 2
Item Number Nomenclature 3

Drill Length

3.5xD 4 - 5
6xD 6 - 9
9xD 10 - 11

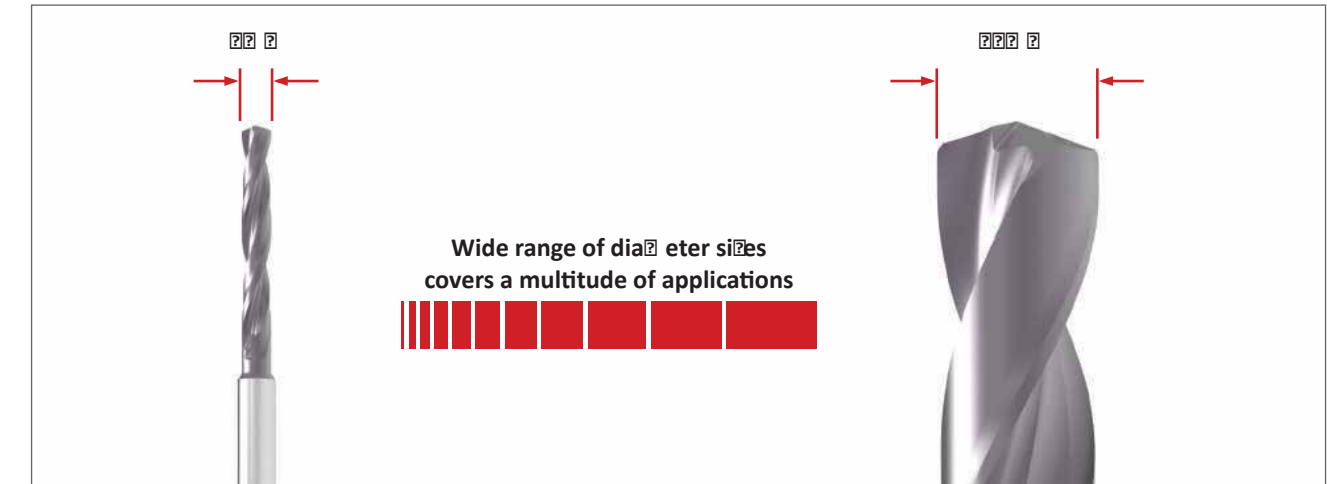
Recommended Cutting Data

Imperial (inch) 12
Metric (mm) 13
Coolant Recommendations 14

Product Overview

The Advantages

- ✓ **Ideal for a wide variety of applications**
with the unique geometry and coating combination
- ✓ **Increased stability**
with the reinforced shank
- ✓ **Increased tool life**
- ✓ **Excellent chip control**
- ✓ **Through coolant design**
- ✓ **Available in 3.5xD, 6xD, and 9xD lengths**



P Steel N° 1 10000	S High Temp Material N° 2 10000	M Stainless Steel N° 3 10000	Hardened Material N° 4 10000	Cast and Ductile Iron N° 5 10000	N Nonferrous Material N° 6 10000
◆	◆	◆	❖	❖	❖

- ◆ First choice
- ❖ Second choice

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

Product No. enclosure

ASC Solid Carbide Drills

1	2	M	4	A	M
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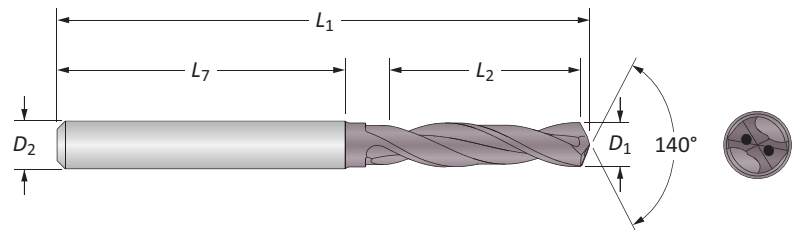
1. ASC	2. Length	3. Style	4. Diameter	5. Substrate Geometry	6. Multi-Layer Coating
= Solid carbide	= 3.5xD = 6xD = 9xD	E = English (Imperial) M = Metric	= 0.7500"	A = Standard	M = TiAlN

Regrind and Re-coating

The ASC 320 drills are ground and re-coated by Allied Machine to maintain the high level of performance achieved with these tools. Using our services assures the best tool performance is maintained in your production process.

Reference Key

Symbol	Attribute
D_1	Drill diameter
D_2	Shank diameter
L_1	Overall length
L_2	Drill depth
L_3	Shank length



A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

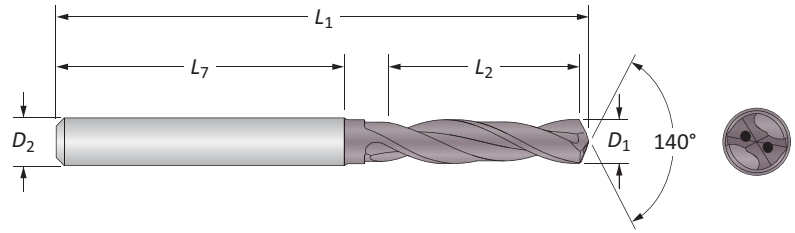
THREADING

X

SPECIALS

Solid Carbide Drills

3.5xD | Diameter Range: 0.1181" - 0.7874" (3.00mm - 20.00mm)



Fractional Equivalent	D ₂		Tap Size	Body				Span		Part No.
	inch	mm		L ₇ inch	L ₇ mm	L ₂ inch	L ₂ mm	L ₂ mm	D ₁ mm	
1/8	0.1250	3.17	-	0.551	14	2.47	62.7	36	4	335E0000A21M
-	0.1575	4.00	-	0.551	14	2.47	62.7	36	4	335M0000A21M
-	0.1654	4.20	M5x0.8	0.827	21	2.64	67.1	36	6	335E0000A21M
11/64	0.1719	4.37	-	0.827	21	2.64	67.1	36	6	335E0000A21M
#16	0.1772	4.50	#12-24	0.827	21	2.64	67.1	36	6	335M0000A21M
-	0.1811	4.60	#12-28	0.827	21	2.64	67.1	36	6	335M0000A21M
3/16	0.1875	4.76	-	0.827	21	2.64	67.1	36	6	335E0000A21M
-	0.1969	5.00	M6x1	0.827	21	2.64	67.1	36	6	335M0000A21M
13/64	0.2031	5.16	-	0.827	21	2.64	67.1	36	6	335E0000A21M
7/32	0.2188	5.56	-	0.827	21	2.64	67.1	36	6	335E0000A21M
#1	0.2280	5.79	-	0.827	21	2.64	67.1	36	6	335E0000A21M
15/64	0.2344	5.95	-	0.827	21	2.64	67.1	36	6	335E0000A21M
-	0.2362	6.00	M7x1	0.827	21	2.64	67.1	36	6	335M0000A21M
1/4	0.2500	6.35	-	1.102	28	3.13	79.4	36	8	335E0000A21M
-	0.2559	6.50	-	1.102	28	3.13	79.4	36	8	335M0000A21M
17/64	0.2656	6.75	M8x1.25	1.102	28	3.13	79.4	36	8	335E0000A21M
-	0.2756	7.00	M8x1	1.102	28	3.13	79.4	36	8	335M0000A21M
9/32	0.2812	7.14	-	1.102	28	3.13	79.4	36	8	335E0000A21M
-	0.2874	7.30	-	1.102	28	3.13	79.4	36	8	335M0000A21M
-	0.2953	7.50	-	1.102	28	3.13	79.4	36	8	335M0000A21M
19/64	0.2969	7.54	-	1.102	28	3.13	79.4	36	8	335E0000A21M
-	0.3071	7.80	-	1.102	28	3.13	79.4	36	8	335M0000A21M
5/16	0.3125	7.94	3/8-16	1.102	28	3.13	79.4	36	8	335E0000A21M
-	0.3150	8.00	-	1.102	28	3.13	79.4	36	8	335M0000A21M
21/64	0.3281	8.33	-	1.378	35	3.57	90.7	40	10	335E0000A21M
Q	0.3320	8.43	3/8-24	1.378	35	3.57	90.7	40	10	335E0000A21M
-	0.3346	8.50	M10x1.5	1.378	35	3.57	90.7	40	10	335M0000A21M
11/32	0.3438	8.73	-	1.378	35	3.57	90.7	40	10	335E0000A21M
-	0.3465	8.80	-	1.378	35	3.57	90.7	40	10	335M0000A21M
-	0.3543	9.00	-	1.378	35	3.57	90.7	40	10	335M0000A21M
23/64	0.3594	9.13	-	1.378	35	3.57	90.7	40	10	335E0000A21M
U	0.3680	9.35	7/16-14	1.378	35	3.57	90.7	40	10	335E0000A21M
-	0.3740	9.50	-	1.378	35	3.57	90.7	40	10	335M0000A21M
3/8	0.3750	9.53	-	1.378	35	3.57	90.7	40	10	335E0000A21M
-	0.3858	9.80	-	1.378	35	3.57	90.7	40	10	335E0000A21M
25/64	0.3906	9.92	7/16-20	1.378	35	3.57	90.7	40	10	335E0000A21M
-	0.3937	10.00	-	1.378	35	3.57	90.7	40	10	335M0000A21M

*Tap drill diameters allow approximately 75% of full thread to be produced

A10: 12 - 14

A10: 2

Key on A10: 1

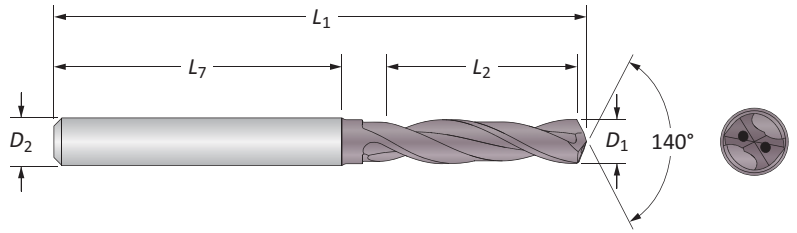
Sizes not shown are available as non-stocked standards.
When ordering, please follow the examples shown below:

Inc ₂	Diameter needed = 0.3450"	Part No. = 335E0000A21M
Metric	Diameter needed = 7.250mm	Part No. = 335M0000A21M



Solid Carbide Drills

3.5xD | Diameter Range: 0.1181" - 0.7874" (3.00mm - 20.00mm)



Fractional Equivalent	D ₁		Tap Size	Body				Shank		Part No.
	inc	mm		L ₁ inc	L ₁ mm	L ₂ inc	L ₂ mm	L ₇ mm	D ₂ mm	
-	0.4016	10.20	M12x1.75	1.654	42	4.18	106.1	45	12	335E0000A21M
13/32	0.4062	10.32	-	1.378	42	4.18	106.1	45	12	335E0000A21M
-	0.4134	10.50	-	1.378	42	4.18	106.1	45	12	335M0000A21M
27/64	0.4219	10.72	1/2-13	1.654	42	4.18	106.1	45	12	335E0000A21M
-	0.4331	11.00	-	1.654	42	4.18	106.1	45	12	335M0000A21M
7/16	0.4375	11.11	-	1.654	42	4.18	106.1	45	12	335E0000A21M
-	0.4528	11.50	-	1.654	42	4.18	106.1	45	12	335M0000A21M
29/64	0.4531	11.51	1/2-20	1.654	42	4.18	106.1	45	12	335E0000A21M
15/32	0.4688	11.91	-	1.654	42	4.18	106.1	45	12	335E0000A21M
-	0.4724	12.00	M14x2	1.654	42	4.18	106.1	45	12	335M0000A21M
31/64	0.4844	12.30	9/16-12	1.929	49	4.55	115.6	45	14	335E0000A21M
-	0.4921	12.50	M14x1.5	1.929	49	4.55	115.6	45	14	335M0000A21M
1/2	0.5000	12.70	-	1.929	49	4.55	115.6	45	14	335E0000A21M
-	0.5118	13.00	-	1.929	49	4.55	115.6	45	14	335M0000A21M
33/64	0.5156	13.10	9/16-18	1.929	49	4.55	115.6	45	14	335E0000A21M
17/32	0.5312	13.49	5/8-11	1.929	49	4.55	115.6	45	14	335E0000A21M
-	0.5315	13.50	-	1.929	49	4.55	115.6	45	14	335M0000A21M
-	0.5394	13.70	-	1.929	49	4.55	115.6	45	14	335M0000A21M
35/64	0.5469	13.89	5/8-12	1.929	49	4.55	115.6	45	14	335E0000A21M
-	0.5512	14.00	M16x2	1.929	49	4.55	115.6	45	14	335M0000A21M
9/16	0.5625	14.29	-	2.205	56	5.07	128.8	48	16	335E0000A21M
-	0.5709	14.50	M16x1.5	2.205	56	5.07	128.8	48	16	335M0000A21M
37/64	0.5781	14.68	5/8-18	2.205	56	5.07	128.8	48	16	335E0000A21M
-	0.5906	15.00	-	2.205	56	5.07	128.8	48	16	335M0000A21M
19/32	0.5938	15.08	-	2.205	56	5.07	128.8	48	16	335E0000A21M
39/64	0.6094	15.48	11/16-12	2.205	56	5.07	128.8	48	16	335E0000A21M
-	0.6102	15.50	M18x2.5	2.205	56	5.07	128.8	48	16	335M0000A21M
5/8	0.6250	15.88	-	2.205	56	5.07	128.8	48	16	335E0000A21M
-	0.6299	16.00	-	2.205	56	5.07	128.8	48	16	335M0000A21M
-	0.6496	16.50	M18x1.5	2.480	63	5.44	138.2	48	18	335E0000A21M
21/32	0.6563	16.67	3/4-10	2.480	63	5.44	138.2	48	18	335E0000A21M
-	0.6693	17.00	-	2.480	63	5.44	138.2	48	18	335M0000A21M
43/64	0.6719	17.07	3/4-12	2.480	63	5.44	138.2	48	18	335E0000A21M
11/16	0.6875	17.46	3/4-16	2.480	63	5.44	138.2	48	18	335E0000A21M
-	0.6890	17.50	M20x2.5	2.480	63	5.44	138.2	48	18	335M0000A21M
45/64	0.7031	17.86	-	2.480	63	5.44	138.2	48	18	335E0000A21M
-	0.7087	18.00	-	2.480	63	5.44	138.2	48	18	335M0000A21M
-	0.7283	18.50	M20x1.5	2.756	70	5.89	149.5	50	20	335E0000A21M
47/64	0.7344	18.65	-	2.756	70	5.89	149.5	50	20	335E0000A21M
-	0.7480	19.00	-	2.756	70	5.89	149.5	50	20	335M0000A21M
-	0.7580	19.25	-	2.756	70	5.89	149.5	50	20	335E0000A21M
-	0.7677	19.50	M22x2.5	2.756	70	5.89	149.5	50	20	335M0000A21M
25/32	0.7813	19.84	-	2.756	70	5.89	149.5	50	20	335E0000A21M
-	0.7874	20.00	-	2.756	70	5.89	149.5	50	20	335M0000A21M

*Tap drill diameters allow approximately 75% of full thread to be produced

Sizes not shown are available as non-stocked standards. When ordering, please follow the examples shown below:

Inc	Diameter needed = 0.3450"	Part No. = 335E0000A21M
Metric	Diameter needed = 7.250mm	Part No. = 335M0000A21M

Key to A10-1

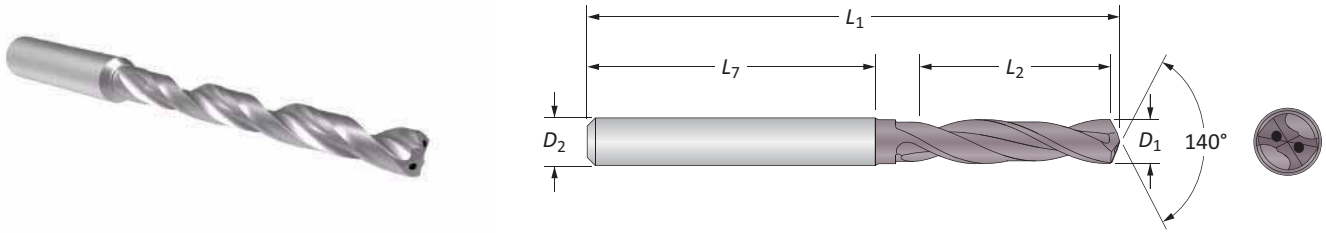
A10: 12 - 14

A10: 2

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

Solid Carbide Drills

6xD | Diameter Range: 0.1181" - 0.7874" (3.00mm - 20.00mm)

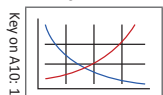


D ₂			Tap Size	Body				Span		Part No.
Fractional Equivalent	inch	mm		L ₂ inch	L ₂ mm	L ₁ inch	L ₁ mm	L ₂ mm	D ₁ mm	
-	0.1181	3.00	-	0.9450	24	2.86	72.7	36	4	335M00000A21M
1/8	0.1250	3.18	-	0.9450	24	2.86	72.7	36	4	335E00000A21M
-	0.1260	3.20	-	0.9450	24	2.86	72.7	36	4	335M00000A21M
-	0.1299	3.30	M4x0.7	0.9450	24	2.86	72.7	36	4	335M00000A21M
-	0.1378	3.50	-	0.9450	24	2.86	72.7	36	4	335M00000A21M
9/64	0.1406	3.57	-	0.9450	24	2.86	72.7	36	4	335E00000A21M
#25	0.1496	3.80	#10-24	0.9450	24	2.86	72.7	36	4	335M00000A21M
5/32	0.1563	3.97	-	0.9450	24	2.86	72.7	36	4	335E00000A21M
-	0.1575	4.00	-	0.9450	24	2.86	72.7	36	4	335M00000A21M
-	0.1654	4.20	M5x0.8	1.1417	36	3.27	83.1	36	6	335M00000A21M
11/64	0.1719	4.37	-	1.1417	36	3.27	83.1	36	6	335E00000A21M
#16	0.1772	4.50	#12-24	1.1417	36	3.27	83.1	36	6	335M00000A21M
-	0.1811	4.60	#12-28	1.1417	36	3.27	83.1	36	6	335M00000A21M
-	0.1831	4.65	-	1.1417	36	3.27	83.1	36	6	335M00000A21M
3/16	0.1875	4.76	-	1.1417	36	3.27	83.1	36	6	335E00000A21M
-	0.1950	4.95	-	1.1417	36	3.27	83.1	36	6	335M00000A21M
-	0.1969	5.00	M6x1	1.1417	36	3.27	83.1	36	6	335M00000A21M
#8	0.1990	5.05	-	1.1417	36	3.27	83.1	36	6	335E00000A21M
#7	0.2010	5.11	1/4-20	1.1417	36	3.27	83.1	36	6	335E00000A21M
13/64	0.2031	5.16	-	1.1417	36	3.27	83.1	36	6	335E00000A21M
-	0.2098	5.33	-	1.1417	36	3.27	83.1	36	6	335M00000A21M
#3	0.2130	5.41	1/4-28	1.1417	36	3.27	83.1	36	6	335E00000A21M
-	0.2165	5.50	-	1.1417	36	3.27	83.1	36	6	335M00000A21M
7/32	0.2188	5.56	-	1.1417	36	3.27	83.1	36	6	335E00000A21M
#1	0.2280	5.79	-	1.1417	36	3.27	83.1	36	6	335E00000A21M
-	0.2299	5.84	-	1.1417	36	3.27	83.1	36	6	335M00000A21M
15/64	0.2344	5.95	-	1.1417	36	3.27	83.1	36	6	335E00000A21M
-	0.2362	6.00	M7x1	1.1417	36	3.27	83.1	36	6	335M00000A21M

*Tap drill diameters allow approximately 75% of full thread to be produced

A10: 12 - 14

A10: 2



Sizes not shown are available as non-stocked standards.
When ordering, please follow the examples shown below:

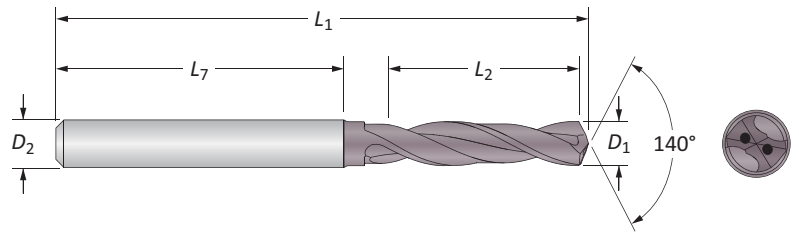
Inc	Diameter needed = 0.3450"	Part No. = 335E00000A21M
Metric	Diameter needed = 7.250mm	Part No. = 335M00000A21M

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



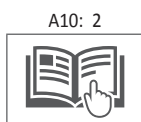
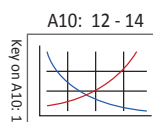
Solid Carbide Drills

6xD | Diameter Range: 0.1181" - 0.7874" (3.00mm - 20.00mm)



Fractional Equivalent	D ₀		Tap Size	Body				Span		Part No.
	inc	mm		L ₀ inc	L ₀ mm	L ₀ inc	L ₀ mm	L ₀ mm	D ₀ mm	
-	0.2398	6.09	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
D	0.2460	6.25	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
1/4	0.2500	6.35	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
-	0.2559	6.50	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
F	0.2570	6.53	5/16-18	1.8900	48	4.31	109.4	36	8	335E0000A21M
17/64	0.2656	6.75	M8x1.25	1.8900	48	4.31	109.4	36	8	335E0000A21M
-	0.2677	6.80	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
I	0.2720	6.91	5/16-24	1.8900	48	4.31	109.4	36	8	335E0000A21M
-	0.2756	7.00	M8x1	1.8900	48	4.31	109.4	36	8	335E0000A21M
-	0.2795	7.10	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
9/32	0.2812	7.14	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
-	0.2874	7.30	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
-	0.2913	7.40	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
-	0.2953	7.50	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
19/64	0.2969	7.54	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
5/16	0.3125	7.94	3/8-16	1.8900	48	4.31	109.4	36	8	335E0000A21M
-	0.3150	8.00	-	1.8900	48	4.31	109.4	36	8	335E0000A21M
21/64	0.3281	8.33	-	2.362	60	4.56	115.4	40	10	335E0000A21M
Q	0.3320	8.43	3/8-24	2.362	60	4.56	115.4	40	10	335E0000A21M
-	0.3346	8.50	M10x1.5	2.362	60	4.56	115.4	40	10	335E0000A21M
-	0.3386	8.60	-	2.362	60	4.56	115.4	40	10	335E0000A21M
11/32	0.3438	8.73	-	2.362	60	4.56	115.4	40	10	335E0000A21M
-	0.3465	8.80	-	2.362	60	4.56	115.4	40	10	335E0000A21M
-	0.3543	9.00	-	2.362	60	4.56	115.4	40	10	335E0000A21M
23/64	0.3594	9.13	-	2.362	60	4.56	115.4	40	10	335E0000A21M
-	0.3622	9.20	-	2.362	60	4.56	115.4	40	10	335E0000A21M
U	0.3680	9.35	7/16-14	2.362	60	4.56	115.4	40	10	335E0000A21M
-	0.3730	9.47	-	2.362	60	4.56	115.4	40	10	335E0000A21M
-	0.3740	9.50	-	2.362	60	4.56	115.4	40	10	335E0000A21M
3/8	0.3750	9.53	-	2.362	60	4.56	115.4	40	10	335E0000A21M
-	0.3780	9.60	-	2.362	60	4.56	115.4	40	10	335E0000A21M
-	0.3820	9.70	-	2.362	60	4.56	115.4	40	10	335E0000A21M
25/64	0.3906	9.92	7/16-20	2.362	60	4.56	115.4	40	10	335E0000A21M
-	0.3937	10.00	-	2.362	60	4.56	115.4	40	10	335E0000A21M

*Tap drill diameters allow approximately 75% of full thread to be produced



Sizes not shown are available as non-stocked standards. When ordering, please follow the examples shown below:

Inc	Diameter needed = 0.3450"	Part No. = 335E0000A21M
Metric	Diameter needed = 7.250mm	Part No. = 335M0000A21M

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

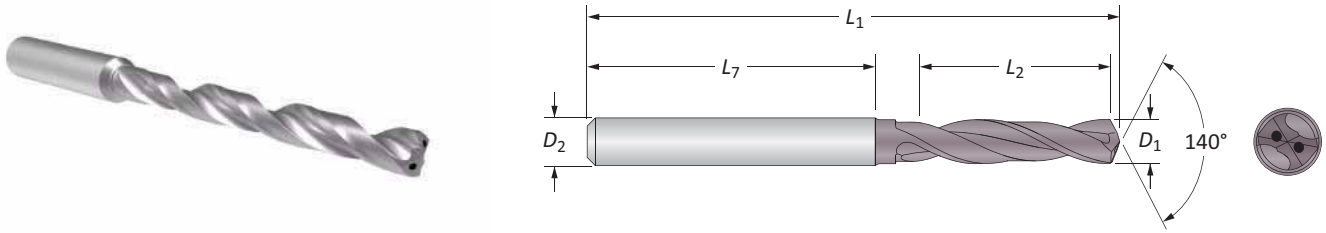
THREADING

X

SPECIALS

Solid Carbide Drills

6xD | Diameter Range: 0.1181" - 0.7874" (3.00mm - 20.00mm)



Fractional Equivalent	D ₁		Tap Size	Body				Span		Part No.
	inch	mm		L ₁ inch	L ₁ mm	L ₂ inch	L ₂ mm	L ₇ mm	D ₂ mm	
-	0.4016	10.20	M12x1.75	2.835	72	5.36	136.2	45	12	335M0000A21M
Y	0.4040	10.31	-	2.835	72	5.36	136.2	45	12	335E0000A21M
13/32	0.4062	10.32	-	2.835	72	5.36	136.2	45	12	335F0000A21M
-	0.4134	10.50	-	2.835	72	5.36	136.2	45	12	335M0000A21M
27/64	0.4219	10.72	1/2-13	2.835	72	5.36	136.2	45	12	335E0000A21M
-	0.4252	10.80	M12x4.25	2.835	72	5.36	136.2	45	12	335M0000A21M
-	0.4290	10.90	-	2.835	72	5.36	136.2	45	12	335M0000A21M
-	0.4331	11.00	-	2.835	72	5.36	136.2	45	12	335M0000A21M
7/16	0.4375	11.11	-	2.835	72	5.36	136.2	45	12	335E0000A21M
-	0.4409	11.20	-	2.835	72	5.36	136.2	45	12	335M0000A21M
-	0.4528	11.50	-	2.835	72	5.36	136.2	45	12	335M0000A21M
29/64	0.4531	11.51	1/2-20	2.835	72	5.36	136.2	45	12	335E0000A21M
-	0.4646	11.80	-	2.835	72	5.36	136.2	45	12	335M0000A21M
15/32	0.4688	11.91	-	2.835	72	5.36	136.2	45	12	335E0000A21M
-	0.4724	12.00	M14x2	2.835	72	5.36	136.2	45	12	335M0000A21M
31/64	0.4844	12.30	9/16-12	3.307	84	5.93	150.5	45	14	335E0000A21M
-	0.4921	12.50	M14x1.5	3.307	84	5.93	150.5	45	14	335M0000A21M
1/2	0.5000	12.70	-	3.307	84	5.93	150.5	45	14	335E0000A21M
-	0.5100	12.95	-	3.307	84	5.93	150.5	45	14	335M0000A21M
-	0.5118	13.00	-	3.307	84	5.93	150.5	45	14	335M0000A21M
33/64	0.5156	13.10	9/16-18	3.307	84	5.93	150.5	45	14	335E0000A21M
-	0.5197	13.20	-	3.307	84	5.93	150.5	45	14	335M0000A21M
17/32	0.5312	13.49	5/8-11	3.307	84	5.93	150.5	45	14	335E0000A21M
-	0.5315	13.50	-	3.307	84	5.93	150.5	45	14	335M0000A21M
-	0.5433	13.80	-	3.307	84	5.93	150.5	45	14	335M0000A21M
35/64	0.5469	13.89	5/8-12	3.307	84	5.93	150.5	45	14	335E0000A21M
-	0.5512	14.00	M16x2	3.307	84	5.93	150.5	45	14	335M0000A21M
9/16	0.5625	14.29	-	3.780	96	6.65	168.9	48	16	335E0000A21M
-	0.5709	14.50	M16x1.5	3.780	96	6.65	168.9	48	16	335M0000A21M
37/64	0.5781	14.68	5/8-18	3.780	96	6.65	168.9	48	16	335E0000A21M
-	0.5906	15.00	-	3.780	96	6.65	168.9	48	16	335M0000A21M
19/32	0.5938	15.08	-	3.780	96	6.65	168.9	48	16	335E0000A21M
39/64	0.6094	15.48	11/16-12	3.780	96	6.65	168.9	48	16	335E0000A21M
-	0.6102	15.50	M18x2.5	3.780	96	6.65	168.9	48	16	335M0000A21M
5/8	0.6250	15.88	-	3.780	96	6.65	168.9	48	16	335E0000A21M
-	0.6299	16.00	-	3.780	96	6.65	168.9	48	16	335M0000A21M

*Tap drill diameters allow approximately 75% of full thread to be produced

A10: 12 - 14
Key on A10: 1

A10: 2

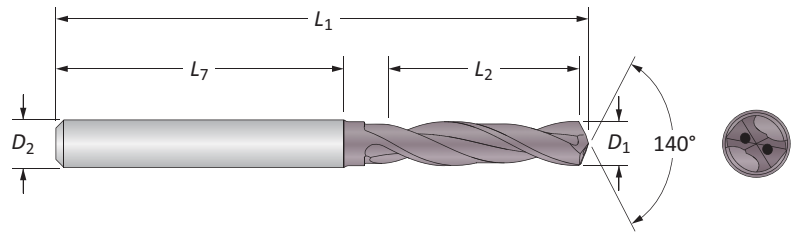
Sizes not shown are available as non-stocked standards.
When ordering, please follow the examples shown below:

Inc ³	Diameter needed = 0.3450"	Part No. = 335E0000A21M
Metric	Diameter needed = 7.250mm	Part No. = 335M0000A21M



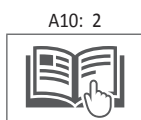
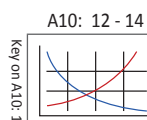
Solid Carbide Drills

6xD | Diameter Range: 0.1181" - 0.7874" (3.00mm - 20.00mm)



Fractional Equivalent	D ₁		Tap Size	Body				Shank		Part No.
	inc	mm		L ₁ inc	L ₁ mm	L ₂ inc	L ₂ mm	L ₇ mm	D ₂ mm	
-	0.6307	16.02	-	4.252	108	7.22	183.3	48	18	335M00000A21M
-	0.6331	16.08	-	4.252	108	7.22	183.3	48	18	335M00000A21M
-	0.6378	16.20	-	4.252	108	7.22	183.3	48	18	335M00000A21M
41/64	0.6406	16.27	-	4.252	108	7.22	183.3	48	18	335E00000A21M
-	0.6496	16.50	M18x1.5	4.252	108	7.22	183.3	48	18	335M00000A21M
21/32	0.6563	16.67	3/4-10	4.252	108	7.22	183.3	48	18	335E00000A21M
-	0.6693	17.00	-	4.252	108	7.22	183.3	48	18	335M00000A21M
43/64	0.6719	17.07	3/4-12	4.252	108	7.22	183.3	48	18	335E00000A21M
11/16	0.6875	17.46	3/4-16	4.252	108	7.22	183.3	48	18	335E00000A21M
-	0.6890	17.50	M20x2.5	4.252	108	7.22	183.3	48	18	335M00000A21M
45/64	0.7031	17.86	-	4.252	108	7.22	183.3	48	18	335E00000A21M
-	0.7087	18.00	-	4.252	108	7.22	183.3	48	18	335M00000A21M
-	0.7098	18.03	-	4.724	120	7.86	199.6	50	20	335M00000A21M
23/32	0.7188	18.26	-	4.724	120	7.86	199.6	50	20	335E00000A21M
-	0.7283	18.50	M20x1.5	4.724	120	7.86	199.6	50	20	335M00000A21M
47/64	0.7344	18.65	-	4.724	120	7.86	199.6	50	20	335E00000A21M
-	0.7480	19.00	-	4.724	120	7.86	199.6	50	20	335M00000A21M
3/4	0.7500	19.05	-	4.724	120	7.86	199.6	50	20	335E00000A21M
-	0.7520	19.10	-	4.724	120	7.86	199.6	50	20	335M00000A21M
-	0.7535	19.14	-	4.724	120	7.86	199.6	50	20	335M00000A21M
-	0.7543	19.16	-	4.724	120	7.86	199.6	50	20	335M00000A21M
-	0.7559	19.20	-	4.724	120	7.86	199.6	50	20	335M00000A21M
-	0.7580	19.25	-	4.724	120	7.86	199.6	50	20	335E00000A21M
-	0.7598	19.30	-	4.724	120	7.86	199.6	50	20	335M00000A21M
49/64	0.7656	19.45	7/8-9	4.724	120	7.86	199.6	50	20	335E00000A21M
-	0.7677	19.50	M22x2.5	4.724	120	7.86	199.6	50	20	335M00000A21M
25/32	0.7813	19.84	-	4.724	120	7.86	199.6	50	20	335E00000A21M
-	0.7874	20.00	-	4.724	120	7.86	199.6	50	20	335M00000A21M

*Tap drill diameters allow approximately 75% of full thread to be produced



Sizes not shown are available as non-stocked standards. When ordering, please follow the examples shown below:

Inc	Diameter needed = 0.3450"	Part No. = 335E00000A21M
Metric	Diameter needed = 7.250mm	Part No. = 335M00000A21M

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

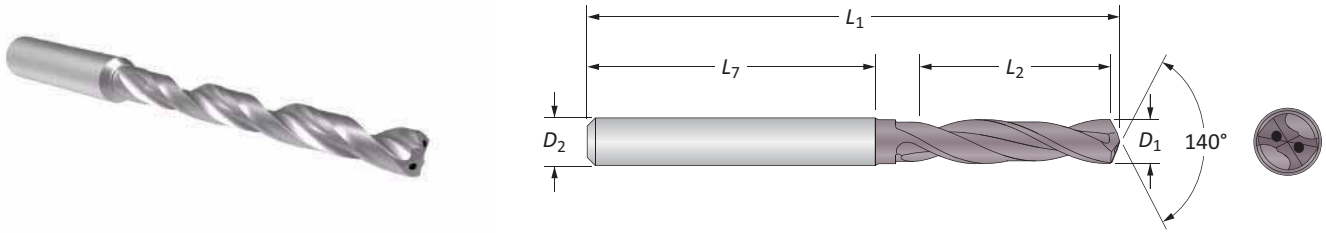
THREADING

X

SPECIALS

Solid Carbide Drills

9xD | Diameter Range: 0.1181" - 0.7874" (3.00mm - 20.00mm)



Fractional Equivalent	D ₁		Tap Size	Body				Shank		Part No.
	inch	mm		L ₇ inch	L ₇ mm	L ₂ inch	L ₂ mm	L ₂ mm	D ₂ mm	
-	0.1969	5.00	M6x1	2.126	54	3.98	101.1	36	6	335M0000A21M
-	0.2362	6.00	M7x1	2.126	54	3.98	101.1	36	6	335M0000A21M
D	0.2461	6.25	-	2.835	72	4.86	123.4	36	8	335E0000A21M
1/4	0.2500	6.35	-	2.835	72	4.86	123.4	36	8	335E0000A21M
-	0.2559	6.50	-	2.835	72	4.86	123.4	36	8	335M0000A21M
17/64	0.2656	6.75	M8x1.25	2.835	72	4.86	123.4	36	8	335E0000A21M
I	0.2720	6.91	5/16-24	2.835	72	4.86	123.4	36	8	335E0000A21M
-	0.2756	7.00	M8x1	2.835	72	4.86	123.4	36	8	335M0000A21M
-	0.2953	7.50	-	2.835	72	4.86	123.4	36	8	335M0000A21M
19/64	0.2969	7.54	-	2.835	72	4.86	123.4	36	8	335E0000A21M
5/16	0.3125	7.94	3/8-16	2.835	72	4.86	123.4	36	8	335E0000A21M
-	0.3150	8.00	-	2.835	72	4.86	123.4	36	8	335M0000A21M
21/64	0.3281	8.33	-	3.543	90	5.74	145.8	40	10	335E0000A21M
Q	0.3319	8.43	3/8-24	3.543	90	5.74	145.8	40	10	335M0000A21M
-	0.3346	8.50	M10x1.5	3.543	90	5.74	145.8	40	10	335M0000A21M
-	0.3386	8.60	-	3.543	90	5.74	145.8	40	10	335M0000A21M
11/32	0.3438	8.73	-	3.543	90	5.74	145.8	40	10	335E0000A21M
-	0.3465	8.80	-	3.543	90	5.74	145.8	40	10	335M0000A21M
-	0.3543	9.00	-	3.543	90	5.74	145.8	40	10	335M0000A21M
23/64	0.3594	9.13	-	3.543	90	5.74	145.8	40	10	335E0000A21M
U	0.3680	9.35	7/16-14	3.543	90	5.74	145.8	40	10	335E0000A21M
-	0.3740	9.50	-	3.543	90	5.74	145.8	40	10	335M0000A21M
3/8	0.3750	9.53	-	3.543	90	5.74	145.8	40	10	335E0000A21M
-	0.3780	9.60	-	3.543	90	5.74	145.8	40	10	335M0000A21M
25/64	0.3906	9.92	7/16-20	3.543	90	5.74	145.8	40	10	335E0000A21M
-	0.3937	10.00	-	3.543	90	5.74	145.8	40	10	335M0000A21M
-	0.4016	10.20	M12x1.75	4.252	108	6.78	172.2	45	12	335M0000A21M
-	0.4040	10.26	-	4.252	108	6.78	172.2	45	12	335E0000A21M
13/32	0.4062	10.32	-	4.252	108	6.78	172.2	45	12	335E0000A21M
-	0.4134	10.50	-	4.252	108	6.78	172.2	45	12	335M0000A21M
27/64	0.4219	10.72	1/2-13	4.252	108	6.78	172.2	45	12	335E0000A21M
-	0.4331	11.00	-	4.252	108	6.78	172.2	45	12	335M0000A21M
7/16	0.4375	11.11	-	4.252	108	6.78	172.2	45	12	335E0000A21M
-	0.4528	11.50	-	4.252	108	6.78	172.2	45	12	335M0000A21M
29/64	0.4531	11.51	1/2-20	4.252	108	6.78	172.2	45	12	335E0000A21M
15/32	0.4688	11.91	-	4.252	108	6.78	172.2	45	12	335E0000A21M
-	0.4724	12.00	M14x2	4.252	108	6.78	172.2	45	12	335M0000A21M

*Tap drill diameters allow approximately 75% of full thread to be produced

A10: 12 - 14

A10: 2

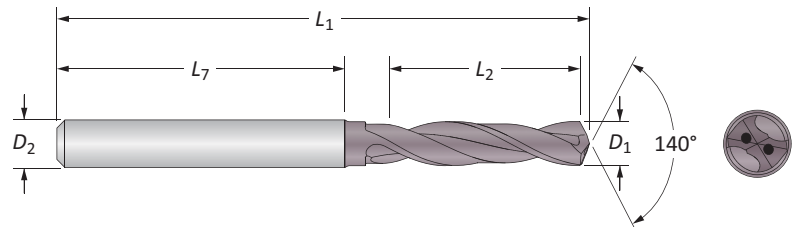
Sizes not shown are available as non-stocked standards.
When ordering, please follow the examples shown below:

Inc ₂	Diameter needed = 0.3450"	Part No. = 335E0000A21M
Metric	Diameter needed = 7.250mm	Part No. = 335M0000A21M



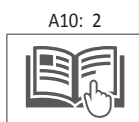
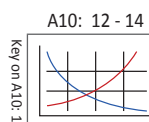
Solid Carbide Drills

9xD | Diameter Range: 0.1181" - 0.7874" (3.00mm - 20.00mm)



Fractional Equivalent	D _{flute}		Tap Size	Body				Shank		Part No.
	inch	mm		L ₁ inch	L ₁ mm	L ₂ inch	L ₂ mm	L ₇ mm	D _{shank} mm	
31/64	0.4844	12.30	9/16-12	4.961	126	7.58	192.5	45	14	335E0000A21M
-	0.4921	12.50	M14x1.5	4.961	126	7.58	192.5	45	14	335M0000A21M
1/2	0.5000	12.70	-	4.961	126	7.58	192.5	45	14	335M0000A21M
-	0.5118	13.00	-	4.961	126	7.58	192.5	45	14	335M0000A21M
33/64	0.5156	13.10	9/16-18	4.961	126	7.58	192.5	45	14	335E0000A21M
17/32	0.5312	13.49	5/8-11	4.961	126	7.58	192.5	45	14	335E0000A21M
-	0.5315	13.50	-	4.961	126	7.58	192.5	45	14	335M0000A21M
35/64	0.5469	13.89	5/8-12	4.961	126	7.58	192.5	45	14	335E0000A21M
-	0.5512	14.00	M16x2	4.961	126	7.58	192.5	45	14	335M0000A21M
9/16	0.5625	14.29	-	5.669	144	8.54	216.9	48	16	335E0000A21M
-	0.5709	14.50	M16x1.5	5.669	144	8.54	216.9	48	16	335M0000A21M
37/64	0.5781	14.68	5/8-18	5.669	144	8.54	216.9	48	16	335E0000A21M
-	0.5906	15.00	-	5.669	144	8.54	216.9	48	16	335M0000A21M
19/32	0.5938	15.08	-	5.669	144	8.54	216.9	48	16	335E0000A21M
39/64	0.6094	15.48	11/16-12	5.669	144	8.54	216.9	48	16	335E0000A21M
-	0.6102	15.50	M18x2.5	5.669	144	8.54	216.9	48	16	335M0000A21M
5/8	0.6250	15.88	-	5.669	144	8.54	216.9	48	16	335E0000A21M
-	0.6299	16.00	-	5.669	144	8.54	216.9	48	16	335M0000A21M
41/64	0.6406	16.27	-	6.378	162	9.34	237.3	48	18	335E0000A21M
-	0.6496	16.50	M18x1.5	6.378	162	9.34	237.3	48	18	335M0000A21M
21/32	0.6563	16.67	3/4-10	6.378	162	9.34	237.3	48	18	335E0000A21M
-	0.6693	17.00	-	6.378	162	9.34	237.3	48	18	335M0000A21M
43/64	0.6719	17.07	3/4-12	6.378	162	9.34	237.3	48	18	335E0000A21M
11/16	0.6875	17.46	3/4-16	6.378	162	9.34	237.3	48	18	335E0000A21M
-	0.6890	17.50	M20x2.5	6.378	162	9.34	237.3	48	18	335M0000A21M
45/64	0.7031	17.86	-	6.378	162	9.34	237.3	48	18	335E0000A21M
-	0.7087	18.00	-	6.378	162	9.34	237.3	48	18	335M0000A21M
23/32	0.7188	18.26	-	7.087	180	10.22	259.6	50	20	335E0000A21M
-	0.7283	18.50	M20x1.5	7.087	180	10.22	259.6	50	20	335M0000A21M
47/64	0.7344	18.65	-	7.087	180	10.22	259.6	50	20	335E0000A21M
-	0.7480	19.00	-	7.087	180	10.22	259.6	50	20	335M0000A21M
3/4	0.7500	19.05	-	7.087	180	10.22	259.6	50	20	335E0000A21M
49/64	0.7656	19.45	7/8-09	7.087	180	10.22	259.6	50	20	335E0000A21M
-	0.7677	19.50	M22x2.5	7.087	180	10.22	259.6	50	20	335M0000A21M
25/32	0.7813	19.84	-	7.087	180	10.22	259.6	50	20	335E0000A21M
-	0.7874	20.00	-	7.087	180	10.22	259.6	50	20	335M0000A21M

*Tap drill diameters allow approximately 75% of full thread to be produced



Sizes not shown are available as non-stocked standards. When ordering, please follow the examples shown below:

Inc	Diameter needed = 0.3450"	Part No. = 335E0000A21M
Metric	Diameter needed = 7.250mm	Part No. = 335M0000A21M

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS



Recommended Drilling Data by Material

ISO Material	Hardness (BHN)	Speed (SFM)	Feed Rate (IPR) by Diameter									
			0.075"	0.125"	0.1875"	0.250"	0.3125"	0.375"	0.4375"	0.500"	0.5625"	0.625"
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	450	0.007	0.009	0.011	0.013	0.014	0.016	0.018	0.020	0.022	
	150 - 200	400	0.005	0.008	0.009	0.011	0.012	0.014	0.016	0.018	0.020	
	200 - 250	375	0.004	0.006	0.007	0.009	0.010	0.012	0.014	0.016	0.018	
Free Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	425	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.019	0.021	
	125 - 175	390	0.006	0.008	0.010	0.012	0.014	0.016	0.018	0.018	0.020	
	175 - 225	360	0.005	0.008	0.010	0.011	0.013	0.015	0.017	0.017	0.019	
Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	330	0.004	0.007	0.009	0.010	0.012	0.014	0.016	0.016	0.018	
	125 - 175	390	0.006	0.008	0.010	0.012	0.013	0.014	0.016	0.018	0.020	
	175 - 225	360	0.005	0.007	0.010	0.012	0.012	0.013	0.015	0.017	0.019	
275 - 325	320	0.004	0.006	0.009	0.011	0.011	0.012	0.014	0.016	0.018	0.018	
	285	0.003	0.006	0.008	0.010	0.010	0.011	0.013	0.015	0.017	0.017	
	375	0.006	0.008	0.010	0.012	0.013	0.014	0.016	0.018	0.018	0.020	
Alloy Steel 4140, 5140, 8640, etc.	225 - 275	340	0.005	0.007	0.009	0.011	0.012	0.013	0.015	0.017	0.019	
	275 - 325	300	0.004	0.006	0.008	0.010	0.011	0.012	0.013	0.016	0.018	
	325 - 375	275	0.003	0.005	0.007	0.009	0.010	0.010	0.012	0.014	0.016	
High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	260	0.005	0.007	0.008	0.011	0.011	0.012	0.013	0.014	0.016	
	300 - 350	210	0.004	0.006	0.007	0.009	0.010	0.011	0.012	0.013	0.015	
	350 - 400	160	0.003	0.005	0.006	0.008	0.009	0.010	0.011	0.012	0.013	
Structural Steel A36, A285, A516, etc.	100 - 150	360	0.005	0.008	0.009	0.011	0.012	0.013	0.014	0.016	0.018	
	150 - 250	320	0.004	0.007	0.008	0.010	0.011	0.012	0.013	0.015	0.017	
	250 - 350	270	0.003	0.005	0.007	0.008	0.009	0.010	0.011	0.013	0.015	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	260	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	
	200 - 250	220	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	
High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	120	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	
	220 - 310	90	0.002	0.003	0.003	0.004	0.005	0.006	0.007	0.008	0.009	
Stainless Steel Series 304, 316, 17-4PH, etc.	135 - 185	200	0.004	0.005	0.006	0.007	0.008	0.009	0.011	0.012	0.013	
	185 - 275	140	0.003	0.004	0.004	0.005	0.006	0.007	0.009	0.010	0.011	
Nodular, Grey, Ductile Cast Iron	120 - 150	550	0.008	0.010	0.012	0.014	0.016	0.018	0.020	0.022	0.024	
	150 - 200	500	0.008	0.010	0.012	0.014	0.016	0.018	0.020	0.022	0.024	
	200 - 220	475	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.021	0.023	
	220 - 260	430	0.007	0.009	0.011	0.013	0.015	0.017	0.019	0.021	0.023	
	260 - 320	400	0.006	0.008	0.010	0.012	0.014	0.016	0.018	0.020	0.022	
Cast Alloy Inconel	30	1500	0.008	0.010	0.013	0.015	0.017	0.020	0.022	0.024	0.026	
	180	1000	0.006	0.008	0.011	0.013	0.015	0.018	0.020	0.022	0.024	
	30	1500	0.008	0.010	0.013	0.015	0.017	0.020	0.022	0.024	0.026	
	180	1000	0.006	0.008	0.011	0.013	0.015	0.018	0.020	0.022	0.024	

Speed and Feed Adjustment

IPR	IPR	IPR
See above chart	0.90	0.75

Recommended Speed and Feed Example

If the recommended speed and feed is 300 SFM and 0.010 IPR, then reduce to 225 SFM and 0.0075 IPR when using a 9xD tool	
$300 \cdot 0.75 = 225 \text{ SFM}$	$0.010 \cdot 0.75 = 0.0075 \text{ IPR}$

Calculations

Value	Formula
IPM	$\text{RPM} \cdot \text{IPR}$
SFM	$\text{RPM} \cdot 0.262 \cdot \text{DIA}$
RPM	$(\text{SFM} \cdot 3.82) / \text{DIA}$

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.

Reco[®] ended Drilling Data Metric

ISO	Material	Hardness HRC	Speed RPM in	Feed Rate per Rev. Diameter								
				0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	137	0.18	0.23	0.28	0.33	0.36	0.41	0.46	0.51	0.56
		150 - 200	122	0.13	0.20	0.23	0.28	0.30	0.36	0.41	0.46	0.51
		200 - 250	114	0.10	0.15	0.18	0.23	0.25	0.30	0.36	0.41	0.46
	Tool Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	130	0.18	0.23	0.28	0.33	0.38	0.43	0.48	0.48	0.53
		125 - 175	119	0.15	0.20	0.25	0.30	0.36	0.41	0.46	0.46	0.51
		175 - 225	110	0.13	0.20	0.25	0.28	0.33	0.38	0.43	0.43	0.48
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	119	0.15	0.20	0.25	0.30	0.33	0.36	0.41	0.46	0.51
		175 - 225	110	0.13	0.18	0.25	0.30	0.30	0.33	0.38	0.43	0.48
		225 - 275	98	0.10	0.15	0.23	0.28	0.28	0.30	0.36	0.41	0.48
	Alloy Steel 4140, 5140, 8640, etc.	175 - 225	114	0.15	0.20	0.25	0.30	0.33	0.36	0.41	0.46	0.51
		225 - 275	104	0.13	0.18	0.23	0.28	0.30	0.33	0.38	0.43	0.48
		275 - 325	91	0.10	0.15	0.20	0.25	0.28	0.30	0.33	0.41	0.46
		325 - 375	84	0.08	0.13	0.18	0.23	0.25	0.25	0.30	0.36	0.41
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	79	0.13	0.18	0.20	0.28	0.28	0.30	0.33	0.36	0.41
		300 - 350	64	0.10	0.15	0.18	0.23	0.25	0.28	0.30	0.33	0.38
		350 - 400	49	0.08	0.13	0.15	0.20	0.23	0.25	0.28	0.30	0.33
	Structural Steel A36, A285, A516, etc.	100 - 150	110	0.13	0.20	0.23	0.28	0.30	0.33	0.36	0.41	0.46
		150 - 250	98	0.10	0.18	0.20	0.25	0.28	0.30	0.33	0.38	0.43
250 - 350		82	0.08	0.13	0.18	0.20	0.23	0.25	0.28	0.33	0.38	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	79	0.08	0.10	0.13	0.15	0.18	0.20	0.23	0.25	0.28	
	200 - 250	67	0.05	0.08	0.10	0.13	0.15	0.18	0.20	0.23	0.25	
S	High Temperature Alloy Hastelloy B, Inconel 600, etc.	140 - 220	37	0.08	0.10	0.13	0.15	0.18	0.20	0.23	0.25	0.28
		220 - 310	27	0.05	0.08	0.08	0.10	0.13	0.15	0.18	0.20	0.23
M	Stainless Steel Series 304, 316, 17-4PH, etc.	135 - 185	61	0.10	0.13	0.15	0.18	0.20	0.23	0.28	0.30	0.33
		185 - 275	43	0.08	0.10	0.10	0.13	0.15	0.18	0.23	0.25	0.28
F	Nodular, Grey, Ductile Cast Iron	120 - 150	168	0.20	0.25	0.30	0.36	0.41	0.46	0.51	0.56	0.61
		150 - 200	152	0.20	0.25	0.30	0.36	0.41	0.46	0.51	0.56	0.61
		200 - 220	145	0.18	0.23	0.28	0.33	0.38	0.43	0.48	0.53	0.58
		220 - 260	131	0.18	0.23	0.28	0.33	0.38	0.43	0.48	0.53	0.58
		260 - 320	122	0.15	0.20	0.25	0.30	0.36	0.41	0.46	0.51	0.56
N	Cast Aluminum	30	457	0.20	0.25	0.33	0.38	0.43	0.51	0.56	0.61	0.66
		180	305	0.15	0.20	0.28	0.33	0.38	0.46	0.51	0.56	0.61
	Wrought Aluminum	30	457	0.20	0.25	0.33	0.38	0.43	0.51	0.56	0.61	0.66
		180	305	0.15	0.20	0.28	0.33	0.38	0.46	0.51	0.56	0.61

Speed and Feed Adjustment

Feed	RPM	Feed
See above chart	0.90	0.75

Reco[®] ended Speed and Feed Example

If the recommended speed and feed is 91 M/min and 0.25 mm/rev, then reduce to 68 M/min and 0.19 mm/rev when using a 9xD tool

$91 \cdot 0.75 = 68 \text{ M/min}$	$0.25 \cdot 0.75 = 0.19 \text{ mm/rev}$
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Calculations

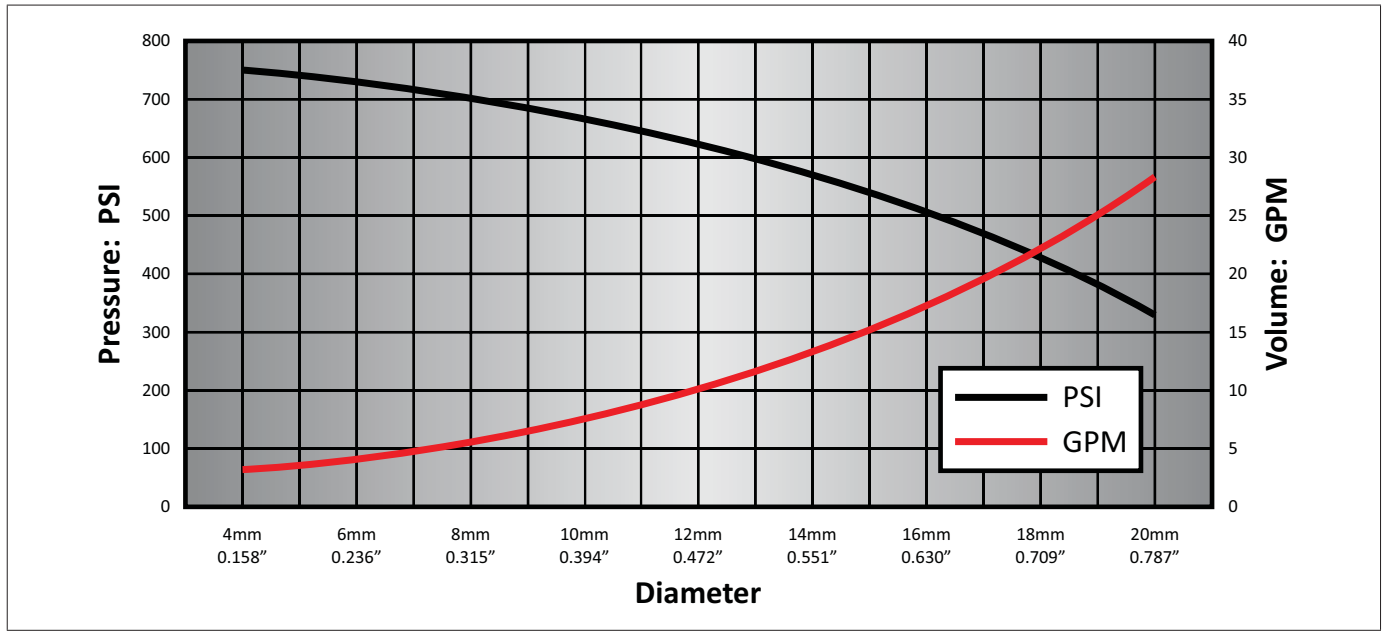
Value	Formula
RPM in	$\text{RPM} \cdot \text{mm/rev}$
M/min	$\text{RPM} \cdot 0.003 \cdot \text{DIA}$
RPM	$(\text{M/min} \cdot 318.47) / \text{DIA}$

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.

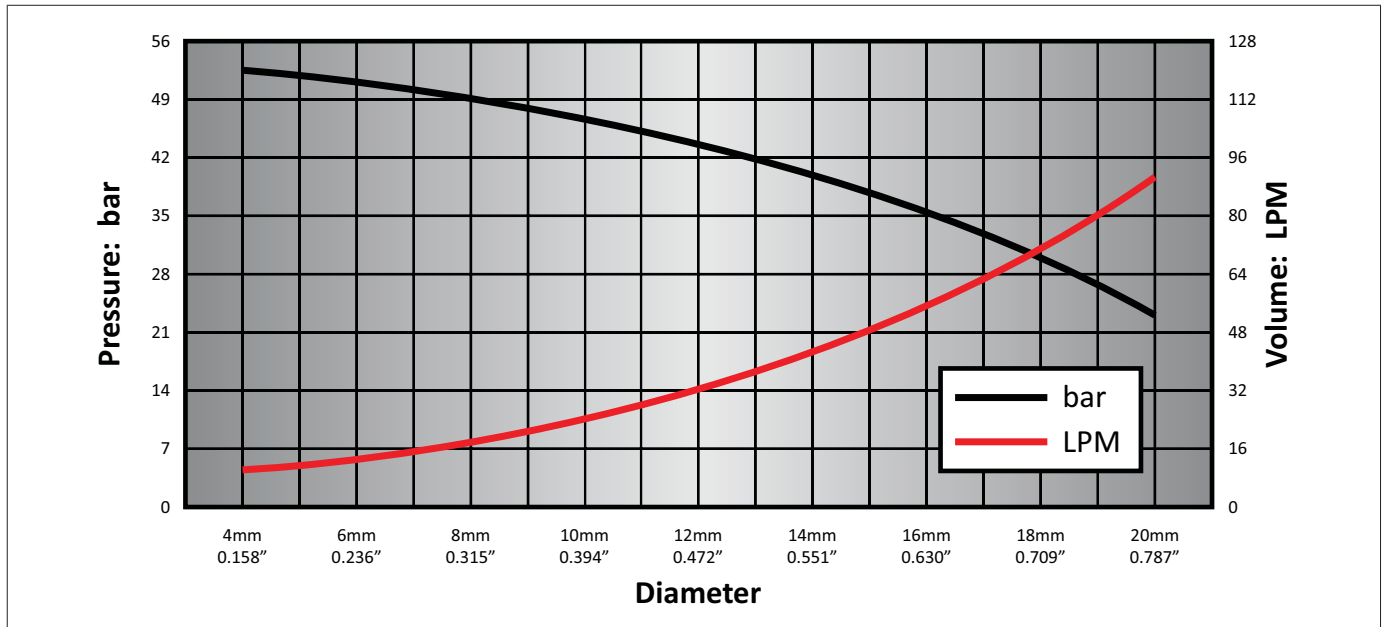
A
DRILLING
B
BORING
C
REAMING
D
BURISHING
E
THREADING
X
SPECIALS

Coolant Recommendations

Imperial PSI



Metric bar



Coolant Adjustment

Drill Length	Pressure and Flow
3.5xD	See above chart
6xD	1.5
9xD	2.0

Coolant Recommendation Example

If the recommended coolant pressure and flow is 600 PSI and 12 GPM for a 3xD tool, the adjusted pressure and flow for a 9xD tool would be:

$600 \cdot 2 = 1200 \text{ PSI}$	$12 \cdot 2 = 24 \text{ GPM}$
----------------------------------	-------------------------------

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the ASC 320 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.



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A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

GEN3SYS XT and XT Pro

High Penetration Replaceable Insert Drilling System | GEN3SYS XT | GEN3SYS XT Pro

► Diameter Range: 0.4331" - 1.3780" (11.00mm - 35.00mm)



The Next Generation of Drilling

The GEN3SYS XT and XT Pro replaceable insert high penetration drilling system has been designed to provide high speed production machining beyond the capabilities of the T-A® drilling system. The product offering consists of various grades, geometries, and coatings available to suit the most demanding applications.

Conceived from the outset as the ultimate high performance drilling solution, the GEN3SYS XT drill range is incredibly versatile. Incorporating both straight and helical fluted tool holder options across the range, as well as through coolant for maximum material removal, GEN3SYS XT not only gives outstanding performance from day one, but it can also be reground for extended life and economy.

Excellent chip control	Improves hole quality and surface finish	Provides maximum durability and stability
------------------------	--	---

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

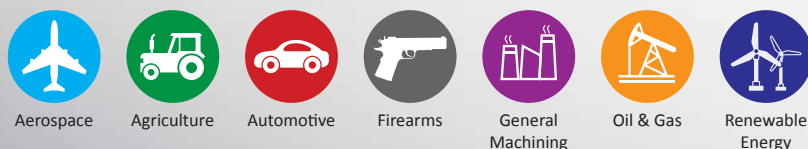
WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

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.appliedline.com for the most up-to-date information and procedures.

Applicable Industries



Aerospace

Agriculture

Automotive

Firearms

General Machining

Oil & Gas

Renewable Energy

GEN3SYS XT and XT Pro Drilling System Contents

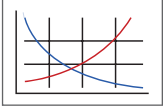
Reference Icons

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



Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe boring

Series	Diameter Range	
	Imperial (inch)	Metric (mm)
11	0.4331 - 0.4723	11.00 - 11.99
12	0.4724 - 0.5117	12.00 - 12.99
13	0.5118 - 0.5511	13.00 - 13.99
14	0.5512 - 0.5905	14.00 - 14.99
15	0.5906 - 0.6298	15.00 - 15.99
16	0.6299 - 0.6692	16.00 - 16.99
17	0.6693 - 0.7086	17.00 - 17.99
18	0.7087 - 0.7873	18.00 - 19.99
20	0.7874 - 0.8660	20.00 - 21.99
22	0.8661 - 0.9448	22.00 - 23.99
24	0.9449 - 1.0235	24.00 - 25.99
26	1.0236 - 1.1416	26.00 - 28.99
29	1.1417 - 1.2597	29.00 - 31.99
32	1.2598 - 1.3780	32.00 - 35.00

Introduction Information

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 - GEN3SYS XT Pro Inserts 6
 - GEN3SYS XT Inserts 7
- Insert Comparison and Assembly Details 8
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- 11 Series 12 - 15
- 12 Series 16 - 19
- 13 Series 20 - 23
- 14 Series 24 - 27
- 15 Series 28 - 31
- 16 Series 32 - 35
- 17 Series 36 - 39
- 18 Series 40 - 43
- 20 Series 44 - 47
- 22 Series 48 - 51
- 24 Series 52 - 55
- 26 Series 56 - 59
- 29 Series 60 - 63
- 32 Series 64 - 67

Recommended Cutting Data

- Imperial (inch)
 - GEN3SYS XT Pro 68 - 71
 - GEN3SYS XT 72 - 75
- Metric (mm)
 - GEN3SYS XT Pro 76 - 79
 - GEN3SYS XT 80 - 83
- Tap Drill Conversions 84 - 85
- Deep Hole Drilling Guidelines 86
- Troubleshooting Guide 87

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

Why should you GO WITH THE PRO?

GEN3SYS® XT Pro

- ✓ **Up to 40% more tool life**
with the new design for steel applications
- ✓ **Increase your penetration rates**
with the new insert technology
- ✓ **Simplify your tooling selection**
with new specific geometry and coating combinations
- ✓ **Increased heat resistance**
with new AM420 coating on steel inserts
- ✓ **Increased abrasion resistance**
with new AM440 coating on cast iron inserts
- ✓ **Improved chip evacuation**
with enhanced flute design on new XT Pro holders
- ✓ **Increased coolant flow to the cutting zone**
with new coolant configuration on XT Pro holders



INCREASED
penetration rate by
67%



Competitor Insert Penetration Rate



XT Pro Insert Penetration Rate

Project Profile: 7075 Aluminum

Tooling Solution: GEN3SYS XT Pro: N (Non-Ferrous) Geometry

The Problem:
Previously, the customer was using a competitor drill running at the following parameters:

- 30 IPM (762 mm/min)
- Tool life = 15,000" (381 m)

The Solution:
Allied Machine recommended the GEN3SYS XT Pro with N (Non-Ferrous) geometry.

- **Insert** = XTN24-25.00

The tool ran at the following parameters:

- 50 IPM (1270 mm/min)
- Tool life = 26,000" (660.4 m)



The Advantage:
The GEN3SYS XT Pro increased the penetration rate from 30 IPM to 50 IPM, while drastically increasing the tool life.

Bottom Line: **67%** increase in penetration rate & **73%** increase in tool life

Project Profile: Forged 8640
Tooling Solution: GEN3SYS XT Pro: P (Steel) Geometry

The Problem:
 Previously, the customer was using a competitor drill running at the following parameters:

- 415 SFM (127 M/min)
- 0.009 IPR (0.23 mm/rev)
- The tool drilled a 17.25mm diameter hole to a 20mm depth
- Tool life = 1,000 holes

The Solution:
 Allied Machine recommended the GEN3SYS XT Pro with P (Steel) geometry.

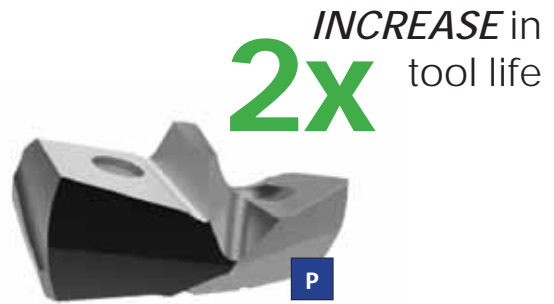
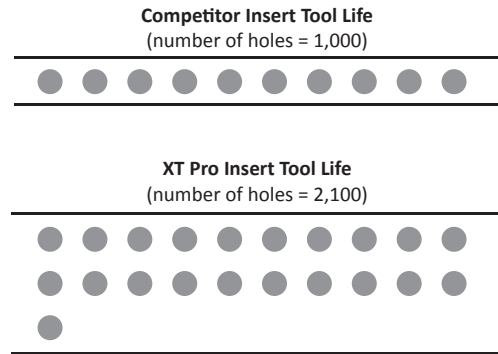
- Insert = XTP17-17.25

The tool ran at the following parameters:

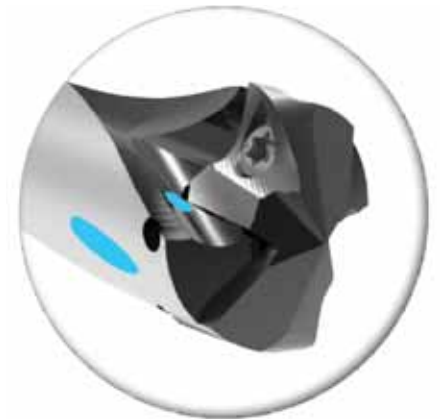
- 415 SFM (127 M/min)
- 0.009 IPR (0.23 mm/rev)
- The tool drilled a 17.25mm diameter hole to a 20mm depth
- Tool life = 2,100 holes

The Advantage:
 The GEN3SYS XT Pro increased the tool life from 1,000 holes to 2,100 holes.
Bottom Line: *Doubled the tool life*

The PROOF is in the NUMBERS



NEW HOLDER DESIGN



Drill deeper holes

The new XT Pro holders are now available in 10xD.
 ▶ *This lets you take advantage of the XT Pro insert benefits in deep hole applications.*

Increase your tool life

The new coolant configuration increases coolant flow and directs additional coolant to the cutting zone.
 ▶ *This increases tool life with all XT Pro inserts.*

That's why you should
GO WITH THE PRO



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SPECIALS

Competitive Test Results

TEST RESULTS

Project Profile: Competitive Testing in 4150 Steel

Tooling Solution: GEN3SYS XT Pro: Steel (P) Geometry with XT Pro Holder

Test Parameters:

- Hole Diameter = 0.748" (19mm)
- Depth of Cut = 1-1/2" (38.1mm)
- Coolant = 300 PSI
- Speed = 1583 RPM
- Feed = 22.16 inch/min (563 mm/min)

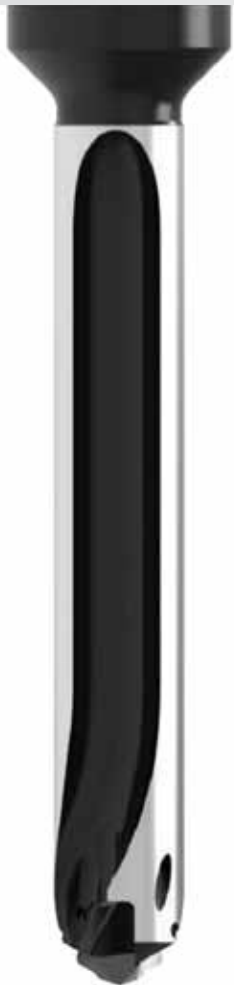
Test Results:

When run at the listed parameters, here is how the 3 different tooling solutions performed:

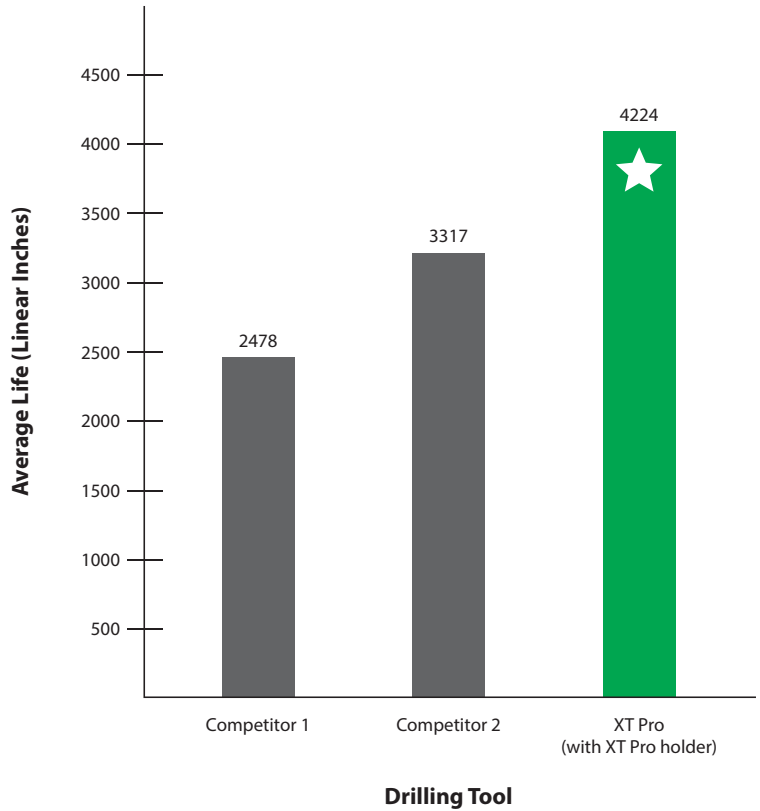
Competitor 1 = 2478 total linear inches

Competitor 2 = 3317 total linear inches

GEN3SYS XT Pro = 4224 total linear inches



Average Tool Life
Test Results Drilling in 4150 Steel



CASE STUDY

Project Profile: Ductile/Nodular Iron
Tooling Solution: GEN3SYS XT Pro: K (Cast Iron) Geometry

The Problem:

Previously, the customer was using a competitor drill:

- Solid carbide drill
- Tool life = 65 holes

The Solution:

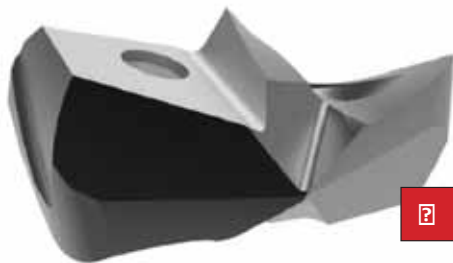
Allied Machine recommended the GEN3SYS XT Pro with K (Cast Iron) geometry. The tool ran at the following parameters:

- Hole Diameter = 9/16"
- Coolant = None
- Speed = 390 SFM (117 M/min)
- Feed = 0.008 IPR (0.20 mm/rev)
- Tool life = 390 holes

The Advantage:

The GEN3SYS XT Pro increased the tool life from 65 holes to 390 holes.

Bottom Line: 6x the tool life



The PROOF is in the NUMBERS

Competitor Tool Life
(number of holes = 65)



XT Pro Tool Life
(number of holes = 390)



There's More to the Advantage than Tool Life

The XT Pro replaceable tip system provides other benefits in addition to the increase in tool life over the solid carbide drill:

- Because only the insert needs changed when it reaches the end of its life, the XT Pro eliminates the need to re-establish tool lengths, which reduces set-up times.
- Further benefit in set-up is also seen as the tool only needs changed one time for every six of the customer's current method.
- Without the need for regrinds, the customer's stock of tooling is reduced by eliminating the need for float inventory to cover regrind lead time.

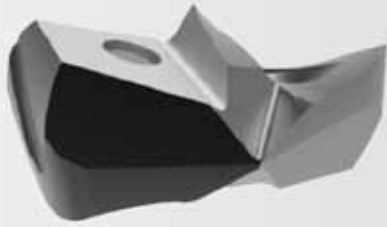
INCREASE in
6x tool life



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GEN3SYS XT Pro Drilling System Information

GEN3SYS XT Pro Drilling Inserts



Advanced Design Capabilities

The advanced XT Pro insert combines a coating and geometry specifically designed to achieve optimal results in ISO material drilling applications. With quick connectivity to existing GEN3SYS drill insert holders, the XT Pro insert can be interchanged with previous XT inserts with ease, resulting in minimal set-up times so you can immediately increase your productivity.

XT Pro Inserts Connect to it:



XT Pro holders

XT standard holders

P Steel

- Designed to provide increased penetration rates and tool life in steel applications
- Superior geometry and edge provides excellent chip control
- Allied's multi-layer AM420 coating increases heat resistance and improves tool life



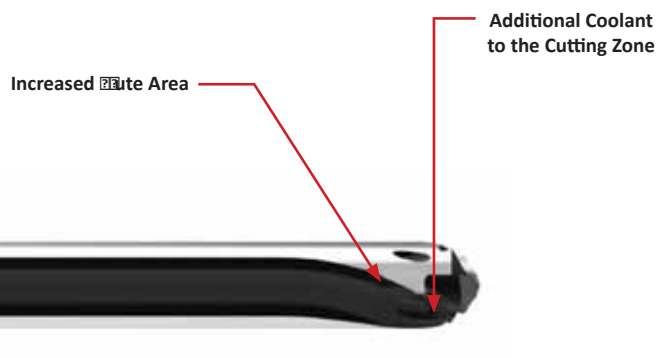
N Nonferrous Materials

- Designed for applications in aluminum, brass, and copper
- The geometry yields excellent chip control in these softer materials
- TiN coating gives the versatility to run in a variety of materials while reducing build up



Cast Irons

- Uniquely designed for cast/nodular iron applications
- Geometry includes a corner radius for improved hole finish and heat dispersion
- Allied's multi-layer AM440 coating provides increased abrasion resistance and tool life



XT Pro Drilling Holders



Straight flutes

Enhanced coolant inlets improve the coolant flow

Provides increased insert life

Available in 3xD, 5xD, 7xD, and 10xD

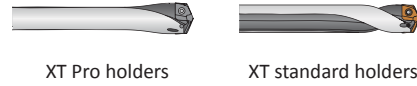
GEN3SYS XT Drilling System Information



High Penetration Drilling Solutions

The unique geometry of the XT inserts provides excellent chip control. They are designed to increase hole quality, surface finish, and true position when compared to other competitive products. The helical margin design provides maximum durability and stability.

XT Inserts Connect to it:



Standard Geometry

- Designed with corner and cutting edge enhancements to deliver more reliability, durability, and productivity
- Increases penetration rates and tool life
- Available in C1 or C2 carbide



LR - Low Rake Geometry

- The toughest XT geometry available
- Designed for harder steels and less than ideal machining applications
- Available in C1 or C2 carbide



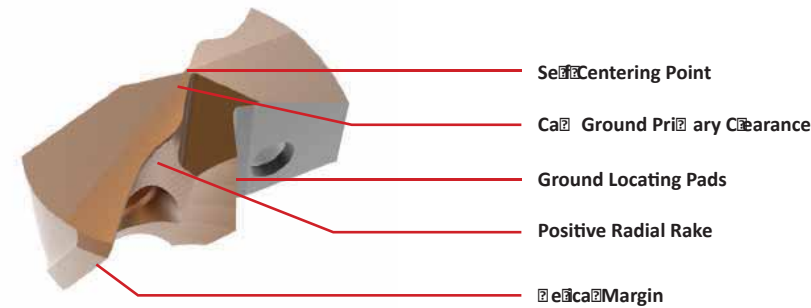
CI - Cast Iron Geometry

- Increases durability and tool life in ductile, nodular, and grey cast irons
- Available in C2 carbide



AS - Stainless Steel Geometry

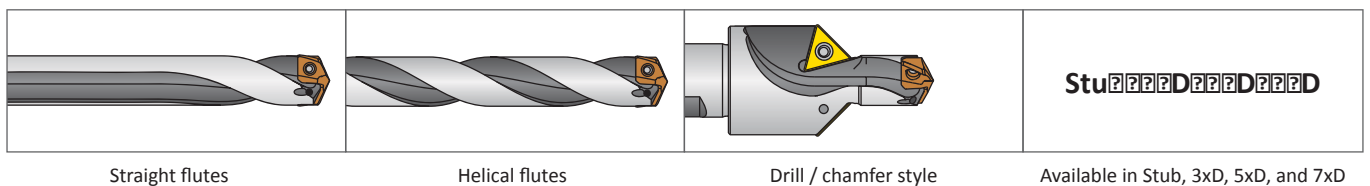
- Designed with a specific geometry to provide unmatched chip control and tool life in austenitic and PH stainless steels, as well as high temperature alloys such as Inconel, Hastelloy, and Titanium alloys
- Available in C2 carbide



Coating	Features / Benefits
AM300®	<ul style="list-style-type: none"> • Increased heat resistance over AM200® coating • Up to 20% increased tool life over AM200 coating • Provides superior tool life at high penetration rates



XT Drill Standard Holders



Straight flutes

Helical flutes







Drill / chamfer style

Available in Stub, 3xD, 5xD, and 7xD

Standard

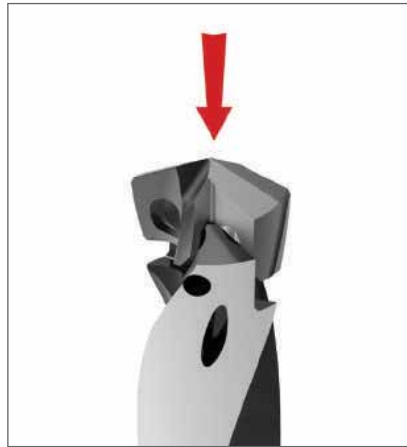


Insert Comparison and Assembly Information

		 XT Pro Inserts	 XT Inserts
Reco² ended for increased productivity		<input checked="" type="checkbox"/>	
ISO specific geometry/coating combination		<input checked="" type="checkbox"/>	
Connects it² XT Pro² holders		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Connects it² XT² holders		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



Step 1: Align the flats on the GEN3SYS XT insert with the flats on the ears of the holder.








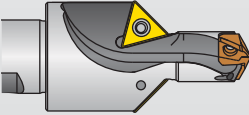
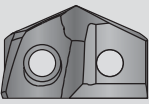
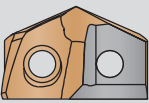
Step 2: Slide the insert into the precision ground locating pocket on the holder. The insert should not be turned, rotated, or twisted for locking purposes. The holder pocket and locating pads on the insert assure optimum fit and repeatability.



Step 3: Apply a generous amount of E-Z Break[®] (provided in the packaging) onto the supplied TORX[®] Plus screws.

Tighten the TORX Plus screws to the recommended torque value specified in the catalog by series. A preset torx driver is available to assure that the proper torque is applied.

Order Comparison and Overview

		 XT Pro Drills	 XT Standard Drills
Recommended for increased productivity		<input checked="" type="checkbox"/>	
Straight flute		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Helical flute			<input checked="" type="checkbox"/>
Drill/chamfer option			<input checked="" type="checkbox"/>
Available in 10 x D length	10 x D	<input checked="" type="checkbox"/>	
Connects to XT Pro inserts		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Connects to XT inserts		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

XT Pro Holders



Straight Flute

XT Holders



Straight Flute



Helical Flute



Drill with Chamfer

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

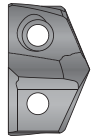
X

SPECIALS

Product Notation

GEN3SYS XT Pro Drill Inserts

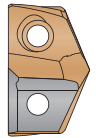
XT	P	??	? ??,??
1	2	3	4



1. XT Pro Drill Insert XT = XT Pro insert	2. ISO Material Geometry P = Steel ? = Cast iron N = Non-ferrous	3. Series ?? = 11 series ?? = 18 series ?? = 12 series ?? = 20 series ?? = 13 series ?? = 22 series ?? = 14 series ?? = 24 series ?? = 15 series ?? = 26 series ?? = 16 series ?? = 29 series ?? = 17 series ?? = 32 series	4. Diameter For complete list of diameter ranges by series, see contents page.
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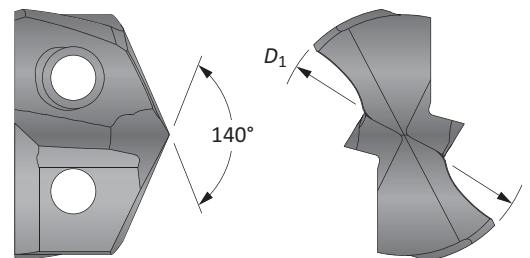
GEN3SYS XT Drill Inserts

?	C?	??	P	? .???	CI
1	2	3	4	5	6



1. XT Drill Insert ? = XT insert	2. Insert Material C? = C1 (K35) carbide C? = C2 (K20) carbide	3. Series ?? = 11 series ?? = 18 series ?? = 12 series ?? = 20 series ?? = 13 series ?? = 22 series ?? = 14 series ?? = 24 series ?? = 15 series ?? = 26 series ?? = 16 series ?? = 29 series ?? = 17 series ?? = 32 series	4. Coating P = AM300®
--	---	--	---------------------------------

5. Diameter .?? = Inch .?? = Decimal ?? = Metric	6. Geometry CI = Cast iron LR = Low rake AS = Stainless steel
--	---



Regrinding and Recoating

The GEN3SYS XT and XT Pro drilling system is so cost efficient that it eliminates the need for regrinding and recoating. However, if you choose to have your drill inserts reground, it is critical that it be done by Allied Machine. Any slight deviation in performance due to an improperly reground drill insert will more than offset any benefit from regrinding. Using our service ensures that the best tool performance is maintained in your production process. When returning tools for regrinding, please package tools carefully to avoid damage during shipment. Returning drill inserts for regrinding in their original packaging will help avoid damage during shipment. Drill inserts reground by Allied Machine are repackaged and clearly identified as "Allied Regrind" to avoid any confusion with new tools.

Reference Key

Sy	Attribute
D_1	Insert diameter

Product No. enclosure

GEN3SYS XT and XT Pro Drill Holders

XT	??	??	S	?	??	??M
1	2	3	4		5	6



1. Holder ? = XT standard holder ?XT = XT Pro holder	2. Length ?? = Stub Length (standard only) ?? = 3x Diameter ?? = 5x Diameter ?? = 7x Diameter ?? = 10x Diameter (Pro only)	3. Series ?? = 11 series ?? = 18 series ?? = 12 series ?? = 20 series ?? = 13 series ?? = 22 series ?? = 14 series ?? = 24 series ?? = 15 series ?? = 26 series ?? = 16 series ?? = 29 series ?? = 17 series ?? = 32 series	4. Flute S = Straight ? = Helical C?? = Drill/Chamfer (both helical and drill/chamfer options available for XT standard only)
---	--	--	---

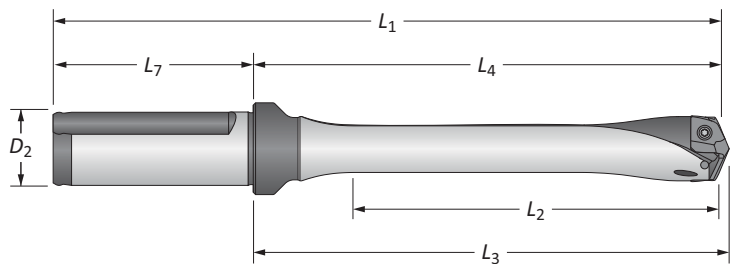
5. Shank Diameter Imperial Metric ??? = 5/8" ?? = 16mm ??? = 3/4" ?? = 20mm ??? = 1" ?? = 25mm ??? = 1-1/4" ?? = 32mm ??? = 1-1/2" ?? = 40mm	6. Shank Style ? = Flanged with flat ?M = Flanged metric with flat C = Cylindrical (no flat) CM = Cylindrical metric (no flat)
---	---

Holder Ordering Information

The series designator (11 series, 12 series, etc.) in the top corner of each page is for your reference when ordering. Please refer to these series designators when placing an order. For example, a 12 series drill insert only fits into a 12 series holder.

Reference Key

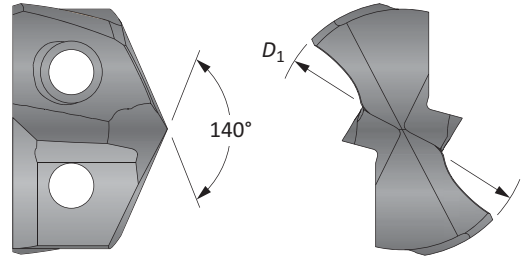
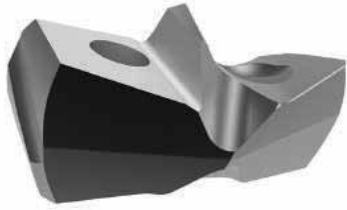
Symbol	Attribute
D_2	Shank diameter
D_5	Step diameter (drill/chamfer)
L_1	Overall length
L_2	Drill depth
L_3	Holder reference length
L_4	Holder body length
L_5	Step length (drill/chamfer)
L_7	Shank length
P_1	Rear pipe tap (XT standard)






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3S2S Pro Drill Insert

11 Series | Diameter Range: 0.4331" - 0.4723" (11.00mm - 11.99mm)



Fractional Inches	Insert				
	D_1 inch	D_1 mm	1111	K	1
-	0.4331	11.00	11111111	K11111111	11111111
7/16	0.4375	11.11	11111111	K11111111	11111111
-	0.4409	11.20	11111112	K1111112	1111112
-	0.4449	11.30	1111113	K111113	111113
-	0.4488	11.40	1111114	K111114	111114
-	0.4528	11.50	1111115	K111115	111115
29/64	0.4531	11.51	11111151	K1111151	1111151
-	0.4567	11.60	1111116	K111116	111116
-	0.4606	11.70	1111117	K111117	111117
-	0.4646	11.80	1111118	K111118	111118
15/32	0.4688	11.91	11111181	K1111181	1111181

Inserts sold in multiples of 1

DRILLING

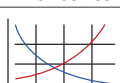
BORING


REAMING

BURNISHING

THREADING

SPECIALS

A20: 68 - 83
Key on A20: 1


A20: 6 - 9


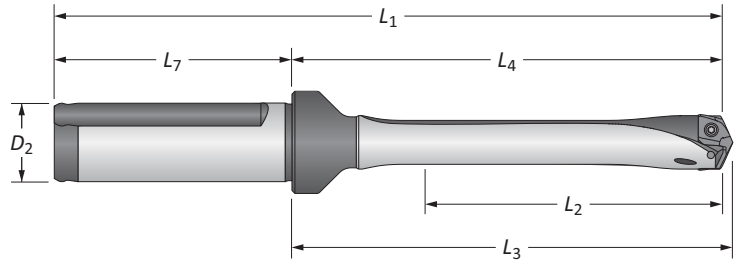
Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5180", Steel, 13 series = use Part No. 1313
Insert	13.16mm, Steel, 13 series = use Part No. 1313



11 Series | Diameter Range: 0.4331" - 0.4723" (11.00mm - 11.99mm)

11 Series | Diameter Range: 0.4331" - 0.4723" (11.00mm - 11.99mm)



Type	Length	Body				Shank			Coated	Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coated		
i Straight	3xD	1-27/64	2-29/64	2-17/32	4-21/64	1-7/8	5/8	YES	311S33	
	3xD	1-27/64	2-29/64	2-17/32	4-21/64	1-7/8	5/8	NO	311S33	
	5xD	2-23/64	3-13/32	3-31/64	5-9/32	1-7/8	5/8	YES	511S33	
	5xD	2-23/64	3-13/32	3-31/64	5-9/32	1-7/8	5/8	NO	511S33	
	7xD	3-19/64	4-11/32	4-27/64	6-7/32	1-7/8	5/8	YES	711S33	
	7xD	3-19/64	4-11/32	4-27/64	6-7/32	1-7/8	5/8	NO	711S33	
	10xD	4-23/32	5-49/64	5-27/32	7-41/64	1-7/8	5/8	YES	111S33	
	10xD	4-23/32	5-49/64	5-27/32	7-41/64	1-7/8	5/8	NO	111S33	
m Straight	3xD	36.0	62.6	64.4	110.6	48.0	16.0	YES	311S33	
	3xD	36.0	62.6	64.4	110.6	48.0	16.0	NO	311S33	
	5xD	60.0	86.6	88.4	134.6	48.0	16.0	YES	511S33	
	5xD	60.0	86.6	88.4	134.6	48.0	16.0	NO	511S33	
	7xD	83.7	110.6	112.4	158.6	48.0	16.0	YES	711S33	
	7xD	83.7	110.6	112.4	158.6	48.0	16.0	NO	711S33	
	10xD	119.9	146.6	148.4	194.6	48.0	16.0	YES	111S33	
	10xD	119.9	146.6	148.4	194.6	48.0	16.0	NO	111S33	

Connection Accessories

Inter Screw	Inter driver	Interchangeable Inter driver	Replacement	Interchangeable Torque	
71843-IP6-1	8IP-6	8IP-6TL	8IP-6B	4.4 in-lbs (50 N-cm)	

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

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

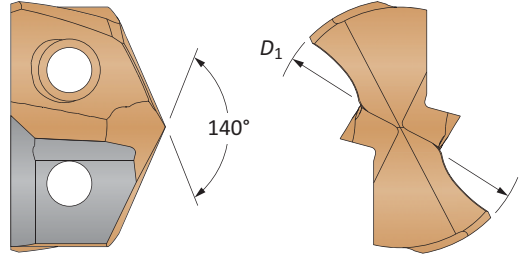
i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

3S S r r l n r

11 Series | Diameter Range: 0.4331" - 0.4723" (11.00mm - 11.99mm)



Substrate	Insert			Standard Part No.	Low Rake Part No.	Titan Part No.	Stable Part No.
	Fractional Length	D ₁ Inch	D ₁ mm				
C1 (K35)	-	0.4331	11.00	7111111	7C111P-11LR		
	7/16	0.4375	11.11	7111114	7C111P-0014LR		
	-	0.4528	11.50	7111115	7C111P-11.5LR		
	29/64	0.4531	11.51	7111153	7C111P-.453LR		
	15/32	0.4688	11.91	7111115	7C111P-0015LR		
C2 (K20)	-	0.4331	11.00	7211111	7C211P-11LR	7211111	7211111 S
	7/16	0.4375	11.11	7211114	7C211P-0014LR	7211114	7211114 S
	-	0.4528	11.50	7211115	7C211P-11.5LR	7211115	7211115 S
	29/64	0.4531	11.51	7211153	7C211P-.453LR	7211153	7211153 S
	15/32	0.4688	11.91	7211115	7C211P-0015LR	7211115	7211115 S

Inserts sold in multiples of 1

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

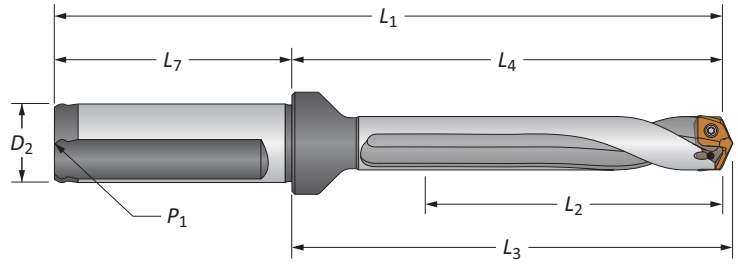
A20: 68 - 83 A20: 6 - 9

Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5200", 13 series, C2 = use Part No. 7213252
Part No.	13.20mm, 13 series, C2 = use Part No. 7213213

11 Series | Diameter Range: 0.4331" - 0.4723" (11.00mm - 11.99mm)

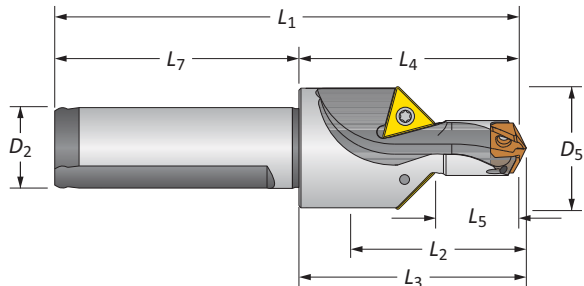
11 Series | Diameter Range: 0.4331" - 0.4723" (11.00mm - 11.99mm)



Standard Drill Bit

Type	Length	Body				Shank				Flute	Coating
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	1-27/64	2-29/64	2-17/32	4-21/64	1-7/8	5/8	1/16	YES	311S	
	5xD	2-23/64	3-13/32	3-31/64	5-9/32	1-7/8	5/8	1/16	YES	511S	
	7xD	3-19/64	4-11/32	4-27/64	6-7/32	1-7/8	5/8	1/16	YES	711S	
Helical	Stub	5/8	1-43/64	1-3/4	3-35/64	1-7/8	5/8	1/16	YES	111S	
	3xD	1-27/64	2-29/64	2-17/32	4-21/64	1-7/8	5/8	1/16	YES	311S	
	3xD	1-27/64	2-29/64	2-17/32	4-21/64	1-7/8	5/8	1/16	NO	311S	
	5xD	2-23/64	3-13/32	3-31/64	5-9/32	1-7/8	5/8	1/16	YES	511S	
	5xD	2-23/64	3-13/32	3-31/64	5-9/32	1-7/8	5/8	1/16	NO	511S	
	7xD	3-19/64	4-11/32	4-27/64	6-7/32	1-7/8	5/8	1/16	YES	711S	
	7xD	3-19/64	4-11/32	4-27/64	6-7/32	1-7/8	5/8	1/16	NO	711S	
Metric	Straight	3xD	36.0	62.6	64.4	110.6	48.0	16.0	1/16*	YES	311S
		5xD	60.0	86.6	88.4	134.6	48.0	16.0	1/16*	YES	511S
		7xD	83.7	110.6	112.4	158.6	48.0	16.0	1/16*	YES	711S
	Helical	Stub	16.0	42.6	44.7	90.6	48.0	16.0	1/16*	YES	111S
		3xD	36.0	62.6	64.4	110.6	48.0	16.0	1/16*	YES	311S
		3xD	36.0	62.6	64.4	110.6	48.0	16.0	1/16*	NO	311S
		5xD	60.0	86.6	88.4	134.6	48.0	16.0	1/16*	YES	511S
		5xD	60.0	86.6	88.4	134.6	48.0	16.0	1/16*	NO	511S
		7xD	83.7	110.6	112.4	158.6	48.0	16.0	1/16*	YES	711S
		7xD	83.7	110.6	112.4	158.6	48.0	16.0	1/16*	NO	711S

*Thread to BSP and ISO 7-1



Chamfer Insert

Type	Size		Body				Shank		Coating	Chamfer Insert
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
Imperial	61/64	21/32	15/16	1-43/64	1-3/4	3-35/64	1-7/8	5/8	111S45	TCMT-110204
Metric	24.1	16.5	23.8	42.2	44.3	90.2	48.0	16.0	111S45	TCMT-110204

Connection Accessories

Chamber Screw 71843-IP6-1	Chamber Driver 8IP-6	Pre-Drill Bit 8IP-6TL	Re-Cement 8IP-6B	Chamber 4.4 in-lbs (50 N-cm)
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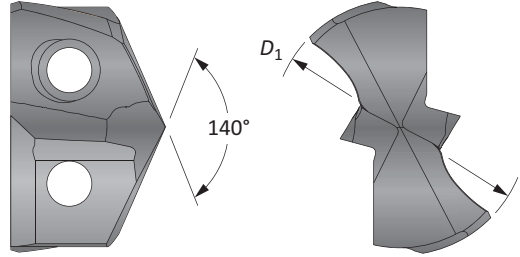
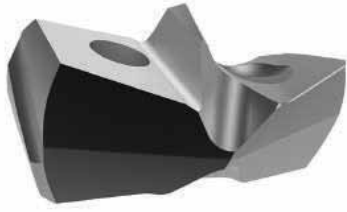
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

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

3S2S Pro Drill Insert

12 Series | Diameter Range: 0.4724" - 0.5117" (12.00mm - 12.99mm)



Fractional Length	Insert				
	D_1 inch	D_1 mm	P	K	B
-	0.4724	12.00	12P1200P	K12P1200P	12B1200P
-	0.4764	12.10	12P1210P	K12P1210P	12B1210P
-	0.4803	12.20	12P1220P	K12P1220P	12B1220P
31/64	0.4844	12.30	12P1230P	K12P1230P	12B1230P
-	0.4882	12.40	12P1240P	K12P1240P	12B1240P
-	0.4921	12.50	12P1250P	K12P1250P	12B1250P
-	0.4961	12.60	12P1260P	K12P1260P	12B1260P
1/2	0.5000	12.70	12P1270P	K12P1270P	12B1270P
-	0.5039	12.80	12P1280P	K12P1280P	12B1280P
-	0.5079	12.90	12P1290P	K12P1290P	12B1290P

Inserts sold in multiples of 1

DRILLING

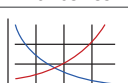
BORING


REAMING

BURNISHING

THREADING

SPECIALS

A20: 68 - 83  Key on A20: 1

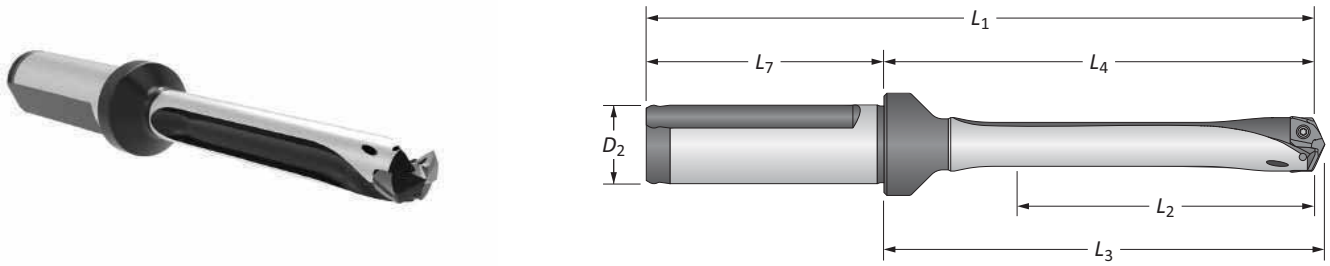
A20: 6 - 9 

Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5180", Steel, 13 series = use Part No. 13P1300P
Insert	13.16mm, Steel, 13 series = use Part No. 13P1300P

12 Series | Diameter Range: 0.4724" - 0.5117" (12.00mm - 12.99mm)

12 Series | Diameter Range: 0.4724" - 0.5117" (12.00mm - 12.99mm)



Type	Length	Body				Shank			Coating	Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coating		
i Straight	3xD	1-17/32	2-5/8	2-45/64	4-21/32	2-1/32	3/4	YES	312S750	
	3xD	1-17/32	2-5/8	2-45/64	4-21/32	2-1/32	3/4	NO	312S750	
	5xD	2-9/16	3-41/64	3-47/64	5-43/64	2-1/32	3/4	YES	512S750	
	5xD	2-9/16	3-41/64	3-47/64	5-43/64	2-1/32	3/4	NO	512S750	
	7xD	3-37/64	4-21/32	4-3/4	6-11/16	2-1/32	3/4	YES	712S750	
	7xD	3-37/64	4-21/32	4-3/4	6-11/16	2-1/32	3/4	NO	712S750	
	10xD	5-7/64	6-13/64	6-9/32	8-15/64	2-1/32	3/4	YES	112S750	
10xD	5-7/64	6-13/64	6-9/32	8-15/64	2-1/32	3/4	NO	112S750		
m Straight	3xD	39.0	66.6	68.7	116.6	50.0	20.0	YES	312S200	
	3xD	39.0	66.6	68.7	116.6	50.0	20.0	NO	312S200	
	5xD	65.0	92.5	94.7	142.5	50.0	20.0	YES	512S200	
	5xD	65.0	92.5	94.7	142.5	50.0	20.0	NO	512S200	
	7xD	90.9	118.3	120.7	168.3	50.0	20.0	YES	712S200	
	7xD	90.9	118.3	120.7	168.3	50.0	20.0	NO	712S200	
	10xD	129.9	157.5	159.7	207.5	50.0	20.0	YES	112S200	
10xD	129.9	157.5	159.7	207.5	50.0	20.0	NO	112S200		

Connection Accessories

Insert Screw	Nylon Locking Screws	Insert Driver	Torque Wrench	Replacement Bit	7.4 in-lbs (84 N-cm)
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

DRILLING

BORING

REAMING

BURNISHING

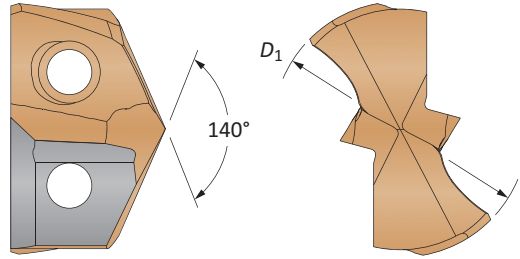
THREADING

SPECIALS



12 Series | Diameter Range: 0.4724" - 0.5117" (12.00mm - 12.99mm)

12 Series | Diameter Range: 0.4724" - 0.5117" (12.00mm - 12.99mm)



Grade	Insert			Standard	Low Rate	Titanium	Stainless
	Fractional Length	D ₁ Inch	D ₁ mm				
C1 (K35)	-	0.4724	12.00	7C112P-12	7C112P-12LR	7C112P-12Ti	7C112P-12S
	31/64	0.4844	12.30	7C112P-12.3	7C112P-.484LR	7C112P-12.3Ti	7C112P-12.3S
	-	0.4921	12.50	7C112P-12.5	7C112P-12.5LR	7C112P-12.5Ti	7C112P-12.5S
	1/2	0.5000	12.70	7C112P-12.7	7C112P-0016LR	7C112P-12.7Ti	7C112P-12.7S
C2 (K20)	-	0.4724	12.00	7C212P-12	7C212P-12LR	7C212P-12Ti	7C212P-12S
	31/64	0.4844	12.30	7C212P-12.3	7C212P-.484LR	7C212P-12.3Ti	7C212P-12.3S
	-	0.4921	12.50	7C212P-12.5	7C212P-12.5LR	7C212P-12.5Ti	7C212P-12.5S
	1/2	0.5000	12.70	7C212P-12.7	7C212P-0016LR	7C212P-12.7Ti	7C212P-12.7S

Inserts sold in multiples of 1

DRILLING

BORING

BORING

REAMING

REAMING

BURNISHING

BURNISHING

THREADING

THREADING

SPECIALS

SPECIALS

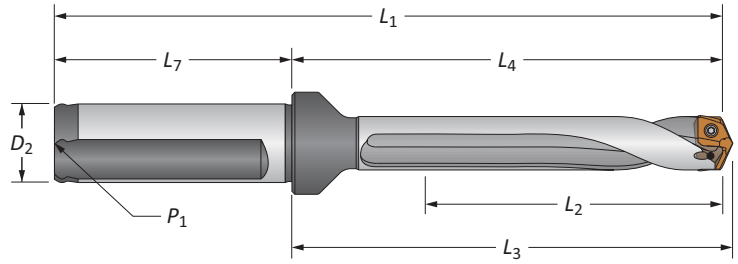
A20: 68 - 83
Key on A20: 1

A20: 6 - 9

Sizes not shown are available upon request. When ordering, please follow the example below:	
Insert	0.5200", 13 series, C2 = use Part No. 7C213P-13.2
Insert	13.20mm, 13 series, C2 = use Part No. 7C213P-13.2

12 Series | Diameter Range: 0.4724" - 0.5117" (12.00mm - 12.99mm)

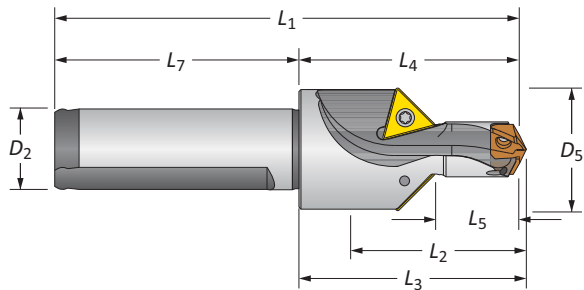
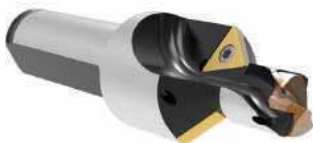
12 Series | Diameter Range: 0.4724" - 0.5117" (12.00mm - 12.99mm)



Standard Drill Bit

Type	Length	Body				Shank				Flute	Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	1-17/32	2-5/8	2-45/64	4-21/32	2-1/32	3/4	1/8	YES	312S75	
	5xD	2-9/16	3-41/64	3-47/64	5-43/64	2-1/32	3/4	1/8	YES	512S75	
	7xD	3-37/64	4-21/32	4-3/4	6-11/16	2-1/32	3/4	1/8	YES	712S75	
Helical	Stub	5/8	1-45/64	1-25/32	3-47/64	2-1/32	3/4	1/8	YES	112S75	
	3xD	1-17/32	2-5/8	2-45/64	4-21/32	2-1/32	3/4	1/8	YES	312S75	
	3xD	1-17/32	2-5/8	2-45/64	4-21/32	2-1/32	3/4	1/8	NO	312S75	
	5xD	2-9/16	3-41/64	3-47/64	5-43/64	2-1/32	3/4	1/8	YES	512S75	
	5xD	2-9/16	3-41/64	3-47/64	5-43/64	2-1/32	3/4	1/8	NO	512S75	
	7xD	3-37/64	4-21/32	4-3/4	6-11/16	2-1/32	3/4	1/8	YES	712S75	
	7xD	3-37/64	4-21/32	4-3/4	6-11/16	2-1/32	3/4	1/8	NO	712S75	
Metric	Straight	3xD	39.0	66.6	68.7	116.6	50.0	20.0	1/8*	YES	312S200
		5xD	65.0	92.5	94.7	142.5	50.0	20.0	1/8*	YES	512S200
		7xD	90.9	118.3	120.7	168.3	50.0	20.0	1/8*	YES	712S200
	Helical	Stub	16.0	43.2	45.4	93.2	50.0	20.0	1/8*	YES	112S200
		3xD	39.0	66.6	68.7	116.6	50.0	20.0	1/8*	YES	312S200
		3xD	39.0	66.6	68.7	116.6	50.0	20.0	1/8*	NO	312S200
		5xD	65.0	92.5	94.7	142.5	50.0	20.0	1/8*	YES	512S200
		5xD	65.0	92.5	94.7	142.5	50.0	20.0	1/8*	NO	512S200
		7xD	90.9	118.3	120.7	168.3	50.0	20.0	1/8*	YES	712S200
		7xD	90.9	118.3	120.7	168.3	50.0	20.0	1/8*	NO	712S200

*Thread to BSP and ISO 7-1



Chamfer Drill Bit

Type	Size		Body				Shank		Flute	Part No.	Chamfer Insert
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂			
i	31/32	45/64	63/64	1-45/64	1-25/32	3-47/64	2-1/32	3/4	112S45S75	TCMT-110204	
m	24.8	18.0	35.2	43.2	45.4	93.2	50.0	20.0	112S45S200	TCMT-110204	

Connection Accessories

Insert Screw	Nylon Locking Screws	Insert Driver	Pre-drill Bit	Reamer	Reamer
7247-IP-7-1	7247N-IP-7-1	8IP-7	8IP-7TL	8IP-7B	7.4 in-lbs (84 N-cm)

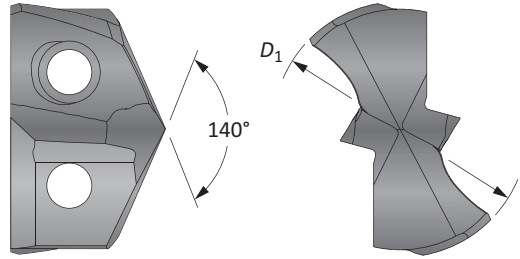
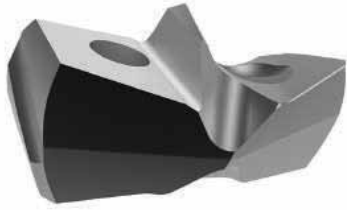
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength




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

Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

3S2S Pro Drill Insert

13 Series | Diameter Range: 0.5118" - 0.5511" (13.00mm - 13.99mm)



Fractional Inches	D ₁ Inch	D ₁ mm			
			13S2S	K	13S2S
-	0.5118	13.00	13S2S1300	K13S2S1300	13S2S1300
33/64	0.5156	13.10	13S2S1310	K13S2S1310	13S2S1310
-	0.5197	13.20	13S2S1320	K13S2S1320	13S2S1320
-	0.5236	13.30	13S2S1330	K13S2S1330	13S2S1330
-	0.5276	13.40	13S2S1340	K13S2S1340	13S2S1340
17/32	0.5313	13.49	13S2S1349	K13S2S1349	13S2S1349
-	0.5315	13.50	13S2S1350	K13S2S1350	13S2S1350
-	0.5354	13.60	13S2S1360	K13S2S1360	13S2S1360
-	0.5394	13.70	13S2S1370	K13S2S1370	13S2S1370
-	0.5433	13.80	13S2S1380	K13S2S1380	13S2S1380
35/64	0.5469	13.89	13S2S1389	K13S2S1389	13S2S1389

Inserts sold in multiples of 1

DRILLING

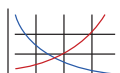
BORING


REAMING

BURNISHING

THREADING

SPECIALS

A20: 68 - 83
Key on A20: 1


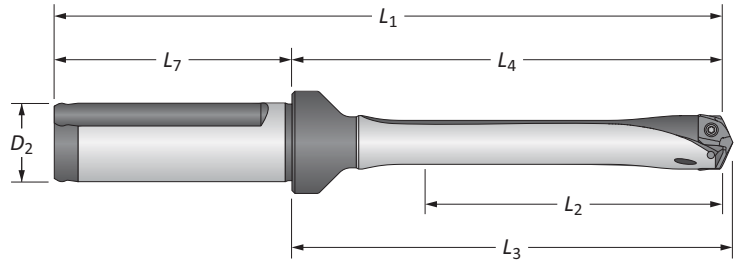
A20: 6 - 9


Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5180", Steel, 13 series = use Part No. 13S2S1370
Insert	13.16mm, Steel, 13 series = use Part No. 13S2S1370

313 Series | Diameter Range: 0.5118" - 0.5511" (13.00mm - 13.99mm)

13 Series | Diameter Range: 0.5118" - 0.5511" (13.00mm - 13.99mm)



Type	Length	Body				Shank			Coating
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coating	
i Straight	3xD	1-21/32	2-23/32	2-13/16	4-3/4	2-1/32	3/4	YES	313S75
	3xD	1-21/32	2-23/32	2-13/16	4-3/4	2-1/32	3/4	NO	313S75
	5xD	2-3/4	3-13/16	3-29/32	5-27/32	2-1/32	3/4	YES	513S75
	5xD	2-3/4	3-13/16	3-29/32	5-27/32	2-1/32	3/4	NO	513S75
	7xD	3-55/64	4-59/64	5-1/64	6-61/64	2-1/32	3/4	YES	713S75
	7xD	3-55/64	4-59/64	5-1/64	6-61/64	2-1/32	3/4	NO	713S75
	10xD	5-33/64	6-37/64	6-43/64	8-39/64	2-1/32	3/4	YES	1013S75
	10xD	5-33/64	6-37/64	6-43/64	8-39/64	2-1/32	3/4	NO	1013S75
m Straight	3xD	42.0	69.0	71.4	119.0	50.0	20.0	YES	313S2
	3xD	42.0	69.0	71.4	119.0	50.0	20.0	NO	313S2
	5xD	69.9	96.8	99.2	146.8	50.0	20.0	YES	513S2
	5xD	69.9	96.8	99.2	146.8	50.0	20.0	NO	513S2
	7xD	98.0	125.0	127.4	175.0	50.0	20.0	YES	713S2
	7xD	98.0	125.0	127.4	175.0	50.0	20.0	NO	713S2
	10xD	140.0	167.0	169.4	217.0	50.0	20.0	YES	1013S2
	10xD	140.0	167.0	169.4	217.0	50.0	20.0	NO	1013S2

Connection Accessories

					Compatible Insert Driver
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

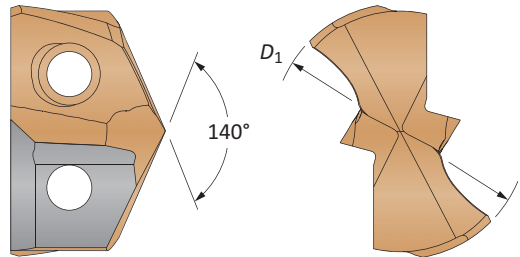
i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

3S S r r l n

13 Series | Diameter Range: 0.5118" - 0.5511" (13.00mm - 13.99mm)



Substrate	Insert			Standard Part No.	Low Rake Part No.	Titan Part No.	Stable Part No.
	Fractional Length	D ₁ Inch	D ₁ mm				
C1 (K35)	-	0.5118	13.00	7C113P13	7C113P-13LR		
	33/64	0.5156	13.08	7C113P515	7C113P-.515LR		
	17/32	0.5312	13.49	7C113P17	7C113P-0017LR		
	-	0.5315	13.50	7C113P135	7C113P-13.5LR		
	35/64	0.5469	13.89	7C113P54	7C113P-.546LR		
C2 (K20)	-	0.5118	13.00	7C213P13	7C213P-13LR	7C213P13T	7C213P13S
	33/64	0.5156	13.08	7C213P515	7C213P-.515LR	7C213P515T	7C213P515S
	17/32	0.5312	13.49	7C213P17	7C213P-0017LR	7C213P17T	7C213P17S
	-	0.5315	13.50	7C213P135	7C213P-13.5LR	7C213P135T	7C213P135S
	35/64	0.5469	13.89	7C213P54	7C213P-.546LR	7C213P54T	7C213P54S

Inserts sold in multiples of 1

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

A20: 68 - 83
Key on A20: 1

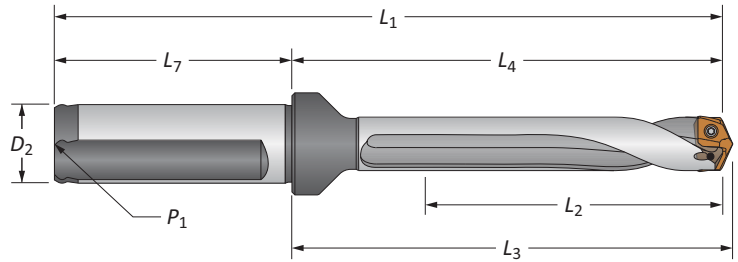
A20: 6 - 9

Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5200", 13 series, C2 = use Part No. 7C213P52T
Part No.	13.20mm, 13 series, C2 = use Part No. 7C213P132

13 Series | Diameter Range: 0.5118" - 0.5511" (13.00mm - 13.99mm)

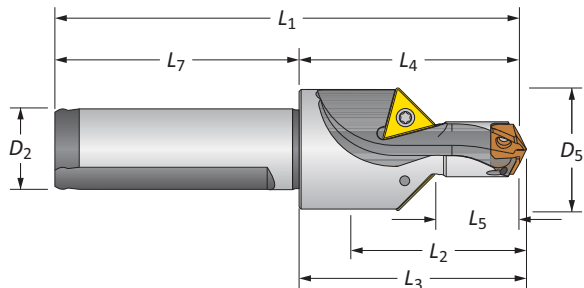
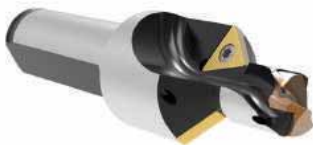
13 Series | Diameter Range: 0.5118" - 0.5511" (13.00mm - 13.99mm)



Standard Lengths

Type	Length	Body				Shank				Flute	Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	1-21/32	2-23/32	2-13/16	4-3/4	2-1/32	3/4	1/8	YES	113S75	
	5xD	2-3/4	3-13/16	3-29/32	5-27/32	2-1/32	3/4	1/8	YES	513S75	
	7xD	3-55/64	4-59/64	5-1/64	6-61/64	2-1/32	3/4	1/8	YES	713S75	
Helical	Stub	5/8	1-11/16	1-25/32	3-23/32	2-1/32	3/4	1/8	YES	113H75	
	3xD	1-21/32	2-23/32	2-13/16	4-3/4	2-1/32	3/4	1/8	YES	313H75	
	3xD	1-21/32	2-23/32	2-13/16	4-3/4	2-1/32	3/4	1/8	NO	313H75	
	5xD	2-3/4	3-13/16	3-29/32	5-27/32	2-1/32	3/4	1/8	YES	513H75	
	5xD	2-3/4	3-13/16	3-29/32	5-27/32	2-1/32	3/4	1/8	NO	513H75	
	7xD	3-55/64	4-59/64	5-1/64	6-61/64	2-1/32	3/4	1/8	YES	713H75	
	7xD	3-55/64	4-59/64	5-1/64	6-61/64	2-1/32	3/4	1/8	NO	713H75	
Metric	Straight	3xD	42.0	69.0	71.4	119.0	50.0	20.0	1/8*	YES	313S200
		5xD	69.9	96.8	99.2	146.8	50.0	20.0	1/8*	YES	513S200
		7xD	98.0	125.0	127.4	175.0	50.0	20.0	1/8*	YES	713S200
	Helical	Stub	16.0	43.0	45.2	93.0	50.0	20.0	1/8*	YES	113H200
		3xD	42.0	69.0	71.4	119.0	50.0	20.0	1/8*	YES	313H200
		3xD	42.0	69.0	71.4	119.0	50.0	20.0	1/8*	NO	313H200
		5xD	69.9	96.8	99.2	146.8	50.0	20.0	1/8*	YES	513H200
		5xD	69.9	96.8	99.2	146.8	50.0	20.0	1/8*	NO	513H200
		7xD	98.0	125.0	127.4	175.0	50.0	20.0	1/8*	YES	713H200
		7xD	98.0	125.0	127.4	175.0	50.0	20.0	1/8*	NO	713H200

*Thread to BSP and ISO 7-1



Chamfer Insert

Type	Size		Body				Shank		Flute	Part No.	Chamfer Insert
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂			
Imperial	1-1/64	49/64	1	1-11/16	1-25/32	3-23/32	2-1/32	3/4	113H4575	TCMT-110204	
Metric	25.8	19.5	25.4	43.0	45.2	93.0	50.0	20.0	113H45200	TCMT-110204	

Connection Accessories

Insert Screw	Nylon Locking Screws	Insert Driver	Pre-Drill Bit	Reamer	Replacement Bit
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

ⓘ = Imperial (in)

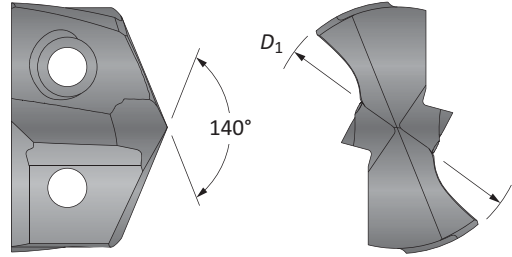
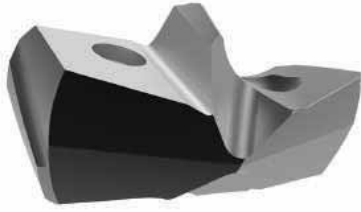
Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10




Ⓜ = Metric (mm)



3S2S Pro Drill Insert

14 Series | Diameter Range: 0.5512" - 0.5905" (14.00mm - 14.99mm)



Fractional Length	D ₁ Inch	D ₁ mm			
			1414	K	1414
-	0.5512	14.00	141414	K141414	141414
-	0.5551	14.10	141414	K141414	141414
-	0.5591	14.20	141414	K141414	141414
9/16	0.5625	14.29	141414	K141414	141414
-	0.5669	14.40	141414	K141414	141414
-	0.5709	14.50	141414	K141414	141414
-	0.5748	14.60	141414	K141414	141414
37/64	0.5781	14.68	141414	K141414	141414
-	0.5827	14.80	141414	K141414	141414
-	0.5866	14.90	141414	K141414	141414

Inserts sold in multiples of 1

DRILLING

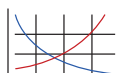
BORING


REAMING



BURNISHING

THREADING

SPECIALS

A20: 68 - 83
Key on A20: 1


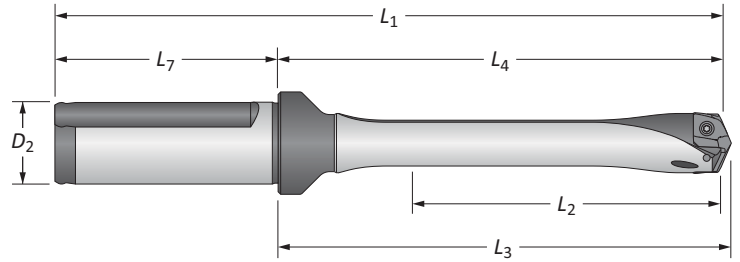
A20: 6 - 9


Sizes not shown are available upon request. When ordering, please follow the example below:	
	0.5180", Steel, 13 series = use Part No. 131313
	13.16mm, Steel, 13 series = use Part No. 131313



3S Pro Drill Intercooler

14 Series | Diameter Range: 0.5512" - 0.5905" (14.00mm - 14.99mm)



Type	Length	Body				Shank			Coat	Part No
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coat		
i Straight	3xD	1-49/64	2-27/32	2-61/64	4-7/8	2-1/32	3/4	YES	314S75	
	3xD	1-49/64	2-27/32	2-61/64	4-7/8	2-1/32	3/4	NO	314S75	
	5xD	2-61/64	4-1/32	4-1/8	6-1/16	2-1/32	3/4	YES	514S75	
	5xD	2-61/64	4-1/32	4-1/8	6-1/16	2-1/32	3/4	NO	514S75	
	7xD	4-1/8	5-13/64	5-5/16	7-15/64	2-1/32	3/4	YES	714S75	
	7xD	4-1/8	5-13/64	5-5/16	7-15/64	2-1/32	3/4	NO	714S75	
	10xD	5-29/32	6-63/64	7-5/64	9-1/64	2-1/32	3/4	YES	114S75	
	10xD	5-29/32	6-63/64	7-5/64	9-1/64	2-1/32	3/4	NO	114S75	
m Straight	3xD	44.8	72.2	74.9	122.2	50.0	20.0	YES	314S2	
	3xD	44.8	72.2	74.9	122.2	50.0	20.0	NO	314S2	
	5xD	75.0	102.4	104.9	152.4	50.0	20.0	YES	514S2	
	5xD	75.0	102.4	104.9	152.4	50.0	20.0	NO	514S2	
	7xD	104.8	132.2	134.8	182.2	50.0	20.0	YES	714S2	
	7xD	104.8	132.2	134.8	182.2	50.0	20.0	NO	714S2	
	10xD	149.9	177.4	179.8	227.4	50.0	20.0	YES	114S2	
	10xD	149.9	177.4	179.8	227.4	50.0	20.0	NO	114S2	

Connection Accessories

Inter Screw	Nylon Locking Screws	Intercooler	Reamer	Reamer	Reamer	Removable
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Screws sold in multiples of 10

DRILLING

BORING

REAMING

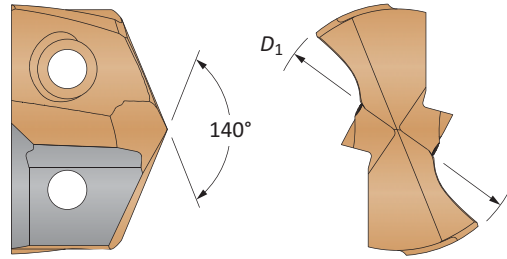
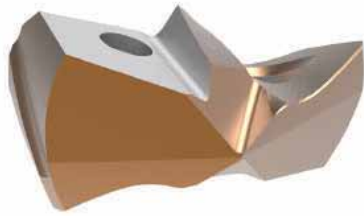
BURNISHING





THREADING

SPECIALS

3S2S 22 r1 Iner

14 Series | Diameter Range: 0.5512" - 0.5905" (14.00mm - 14.99mm)



Drill Bit Substrate	Iner						
	Fractional Length	D ₁ Inch	D ₁ mm	Standard Part No.	Low Rate Part No.	Iron Part No.	Stainless Part No.
C1 (K35)	-	0.5512	14.00	7C114P-14	7C114P-14LR	7C114P-14	7C114P-14S
	9/16	0.5625	14.29	7C114P-14.1	7C114P-0018LR	7C114P-14.1	7C114P-14.1S
	-	0.5709	14.50	7C114P-14.5	7C114P-14.5LR	7C114P-14.5	7C114P-14.5S
	37/64	0.5781	14.68	7C114P-14.57	7C114P-.578LR	7C114P-14.57	7C114P-14.57S
	-	0.5827	14.80	7C114P-14.8	7C114P-14.8LR	7C114P-14.8	7C114P-14.8S
C2 (K20)	-	0.5512	14.00	7C214P-14	7C214P-14LR	7C214P-14	7C214P-14S
	9/16	0.5625	14.29	7C214P-14.1	7C214P-0018LR	7C214P-14.1	7C214P-14.1S
	-	0.5709	14.50	7C214P-14.5	7C214P-14.5LR	7C214P-14.5	7C214P-14.5S
	37/64	0.5781	14.68	7C214P-14.57	7C214P-.578LR	7C214P-14.57	7C214P-14.57S
	-	0.5827	14.80	7C214P-14.8	7C214P-14.8LR	7C214P-14.8	7C214P-14.8S

Inserts sold in multiples of 1

DRILLING

BORING

BORING

REAMING

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BURNISHING

BURNISHING

THREADING

THREADING

SPECIALS

SPECIALS

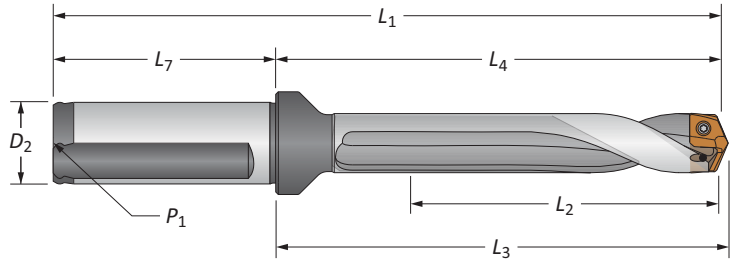
A20: 68 - 83
Key on A20: 1

A20: 6 - 9

Sizes not shown are available upon request. When ordering, please follow the example below:	
Iner	0.5200", 13 series, C2 = use Part No. 7C213P-13.2
er	13.20mm, 13 series, C2 = use Part No. 7C213P-13.2

3S2S 22 S2n2r2r2 2 r1 2n2r2 2 ol2r2

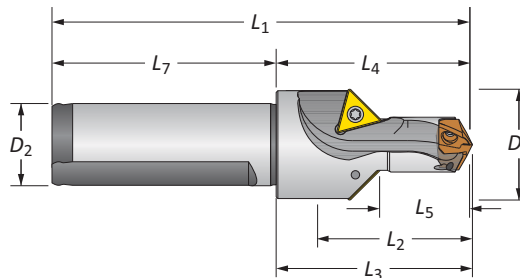
14 Series | Diameter Range: 0.5512" - 0.5905" (14.00mm - 14.99mm)



Standard Elements

Type	Length	Body				Shank				Flute	Part No
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	1-49/64	2-27/32	2-61/64	4-7/8	2-1/32	3/4	1/8	YES	314S275	
	5xD	2-61/64	4-1/32	4-1/8	6-1/16	2-1/32	3/4	1/8	YES	514S275	
	7xD	4-1/8	5-13/64	5-5/16	7-15/64	2-1/32	3/4	1/8	YES	714S275	
Helical	Stub	11/16	1-3/4	1-55/64	3-25/32	2-1/32	3/4	1/8	YES	114S275	
	3xD	1-49/64	2-27/32	2-61/64	4-7/8	2-1/32	3/4	1/8	YES	314S275	
	3xD	1-49/64	2-27/32	2-61/64	4-7/8	2-1/32	3/4	1/8	NO	314S275	
	5xD	2-61/64	4-1/32	4-1/8	6-1/16	2-1/32	3/4	1/8	YES	514S275	
	5xD	2-61/64	4-1/32	4-1/8	6-1/16	2-1/32	3/4	1/8	NO	514S275	
	7xD	4-1/8	5-13/64	5-5/16	7-15/64	2-1/32	3/4	1/8	YES	714S275	
	7xD	4-1/8	5-13/64	5-5/16	7-15/64	2-1/32	3/4	1/8	NO	714S275	
Metric	Straight	3xD	44.8	72.2	74.9	122.2	50.0	20.0	1/8*	YES	314S275
		5xD	75.0	102.4	104.9	152.4	50.0	20.0	1/8*	YES	514S275
		7xD	104.8	132.2	134.8	182.2	50.0	20.0	1/8*	YES	714S275
	Helical	Stub	17.5	44.5	47.2	94.5	50.0	20.0	1/8*	YES	114S275
		3xD	44.8	72.2	74.9	122.2	50.0	20.0	1/8*	YES	314S275
		3xD	44.8	72.2	74.9	122.2	50.0	20.0	1/8*	NO	314S275
		5xD	75.0	102.4	104.9	152.4	50.0	20.0	1/8*	YES	514S275
		5xD	75.0	102.4	104.9	152.4	50.0	20.0	1/8*	NO	514S275
		7xD	104.8	132.2	134.8	182.2	50.0	20.0	1/8*	YES	714S275
		7xD	104.8	132.2	134.8	182.2	50.0	20.0	1/8*	NO	714S275

*Thread to BSP and ISO 7-1



Chamfer

Type	Size		Body				Shank		Part No	Chamfer Part No
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
Imperial	1-3/64	53/64	1-3/64	1-3/4	1-55/64	3-25/32	2-1/32	3/4	114S45275	TCMT-110204
Metric	26.7	21.0	26.8	44.6	47.2	94.6	50.0	20.0	114S45275	TCMT-110204

Connection Accessories

Part No	Description	Part No	Description	Part No	Description	Part No	Description
7247-IP7-1	Inserter Screws	7247N-IP7-1	Nylon Locking Screws	8IP-7	Inserter Driver	8IP-7TL	Pre-Drill Torque Inserter Driver
				8IP-7B	Re-Drill Cement Driver		
							7.4 in-lbs (84 N-cm)

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

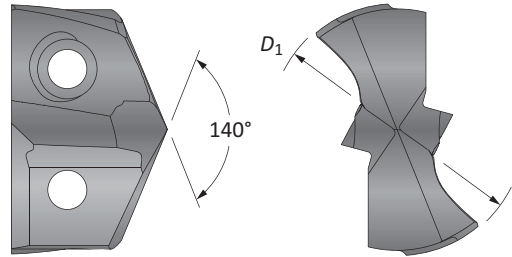
ⓘ = Imperial (in)
Ⓜ = Metric (mm)




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10



3S2S Pro Drill Insert

15 Series | Diameter Range: 0.5906" - 0.6298" (15.00mm - 15.99mm)



Fractional Length	Insert				
	D_1 inch	D_1 mm	151500	K151500	151500
-	0.5906	15.00	151500	K151500	151500
19/32	0.5938	15.08	151500	K151500	151500
-	0.5984	15.20	151500	K151500	151500
-	0.6024	15.30	151500	K151500	151500
-	0.6063	15.40	151500	K151500	151500
33/64	0.6094	15.48	151500	K151500	151500
-	0.6102	15.50	151500	K151500	151500
-	0.6142	15.60	151500	K151500	151500
-	0.6181	15.70	151500	K151500	151500
-	0.6220	15.80	151500	K151500	151500
5/8	0.6250	15.88	151500	K151500	151500

Inserts sold in multiples of 1

DRILLING

BORING

REAMING



BURNISHING

THREADING

SPECIALS

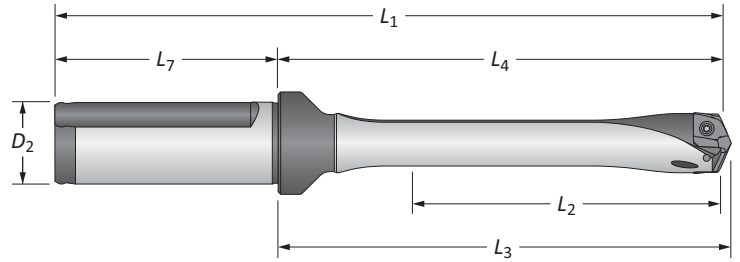
A20: 68 - 83
Key on A20: 1

A20: 6 - 9

Sizes not shown are available upon request. When ordering, please follow the example below:	
	0.5180", Steel, 13 series = use Part No. 131300
	13.16mm, Steel, 13 series = use Part No. 131300

3S2S Pro Drill Intercooler

15 Series | Diameter Range: 0.5906" - 0.6298" (15.00mm - 15.99mm)



Type	Length	Body				Shank			Coated	Part No
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coated		
i Straight	3xD	1-57/64	2-61/64	3-3/64	4-63/64	2-1/32	3/4	YES	315S75	
	3xD	1-57/64	2-61/64	3-3/64	4-63/64	2-1/32	3/4	NO	315S75	
	5xD	3-9/64	4-13/64	4-5/16	6-15/64	2-1/32	3/4	YES	515S75	
	5xD	3-9/64	4-13/64	4-5/16	6-15/64	2-1/32	3/4	NO	515S75	
	7xD	4-13/32	5-15/32	5-37/64	7-1/2	2-1/32	3/4	YES	715S75	
	7xD	4-13/32	5-15/32	5-37/64	7-1/2	2-1/32	3/4	NO	715S75	
	10xD	6-19/64	7-23/64	7-29/64	9-25/64	2-1/32	3/4	YES	1015S75	
	10xD	6-19/64	7-23/64	7-29/64	9-25/64	2-1/32	3/4	NO	1015S75	
m Straight	3xD	48.0	75.0	77.5	125.0	50.0	20.0	YES	315S2	
	3xD	48.0	75.0	77.5	125.0	50.0	20.0	NO	315S2	
	5xD	79.8	106.8	109.5	156.8	50.0	20.0	YES	515S2	
	5xD	79.8	106.8	109.5	156.8	50.0	20.0	NO	515S2	
	7xD	111.9	138.9	141.5	188.9	50.0	20.0	YES	715S2	
	7xD	111.9	138.9	141.5	188.9	50.0	20.0	NO	715S2	
	10xD	159.9	186.9	189.5	236.9	50.0	20.0	YES	1015S2	
	10xD	159.9	186.9	189.5	236.9	50.0	20.0	NO	1015S2	

Connection Accessories

Inter Screw	Nylon Locking Screws	Intercooler	Precision Torque Driver	Replacement	Removable Intercooler
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

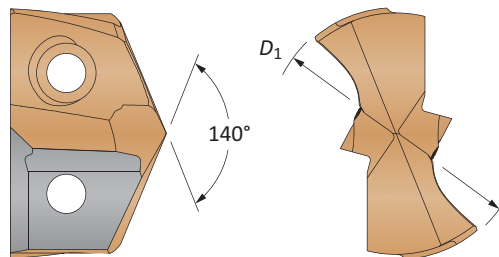
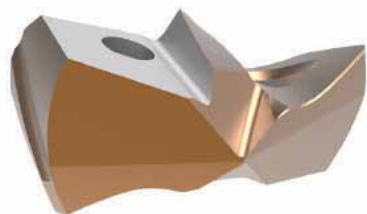
i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

3S2S 22 2 r1 1er22

15 Series | Diameter Range: 0.5906" - 0.6298" (15.00mm - 15.99mm)



Drill Bit Substrate	Insert			Standard Part No.	Low Rake Part No.	Titan Part No.	Stable Part No.
	Fractional Length	D ₁ Inch	D ₁ mm				
C1 (K35)	-	0.5906	15.00	711515	7C115P-15LR	711515	711515
	19/32	0.5938	15.08	711519	7C115P-0019LR	711519	711519
	-	0.6004	15.25	711525	7C115P-15.25LR	711525	711525
	39/64	0.6094	15.48	711539	7C115P-.609LR	711539	711539
	-	0.6103	15.50	711550	7C115P-15.5LR	711550	711550
	-	0.6181	15.70	711570	7C115P-.618LR	711570	711570
	5/8	0.6250	15.88	711588	7C115P-0020LR	711588	711588
C2 (K20)	-	0.5906	15.00	721515	7C215P-15LR	721515	721515S
	19/32	0.5938	15.08	721519	7C215P-0019LR	721519	721519S
	-	0.6004	15.25	721525	7C215P-15.25LR	721525	721525S
	39/64	0.6094	15.48	721539	7C215P-.609LR	721539	721539S
	-	0.6103	15.50	721550	7C215P-15.5LR	721550	721550S
	-	0.6181	15.70	721570	7C215P-.618LR	721570	721570S
	5/8	0.6250	15.88	721588	7C215P-0020LR	721588	721588S

Inserts sold in multiples of 1

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

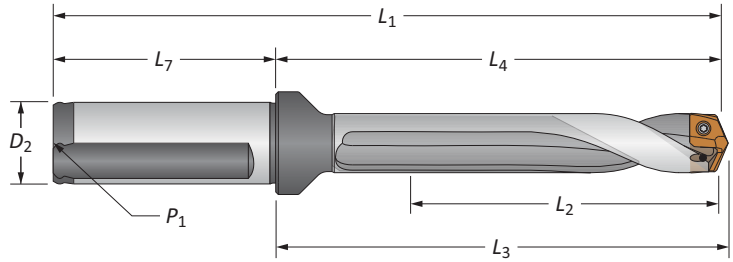
A20: 68 - 83
Key on A20: 1

A20: 6 - 9

Sizes not shown are available upon request.	
When ordering, please follow the example below:	
Insert	0.5200", 13 series, C2 = use Part No. 7213252
Drill Bit	13.20mm, 13 series, C2 = use Part No. 72132513

3S2S 22 S2n2r2r2 2 r1 2n2r2 2 ol2r2

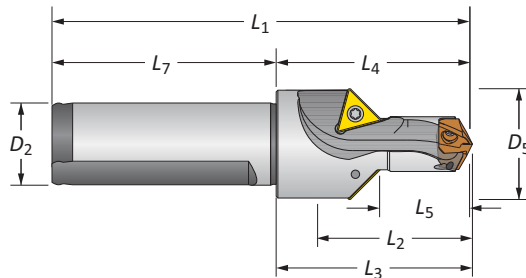
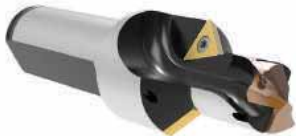
15 Series | Diameter Range: 0.5906" - 0.6298" (15.00mm - 15.99mm)



S2r2r2r2n2 2 el2r2

Type	Length	Body				Shank				Flute	Part No
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	1-57/64	2-61/64	3-3/64	4-63/64	2-1/32	3/4	1/8	YES	315S2752	
	5xD	3-9/64	4-13/64	4-5/16	6-15/64	2-1/32	3/4	1/8	YES	515S2752	
	7xD	4-13/32	5-15/32	5-37/64	7-1/2	2-1/32	3/4	1/8	YES	715S2752	
Helical	Stub	11/16	1-3/4	1-27/32	3-25/32	2-1/32	3/4	1/8	YES	1152752	
	3xD	1-57/64	2-61/64	3-3/64	4-63/64	2-1/32	3/4	1/8	YES	3152752	
	3xD	1-57/64	2-61/64	3-3/64	4-63/64	2-1/32	3/4	1/8	NO	3152752	
	5xD	3-9/64	4-13/64	4-5/16	6-15/64	2-1/32	3/4	1/8	YES	5152752	
	5xD	3-9/64	4-13/64	4-5/16	6-15/64	2-1/32	3/4	1/8	NO	5152752	
	7xD	4-13/32	5-15/32	5-37/64	7-1/2	2-1/32	3/4	1/8	YES	7152752	
	7xD	4-13/32	5-15/32	5-37/64	7-1/2	2-1/32	3/4	1/8	NO	7152752	
Straight	3xD	48.0	75.0	77.5	125.0	50.0	20.0	1/8*	YES	315S2222	
	5xD	79.8	106.8	109.5	156.8	50.0	20.0	1/8*	YES	515S2222	
	7xD	111.9	138.9	141.5	188.9	50.0	20.0	1/8*	YES	715S2222	
	Stub	17.5	44.5	46.8	94.5	50.0	20.0	1/8*	YES	1152222	
	3xD	48.0	75.0	77.5	125.0	50.0	20.0	1/8*	YES	3152222	
	3xD	48.0	75.0	77.5	125.0	50.0	20.0	1/8*	NO	3152222	
	5xD	79.8	106.8	109.5	156.8	50.0	20.0	1/8*	YES	5152222	
	5xD	79.8	106.8	109.5	156.8	50.0	20.0	1/8*	NO	5152222	
	7xD	111.9	138.9	141.5	188.9	50.0	20.0	1/8*	YES	7152222	
	7xD	111.9	138.9	141.5	188.9	50.0	20.0	1/8*	NO	7152222	

*Thread to BSP and ISO 7-1



r1 2222mfer

Type	Size		Body				Shank		Part No	TCMT-110204
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i	1-1/16	57/64	1-1/16	1-47/64	1-27/32	3-49/64	2-1/32	3/4	1152452752	
m	27.0	22.5	26.9	44.3	46.8	94.3	50.0	20.0	1152452222	

Connection Accessories

Insert Screw	Nylon Locking Screws	Insert Driver	Pre-Drill Bit	Replacement Driver	Replacement Driver
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

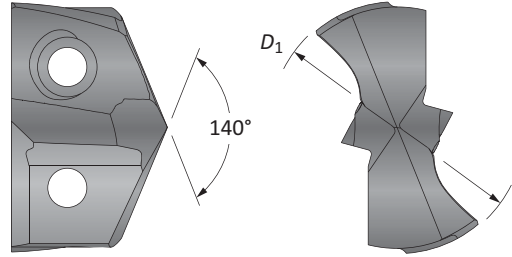
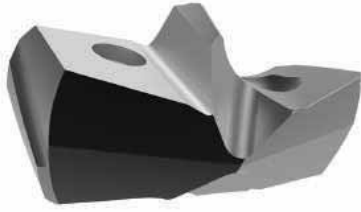
i = Imperial (in)
m = Metric (mm)




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10



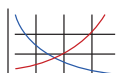
3S2S Pro Drill Insert


16 Series | Diameter Range: 0.6299" - 0.6692" (16.00mm - 16.99mm)







Fractional Length	Insert				
	D_1 inch	D_1 mm	P	K	B
-	0.6299	16.00	1P1P1P1P1P1P	1K1P1P1P1P1P	1B1P1P1P1P1P
-	0.6331	16.08	1P1P1P1P1P1P	1K1P1P1P1P1P	1B1P1P1P1P1P
-	0.6378	16.20	1P1P1P1P1P1P	1K1P1P1P1P1P	1B1P1P1P1P1P
41/64	0.6406	16.27	1P1P1P1P1P27	1K1P1P1P1P27	1B1P1P1P1P27
-	0.6457	16.40	1P1P1P1P1P40	1K1P1P1P1P40	1B1P1P1P1P40
-	0.6496	16.50	1P1P1P1P1P50	1K1P1P1P1P50	1B1P1P1P1P50
-	0.6535	16.60	1P1P1P1P1P60	1K1P1P1P1P60	1B1P1P1P1P60
21/32	0.6563	16.67	1P1P1P1P1P67	1K1P1P1P1P67	1B1P1P1P1P67
-	0.6614	16.80	1P1P1P1P1P80	1K1P1P1P1P80	1B1P1P1P1P80
-	0.6654	16.90	1P1P1P1P1P90	1K1P1P1P1P90	1B1P1P1P1P90

Inserts sold in multiples of 1

A20: 68 - 83
Key on A20: 1


A20: 6 - 9


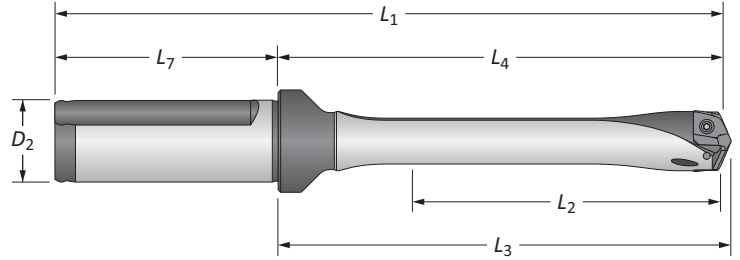
Sizes not shown are available upon request.
When ordering, please follow the example below:

	0.5180", Steel, 13 series = use Part No.  13P13P13
	13.16mm, Steel, 13 series = use Part No.  13P13P13



3S Pro Drill Intercooler

16 Series | Diameter Range: 0.6299" - 0.6692" (16.00mm - 16.99mm)



Type	Length	Body				Shank			Coated	Part No
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coated		
i Straight	3xD	2	3-13/64	3-5/16	5-15/64	2-1/32	3/4	YES	31S75	
	3xD	2	3-13/64	3-5/16	5-15/64	2-1/32	3/4	NO	31S75	
	5xD	3-11/32	4-17/32	4-21/32	6-9/16	2-1/32	3/4	YES	51S75	
	5xD	3-11/32	4-17/32	4-21/32	6-9/16	2-1/32	3/4	NO	51S75	
	7xD	4-11/16	5-7/8	5-63/64	7-29/32	2-1/32	3/4	YES	71S75	
	7xD	4-11/16	5-7/8	5-63/64	7-29/32	2-1/32	3/4	NO	71S75	
	10xD	6-11/16	7-7/8	8	9-29/32	2-1/32	3/4	YES	101S75	
	10xD	6-11/16	7-7/8	8	9-29/32	2-1/32	3/4	NO	101S75	
m Straight	3xD	50.8	81.3	84.2	131.3	50.0	20.0	YES	31S2	
	3xD	50.8	81.3	84.2	131.3	50.0	20.0	NO	31S2	
	5xD	85.0	115.1	118.2	165.1	50.0	20.0	YES	51S2	
	5xD	85.0	115.1	118.2	165.1	50.0	20.0	NO	51S2	
	7xD	119.0	149.2	152.0	199.2	50.0	20.0	YES	71S2	
	7xD	119.0	149.2	152.0	199.2	50.0	20.0	NO	71S2	
	10xD	169.9	200.0	203.2	250.0	50.0	20.0	YES	101S2	
	10xD	169.9	200.0	203.2	250.0	50.0	20.0	NO	101S2	

Connection Accessories

					Recommended Tightening Torque
72556-IP8-1	72556N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)

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

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

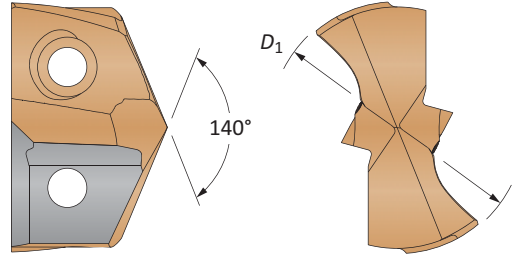
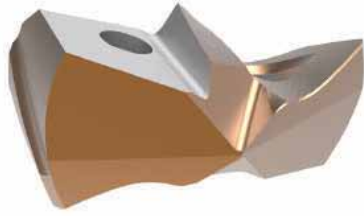
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10



3S2S 22 2 r1 1er22

16 Series | Diameter Range: 0.6299" - 0.6692" (16.00mm - 16.99mm)



Substrate	Insert			Standard Part No	Low Rate Part No	Iron Part No	Stainless Part No
	Fractional Length	D ₁ Inch	D ₁ mm				
C1 (K35)	-	0.6299	16.00	701100010	7C116P-16LR	701100010	701100010
	-	0.6331	16.08	701100010	7C116P-16.08LR	701100010	701100010
	41/64	0.6406	16.27	701100040	7C116P-.640LR	701100040	701100040
	-	0.6496	16.50	701100065	7C116P-16.5LR	701100065	701100065
	21/32	0.6563	16.67	701100021	7C116P-0021LR	701100021	701100021
C2 (K20)	-	0.6299	16.00	702100010	7C216P-16LR	702100010	702100010S
	-	0.6331	16.08	702100010	7C216P-16.08LR	702100010	702100010S
	41/64	0.6406	16.27	702100040	7C216P-.640LR	702100040	702100040S
	-	0.6496	16.50	702100065	7C216P-16.5LR	702100065	702100065S
	21/32	0.6563	16.67	702100021	7C216P-0021LR	702100021	702100021S

Inserts sold in multiples of 1

A20: 68 - 83
Key on A20: 1

A20: 6 - 9

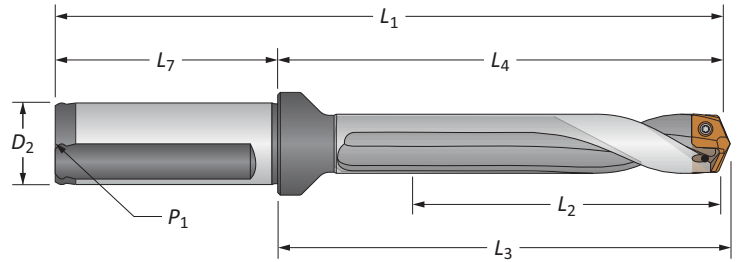
Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5200", 13 series, C2 = use Part No. 70213005200
Part No	13.20mm, 13 series, C2 = use Part No. 70213001300



3S2S S2n2r2l 2r2ol2r2

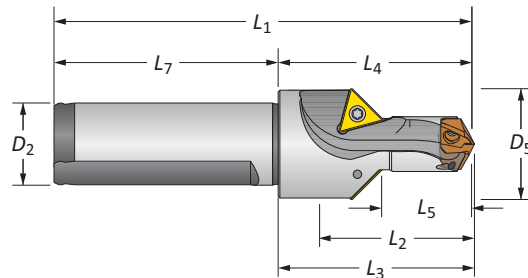
16 Series | Diameter Range: 0.6299" - 0.6692" (16.00mm - 16.99mm)



Standard Selection

Type	Length	Body				Shank				Flute	Part No
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	2	3-13/64	3-5/16	5-15/64	2-1/32	3/4	1/8	YES	318S2752	
	5xD	3-11/32	4-17/32	4-21/32	6-9/16	2-1/32	3/4	1/8	YES	518S2752	
	7xD	4-11/16	5-7/8	5-63/64	7-29/32	2-1/32	3/4	1/8	YES	718S2752	
Helical	Stub	13/16	2	2-7/64	4-1/32	2-1/32	3/4	1/8	YES	118S2752	
	3xD	2	3-13/64	3-5/16	5-15/64	2-1/32	3/4	1/8	YES	318H2752	
	3xD	2	3-13/64	3-5/16	5-15/64	2-1/32	3/4	1/8	NO	318H2752	
	5xD	3-11/32	4-17/32	4-21/32	6-9/16	2-1/32	3/4	1/8	YES	518H2752	
	5xD	3-11/32	4-17/32	4-21/32	6-9/16	2-1/32	3/4	1/8	NO	518H2752	
	7xD	4-11/16	5-7/8	5-63/64	7-29/32	2-1/32	3/4	1/8	YES	718H2752	
	7xD	4-11/16	5-7/8	5-63/64	7-29/32	2-1/32	3/4	1/8	NO	718H2752	
Metric	Straight	3xD	50.8	81.3	84.2	131.3	50.0	20.0	1/8*	YES	318S2222
		5xD	85.0	115.1	118.2	165.1	50.0	20.0	1/8*	YES	518S2222
		7xD	119.0	149.2	152.0	199.2	50.0	20.0	1/8*	YES	718S2222
	Helical	Stub	21.0	50.8	53.7	100.8	50.0	20.0	1/8*	YES	118H2222
		3xD	50.8	81.3	84.2	131.3	50.0	20.0	1/8*	YES	318H2222
		3xD	50.8	81.3	84.2	131.3	50.0	20.0	1/8*	NO	318H2222
		5xD	85.0	115.1	118.2	165.1	50.0	20.0	1/8*	YES	518H2222
		5xD	85.0	115.1	118.2	165.1	50.0	20.0	1/8*	NO	518H2222
		7xD	119.0	149.2	152.0	199.2	50.0	20.0	1/8*	YES	718H2222
		7xD	119.0	149.2	152.0	199.2	50.0	20.0	1/8*	NO	718H2222

*Thread to BSP and ISO 7-1



Chamfer

Type	Size		Body				Shank		Part No	Chamfer Insert
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i	1-1/16	61/64	1-19/64	2	2-7/64	4-1/32	2-1/32	3/4	118452752	TCMT-110204
m	27.0	24.0	33.1	50.8	53.7	100.8	50.0	20.0	118452222	TCMT-110204

Connection Accessories

Insert Screw	Nylon Locking Screws	Insert Driver	Replaceable Driver	Replacement	Torque
72556-IP8-1	72556N-IP8-1	8IP-8	8IP-8TL	8IP-8B	15.5 in-lbs (175 N-cm)

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

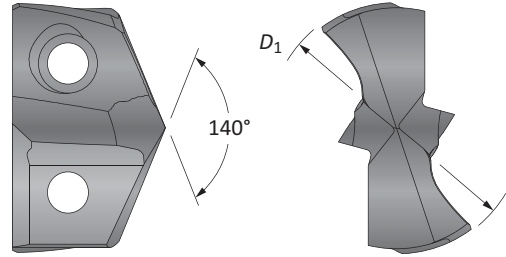
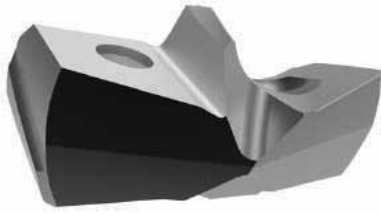
i = Imperial (in)




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

m = Metric (mm)

3S2S Pro Drill Insert

17 Series | Diameter Range: 0.6693" - 0.7086" (17.00mm - 17.99mm)



Fractional Len	D ₁ Inc	D ₁ mm			
			171700	K	171700
-	0.6693	17.00	171700	K171700	171700
43/64	0.6719	17.07	171707	K171707	171707
-	0.6732	17.10	171710	K171710	171710
-	0.6772	17.20	171720	K171720	171720
-	0.6811	17.30	171730	K171730	171730
-	0.6850	17.40	171740	K171740	171740
11/16	0.6875	17.46	171746	K171746	171746
-	0.6890	17.50	171750	K171750	171750
-	0.6929	17.60	171760	K171760	171760
-	0.6969	17.70	171770	K171770	171770
-	0.7008	17.80	171780	K171780	171780
45/64	0.7031	17.86	171786	K171786	171786
-	0.7047	17.90	171790	K171790	171790

Inserts sold in multiples of 1

DRILLING

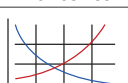
BORING


REAMING

BURNISHING

THREADING

SPECIALS

A20: 68 - 83  Key on A20-1

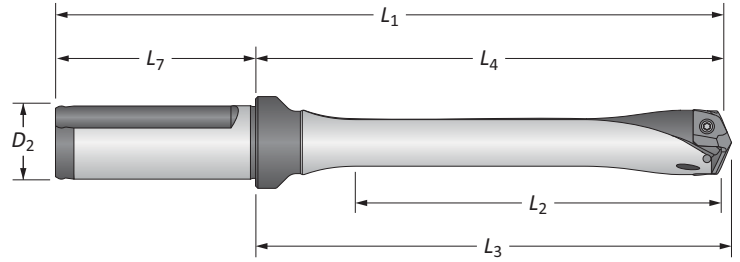
A20: 6 - 9 

Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5180", Steel, 13 series = use Part No. 131300
Insert	13.16mm, Steel, 13 series = use Part No. 131300

3S2S Pro Drill Intercooler

17 Series | Diameter Range: 0.6693" - 0.7086" (17.00mm - 17.99mm)



Type	Length	Body				Shank			Coated	Part No
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coated		
i Straight	3xD	2-1/8	3-19/64	3-27/64	5-21/64	2-1/32	3/4	YES	317S275	
	3xD	2-1/8	3-19/64	3-27/64	5-21/64	2-1/32	3/4	NO	317S275	
	5xD	3-35/64	4-23/32	4-27/32	6-3/4	2-1/32	3/4	YES	517S275	
	5xD	3-35/64	4-23/32	4-27/32	6-3/4	2-1/32	3/4	NO	517S275	
	7xD	4-61/64	6-9/64	6-1/4	8-11/64	2-1/32	3/4	YES	717S275	
	7xD	4-61/64	6-9/64	6-1/4	8-11/64	2-1/32	3/4	NO	717S275	
	10xD	7-5/64	8-17/64	8-3/8	10-19/64	2-1/32	3/4	YES	1017S275	
	10xD	7-5/64	8-17/64	8-3/8	10-19/64	2-1/32	3/4	NO	1017S275	
m Straight	3xD	54.0	83.8	86.9	133.8	50.0	20.0	YES	317S275	
	3xD	54.0	83.8	86.9	133.8	50.0	20.0	NO	317S275	
	5xD	90.0	119.8	122.9	169.8	50.0	20.0	YES	517S275	
	5xD	90.0	119.8	122.9	169.8	50.0	20.0	NO	517S275	
	7xD	125.8	156.0	158.9	206.0	50.0	20.0	YES	717S275	
	7xD	125.8	156.0	158.9	206.0	50.0	20.0	NO	717S275	
	10xD	179.8	209.9	212.8	259.9	50.0	20.0	YES	1017S275	
	10xD	179.8	209.9	212.8	259.9	50.0	20.0	NO	1017S275	

Connection Accessories

Inter Screw	Nylon Locking Screws	Intercooler	Precooler	Replacement bit	Torque wrench
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

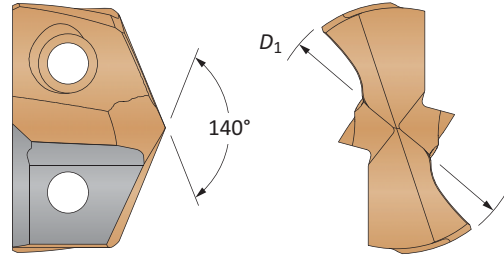
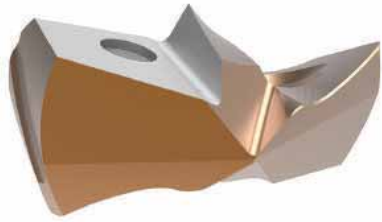
Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Screws sold in multiples of 10

3S2S 22 2 r1 Iner22

17 Series | Diameter Range: 0.6693" - 0.7086" (17.00mm - 17.99mm)



Drill Bit Substrate	Iner22		S22n22r22 22r22 22	Low Rate 22r22 22	2222r22 22r22 22	S22hle22 22r22 22	
	Fractional 222222len22	D1 Inc22					D1 mm
C1 (K35)		0.6693	17.00	721172217	7C117P-17LR	72117221722	72117221722S
	43/64	0.6719	17.07	7211722271	7C117P-.671LR	721172227122	721172227122S
		0.6732	17.10	7211722172	7C117P-17.1LR	721172217222	721172217222S
		0.6772	17.20	72117221722	7C117P-17.2LR	7211722172222	7211722172222S
	11/16	0.6875	17.46	7211722222	7C117P-0022LR	721172222222	721172222222S
		0.6890	17.50	72117221725	7C117P-17.5LR	7211722172522	7211722172522S
	0.7031	17.86	72117222723	7C117P-.703LR	7211722272322	7211722272322S	
C2 (K20)		0.6693	17.00	722172217	7C217P-17LR	722172217222	722172217222S
	43/64	0.6719	17.07	7221722271	7C217P-.671LR	7221722271222	7221722271222S
		0.6732	17.10	7221722172	7C217P-17.1LR	7221722172222	7221722172222S
		0.6772	17.20	72217221722	7C217P-17.2LR	72217221722222	72217221722222S
	11/16	0.6875	17.46	7221722222	7C217P-0022LR	7221722222222	7221722222222S
		0.6890	17.50	72217221725	7C217P-17.5LR	72217221725222	72217221725222S
	0.7031	17.86	72217222723	7C217P-.703LR	72217222723222	72217222723222S	

Inserts sold in multiples of 1

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

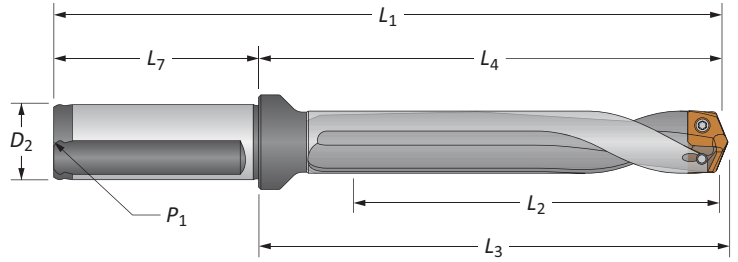
A20: 68 - 83
Key on A20: 1

A20: 6 - 9

Sizes not shown are available upon request.	
When ordering, please follow the example below:	
Iner22	0.5200", 13 series, C2 = use Part No. 722132225222
er22	13.20mm, 13 series, C2 = use Part No. 722132221322

3S2S S2n2r2 r1 n2r2 ol2r2

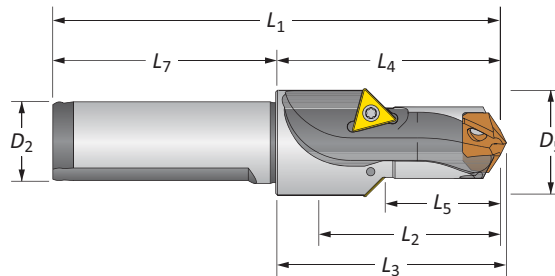
17 Series | Diameter Range: 0.6693" - 0.7086" (17.00mm - 17.99mm)



Standard Elements

Type	Length	Body				Shank				Flute	Coating
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	2-1/8	3-19/64	3-27/64	5-21/64	2-1/32	3/4	1/8	YES	317S75	
	5xD	3-35/64	4-23/32	4-27/32	6-3/4	2-1/32	3/4	1/8	YES	517S75	
	7xD	4-61/64	6-9/64	6-1/4	8-11/64	2-1/32	3/4	1/8	YES	717S75	
Helical	Stub	13/16	1-63/64	2-7/64	4-1/64	2-1/32	3/4	1/8	YES	11775	
	3xD	2-1/8	3-19/64	3-27/64	5-21/64	2-1/32	3/4	1/8	YES	31775	
	3xD	2-1/8	3-19/64	3-27/64	5-21/64	2-1/32	3/4	1/8	NO	31775	
	5xD	3-35/64	4-23/32	4-27/32	6-3/4	2-1/32	3/4	1/8	YES	51775	
	5xD	3-35/64	4-23/32	4-27/32	6-3/4	2-1/32	3/4	1/8	NO	51775	
	7xD	4-61/64	6-9/64	6-1/4	8-11/64	2-1/32	3/4	1/8	YES	71775	
	7xD	4-61/64	6-9/64	6-1/4	8-11/64	2-1/32	3/4	1/8	NO	71775	
Metric	Straight	3xD	54.0	83.8	86.9	133.8	50.0	20.0	1/8*	YES	317S200
		5xD	90.0	119.8	122.9	169.8	50.0	20.0	1/8*	YES	517S200
		7xD	125.8	156.0	158.9	206.0	50.0	20.0	1/8*	YES	717S200
	Helical	Stub	20.6	50.5	53.5	100.5	50.0	20.0	1/8*	YES	11775
		3xD	54.0	83.8	86.9	133.8	50.0	20.0	1/8*	YES	31775
		3xD	54.0	83.8	86.9	133.8	50.0	20.0	1/8*	NO	31775
		5xD	90.0	119.8	122.9	169.8	50.0	20.0	1/8*	YES	51775
		5xD	90.0	119.8	122.9	169.8	50.0	20.0	1/8*	NO	51775
		7xD	125.8	156.0	158.9	206.0	50.0	20.0	1/8*	YES	71775
		7xD	125.8	156.0	158.9	206.0	50.0	20.0	1/8*	NO	71775

*Thread to BSP and ISO 7-1



Chamfer

Type	Size		Body				Shank		Coating	Chamfer
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i	1	1	1-5/16	1-63/64	2-7/64	4-1/64	2-1/32	3/4	1174575	TCMT-110204
m	25.4	25.5	33.3	50.5	53.4	100.5	50.0	20.0	11745200	TCMT-110204

Connection Accessories

Insert Screw	Nylon Locking Screws	Chamfer Driver	Replacement Driver	Replacement Driver	Replacement Driver	Replacement Driver
72567-IP8-1	72567N-IP8-1	8IP-8	8IP-8TL	8IP-8B	8IP-8B	15.5 in-lbs (175 N-cm)

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

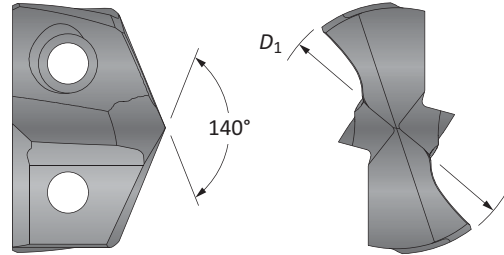
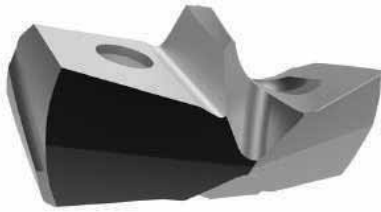
i = Imperial (in)




m = Metric (mm)

Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

3S2S Pro Drill Insert

18 Series | Diameter Range: 0.7087" - 0.7873" (18.00mm - 19.99mm)

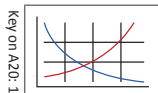


Fractional Length	Insert				
	D ₁ inch	D ₁ mm	P	K	B
-	0.7087	18.00	13P18000	13K18000	13B18000
-	0.7126	18.10	13P18100	13K18100	13B18100
-	0.7165	18.20	13P18200	13K18200	13B18200
23/32	0.7188	18.26	13P18220	13K18220	13B18220
-	0.7205	18.30	13P18300	13K18300	13B18300
-	0.7244	18.40	13P18400	13K18400	13B18400
-	0.7283	18.50	13P18500	13K18500	13B18500
-	0.7323	18.60	13P18600	13K18600	13B18600
47/64	0.7344	18.65	13P18650	13K18650	13B18650
-	0.7362	18.70	13P18700	13K18700	13B18700
-	0.7402	18.80	13P18800	13K18800	13B18800
-	0.7441	18.90	13P18900	13K18900	13B18900
-	0.7480	19.00	13P19000	13K19000	13B19000
3/4	0.7500	19.05	13P19050	13K19050	13B19050
-	0.7520	19.10	13P19100	13K19100	13B19100
-	0.7559	19.20	13P19200	13K19200	13B19200
-	0.7580	19.25	13P19250	13K19250	13B19250
-	0.7598	19.30	13P19300	13K19300	13B19300
-	0.7638	19.40	13P19400	13K19400	13B19400
49/64	0.7656	19.45	13P19450	13K19450	13B19450
-	0.7677	19.50	13P19500	13K19500	13B19500
-	0.7717	19.60	13P19600	13K19600	13B19600
-	0.7756	19.70	13P19700	13K19700	13B19700
-	0.7795	19.80	13P19800	13K19800	13B19800
25/32	0.7813	19.84	13P19840	13K19840	13B19840
-	0.7835	19.90	13P19900	13K19900	13B19900



Inserts sold in multiples of 1

A20: 68 - 83

A20: 6 - 9



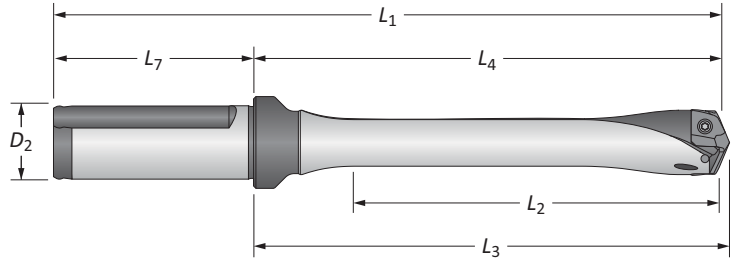
Key on A20: 1

Sizes not shown are available upon request. When ordering, please follow the example below:	
	0.5180", Steel, 13 series = use Part No. 13P13000
	13.16mm, Steel, 13 series = use Part No. 13P13000



3S Pro Drill Intercooler

18 Series | Diameter Range: 0.7087" - 0.7873" (18.00mm - 19.99mm)



Type	Length	Body				Shank			Coated
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coated	
i Straight	3xD	2-23/64	3-45/64	3-13/16	5-63/64	2-9/32	1	YES	318S1
	3xD	2-23/64	3-45/64	3-13/16	5-63/64	2-9/32	1	NO	318S1
	5xD	3-15/16	5-17/64	5-25/64	7-35/64	2-9/32	1	YES	518S1
	5xD	3-15/16	5-17/64	5-25/64	7-35/64	2-9/32	1	NO	518S1
	7xD	5-33/64	6-27/32	6-61/64	9-1/8	2-9/32	1	YES	718S1
	7xD	5-33/64	6-27/32	6-61/64	9-1/8	2-9/32	1	NO	718S1
	10xD	7-7/8	9-7/32	9-5/16	11-31/64	2-9/32	1	YES	1018S1
	10xD	7-7/8	9-7/32	9-5/16	11-31/64	2-9/32	1	NO	1018S1
m Straight	3xD	60.0	94.0	96.8	150.0	56.0	25.0	YES	318S25
	3xD	60.0	94.0	96.8	150.0	56.0	25.0	NO	318S25
	5xD	100.0	133.7	136.8	189.7	56.0	25.0	YES	518S25
	5xD	100.0	133.7	136.8	189.7	56.0	25.0	NO	518S25
	7xD	140.0	173.4	176.8	229.4	56.0	25.0	YES	718S25
	7xD	140.0	173.4	176.8	229.4	56.0	25.0	NO	718S25
	10xD	199.9	234.1	236.7	290.1	56.0	25.0	YES	1018S25
	10xD	199.9	234.1	236.7	290.1	56.0	25.0	NO	1018S25

Connection Accessories

Inter Screw	Nylon Locking Screws	Intercooler	Intercooler	Replacement bit	Replacement bit
7375-IP9-1	7375N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)

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

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

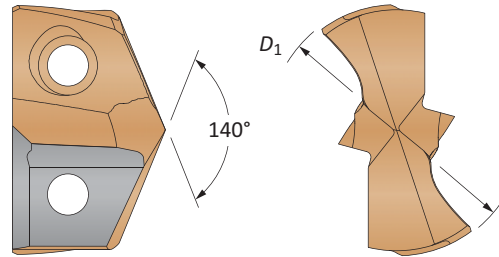
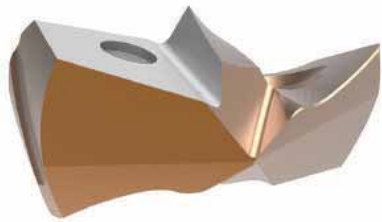
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10



13 Series | Diameter Range: 0.7087" - 0.7873" (18.00mm - 19.99mm)

18 Series | Diameter Range: 0.7087" - 0.7873" (18.00mm - 19.99mm)



Substrate	Insert		Serrated	Low Rate	Titan	Sintered
	Fractional Length	D ₁ Inch				
C1 (K35)	-	0.7087	18.00	7C118P-18LR	7C118P-18LR	7C118P-18LR
	23/32	0.7188	18.26	7C118P-0023LR	7C118P-0023LR	7C118P-0023LR
	-	0.7283	18.50	7C118P-18.5LR	7C118P-18.5LR	7C118P-18.5LR
	47/64	0.7344	18.65	7C118P-.734LR	7C118P-.734LR	7C118P-.734LR
	-	0.7480	19.00	7C118P-19LR	7C118P-19LR	7C118P-19LR
	3/4	0.7500	19.05	7C118P-0024LR	7C118P-0024LR	7C118P-0024LR
	-	0.7580	19.25	7C118P-.758LR	7C118P-.758LR	7C118P-.758LR
	49/64	0.7656	19.45	7C118P-.765LR	7C118P-.765LR	7C118P-.765LR
	-	0.7677	19.50	7C118P-19.5LR	7C118P-19.5LR	7C118P-19.5LR
	-	0.7795	19.80	7C118P-19.8LR	7C118P-19.8LR	7C118P-19.8LR
25/32	0.7813	19.85	7C118P-0025LR	7C118P-0025LR	7C118P-0025LR	
C2 (K20)	-	0.7087	18.00	7C218P-18LR	7C218P-18LR	7C218P-18LR
	23/32	0.7188	18.26	7C218P-0023LR	7C218P-0023LR	7C218P-0023LR
	-	0.7283	18.50	7C218P-18.5LR	7C218P-18.5LR	7C218P-18.5LR
	47/64	0.7344	18.65	7C218P-.734LR	7C218P-.734LR	7C218P-.734LR
	-	0.7480	19.00	7C218P-19LR	7C218P-19LR	7C218P-19LR
	3/4	0.7500	19.05	7C218P-0024LR	7C218P-0024LR	7C218P-0024LR
	-	0.7580	19.25	7C218P-.758LR	7C218P-.758LR	7C218P-.758LR
	49/64	0.7656	19.45	7C218P-.765LR	7C218P-.765LR	7C218P-.765LR
	-	0.7677	19.50	7C218P-19.5LR	7C218P-19.5LR	7C218P-19.5LR
	-	0.7795	19.80	7C218P-19.8LR	7C218P-19.8LR	7C218P-19.8LR
25/32	0.7813	19.85	7C218P-0025LR	7C218P-0025LR	7C218P-0025LR	

Inserts sold in multiples of 1

A20: 68 - 83
Key on A20: 1

A20: 6 - 9

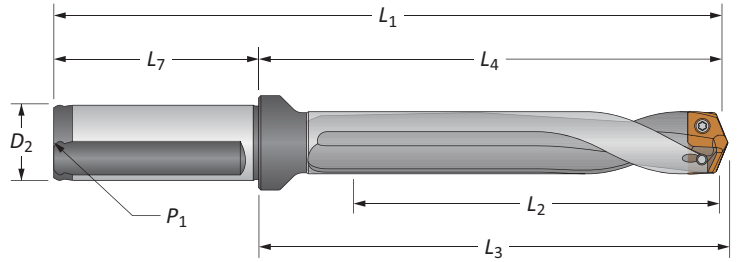
Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5200", 13 series, C2 = use Part No. 7C213P-052LR
Part No.	13.20mm, 13 series, C2 = use Part No. 7C213P-132LR



3S2S 22 S2n2r2r2 2 r1 2n2r2 2 ol2r2

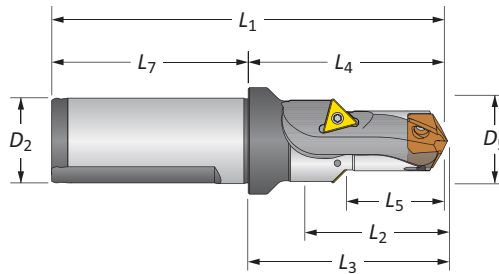
18 Series | Diameter Range: 0.7087" - 0.7873" (18.00mm - 19.99mm)



S2r2r2r2r2 2 el2r2

Type	Length	Body				Shank				Flute	Inserts
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
i Straight	3xD	2-23/64	3-45/64	3-13/16	5-63/64	2-9/32	1	1/8	YES	22318S2222	
	5xD	3-15/16	5-17/64	5-25/64	7-35/64	2-9/32	1	1/8	YES	22518S2222	
	7xD	5-33/64	6-27/32	6-61/64	9-1/8	2-9/32	1	1/8	YES	22718S2222	
	Stub	7/8	2-13/64	2-5/16	4-31/64	2-9/32	1	1/8	YES	22118S2222	
	3xD	2-23/64	3-45/64	3-13/16	5-63/64	2-9/32	1	1/8	YES	22318S2222	
	3xD	2-23/64	3-45/64	3-13/16	5-63/64	2-9/32	1	1/8	NO	22318S2222	
	5xD	3-15/16	5-17/64	5-25/64	7-35/64	2-9/32	1	1/8	YES	22518S2222	
m Helical	5xD	3-15/16	5-17/64	5-25/64	7-35/64	2-9/32	1	1/8	NO	22518S2222	
	7xD	5-33/64	6-27/32	6-61/64	9-1/8	2-9/32	1	1/8	YES	22718S2222	
	7xD	5-33/64	6-27/32	6-61/64	9-1/8	2-9/32	1	1/8	NO	22718S2222	
	3xD	60.0	94.0	96.8	150.0	56.0	25.0	1/8*	YES	22318S22522	
	5xD	100.0	133.7	136.8	189.7	56.0	25.0	1/8*	YES	22518S22522	
	7xD	140.0	173.4	176.8	229.4	56.0	25.0	1/8*	YES	22718S22522	
	Stub	22.0	56.0	58.8	112.0	56.0	25.0	1/8*	YES	22118S22522	
m Helical	3xD	60.0	94.0	96.8	150.0	56.0	25.0	1/8*	YES	22318S22522	
	3xD	60.0	94.0	96.8	150.0	56.0	25.0	1/8*	NO	22318S22522	
	5xD	100.0	133.7	136.8	189.7	56.0	25.0	1/8*	YES	22518S22522	
	5xD	100.0	133.7	136.8	189.7	56.0	25.0	1/8*	NO	22518S22522	
	7xD	140.0	173.4	176.8	229.4	56.0	25.0	1/8*	YES	22718S22522	
	7xD	140.0	173.4	176.8	229.4	56.0	25.0	1/8*	NO	22718S22522	

*Thread to BSP and ISO 7-1



r1 222mfer

Type	Size		Body				Shank		Inserts	Chamfer Insert
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i	63/64	1-1/16	1-25/64	2-13/64	2-5/16	4-31/64	2-9/32	1	22118S22452222	TCMT-110204
m	25.1	27	35.2	56.0	58.8	112.0	56.0	25.0	22118S224522522	TCMT-110204

Connection Accessories

Insert Screw	Nylon Locking Screws	Chamfer Driver	Replacement Driver	Replacement Driver	Replacement Driver	Replacement Driver
7375-IP9-1	7375N-IP9-1	8IP-9	8IP-9TL	8IP-9B	8IP-9B	8IP-9B
						27.0 in-lbs (305 N-cm)

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

i = Imperial (in)

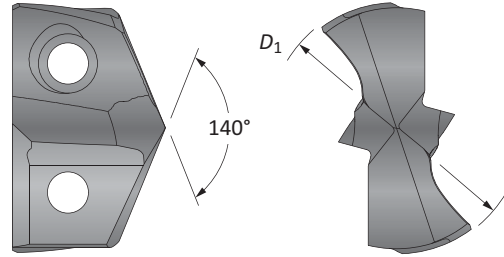
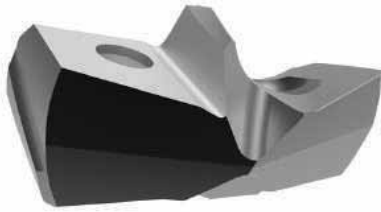
Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

m = Metric (mm)



3S2S Pro Drill Insert

20 Series | Diameter Range: 0.7874" - 0.8660" (20.00mm - 21.99mm)



Fractional len	Insert				
	D ₁ inch	D ₁ mm	P	K	B
-	0.7874	20.00	20P2000P	20K2000P	20B2000P
-	0.7913	20.10	20P2010P	20K2010P	20B2010P
-	0.7953	20.20	20P2020P	20K2020P	20B2020P
51/64	0.7969	20.24	20P2024P	20K2024P	20B2024P
-	0.7992	20.30	20P2030P	20K2030P	20B2030P
-	0.8031	20.40	20P2040P	20K2040P	20B2040P
-	0.8071	20.50	20P2050P	20K2050P	20B2050P
-	0.8110	20.60	20P2060P	20K2060P	20B2060P
13/16	0.8125	20.64	20P2064P	20K2064P	20B2064P
-	0.8150	20.70	20P2070P	20K2070P	20B2070P
-	0.8189	20.80	20P2080P	20K2080P	20B2080P
-	0.8228	20.90	20P2090P	20K2090P	20B2090P
-	0.8268	21.00	20P2100P	20K2100P	20B2100P
-	0.8307	21.10	20P2110P	20K2110P	20B2110P
-	0.8346	21.20	20P2120P	20K2120P	20B2120P
-	0.8386	21.30	20P2130P	20K2130P	20B2130P
-	0.8425	21.40	20P2140P	20K2140P	20B2140P
27/32	0.8438	21.43	20P2143P	20K2143P	20B2143P
-	0.8465	21.50	20P2150P	20K2150P	20B2150P
-	0.8504	21.60	20P2160P	20K2160P	20B2160P
-	0.8543	21.70	20P2170P	20K2170P	20B2170P
-	0.8583	21.80	20P2180P	20K2180P	20B2180P
55/64	0.8594	21.83	20P2183P	20K2183P	20B2183P
-	0.8622	21.90	20P2190P	20K2190P	20B2190P

Inserts sold in multiples of 1

A20: 68 - 83
Key on A20: 1

A20: 6 - 9

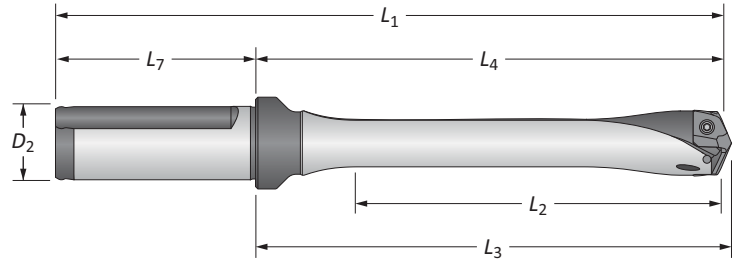
Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5180", Steel, 13 series = use Part No. 13P1300P
Part No.	13.16mm, Steel, 13 series = use Part No. 13P1300P



3S Pro Drill Intercooler

20 Series | Diameter Range: 0.7874" - 0.8660" (20.00mm - 21.99mm)



Type	Length	Body				Shank			Coated	Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coated		
i Straight	3xD	2-19/32	3-15/16	4-3/64	6-7/32	2-9/32	1	YES	32S1	
	3xD	2-19/32	3-15/16	4-3/64	6-7/32	2-9/32	1	NO	32S1	
	5xD	4-21/64	5-43/64	5-25/32	7-61/64	2-9/32	1	YES	52S1	
	5xD	4-21/64	5-43/64	5-25/32	7-61/64	2-9/32	1	NO	52S1	
	7xD	6-1/16	7-13/32	7-33/64	9-11/16	2-9/32	1	YES	72S1	
	7xD	6-1/16	7-13/32	7-33/64	9-11/16	2-9/32	1	NO	72S1	
	10xD	8-21/32	10	10-7/64	12-9/32	2-9/32	1	YES	102S1	
	10xD	8-21/32	10	10-7/64	12-9/32	2-9/32	1	NO	102S1	
m Straight	3xD	66.0	100.0	102.9	156.0	56.0	25.0	YES	32S25	
	3xD	66.0	100.0	102.9	156.0	56.0	25.0	NO	32S25	
	5xD	110.0	144.0	146.9	200.0	56.0	25.0	YES	52S25	
	5xD	110.0	144.0	146.9	200.0	56.0	25.0	NO	52S25	
	7xD	153.9	187.0	190.9	243.0	56.0	25.0	YES	72S25	
	7xD	153.9	187.0	190.9	243.0	56.0	25.0	NO	72S25	
	10xD	219.9	254.0	256.8	310.0	56.0	25.0	YES	102S25	
	10xD	219.9	254.0	256.8	310.0	56.0	25.0	NO	102S25	

Connection Accessories

Inter Screw	Nylon Locking Screws	Intercooler	Precooler	Replacement	Torque wrench
7375-IP9-1	7375N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)

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

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

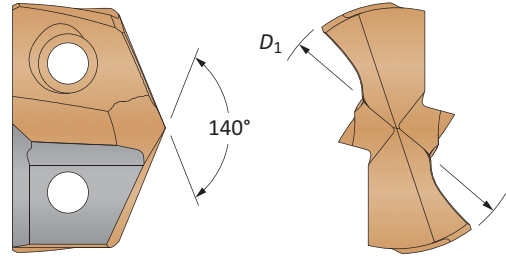
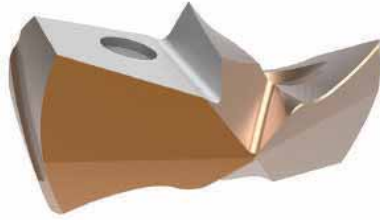
i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10



20 Series | Diameter Range: 0.7874" - 0.8660" (20.00mm - 21.99mm)



Substrate	Insert			Standard	Low Rate	Titan	Stable
	Fractional	D ₁ Inch	D ₁ mm				
C1 (K35)	-	0.7874	20.00	7C120P-20	7C120P-20LR	7C120P-20	7C120P-20S
	51/64	0.7969	20.24	7C120P-20.25	7C120P-.796LR	7C120P-20.25	7C120P-20.25S
	-	0.8071	20.50	7C120P-20.5	7C120P-20.5LR	7C120P-20.5	7C120P-20.5S
	13/16	0.8125	20.64	7C120P-0026	7C120P-0026LR	7C120P-0026	7C120P-0026S
	-	0.8268	21.00	7C120P-21	7C120P-21LR	7C120P-21	7C120P-21S
	27/32	0.8438	21.43	7C120P-0027	7C120P-0027LR	7C120P-0027	7C120P-0027S
	-	0.8465	21.50	7C120P-21.5	7C120P-21.5LR	7C120P-21.5	7C120P-21.5S
	55/64	0.8594	21.83	7C120P-859	7C120P-.859LR	7C120P-859	7C120P-859S
C2 (K20)	-	0.7874	20.00	7C220P-20	7C220P-20LR	7C220P-20	7C220P-20S
	51/64	0.7969	20.24	7C220P-20.25	7C220P-.796LR	7C220P-20.25	7C220P-20.25S
	-	0.8071	20.50	7C220P-20.5	7C220P-20.5LR	7C220P-20.5	7C220P-20.5S
	13/16	0.8125	20.64	7C220P-0026	7C220P-0026LR	7C220P-0026	7C220P-0026S
	-	0.8268	21.00	7C220P-21	7C220P-21LR	7C220P-21	7C220P-21S
	27/32	0.8438	21.43	7C220P-0027	7C220P-0027LR	7C220P-0027	7C220P-0027S
	-	0.8465	21.50	7C220P-21.5	7C220P-21.5LR	7C220P-21.5	7C220P-21.5S
	55/64	0.8594	21.83	7C220P-859	7C220P-.859LR	7C220P-859	7C220P-859S

Inserts sold in multiples of 1

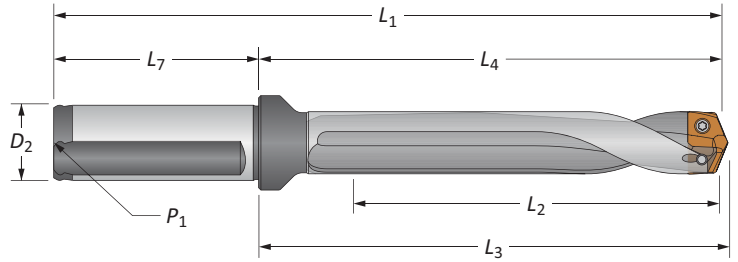
A20: 68 - 83
Key on A20: 1

A20: 6 - 9

Sizes not shown are available upon request.	
When ordering, please follow the example below:	
Insert	0.5200", 13 series, C2 = use Part No. 7C213P-52
Part No.	13.20mm, 13 series, C2 = use Part No. 7C213P-13

3S2S 2S2n2r2r2 r1l 2n2r2r2 ol2er2

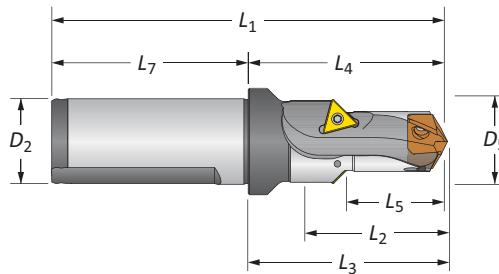
20 Series | Diameter Range: 0.7874" - 0.8660" (20.00mm - 21.99mm)



2S2r2r2r2n2r2 el2er2

Type	Length	Body				Shank				Flute	Part No
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	2-19/32	3-15/16	4-3/64	6-7/32	2-9/32	1	1/8	YES	2S32S2S2P2P2	
	5xD	4-21/64	5-43/64	5-25/32	7-61/64	2-9/32	1	1/8	YES	2S52S2S2P2P2	
	7xD	6-1/16	7-13/32	7-33/64	9-11/16	2-9/32	1	1/8	YES	2S72S2S2P2P2	
Helical	Stub	15/16	2-17/64	2-3/8	4-35/64	2-9/32	1	1/8	YES	2S12P2S2P2P2	
	3xD	2-19/32	3-15/16	4-3/64	6-7/32	2-9/32	1	1/8	YES	2S32P2S2P2P2	
	3xD	2-19/32	3-15/16	4-3/64	6-7/32	2-9/32	1	1/8	NO	2S32P2P2S2P2P2	
	5xD	4-21/64	5-43/64	5-25/32	7-61/64	2-9/32	1	1/8	YES	2S52P2S2P2P2	
	5xD	4-21/64	5-43/64	5-25/32	7-61/64	2-9/32	1	1/8	NO	2S52P2P2S2P2P2	
	7xD	6-1/16	7-13/32	7-33/64	9-11/16	2-9/32	1	1/8	YES	2S72P2S2P2P2	
	7xD	6-1/16	7-13/32	7-33/64	9-11/16	2-9/32	1	1/8	NO	2S72P2P2S2P2P2	
Metric	Straight	3xD	66.0	100.0	102.9	156.0	56.0	25.0	1/8*	YES	2S32P2S2P25P2
		5xD	110.0	144.0	146.9	200.0	56.0	25.0	1/8*	YES	2S52P2S2P25P2
		7xD	153.9	187.0	190.9	243.0	56.0	25.0	1/8*	YES	2S72P2S2P25P2
	Helical	Stub	24.0	57.6	60.4	113.6	56.0	25.0	1/8*	YES	2S12P2S2P25P2
		3xD	66.0	100.0	102.9	156.0	56.0	25.0	1/8*	YES	2S32P2S2P25P2
		3xD	66.0	100.0	102.9	156.0	56.0	25.0	1/8*	NO	2S32P2P2S2P25P2
		5xD	110.0	144.0	146.9	200.0	56.0	25.0	1/8*	YES	2S52P2S2P25P2
		5xD	110.0	144.0	146.9	200.0	56.0	25.0	1/8*	NO	2S52P2P2S2P25P2
		7xD	153.9	187.0	190.9	243.0	56.0	25.0	1/8*	YES	2S72P2S2P25P2
		7xD	153.9	187.0	190.9	243.0	56.0	25.0	1/8*	NO	2S72P2P2S2P25P2

*Thread to BSP and ISO 7-1



2r1l 2P2P2mfer

Type	Size		Body				Shank		Part No	Chamfer Insert
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i	1-5/64	1-3/16	1-29/64	2-17/64	2-3/8	4-35/64	2-9/32	1	2S12P2S2P245P2P2P2	TCMT-110204
m	27.2	30.0	37.1	57.6	60.4	113.6	56.0	25.0	2S12P2P2S2P245P2P2P2	TCMT-110204

Connection Accessories

Insert Screw	Nylon Locking Screws	Chamfer Driver	Replacement Driver	Replacement Driver	Replacement Driver
7375-IP9-1	7375N-IP9-1	8IP-9	8IP-9TL	8IP-9B	27.0 in-lbs (305 N-cm)

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

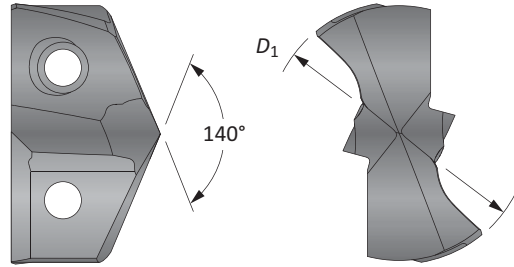
i = Imperial (in)




m = Metric (mm)

Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

3S2S Pro Drill Insert

22 Series | Diameter Range: 0.8661" - 0.9448" (22.00mm - 23.99mm)



Fractional Length	Insert				
	D ₁ inch	D ₁ mm	P	K	P
-	0.8661	22.00	22P22P2	K22P22P2	22P22P2
-	0.8701	22.10	22P22P2P	K22P22P1	22P22P2P
-	0.8740	22.20	22P22P2P	K22P22P2	22P22P2P
7/8	0.8750	22.23	22P22P2P3	K22P22P3	22P22P2P3
-	0.8780	22.30	22P22P2P3P	K22P22P3P	22P22P2P3P
-	0.8819	22.40	22P22P2P4P	K22P22P4P	22P22P2P4P
-	0.8858	22.50	22P22P2P5P	K22P22P5P	22P22P2P5P
57/64	0.8906	22.62	22P22P2P2	K22P22P2	22P22P2P2
-	0.8937	22.70	22P22P2P7P	K22P22P7P	22P22P2P7P
-	0.8976	22.80	22P22P2P8P	K22P22P8P	22P22P2P8P
-	0.9016	22.90	22P22P2P9P	K22P22P9P	22P22P2P9P
-	0.9055	23.00	22P22P3P	K22P23P	22P22P3P
29/32	0.9063	23.02	22P22P3P2	K22P23P2	22P22P3P2
-	0.9094	23.10	22P22P3P1	K22P23P1	22P22P3P1
-	0.9134	23.20	22P22P3P2P	K22P23P2P	22P22P3P2P
-	0.9173	23.30	22P22P3P3P	K22P23P3P	22P22P3P3P
59/64	0.9219	23.42	22P22P3P42	K22P23P42	22P22P3P42
-	0.9252	23.50	22P22P3P5P	K22P23P5P	22P22P3P5P
-	0.9291	23.60	22P22P3P6P	K22P23P6P	22P22P3P6P
-	0.9331	23.70	22P22P3P7P	K22P23P7P	22P22P3P7P
15/16	0.9375	23.81	22P22P3P1	K22P23P1	22P22P3P1
-	0.9409	23.90	22P22P3P2P	K22P23P2P	22P22P3P2P

Inserts sold in multiples of 1

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

A20: 68 - 83
Key on A20: 1

A20: 6 - 9

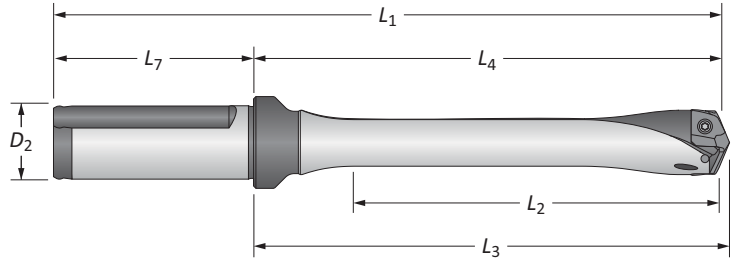
Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5180", Steel, 13 series = use Part No. 22P13P13P
Insert	13.16mm, Steel, 13 series = use Part No. 22P13P13P



322S Pro High Penetration Driller

22 Series | Diameter Range: 0.8661" - 0.9448" (22.00mm - 23.99mm)



Type	Length	Body				Shank			Coating	Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coating		
i Straight	3xD	2-53/64	4-9/64	4-17/64	6-27/64	2-9/32	1	YES	322S1P00	
	3xD	2-53/64	4-9/64	4-17/64	6-27/64	2-9/32	1	NO	322S1P00	
	5xD	4-23/32	6-1/32	6-5/32	8-5/16	2-9/32	1	YES	522S1P00	
	5xD	4-23/32	6-1/32	6-5/32	8-5/16	2-9/32	1	NO	522S1P00	
	7xD	6-39/64	7-59/64	8-3/64	10-13/64	2-9/32	1	YES	722S1P00	
	7xD	6-39/64	7-59/64	8-3/64	10-13/64	2-9/32	1	NO	722S1P00	
	10xD	9-7/16	10-3/4	10-7/8	13-1/32	2-9/32	1	YES	1022S1P00	
	10xD	9-7/16	10-3/4	10-7/8	13-1/32	2-9/32	1	NO	1022S1P00	
m Straight	3xD	72.0	105.1	108.3	161.1	56.0	25.0	YES	322S2500	
	3xD	72.0	105.1	108.3	161.1	56.0	25.0	NO	322S2500	
	5xD	120.0	153.2	156.2	209.2	56.0	25.0	YES	522S2500	
	5xD	120.0	153.2	156.2	209.2	56.0	25.0	NO	522S2500	
	7xD	167.9	201.2	204.2	257.2	56.0	25.0	YES	722S2500	
	7xD	167.9	201.2	204.2	257.2	56.0	25.0	NO	722S2500	
	10xD	239.9	273.0	276.2	329.0	56.0	25.0	YES	1022S2500	
	10xD	239.9	273.0	276.2	329.0	56.0	25.0	NO	1022S2500	

Connection Accessories

Insert Screw	Nylon Locking Screws	Insert Driver	Torque Wrench	Replacement Tip	Removable Torque Wrench
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Screws sold in multiples of 10

DRILLING

BORING

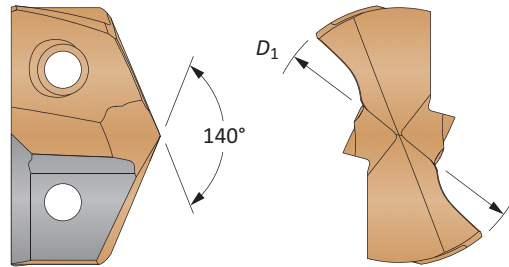
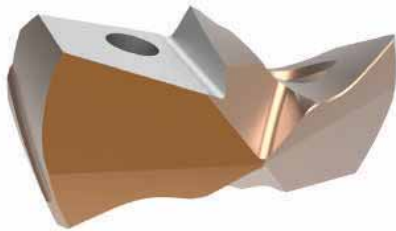
REAMING

BURNISHING

THREADING

SPECIALS

22 Series | Diameter Range: 0.8661" - 0.9448" (22.00mm - 23.99mm)



Substrate	Insert		Sintered Carbide	Low Rate	Titanium	Stainless	
	Fractional Length	D ₁ Inch					D ₁ mm
C1 (K35)		0.8661	22.00	7C122P-22	7C122P-22LR		
	7/8	0.8750	22.23	7C122P-22	7C122P-0028LR		
	57/64	0.8906	22.61	7C122P-22	7C122P-.890LR		
		0.9055	23.00	7C122P-23	7C122P-23LR		
	29/32	0.9063	23.02	7C122P-22	7C122P-0029LR		
	59/64	0.9219	23.42	7C122P-21	7C122P-.921LR		
	0.9375	23.81	7C122P-30	7C122P-0030LR			
C2 (K20)		0.8661	22.00	7C222P-22	7C222P-22LR	7C222P-22S	7C222P-22S
	7/8	0.8750	22.23	7C222P-22	7C222P-0028LR	7C222P-22S	7C222P-22S
	57/64	0.8906	22.61	7C222P-22	7C222P-.890LR	7C222P-22S	7C222P-22S
		0.9055	23.00	7C222P-23	7C222P-23LR	7C222P-23S	7C222P-23S
	29/32	0.9063	23.02	7C222P-22	7C222P-0029LR	7C222P-22S	7C222P-22S
	59/64	0.9219	23.42	7C222P-21	7C222P-.921LR	7C222P-21S	7C222P-21S
	0.9375	23.81	7C222P-30	7C222P-0030LR	7C222P-30S	7C222P-30S	

Inserts sold in multiples of 1

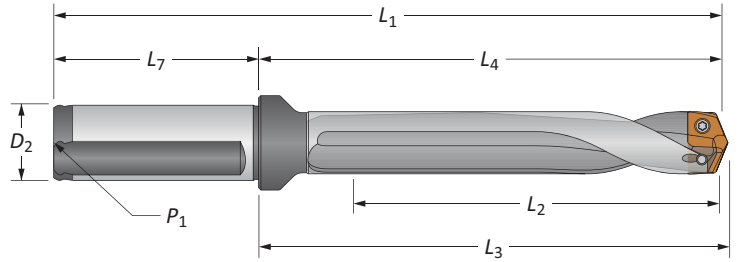
A20: 68 - 83 A20: 6 - 9

Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5200", 13 series, C2 = use Part No. 7C213P-52
Part No.	13.20mm, 13 series, C2 = use Part No. 7C213P-13

22 Series | Diameter Range: 0.8661" - 0.9448" (22.00mm - 23.99mm)

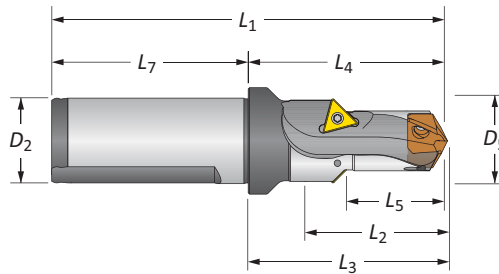
22 Series | Diameter Range: 0.8661" - 0.9448" (22.00mm - 23.99mm)



Specifications

Type	Length	Body				Shank				Coating	Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	2-53/64	4-9/64	4-17/64	6-27/64	2-9/32	1	1/8	YES	322S25	
	5xD	4-23/32	6-1/32	6-5/32	8-5/16	2-9/32	1	1/8	YES	522S25	
	7xD	6-39/64	7-59/64	8-3/64	10-13/64	2-9/32	1	1/8	YES	722S25	
Helical	Stub	1-1/16	2-23/64	2-31/64	4-41/64	2-9/32	1	1/8	YES	122P25	
	3xD	2-53/64	4-9/64	4-17/64	6-27/64	2-9/32	1	1/8	YES	322P25	
	3xD	2-53/64	4-9/64	4-17/64	6-27/64	2-9/32	1	1/8	NO	322P25	
	5xD	4-23/32	6-1/32	6-5/32	8-5/16	2-9/32	1	1/8	YES	522P25	
	5xD	4-23/32	6-1/32	6-5/32	8-5/16	2-9/32	1	1/8	NO	522P25	
	7xD	6-39/64	7-59/64	8-3/64	10-13/64	2-9/32	1	1/8	YES	722P25	
	7xD	6-39/64	7-59/64	8-3/64	10-13/64	2-9/32	1	1/8	NO	722P25	
Straight	3xD	72.0	105.1	108.3	161.1	56.0	25.0	1/8*	YES	322S25	
	5xD	120.0	153.2	156.2	209.2	56.0	25.0	1/8*	YES	522S25	
	7xD	167.9	201.2	204.2	257.2	56.0	25.0	1/8*	YES	722S25	
Helical	Stub	27.0	60.1	63.0	116.1	56.0	25.0	1/8*	YES	122P25	
	3xD	72.0	105.1	108.3	161.1	56.0	25.0	1/8*	YES	322P25	
	3xD	72.0	105.1	108.3	161.1	56.0	25.0	1/8*	NO	322P25	
	5xD	120.0	153.2	156.2	209.2	56.0	25.0	1/8*	YES	522P25	
	5xD	120.0	153.2	156.2	209.2	56.0	25.0	1/8*	NO	522P25	
	7xD	167.9	201.2	204.2	257.2	56.0	25.0	1/8*	YES	722P25	
	7xD	167.9	201.2	204.2	257.2	56.0	25.0	1/8*	NO	722P25	

*Thread to BSP and ISO 7-1



Chamfer

Type	Screw		Body				Shank		Coating	Part No.
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i	1-9/64	1-19/64	1-19/32	2-23/64	2-31/64	4-41/64	2-9/32	1	122P45	TCMT-110204
m	29.0	33.0	40.5	60.0	63.0	116.0	56.0	25.0	122P45	TCMT-110204

Connection Accessories

Insert Screw	Nylon Locking Screws	Chamfer Driver	Replacement Driver	Replacement Driver	Replacement Driver	Replacement Driver
739-IP9-1	739N-IP9-1	8IP-9	8IP-9TL	8IP-9B	8IP-9B	27.0 in-lbs (305 N-cm)

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

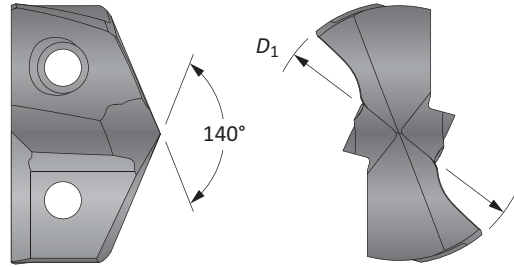
i = Imperial (in)
m = Metric (mm)




Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

DRILLING
BORING
REAMING
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THREADING
SPECIALS

3S2S Pro Drill Insert

24 Series | Diameter Range: 0.9449" - 1.0235" (24.00mm - 25.99mm)



Fractional Length	Insert				
	D ₁ inch	D ₁ mm	P	K	P
-	0.9449	24.00	24P24P	K24P24P	24P24P
-	0.9488	24.10	24P24P	K24P24P	24P24P
-	0.9528	24.20	24P24P	K24P24P	24P24P
-	0.9567	24.30	24P24P	K24P24P	24P24P
-	0.9606	24.40	24P24P	K24P24P	24P24P
-	0.9646	24.50	24P24P	K24P24P	24P24P
31/32	0.9688	24.61	24P24P1	K24P24P1	24P24P1
-	0.9724	24.70	24P24P	K24P24P	24P24P
-	0.9764	24.80	24P24P	K24P24P	24P24P
-	0.9803	24.90	24P24P	K24P24P	24P24P
63/64	0.9843	25.00	24P25P	K24P25P	24P25P
-	0.9882	25.10	24P25P	K24P25P	24P25P
-	0.9921	25.20	24P25P	K24P25P	24P25P
-	0.9961	25.30	24P25P	K24P25P	24P25P
1	1.0000	25.40	24P25P	K24P25P	24P25P
-	1.0039	25.50	24P25P	K24P25P	24P25P
-	1.0080	25.60	24P25P	K24P25P	24P25P
-	1.0118	25.70	24P25P	K24P25P	24P25P
1-1/64	1.0150	25.78	24P25P	K24P25P	24P25P
-	1.0197	25.90	24P25P	K24P25P	24P25P

Inserts sold in multiples of 1

DRILLING

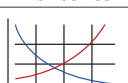
BORING


REAMING

BURNISHING

THREADING

SPECIALS

A20: 68 - 83  Key on A20: 1

A20: 6 - 9 

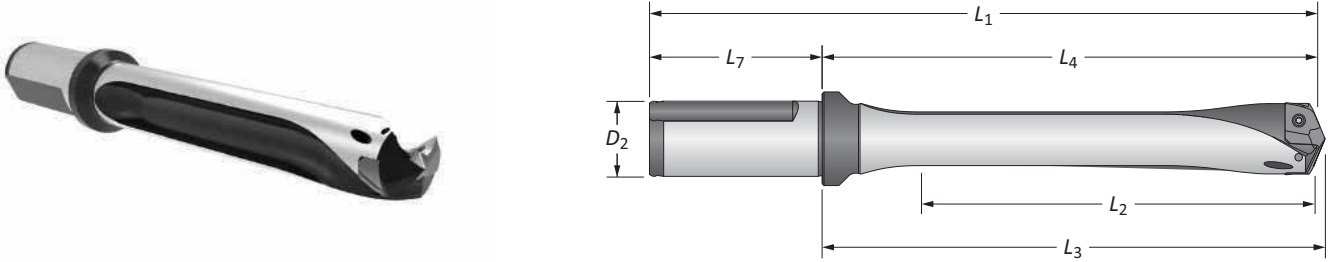
Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5180", Steel, 13 series = use Part No. 13P13P
Part No.	13.16mm, Steel, 13 series = use Part No. 13P13P



3S2S Pro Drill Intercooler

24 Series | Diameter Range: 0.9449" - 1.0235" (24.00mm - 25.99mm)



Type	Length	Body				Shank			Coat	Part No
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coat		
i Straight	3xD	3-1/16	4-31/64	4-19/32	6-49/64	2-9/32	1	YES	324S1P	
	3xD	3-1/16	4-31/64	4-19/32	6-49/64	2-9/32	1	NO	324S1N	
	5xD	5-7/64	6-17/32	6-41/64	8-13/16	2-9/32	1	YES	524S1P	
	5xD	5-7/64	6-17/32	6-41/64	8-13/16	2-9/32	1	NO	524S1N	
	7xD	7-5/32	8-37/64	8-11/16	10-55/64	2-9/32	1	YES	724S1P	
	7xD	7-5/32	8-37/64	8-11/16	10-55/64	2-9/32	1	NO	724S1N	
	10xD	10-15/64	11-41/64	11-49/64	13-59/64	2-9/32	1	YES	1024S1P	
	10xD	10-15/64	11-41/64	11-49/64	13-59/64	2-9/32	1	NO	1024S1N	
m Straight	3xD	78.0	113.9	116.8	169.9	56.0	25.0	YES	324S25P	
	3xD	78.0	113.9	116.8	169.9	56.0	25.0	NO	324S25N	
	5xD	130.0	165.9	168.7	221.9	56.0	25.0	YES	524S25P	
	5xD	130.0	165.9	168.7	221.9	56.0	25.0	NO	524S25N	
	7xD	181.9	217.9	220.7	273.9	56.0	25.0	YES	724S25P	
	7xD	181.9	217.9	220.7	273.9	56.0	25.0	NO	724S25N	
	10xD	259.9	295.7	298.7	351.7	56.0	25.0	YES	1024S25P	
	10xD	259.9	295.7	298.7	351.7	56.0	25.0	NO	1024S25N	

Connection Accessories

Inter Screw	Nylon Locking Screws	Intercooler	Intercooler	Replacement bit	Replacement bit
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

DRILLING

BORING

REAMING

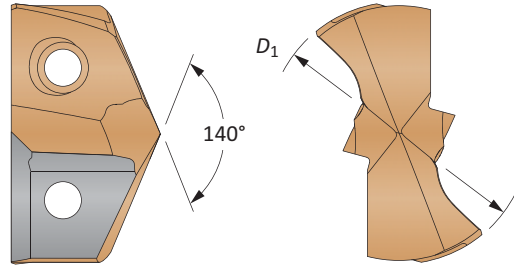
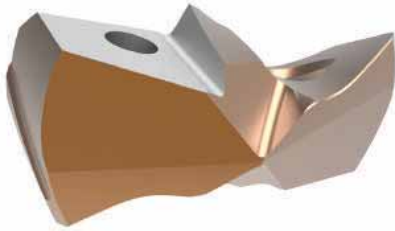
BURNISHING

THREADING

SPECIALS

3S S r r l n er

24 Series | Diameter Range: 0.9449" - 1.0235" (24.00mm - 25.99mm)



Substrate	Inser			Standard	Low Rate	Iron	Stable
	Fractional	D ₁ Inc	D ₁ mm				
C1 (K35)	-	0.9449	24.00	712424	7C124P-24LR		
	31/32	0.9688	24.61	712431	7C124P-0031LR		
	63/64	0.9843	25.00	712425	7C124P-25LR		
	1	1.0000	25.40	712411	7C124P-0100LR		
	-	1.0080	25.60	712413	7C124P-1.008LR		
	1-1/64	1.0156	25.78	712415	7C124P-1.015LR		
C2 (K20)	-	0.9449	24.00	722424	7C224P-24LR	722424	722424S
	31/32	0.9688	24.61	722431	7C224P-0031LR	722431	722431S
	63/64	0.9843	25.00	722425	7C224P-25LR	722425	722425S
	1	1.0000	25.40	722411	7C224P-0100LR	722411	722411S
	-	1.0080	25.60	722413	7C224P-1.008LR	722413	722413S
	1-1/64	1.0156	25.78	722415	7C224P-1.015LR	722415	722415S

Inserts sold in multiples of 1

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

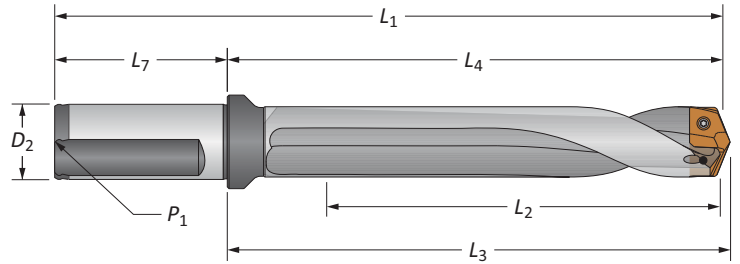
A20: 68 - 83
Key on A20: 1

A20: 6 - 9

Sizes not shown are available upon request. When ordering, please follow the example below:	
Inser	0.5200", 13 series, C2 = use Part No. 7213252
er	13.20mm, 13 series, C2 = use Part No. 7213213

24 Series | Diameter Range: 0.9449" - 1.0235" (24.00mm - 25.99mm)

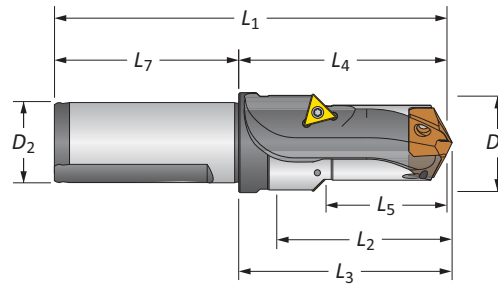
24 Series | Diameter Range: 0.9449" - 1.0235" (24.00mm - 25.99mm)



Specifications

Type	Length	Body				Shank				Flute	Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	3-1/16	4-31/64	4-19/32	6-49/64	2-9/32	1	1/8	YES	324S1	
	5xD	5-7/64	6-17/32	6-41/64	8-13/16	2-9/32	1	1/8	YES	524S1	
	7xD	7-5/32	8-37/64	8-11/16	10-55/64	2-9/32	1	1/8	YES	724S1	
Helical	Stub	1-1/8	2-17/32	2-41/64	4-13/16	2-9/32	1	1/8	YES	124H1	
	3xD	3-1/16	4-31/64	4-19/32	6-49/64	2-9/32	1	1/8	YES	324H1	
	3xD	3-1/16	4-31/64	4-19/32	6-49/64	2-9/32	1	1/8	NO	324H2	
	5xD	5-7/64	6-17/32	6-41/64	8-13/16	2-9/32	1	1/8	YES	524H1	
	5xD	5-7/64	6-17/32	6-41/64	8-13/16	2-9/32	1	1/8	NO	524H2	
	7xD	7-5/32	8-37/64	8-11/16	10-55/64	2-9/32	1	1/8	YES	724H1	
	7xD	7-5/32	8-37/64	8-11/16	10-55/64	2-9/32	1	1/8	NO	724H2	
Metric	Straight	3xD	78.0	113.9	116.8	169.9	56.0	25.0	1/8*	YES	324S25
		5xD	130.0	165.9	168.7	221.9	56.0	25.0	1/8*	YES	524S25
		7xD	181.9	217.9	220.7	273.9	56.0	25.0	1/8*	YES	724S25
	Helical	Stub	28.5	64.2	67.1	120.1	56.0	25.0	1/8*	YES	124H25
		3xD	78.0	113.9	116.8	169.9	56.0	25.0	1/8*	YES	324H25
		3xD	78.0	113.9	116.8	169.9	56.0	25.0	1/8*	NO	324H25
		5xD	130.0	165.9	168.7	221.9	56.0	25.0	1/8*	YES	524H25
		5xD	130.0	165.9	168.7	221.9	56.0	25.0	1/8*	NO	524H25
		7xD	181.9	217.9	220.7	273.9	56.0	25.0	1/8*	YES	724H25
		7xD	181.9	217.9	220.7	273.9	56.0	25.0	1/8*	NO	724H25

*Thread to BSP and ISO 7-1



Chamfer

Type	Size		Body				Shank		Part No.	Chamfer
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i	1-7/32	1-27/64	1-51/64	2-17/32	2-41/64	4-13/16	2-9/32	1	124451	TCMT-110204
m	31.0	36.0	45.5	64.2	67.1	120.2	56.0	25.0	1244525	TCMT-110204

Connection Accessories

Insert Screw	Nylon Locking Screws	Insert Driver	Replacement Driver	Replacement Driver	Replacement Driver
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

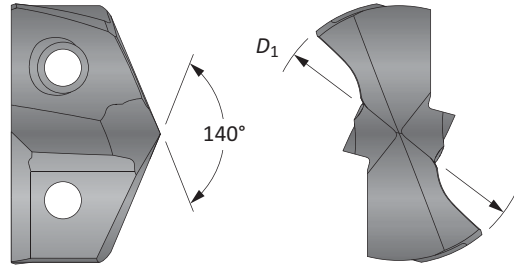
i = Imperial (in)




m = Metric (mm)

Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

3S2S Pro Drill Insert

26 Series | Diameter Range: 1.0236" - 1.1416" (26.00mm - 28.99mm)



Fractional Length	Insert				
	D ₁ inch	D ₁ mm	P	K	B
-	1.0236	26.00	26P26000	26K26000	26B26000
-	1.0276	26.10	26P26100	26K26100	26B26100
1-1/32	1.0313	26.20	26P26200	26K26200	26B26200
-	1.0354	26.30	26P26300	26K26300	26B26300
-	1.0394	26.40	26P26400	26K26400	26B26400
-	1.0433	26.50	26P26500	26K26500	26B26500
1-3/64	1.0460	26.57	26P26570	26K26570	26B26570
-	1.0472	26.60	26P26600	26K26600	26B26600
-	1.0512	26.70	26P26700	26K26700	26B26700
-	1.0551	26.80	26P26800	26K26800	26B26800
-	1.0591	26.90	26P26900	26K26900	26B26900
1-1/16	1.0625	26.99	26P27000	26K27000	26B27000
-	1.0630	27.00	26P27000	26K27000	26B27000
-	1.0669	27.10	26P27100	26K27100	26B27100
-	1.0709	27.20	26P27200	26K27200	26B27200
-	1.0748	27.30	26P27300	26K27300	26B27300
-	1.0787	27.40	26P27400	26K27400	26B27400
-	1.0827	27.50	26P27500	26K27500	26B27500
-	1.0866	27.60	26P27600	26K27600	26B27600
-	1.0906	27.70	26P27700	26K27700	26B27700
1-3/32	1.0938	27.78	26P27800	26K27800	26B27800
-	1.0984	27.90	26P27900	26K27900	26B27900
-	1.1024	28.00	26P28000	26K28000	26B28000
-	1.1063	28.10	26P28100	26K28100	26B28100
1-7/64	1.1090	28.17	26P28170	26K28170	26B28170
-	1.1102	28.20	26P28200	26K28200	26B28200
-	1.1142	28.30	26P28300	26K28300	26B28300
-	1.1181	28.40	26P28400	26K28400	26B28400
-	1.1220	28.50	26P28500	26K28500	26B28500
1-1/8	1.1250	28.58	26P28580	26K28580	26B28580
-	1.1299	28.70	26P28700	26K28700	26B28700
-	1.1339	28.80	26P28800	26K28800	26B28800
-	1.1378	28.90	26P28900	26K28900	26B28900

Inserts sold in multiples of 1

A20: 68 - 83
Key on A20: 1

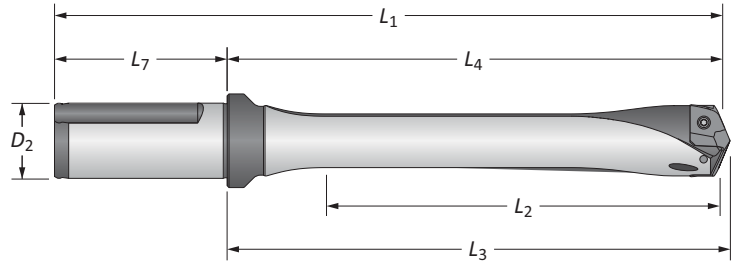
A20: 6 - 9

Sizes not shown are available upon request.	
When ordering, please follow the example below:	
Insert	0.5180", Steel, 13 series = use Part No. 13P1300
Insert	13.16mm, Steel, 13 series = use Part No. 13P1300



3S Pro Drill Intercooler

26 Series | Diameter Range: 1.0236" - 1.1416" (26.00mm - 28.99mm)



Type	Length	Body				Shank			Coated	Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coated		
i Straight	3xD	3-27/64	5-1/16	5-11/64	7-11/32	2-9/32	1-1/4	YES	32S125	
	3xD	3-27/64	5-1/16	5-11/64	7-11/32	2-9/32	1-1/4	NO	32S125	
	5xD	5-45/64	7-11/32	7-29/64	9-5/8	2-9/32	1-1/4	YES	52S125	
	5xD	5-45/64	7-11/32	7-29/64	9-5/8	2-9/32	1-1/4	NO	52S125	
	7xD	7-63/64	9-5/8	9-47/64	11-29/32	2-9/32	1-1/4	YES	72S125	
	7xD	7-63/64	9-5/8	9-47/64	11-29/32	2-9/32	1-1/4	NO	72S125	
	10xD	11-13/32	13-3/64	13-11/64	15-21/64	2-9/32	1-1/4	YES	12S125	
	10xD	11-13/32	13-3/64	13-11/64	15-21/64	2-9/32	1-1/4	NO	12S125	
m Straight	3xD	87.0	128.6	131.4	188.6	60.0	32.0	YES	32S32	
	3xD	87.0	128.6	131.4	188.6	60.0	32.0	NO	32S32	
	5xD	145.0	186.5	189.4	246.5	60.0	32.0	YES	52S32	
	5xD	145.0	186.5	189.4	246.5	60.0	32.0	NO	52S32	
	7xD	202.9	244.5	247.4	304.5	60.0	32.0	YES	72S32	
	7xD	202.9	244.5	247.4	304.5	60.0	32.0	NO	72S32	
	10xD	289.9	331.4	334.4	391.4	60.0	32.0	YES	12S32	
	10xD	289.9	331.4	334.4	391.4	60.0	32.0	NO	12S32	

Connection Accessories

					Removable 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 $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

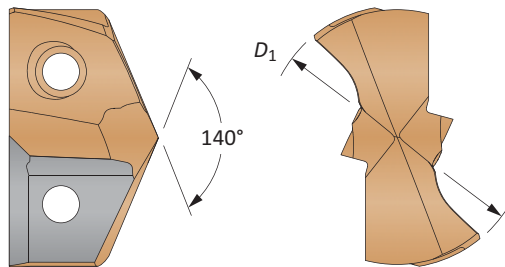
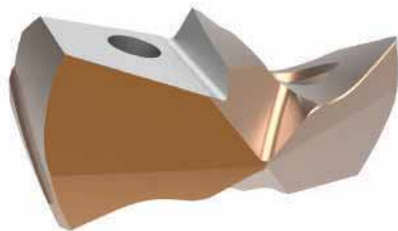
i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10



26 Series | Diameter Range: 1.0236" - 1.1416" (26.00mm - 28.99mm)

26 Series | Diameter Range: 1.0236" - 1.1416" (26.00mm - 28.99mm)



Grade	Insert			Sintered Carbide	Low Rate	Titanium	Stainless
	Fractional Length	D ₁ Inch	D ₁ mm				
C1 (K35)	1-1/32	1.0236	26.00	7C126P-26LR	7C126P-26LR	7C126P-0101LR	7C126P-0101LR
	1-3/64	1.0313	26.20	7C126P-0101LR	7C126P-0101LR	7C126P-1.046LR	7C126P-1.046LR
	1-3/64	1.0469	26.59	7C126P-1.046LR	7C126P-1.046LR	7C126P-0102LR	7C126P-0102LR
	1-1/16	1.0625	26.99	7C126P-0102LR	7C126P-0102LR	7C126P-27LR	7C126P-27LR
	1-1/16	1.0630	27.00	7C126P-27LR	7C126P-27LR	7C126P-0103LR	7C126P-0103LR
	1-3/32	1.0938	27.78	7C126P-0103LR	7C126P-0103LR	7C126P-28LR	7C126P-28LR
	1-3/32	1.1024	28.00	7C126P-28LR	7C126P-28LR	7C126P-1.109LR	7C126P-1.109LR
	1-7/64	1.1094	28.17	7C126P-1.109LR	7C126P-1.109LR	7C126P-0104LR	7C126P-0104LR
1-1/8	1.1250	28.58	7C126P-0104LR	7C126P-0104LR	7C226P-26LR	7C226P-26LR	
C2 (K20)	1-1/32	1.0236	26.00	7C226P-26LR	7C226P-26LR	7C226P-0101LR	7C226P-0101LR
	1-1/32	1.0313	26.20	7C226P-0101LR	7C226P-0101LR	7C226P-1.046LR	7C226P-1.046LR
	1-3/64	1.0469	26.59	7C226P-1.046LR	7C226P-1.046LR	7C226P-0102LR	7C226P-0102LR
	1-1/16	1.0625	26.99	7C226P-0102LR	7C226P-0102LR	7C226P-27LR	7C226P-27LR
	1-1/16	1.0630	27.00	7C226P-27LR	7C226P-27LR	7C226P-0103LR	7C226P-0103LR
	1-3/32	1.0938	27.78	7C226P-0103LR	7C226P-0103LR	7C226P-28LR	7C226P-28LR
	1-3/32	1.1024	28.00	7C226P-28LR	7C226P-28LR	7C226P-1.109LR	7C226P-1.109LR
	1-7/64	1.1094	28.17	7C226P-1.109LR	7C226P-1.109LR	7C226P-0104LR	7C226P-0104LR
1-1/8	1.1250	28.58	7C226P-0104LR	7C226P-0104LR	7C226P-1.046LR	7C226P-1.046LR	

Inserts sold in multiples of 1

A20: 68 - 83
Key on A20: 1

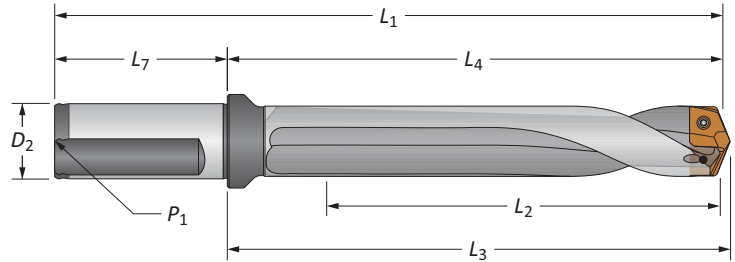
A20: 6 - 9

Sizes not shown are available upon request.	
When ordering, please follow the example below:	
Insert	0.5200", 13 series, C2 = use Part No. 7C213P-13LR
Insert	13.20mm, 13 series, C2 = use Part No. 7C213P-13LR



3S2S 22 S2n2r2 2 r1 2er2 ol2er2

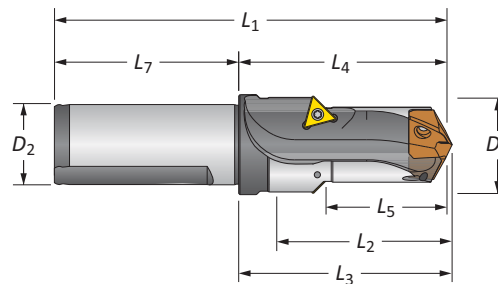
26 Series | Diameter Range: 1.0236" - 1.1416" (26.00mm - 28.99mm)



2222222 2 el22

Type	Length	Body				Shank				Flute	Part No
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	3-27/64	5-1/16	5-11/64	7-11/32	2-9/32	1-1/4	1/8	YES	332S2125	
	5xD	5-45/64	7-11/32	7-29/64	9-5/8	2-9/32	1-1/4	1/8	YES	52S2125	
	7xD	7-63/64	9-5/8	9-47/64	11-29/32	2-9/32	1-1/4	1/8	YES	72S2125	
Helical	Stub	1-1/4	2-7/8	2-63/64	5-5/32	2-9/32	1-1/4	1/8	YES	1222125	
	3xD	3-27/64	5-1/16	5-11/64	7-11/32	2-9/32	1-1/4	1/8	YES	3222125	
	3xD	3-27/64	5-1/16	5-11/64	7-11/32	2-9/32	1-1/4	1/8	NO	3222125	
	5xD	5-45/64	7-11/32	7-29/64	9-5/8	2-9/32	1-1/4	1/8	YES	5222125	
	5xD	5-45/64	7-11/32	7-29/64	9-5/8	2-9/32	1-1/4	1/8	NO	5222125	
	7xD	7-63/64	9-5/8	9-47/64	11-29/32	2-9/32	1-1/4	1/8	YES	7222125	
	7xD	7-63/64	9-5/8	9-47/64	11-29/32	2-9/32	1-1/4	1/8	NO	7222125	
Straight	3xD	87.0	128.6	131.4	188.6	60.0	32.0	1/8*	YES	32S22	
	5xD	145.0	186.5	189.4	246.5	60.0	32.0	1/8*	YES	52S22	
	7xD	202.9	244.5	247.4	304.5	60.0	32.0	1/8*	YES	72S22	
	Stub	32.0	72.9	75.7	132.9	60.0	32.0	1/8*	YES	1222	
	3xD	87.0	128.6	131.4	188.6	60.0	32.0	1/8*	YES	3222	
	3xD	87.0	128.6	131.4	188.6	60.0	32.0	1/8*	NO	3222	
	5xD	145.0	186.5	189.4	246.5	60.0	32.0	1/8*	YES	5222	
	5xD	145.0	186.5	189.4	246.5	60.0	32.0	1/8*	NO	5222	
	7xD	202.9	244.5	247.4	304.5	60.0	32.0	1/8*	YES	7222	
	7xD	202.9	244.5	247.4	304.5	60.0	32.0	1/8*	NO	7222	

*Thread to BSP and ISO 7-1



2 r1 2222mfer

Type	Screw		Body				Shank		Part No	Chamfer Insert
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i	1-11/32	1-17/32	2-3/64	2-7/8	2-63/64	5-5/32	2-9/32	1-1/4	1222452125	TCMT-110204
m	34.0	39.0	52.1	72.9	75.7	132.9	60.0	32.0	122245222	TCMT-110204

Connection Accessories

Insert Screw	Nylon Locking Screws	Chamfer Insert	Replacement Screw	Replacement Screw	Replacement Screw	Replacement Screw
7495-IP15-1	7495N-IP15-1	8IP-15	8IP-15TL	8IP-15B	8IP-15B	61.0 in-lbs (690 N-cm)

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

i = Imperial (in)

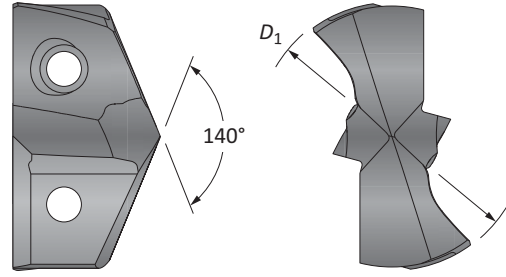
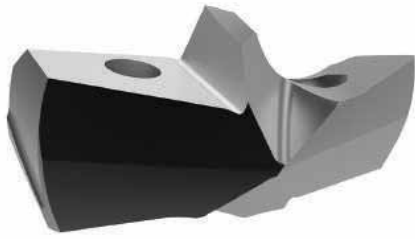
m = Metric (mm)

Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10



29 Series | Diameter Range: 1.1417" - 1.2597" (29.00mm - 31.99mm)

29 Series | Diameter Range: 1.1417" - 1.2597" (29.00mm - 31.99mm)



Fractional Length	Insert				
	D ₁ inch	D ₁ mm	P	K	B
-	1.1417	29.00	29P2900P	29K2900P	29B2900P
-	1.1457	29.10	29P2910P	29K2910P	29B2910P
-	1.1496	29.20	29P2920P	29K2920P	29B2920P
-	1.1535	29.30	29P2930P	29K2930P	29B2930P
1-5/32	1.1563	29.37	29P2937P	29K2937P	29B2937P
-	1.1575	29.40	29P2940P	29K2940P	29B2940P
-	1.1614	29.50	29P2950P	29K2950P	29B2950P
-	1.1654	29.60	29P2960P	29K2960P	29B2960P
-	1.1693	29.70	29P2970P	29K2970P	29B2970P
-	1.1732	29.80	29P2980P	29K2980P	29B2980P
-	1.1772	29.90	29P2990P	29K2990P	29B2990P
-	1.1811	30.00	29P3000P	29K3000P	29B3000P
-	1.1850	30.10	29P3010P	29K3010P	29B3010P
1-3/16	1.1875	30.16	29P3016P	29K3016P	29B3016P
-	1.1890	30.20	29P3020P	29K3020P	29B3020P
-	1.1929	30.30	29P3030P	29K3030P	29B3030P
-	1.1969	30.40	29P3040P	29K3040P	29B3040P
-	1.2008	30.50	29P3050P	29K3050P	29B3050P
-	1.2047	30.60	29P3060P	29K3060P	29B3060P
-	1.2087	30.70	29P3070P	29K3070P	29B3070P
-	1.2126	30.80	29P3080P	29K3080P	29B3080P
-	1.2165	30.90	29P3090P	29K3090P	29B3090P
1-7/32	1.2188	30.96	29P3096P	29K3096P	29B3096P
-	1.2205	31.00	29P3100P	29K3100P	29B3100P
-	1.2244	31.10	29P3110P	29K3110P	29B3110P
-	1.2283	31.20	29P3120P	29K3120P	29B3120P
-	1.2323	31.30	29P3130P	29K3130P	29B3130P
-	1.2362	31.40	29P3140P	29K3140P	29B3140P
-	1.2402	31.50	29P3150P	29K3150P	29B3150P
-	1.2441	31.60	29P3160P	29K3160P	29B3160P
-	1.2480	31.70	29P3170P	29K3170P	29B3170P
1-1/4	1.2500	31.75	29P3175P	29K3175P	29B3175P
-	1.2520	31.80	29P3180P	29K3180P	29B3180P
-	1.2559	31.90	29P3190P	29K3190P	29B3190P

Inserts sold in multiples of 1

A20: 68 - 83
Key on A20: 1

A20: 6 - 9

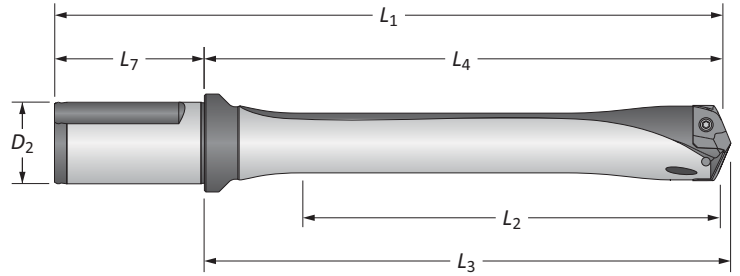
Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5180", Steel, 13 series = use Part No. 29P1300P
Insert	13.16mm, Steel, 13 series = use Part No. 29P1300P



3S Pro Drill Intercooler

29 Series | Diameter Range: 1.1417" - 1.2597" (29.00mm - 31.99mm)



Type	Length	Body				Shank			Coated
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	Coated	
i Straight	3xD	3-25/32	5-3/8	5-1/2	7-21/32	2-9/32	1-1/4	YES	32S125
	3xD	3-25/32	5-3/8	5-1/2	7-21/32	2-9/32	1-1/4	NO	32S125
	5xD	6-19/64	7-29/32	8-1/64	10-3/16	2-9/32	1-1/4	YES	52S125
	5xD	6-19/64	7-29/32	8-1/64	10-3/16	2-9/32	1-1/4	NO	52S125
	7xD	8-13/16	10-27/64	10-17/64	12-45/64	2-9/32	1-1/4	YES	72S125
	7xD	8-13/16	10-27/64	10-17/64	12-45/64	2-9/32	1-1/4	NO	72S125
	10xD	12-19/32	14-3/16	14-5/16	16-15/32	2-9/32	1-1/4	YES	122S125
	10xD	12-19/32	14-3/16	14-5/16	16-15/32	2-9/32	1-1/4	NO	122S125
m Straight	3xD	96.0	136.5	139.7	196.5	60.0	32.0	YES	32S32
	3xD	96.0	136.5	139.7	196.5	60.0	32.0	NO	32S32
	5xD	160.0	200.8	203.7	260.8	60.0	32.0	YES	52S32
	5xD	160.0	200.8	203.7	260.8	60.0	32.0	NO	52S32
	7xD	223.9	264.7	267.6	324.7	60.0	32.0	YES	72S32
	7xD	223.9	264.7	267.6	324.7	60.0	32.0	NO	72S32
	10xD	319.9	360.4	363.6	420.4	60.0	32.0	YES	122S32
	10xD	319.9	360.4	363.6	420.4	60.0	32.0	NO	122S32

Connection Accessories

Inter Screw	Nylon Locking Screws	Intercooler	Intercooler	Replacement	Replacement
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Screws sold in multiples of 10

DRILLING

BORING

REAMING

BURNISHING

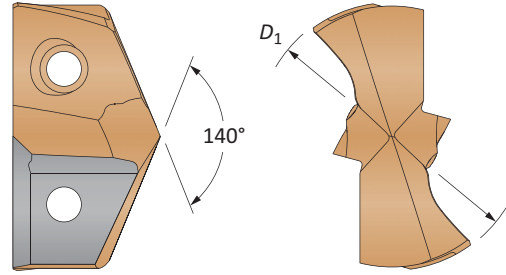
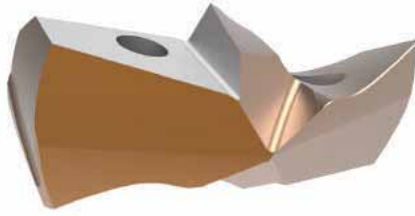
THREADING

SPECIALS



29 Series | Diameter Range: 1.1417" - 1.2597" (29.00mm - 31.99mm)

29 Series | Diameter Range: 1.1417" - 1.2597" (29.00mm - 31.99mm)



Substrate	Insert			Standard	Low Rate	Titan	Stable
	Fractional	D ₁ Inch	D ₁ mm				
C1 (K35)	-	1.1417	29.00	7C129P-29LR	7C129P-29LR	7C129P-29LR	7C129P-29LR
	1-5/32	1.1563	29.37	7C129P-0105LR	7C129P-0105LR	7C129P-0105LR	7C129P-0105LR
	-	1.1811	30.00	7C129P-30LR	7C129P-30LR	7C129P-30LR	7C129P-30LR
	1-3/16	1.1875	30.16	7C129P-0106LR	7C129P-0106LR	7C129P-0106LR	7C129P-0106LR
	-	1.2008	30.50	7C129P-30.5LR	7C129P-30.5LR	7C129P-30.5LR	7C129P-30.5LR
	1-7/32	1.2188	30.96	7C129P-0107LR	7C129P-0107LR	7C129P-0107LR	7C129P-0107LR
	-	1.2205	31.00	7C129P-31LR	7C129P-31LR	7C129P-31LR	7C129P-31LR
-	1.2500	31.75	7C129P-0108LR	7C129P-0108LR	7C129P-0108LR	7C129P-0108LR	
C2 (K20)	-	1.1417	29.00	7C229P-29LR	7C229P-29LR	7C229P-29LR	7C229P-29LR
	1-5/32	1.1563	29.37	7C229P-0105LR	7C229P-0105LR	7C229P-0105LR	7C229P-0105LR
	-	1.1811	30.00	7C229P-30LR	7C229P-30LR	7C229P-30LR	7C229P-30LR
	1-3/16	1.1875	30.16	7C229P-0106LR	7C229P-0106LR	7C229P-0106LR	7C229P-0106LR
	-	1.2008	30.50	7C229P-30.5LR	7C229P-30.5LR	7C229P-30.5LR	7C229P-30.5LR
	1-7/32	1.2188	30.96	7C229P-0107LR	7C229P-0107LR	7C229P-0107LR	7C229P-0107LR
	-	1.2205	31.00	7C229P-31LR	7C229P-31LR	7C229P-31LR	7C229P-31LR
-	1.2500	31.75	7C229P-0108LR	7C229P-0108LR	7C229P-0108LR	7C229P-0108LR	

Inserts sold in multiples of 1

A20: 68 - 83
Key on A20: 1

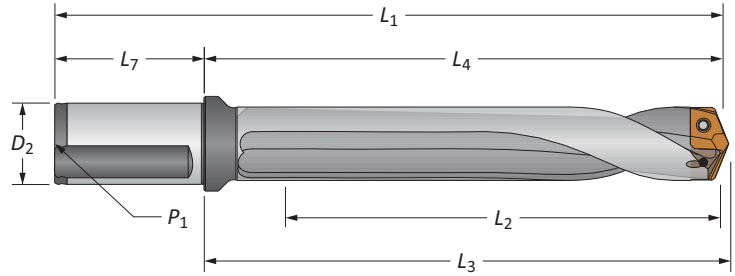
A20: 6 - 9

Sizes not shown are available upon request. When ordering, please follow the example below:	
Insert	0.5200", 13 series, C2 = use Part No. 7C213P-0105LR
Insert	13.20mm, 13 series, C2 = use Part No. 7C213P-0105LR



3S2S 22 S2n2r2 2 r1 2er2 ol2er2

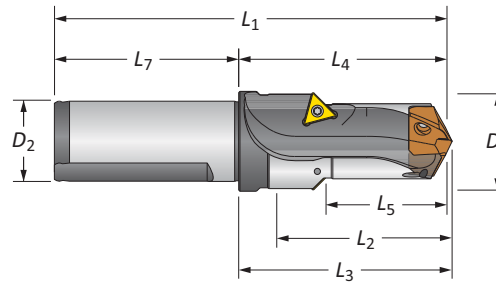
29 Series | Diameter Range: 1.1417" - 1.2597" (29.00mm - 31.99mm)



222222n2 2el22

Type	Length	Body				Shank				Flute	Coating
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	3-25/32	5-3/8	5-1/2	7-21/32	2-9/32	1-1/4	1/4	YES	32S225	
	5xD	6-19/64	7-29/32	8-1/64	10-3/16	2-9/32	1-1/4	1/4	YES	52S225	
	7xD	8-13/16	10-27/64	10-17/64	12-45/64	2-9/32	1-1/4	1/4	YES	72S225	
Helical	Stub	1-3/8	2-31/32	3-5/64	5-1/4	2-9/32	1-1/4	1/4	YES	12S225	
	3xD	3-25/32	5-3/8	5-1/2	7-21/32	2-9/32	1-1/4	1/4	YES	32S225	
	3xD	3-25/32	5-3/8	5-1/2	7-21/32	2-9/32	1-1/4	1/4	NO	32S225	
	5xD	6-19/64	7-29/32	8-1/64	10-3/16	2-9/32	1-1/4	1/4	YES	52S225	
	5xD	6-19/64	7-29/32	8-1/64	10-3/16	2-9/32	1-1/4	1/4	NO	52S225	
	7xD	8-13/16	10-27/64	10-17/64	12-45/64	2-9/32	1-1/4	1/4	YES	72S225	
	7xD	8-13/16	10-27/64	10-17/64	12-45/64	2-9/32	1-1/4	1/4	NO	72S225	
Straight	3xD	96.0	136.5	139.7	196.5	60.0	32.0	1/4*	YES	32S22	
	5xD	160.0	200.8	203.7	260.8	60.0	32.0	1/4*	YES	52S22	
	7xD	223.9	264.7	267.6	324.7	60.0	32.0	1/4*	YES	72S22	
	Stub	35.0	75.2	78.2	135.2	60.0	32.0	1/4*	YES	12S22	
	3xD	96.0	136.5	139.7	196.5	60.0	32.0	1/4*	YES	32S22	
	3xD	96.0	136.5	139.7	196.5	60.0	32.0	1/4*	NO	32S22	
	5xD	160.0	200.8	203.7	260.8	60.0	32.0	1/4*	YES	52S22	
	5xD	160.0	200.8	203.7	260.8	60.0	32.0	1/4*	NO	52S22	
	7xD	223.9	264.7	267.6	324.7	60.0	32.0	1/4*	YES	72S22	
	7xD	223.9	264.7	267.6	324.7	60.0	32.0	1/4*	NO	72S22	

*Thread to BSP and ISO 7-1



2 r1 2222mfer

Type	Size		Body				Shank		Coating	Chamfer Insert
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i	1-29/64	1-23/32	2-13/64	2-31/32	3-5/64	5-1/4	2-9/32	1-1/4	1245225	TCMT-16T304
m	37.1	43.5	55.9	75.2	78.2	135.2	60.0	32.0	124522	TCMT-16T304

Connection Accessories

Insert Screw	Nylon Locking Screws	Chamfer Driver	Replacement Chamfer Driver	Replacement Chamfer Driver	Replacement Chamfer Driver	Replacement Chamfer Driver
7495-IP15-1	7495N-IP15-1	8IP-15	8IP-15TL	8IP-15B	8IP-15B	8IP-15B
						61.0 in-lbs (690 N-cm)

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

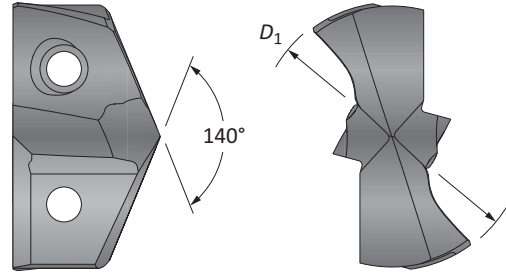
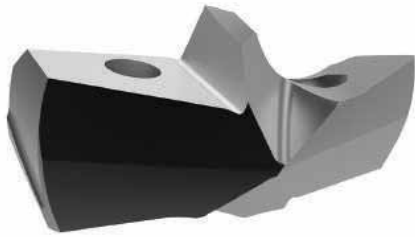
i = Imperial (in)

Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10

m = Metric (mm)

32 Series | Diameter Range: 1.2598" - 1.3780" (32.00mm - 35.00mm)

32 Series | Diameter Range: 1.2598" - 1.3780" (32.00mm - 35.00mm)



Fractional Length	Insert				
	D ₁ inch	D ₁ mm	P	K	B
-	1.2598	32.00	32P200	32K200	32B200
-	1.2638	32.10	32P210	32K210	32B210
1-17/64	1.2657	32.15	32P215	32K215	32B215
-	1.2677	32.20	32P220	32K220	32B220
-	1.2717	32.30	32P230	32K230	32B230
-	1.2756	32.40	32P240	32K240	32B240
-	1.2795	32.50	32P250	32K250	32B250
1-9/32	1.2813	32.55	32P255	32K255	32B255
-	1.2835	32.60	32P260	32K260	32B260
-	1.2874	32.70	32P270	32K270	32B270
-	1.2913	32.80	32P280	32K280	32B280
-	1.2953	32.90	32P290	32K290	32B290
-	1.2992	33.00	32P300	32K300	32B300
-	1.3031	33.10	32P310	32K310	32B310
-	1.3071	33.20	32P320	32K320	32B320
-	1.3110	33.30	32P330	32K330	32B330
1-5/16	1.3125	33.34	32P334	32K334	32B334
-	1.3150	33.40	32P340	32K340	32B340
-	1.3189	33.50	32P350	32K350	32B350
-	1.3228	33.60	32P360	32K360	32B360
-	1.3268	33.70	32P370	32K370	32B370
-	1.3307	33.80	32P380	32K380	32B380
-	1.3346	33.90	32P390	32K390	32B390
-	1.3386	34.00	32P400	32K400	32B400
-	1.3425	34.10	32P410	32K410	32B410
1-11/32	1.3438	34.13	32P413	32K413	32B413
-	1.3465	34.20	32P420	32K420	32B420
-	1.3504	34.30	32P430	32K430	32B430
-	1.3543	34.40	32P440	32K440	32B440
-	1.3583	34.50	32P450	32K450	32B450
-	1.3622	34.60	32P460	32K460	32B460
-	1.3661	34.70	32P470	32K470	32B470
-	1.3701	34.80	32P480	32K480	32B480
-	1.3740	34.90	32P490	32K490	32B490
1-3/8	1.3750	34.93	32P493	32K493	32B493
-	1.3780	35.00	32P500	32K500	32B500

Inserts sold in multiples of 1

A20: 68 - 83
Key on A20: 1

A20: 6 - 9

Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5180", Steel, 13 series = use Part No. 32P13030
Part No.	13.16mm, Steel, 13 series = use Part No. 32P13030

DRILLING

BORING

REAMING

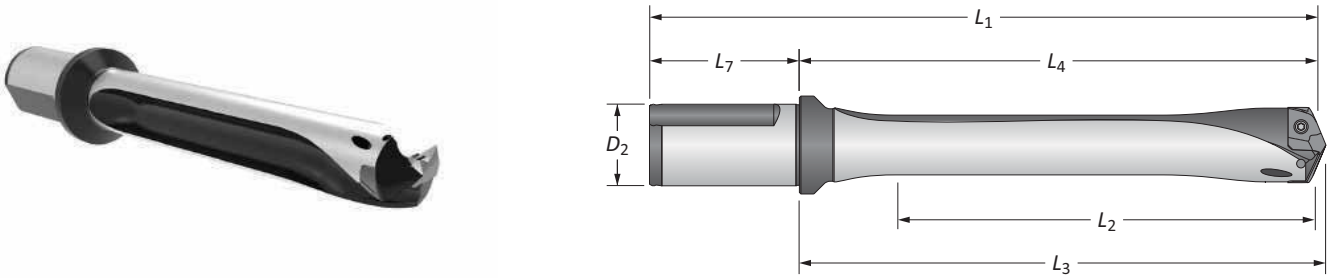
BURNISHING

THREADING

SPECIALS

32 Series | Diameter Range: 1.2598" - 1.3780" (32.00mm - 35.00mm)

32 Series | Diameter Range: 1.2598" - 1.3780" (32.00mm - 35.00mm)



Type	Length	Body				Shank		Coating	Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i Straight	3xD	4-9/64	6-7/32	6-23/64	8-29/32	2-11/16	1-1/2	YES	332S1500
	3xD	4-9/64	6-7/32	6-23/64	8-29/32	2-11/16	1-1/2	NO	332S1500
	5xD	6-57/64	8-31/32	9-7/64	11-21/32	2-11/16	1-1/2	YES	532S1500
	5xD	6-57/64	8-31/32	9-7/64	11-21/32	2-11/16	1-1/2	NO	532S1500
	7xD	9-41/64	11-23/32	11-55/64	14-13/32	2-11/16	1-1/2	YES	732S1500
	7xD	9-41/64	11-23/32	11-55/64	14-13/32	2-11/16	1-1/2	NO	732S1500
	10xD	13-25/32	15-55/64	16	18-35/64	2-11/16	1-1/2	YES	1032S1500
	10xD	13-25/32	15-55/64	16	18-35/64	2-11/16	1-1/2	NO	1032S1500
m Straight	3xD	105.0	150.7	154.3	210.7	60.0	32.0	YES	332S3200
	3xD	105.0	150.7	154.3	210.7	60.0	32.0	NO	332S3200
	5xD	175.0	220.7	224.3	280.7	60.0	32.0	YES	532S3200
	5xD	175.0	220.7	224.3	280.7	60.0	32.0	NO	532S3200
	7xD	245.0	290.7	294.3	350.7	60.0	32.0	YES	732S3200
	7xD	245.0	290.7	294.3	350.7	60.0	32.0	NO	732S3200
	10xD	350.0	395.7	399.3	455.7	60.0	32.0	YES	1032S3200
	10xD	350.0	395.7	399.3	455.7	60.0	32.0	NO	1032S3200

Connection Accessories

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 $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A20: 86 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

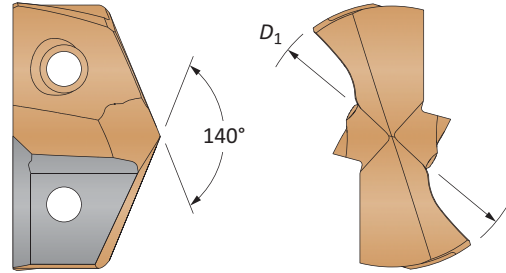
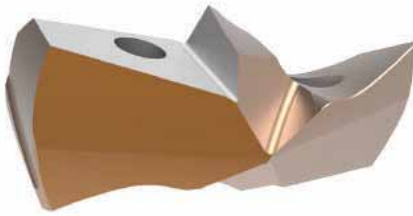
i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

32 Series | Diameter Range: 1.2598" - 1.3780" (32.00mm - 35.00mm)

32 Series | Diameter Range: 1.2598" - 1.3780" (32.00mm - 35.00mm)



Substrate	Insert			Standard Part No.	Low Rate Part No.	Titan Part No.	Stable Part No.
	Fractional Length	D ₁ Inch	D ₁ mm				
C1 (K35)	-	1.2598	32.00	7C132P-32	7C132P-32LR		
	1-17/64	1.2658	32.15	7C132P-32.15	7C132P-32.15LR		
	-	1.2795	32.50	7C132P-32.5	7C132P-32.5LR		
	1-9/32	1.2813	32.55	7C132P-0109	7C132P-0109LR		
	-	1.2992	33.00	7C132P-33	7C132P-33LR		
	1-5/16	1.3125	33.34	7C132P-0110	7C132P-0110LR		
	-	1.3189	33.50	7C132P-33.5	7C132P-33.5LR		
	-	1.3386	34.00	7C132P-34	7C132P-34LR		
	1-11/32	1.3438	34.13	7C132P-0111	7C132P-0111LR		
	-	1.3583	34.50	7C132P-34.5	7C132P-34.5LR		
C2 (K20)	1-3/8	1.3750	34.93	7C132P-0112	7C132P-0112LR		
	-	1.3780	35.00	7C132P-35	7C132P-35LR		
	-	1.2598	32.00	7C232P-32	7C232P-32LR	7C232P-32T	7C232P-32S
	1-17/64	1.2658	32.15	7C232P-32.15	7C232P-32.15LR	7C232P-32.15T	7C232P-32.15S
	-	1.2795	32.50	7C232P-32.5	7C232P-32.5LR	7C232P-32.5T	7C232P-32.5S
	1-9/32	1.2813	32.55	7C232P-0109	7C232P-0109LR	7C232P-0109T	7C232P-0109S
	-	1.2992	33.00	7C232P-33	7C232P-33LR	7C232P-33T	7C232P-33S
	1-5/16	1.3125	33.34	7C232P-0110	7C232P-0110LR	7C232P-0110T	7C232P-0110S
	-	1.3189	33.50	7C232P-33.5	7C232P-33.5LR	7C232P-33.5T	7C232P-33.5S
	-	1.3386	34.00	7C232P-34	7C232P-34LR	7C232P-34T	7C232P-34S
1-11/32	1.3438	34.13	7C232P-0111	7C232P-0111LR	7C232P-0111T	7C232P-0111S	
-	1.3583	34.50	7C232P-34.5	7C232P-34.5LR	7C232P-34.5T	7C232P-34.5S	
1-3/8	1.3750	34.93	7C232P-0112	7C232P-0112LR	7C232P-0112T	7C232P-0112S	
-	1.3780	35.00	7C232P-35	7C232P-35LR	7C232P-35T	7C232P-35S	

Inserts sold in multiples of 1

A20: 68 - 83
Key on A20: 1

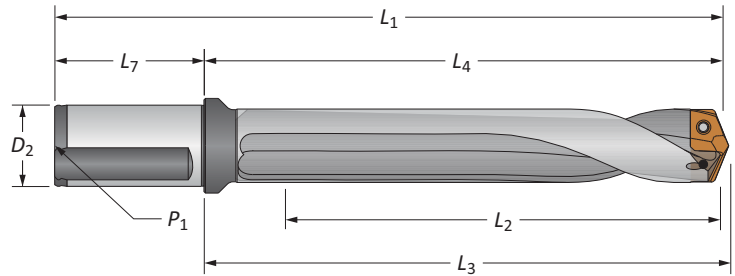
A20: 6 - 9

Sizes not shown are available upon request.
When ordering, please follow the example below:

Insert	0.5200", 13 series, C2 = use Part No. 7C213P-32.5
Part No.	13.20mm, 13 series, C2 = use Part No. 7C213P-13.2

32 Series | Diameter Range: 1.2598" - 1.3780" (32.00mm - 35.00mm)

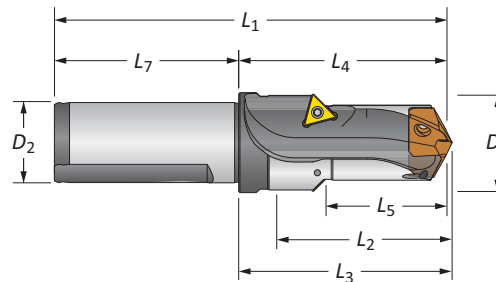
32 Series | Diameter Range: 1.2598" - 1.3780" (32.00mm - 35.00mm)



Standard Drill Bit

Type	Length	Body				Shank				Flute	Coating
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
Straight	3xD	4-9/64	6-7/32	6-23/64	8-29/32	2-11/16	1-1/2	1/4	YES	332S15	
	5xD	6-57/64	8-31/32	9-7/64	11-21/32	2-11/16	1-1/2	1/4	YES	532S15	
	7xD	9-41/64	11-23/32	11-55/64	14-13/32	2-11/16	1-1/2	1/4	YES	732S15	
Helical	Stub	1-1/2	3-37/64	3-45/64	6-1/4	2-11/16	1-1/2	1/4	YES	132E15	
	3xD	4-9/64	6-7/32	6-23/64	8-29/32	2-11/16	1-1/2	1/4	YES	332E15	
	3xD	4-9/64	6-7/32	6-23/64	8-29/32	2-11/16	1-1/2	1/4	NO	332E15	
	5xD	6-57/64	8-31/32	9-7/64	11-21/32	2-11/16	1-1/2	1/4	YES	532E15	
	5xD	6-57/64	8-31/32	9-7/64	11-21/32	2-11/16	1-1/2	1/4	NO	532E15	
	7xD	9-41/64	11-23/32	11-55/64	14-13/32	2-11/16	1-1/2	1/4	YES	732E15	
	7xD	9-41/64	11-23/32	11-55/64	14-13/32	2-11/16	1-1/2	1/4	NO	732E15	
Straight	3xD	105.0	150.7	154.3	220.7	70.0	40.0	1/4*	YES	332E4	
	5xD	175.0	220.7	224.3	290.7	70.0	40.0	1/4*	YES	532E4	
	7xD	245.0	290.7	294.3	360.7	70.0	40.0	1/4*	YES	732E4	
Helical	Stub	38.0	90.7	94.2	160.7	70.0	40.0	1/4*	YES	132E4	
	3xD	105.0	150.7	154.3	220.7	70.0	40.0	1/4*	YES	332E4	
	3xD	105.0	150.7	154.3	220.7	70.0	40.0	1/4*	NO	332E4	
	5xD	175.0	220.7	224.3	290.7	70.0	40.0	1/4*	YES	532E4	
	5xD	175.0	220.7	224.3	290.7	70.0	40.0	1/4*	NO	532E4	
	7xD	245.0	290.7	294.3	360.7	70.0	40.0	1/4*	YES	732E4	
	7xD	245.0	290.7	294.3	360.7	70.0	40.0	1/4*	NO	732E4	

*Thread to BSP and ISO 7-1



Chamfer

Type	Shank		Body				Shank		Coating	Chamfer
	D ₅	L ₅	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂		
i	1-37/64	1-57/64	2-29/64	3-37/64	3-23/32	6-1/4	2-11/16	1-1/2	132E4515	TCMT-16T304
m	40.1	48.0	62.4	90.7	94.2	160.7	70.0	40.0	132E45E4	TCMT-16T304

Connection Accessories

Insert Screw	Nylon Locking Screws	Chamfer Driver	Replacement Driver	Replacement Driver	Replacement Driver
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 $\mu = 0.14$ and develop 90% of ultimate yield strength

i = Imperial (in)

m = Metric (mm)

Chamfer inserts sold separately in multiples of 10 | Screws sold in multiples of 10



Recommended Parameters for Gen3SYS XT Pro

GEN3SYS XT Pro

Material	Diameter (mm)	Speed (RPM)	Feed Rate (mm/rev) by Diameter			
			11 Diameter (mm)	12 Diameter (mm)	13 Diameter (mm)	14 Diameter (mm)
			33.1	47.4	51.1	51.2
			0.723	0.5117	0.511	0.525
Steel	Free Cutting Steel 1118, 1215, 12L14, etc.	100 - 150	0.011	0.012	0.013	0.014
		150 - 200	0.010	0.011	0.012	0.013
		200 - 250	0.008	0.009	0.010	0.011
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	0.011	0.012	0.013	0.014
		125 - 175	0.010	0.011	0.012	0.013
		175 - 225	0.009	0.010	0.011	0.012
		225 - 275	0.007	0.008	0.009	0.010
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	0.010	0.011	0.012	0.013
		175 - 225	0.009	0.010	0.011	0.012
		225 - 275	0.008	0.009	0.010	0.011
		275 - 325	0.007	0.008	0.009	0.010
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	0.010	0.011	0.012	0.013
		175 - 225	0.009	0.010	0.011	0.012
		225 - 275	0.008	0.009	0.010	0.011
		275 - 325	0.006	0.007	0.008	0.009
325 - 375		0.006	0.006	0.007	0.008	
Stainless Alloy 4340, 4330V, 300M, etc.	225 - 300	0.008	0.009	0.010	0.011	
	300 - 350	0.006	0.007	0.008	0.009	
	350 - 400	0.005	0.006	0.007	0.008	
Structural Steel A36, A285, A516, etc.	100 - 150	0.010	0.011	0.012	0.013	
	150 - 250	0.008	0.009	0.010	0.011	
	250 - 350	0.007	0.008	0.009	0.010	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	0.006	0.007	0.007	0.008	
	200 - 250	0.005	0.006	0.006	0.007	
S	Titanium Alloy Hastelloy B, Inconel 600, etc.	140 - 220	0.006	0.007	0.007	0.008
		220 - 310	0.005	0.006	0.006	0.007
	Inconel Alloy	140 - 220	0.005	0.006	0.007	0.008
		220 - 310	0.004	0.005	0.006	0.007
	Ceramic Alloy S82	185 - 275	0.004	0.004	0.005	0.005
275 - 350		0.003	0.003	0.004	0.005	
P	Stainless Steel 400 Series 416, 420, etc.	185 - 275	0.006	0.007	0.007	0.008
		275 - 350	0.005	0.006	0.006	0.007
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	0.004	0.005	0.005	0.006
		185 - 275	0.003	0.004	0.004	0.005
	Super Premium Stainless Steel	135 - 185	0.003	0.003	0.003	0.004
185 - 275		0.002	0.002	0.003	0.003	

7mm Recommended Multiple Pass Parameters

Recommended Parameters	Speed (RPM)
200 SFM • 0.80	= 160 SFM
0.008 IPR • 0.80	= 0.0064 IPR

1mm Recommended Multiple Pass Parameters

Speed (RPM)	Speed (RPM)
200 SFM • 0.70	= 140 SFM
0.008 IPR • 0.70	= 0.0056 IPR

1. Coolant Use: Do not use coolant for the first 2 diameters.

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

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

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. For 7xD and 10xD holder lengths, see adjustment example above.

Feed Rate by Diameter									
15 Per Inch 0.0500 0.0200	17 Per Inch 0.0200 0.0200	17 Per Inch 0.0200 0.0200	17 Per Inch 0.0200 0.0200	20 Per Inch 0.0200 0.0200	22 Per Inch 0.0200 0.0200	24 Per Inch 0.0200 0.0200	28 Per Inch 0.0200 0.0200	32 Per Inch 0.0200 0.0200	32 Per Inch 0.0200 0.0200
0.015	0.016	0.017	0.019	0.021	0.022	0.023	0.024	0.025	0.026
0.014	0.015	0.016	0.017	0.019	0.020	0.021	0.022	0.023	0.024
0.012	0.013	0.014	0.016	0.018	0.019	0.020	0.021	0.022	0.023
0.015	0.016	0.017	0.019	0.021	0.022	0.023	0.024	0.025	0.026
0.014	0.015	0.016	0.018	0.019	0.020	0.021	0.022	0.023	0.024
0.013	0.014	0.015	0.017	0.018	0.019	0.020	0.021	0.022	0.023
0.011	0.012	0.013	0.015	0.016	0.017	0.018	0.019	0.020	0.021
0.014	0.015	0.016	0.018	0.020	0.021	0.022	0.023	0.024	0.025
0.013	0.014	0.015	0.017	0.019	0.020	0.021	0.022	0.023	0.024
0.012	0.013	0.014	0.016	0.018	0.019	0.020	0.021	0.022	0.023
0.011	0.012	0.013	0.015	0.016	0.017	0.018	0.019	0.020	0.021
0.014	0.015	0.016	0.018	0.020	0.021	0.022	0.023	0.024	0.025
0.013	0.014	0.015	0.017	0.019	0.020	0.021	0.022	0.023	0.024
0.012	0.013	0.014	0.016	0.018	0.019	0.020	0.021	0.022	0.023
0.010	0.011	0.012	0.014	0.015	0.016	0.017	0.018	0.019	0.020
0.009	0.010	0.011	0.013	0.014	0.015	0.016	0.017	0.018	0.019
0.011	0.012	0.013	0.014	0.015	0.016	0.017	0.018	0.019	0.020
0.010	0.011	0.011	0.012	0.013	0.014	0.015	0.016	0.017	0.018
0.009	0.010	0.010	0.011	0.012	0.013	0.014	0.015	0.016	0.017
0.013	0.015	0.015	0.017	0.019	0.021	0.022	0.023	0.024	0.025
0.012	0.013	0.014	0.015	0.017	0.019	0.020	0.021	0.022	0.023
0.011	0.012	0.013	0.014	0.015	0.017	0.019	0.020	0.021	0.022
0.008	0.009	0.009	0.010	0.011	0.012	0.013	0.014	0.015	0.016
0.007	0.008	0.008	0.009	0.010	0.011	0.012	0.013	0.014	0.015
0.008	0.009	0.009	0.010	0.011	0.011	0.012	0.012	0.013	0.014
0.007	0.008	0.008	0.009	0.010	0.010	0.011	0.011	0.012	0.013
0.008	0.009	0.009	0.010	0.011	0.011	0.012	0.012	0.013	0.014
0.007	0.008	0.008	0.009	0.010	0.010	0.011	0.011	0.012	0.012
0.006	0.006	0.007	0.007	0.008	0.008	0.009	0.010	0.011	0.012
0.005	0.006	0.006	0.006	0.007	0.008	0.008	0.009	0.010	0.011
0.008	0.009	0.010	0.011	0.012	0.013	0.014	0.015	0.016	0.017
0.007	0.008	0.009	0.010	0.011	0.012	0.013	0.014	0.015	0.016
0.006	0.007	0.007	0.008	0.008	0.009	0.009	0.010	0.010	0.011
0.005	0.006	0.006	0.007	0.007	0.008	0.008	0.009	0.009	0.010
0.004	0.005	0.005	0.006	0.006	0.007	0.008	0.008	0.008	0.010
0.004	0.004	0.005	0.005	0.006	0.006	0.007	0.007	0.008	0.008

Coolant Recommendations

Series	Substrate		70°		15°	
	Pressure PSI	Flow Rate GPM	Pressure PSI	Flow Rate GPM	Pressure PSI	Flow Rate GPM
11	450	5	600	8	800	10
12	450	5	600	8	800	10
13	400	6	500	9.5	750	12
14	400	7	500	9.5	750	12
15	380	7	475	11	700	14
16	380	8	475	12	700	15
17	350	8	450	12.5	650	16.5
18	350	9	450	12.5	650	16.5
20	300	10	400	13	600	18
22	300	11	400	14	600	18
24	300	11	400	14	600	18
26	300	12	400	16	600	20
28	300	12	400	16	600	20
32	300	12	400	16	600	20

DRILLING
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Recommended Parameters for Gen3SYS XT Pro

GEN3SYS XT Pro

Material	Diameter (mm)	Speed (RPM)	Feed Rate (mm/rev) by Diameter				
			11 Diameter (mm)	12 Diameter (mm)	13 Diameter (mm)	14 Diameter (mm)	
			0.331	0.724	0.511	0.512	
			0.723	0.511	0.511	0.525	
Steel	400	160	0.005	0.005	0.006	0.006	
	500	130	0.004	0.004	0.005	0.006	
	600	90	0.004	0.004	0.004	0.005	
	300 - 400	170	0.005	0.005	0.006	0.006	
Inconel	400	160	0.005	0.005	0.006	0.006	
	500	130	0.004	0.004	0.005	0.006	
	600	90	0.004	0.004	0.004	0.005	
	300 - 400	170	0.005	0.005	0.006	0.006	
K	Titanium	120 - 150	550	0.010	0.012	0.013	0.014
		150 - 200	520	0.010	0.011	0.012	0.013
		200 - 220	465	0.008	0.010	0.011	0.012
		220 - 260	405	0.008	0.009	0.010	0.011
	Inconel	120 - 150	575	0.012	0.013	0.014	0.015
		150 - 200	550	0.011	0.012	0.013	0.014
		200 - 220	495	0.010	0.011	0.012	0.013
		220 - 260	425	0.009	0.010	0.011	0.012
	Aluminum	120 - 150	380	0.009	0.010	0.011	0.012
		150 - 200	380	0.009	0.010	0.011	0.012
		200 - 220	380	0.009	0.010	0.011	0.012
		220 - 260	380	0.009	0.010	0.011	0.012
P	Aluminum	30	1150	0.012	0.013	0.014	0.015
		180	860	0.011	0.012	0.013	0.014
	Titanium	30	1600	0.013	0.015	0.016	0.017
		180	1150	0.012	0.014	0.015	0.016
	Inconel	100 - 200	415	0.010	0.011	0.012	0.012
		200 - 250	335	0.008	0.009	0.010	0.011
Brass	100	755	0.010	0.012	0.013	0.014	
Copper	60	490	0.003	0.003	0.003	0.004	

7mm Recommended Parameters

Speed (RPM)	Feed (mm/rev)
200 SFM • 0.80	= 160 SFM
0.008 IPR • 0.80	= 0.0064 IPR

10mm Recommended Parameters

Speed (RPM)	Feed (mm/rev)
200 SFM • 0.70	= 140 SFM
0.008 IPR • 0.70	= 0.0056 IPR

Pre-drill and Deburr

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

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

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. For 7xD and 10xD holder lengths, see adjustment example above.

Feed Rate (FPM) by Diameter									
1/8" Dia 0.1250"	1/4" Dia 0.2500"	3/8" Dia 0.3750"	1/2" Dia 0.5000"	3/4" Dia 0.7500"	1" Dia 1.0000"	1 1/4" Dia 1.2500"	1 1/2" Dia 1.5000"	2" Dia 2.0000"	3" Dia 3.0000"
0.007	0.008	0.009	0.010	0.010	0.010	0.011	0.011	0.012	0.012
0.006	0.007	0.008	0.009	0.010	0.010	0.010	0.010	0.011	0.011
0.006	0.006	0.007	0.008	0.009	0.009	0.010	0.010	0.010	0.010
0.007	0.008	0.008	0.009	0.010	0.010	0.010	0.010	0.011	0.011
0.006	0.007	0.008	0.008	0.009	0.009	0.010	0.010	0.010	0.010
0.015	0.016	0.018	0.020	0.020	0.022	0.022	0.024	0.025	0.026
0.014	0.015	0.017	0.019	0.020	0.020	0.022	0.022	0.024	0.024
0.013	0.014	0.016	0.018	0.019	0.020	0.020	0.022	0.022	0.023
0.012	0.013	0.015	0.017	0.018	0.019	0.020	0.020	0.022	0.022
0.011	0.012	0.014	0.015	0.017	0.018	0.019	0.020	0.020	0.021
0.016	0.017	0.019	0.021	0.022	0.023	0.024	0.025	0.026	0.027
0.015	0.016	0.018	0.020	0.021	0.022	0.023	0.024	0.025	0.026
0.014	0.015	0.017	0.020	0.020	0.021	0.022	0.023	0.024	0.025
0.013	0.014	0.016	0.018	0.019	0.020	0.021	0.022	0.023	0.024
0.013	0.014	0.015	0.017	0.018	0.019	0.020	0.021	0.022	0.023
0.016	0.017	0.018	0.019	0.020	0.021	0.022	0.023	0.024	0.025
0.015	0.016	0.017	0.018	0.019	0.020	0.021	0.022	0.023	0.023
0.018	0.019	0.020	0.022	0.023	0.024	0.026	0.027	0.029	0.030
0.017	0.018	0.019	0.021	0.022	0.023	0.025	0.026	0.028	0.029
0.013	0.014	0.015	0.015	0.016	0.017	0.018	0.019	0.019	0.019
0.012	0.012	0.013	0.014	0.015	0.016	0.017	0.018	0.018	0.019
0.015	0.016	0.017	0.019	0.020	0.022	0.023	0.024	0.026	0.026
0.005	0.006	0.006	0.007	0.008	0.008	0.008	0.010	0.010	0.011

Coolant Recommendations

Series	Substrate		70°		120°	
	Pressure (PSI)	Flow Rate (GPM)	Pressure (PSI)	Flow Rate (GPM)	Pressure (PSI)	Flow Rate (GPM)
11	450	5	600	8	800	10
12	450	5	600	8	800	10
13	400	6	500	9.5	750	12
14	400	7	500	9.5	750	12
15	380	7	475	11	700	14
16	380	8	475	12	700	15
17	350	8	450	12.5	650	16.5
18	350	9	450	12.5	650	16.5
20	300	10	400	13	600	18
22	300	11	400	14	600	18
24	300	11	400	14	600	18
26	300	12	400	16	600	20
28	300	12	400	16	600	20
32	300	12	400	16	600	20

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Recommended Parameters for Gen3SYS XT

GEN3SYS XT

Material	Diameter (mm)	Speed (RPM)	Feed Rate (mm/rev) by Diameter				
			11 Diameter (mm)	12 Diameter (mm)	13 Diameter (mm)	14 Diameter (mm)	
			331	724	511	512	
			723	5117	511	525	
Free Cutting Steel 1118, 1215, 12L14, etc.	100 - 150	480	0.009	0.011	0.012	0.013	
	150 - 200	415	0.009	0.010	0.011	0.012	
	200 - 250	390	0.007	0.008	0.009	0.010	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	450	0.010	0.011	0.012	0.013
		125 - 175	390	0.009	0.010	0.011	0.012
		175 - 225	355	0.008	0.009	0.010	0.011
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	310	0.006	0.007	0.008	0.009
		125 - 175	390	0.009	0.010	0.011	0.012
		175 - 225	355	0.008	0.009	0.010	0.011
	Alloy Steel 4140, 5140, 8640, etc.	225 - 275	310	0.007	0.008	0.009	0.010
		275 - 325	285	0.006	0.006	0.007	0.008
		325 - 375	255	0.006	0.006	0.006	0.007
		125 - 175	375	0.009	0.010	0.011	0.012
	Stainless Alloy 4340, 4330V, 300M, etc.	175 - 225	355	0.008	0.009	0.010	0.011
		225 - 275	310	0.007	0.008	0.009	0.010
		350 - 400	185	0.005	0.006	0.006	0.007
Structural Steel A36, A285, A516, etc.	100 - 150	355	0.009	0.010	0.011	0.012	
	150 - 250	285	0.007	0.008	0.009	0.010	
	250 - 350	265	0.006	0.007	0.008	0.009	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	100 - 150	355	0.009	0.010	0.011	0.012	
	150 - 200	255	0.006	0.006	0.006	0.007	
200 - 250	195	0.005	0.006	0.006	0.006		
	S	140 - 220	120	0.006	0.006	0.006	0.007
Hastelloy B, Inconel 600, etc.		95	0.005	0.006	0.006	0.006	
140 - 220		140	0.005	0.006	0.006	0.007	
220 - 310		110	0.004	0.005	0.006	0.006	
Titanium Alloy S82	185 - 275	145	0.004	0.004	0.005	0.005	
	275 - 350	120	0.003	0.003	0.004	0.005	
Y	185 - 275	240	0.006	0.007	0.007	0.008	
	416, 420, etc.	185	0.005	0.006	0.006	0.007	
	275 - 350	185	0.005	0.006	0.006	0.007	
	135 - 185	220	0.004	0.005	0.005	0.006	
	304, 316, 17-4PH, etc.	160	0.003	0.004	0.004	0.005	
Super Premium Stainless Steel	185 - 275	125	0.003	0.003	0.003	0.004	
	135 - 185	100	0.002	0.002	0.003	0.003	

7mm Recommended Multiple Pass Parameters

Recommended Parameters	Speed (RPM)
200 SFM • 0.80	= 160 SFM
0.008 IPR • 0.80	= 0.0064 IPR

1mm Recommended Multiple Pass Parameters

Recommended Parameters	Speed (RPM)
200 SFM • 0.70	= 140 SFM
0.008 IPR • 0.70	= 0.0056 IPR

1. DRILLING Coolant is recommended for all applications.

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com or call 1.330.343.4283 for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

DRILLING 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. For 7xD and 10xD holder lengths, see adjustment example above.

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Feed Rate by Diameter									
15 Per Inch 0.0200 0.0200	17 Per Inch 0.0220 0.0220	17 Per Inch 0.0230 0.0230	17 Per Inch 0.0270 0.0273	20 Per Inch 0.0274 0.0274	22 Per Inch 0.0310 0.0344	24 Per Inch 0.0440 0.0235	28 Per Inch 0.0230 0.0410	28 Per Inch 0.0417 0.0257	32 Per Inch 0.0250 0.0370
0.014	0.015	0.016	0.017	0.019	0.020	0.021	0.022	0.023	0.024
0.013	0.014	0.015	0.016	0.017	0.018	0.019	0.020	0.021	0.022
0.011	0.012	0.013	0.015	0.017	0.017	0.018	0.019	0.020	0.021
0.014	0.015	0.016	0.017	0.019	0.020	0.021	0.022	0.023	0.024
0.013	0.014	0.015	0.016	0.017	0.018	0.019	0.020	0.021	0.022
0.012	0.013	0.014	0.015	0.016	0.017	0.018	0.019	0.020	0.021
0.010	0.011	0.012	0.014	0.015	0.016	0.017	0.017	0.018	0.019
0.013	0.014	0.015	0.017	0.018	0.019	0.020	0.021	0.022	0.023
0.012	0.013	0.014	0.016	0.017	0.018	0.019	0.020	0.021	0.022
0.011	0.012	0.013	0.015	0.016	0.017	0.018	0.019	0.020	0.021
0.010	0.011	0.012	0.014	0.015	0.016	0.017	0.017	0.018	0.019
0.013	0.014	0.015	0.017	0.018	0.019	0.020	0.021	0.022	0.023
0.012	0.013	0.014	0.016	0.017	0.018	0.019	0.020	0.021	0.022
0.011	0.012	0.013	0.015	0.016	0.017	0.018	0.019	0.020	0.021
0.010	0.011	0.012	0.014	0.015	0.016	0.017	0.017	0.018	0.019
0.013	0.014	0.015	0.017	0.018	0.019	0.020	0.021	0.022	0.023
0.012	0.013	0.014	0.016	0.017	0.018	0.019	0.020	0.021	0.022
0.011	0.012	0.013	0.015	0.015	0.017	0.018	0.019	0.020	0.021
0.009	0.010	0.011	0.013	0.014	0.015	0.016	0.017	0.018	0.018
0.008	0.009	0.010	0.012	0.013	0.014	0.015	0.016	0.017	0.017
0.010	0.011	0.012	0.013	0.014	0.015	0.016	0.017	0.017	0.018
0.009	0.010	0.010	0.011	0.012	0.013	0.014	0.015	0.016	0.017
0.008	0.009	0.009	0.010	0.011	0.012	0.013	0.014	0.015	0.016
0.012	0.014	0.014	0.016	0.017	0.019	0.020	0.021	0.022	0.023
0.011	0.012	0.013	0.014	0.016	0.017	0.018	0.019	0.020	0.021
0.010	0.011	0.012	0.013	0.014	0.016	0.017	0.018	0.019	0.020
0.007	0.008	0.008	0.009	0.010	0.011	0.012	0.013	0.014	0.015
0.006	0.007	0.007	0.008	0.009	0.010	0.011	0.012	0.013	0.014
0.007	0.008	0.008	0.009	0.010	0.010	0.011	0.011	0.012	0.013
0.006	0.007	0.007	0.008	0.009	0.009	0.010	0.010	0.011	0.011
0.006	0.006	0.006	0.006	0.007	0.007	0.008	0.009	0.010	0.011
0.005	0.006	0.006	0.006	0.006	0.007	0.007	0.008	0.009	0.010
0.008	0.009	0.010	0.011	0.012	0.013	0.014	0.015	0.016	0.017
0.007	0.008	0.009	0.010	0.011	0.012	0.013	0.014	0.015	0.016
0.006	0.007	0.007	0.008	0.008	0.009	0.009	0.010	0.010	0.011
0.005	0.006	0.006	0.007	0.007	0.008	0.008	0.009	0.009	0.010
0.004	0.005	0.005	0.006	0.006	0.007	0.008	0.008	0.008	0.010
0.004	0.004	0.005	0.005	0.006	0.006	0.007	0.007	0.008	0.008

Coolant Recommendations

Series	Sub 3/8" - 5/8"		7/8"		1 1/8"	
	Pressure PSI	Flow Rate GPM	Pressure PSI	Flow Rate GPM	Pressure PSI	Flow Rate GPM
11	450	5	600	8	800	10
12	450	5	600	8	800	10
13	400	6	500	9.5	750	12
14	400	7	500	9.5	750	12
15	380	7	475	11	700	14
16	380	8	475	12	700	15
17	350	8	450	12.5	650	16.5
18	350	9	450	12.5	650	16.5
20	300	10	400	13	600	18
22	300	11	400	14	600	18
24	300	11	400	14	600	18
26	300	12	400	16	600	20
28	300	12	400	16	600	20
32	300	12	400	16	600	20

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Recommended Parameters for Gen3SYS XT

GEN3SYS XT

Material	Diameter (mm)	Speed (RPM)	Feed Rate (mm/rev) by Diameter			
			11 Diameter (mm)	12 Diameter (mm)	13 Diameter (mm)	14 Diameter (mm)
			0.331	0.724	0.511	0.512
			0.723	0.511	0.511	0.525
Steel	400	145	0.005	0.005	0.006	0.006
	500	110	0.004	0.004	0.005	0.006
	600	80	0.004	0.004	0.004	0.005
	300 - 400	155	0.005	0.005	0.006	0.006
Inconel	400 - 500	120	0.004	0.004	0.005	0.006
	120 - 150	480	0.009	0.011	0.012	0.013
Titanium	150 - 200	450	0.009	0.010	0.011	0.012
	200 - 220	400	0.007	0.009	0.010	0.011
	220 - 260	350	0.007	0.008	0.009	0.010
	260 - 320	320	0.007	0.007	0.008	0.009
	120 - 150	500	0.011	0.012	0.013	0.014
	150 - 200	480	0.010	0.011	0.012	0.013
	200 - 220	430	0.009	0.010	0.011	0.012
	220 - 260	370	0.008	0.009	0.010	0.011
Aluminum	260 - 320	335	0.008	0.009	0.010	0.011
	30	1000	0.011	0.012	0.013	0.014
Inconel	180	750	0.010	0.011	0.012	0.013
	30	1400	0.012	0.014	0.015	0.016
Titanium	180	1000	0.011	0.013	0.014	0.015
	100 - 200	360	0.009	0.010	0.011	0.011
Aluminum	200 - 250	295	0.007	0.008	0.009	0.010
	100	660	0.009	0.011	0.012	0.013
Cooper	60	425	0.003	0.003	0.003	0.004

7mm Recommended Parameters

Material	Speed (RPM)
200 SFM • 0.80	= 160 SFM
0.008 IPR • 0.80	= 0.0064 IPR

10mm Recommended Parameters

Material	Speed (RPM)
200 SFM • 0.70	= 140 SFM
0.008 IPR • 0.70	= 0.0056 IPR

1. Coolant can be used for dry or wet drilling

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

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

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. For 7xD and 10xD holder lengths, see adjustment example above.

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Feed Rate (mm/min) by Diameter									
15 Series Ø5.000 Ø Ø2.000	18 Series Ø2.000 Ø Ø2.000	17 Series Ø3.000 Ø Ø2.000	18 Series Ø2.000 Ø Ø2.000	20 Series Ø2.000 Ø Ø2.000	22 Series Ø2.000 Ø Ø2.000	24 Series Ø4.000 Ø Ø2.000	28 Series Ø2.000 Ø Ø2.000	28 Series Ø4.000 Ø Ø2.000	32 Series Ø2.000 Ø Ø2.000
0.006	0.007	0.008	0.009	0.009	0.009	0.010	0.010	0.011	0.011
0.006	0.006	0.007	0.008	0.009	0.009	0.009	0.009	0.010	0.010
0.006	0.006	0.006	0.007	0.008	0.008	0.009	0.009	0.009	0.009
0.006	0.007	0.007	0.008	0.009	0.009	0.009	0.009	0.010	0.010
0.006	0.006	0.007	0.007	0.008	0.008	0.009	0.009	0.009	0.009
0.014	0.015	0.017	0.018	0.018	0.020	0.020	0.022	0.023	0.024
0.013	0.014	0.016	0.017	0.018	0.018	0.020	0.020	0.022	0.022
0.012	0.013	0.015	0.016	0.017	0.018	0.018	0.020	0.020	0.021
0.011	0.012	0.014	0.015	0.016	0.017	0.018	0.018	0.020	0.020
0.010	0.011	0.013	0.014	0.015	0.016	0.017	0.018	0.018	0.019
0.015	0.016	0.018	0.019	0.020	0.021	0.022	0.023	0.024	0.025
0.014	0.015	0.017	0.018	0.019	0.020	0.021	0.022	0.023	0.024
0.013	0.014	0.016	0.018	0.018	0.019	0.020	0.021	0.022	0.023
0.012	0.013	0.015	0.017	0.017	0.018	0.019	0.020	0.021	0.022
0.012	0.013	0.014	0.016	0.016	0.017	0.018	0.019	0.020	0.021
0.015	0.016	0.017	0.017	0.018	0.019	0.020	0.021	0.022	0.023
0.014	0.015	0.016	0.016	0.017	0.018	0.019	0.020	0.021	0.021
0.017	0.017	0.018	0.020	0.021	0.022	0.024	0.025	0.027	0.028
0.016	0.016	0.017	0.019	0.020	0.021	0.023	0.024	0.026	0.027
0.012	0.013	0.014	0.014	0.015	0.016	0.017	0.017	0.017	0.017
0.011	0.011	0.012	0.013	0.014	0.015	0.016	0.016	0.016	0.016
0.014	0.015	0.016	0.017	0.018	0.020	0.021	0.022	0.024	0.024
0.005	0.006	0.006	0.006	0.007	0.007	0.007	0.009	0.009	0.010

Coolant Recommendations

Series	Substrate		7mm		12mm	
	Pressure (PSI)	Flow Rate (GPM)	Pressure (PSI)	Flow Rate (GPM)	Pressure (PSI)	Flow Rate (GPM)
11	450	5	600	8	800	10
12	450	5	600	8	800	10
13	400	6	500	9.5	750	12
14	400	7	500	9.5	750	12
15	380	7	475	11	700	14
18	380	8	475	12	700	15
17	350	8	450	12.5	650	16.5
18	350	9	450	12.5	650	16.5
20	300	10	400	13	600	18
22	300	11	400	14	600	18
24	300	11	400	14	600	18
28	300	12	400	16	600	20
28	300	12	400	16	600	20
32	300	12	400	16	600	20

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Recommended RPM and Feed by Diameter

GEN3SYS XT Pro

Material	Diameter (mm)	Speed (RPM)	Feed Rate (mm/rev) by Diameter			
			11 Perfor. 11mm	12 Perfor. 12mm	13 Perfor. 13mm	14 Perfor. 14mm
Steel	Free Cutting Steel 1118, 1215, 12L14, etc.	100 - 150	0.28	0.30	0.33	0.36
		150 - 200	0.25	0.28	0.30	0.33
		200 - 250	0.20	0.23	0.25	0.28
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	0.28	0.3	0.33	0.36
		125 - 175	0.25	0.28	0.30	0.33
		175 - 225	0.23	0.25	0.28	0.30
		225 - 275	0.18	0.20	0.23	0.25
	Premium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	0.25	0.28	0.30	0.33
		175 - 225	0.23	0.25	0.28	0.30
		225 - 275	0.20	0.23	0.25	0.28
		275 - 325	0.18	0.20	0.23	0.25
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	0.25	0.28	0.30	0.33
		175 - 225	0.23	0.25	0.28	0.30
		225 - 275	0.20	0.23	0.25	0.28
		275 - 325	0.15	0.18	0.20	0.23
325 - 375		0.15	0.15	0.18	0.20	
Stainless Alloy 4340, 4330V, 300M, etc.	225 - 300	0.20	0.23	0.25	0.28	
	300 - 350	0.15	0.18	0.20	0.23	
	350 - 400	0.13	0.18	0.18	0.20	
Structural Steel A36, A285, A516, etc.	100 - 150	0.25	0.28	0.30	0.33	
	150 - 250	0.20	0.23	0.25	0.28	
	250 - 350	0.18	0.20	0.23	0.25	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	0.15	0.18	0.18	0.20	
	200 - 250	0.13	0.15	0.15	0.18	
S	Titanium Alloy Hastelloy B, Inconel 600, etc.	140 - 220	0.15	0.18	0.18	0.20
		220 - 310	0.13	0.15	0.15	0.18
	Inconel Alloy	140 - 220	0.13	0.15	0.18	0.20
		220 - 310	0.10	0.13	0.15	0.18
	Titanium Alloy S82	185 - 275	0.10	0.10	0.12	0.14
275 - 350	0.09	0.09	0.10	0.12		
P	Stainless Steel 400 Series 416, 420, etc.	185 - 275	0.15	0.18	0.18	0.20
		275 - 350	0.13	0.15	0.15	0.18
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	0.10	0.13	0.13	0.15
		185 - 275	0.08	0.10	0.10	0.13
	Super Premium Stainless Steel	135 - 185	0.08	0.08	0.08	0.10
185 - 275	0.05	0.05	0.08	0.08		

7mm Recommended RPM and Feed

Material	Speed (RPM)
61 M/min • 0.80	= 48.8 M/min
0.20 mm/rev • 0.80	= 0.16 mm/rev

10mm Recommended RPM and Feed

Material	Speed (RPM)
61 M/min • 0.70	= 42.7 M/min
0.20 mm/rev • 0.70	= 0.14 mm/rev

1. Pre-drill

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com or call 1.330.343.4283 for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

NOTE: 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. For 7xD and 10xD holder lengths, see adjustment example above.

Feed Rate (mm/rev) by Diameter									
15 Series 15.750 15.750	17 Series 17.150 17.150	17 Series 17.750 17.750	19 Series 19.000 19.000	21 Series 21.000 21.000	22 Series 22.250 23.000	24 Series 24.000 25.000	26 Series 26.000 26.000	27 Series 27.000 31.000	32 Series 32.000 35.000
0.38	0.41	0.43	0.48	0.53	0.56	0.58	0.61	0.64	0.66
0.36	0.38	0.41	0.43	0.48	0.51	0.53	0.56	0.58	0.61
0.30	0.33	0.36	0.41	0.46	0.48	0.51	0.53	0.56	0.58
0.38	0.41	0.43	0.48	0.53	0.56	0.58	0.61	0.64	0.66
0.36	0.38	0.41	0.46	0.48	0.51	0.53	0.56	0.58	0.61
0.33	0.36	0.38	0.42	0.46	0.48	0.51	0.53	0.56	0.58
0.28	0.30	0.33	0.38	0.41	0.42	0.46	0.48	0.51	0.53
0.36	0.38	0.41	0.46	0.51	0.53	0.56	0.58	0.61	0.64
0.33	0.36	0.38	0.43	0.48	0.51	0.53	0.56	0.58	0.61
0.30	0.33	0.36	0.41	0.46	0.48	0.51	0.53	0.56	0.58
0.28	0.30	0.33	0.38	0.41	0.43	0.46	0.48	0.51	0.53
0.36	0.38	0.41	0.46	0.51	0.53	0.56	0.58	0.61	0.64
0.33	0.36	0.38	0.43	0.48	0.51	0.53	0.56	0.58	0.61
0.30	0.33	0.36	0.41	0.46	0.48	0.51	0.53	0.56	0.58
0.25	0.28	0.30	0.36	0.38	0.41	0.43	0.46	0.48	0.51
0.23	0.25	0.28	0.33	0.36	0.38	0.41	0.43	0.46	0.48
0.28	0.30	0.33	0.36	0.38	0.41	0.43	0.46	0.48	0.51
0.25	0.28	0.28	0.30	0.33	0.36	0.38	0.41	0.43	0.46
0.23	0.25	0.25	0.28	0.30	0.33	0.36	0.38	0.41	0.43
0.33	0.38	0.38	0.43	0.48	0.53	0.56	0.58	0.61	0.64
0.30	0.33	0.36	0.38	0.43	0.48	0.51	0.53	0.56	0.58
0.28	0.30	0.33	0.36	0.38	0.43	0.48	0.51	0.53	0.56
0.20	0.23	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.41
0.18	0.20	0.20	0.23	0.25	0.28	0.30	0.33	0.36	0.38
0.20	0.23	0.23	0.25	0.28	0.28	0.30	0.30	0.33	0.36
0.18	0.20	0.20	0.23	0.25	0.25	0.28	0.28	0.30	0.33
0.20	0.23	0.23	0.25	0.28	0.28	0.30	0.30	0.33	0.33
0.18	0.20	0.20	0.23	0.25	0.25	0.28	0.28	0.30	0.30
0.15	0.16	0.18	0.18	0.20	0.22	0.24	0.26	0.28	0.31
0.14	0.15	0.16	0.16	0.18	0.20	0.22	0.24	0.26	0.29
0.20	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.41	0.43
0.18	0.20	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.41
0.15	0.18	0.18	0.20	0.20	0.23	0.23	0.25	0.25	0.28
0.13	0.15	0.15	0.18	0.18	0.20	0.20	0.23	0.23	0.25
0.10	0.13	0.13	0.15	0.15	0.18	0.20	0.20	0.20	0.25
0.10	0.10	0.13	0.13	0.15	0.15	0.18	0.18	0.20	0.20

Coolant Recommendations

Series	S77b2327 2527		727		1277	
	Pressure PSI	Flow Rate LPM	Pressure PSI	Flow Rate LPM	Pressure PSI	Flow Rate LPM
11	31	19	41	30	55	38
12	31	19	41	30	55	38
13	28	23	34	36	52	45
14	28	26	34	36	52	45
15	26	26	33	42	48	53
16	26	30	33	45	48	57
17	24	30	31	47	45	62
18	24	34	31	47	45	62
20	21	38	28	49	41	68
22	21	42	28	53	41	68
24	21	42	28	53	41	68
26	21	45	28	61	41	76
27	21	45	28	61	41	76
32	21	45	28	61	41	76

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Recommended Drill Diameters and Feeds

GEN3SYS XT Pro

Material	Drill Diameter (mm)	Speed (RPM)	Feed Rate (mm/rev) by Diameter				
			11 Diameter	12 Diameter	13 Diameter	14 Diameter	
Hardox, AR400, T-1, etc.	400	50	0.13	0.13	0.15	0.17	
	500	40	0.11	0.11	0.13	0.15	
	600	27	0.10	0.10	0.11	0.13	
	Hardened Steel	300 - 400	51	0.13	0.13	0.15	0.17
	400 - 500	40	0.11	0.11	0.13	0.15	
K	Soft to Medium Carbon	120 - 150	168	0.27	0.30	0.33	0.36
		150 - 200	159	0.25	0.28	0.30	0.33
		200 - 220	141	0.22	0.25	0.28	0.30
		220 - 260	124	0.20	0.23	0.25	0.28
	Grey Cast Iron	120 - 150	175	0.30	0.33	0.36	0.38
		150 - 200	168	0.28	0.30	0.33	0.36
		200 - 220	151	0.25	0.28	0.30	0.33
		220 - 260	130	0.23	0.25	0.28	0.30
	260 - 320	116	0.23	0.25	0.28	0.30	
G	Aluminum	30	351	0.30	0.33	0.36	0.38
		180	262	0.28	0.30	0.33	0.36
	Inconel	30	488	0.33	0.38	0.41	0.43
		180	351	0.30	0.36	0.38	0.41
	Aluminum Bronze	100 - 200	126	0.26	0.28	0.30	0.32
		200 - 250	103	0.22	0.24	0.26	0.28
	Brass	100	230	0.29	0.30	0.33	0.36
Copper	60	149	0.07	0.08	0.09	0.11	

7mm Drill Diameter Conversion Table

Drill Diameter (mm)	Speed (RPM)
61 M/min • 0.80	= 48.8 M/min
0.20 mm/rev • 0.80	= 0.16 mm/rev

1mm Drill Diameter Conversion Table

Drill Diameter (mm)	Speed (RPM)
61 M/min • 0.70	= 42.7 M/min
0.20 mm/rev • 0.70	= 0.14 mm/rev

Important Notes:

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

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

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. For 7xD and 10xD holder lengths, see adjustment example above.

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Feed Rate (mm/rev) by Diameter									
15 Series 15mm Ø 15mm	17 Series 17mm Ø 17mm	17 Series 17mm Ø 17mm	19 Series 19mm Ø 19mm	21 Series 21mm Ø 21mm	22 Series 22mm Ø 23mm	24 Series 24mm Ø 25mm	26 Series 26mm Ø 27mm	28 Series 28mm Ø 31mm	32 Series 32mm Ø 35mm
0.19	0.21	0.23	0.25	0.27	0.27	0.29	0.29	0.31	0.31
0.17	0.19	0.21	0.23	0.25	0.25	0.27	0.27	0.29	0.29
0.15	0.17	0.19	0.21	0.23	0.23	0.25	0.25	0.25	0.27
0.19	0.21	0.22	0.23	0.25	0.25	0.27	0.27	0.29	0.29
0.17	0.19	0.20	0.21	0.23	0.23	0.25	0.25	0.27	0.27
0.38	0.41	0.46	0.51	0.53	0.56	0.58	0.61	0.64	0.66
0.36	0.38	0.43	0.48	0.51	0.53	0.56	0.58	0.61	0.63
0.33	0.36	0.41	0.46	0.48	0.51	0.53	0.56	0.58	0.60
0.30	0.33	0.38	0.43	0.46	0.48	0.51	0.53	0.56	0.58
0.28	0.30	0.36	0.38	0.43	0.46	0.48	0.51	0.53	0.55
0.41	0.43	0.48	0.53	0.56	0.58	0.61	0.64	0.66	0.69
0.38	0.41	0.46	0.51	0.53	0.56	0.58	0.61	0.64	0.66
0.36	0.38	0.43	0.51	0.51	0.53	0.56	0.58	0.61	0.64
0.33	0.36	0.41	0.46	0.48	0.51	0.53	0.56	0.58	0.61
0.33	0.36	0.38	0.43	0.46	0.48	0.51	0.53	0.56	0.58
0.41	0.43	0.46	0.48	0.51	0.53	0.56	0.58	0.61	0.64
0.38	0.41	0.43	0.46	0.48	0.51	0.53	0.56	0.58	0.58
0.46	0.48	0.51	0.53	0.56	0.61	0.66	0.69	0.74	0.76
0.43	0.46	0.48	0.53	0.56	0.58	0.64	0.66	0.71	0.74
0.34	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.48	0.50
0.30	0.32	0.34	0.36	0.38	0.42	0.46	0.46	0.46	0.48
0.38	0.41	0.43	0.48	0.53	0.56	0.60	0.63	0.66	0.66
0.13	0.15	0.16	0.18	0.20	0.20	0.22	0.25	0.25	0.28

Coolant Recommendations

Series	Series 15-17		Series 21-24		Series 26-32	
	Pressure (PSI)	Flow Rate (LPM)	Pressure (PSI)	Flow Rate (LPM)	Pressure (PSI)	Flow Rate (LPM)
11	31	19	41	30	55	38
12	31	19	41	30	55	38
13	28	23	34	36	52	45
14	28	26	34	36	52	45
15	26	26	33	42	48	53
16	26	30	33	45	48	57
17	24	30	31	47	45	62
18	24	34	31	47	45	62
20	21	38	28	49	41	68
22	21	42	28	53	41	68
24	21	42	28	53	41	68
26	21	45	28	61	41	76
28	21	45	28	61	41	76
32	21	45	28	61	41	76

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Recommended RPM and Feed by Diameter

GEN3SYS XT

Material	Diameter (mm)	Speed (M/min)	Feed Rate (mm/rev) by Diameter				
			11 Per 11mm	12 Per 12mm	13 Per 13mm	14 Per 14mm	
Free Cutting Steel 1118, 1215, 12L14, etc.	100 - 150	146	0.23	0.28	0.30	0.33	
	150 - 200	126	0.23	0.26	0.28	0.30	
	200 - 250	119	0.19	0.21	0.23	0.26	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	137	0.26	0.28	0.30	0.33
		125 - 175	119	0.23	0.26	0.28	0.30
		175 - 225	108	0.21	0.23	0.26	0.28
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	95	0.16	0.19	0.21	0.23
		125 - 175	119	0.23	0.26	0.28	0.30
		175 - 225	108	0.21	0.23	0.26	0.28
	Alloy Steel 4140, 5140, 8640, etc.	225 - 275	95	0.19	0.21	0.23	0.26
		275 - 325	81	0.16	0.19	0.21	0.23
		125 - 175	114	0.23	0.26	0.28	0.30
175 - 225		105	0.21	0.23	0.26	0.28	
Austenitic Alloy 4340, 4330V, 300M, etc.	225 - 275	95	0.19	0.21	0.23	0.26	
	275 - 325	87	0.14	0.16	0.19	0.21	
	325 - 375	78	0.14	0.14	0.16	0.19	
Structural Steel A36, A285, A516, etc.	300 - 350	63	0.14	0.16	0.19	0.21	
	350 - 400	56	0.12	0.14	0.16	0.19	
	100 - 150	108	0.23	0.26	0.28	0.30	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	78	0.14	0.16	0.16	0.19	
	200 - 250	59	0.12	0.14	0.14	0.16	
S Super Alloy Hastelloy B, Inconel 600, etc.	140 - 220	37	0.14	0.16	0.16	0.19	
	220 - 310	29	0.12	0.14	0.14	0.16	
	140 - 220	42	0.12	0.14	0.16	0.19	
	220 - 310	33	0.09	0.12	0.14	0.16	
Titanium Alloy S82	185 - 275	45	0.09	0.09	0.12	0.12	
	275 - 350	37	0.07	0.07	0.09	0.12	
Stainless Steel 400 Series 416, 420, etc.	185 - 275	73	0.15	0.18	0.18	0.20	
	275 - 350	56	0.13	0.15	0.15	0.18	
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	64	0.10	0.13	0.13	0.15
		185 - 275	47	0.08	0.10	0.10	0.13
	Super Austenitic Stainless Steel	135 - 185	38	0.08	0.08	0.08	0.10
185 - 275		30	0.05	0.05	0.08	0.08	

7mm Recommended RPM and Feed

Material	Speed (M/min)	Feed (mm/rev)
Free Cutting Steel	61 M/min • 0.80	= 48.8 M/min
Low Carbon Steel	0.20 mm/rev • 0.80	= 0.16 mm/rev

12mm Recommended RPM and Feed

Material	Speed (M/min)	Feed (mm/rev)
Free Cutting Steel	61 M/min • 0.70	= 42.7 M/min
Low Carbon Steel	0.20 mm/rev • 0.70	= 0.14 mm/rev

1. Coolant Use in Dry Drilling

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com or call 1.330.343.4283 for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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. For 7xD and 10xD holder lengths, see adjustment example above.

Feed Rate (mm/rev) by Diameter									
15 Series 15000 15000	17 Series 17000 17000	17 Series 17000 17000	19 Series 19000 19000	21 Series 21000 21000	22 Series 22000 23000	24 Series 24000 25000	26 Series 26000 27000	28 Series 28000 31000	32 Series 32000 35000
0.35	0.37	0.40	0.44	0.49	0.51	0.54	0.56	0.58	0.61
0.33	0.35	0.37	0.40	0.44	0.47	0.49	0.51	0.54	0.56
0.28	0.30	0.33	0.37	0.42	0.44	0.47	0.49	0.51	0.54
0.35	0.37	0.40	0.44	0.49	0.51	0.54	0.56	0.58	0.61
0.33	0.35	0.37	0.41	0.44	0.47	0.49	0.51	0.54	0.56
0.30	0.33	0.35	0.38	0.41	0.44	0.47	0.49	0.51	0.54
0.26	0.28	0.30	0.35	0.37	0.40	0.42	0.44	0.47	0.49
0.33	0.35	0.37	0.42	0.47	0.49	0.51	0.54	0.56	0.58
0.30	0.33	0.35	0.40	0.44	0.47	0.49	0.51	0.54	0.56
0.28	0.30	0.33	0.37	0.41	0.44	0.47	0.49	0.51	0.54
0.26	0.28	0.30	0.35	0.37	0.40	0.42	0.44	0.47	0.49
0.33	0.35	0.37	0.42	0.47	0.49	0.51	0.54	0.56	0.58
0.30	0.33	0.35	0.40	0.44	0.47	0.49	0.51	0.54	0.56
0.28	0.30	0.33	0.37	0.38	0.44	0.47	0.49	0.51	0.54
0.23	0.26	0.28	0.33	0.35	0.37	0.40	0.42	0.46	0.47
0.21	0.23	0.26	0.30	0.33	0.35	0.37	0.40	0.42	0.44
0.26	0.28	0.30	0.33	0.35	0.37	0.40	0.42	0.44	0.47
0.23	0.26	0.26	0.28	0.30	0.33	0.35	0.37	0.40	0.42
0.21	0.23	0.23	0.26	0.28	0.30	0.33	0.35	0.37	0.40
0.30	0.35	0.35	0.40	0.44	0.49	0.51	0.54	0.56	0.58
0.28	0.30	0.33	0.35	0.40	0.44	0.47	0.49	0.51	0.54
0.26	0.28	0.30	0.33	0.35	0.40	0.44	0.47	0.49	0.51
0.19	0.21	0.21	0.23	0.26	0.28	0.30	0.33	0.35	0.37
0.16	0.19	0.19	0.21	0.23	0.26	0.28	0.30	0.33	0.35
0.19	0.21	0.21	0.23	0.26	0.26	0.28	0.28	0.30	0.33
0.16	0.19	0.19	0.21	0.23	0.23	0.26	0.26	0.28	0.30
0.19	0.21	0.21	0.23	0.26	0.26	0.28	0.28	0.30	0.33
0.16	0.19	0.19	0.21	0.23	0.23	0.26	0.26	0.28	0.28
0.14	0.14	0.16	0.16	0.19	0.19	0.21	0.23	0.26	0.28
0.12	0.14	0.14	0.14	0.16	0.19	0.19	0.21	0.23	0.26
0.20	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.41	0.43
0.18	0.20	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.41
0.15	0.18	0.18	0.20	0.20	0.23	0.23	0.25	0.25	0.28
0.13	0.15	0.15	0.18	0.18	0.20	0.20	0.23	0.23	0.25
0.10	0.13	0.13	0.15	0.15	0.18	0.20	0.20	0.20	0.25
0.10	0.10	0.13	0.13	0.15	0.15	0.18	0.18	0.20	0.20

Coolant Recommendations

Series	Sub 3/8" to 5/8"		7/8"		1"	
	Pressure PSI	Flow Rate LPM	Pressure PSI	Flow Rate LPM	Pressure PSI	Flow Rate LPM
11	31	19	41	30	55	38
12	31	19	41	30	55	38
13	28	23	34	36	52	45
14	28	26	34	36	52	45
15	26	26	33	42	48	53
16	26	30	33	45	48	57
17	24	30	31	47	45	62
18	24	34	31	47	45	62
20	21	38	28	49	41	68
22	21	42	28	53	41	68
24	21	42	28	53	41	68
26	21	45	28	61	41	76
28	21	45	28	61	41	76
32	21	45	28	61	41	76

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Recommended Drill Diameters by Diameter

GEN3SYS XT

Material	Drill Diameter (mm)	Speed (M/min)	Feed Rate (mm/rev) by Diameter				
			11 Diameter (mm)	12 Diameter (mm)	13 Diameter (mm)	14 Diameter (mm)	
Hardox, AR400, T-1, etc.	400	45	0.12	0.12	0.14	0.14	
	500	37	0.09	0.09	0.12	0.14	
	600	25	0.09	0.09	0.09	0.12	
	Hardened Steel	300 - 400	47	0.12	0.12	0.14	0.14
	400 - 500	37	0.09	0.09	0.12	0.14	
K	Soft to Medium Carbon	120 - 150	146	0.23	0.28	0.30	0.33
		150 - 200	138	0.23	0.26	0.28	0.30
		200 - 220	123	0.19	0.23	0.26	0.28
		220 - 260	108	0.19	0.21	0.23	0.26
	Grey Cast Iron	120 - 150	152	0.28	0.30	0.33	0.35
		150 - 200	146	0.26	0.28	0.30	0.33
		200 - 220	131	0.23	0.26	0.28	0.30
		220 - 260	113	0.21	0.23	0.26	0.28
	260 - 320	102	0.21	0.23	0.26	0.28	
G	Aluminum	30	300	0.28	0.30	0.33	0.35
		180	225	0.26	0.28	0.30	0.33
	Stainless Steel	30	425	0.30	0.35	0.37	0.40
		180	300	0.28	0.33	0.35	0.37
	Aluminum Bronze	100 - 200	110	0.23	0.26	0.28	0.28
		200 - 250	90	0.19	0.21	0.23	0.26
Brass	100	200	0.23	0.28	0.30	0.33	
Copper	60	130	0.07	0.07	0.07	0.09	

7mm Recommended Feed Rates

Feed Rate (mm/rev)	Speed (M/min)
61 M/min • 0.80	= 48.8 M/min
0.20 mm/rev • 0.80	= 0.16 mm/rev

1mm Recommended Feed Rates

Feed Rate (mm/rev)	Speed (M/min)
61 M/min • 0.70	= 42.7 M/min
0.20 mm/rev • 0.70	= 0.14 mm/rev

1. Coolant Recommendation

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

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

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. For 7xD and 10xD holder lengths, see adjustment example above.

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Feed Rate (mm/rev) by Diameter									
15 Series 15mm Ø 15mm	17 Series 17mm Ø 17mm	17 Series 17mm Ø 17mm	19 Series 19mm Ø 19mm	21 Series 21mm Ø 21mm	22 Series 22mm Ø 23mm	24 Series 24mm Ø 25mm	26 Series 26mm Ø 27mm	28 Series 28mm Ø 31mm	32 Series 32mm Ø 35mm
0.16	0.19	0.21	0.23	0.23	0.23	0.26	0.26	0.28	0.28
0.14	0.16	0.19	0.21	0.23	0.23	0.23	0.23	0.26	0.26
0.14	0.14	0.16	0.19	0.21	0.21	0.23	0.23	0.23	0.23
0.16	0.19	0.19	0.21	0.23	0.23	0.23	0.23	0.26	0.26
0.14	0.16	0.19	0.19	0.21	0.21	0.23	0.23	0.23	0.23
0.35	0.37	0.42	0.47	0.47	0.51	0.51	0.56	0.58	0.61
0.33	0.35	0.40	0.44	0.47	0.47	0.51	0.51	0.56	0.56
0.30	0.33	0.37	0.41	0.44	0.47	0.47	0.51	0.51	0.54
0.28	0.30	0.35	0.38	0.41	0.44	0.47	0.47	0.51	0.51
0.26	0.28	0.33	0.35	0.38	0.41	0.44	0.47	0.47	0.49
0.37	0.40	0.46	0.49	0.51	0.54	0.56	0.58	0.61	0.63
0.35	0.37	0.42	0.47	0.49	0.51	0.54	0.56	0.58	0.61
0.33	0.35	0.40	0.47	0.47	0.49	0.51	0.54	0.56	0.58
0.30	0.33	0.37	0.42	0.44	0.47	0.49	0.51	0.54	0.56
0.30	0.33	0.35	0.40	0.41	0.44	0.47	0.49	0.51	0.54
0.37	0.40	0.42	0.44	0.47	0.49	0.51	0.54	0.56	0.58
0.35	0.37	0.40	0.41	0.44	0.47	0.49	0.51	0.54	0.54
0.42	0.44	0.47	0.51	0.54	0.56	0.61	0.63	0.68	0.70
0.40	0.41	0.44	0.49	0.51	0.54	0.58	0.61	0.65	0.68
0.30	0.33	0.35	0.35	0.37	0.40	0.42	0.44	0.44	0.44
0.28	0.28	0.30	0.33	0.35	0.37	0.40	0.41	0.41	0.41
0.35	0.37	0.40	0.44	0.47	0.51	0.54	0.56	0.61	0.61
0.12	0.14	0.14	0.16	0.19	0.19	0.19	0.23	0.23	0.26

Coolant Recommendations

Series	Series 15-17		Series 19-24		Series 26-32	
	Pressure (PSI)	Flow Rate (LPM)	Pressure (PSI)	Flow Rate (LPM)	Pressure (PSI)	Flow Rate (LPM)
11	31	19	41	30	55	38
12	31	19	41	30	55	38
13	28	23	34	36	52	45
14	28	26	34	36	52	45
15	26	26	33	42	48	53
16	26	30	33	45	48	57
17	24	30	31	47	45	62
18	24	34	31	47	45	62
20	21	38	28	49	41	68
22	21	42	28	53	41	68
24	21	42	28	53	41	68
26	21	45	28	61	41	76
28	21	45	28	61	41	76
32	21	45	28	61	41	76

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Tap Drill Information and Formulas | Imperial (inch)

American - Unified Inch Screw Thread

Tap Size	Drill Size	Decimal Length	Percent of Full Thread	Probable Mean Hole Size	Probable Hole Size	Probable Percent of Full Thread
1/2 - 20	29/64	0.4531	72%	0.003	0.4561	68%
9/16 - 12	12.0 mm	0.4724	72%	0.003	0.4754	69%
	31/64	0.4844	83%	0.003	0.4874	80%
9/16 - 18	1/2	0.5000	87%	0.003	0.5030	82%
	13.0 mm	0.5118	70%	0.003	0.5148	66%
	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%
	14.5 mm	0.5709	75%	0.003	0.5739	71%
	37/64	0.5781	65%	0.003	0.5811	61%
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%
	16.5 mm	0.6496	77%	0.003	0.6526	75%
	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%
	17.5 mm	0.6890	75%	0.003	0.6920	71%
7/8 - 9	49/64	0.7656	76%	0.003	0.7686	74%
	25/32	0.7813	65%	0.003	0.7843	63%
7/8 - 14	51/64	0.7969	84%	0.003	0.7999	81%
	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	22.0 mm	0.8661	82%	0.003	0.8691	81%
	7/8	0.8750	77%	0.003	0.8780	75%
	57/64	0.8906	67%	0.003	0.8936	65%
1 - 12	29/32	0.9063	87%	0.003	0.9093	84%
	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%
	1-3/64	1.0469	72%	0.003	1.0499	69%
1-1/4 - 7	1-7/64	1.1094	76%	0.003	1.1124	74%

Probable Percent of Full Thread

Tap Size	Drill Size	Decimal Length	Percent of Full Thread	Probable Mean Hole Size	Probable Hole Size	Probable Percent of Full 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:

$$\% \text{ Threaded } = \# \text{ of threads per inch} \cdot \frac{(\text{Basic major diameter of thread} - \text{Drill hole size})}{.0130}$$

Formulas

- $RPM = \frac{SFM \cdot 12}{DIA}$

where:
 RPM = revolutions per minute (rev/min)
 SFM = speed (ft/min)
 DIA = diameter of drill (inch)
- $IPM = \frac{IPR \cdot 12}{DIA}$

where:
 IPM = inches per minute (in/min)
 RPM = revolutions per minute (rev/min)
 IPR = feed rate (in/rev)
- $SFM = \frac{RPM \cdot DIA}{12}$

where:
 SFM = speed (ft/min)
 RPM = revolutions per minute (rev/min)
 DIA = diameter of drill (inch)
- $Thrust = \frac{IPR \cdot DIA \cdot Km}{12}$

where:
 Thrust = axial thrust (lbs)
 IPR = feed rate (in/rev)
 DIA = diameter of drill (inch)
 Km = specific cutting energy (lbs/in²)
- $Tool Power = \frac{IPR \cdot RPM \cdot Km \cdot DIA^2}{12}$

where:
 Tool Power = tool power (HP)
 IPR = feed rate (in/rev)
 RPM = revolutions per minute (rev/min)
 Km = specific cutting energy (lbs/in²)
 DIA = diameter of drill (inch)

Probable Bonding

Type of Material	Drill Size	Km (lbs/in ²)
Austenitic Stainless Steel	85 - 200 BHN	0.79
	200 - 275 BHN	0.94
	275 - 375 BHN	1.00
	375 - 425 BHN	1.15
Aluminum Alloy	-	1.44
Carbon Steel	-	0.72
Tool Steel	135 - 275 BHN	0.94
	30 - 45 RC	1.08
Titanium	100 - 200 BHN	0.50
	200 - 300 BHN	1.08
Copper Alloy	20 - 80 RB	0.43
	80 - 100 RB	0.72
Inconel Alloy	-	0.22
Monel Alloy	-	0.16

- 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 requirement.
- 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*.

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Tap Drill Information and Formulas | Metric (mm)

Tap Size	Drill Size	Recommended Length	Thread %	Probable Mean Oversize	Probable Hole Size	Probable Thread %
12 X 1.25	27/64	0.4219	79%	0.075 mm	10.79 mm	74%
	10.8 mm	0.4252	74%	0.075 mm	10.88 mm	69%
14 X 2.0	15/32	0.4688	81%	0.075 mm	11.98 mm	78%
	12.0 mm	0.4724	77%	0.075 mm	12.08 mm	74%
14 X 1.5	12.5 mm	0.4921	77%	0.075 mm	12.58 mm	73%
16 X 2.0	14.0 mm	0.5512	77%	0.075 mm	14.08 mm	74%
16 X 1.5	14.5 mm	0.5709	77%	0.075 mm	14.58 mm	73%
	37/64	0.5781	68%	0.075 mm	14.76 mm	64%
18 X 2.5	15.5 mm	0.6102	77%	0.075 mm	15.58 mm	75%
18 X 1.5	16.5 mm	0.6496	77%	0.075 mm	16.58 mm	73%
	21/32	0.6563	68%	0.075 mm	16.75 mm	64%
20 X 2.5	11/16	0.6875	78%	0.075 mm	17.54 mm	76%
	17.5 mm	0.6890	77%	0.075 mm	17.58 mm	74%
20 X 1.5	18.5 mm	0.7283	77%	0.075 mm	18.58 mm	73%
	47/64	0.7344	69%	0.075 mm	18.66 mm	65%
22 X 2.5	49/64	0.7656	79%	0.075 mm	19.52 mm	76%
	19.5 mm	0.7677	77%	0.075 mm	19.58 mm	75%
22 X 1.5	20.5 mm	0.8071	77%	0.075 mm	20.58 mm	73%
	13/16	0.8125	70%	0.075 mm	20.71 mm	66%
24 X 3	13/16	0.8125	86%	0.075 mm	20.71 mm	84%
	21.0 mm	0.8268	76%	0.075 mm	21.08 mm	75%
24 X 2	22.0 mm	0.8661	77%	0.075 mm	22.08 mm	74%
	7/8	0.8750	68%	0.075 mm	22.30 mm	65%
27 X 3	24.0 mm	0.9449	77%	0.075 mm	24.08 mm	75%

Formulas

- RPM** = $1000 \times \frac{V_c}{DIA}$

where:
 RPM = revolutions per minute (rev/min)
 M/min = speed (M/min)
 DIA = diameter of drill (mm)
- mm/min** = $RPM \times \frac{DIA}{1000}$

where:
 mm/min = mm per minute (mm/min)
 RPM = revolutions per minute (rev/min)
 mm/rev = feed rate (mm/rev)
- M/min** = $RPM \times \frac{DIA}{1000}$

where:
 M/min = speed (M/min)
 RPM = revolutions per minute (rev/min)
 DIA = diameter of drill (mm)
- Thrust** = $154 \times \frac{mm/rev \times RPM \times K_m}{DIA}$

where:
 Thrust = axial thrust (N)
 mm/rev = feed rate (mm/rev)
 DIA = diameter of drill (mm)
 K_m = specific cutting energy (kPa)
- Tool Power** = $\frac{mm/rev \times RPM \times K_m \times DIA}{1000}$

where:
 Tool Power = tool power (HP)
 mm/rev = feed rate (mm/rev)
 RPM = revolutions per minute (rev/min)
 K_m = specific cutting energy (kPa)
 DIA = diameter of drill (mm)

Standard Size 70

Tap Size	Drill Size	Recommended Length	Thread %	Probable Mean Oversize	Probable Hole Size	Probable Thread %
1/4-19	7/16"	0.4375"	-	0.075 mm	11.19 mm	-
3/8-19	37/64"	0.5781"	-	0.075 mm	14.76 mm	-
1/2-14	23/32"	0.7188"	-	0.075 mm	18.33 mm	-
3/4-14	15/16"	0.9375"	-	0.075 mm	23.89 mm	-

* Based on nominal tap drill diameter

** Based on 0.075mm probable mean oversize

To calculate the percent of full thread for a given hole diameter:

$$\frac{76.93}{\text{Pitch (mm)}} \cdot (\text{Basic major diameter} - \text{Drill hole size})$$

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 requirement.
- The .075mm 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*.

Drill Insertion

Type of Insert	Drill Size	Km (kPa)
Carbon and Alloy Steel	85 - 200 BHN	5.45
	200 - 275 BHN	6.48
	275 - 375 BHN	6.89
	375 - 425 BHN	7.93
Tempered Alloy	-	9.93
Inconel Alloy	-	4.96
Stainless Steel	135 - 275 BHN	6.48
	30 - 45 RC	7.45
Titanium	100 - 200 BHN	3.45
	200 - 300 BHN	7.45
Copper Alloy	20 - 80 RB	2.96
	80 - 100 RB	4.96
Inconel Alloy	-	1.52
	-	1.10

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GEN3SYS XT Pro | 10xD Holders

DRILLING

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REAMING

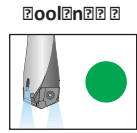
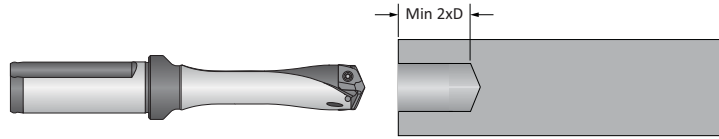
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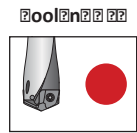
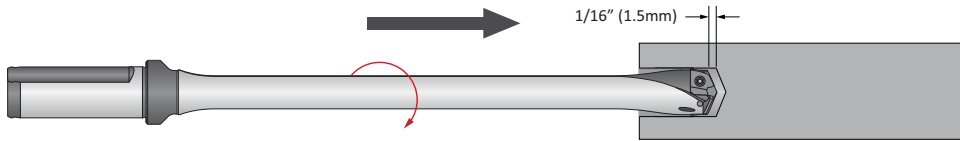
1 Pilot Hole
100 % RPM
100% IPR (mm/rev)

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.



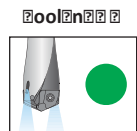
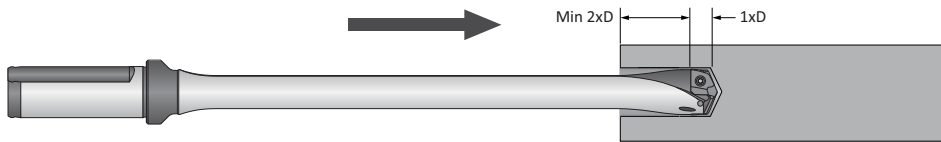
2 Feed
50 RPM max
12 IPM (300 mm/min)

Feed the longer drill within 1/16" (1.5mm) short of the established pilot hole bottom at a **minimum of 5 RPM** and 12 IPM (300 mm/min) feed rate.



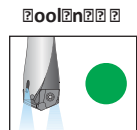
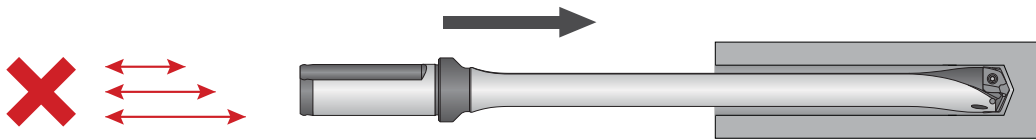
3 Deep Hole Transition Drilling
50 % RPM
75% IPR (mm/rev)

Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed. Minimum of 1 second dwell is required to meet full speed before feeding.



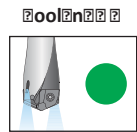
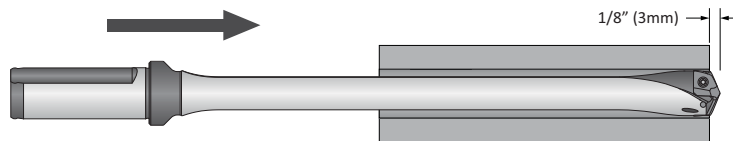
4 Feed Hole Pulling
100% RPM
100% IPR (mm/rev)

Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts. **No peck cycle recommended.**



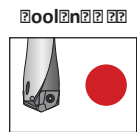
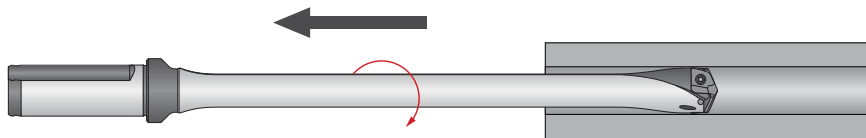
5 Deep Hole Drilling - at Breakout
50% RPM
75% IPR (mm/rev)

For Pilot Hole only
Reduce speed by 50% and feed by 25% prior to breakout. Do not breakout more than 1/8" (3mm) past the full diameter of the drill.



6 Retract
50 RPM max

Reduce speed to a **minimum of 5 RPM** before retracting from the hole.



1. Coolant Coolant should be used for all drilling operations.

- When using holders without support bushing, use a short GEN3SYS holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com/gen3sys-xt-pro for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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	Over-size hole	Poor hole finish	Poor tool life	Power spikes - Load meter	Retract spiral	
Setup Condition	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Possible Solutions
Worn or misaligned spindle (lathe, screw machine, chucker)	1		3				7		9	10	11	13				16	17			20	<ul style="list-style-type: none"> Align spindle and turret or tailstock. Repair spindle.
Use of low rigidity machine tools		2	3	4			7		9	10		13	14							20	<ul style="list-style-type: none"> Reduce penetration rate to fall within the physical limits of the machine or setup (see 2.2.2.2). Do not reduce feed below threshold of good chip formation).
Poor work piece support		2		4			7			10	11			15			17			20	<ul style="list-style-type: none"> Provide additional support for the work piece. Reduce penetration rate to fall within the physical limits of the machine or setup (see 2.2.2.2). Do not reduce feed below threshold of good chip formation).
Flood coolant, low coolant pressure, or low coolant volume	1				5	6		8		10		12				16	17	18	19		<ul style="list-style-type: none"> Run coolant through tool holder when drilling greater than 1xD. Increase coolant pressure and volume through the tool holder. Reduce penetration rate to fall within the coolant limitations (see 2.2.2.2). Do not reduce feed below threshold of good chip formation). Add a peck cycle to help clear chips.
Interrupted cuts. Entry or exit surfaces that are not perpendicular to the spindle (draft angles, parting lines, curved or stepped surfaces, cross holes, and cast or forged surfaces)				4			7		9	10	11		13	14	15	16	17	18			<ul style="list-style-type: none"> Pre-mill (spot face) entry or exit surface to remove interruption. 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 speed	1				5	6				10		12						18			<ul style="list-style-type: none"> Reduce speed. Increase coolant pressure and volume. Improve coolant condition by use of quality products and regular maintenance.
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					18			<ul style="list-style-type: none"> 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. Reduce feeds (see 2.2.2.2). Do not reduce feed below threshold of good chip formation).
Poor chip control								8		10	11	13				16	17	18	19		<ul style="list-style-type: none"> Increase feed to recommended levels. Contact Allied Application Engineering group for technical recommendations. Increase coolant pressure and volume. Improve coolant condition by use of quality products and regular maintenance.
Spot drilled holes with included angle less than that matching GEN3SYS XT or cored holes	1			4			7						13					18			<ul style="list-style-type: none"> Spot hole with short tool of same or greater included angle as GEN3SYS XT drill insert. Reduce feed (see 2.2.2.2). Do not reduce feed below threshold of good chip formation). If possible, drill from solid.

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Replaceable Insert Drilling System

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

▶ Diameter Range 0.374" - 4.507" (9.50mm - 114.48mm)



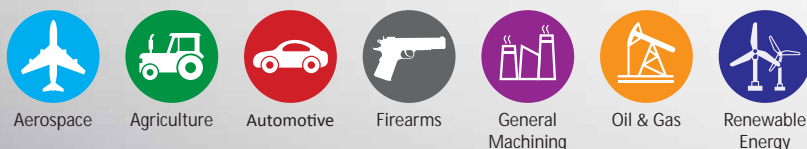
Replaceable Insert Drilling System

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
--------------------------------	---------------------------	--

Replaceable Insert



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.



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

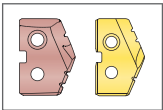
WARNING means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

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

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

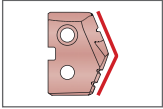
Reference Icon

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



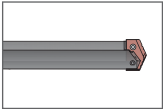
Insert

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



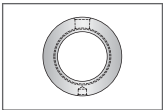
Variable Insert Geometry

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



Holder

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



Rotary Coolant Adapter Information

Detailed instructions and information regarding the corresponding part(s)



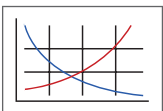
T-ACR Chamfer Rings

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	Imperial Range	
	Imperial (inch)	Metric (mm)
0	0.374 - 0.436	9.50 - 11.07
0	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
0	3.001 - 3.507	76.22 - 89.08
7	3.508 - 4.000	89.10 - 101.60
0	4.001 - 4.507	101.63 - 114.48

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Drilling System Series

Series	Series	Series	Series	1 Series	2 Series	3 Series	4 Series
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*	✗	✗	✓	✓	✓	✗	✗
SS Substrate	Super Cobalt	Super Cobalt	Super Cobalt	Super Cobalt	Super Cobalt	HSS Super Cobalt Premium Cobalt	HSS Super Cobalt
Grain Size Substrate	C1 (K35) C2 (K20)	C1 (K35) C2 (K20)	C1 (K35) C2 (K20)	C1 (K35) C2 (K20)	C1 (K35) C2 (K20)	-	-
Coatings	AM200®	AM200®	AM200®	AM200®	AM200®	AM200® TiN	AM200® TiN

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

Series	Series	Series	Series	1 Series	2 Series	3 Series	4 Series
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*	✗	✗	✓	✓	✓	✗	✗
SS Substrate	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
Grain Size Substrate	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

<ul style="list-style-type: none"> • First choice for increased heat resistance over TiN, TiCN, and TiAlN with improved wear capabilities • Allows for improved tool life and higher penetration rates • Over 20% increase in tool life compared to TiAlN coating • Color: copper/bronze 	<ul style="list-style-type: none"> • General purpose coating • Improved tool life over non-coated inserts • Excellent choice for aluminum • Color: gold/yellow 	<ul style="list-style-type: none"> • Excellent choice for wear resistance over high surface speeds • Excellent oxidation resistance • Maximum working temperature 800°C • Color: violet/gray 	<ul style="list-style-type: none"> • Excellent choice for wear resistance over low surface speeds • High hardness/wear resistance • Maximum working temperature 400°C • Hardness HV 3500 • Color: blue/gray
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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	HSS	HSS	HSS
-	-	-	-
TiN	TiN	TiN	TiN

Allied Machine			
SS (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 96kg.	SS 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 121kg.	SS 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 139kg.	Alloy 5 (Original only) Excellent for drilling free machining steel, low/medium carbon steels, alloy steels, high strength steels, tool steels, and hardened steels.
Alloy 3 K1 (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.	Alloy 2 K2 (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.	Alloy 1 K35 (GEN2 only) Excellent for drilling free machining steel, low/medium carbon steels, alloy steels, high strength steels, tool steels, and hardened steels.	Alloy 2 (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 Geometry

Insert Geometry for

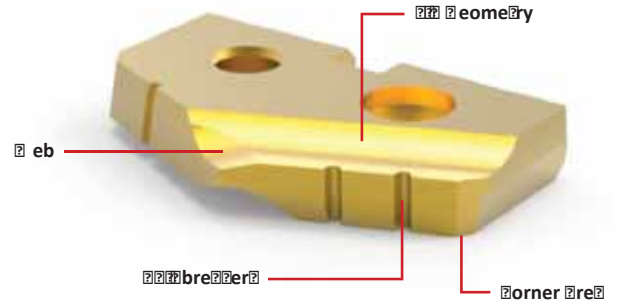
Allied Machine knows there isn't a one-size-fits-all solution when it comes to holemaking. To better accommodate the countless holes our customers drill, we have developed multiple geometry options, with new geometries in development at all times.

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



2 Flute Insert



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

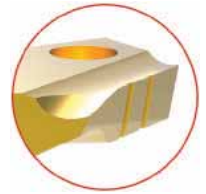


4 Flute Insert



Standard

- Offers excellent penetration rates and tool life
- Smooth break-out on through holes
- Increases drill stability and chip formation
- Ideally suited for low-to-high rigidity machining applications



High 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)



High Efficiency (-HE)

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



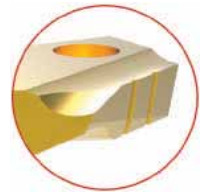
Corner R

- 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)

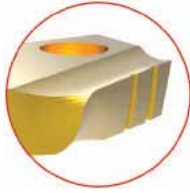
- Ideal for machining cast iron materials
- Larger than a standard corner clip
- Improves heat resistance
- Standard feature on CI, HI, and HR geometries



continued on next page

Helical Cam Ground Point

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



Notch Point

- 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

- Designed for materials with hardness > 200 BHN (700 N/mm²)
- Enhances chip formation in materials with high elasticity/ductility and poor chip forming characteristics
- SK corner clip improves tool life
- Target materials: structural/cast and forged steels (not suitable for stainless steel)



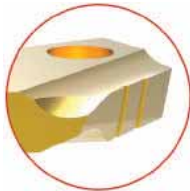
High Impact and Notch Point

- 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

- Designed for materials with hardness < 200 BHN (700 N/mm²)
- Improves chip formation in materials with very high elasticity/ductility, extremely poor chip forming characteristics, and low material hardness
- SK corner clip improves tool life
- Target materials: soft steels, steel castings and forgings (not suitable for stainless steel)



High Rake and Notch Point

- 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

- 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



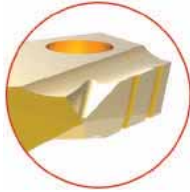
Cast Iron and Notch Point

- 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

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



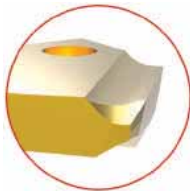
Aluminum

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



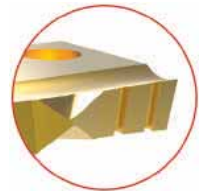
Shoulder Chamfer

- 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)



Shoulder Chamfer

- 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 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		Series 2			Series 5			Series 3	
		Series 2	Series 4	Series 5	Series 2	Series 4	Series 5	Series 2	Series 3
-AN	Aluminum				●			●	
-BR	Brass		●	●	●	●	●	●	●
-CI	Cast Iron		●		●	●		●	●
-CN	Notch Point® Cast Iron				●			●	●
-CP	Cam Point				●			●	
-CR	Corner Radius		●	●	●	●	●	●	●
-HE	High Elasticity	●	●						
-HI	High Impact		●	●	●	●	●	●	●
-HR	High Rake		●	●	●	●	●	●	●
-IN	Notch Point® High Impact				●			●	●
-NC	No Chipbreaker		●	●	●	●	●	●	●
-NP	Notch Point®				●			●	●
-RN	Notch Point® High Rake				●			●	●
-SK	Special Corner Preparation		●	●	●	●	●	●	●
-TC	Tiny Chip				●			●	
-WC	No Corner Clips		●	●	●	●	●	●	●

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



Series Y - 3 (straight flute flanged shank only)



Series ALL



Series ALL



Series ALL



Series Y - 2 (helical flute flanged shank only)



Series 0 - 3



Series 0 - 3



Series 0 - 3



Series 0 - 3



Series 0 - 3

Holder Shank Options



Half Series

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. 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

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

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Technical Information

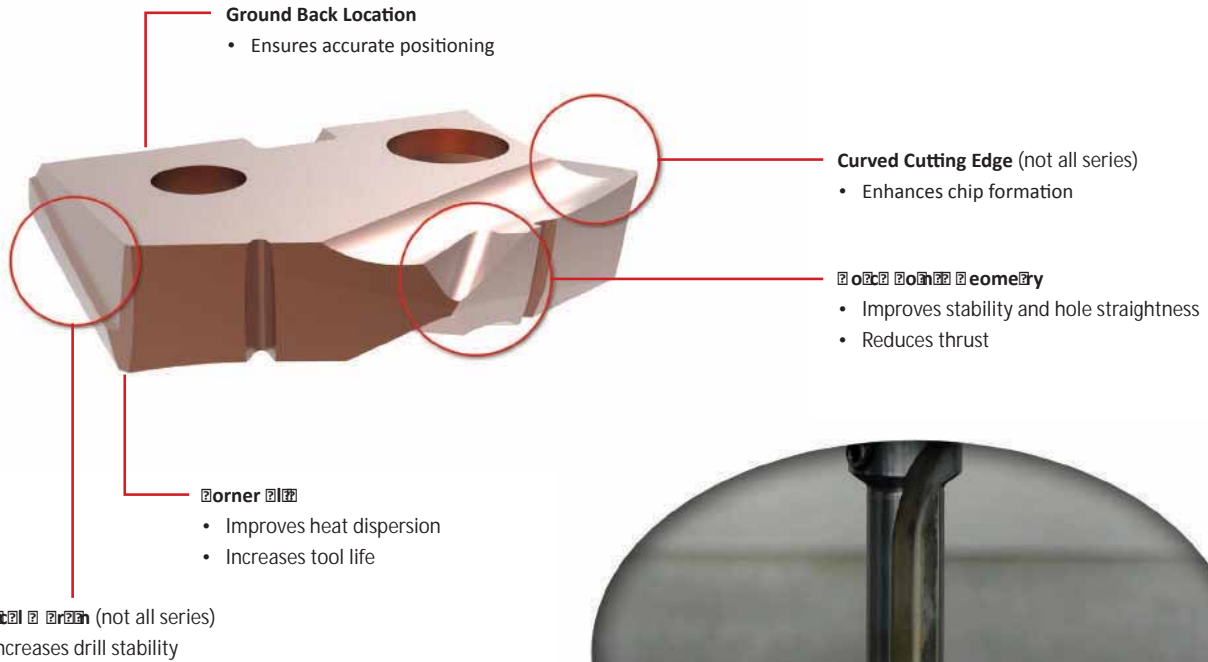
Next Level Solutions: GEN2 T-A

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

After all, everything begins as unknown.

AM200® Coating

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



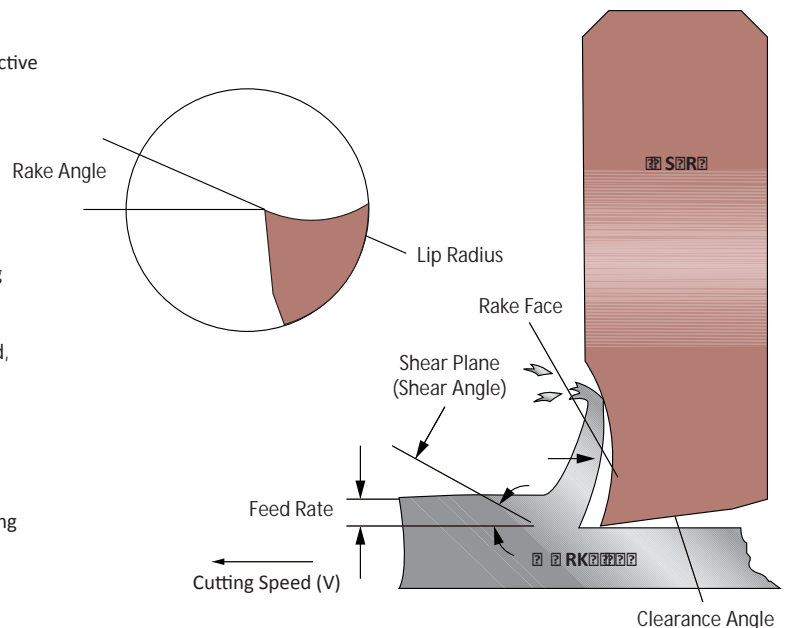
Improving Chip Formation

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

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

Setting Up New Applications

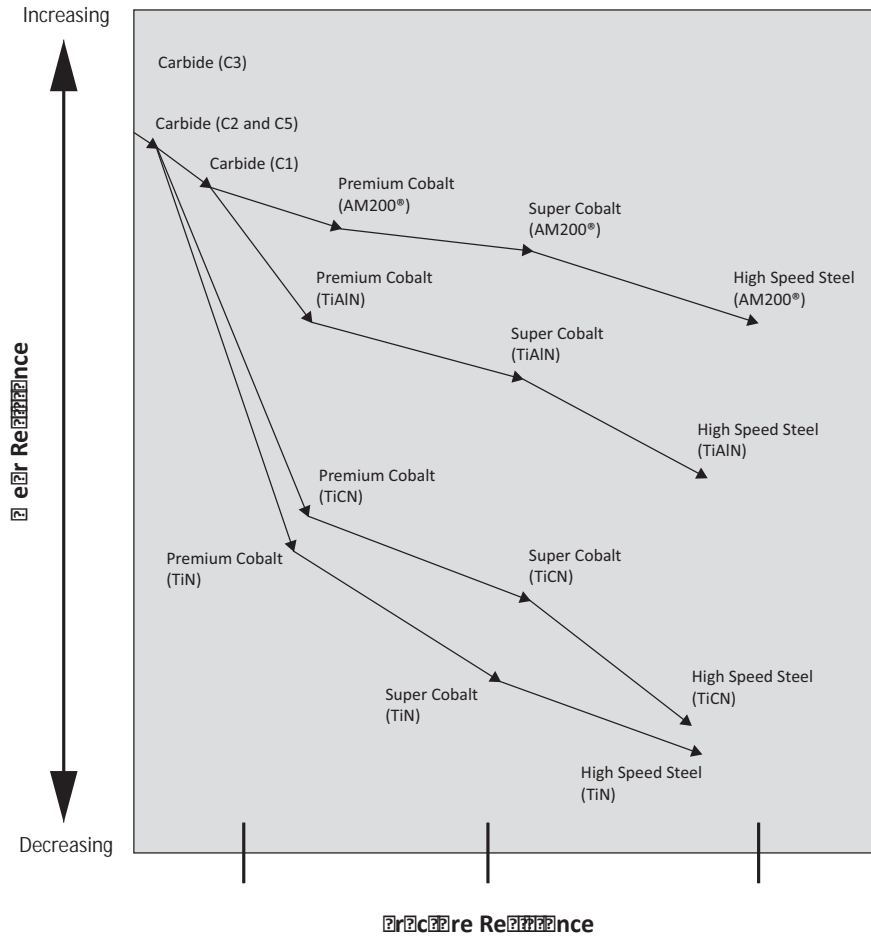
- Check coolant flows adequately through the tool before beginning
- Drill a short hole 1xD deep initially
- The chips produced should be short in length and material colored, not straw or blue
- Measure the hole produced to check that it is within the desired tolerance
- If all is correct, continue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



Wear Resistance

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

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



T-A System Guidelines for Use

- Select the shortest holder possible for the application
- Ensure the T-A holder is held securely and is within 0.003" (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

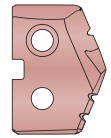
Note: These cutting parameters are starting conditions only and make no allowance for machine or component rigidity



Product Overview

Product Line

4	5	3	?	?	115
1	2	3	4		5



1. Material	2. Material	3. Series	4. Coating	5. Dimension
1 = Original T-A 4 = GEN2 T-A	3 = HSS 5 = Super cobalt ? = Premium cobalt 1 = C1 (K35) carbide 2 = C2 (K20) carbide 3 = C3 (K10) carbide 5 = C5 (P40) carbide	? = Y series ? = Z series ? = 0 series 1 = 1 series 2 = 2 series 3 = 3 series 4 = 4 series 5 = 5 series ? = 6 series 7 = 7 series ? = 8 series	? = AM200® ? = TiAlN ? = TiCN ? = TiN	? 17 = Inch ? 15 = Decimal 13 = Metric

Ordering Instructions

Standard Item

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 Diameter Standard Geometry

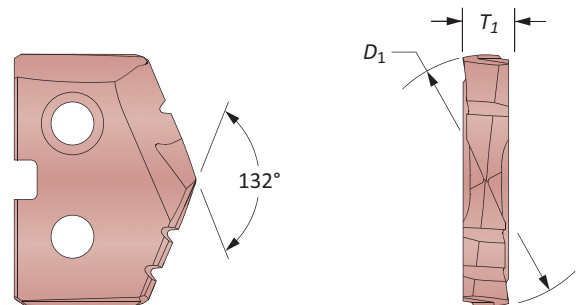
Non-standard diameter	Substitute the required diameter in place of the standard diameter.
?? Standard item number	132??101
Non-standard diameter with standard geometry (inch)	132??.?2?? (Note: 4 decimal places)
Non-standard diameter with standard geometry (metric)	132??.42?? (Note: 2 decimal places)

Special geometry	Add the special geometry code at the end of the standard item number (see pages A30: 4 - 6 for geometry options).
?? Standard item number	132??101
Standard diameter with special geometry (inch)	132??101?K

Non-standard diameter with special geometry	Replace the standard diameter and add the special geometry code.
?? Standard item number	132??101
Non-standard diameter with special geometry (inch)	132??.?2???K (Note: 4 decimal places)

Reference Key

Symbol	Attribute
D_1	Insert diameter
T_1	Insert thickness



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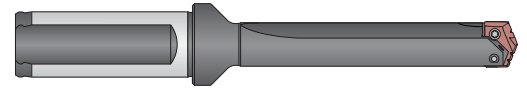
THREADING

SPECIALS

Product nomenclature

Product code

2	3	2	S	4	4	1
1	2	3	4	5	6	



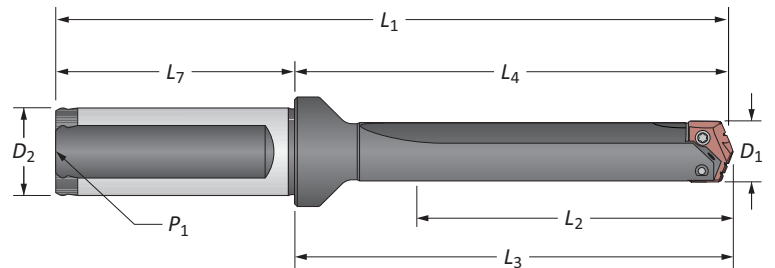
<p>1st Digit</p> <p>2 = T-A holder</p>	<p>2nd Digit</p> <p>1 = Stub 2 = Short 3 = Intermediate 4 = Standard 45 = Standard Plus 5 = Extended 6 = Long 65 = Long Plus 7 = XL 8 = 3XL</p>	<p>3rd Series</p> <p>Y = Y series Z = Z series O = O series 0.5 = 0.5 series 1 = 1 series 1.5 = 1.5 series</p> <p>2 = 2 series 2.5 = 2.5 series 3 = 3 series 4 = 4 series 5 = 5 series 7 = 7 series</p>	<p>4th Digit</p> <p>S = Straight H = Helical</p>
---	---	--	--

Imperial	Metric	Series
2MT	5/8"	16 = 16mm
3MT	3/4"	20 = 20mm
4MT	1"	25 = 25mm
5MT	1-1/4"	32 = 32mm
	1-1/2"	40 = 40mm
	1-3/4"	50 = 50mm
	2"	
	3"	

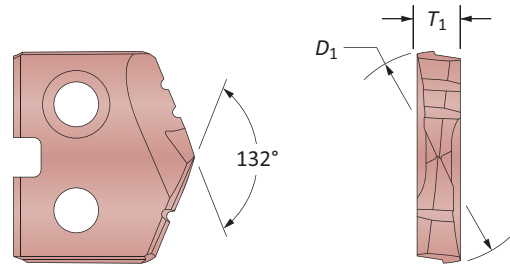
Shank Code
I = Imperial Morse taper
M = Metric Morse taper
L = Lathe shank
F = Flanged shank
FM = Flanged metric shank

Reference Key

Symbol	Attribute
D_1	Drill insert range
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



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



SS Inserts - Super Bobbit | Carbide Inserts - P2 K200 | P1 K350

Fractional Length	Insert			SS Super Bobbit		
	D ₁ Inch	D ₁ mm	T ₁	Super Bobbit	P2 K200	P1 K350
-	0.3740	9.50	3/32	45P0005	4020005	4010005
3/8	0.3750	9.53	3/32	45P0012	4020012	4010012
W	0.3860	9.80	3/32	45P0037	4020037	4010037
25/64	0.3906	9.92	3/32	45P0039	4020039	4010039
-	0.3937	10.00	3/32	45P010	4020010	4010010
-	0.4016	10.20	3/32	45P0102	40200102	40100102
13/32	0.4063	10.32	3/32	45P0013	4020013	4010013
-	0.4134	10.50	3/32	45P0105	40200105	40100105
27/64	0.4219	10.72	3/32	45P0021	4020021	4010021
-	0.4252	10.80	3/32	45P0108	40200108	40100108
-	0.4331	11.00	3/32	45P011	4020011	4010011

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A30: 112 - 143

Key on A30-1

A30: 18 - 21

A30: 4 - 6

HE

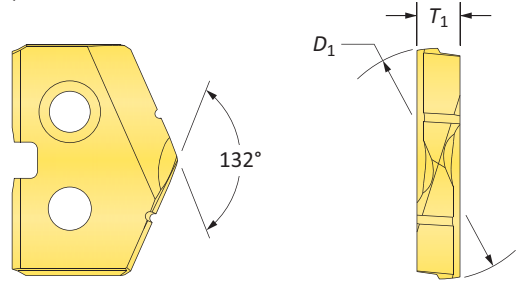
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2




131T-XXXX	131A-XXXX
131N-XXXX	131H-XXXX

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

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



HSS Insert - Ream Job

Fractional Length	Insert			Part No		
	D ₁ inch	D ₁ mm	T ₁			
-	0.3740	9.50	3/32	1000005	1000005	1000005
3/8	0.3750	9.53	3/32	1000012	1000012	1000012
W	0.3860	9.80	3/32	1000030	1000030	1000030
25/64	0.3906	9.92	3/32	1000030	1000030	1000030
-	0.3937	10.00	3/32	100010	100010	100010
-	0.4016	10.20	3/32	1000102	1000102	1000102
13/32	0.4063	10.32	3/32	1000013	1000013	1000013
-	0.4134	10.50	3/32	1000105	1000105	1000105
27/64	0.4219	10.72	3/32	1000021	1000021	1000021
-	0.4252	10.80	3/32	1000100	1000100	1000100
-	0.4331	11.00	3/32	100011	100011	100011

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

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

Inserts sold in quantities of 2

 = 131I-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

DRILLING

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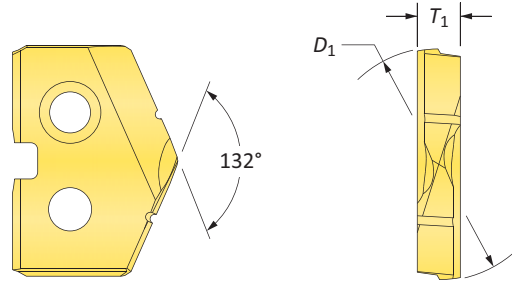
REAMING

BURNISHING

THREADING

SPECIALS

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



SS Insert - Super Job

Fractional Length	Insert			Drill		
	D ₁ Inch	D ₁ mm	T ₁	15°	15°	15°
-	0.3740	9.50	3/32	15° 15°	15° 15°	15° 15°
3/8	0.3750	9.53	3/32	15° 15° 12	15° 15° 12	15° 15° 12
W	0.3860	9.80	3/32	15° 15° 12	15° 15° 12	15° 15° 12
25/64	0.3906	9.92	3/32	15° 15° 12	15° 15° 12	15° 15° 12
-	0.3937	10.00	3/32	15° 15° 12	15° 15° 12	15° 15° 12
-	0.4016	10.20	3/32	15° 15° 12	15° 15° 12	15° 15° 12
13/32	0.4063	10.32	3/32	15° 15° 13	15° 15° 13	15° 15° 13
-	0.4134	10.50	3/32	15° 15° 13	15° 15° 13	15° 15° 13
27/64	0.4219	10.72	3/32	15° 15° 21	15° 15° 21	15° 15° 21
-	0.4252	10.80	3/32	15° 15° 21	15° 15° 21	15° 15° 21
-	0.4331	11.00	3/32	15° 15° 11	15° 15° 11	15° 15° 11

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A30: 112 - 143
Key on A30-1

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A30: 4 - 6

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

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

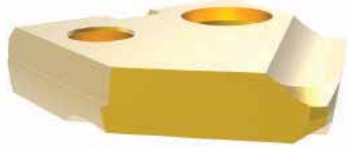
Inserts sold in quantities of 2

15° = 131T-XXXX	15° = 131A-XXXX
15° = 131N-XXXX	2° = 131H-XXXX

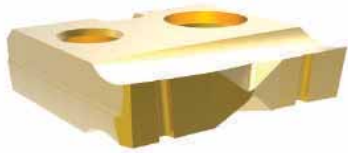
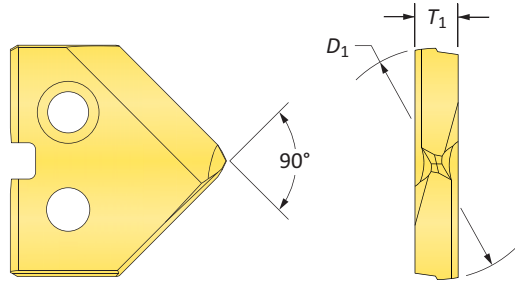


Y Series | HSS | Diameter Range: 0.374" - 0.436" (9.5mm - 11.07mm)

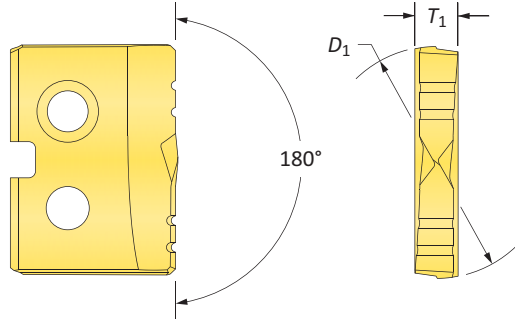
Y Series | HSS | Diameter Range: 0.374" - 0.436" (9.5mm - 11.07mm)



Chamfer

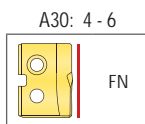
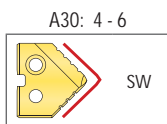
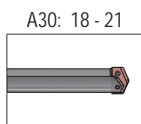
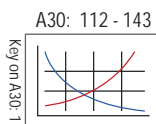


Flat Bottom



SS Inserts - Size Table

Fractional Length	Insert			Chamfer Part No.			Flat Bottom Part No.
	D ₁ inch	D ₁ mm	T ₁				
-	0.3740	9.50	3/32	15000550	15000550	15000550	15000500
3/8	0.3750	9.53	3/32	15001200	15001200	15001200	15001200
W	0.3860	9.80	3/32	15003000	15003000	15003000	15003000
25/64	0.3906	9.92	3/32	15003000	15003000	15003000	15003000
-	0.3937	10.00	3/32	15001000	15001000	15001000	15001000
-	0.4016	10.20	3/32	15001000	15001000	15001000	15001000
13/32	0.4063	10.32	3/32	15001300	15001300	15001300	15001300
-	0.4134	10.50	3/32	15001000	15001000	15001000	15001000
27/64	0.4219	10.72	3/32	15004200	15004200	15004200	15004200
-	0.4252	10.80	3/32	15001000	15001000	15001000	15001000
-	0.4331	11.00	3/32	15001000	15001000	15001000	15001000



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

= 131I-XXXX	= 131A-XXXX
= 131N-XXXX	= 131H-XXXX

Inserts sold in quantities of 2

DRILLING

BORING

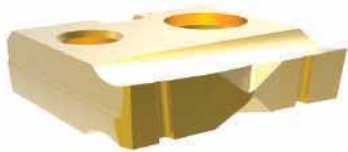
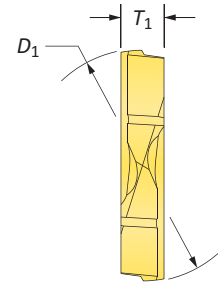
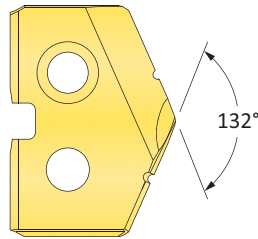
REAMING

BURNISHING

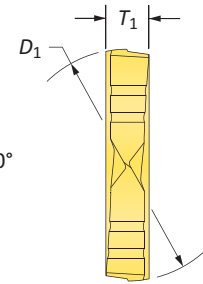
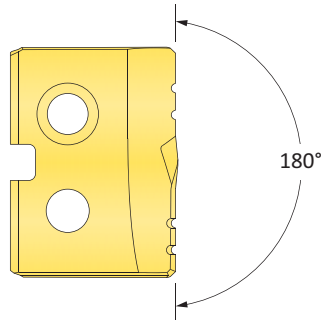
THREADING

SPECIALS




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



Flat Bottom



Carbide Insert - Y2 K2

Fractional Length	Insert			Part No.		Flat Bottom Part No.
	D ₁ Inch	D ₁ mm	T ₁			
-	0.3740	9.50	3/32	10200005	10200005	10200005000
3/8	0.3750	9.53	3/32	10200012	10200012	10200012000
W	0.3860	9.80	3/32	10200030	10200030	10200030000
25/64	0.3906	9.92	3/32	10200032	10200032	10200032000
-	0.3937	10.00	3/32	10200040	10200040	10200040000
-	0.4016	10.20	3/32	10200042	10200042	10200042000
13/32	0.4063	10.32	3/32	10200013	10200013	10200013000
-	0.4134	10.50	3/32	10200015	10200015	10200015000
27/64	0.4219	10.72	3/32	10200021	10200021	10200021000
-	0.4252	10.80	3/32	10200022	10200022	10200022000
-	0.4331	11.00	3/32	10200011	10200011	10200011000

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 2

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

DRILLING

BORING

REAMING

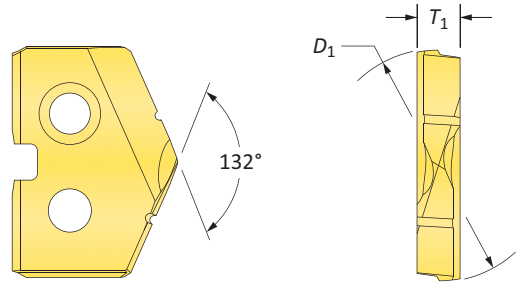
BURNISHING

THREADING





SPECIALS

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

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



Carbide Insert - 05 00400 | 03 0K100 | 02

Fractional Length	Insert			05 00400		03 00000	02 00000
	D ₁ Inch	D ₁ mm	T ₁				
-	0.3740	9.50	3/32	10500005	10500005	10300005000	10200005
3/8	0.3750	9.53	3/32	10500012	10500012	10300012000	10200012
W	0.3860	9.80	3/32	105000300	105000300	10300030000	102000300
25/64	0.3906	9.92	3/32	105000300	105000300	10300030000	102000300
-	0.3937	10.00	3/32	10500010	10500010	10300010000	10200010
-	0.4016	10.20	3/32	105000100	105000100	10300010000	102000100
13/32	0.4063	10.32	3/32	10500013	10500013	10300013000	10200013
-	0.4134	10.50	3/32	105000105	105000105	103000105000	102000105
27/64	0.4219	10.72	3/32	10500021	10500021	10300021000	10200021
-	0.4252	10.80	3/32	1050001000	1050001000	103000100000	1020001000
-	0.4331	11.00	3/32	1050001	1050001	1030001000	1020001

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

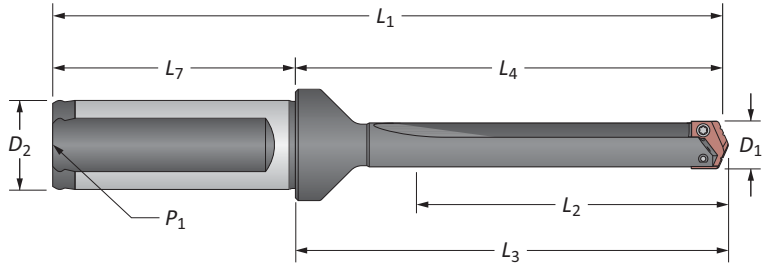
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

 = 131I-XXXX	 = 131A-XXXX
 = 131N-XXXX	 200® = 131H-XXXX

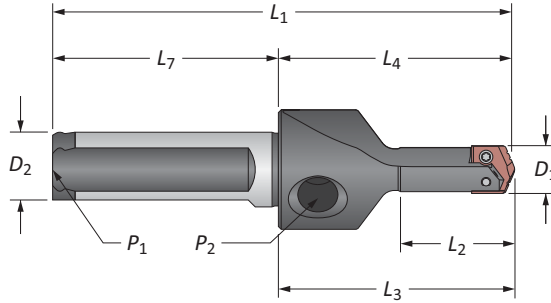
Inserts sold in quantities of 2

Y Series | Flange Shank

Y Series | Flange Shank



Stub Shank



Specifications

Shank	Part #	D ₁	Body				Shank			Part #
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Imperial (in)	Stub	3/8 - 27/64	3/4	1-7/8	1-31/32	3-3/4	5/8	1-7/8	1/16	21000S00030
	Short	3/8 - 27/64	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8	22000S00750
	Standard	3/8 - 27/64	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	24000S00750
	Extended	3/8 - 27/64	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	25000S00750
Metric (mm)	Stub	9.5 - 11.0	19.1	47.6	50.0	95.6	16.0	48.0	1/16*	21000S01000
	Short	9.5 - 11.0	31.8	61.1	63.5	111.1	20.0	50.0	1/8*	22000S02000
	XL	9.5 - 11.0	222	251.7	254.1	301.7	20.0	50.0	1/8*	27000S02000
	3XL	9.5 - 11.0	290	319.9	322.3	369.9	20.0	50.0	1/8*	28000S02000

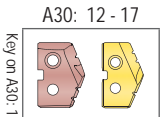
*Metric thread to BSP and ISO 7-1

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

Connection Accessories

					Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

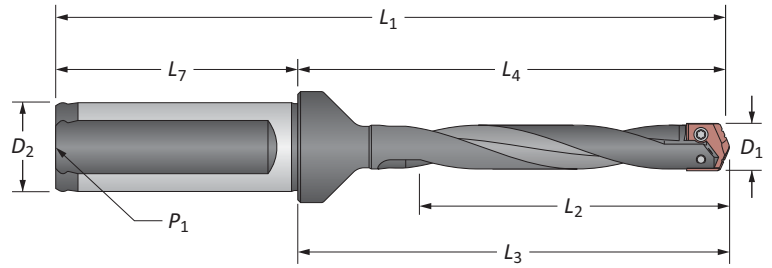
Screws sold in quantities of 10

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



Y Series | Flange Shank

Y Series | Flange Shank



Selection

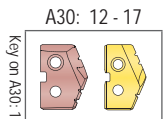
Series	Type	Imperial					Metric			Tightening Torque
		D ₁	L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
i	Standard	3/8 - 27/64	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	24-75
	Standard Plus	3/8 - 27/64	3-3/8	4-35/64	4-41/64	6-43/64	3/4	2-1/32	1/8	24-75
	Extended	3/8 - 27/64	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	25-75
m	Standard	9.5 - 11.0	60.3	89.7	92.1	139.7	20.0	50.0	1/8*	24-75
	Standard Plus	9.5 - 11.0	86.0	115.4	117.8	165.4	20.0	50.0	1/8*	24-75
	Extended	9.5 - 11.0	111.1	140.5	142.9	190.5	20.0	50.0	1/8*	25-75

*Metric thread to BSP and ISO 7-1

Connection Accessories

					Recommended Tightening Torque*
724-IP7-1	724N-IP7-1	8IP-7	8IP-7TL	8IP-7B	

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



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

Screws sold in quantities of 10

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

DRILLING

BORING

REAMING

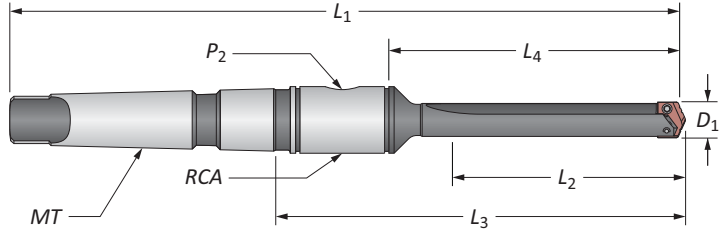
BURNISHING

THREADING

SPECIALS

Y Series | Taper Shank

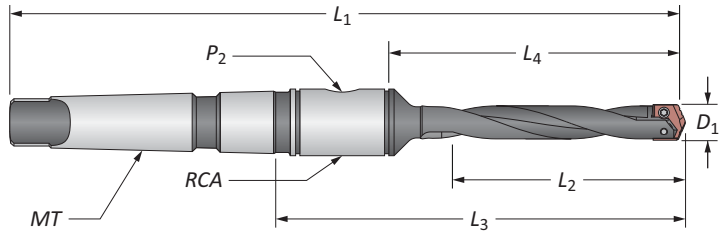
Y Series | Taper Shank



Specifications

Series	Length	D ₁	Body			L ₁	Shank			Part No.
			L ₂	L ₄	L ₃		MT	P ₂	RCS	
i	Short	3/8 - 27/64	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	2T-2SR	22000S00020
	Standard	3/8 - 27/64	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	2T-2SR	24000S00020
	Extended	3/8 - 27/64	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	2T-2SR	25000S00020
m	Short	9.5 - 11.0	31.8	51.5	88.0	160.3	#2**	1/16*	2T-2SRM	22000S00020

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



Specifications

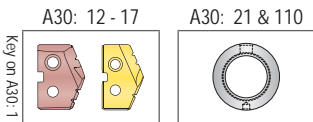
Series	Length	D ₁	Body			L ₁	Shank			Part No.
			L ₂	L ₄	L ₃		MT	P ₂	RCS	
i	Standard	3/8 - 27/64	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	2T-2SR	24000R00020
	Extended	3/8 - 27/64	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	2T-2SR	25000R00020
m	Standard	9.5 - 11.0	60.3	80.2	116.7	188.9	#2**	1/16*	2T-2SRM	24000R00020
	Extended	9.5 - 11.0	111.1	130.9	167.4	239.7	#2**	1/16*	2T-2SRM	25000R00020

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

Connection Accessories

					Removable 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

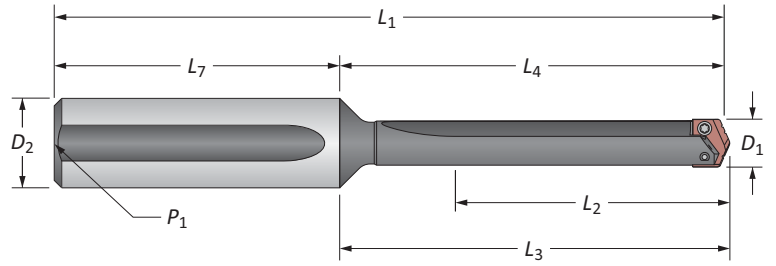
Screws sold in quantities of 10

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



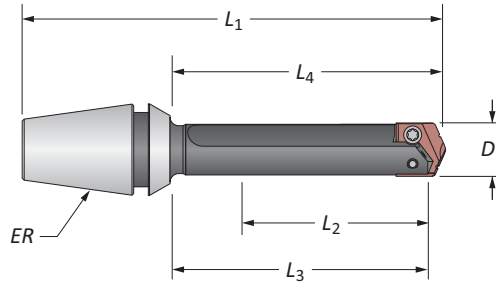
Y Series | Straight Shank | ER Collet

Y Series | Straight Shank | ER Collet



Specifications

Series	Length	Body					Shank			Part No.
		D ₁	L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
i	Short	3/8 - 27/64	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8	22SR75
	Standard	3/8 - 27/64	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8	24SR75
	Extended	3/8 - 27/64	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8	25SR75
	XL	3/8 - 27/64	8-3/4	9-17/32	9-5/8	11-29/32	3/4	2-3/8	1/8	27SR75
	3XL	3/8 - 27/64	11-7/16	12-7/32	12-5/16	14-19/32	3/4	2-3/8	1/8	28SR75



ER Collet

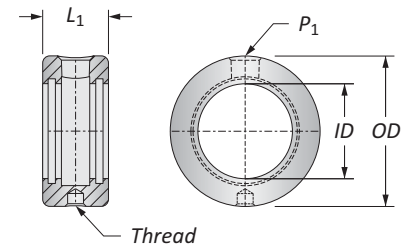
Series	D ₁	L ₂	L ₄	L ₃	L ₁	ER	Part No.	Collet
								Recess
i	3/8 - 27/64	1-3/8	1-29/32	2	3-5/64	ER-16	21SR16R	ER-16N
	3/8 - 27/64	1-3/8	1-29/32	2	3-15/64	ER-20	21SR20R	ER-20N

Y Series | Rotary Coolant Adapters | Torx® Plus Screws

Y Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter

Series	ID	OD	L ₁	Thread	P ₁	Part No.	Kit Part No.**	
							Recess	Recessment
i	3/4	1-3/4	7/8	5/16-18	1/8	2SR	2T1-2SR	2T1-2OR-10
	19.05	44.45	22.23	M8 x 1.25	1/8*	2SR	2T1-2SR	2T1-2OR-10



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

Connection Accessories

Insert Screw	Nylon Locking Screw	Insert Driver	Replacement Torx Driver	Replacement Driver	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength

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

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

DRILLING

BORING

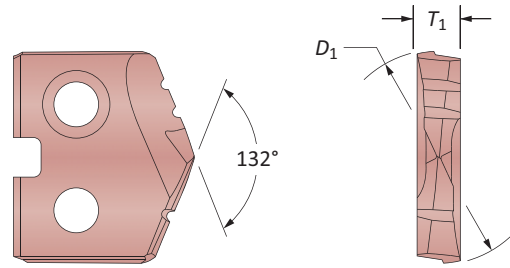
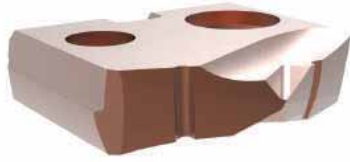
REAMING

BURNISHING

THREADING

SPECIALS

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



SS Inserts - Super Job | Carbide Inserts - P2 K2 | P1 K35

Fractional Length	Insert			SS Drill Bit		
	D ₁ Inch	D ₁ mm	T ₁	Super Job	P2 K2	P1 K35
7/16	0.4375	11.11	3/32	4520 14	4020 14	4010 14
-	0.4510	11.46	3/32	4520 51	4020 51	4010 51
-	0.4528	11.50	3/32	4520 15	4020 15	4010 15
29/64	0.4531	11.51	3/32	4520 53	4020 53	4010 53
15/32	0.4688	11.91	3/32	4520 15	4020 15	4010 15
-	0.4724	12.00	3/32	4520 12	4020 12	4010 12
31/64	0.4844	12.30	3/32	4520 24	4020 24	4010 24
-	0.4921	12.50	3/32	4520 25	4020 25	4010 25
1/2	0.5000	12.70	3/32	4520 10	4020 10	4010 10
-	0.5060	12.85	3/32	4520 50	4020 50	4010 50
-	0.5100	12.95	3/32	4520 51	4020 51	4010 51

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

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

Key on A30-1

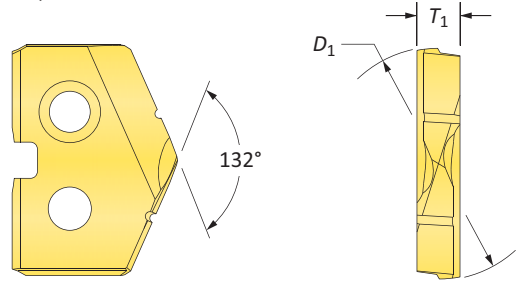
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2




131T-XXXX	131A-XXXX
131N-XXXX	222® = 131H-XXXX

Drilling Inserts

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



HSS Inserts - Ream and Bore

Fractional Length	Insert			Part No.		
	D ₁ inch	D ₁ mm	T ₁			
7/16	0.4375	11.11	3/32	1000014	1000014	1000014
-	0.4510	11.46	3/32	1000051	1000051	1000051
-	0.4528	11.50	3/32	1000115	1000115	1000115
29/64	0.4531	11.51	3/32	1000053	1000053	1000053
15/32	0.4688	11.91	3/32	1000015	1000015	1000015
-	0.4724	12.00	3/32	1000112	1000112	1000112
31/64	0.4844	12.30	3/32	1000004	1000004	1000004
-	0.4921	12.50	3/32	1000125	1000125	1000125
1/2	0.5000	12.70	3/32	1000010	1000010	1000010
-	0.5060	12.85	3/32	1000050	1000050	1000050
-	0.5100	12.95	3/32	1000051	1000051	1000051

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

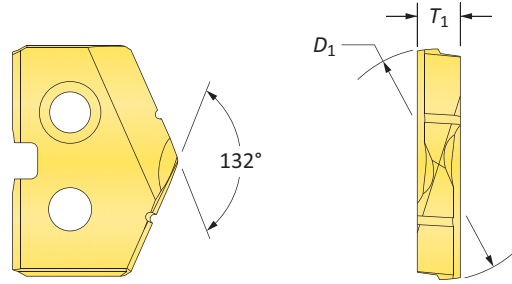
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2




 = 131I-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

Realizer

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



SS Inserter - Sizer Rob

Fractional Length	Inserter			Primo		
	D ₁ Inch	D ₁ mm	T ₁			
7/16	0.4375	11.11	3/32	1500014	1500014	1500014
-	0.4510	11.46	3/32	1500051	1500051	1500051
-	0.4528	11.50	3/32	1500115	1500115	1500115
29/64	0.4531	11.51	3/32	1500053	1500053	1500053
15/32	0.4688	11.91	3/32	1500015	1500015	1500015
-	0.4724	12.00	3/32	1500012	1500012	1500012
31/64	0.4844	12.30	3/32	1500004	1500004	1500004
-	0.4921	12.50	3/32	1500025	1500025	1500025
1/2	0.5000	12.70	3/32	1500010	1500010	1500010
-	0.5060	12.85	3/32	1500050	1500050	1500050
-	0.5100	12.95	3/32	1500051	1500051	1500051

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

A30: 112 - 143
Key on A30-1

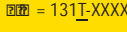
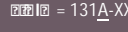
A30: 28 - 31

A30: 4 - 6

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

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

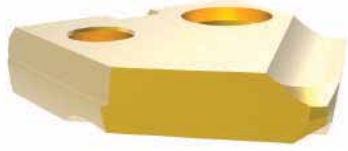
Inserts sold in quantities of 2

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 200® = 131H-XXXX

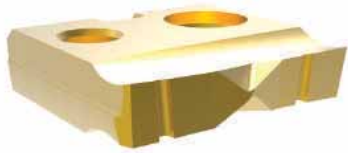
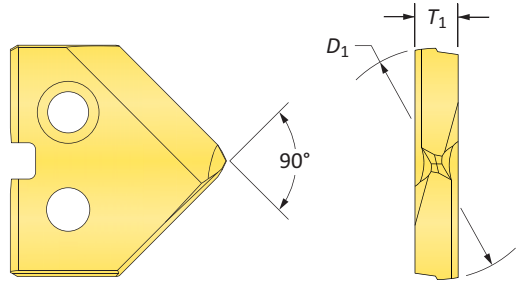


Drilling

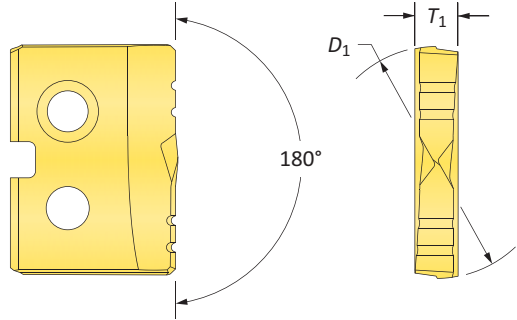
Z Series | HSS | Diameter Range: 0.437" - 0.510" (11.10mm - 12.95mm)



Chamfer

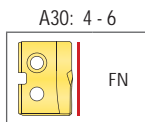
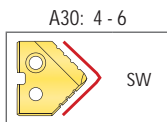
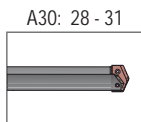
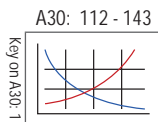


Flat Bottom



HSS Insert - Size Chart

Fractional Length	Insert			Chamfer Part No.			Flat Bottom Part No.
	D ₁ inch	D ₁ mm	T ₁				
7/16	0.4375	11.11	3/32	152221452	152221452	152221452	152221452
-	0.4510	11.46	3/32	152245152	152245152	152245152	152245152
-	0.4528	11.50	3/32	152211552	152211552	152211552	152211552
29/64	0.4531	11.51	3/32	152245352	152245352	152245352	152245352
15/32	0.4688	11.91	3/32	152221552	152221552	152221552	152221552
-	0.4724	12.00	3/32	152212552	152212552	152212552	152212552
31/64	0.4844	12.30	3/32	15224452	15224452	15224452	15224452
-	0.4921	12.50	3/32	152212552	152212552	152212552	152212552
1/2	0.5000	12.70	3/32	152221052	152221052	152221052	152221052
-	0.5060	12.85	3/32	152225252	152225252	152225252	152225252
-	0.5100	12.95	3/32	152225152	152225152	152225152	152225152



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

Inserts sold in quantities of 2

= 131I-XXXX	= 131A-XXXX
= 131N-XXXX	= 131H-XXXX

DRILLING

BORING

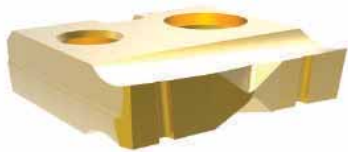
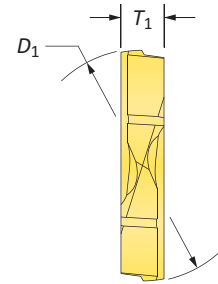
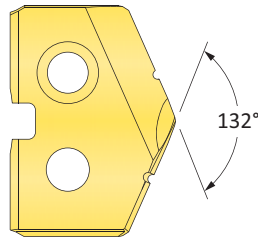
REAMING

BURNISHING

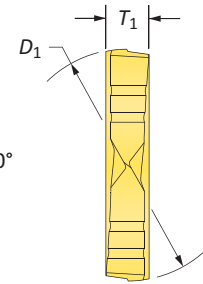
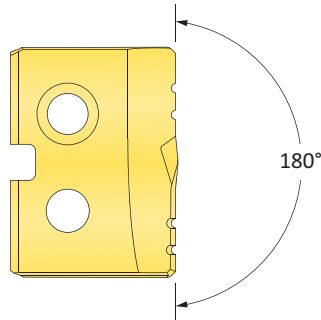
THREADING

SPECIALS




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



Flat Bottom



Carbide Insert - Z2 K2

Insert				Part No.		Flat Bottom Part No.
Fractional Length	D ₁ Inch	D ₁ mm	T ₁			
7/16	0.4375	11.11	3/32	10200014	10200014	10200014
-	0.4510	11.46	3/32	10200051	10200051	10200051
-	0.4528	11.50	3/32	10200115	10200115	10200115
29/64	0.4531	11.51	3/32	10200053	10200053	10200053
15/32	0.4688	11.91	3/32	10200015	10200015	10200015
-	0.4724	12.00	3/32	10200012	10200012	10200012
31/64	0.4844	12.30	3/32	10200004	10200004	10200004
-	0.4921	12.50	3/32	10200025	10200025	10200025
1/2	0.5000	12.70	3/32	10200010	10200010	10200010
-	0.5060	12.85	3/32	10200050	10200050	10200050
-	0.5100	12.95	3/32	10200051	10200051	10200051

A30: 112 - 143
Key on A30: 1

A30: 28 - 31

A30: 4 - 6

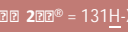
HI, HR, CR, TC, SK, NP, IN, RN, CN, AN, BR, CI, CP, NC, WC

A30: 4 - 6

FN

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

Inserts sold in quantities of 2

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

DRILLING

BORING

REAMING

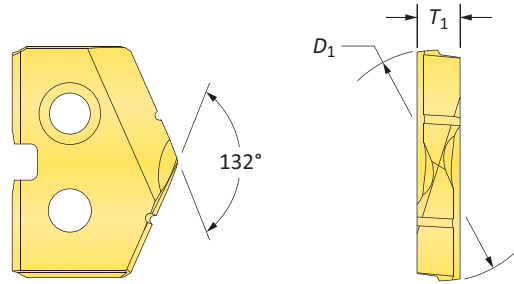
BURNISHING

THREADING





SPECIALS

Replaceable Insert Drilling System

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



Carbide Insert - 05 0402 | 03 0K102 | 02

Fractional Length	Insert			05 0402		03 0K102	02 02002
	D ₁ Inch	D ₁ mm	T ₁				
7/16	0.4375	11.11	3/32	10500014	10500014	1030001400	10200014
-	0.4510	11.46	3/32	10500051	10500051	1030005100	10200051
-	0.4528	11.50	3/32	10500015	10500015	1030001500	10200015
29/64	0.4531	11.51	3/32	10500053	10500053	1030005300	10200053
15/32	0.4688	11.91	3/32	10500015	10500015	1030001500	10200015
-	0.4724	12.00	3/32	10500012	10500012	1030001200	10200012
31/64	0.4844	12.30	3/32	10500004	10500004	1030000400	10200004
-	0.4921	12.50	3/32	10500025	10500025	1030002500	10200025
1/2	0.5000	12.70	3/32	10500010	10500010	1030001000	10200010
-	0.5060	12.85	3/32	10500050	10500050	1030005000	10200050
-	0.5100	12.95	3/32	10500051	10500051	1030005100	10200051

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

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

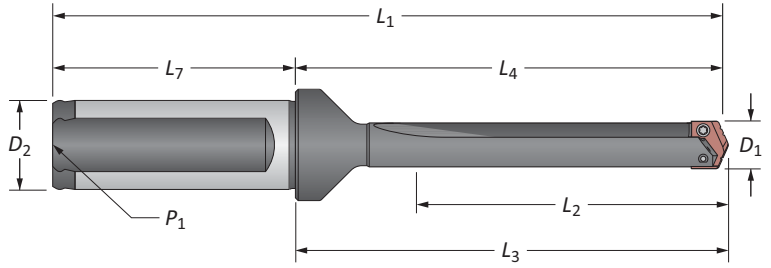
Inserts sold in quantities of 2

 = 131I-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

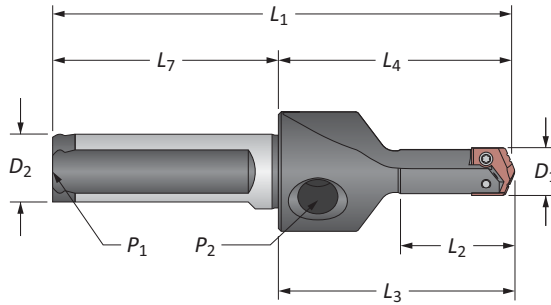
DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

Z Series | Flange Shank

Z Series | Flange Shank



Stub Shank



Specifications

Shank	Part #	D ₁	Body				Shank			Part #
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Imperial (in)	Stub	7/16 - 1/2	3/4	1-7/8	1-31/32	3-3/4	5/8	1-7/8	1/16	21000S0030
	Short	7/16 - 1/2	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8	22000S0750
	Standard	7/16 - 1/2	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	24000S0750
	Extended	7/16 - 1/2	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	25000S0750
Metric (mm)	Stub	11.5 - 12.5	19.1	47.6	50.0	95.6	16.0	48.0	1/16*	21000M1000
	Short	11.5 - 12.5	31.8	61.1	63.5	111.1	20.0	50.0	1/8*	22000M2000
	XL	11.5 - 12.5	222.3	251.7	254.1	301.7	20.0	50.0	1/8*	27000M2000
	3XL	11.5 - 12.5	290.5	319.9	322.3	369.9	20.0	50.0	1/8*	28000M2000

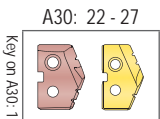
*Metric thread to BSP and ISO 7-1

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

Connection Accessories

					Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

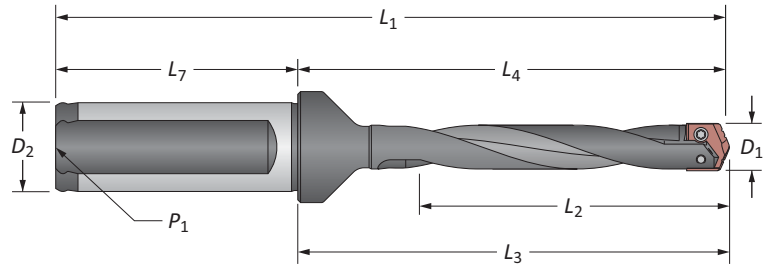
Screws sold in quantities of 10

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



Z Series | Flange Shank

Z Series | Flange Shank



Selection

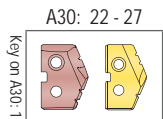
Series	Length	Body				Shank			Pitch	
		L_2	L_4	L_3	L_1	D_2	L_7	P_1		
i	Standard	7/16 - 1/2	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8	24 RPM @ 750
	Standard Plus	7/16 - 1/2	3-3/8	4-35/64	4-41/64	6-43/64	3/4	2-1/32	1/8	245 RPM @ 750
	Extended	7/16 - 1/2	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8	25 RPM @ 750
	Long	7/16 - 1/2	7-1/16	8-1/4	8-11/32	10-3/8	3/4	2-1/32	1/8	20 RPM @ 750
m	Standard	11.5 - 12.5	60.3	89.7	92.1	139.7	20.0	50.0	1/8*	24 RPM @ 720
	Standard Plus	11.5 - 12.8	86.0	115.4	117.8	165.4	20.0	50.0	1/8*	245 RPM @ 720
	Extended	11.5 - 12.5	111.1	140.5	142.9	190.5	20.0	50.0	1/8*	25 RPM @ 720
	Long	11.5 - 12.8	180.0	209.4	211.8	259.4	20.0	50.0	1/8*	20 RPM @ 720

*Metric thread to BSP and ISO 7-1

Connection Accessories

					Recommended Tightening Torque*
7247-IP7-1	7247N-IP7-1	8IP-7	8IP-7TL	8IP-7B	

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



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

Screws sold in quantities of 10

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

DRILLING

BORING

REAMING

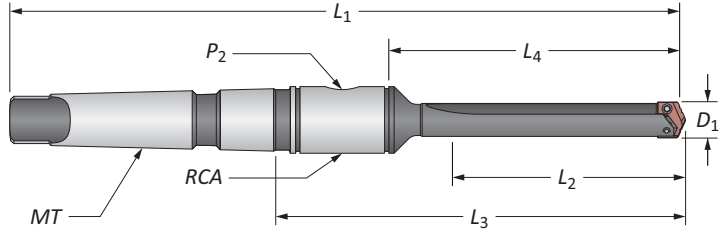
BURNISHING

THREADING

SPECIALS

Drill

Z Series | Taper Shank

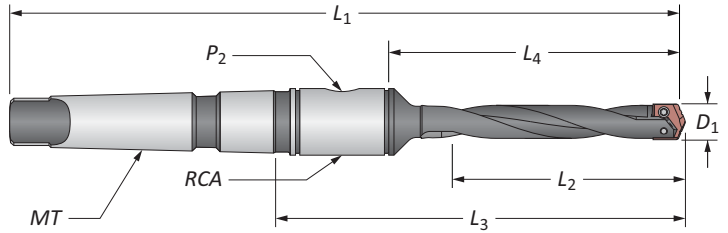


Specifications

Series	Length	D ₁	Body			L ₁	Shank			Part No.
			L ₂	L ₄	L ₃		MT	P ₂	R	
i	Short	7/16 - 1/2	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	2T-2SR	2200000002
	Standard	7/16 - 1/2	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	2T-2SR	2400000002
	Extended	7/16 - 1/2	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	2T-2SR	2500000002
m	Short	11.5 - 12.5	31.8	51.5	88.0	160.3	#2**	1/16*	2T-2SRM	2200000002

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Specifications

Series	Length	D ₁	Body			L ₁	Shank			Part No.
			L ₂	L ₄	L ₃		MT	P ₂	R	
i	Standard	7/16 - 1/2	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	2T-2SR	2400000002
	Extended	7/16 - 1/2	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	2T-2SR	2500000002
m	Standard	11.5 - 12.5	60.3	80.2	116.7	188.9	#2**	1/16*	2T-2SRM	2400000002
	Extended	11.5 - 12.5	111.1	130.9	167.4	239.7	#2**	1/16*	2T-2SRM	2500000002

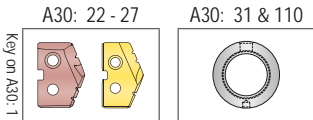
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

					Removable Tightening Torque*
Insert Screw	Nylon Locking Screw	Drill Driver	Drill Driver with Torque Limit	Replacement Bit	7.4 in-lbs (84 N-cm)
7247-IP7-1	7247N-IP7-1	8IP-7	8IP-7TL	8IP-7B	

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



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

Screws sold in quantities of 10

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

DRILLING

BORING

REAMING

BURNISHING

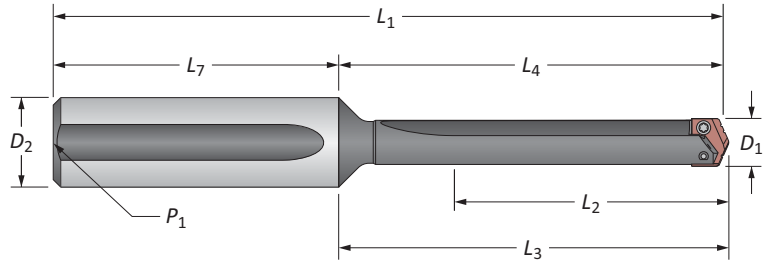
THREADING

SPECIALS



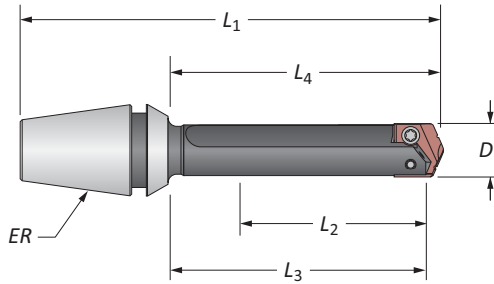
Z Series | Straight Shank | ER Collet

Z Series | Straight Shank | ER Collet



Speed and Feed

Length	D ₁	Body				Shank			Part No.
		L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Short	7/16 - 1/2	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8	2200S0750
Standard	7/16 - 1/2	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8	2400S0750
Extended	7/16 - 1/2	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8	2500S0750
XL	7/16 - 1/2	8-3/4	9-17/32	9-5/8	11-29/32	3/4	2-3/8	1/8	2700S0750
3XL	7/16 - 1/2	11-7/16	12-7/32	12-5/16	14-19/32	3/4	2-3/8	1/8	2800S0750



ER Collet

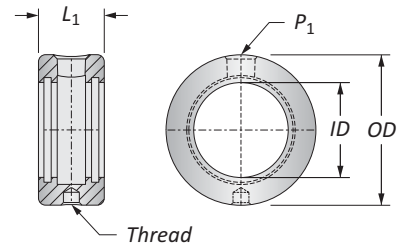
D ₁	L ₂	L ₄	L ₃	L ₁	ER	Part No.	Collet
							Reamer
7/16 - 1/2	1-3/8	1-29/32	2	3-5/64	ER-16	2100S0100R	ER-16N
7/16 - 1/2	1-3/8	1-29/32	2	3-15/64	ER-20	2100S0200R	ER-20N

Z Series | Rotary Coolant Adapters | Torx® Plus Screws

Z Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter

ID	OD	L ₁	Thread	P ₁	Part No.	Kit Part No.**	Recommen
3/4	1-3/4	7/8	5/16-18	1/8	2002SR	2T1-2SR	2T1-2OR-10
19.05	44.45	22.23	M8 x 1.25	1/8*	2002SR	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 Screw	Nylon Locking Screw	Insert Driver	Replacement Torx Plus Driver	Replacement Torx Plus Driver	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength

▲ 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 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

DRILLING

BORING

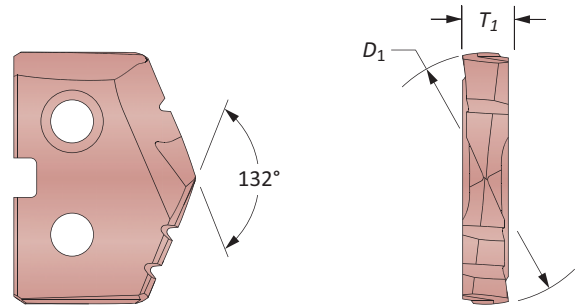
REAMING

BURNISHING

THREADING

SPECIALS

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



SS Inserts - Super Job - Carbide Inserts - P2 K200 & P1 K350

Series	Insert				SS Standard	Carbide Standard	
	Fractional Length	D ₁ Inch	D ₁ mm	T ₁	Super Job	P2 K200	P1 K350
0	-	0.5118	13.00	1/8	4520 P13	4220 P13	4120 P13
	33/64	0.5156	13.10	1/8	4520 S515	4220 S515	4120 S515
	17/32	0.5313	13.49	1/8	4520 P17	4220 P17	4120 P17
	-	0.5315	13.50	1/8	4520 P13S	4220 P13S	4120 P13S
	35/64	0.5469	13.89	1/8	4520 S540	4220 S540	4120 S540
	-	0.5512	14.00	1/8	4520 P14	4220 P14	4120 P14
	9/16	0.5625	14.29	1/8	4520 P910	4220 P910	4120 P910
	-	0.5709	14.50	1/8	4520 P14S	4220 P14S	4120 P14S
	37/64	0.5781	14.68	1/8	4520 S570	4220 S570	4120 S570
	-	0.5906	15.00	1/8	4520 P15	4220 P15	4120 P15
0.5	19/32	0.5938	15.08	1/8	4520 P1910	4220 P1910	4120 P1910
	39/64	0.6094	15.48	1/8	4520 P3920	4220 P3920	4120 P3920
	-	0.6102	15.50	1/8	4520 P15S	4220 P15S	4120 P15S
	5/8	0.6250	15.88	1/8	4520 P520	4220 P520	4120 P520
	-	0.6299	16.00	1/8	4520 P16	4220 P16	4120 P16
	41/64	0.6406	16.27	1/8	4520 P40	4220 P40	4120 P40
	-	0.6496	16.50	1/8	4520 P16S	4220 P16S	4120 P16S
	21/32	0.6563	16.67	1/8	4520 P2121	4220 P2121	4120 P2121
	-	0.6693	17.00	1/8	4520 P17	4220 P17	4120 P17
	43/64	0.6719	17.07	1/8	4520 P4371	4220 P4371	4120 P4371
11/16	0.6875	17.46	1/8	4520 P1122	4220 P1122	4120 P1122	
-	0.6890	17.50	1/8	4520 P17S	4220 P17S	4120 P17S	

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

HE

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

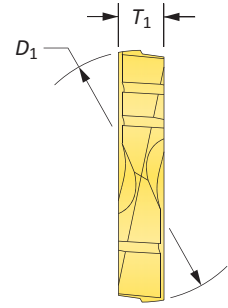
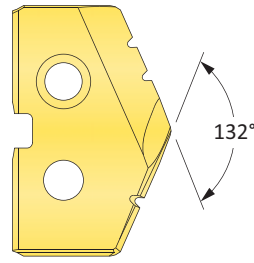
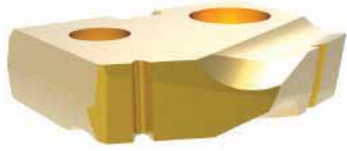
Inserts sold in quantities of 2

131T-XXXX	131A-XXXX
131N-XXXX	222® = 131H-XXXX



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

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



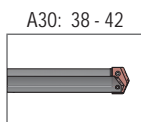
HSS Insert - Recommended Holders

Series	Fractional Length	Insert			Holder		
		D ₁ Inch	D ₁ mm	T ₁	0	0.5	0.5
0	-	0.5118	13.00	1/8	133013	133013	133013
	33/64	0.5156	13.10	1/8	1330515	1330515	1330515
	17/32	0.5313	13.49	1/8	133017	133017	133017
	-	0.5315	13.50	1/8	1330135	1330135	1330135
	35/64	0.5469	13.89	1/8	1330540	1330540	1330540
	-	0.5512	14.00	1/8	133014	133014	133014
	9/16	0.5625	14.29	1/8	133010	133010	133010
	-	0.5709	14.50	1/8	1330145	1330145	1330145
	37/64	0.5781	14.68	1/8	1330570	1330570	1330570
	-	0.5906	15.00	1/8	133015	133015	133015
0.5	19/32	0.5938	15.08	1/8	133010	133010	133010
	39/64	0.6094	15.48	1/8	133010	133010	133010
	-	0.6102	15.50	1/8	1330155	1330155	1330155
	5/8	0.6250	15.88	1/8	133020	133020	133020
	-	0.6299	16.00	1/8	133010	133010	133010
	41/64	0.6406	16.27	1/8	133040	133040	133040
	-	0.6496	16.50	1/8	1330105	1330105	1330105
	21/32	0.6563	16.67	1/8	133021	133021	133021
	-	0.6693	17.00	1/8	133017	133017	133017
	43/64	0.6719	17.07	1/8	133071	133071	133071
11/16	0.6875	17.46	1/8	133022	133022	133022	
-	0.6890	17.50	1/8	1330175	1330175	1330175	

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: 4 - 6

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

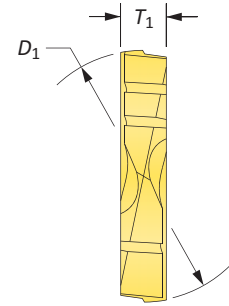
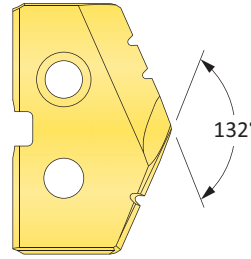
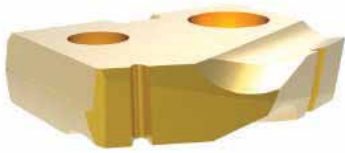
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2

131I-XXXX	131A-XXXX
131N-XXXX	200® = 131H-XXXX

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

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

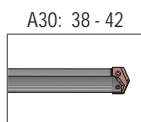


SS Insert - Speed Rob

Series	Fractional Length	Insert			Holder		
		D ₁ Inch	D ₁ mm	T ₁	0	0.5	0.5
0	-	0.5118	13.00	1/8	1500013	1500013	1500013
	33/64	0.5156	13.10	1/8	1500015	1500015	1500015
	17/32	0.5313	13.49	1/8	1500017	1500017	1500017
	-	0.5315	13.50	1/8	1500013S	1500013S	1500013S
	35/64	0.5469	13.89	1/8	1500040	1500040	1500040
	-	0.5512	14.00	1/8	1500014	1500014	1500014
	9/16	0.5625	14.29	1/8	1500010	1500010	1500010
	-	0.5709	14.50	1/8	1500045	1500045	1500045
	37/64	0.5781	14.68	1/8	1500057	1500057	1500057
	-	0.5906	15.00	1/8	1500015	1500015	1500015
0.5	19/32	0.5938	15.08	1/8	1500010	1500010	1500010
	39/64	0.6094	15.48	1/8	1500020	1500020	1500020
	-	0.6102	15.50	1/8	1500015S	1500015S	1500015S
	5/8	0.6250	15.88	1/8	1500020	1500020	1500020
	-	0.6299	16.00	1/8	1500010	1500010	1500010
	41/64	0.6406	16.27	1/8	1500040	1500040	1500040
	-	0.6496	16.50	1/8	1500010S	1500010S	1500010S
	21/32	0.6563	16.67	1/8	1500021	1500021	1500021
	-	0.6693	17.00	1/8	1500017	1500017	1500017
	43/64	0.6719	17.07	1/8	1500071	1500071	1500071
11/16	0.6875	17.46	1/8	1500022	1500022	1500022	
-	0.6890	17.50	1/8	1500017S	1500017S	1500017S	

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: 4 - 6

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

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

Inserts sold in quantities of 2

131T-XXXX	131A-XXXX
131N-XXXX	202® = 131H-XXXX

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

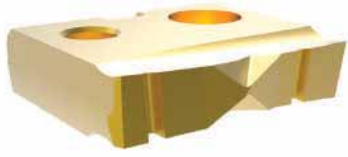
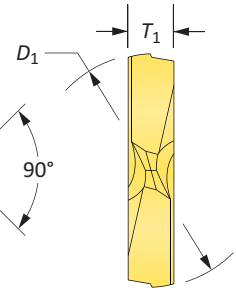
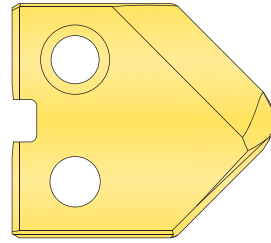


0 Series | HSS | Diameter Range: 0.511" - 0.695" (12.98mm - 17.65mm)

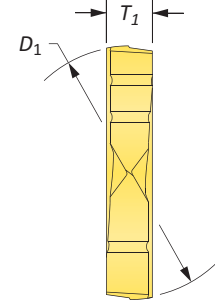
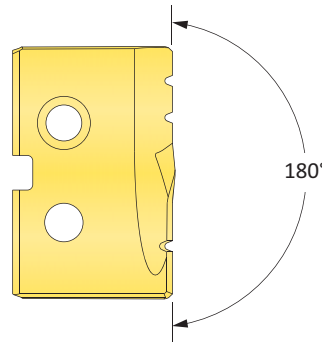
0 Series | HSS | Diameter Range: 0.511" - 0.695" (12.98mm - 17.65mm)



Chamfer



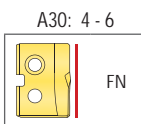
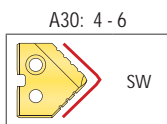
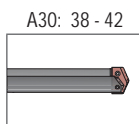
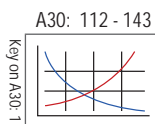
Flat Bottom



0 Series Inserts - Series Holder

Series	Insert				Chamfer Part No.			Flat Bottom Part No.
	Fractional Length	D ₁ inch	D ₁ mm	T ₁				
0	-	0.5118	13.00	1/8	15221352	15221352	15221352	15221352
	33/64	0.5156	13.10	1/8	15221552	15221552	15221552	15221552
	17/32	0.5313	13.49	1/8	15221752	15221752	15221752	15221752
	-	0.5315	13.50	1/8	15221352	15221352	15221352	15221352
	35/64	0.5469	13.89	1/8	15221452	15221452	15221452	15221452
	-	0.5512	14.00	1/8	15221452	15221452	15221452	15221452
	9/16	0.5625	14.29	1/8	15221152	15221152	15221152	15221152
	-	0.5709	14.50	1/8	15221452	15221452	15221452	15221452
	37/64	0.5781	14.68	1/8	15221552	15221552	15221552	15221552
	-	0.5906	15.00	1/8	15221552	15221552	15221552	15221552
0.5	19/32	0.5938	15.08	1/8	15221152	15221152	15221152	15221152
	39/64	0.6094	15.48	1/8	15221152	15221152	15221152	15221152
	-	0.6102	15.50	1/8	15221552	15221552	15221552	15221552
	5/8	0.6250	15.88	1/8	15221252	15221252	15221252	15221252
	-	0.6299	16.00	1/8	15221152	15221152	15221152	15221152
	41/64	0.6406	16.27	1/8	15221452	15221452	15221452	15221452
	-	0.6496	16.50	1/8	15221152	15221152	15221152	15221152
	21/32	0.6563	16.67	1/8	15221152	15221152	15221152	15221152
	-	0.6693	17.00	1/8	15221752	15221752	15221752	15221752
	43/64	0.6719	17.07	1/8	15221752	15221752	15221752	15221752
11/16	0.6875	17.46	1/8	152212252	152212252	152212252	152212252	
-	0.6890	17.50	1/8	15221752	15221752	15221752	15221752	

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



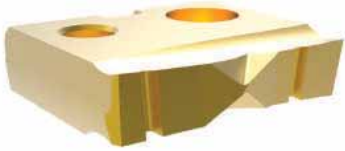
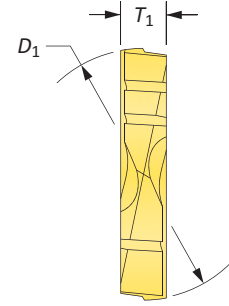
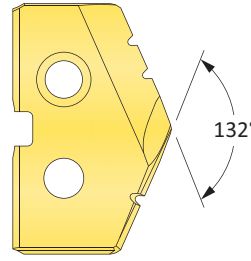
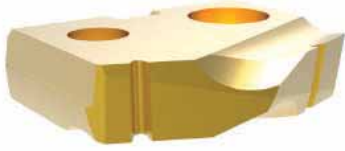
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

Inserts sold in quantities of 2

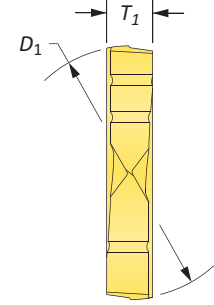
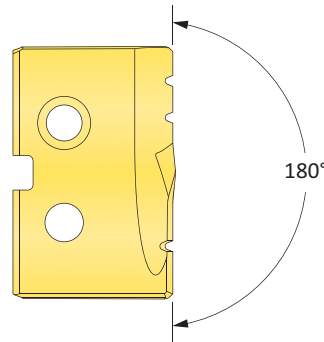
= 131I-XXXX	= 131A-XXXX
= 131N-XXXX	= 131H-XXXX

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

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



Flat Bottom

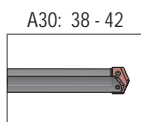


Carbide Insert - 02 BK2

Series	Fractional Length	Insert			Part No.		Flat Bottom Part No.
		D ₁ Inch	D ₁ mm	T ₁			
0	-	0.5118	13.00	1/8	10200013	10200013	10200013
	33/64	0.5156	13.10	1/8	10200015	10200015	10200015
	17/32	0.5313	13.49	1/8	10200017	10200017	10200017
	-	0.5315	13.50	1/8	10200035	10200035	10200035
	35/64	0.5469	13.89	1/8	10200040	10200040	10200040
	-	0.5512	14.00	1/8	10200014	10200014	10200014
	9/16	0.5625	14.29	1/8	10200010	10200010	10200010
	-	0.5709	14.50	1/8	10200045	10200045	10200045
	37/64	0.5781	14.68	1/8	10200057	10200057	10200057
	-	0.5906	15.00	1/8	10200015	10200015	10200015
19/32	0.5938	15.08	1/8	10200010	10200010	10200010	
0.5	39/64	0.6094	15.48	1/8	10200020	10200020	10200020
	-	0.6102	15.50	1/8	10200055	10200055	10200055
	5/8	0.6250	15.88	1/8	10200020	10200020	10200020
	-	0.6299	16.00	1/8	10200010	10200010	10200010
	41/64	0.6406	16.27	1/8	10200040	10200040	10200040
	-	0.6496	16.50	1/8	10200005	10200005	10200005
	21/32	0.6563	16.67	1/8	10200021	10200021	10200021
	-	0.6693	17.00	1/8	10200017	10200017	10200017
	43/64	0.6719	17.07	1/8	10200071	10200071	10200071
	11/16	0.6875	17.46	1/8	10200022	10200022	10200022
-	0.6890	17.50	1/8	10200075	10200075	10200075	

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: 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 2

= 131T-XXXX	= 131A-XXXX
= 131N-XXXX	= 131H-XXXX

DRILLING

BORING

REAMING

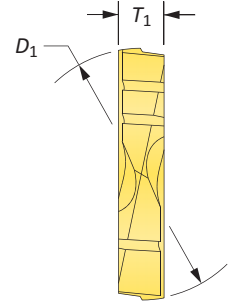
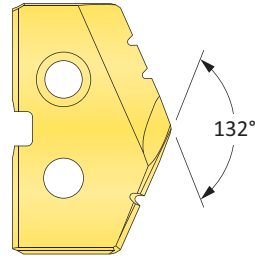
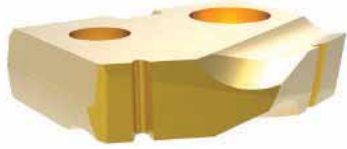
BURNISHING

THREADING





SPECIALS

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

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

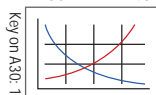


0 Series Insert - 05 Series | 03 Series | 02

Series	Insert				05 Series		03 Series	02 Series
	Fractional Length	D ₁ Inch	D ₁ mm	T ₁				
0	-	0.5118	13.00	1/8	1050013	1050013	1030013000	1020013
	33/64	0.5156	13.10	1/8	1050015	1050015	1030015000	1020015
	17/32	0.5313	13.49	1/8	1050017	1050017	1030017000	1020017
	-	0.5315	13.50	1/8	10500135	10500135	1030013500	10200135
	35/64	0.5469	13.89	1/8	1050014	1050014	1030014000	1020014
	-	0.5512	14.00	1/8	1050014	1050014	1030014000	1020014
	9/16	0.5625	14.29	1/8	1050011	1050011	1030011000	1020011
	-	0.5709	14.50	1/8	10500145	10500145	1030014500	10200145
	37/64	0.5781	14.68	1/8	10500157	10500157	1030015700	10200157
	-	0.5906	15.00	1/8	1050015	1050015	1030015000	1020015
0.5	19/32	0.5938	15.08	1/8	1050011	1050011	1030011000	1020011
	39/64	0.6094	15.48	1/8	1050011	1050011	1030011000	1020011
	-	0.6102	15.50	1/8	10500155	10500155	1030015500	10200155
	5/8	0.6250	15.88	1/8	1050012	1050012	1030012000	1020012
	-	0.6299	16.00	1/8	1050012	1050012	1030012000	1020012
	41/64	0.6406	16.27	1/8	1050014	1050014	1030014000	1020014
	-	0.6496	16.50	1/8	10500105	10500105	1030010500	10200105
	21/32	0.6563	16.67	1/8	10500121	10500121	1030012100	10200121
	-	0.6693	17.00	1/8	1050017	1050017	1030017000	1020017
	43/64	0.6719	17.07	1/8	10500171	10500171	1030017100	10200171
11/16	0.6875	17.46	1/8	10500122	10500122	1030012200	10200122	
-	0.6890	17.50	1/8	10500175	10500175	1030017500	10200175	


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

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

Inserts sold in quantities of 2

 = 131I-XXXX	 = 131A-XXXX
 = 131N-XXXX	 200® = 131H-XXXX

DRILLING

BORING

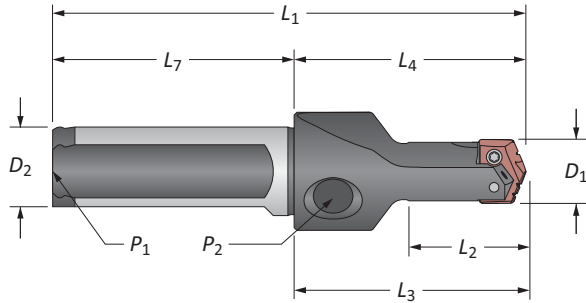
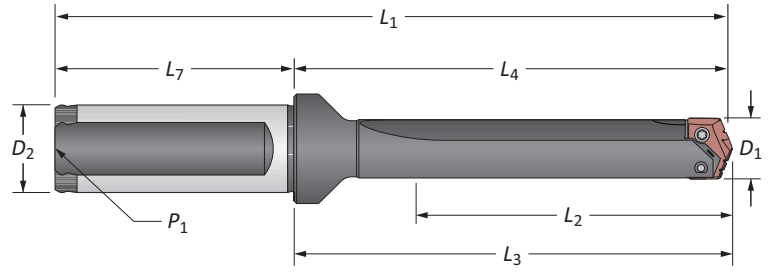
REAMING

BURNISHING

THREADING

SPECIALS

0 Series | Flange Shank



Stub Length

Series

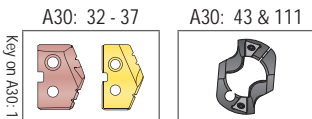
Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁		
0	Stub	33/64 - 11/16	7/8	1-7/8	1-63/64	3-29/32	3/4	2-1/32	1/8	2100S075	
	Short	33/64 - 11/16	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8	2200S075	
	Standard	33/64 - 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	2400S075	
	Extended	33/64 - 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	2500S075	
0.5	Stub	39/64 - 11/16	7/8	1-7/8	1-63/64	3-29/32	3/4	2-1/32	1/8	2105S075	
	Short	39/64 - 11/16	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8	2205S075	
	Standard	39/64 - 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	2405S075	
	Extended	39/64 - 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	2505S075	
m	0	Stub	13.0 - 17.5	22.2	47.6	50.4	97.6	20.0	50.0	1/8*	2100S075
		Short	13.0 - 17.5	34.9	63.5	66.3	113.5	20.0	50.0	1/8*	2200S075
		XL	13.0 - 17.5	295.0	323.9	326.7	373.9	20.0	50.0	1/8*	2700S075
		3XL	13.0 - 17.5	387.0	416.0	418.8	466.0	20.0	50.0	1/8*	2400S075
	0.5	Stub	15.5 - 17.5	22.2	47.6	50.4	97.6	20.0	50.0	1/8*	2105S075
		Short	15.5 - 17.5	34.9	63.5	66.3	113.5	20.0	50.0	1/8*	2205S075

*Metric thread to BSP and ISO 7-1
 Stub length holders have a 1/8" side pipe tap (P₂)

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Driver	Breaker/Drive End Driver	Retainer	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

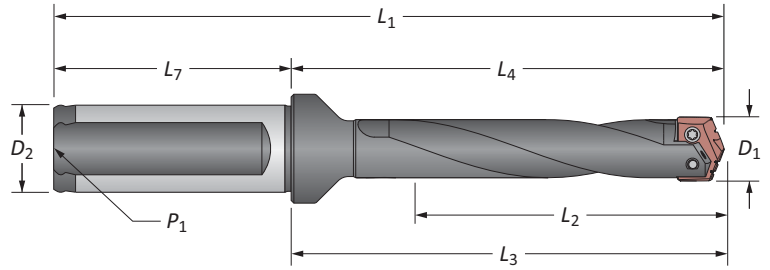
Screws sold in quantities of 10

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



Drill Bit

O Series | Flange Shank



Selection

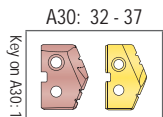
Series	Design	Body					Shank			Part No.	
		D ₁	L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁		
i	Standard	33/64 - 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	240000 0750	
	Standard Plus	33/64 - 11/16	3-1/2	4-5/8	4-37/64	6-39/64	3/4	2-1/32	1/8	245000 0750	
	Extended	33/64 - 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	250000 0750	
	Long	33/64 - 11/16	7	8-1/8	8-15/64	10-5/32	3/4	2-1/32	1/8	200000 0750	
	Long Plus	33/64 - 11/16	9-7/16	10-37/64	10-11/16	12-23/32	3/4	2-1/32	1/8	205000 0750	
	0.5	Standard	39/64 - 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8	240050 0750
		Extended	39/64 - 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8	250050 0750
Long		39/64 - 11/16	7	8-1/8	8-15/64	10-5/32	3/4	2-1/32	1/8	200050 0750	
m	Standard	13.0 - 17.5	63.5	92.1	94.9	142.1	20.0	50.0	1/8*	240000 0200	
	Standard Plus	13.0 - 17.5	89.0	117.6	120.4	167.6	20.0	50.0	1/8*	245000 0200	
	Extended	13.0 - 17.5	114.3	142.9	145.7	192.9	20.0	50.0	1/8*	250000 0200	
	Long	13.0 - 17.5	177.8	206.4	209.1	256.4	20.0	50.0	1/8*	200000 0200	
	Long Plus	13.0 - 17.5	240.0	268.6	271.4	318.6	20.0	50.0	1/8*	205000 0200	
	0.5	Standard	15.5 - 17.5	63.5	92.1	94.9	142.1	20.0	50.0	1/8*	240050 0200
		Extended	15.5 - 17.5	114.3	142.9	145.7	192.9	20.0	50.0	1/8*	250050 0200
Long		15.5 - 17.5	177.8	206.4	209.1	256.4	20.0	50.0	1/8*	200050 0200	

*Metric thread to BSP and ISO 7-1

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Insert Driver	Hex Torque Driver	Replacement Bit	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength

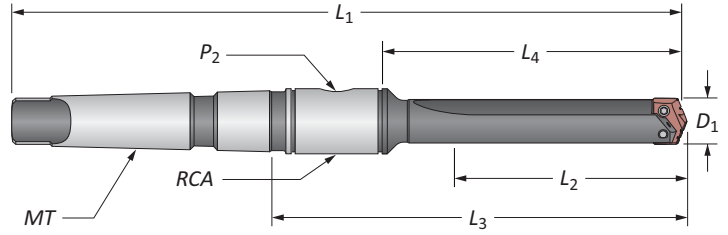


i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

0 Series | Taper Shank



Specifications

Series	Length	D ₁	Body				Shank			Material	
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	R		
i	0	Short	33/64 - 11/16	1-3/8	3-41/64	2-3/16	6-15/32	#2	1/16	2T-2SR	22-24 SPS
		Standard	33/64 - 11/16	2-1/2	4-49/64	3-5/16	7-19/32	#2	1/16	2T-2SR	24-25 SPS
		Extended	33/64 - 11/16	4-1/2	6-49/64	5-5/16	9-19/32	#2	1/16	2T-2SR	25 SPS
i	0.5	Short	39/64 - 11/16	1-3/8	3-41/64	2-3/16	6-15/32	#2	1/16	2T-2SR	22-24 SPS
		Standard	39/64 - 11/16	2-1/2	4-49/64	3-5/16	7-19/32	#2	1/16	2T-2SR	24-25 SPS
		Extended	39/64 - 11/16	4-1/2	6-49/64	5-5/16	9-19/32	#2	1/16	2T-2SR	25 SPS
m	0	Short	13.0 - 17.5	35.0	92.4	55.5	164.3	#2**	1/16*	2T-2SRM	22-24 SPS
	0.5	Short	15.5 - 17.5	35.0	92.4	55.5	164.3	#2**	1/16*	2T-2SRM	22-25 SPS

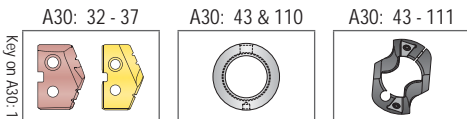
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Insert Driver	Insert Driver	Replacement	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

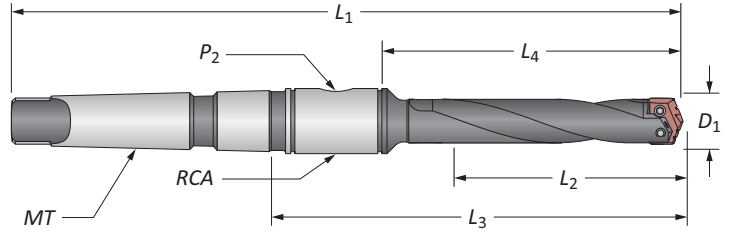
Screws sold in quantities of 10

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



Drill

O Series | Taper Shank



Table

Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	R		
i	0	Standard	33/64 - 11/16	2-1/2	4-49/64	3-5/16	7-19/32	#2	1/16	2T-2SR	242222 2222
		Extended	33/64 - 11/16	4-1/2	6-49/64	5-5/16	9-19/32	#2	1/16	2T-2SR	252222 2222
		Long	33/64 - 11/16	7	8-17/64	7-13/16	12-3/32	#2	1/16	2T-2SR	222222 2222
	0.5	Standard	39/64 - 11/16	2-1/2	4-49/64	3-5/16	7-19/32	#2	1/16	2T-2SR	242552 2222
		Extended	39/64 - 11/16	4-1/2	6-49/64	5-5/16	9-19/32	#2	1/16	2T-2SR	252552 2222
		Long	39/64 - 11/16	7	8-17/64	7-13/16	12-3/32	#2	1/16	2T-2SR	222552 2222
m	0	Standard	13.0 - 17.5	63.5	121.0	84.1	192.9	#2**	1/16*	2T-2SRM	242222 2222
		Extended	13.0 - 17.5	114.3	171.8	135.0	243.7	#2**	1/16*	2T-2SRM	252222 2222
		Long	13.0 - 17.5	177.8	235.3	198.5	307.2	#2**	1/16*	2T-2SRM	222222 2222
	0.5	Standard	15.5 - 17.5	63.5	121.0	84.1	192.9	#2**	1/16*	2T-2SRM	242552 2222
		Extended	15.5 - 17.5	114.3	171.8	135.0	243.7	#2**	1/16*	2T-2SRM	252552 2222
		Long	15.5 - 17.5	177.8	235.3	198.5	307.2	#2**	1/16*	2T-2SRM	222552 2222

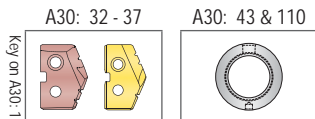
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Insert Driver	Drive Torque Driver	Recessed Screws	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

Screws sold in quantities of 10

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

DRILLING

BORING

REAMING

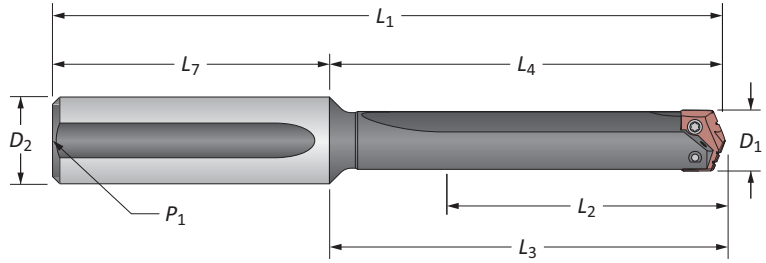
BURNISHING

THREADING

SPECIALS

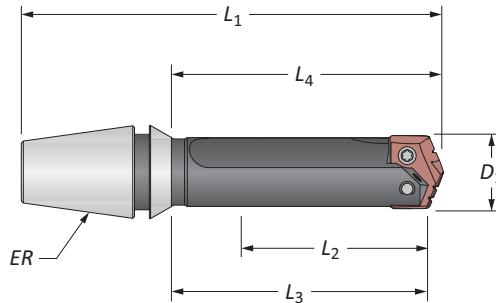
0 Series | Straight Shank | ER Collet

0 Series | Straight Shank | ER Collet



Specifications

Series	Length	D ₁	Body				Shank			Material
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
0	Short	33/64 - 11/16	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8	22MnS75
	Standard	33/64 - 11/16	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8	24MnS75
	Extended	33/64 - 11/16	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8	25MnS75
	Long	33/64 - 11/16	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8	27MnS75
	3XL	33/64 - 11/16	15-1/4	16-1/16	16-11/64	18-7/16	3/4	2-3/8	1/8	28MnS75
0.5	Short	39/64 - 11/16	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8*	22MnS75
	Standard	39/64 - 11/16	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8*	24MnS75
	Extended	39/64 - 11/16	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8*	25MnS75
	Long	39/64 - 11/16	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8*	28MnS75



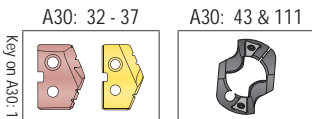
ER Collet

Series	D ₁	L ₂	Body			ER	Material	Collet Retention
			L ₄	L ₃	L ₁			
0	33/64 - 11/16	1-3/8	1-57/64	2	3-5/64	ER-16	21MnS75	ER-16N
	33/64 - 11/16	1-3/8	1-57/64	2	3-15/64	ER-20	21MnS75	ER-20N

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Insert Driver	Pre-Drill Bit	Reamer	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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

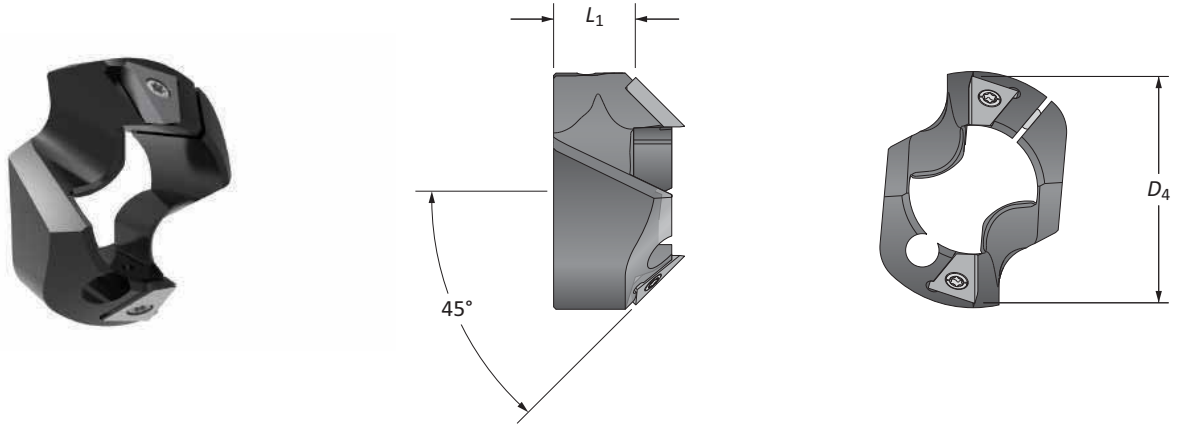
Screws sold in quantities of 10

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



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

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

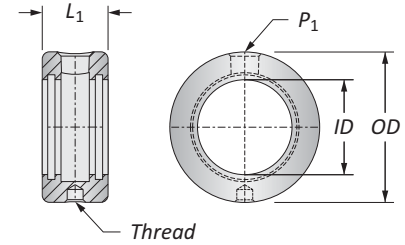


0 Series 45° Chamfer Ring

Order Series	D ₁ Range	Chamfer Ring		Part No.	Insert Part No.	Insert Screw	Driver	Assembly Screw	Driver
0	0.5118 - 0.6890	D ₄	L ₁	0-45	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7375-IP9-1	8IP-9

Rotary Coolant Adapter

ID	OD	L ₁	Thread	P ₁	Part No.	Kit Part No.**	Replacement
3/4	1-3/4	7/8	5/16-18	1/8	2SR	2T1-2SR	2T1-2OR-10
19.05	44.45	22.23	M8 x 1.25	1/8*	2SR	2T1-2SR	2T1-2OR-10



*Thread to BSP and ISO 7-1

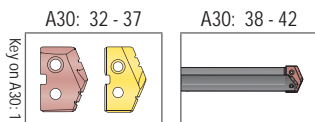
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

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

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Driver	Pre-Drill Bit	Reamer	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



① = Imperial (in)
 Ⓜ = Metric (mm)
 Chamfer Ring Inserts sold separately
 Screws sold in packs of 10
 O-rings sold in packs of 10

▲ **CAUTION** 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.

DRILLING

BORING

REAMING

BURNISHING

THREADING

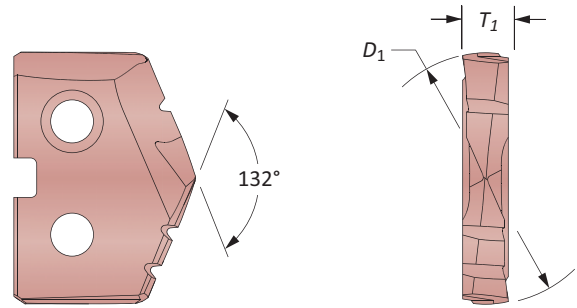
SPECIALS

1


 DRILLING | T-A® Replaceable Insert Drilling System



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

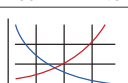

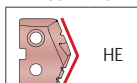





Series	Insert				SS Carbide		
	Fractional Length	D_1 Inch	D_1 mm	T_1	Super Job	P2	P1
1	45/64	0.7031	17.86	5/32	4510703	4210703	4110703
	-	0.7087	18.00	5/32	4510710	4210710	4110710
	23/32	0.7188	18.26	5/32	4510723	4210723	4110723
	-	0.7283	18.50	5/32	4510735	4210735	4110735
	47/64	0.7344	18.65	5/32	4510734	4210734	4110734
	-	0.7480	19.00	5/32	4510740	4210740	4110740
	3/4	0.7500	19.05	5/32	4510724	4210724	4110724
	49/64	0.7656	19.45	5/32	4510705	4210705	4110705
	-	0.7677	19.50	5/32	4510705	4210705	4110705
	25/32	0.7813	19.84	5/32	4510725	4210725	4110725
	-	0.7874	20.00	5/32	4510720	4210720	4110720
	51/64	0.7969	20.24	5/32	4510702	4210702	4110702
	-	0.8010	20.34	5/32	4510701	4210701	4110701
	-	0.8071	20.50	5/32	4510705	4210705	4110705
	13/16	0.8125	20.64	5/32	4510720	4210720	4110720
-	0.8268	21.00	5/32	4510721	4210721	4110721	
27/32	0.8438	21.43	5/32	4510727	4210727	4110727	
-	0.8465	21.50	5/32	4510715	4210715	4110715	
1.5	55/64	0.8594	21.83	5/32	4510750	4210750	4110750
	-	0.8661	22.00	5/32	4510722	4210722	4110722
	7/8	0.8750	22.23	5/32	4510720	4210720	4110720
	-	0.8858	22.50	5/32	4510725	4210725	4110725
	57/64	0.8906	20.62	5/32	4510707	4210707	4110707
	-	0.9055	23.00	5/32	4510723	4210723	4110723
	29/32	0.9063	23.02	5/32	4510720	4210720	4110720
	59/64	0.9219	23.42	5/32	4510721	4210721	4110721
	-	0.9252	23.50	5/32	4510735	4210735	4110735
15/16	0.9375	23.81	5/32	4510730	4210730	4110730	
-	0.9449	24.00	5/32	4510724	4210724	4110724	

 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.

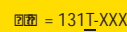
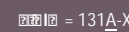
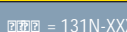
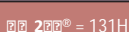
A30: 112 - 143 A30: 52 - 56 A30: 4 - 6

Key on A30: 1

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

Inserts sold in quantities of 2

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

A30: 44

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DRILLING

BORING

REAMING

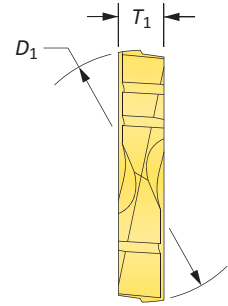
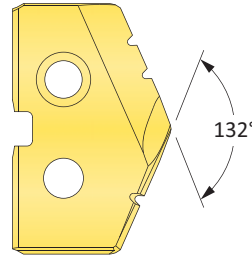
BURNISHING

THREADING

SPECIALS

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

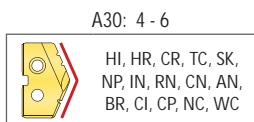
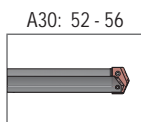
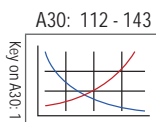
1 Series | HSS | Diameter Range: 0.690" - 0.960" (17.53mm - 24.38mm)



HSS Insert - Remm Bob

Series	Insert				Part No		
	Fractional Length	D1 Inch	D1 mm	T1	1 Series	1.5 Series	1.5 Series
1	45/64	0.7031	17.86	5/32	10100703	10100703	10100703
	-	0.7087	18.00	5/32	1010010	1010010	1010010
	23/32	0.7188	18.26	5/32	10100023	10100023	10100023
	-	0.7283	18.50	5/32	10100105	10100105	10100105
	47/64	0.7344	18.65	5/32	10100734	10100734	10100734
	-	0.7480	19.00	5/32	1010010	1010010	1010010
	3/4	0.7500	19.05	5/32	10100024	10100024	10100024
	49/64	0.7656	19.45	5/32	10100705	10100705	10100705
	-	0.7677	19.50	5/32	10100105	10100105	10100105
	25/32	0.7813	19.84	5/32	10100025	10100025	10100025
	-	0.7874	20.00	5/32	1010020	1010020	1010020
	51/64	0.7969	20.24	5/32	10100700	10100700	10100700
	-	0.8010	20.34	5/32	10100001	10100001	10100001
	-	0.8071	20.50	5/32	10100205	10100205	10100205
	13/16	0.8125	20.64	5/32	10100020	10100020	10100020
-	0.8268	21.00	5/32	1010021	1010021	1010021	
27/32	0.8438	21.43	5/32	10100027	10100027	10100027	
-	0.8465	21.50	5/32	10100215	10100215	10100215	
1.5	55/64	0.8594	21.83	5/32	10100050	10100050	10100050
	-	0.8661	22.00	5/32	1010022	1010022	1010022
	7/8	0.8750	22.23	5/32	10100020	10100020	10100020
	-	0.8858	22.50	5/32	10100205	10100205	10100205
	57/64	0.8906	20.62	5/32	10100000	10100000	10100000
	-	0.9055	23.00	5/32	1010023	1010023	1010023
	29/32	0.9063	23.02	5/32	10100020	10100020	10100020
	59/64	0.9219	23.42	5/32	10100021	10100021	10100021
	-	0.9252	23.50	5/32	10100235	10100235	10100235
	15/16	0.9375	23.81	5/32	10100030	10100030	10100030
-	0.9449	24.00	5/32	1010024	1010024	1010024	

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



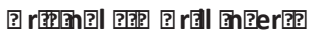
Coatings not listed above can be supplied as non-stocked standards. Process fees apply.

101 = 131I-XXXX	1010 = 131A-XXXX
10100 = 131N-XXXX	101000 = 131H-XXXX

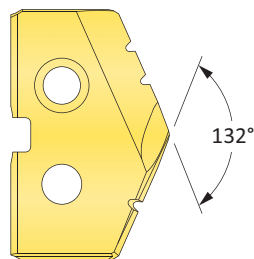
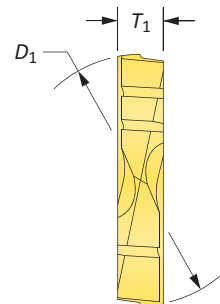
DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

1




 DRILLING | T-A® Replaceable Insert Drilling System




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

SS Insert - Super Job

Series	Insert				Part no		
	Fractional Length	D ₁ Inch	D ₁ mm	T ₁			
1	45/64	0.7031	17.86	5/32	15100703	15100703	15100703
	-	0.7087	18.00	5/32	15100710	15100710	15100710
	23/32	0.7188	18.26	5/32	15100723	15100723	15100723
	-	0.7283	18.50	5/32	15100725	15100725	15100725
	47/64	0.7344	18.65	5/32	15100734	15100734	15100734
	-	0.7480	19.00	5/32	15100740	15100740	15100740
	3/4	0.7500	19.05	5/32	15100724	15100724	15100724
	49/64	0.7656	19.45	5/32	15100705	15100705	15100705
	-	0.7677	19.50	5/32	15100705	15100705	15100705
	25/32	0.7813	19.84	5/32	15100725	15100725	15100725
	-	0.7874	20.00	5/32	15100720	15100720	15100720
	51/64	0.7969	20.24	5/32	15100707	15100707	15100707
	-	0.8010	20.34	5/32	15100701	15100701	15100701
	-	0.8071	20.50	5/32	15100705	15100705	15100705
	13/16	0.8125	20.64	5/32	15100720	15100720	15100720
-	0.8268	21.00	5/32	15100721	15100721	15100721	
27/32	0.8438	21.43	5/32	15100727	15100727	15100727	
-	0.8465	21.50	5/32	15100715	15100715	15100715	
1.5	55/64	0.8594	21.83	5/32	15100750	15100750	15100750
	-	0.8661	22.00	5/32	15100722	15100722	15100722
	7/8	0.8750	22.23	5/32	15100720	15100720	15100720
	-	0.8858	22.50	5/32	15100725	15100725	15100725
	57/64	0.8906	20.62	5/32	15100707	15100707	15100707
	-	0.9055	23.00	5/32	15100723	15100723	15100723
	29/32	0.9063	23.02	5/32	15100720	15100720	15100720
	59/64	0.9219	23.42	5/32	15100721	15100721	15100721
	-	0.9252	23.50	5/32	15100735	15100735	15100735
	15/16	0.9375	23.81	5/32	15100730	15100730	15100730
-	0.9449	24.00	5/32	15100724	15100724	15100724	

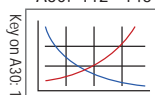
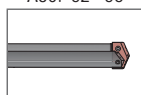

 1.5 series inserts fit into both 1 and 1.5 series holders. However, 1 series inserts ONLY fit into 1 series holders. See page A30: 7 for visual.

Inserts sold in quantities of 2


A30: 112 - 143

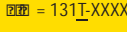
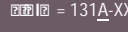

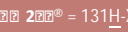
A30: 52 - 56

A30: 4 - 6

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

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

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

A30: 46

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DRILLING

BORING

REAMING

BURNISHING

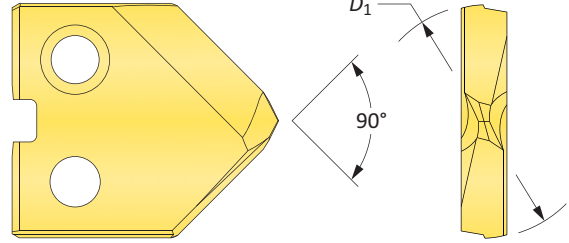
THREADING

SPECIALS

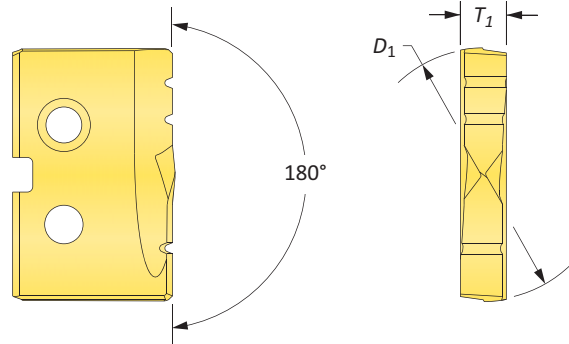
1 Series | HSS | Diameter Range: 0.690" - 0.960" (17.53mm - 24.38mm)



90° Chamfer



Flat Bottom



1 Series HSS - Series Holder

Series	Insert				90° Chamfer Part No.			Flat Bottom Part No.
	Fractional Length	D ₁ inch	D ₁ mm	T ₁				
1	45/64	0.7031	17.86	5/32	1511171355	1511171355	1511171355	1511171355
	-	0.7087	18.00	5/32	1511171355	1511171355	1511171355	1511171355
	23/32	0.7188	18.26	5/32	1511172355	1511172355	1511172355	1511172355
	-	0.7283	18.50	5/32	1511171355	1511171355	1511171355	1511171355
	47/64	0.7344	18.65	5/32	1511173455	1511173455	1511173455	1511173455
	-	0.7480	19.00	5/32	1511171355	1511171355	1511171355	1511171355
	3/4	0.7500	19.05	5/32	1511172455	1511172455	1511172455	1511172455
	49/64	0.7656	19.45	5/32	1511171355	1511171355	1511171355	1511171355
	-	0.7677	19.50	5/32	1511171355	1511171355	1511171355	1511171355
	25/32	0.7813	19.84	5/32	1511172555	1511172555	1511172555	1511172555
	-	0.7874	20.00	5/32	1511171355	1511171355	1511171355	1511171355
	51/64	0.7969	20.24	5/32	1511171355	1511171355	1511171355	1511171355
	-	0.8010	20.34	5/32	1511171355	1511171355	1511171355	1511171355
	-	0.8071	20.50	5/32	1511171355	1511171355	1511171355	1511171355
	13/16	0.8125	20.64	5/32	1511172155	1511172155	1511172155	1511172155
-	0.8268	21.00	5/32	1511171355	1511171355	1511171355	1511171355	
27/32	0.8438	21.43	5/32	1511172755	1511172755	1511172755	1511172755	
-	0.8465	21.50	5/32	1511171355	1511171355	1511171355	1511171355	
1.5	55/64	0.8594	21.83	5/32	1511175155	1511175155	1511175155	1511175155
	-	0.8661	22.00	5/32	1511172555	1511172555	1511172555	1511172555
	7/8	0.8750	22.23	5/32	1511172155	1511172155	1511172155	1511172155
	-	0.8858	22.50	5/32	1511172555	1511172555	1511172555	1511172555
	57/64	0.8906	20.62	5/32	1511171355	1511171355	1511171355	1511171355
	-	0.9055	23.00	5/32	1511172355	1511172355	1511172355	1511172355
	29/32	0.9063	23.02	5/32	1511172155	1511172155	1511172155	1511172155
	59/64	0.9219	23.42	5/32	1511172155	1511172155	1511172155	1511172155
	-	0.9252	23.50	5/32	1511172355	1511172355	1511172355	1511172355
	15/16	0.9375	23.81	5/32	1511173155	1511173155	1511173155	1511173155
-	0.9449	24.00	5/32	1511172455	1511172455	1511172455	1511172455	

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.

Key on A30: 1

A30: 112 - 143

A30: 52 - 56

A30: 4 - 6

SW

A30: 4 - 6

FN

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

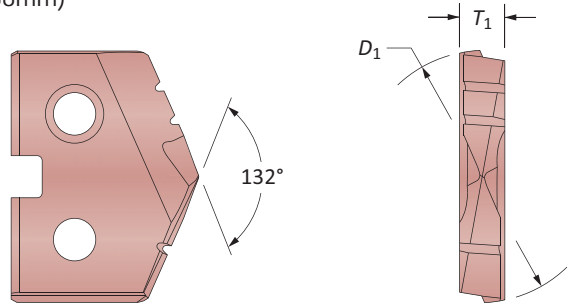
Inserts sold in quantities of 2

= 131I-XXXX	= 131A-XXXX
= 131N-XXXX	= 131H-XXXX

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



Be Steel



SS - Super Cobalt SS

Series	Fractional Length	Insert			Drill	
		D ₁ inch	D ₁ mm	T ₁	Super Cobalt	SS
1	-	0.7580	19.25	5/32	151T 75	131A 75
	49/64	0.7656	19.45	5/32	151T 75	131A 75
	25/32	0.7813	19.85	5/32	151T 25	131A 25

DRILLING

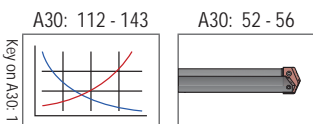
BORING

REAMING

BURNISHING

THREADING

SPECIALS



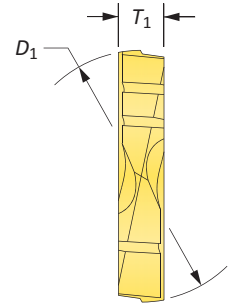
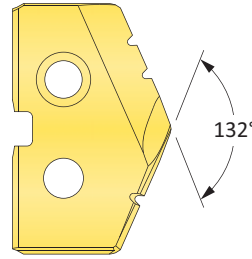
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

151T = 131T-XXXX	131A = 131A-XXXX
151N = 131N-XXXX	222® = 131H-XXXX

Inserts sold in quantities of 2

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

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



HSS Insert - HSS

Series	Fractional Length	Insert			Holder		
		D ₁ Inch	D ₁ mm	T ₁	1 Series	1.5 Series	1.5 Series
1	45/64	0.7031	17.86	5/32	131P0703	131P0703	131P0703
	-	0.7087	18.00	5/32	131P0710	131P0710	131P0710
	23/32	0.7188	18.26	5/32	131P0723	131P0723	131P0723
	-	0.7283	18.50	5/32	131P0725	131P0725	131P0725
	47/64	0.7344	18.65	5/32	131P0734	131P0734	131P0734
	-	0.7480	19.00	5/32	131P0740	131P0740	131P0740
	3/4	0.7500	19.05	5/32	131P0724	131P0724	131P0724
	49/64	0.7656	19.45	5/32	131P0725	131P0725	131P0725
	-	0.7677	19.50	5/32	131P0725	131P0725	131P0725
	25/32	0.7813	19.84	5/32	131P0725	131P0725	131P0725
	-	0.7874	20.00	5/32	131P0720	131P0720	131P0720
	51/64	0.7969	20.24	5/32	131P0720	131P0720	131P0720
	-	0.8010	20.34	5/32	131P0721	131P0721	131P0721
	-	0.8071	20.50	5/32	131P0725	131P0725	131P0725
	13/16	0.8125	20.64	5/32	131P0720	131P0720	131P0720
-	0.8268	21.00	5/32	131P0721	131P0721	131P0721	
27/32	0.8438	21.43	5/32	131P0727	131P0727	131P0727	
-	0.8465	21.50	5/32	131P0715	131P0715	131P0715	
1.5	55/64	0.8594	21.83	5/32	131P0750	131P0750	131P0750
	-	0.8661	22.00	5/32	131P0722	131P0722	131P0722
	7/8	0.8750	22.23	5/32	131P0720	131P0720	131P0720
	-	0.8858	22.50	5/32	131P0725	131P0725	131P0725
	57/64	0.8906	20.62	5/32	131P0720	131P0720	131P0720
	-	0.9055	23.00	5/32	131P0723	131P0723	131P0723
	29/32	0.9063	23.02	5/32	131P0720	131P0720	131P0720
	59/64	0.9219	23.42	5/32	131P0721	131P0721	131P0721
	-	0.9252	23.50	5/32	131P0735	131P0735	131P0735
	15/16	0.9375	23.81	5/32	131P0730	131P0730	131P0730
-	0.9449	24.00	5/32	131P0724	131P0724	131P0724	

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

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

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

Inserts sold in quantities of 2

131I-XXXX	131A-XXXX
131N-XXXX	200® = 131H-XXXX

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

DRILLING

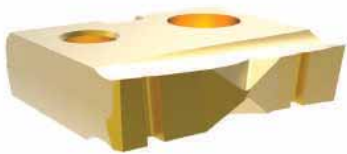
BORING

REAMING

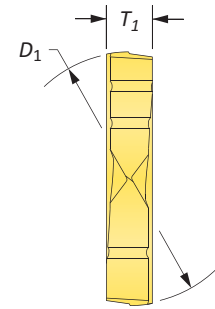
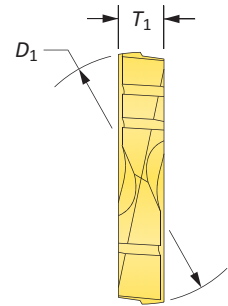
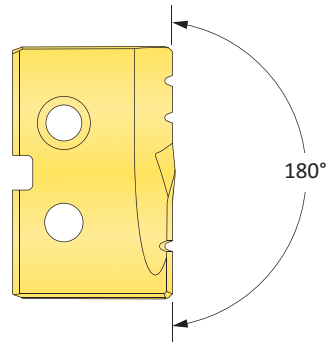
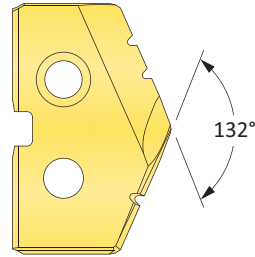
BURNISHING

THREADING

SPECIALS



Flat Bottom



Carbide Insert - 1 Series

Series	Fractional Length	D ₁ Inch	D ₁ mm	T ₁	Part No.		Flat Bottom Part No.
1	45/64	0.7031	17.86	5/32	102100703	102100703	102100703FB
	-	0.7087	18.00	5/32	102100710	102100710	102100710FB
	23/32	0.7188	18.26	5/32	102100723	102100723	102100723FB
	-	0.7283	18.50	5/32	102100735	102100735	102100735FB
	47/64	0.7344	18.65	5/32	102100734	102100734	102100734FB
	-	0.7480	19.00	5/32	102100740	102100740	102100740FB
	3/4	0.7500	19.05	5/32	102100724	102100724	102100724FB
	49/64	0.7656	19.45	5/32	102100705	102100705	102100705FB
	-	0.7677	19.50	5/32	102100705	102100705	102100705FB
	25/32	0.7813	19.84	5/32	102100725	102100725	102100725FB
	-	0.7874	20.00	5/32	102100720	102100720	102100720FB
	51/64	0.7969	20.24	5/32	102100700	102100700	102100700FB
	-	0.8010	20.34	5/32	102100701	102100701	102100701FB
	-	0.8071	20.50	5/32	102100705	102100705	102100705FB
	13/16	0.8125	20.64	5/32	102100720	102100720	102100720FB
1.5	-	0.8268	21.00	5/32	102100721	102100721	102100721FB
	27/32	0.8438	21.43	5/32	102100727	102100727	102100727FB
	-	0.8465	21.50	5/32	102100715	102100715	102100715FB
	55/64	0.8594	21.83	5/32	102100750	102100750	102100750FB
	-	0.8661	22.00	5/32	102100722	102100722	102100722FB
	7/8	0.8750	22.23	5/32	102100720	102100720	102100720FB
	-	0.8858	22.50	5/32	102100725	102100725	102100725FB
	57/64	0.8906	20.62	5/32	102100700	102100700	102100700FB
	-	0.9055	23.00	5/32	102100723	102100723	102100723FB
	29/32	0.9063	23.02	5/32	102100720	102100720	102100720FB
	59/64	0.9219	23.42	5/32	102100721	102100721	102100721FB
	-	0.9252	23.50	5/32	102100735	102100735	102100735FB
	15/16	0.9375	23.81	5/32	102100730	102100730	102100730FB
	-	0.9449	24.00	5/32	102100724	102100724	102100724FB

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

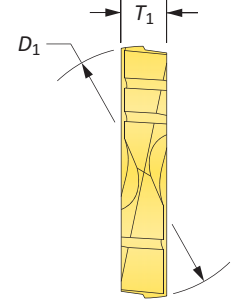
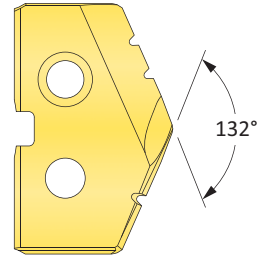
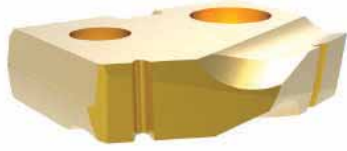
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2







= 131T-XXXX	= 131A-XXXX
= 131N-XXXX	= 131H-XXXX

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

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



Carbide Insert - 25 Series | 23 Series | 2 Series

Series	Insert				25 Series		23 Series		2 Series	
	Fractional Length	D ₁ Inch	D ₁ mm	T ₁						
1	45/64	0.7031	17.86	5/32	1051000703	1051000703	103100070300	1021000703		
	-	0.7087	18.00	5/32	10510010	10510010	103100100000	10210010		
	23/32	0.7188	18.26	5/32	105100023	105100023	103100023000	102100023		
	-	0.7283	18.50	5/32	105100105	105100105	103100105000	102100105		
	47/64	0.7344	18.65	5/32	1051000734	1051000734	103100073400	1021000734		
	-	0.7480	19.00	5/32	10510010	10510010	103100100000	10210010		
	3/4	0.7500	19.05	5/32	105100024	105100024	103100024000	102100024		
	49/64	0.7656	19.45	5/32	1051000705	1051000705	103100070500	1021000705		
	-	0.7677	19.50	5/32	105100105	105100105	103100105000	102100105		
	25/32	0.7813	19.84	5/32	105100025	105100025	103100025000	102100025		
	-	0.7874	20.00	5/32	10510020	10510020	103100200000	10210020		
	51/64	0.7969	20.24	5/32	1051000700	1051000700	103100070000	1021000700		
	-	0.8010	20.34	5/32	105100021	105100021	103100021000	102100021		
	-	0.8071	20.50	5/32	105100205	105100205	103100205000	102100205		
	13/16	0.8125	20.64	5/32	105100020	105100020	103100020000	102100020		
-	0.8268	21.00	5/32	10510021	10510021	103100210000	10210021			
27/32	0.8438	21.43	5/32	105100027	105100027	103100027000	102100027			
-	0.8465	21.50	5/32	105100215	105100215	103100215000	102100215			
1.5	55/64	0.8594	21.83	5/32	105100050	105100050	103100050000	102100050		
	-	0.8661	22.00	5/32	10510022	10510022	103100220000	10210022		
	7/8	0.8750	22.23	5/32	105100020	105100020	103100020000	102100020		
	-	0.8858	22.50	5/32	105100225	105100225	103100225000	102100225		
	57/64	0.8906	20.62	5/32	105100000	105100000	103100000000	102100000		
	-	0.9055	23.00	5/32	10510023	10510023	103100230000	10210023		
	29/32	0.9063	23.02	5/32	105100020	105100020	103100020000	102100020		
	59/64	0.9219	23.42	5/32	105100021	105100021	103100021000	102100021		
	-	0.9252	23.50	5/32	105100235	105100235	103100235000	102100235		
15/16	0.9375	23.81	5/32	105100030	105100030	103100030000	102100030			
-	0.9449	24.00	5/32	10510024	10510024	103100240000	10210024			

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

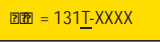
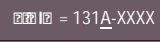

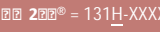
A30: 52 - 56

A30: 4 - 6

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

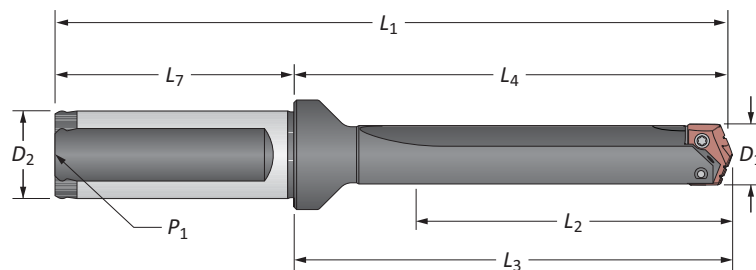
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2

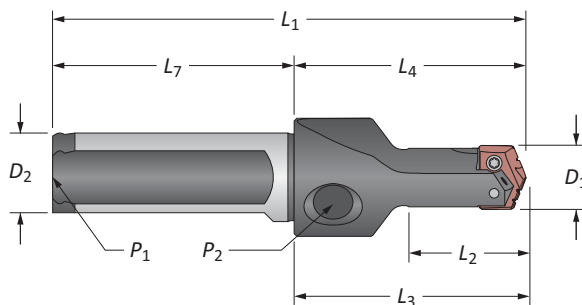
 = 131I-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

1 Series | Flange Shank

1 Series | Flange Shank



Stub length holder



Series

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
1	Stub	45/64 - 15/16	1-7/8	2-63/64	3-1/8	5-17/64	1	2-9/32	1/8	2101SP000
	Short	45/64 - 15/16	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8	2201SP000
	Intermediate	45/64 - 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	2301SP000
	Standard	45/64 - 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	2401SP000
	Extended	45/64 - 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	2501SP000
1.5	Stub	55/64 - 15/16	2-1/4	3-31/64	3-5/8	5-49/64	1	2-9/32	1/8	21015S000
	Short	55/64 - 15/16	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8	22015S000
	Intermediate	55/64 - 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	23015S000
	Standard	55/64 - 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	24015S000
	Extended	55/64 - 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	25015S000
m	Stub	18.0 - 24.0	47.6	75.8	79.4	131.8	25.0	56.0	1/8*	2101S0250
	Short	18.0 - 24.0	66.7	107.2	110.7	163.2	25.0	56.0	1/8*	2201S0250
	XL	18.0 - 24.0	457.0	494.5	498.1	550.5	25.0	56.0	1/8*	2701S0250
	3XL	18.0 - 24.0	569.0	602.5	606.1	658.5	25.0	56.0	1/8*	2801S0250
	Stub	22.0 - 24.0	57.2	88.5	92.1	144.5	25.0	56.0	1/8*	21015S0250
Short	22.0 - 24.0	66.7	107.2	110.7	163.2	25.0	56.0	1/8*	22015S0250	

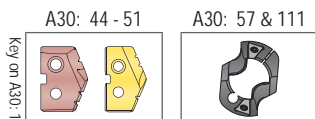
*Metric thread to BSP and ISO 7-1

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

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Driver	Hex Driver	Reamer	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 $\mu = 0.14$ and develop 90% of ultimate yield strength



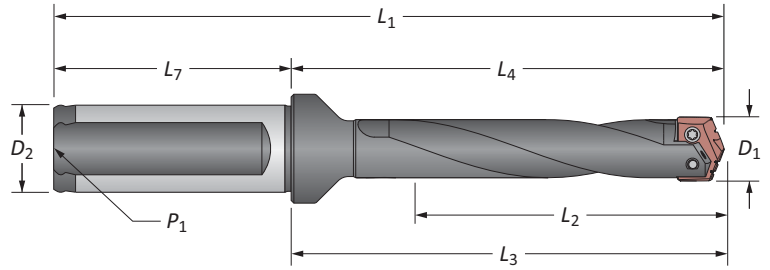
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

1 Series | Flange Shank

1 Series | Flange Shank



Table

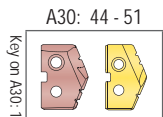
Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁		
i	1	Intermediate	45/64 - 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	230100 21000
		Standard	45/64 - 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	240100 21000
		Standard Plus	45/64 - 15/16	8-5/8	10-3/32	10-15/64	12-33/64	1	2-9/32	1/8	245100 21000
		Extended	45/64 - 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	250100 21000
		Long	45/64 - 15/16	14-3/8	15-27/32	15-63/64	18-17/64	1	2-9/32	1/8	200100 21000
	1.5	Intermediate	55/64 - 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8	230150 21000
		Standard	55/64 - 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8	240150 21000
		Extended	55/64 - 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8	250150 21000
m	1	Intermediate	18.0 - 24.0	117.5	154.8	158.4	210.8	25.0	56.0	1/8*	230100 25000
		Standard	18.0 - 24.0	168.3	205.6	209.2	261.6	25.0	56.0	1/8*	240100 25000
		Standard Plus	18.0 - 24.0	219.0	256.3	259.9	312.3	25.0	56.0	1/8*	245100 25000
		Extended	18.0 - 24.0	269.9	307.2	310.8	363.2	25.0	56.0	1/8*	250100 25000
		Long	18.0 - 24.0	365.0	402.3	405.9	458.3	25.0	56.0	1/8*	200100 25000
	1.5	Intermediate	22.0 - 24.0	117.5	154.8	158.4	210.8	25.0	56.0	1/8*	230150 25000
		Standard	22.0 - 24.0	168.3	205.6	209.2	261.6	25.0	56.0	1/8*	240150 25000
		Extended	22.0 - 24.0	269.9	307.2	310.8	363.2	25.0	56.0	1/8*	250150 25000

*Metric thread to BSP and ISO 7-1

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Insert Driver	Drive Torque Driver	Replacement Bit	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

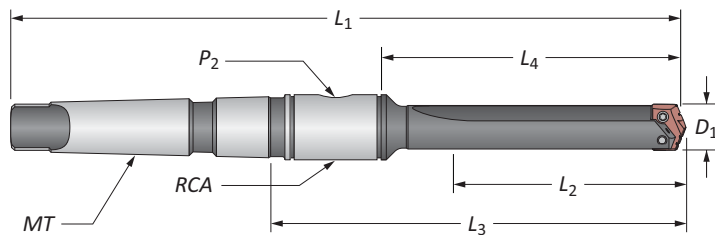
Screws sold in quantities of 10

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

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

1 Series | Taper Shank

1 Series | Taper Shank



Specifications

Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	RCS		
1	Short	45/64 - 15/16	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	2T-3SR	2211S003	
	Short	45/64 - 15/16	2-3/4	3-7/8	5-39/64	10-5/32	#4	1/8	2T-3SR	2211S004	
	Intermediate	45/64 - 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	2311S003	
	Standard	45/64 - 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	2411S003	
	Standard	45/64 - 15/16	6-3/4	7-7/8	9-39/64	14-5/32	#4	1/8	2T-3SR	2411S004	
	Extended	45/64 - 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	2511S003	
1.5	Short	55/64 - 15/16	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	2T-3SR	2215S003	
	Short	55/64 - 15/16	2-3/4	3-7/8	5-39/64	10-5/32	#4	1/8	2T-3SR	2215S004	
	Intermediate	55/64 - 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	2315S003	
	Standard	55/64 - 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	2415S003	
	Standard	55/64 - 15/16	6-3/4	7-7/8	9-39/64	14-5/32	#4	1/8	2T-3SR	2415S004	
	Extended	55/64 - 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	2515S003	
M	1	Short	18.0 - 24.0	69.8	98.4	142.5	232.5	#3**	1/8*	2T-3SRM	2211M003
	1.5	Short	22.0 - 24.0	69.8	98.4	142.5	232.5	#3**	1/8*	2T-3SRM	2215M003

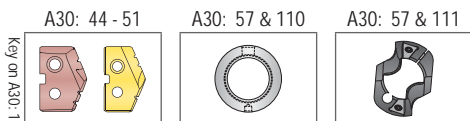
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Insert Driver	Insert Driver	Reamer	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 $\mu = 0.14$ and develop 90% of ultimate yield strength



i = Imperial (in)

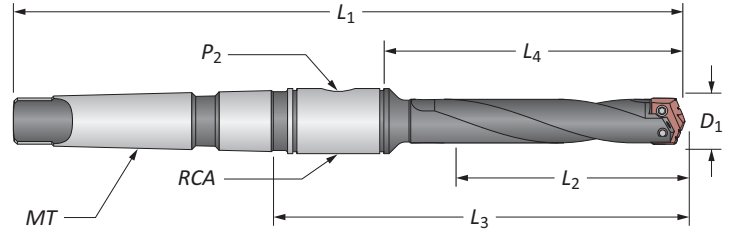
m = Metric (mm)

Screws sold in quantities of 10

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

1 Series | Taper Shank

1 Series | Taper Shank



Selection

Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	R		
i	1	Intermediate	45/64 - 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	230100 23030
		Standard	45/64 - 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	240100 23030
		Standard	45/64 - 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	2T-3SR	240100 23040
		Extended	45/64 - 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	250100 23030
	1.5	Intermediate	55/64 - 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	2T-3SR	230150 23030
		Standard	55/64 - 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	2T-3SR	240150 23030
		Standard	55/64 - 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	2T-3SR	240150 23030
		Extended	55/64 - 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	2T-3SR	250150 23030
m	1	Intermediate	18.0 - 24.0	120.7	149.2	193.3	283.3	#3**	1/8*	2T-3SRM	230100 23030
		Standard	18.0 - 24.0	171.5	200.0	244.1	334.2	#3**	1/8*	2T-3SRM	240100 23030
		Extended	18.0 - 24.0	273.1	301.6	345.7	435.8	#3**	1/8*	2T-3SRM	250100 23030
	1.5	Intermediate	22.0 - 24.0	120.7	149.2	193.3	283.3	#3**	1/8*	2T-3SRM	230150 23030
		Standard	22.0 - 24.0	171.5	200.0	244.1	334.2	#3**	1/8*	2T-3SRM	240150 23030
		Extended	22.0 - 24.0	273.1	301.6	345.7	435.8	#3**	1/8*	2T-3SRM	250150 23030

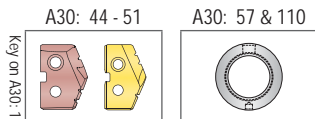
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Insert Driver	Drive Torque Driver	Retention Screws	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

Screws sold in quantities of 10

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

DRILLING

BORING

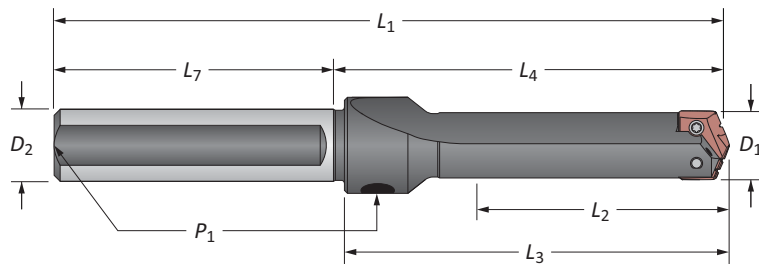
REAMING

BURNISHING

THREADING

SPECIALS

1 Series | Straight Shank



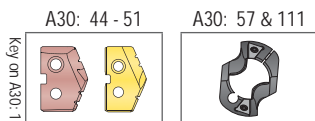
Specifications

Series	Design	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
1	Short	45/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8	2211S75
	Short	45/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8	2211S1
	Intermediate	45/64 - 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8	2311S1
	Standard	45/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8	2411S75
	Standard	45/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8	2411S1
	Extended	45/64 - 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8	2511S1
	XL	45/64 - 15/16	18	19-1/4	19-25/64	22-1/4	1	3	1/8	2711S1
1.5	3XL	45/64 - 15/16	22-1/4	23-1/2	23-41/64	26-1/2	1	3	1/8	2811S1
	Short	55/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8*	2215S75
	Short	55/64 - 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8*	2215S1
	Intermediate	55/64 - 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8*	2315S1
	Standard	55/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8*	2415S75
	Standard	55/64 - 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8*	2415S1
	Extended	55/64 - 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8*	2515S1

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Insert Driver	Hex-Drive Torque Wrench	Replacement Bit	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength

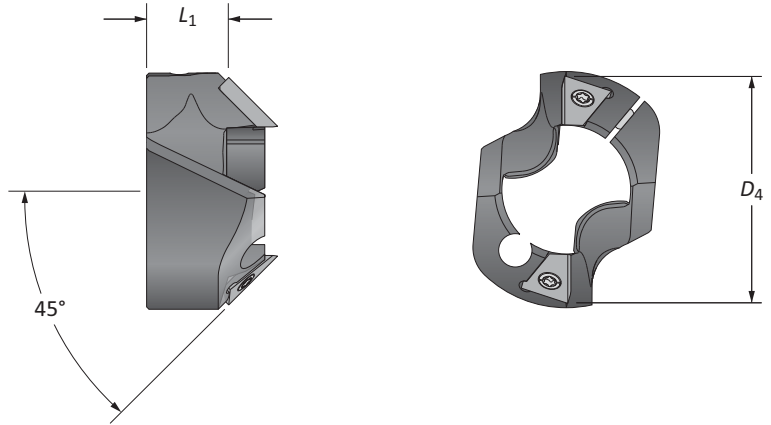


i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

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

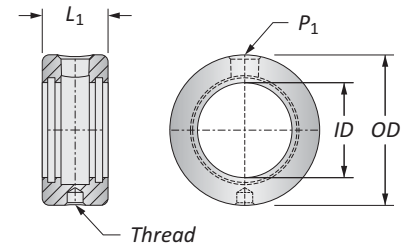


Chamfer Ring

Order Series	D ₁ Range	D ₄	L ₁	Part No.	Insert Part No.	Insert Screw	Insert Part No.	Insert Screw	
1	0.6900 - 0.8540	1-3/64	51/64	T-ACRI-45-B-C5A	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-ACRI-45-B-C5A	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7495-IP15-1	8IP-15

Rotary Coolant Adapter

ID	OD	L ₁	Thread	P ₁	Part No.	Kit Part No.**	Replacement
1	2-1/8	1-1/8	5/16-18	1/8	2T1-3SR	2T1-3SR	2T1-3OR-10
1.5	25.40	53.97	28.57	M8 x 1.25	1/8*	2T1-3SR	2T1-3OR-10



*Thread to BSP and ISO 7-1

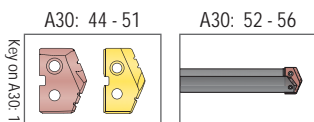
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

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

Connection Accessories

Series	Insert Screw	Nylon Locking Screw	Insert Driver	Pre-Drill Bit	Replacement	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

▲ 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.

DRILLING

BORING

REAMING

BURNISHING

THREADING

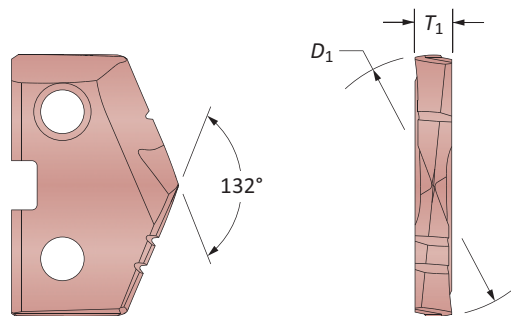
SPECIALS

2

 DRILLING | T-A® Replaceable Insert Drilling System


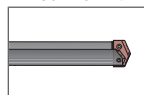
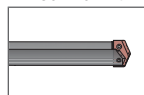

2 Series | Diameter Range: 0.961" - 1.380" (24.41mm - 35.05mm)





SS Insert - Super Job - Carbide Insert - P2 K200 P1 K350

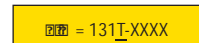
Series	Fractional Length	Insert			SS Drill Bit		
		D_1 Inch	D_1 mm	T_1	Super Job	P2	P1
2	-	0.9646	24.50	3/16	452P245	4R22P245	4R12P245
	31/32	0.9688	24.61	3/16	452P2431	4R22P2431	4R12P2431
	-	0.9760	24.79	3/16	452P2470	4R22P2470	4R12P2470
	63/64	0.9843	25.00	3/16	452P25	4R22P25	4R12P25
	1	1.0000	25.40	3/16	452P100	4R22P100	4R12P100
	-	1.0039	25.50	3/16	452P255	4R22P255	4R12P255
	1-1/64	1.0156	25.80	3/16	452P1015	4R22P1015	4R12P1015
	-	1.0236	26.00	3/16	452P26	4R22P26	4R12P26
	1-1/32	1.0313	26.19	3/16	452P101	4R22P101	4R12P101
	-	1.0433	26.50	3/16	452P265	4R22P265	4R12P265
	1-3/64	1.0469	26.59	3/16	452P1040	4R22P1040	4R12P1040
	1-1/16	1.0625	26.99	3/16	452P102	4R22P102	4R12P102
	-	1.0630	27.00	3/16	452P27	4R22P27	4R12P27
	-	1.0827	27.50	3/16	452P275	4R22P275	4R12P275
	1-3/32	1.0938	27.78	3/16	452P103	4R22P103	4R12P103
	-	1.1024	28.00	3/16	452P28	4R22P28	4R12P28
	1-7/64	1.1094	28.18	3/16	452P1000	4R22P1000	4R12P1000
	-	1.1220	28.50	3/16	452P285	4R22P285	4R12P285
	1-1/8	1.1250	28.58	3/16	452P104	4R22P104	4R12P104
	-	1.1417	29.00	3/16	452P29	4R22P29	4R12P29
1-5/32	1.1563	29.37	3/16	452P105	4R22P105	4R12P105	
-	1.1614	29.50	3/16	452P295	4R22P295	4R12P295	
-	1.1811	30.00	3/16	452P30	4R22P30	4R12P30	
2.5	1-3/16	1.1875	30.16	3/16	452P100	4R22P100	4R12P100
	-	1.2008	30.50	3/16	452P305	4R22P305	4R12P305
	1-7/32	1.2188	30.96	3/16	452P107	4R22P107	4R12P107
	-	1.2205	31.00	3/16	452P31	4R22P31	4R12P31
	-	1.2260	31.14	3/16	452P1020	4R22P1020	4R12P1020
	-	1.2310	31.26	3/16	452P10231	4R22P10231	4R12P10231
	-	1.2340	31.34	3/16	452P10234	4R22P10234	4R12P10234
	-	1.2402	31.50	3/16	452P315	4R22P315	4R12P315
	1-1/4	1.2500	31.75	3/16	452P100	4R22P100	4R12P100
	-	1.2598	32.00	3/16	452P32	4R22P32	4R12P32
	-	1.2795	32.50	3/16	452P325	4R22P325	4R12P325
	1-9/32	1.2813	32.54	3/16	452P100	4R22P100	4R12P100
	-	1.2992	33.00	3/16	452P33	4R22P33	4R12P33
	1-5/16	1.3125	33.34	3/16	452P110	4R22P110	4R12P110
	-	1.3189	33.50	3/16	452P335	4R22P335	4R12P335
	-	1.3386	34.00	3/16	452P34	4R22P34	4R12P34
	1-11/32	1.3438	34.13	3/16	452P111	4R22P111	4R12P111
	-	1.3582	34.50	3/16	452P345	4R22P345	4R12P345
	1-3/8	1.3750	34.93	3/16	452P112	4R22P112	4R12P112
	-	1.3780	35.00	3/16	452P35	4R22P35	4R12P35

2 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  HE

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

Inserts sold in quantities of 2

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

A30: 58

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DRILLING

BORING

REAMING

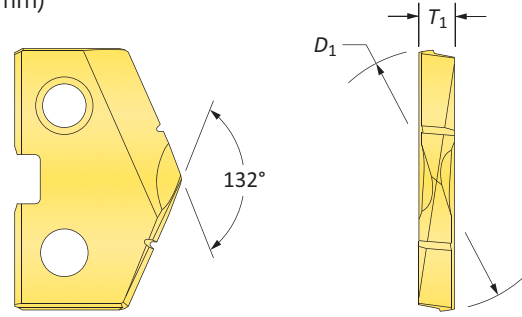
BURNISHING

THREADING

SPECIALS

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

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



HSS Insert - Premium Bob

Series	Fractional	Insert			Coating		
		D ₁ Inch	D ₁ mm	T ₁	Coating 1	Coating 2	Coating 3
2	-	0.9646	24.50	3/16	131T245	131A245	131H245
	31/32	0.9688	24.61	3/16	131T31	131A31	131H31
	-	0.9760	24.79	3/16	131T7	131A7	131H7
	63/64	0.9843	25.00	3/16	131T25	131A25	131H25
	1	1.0000	25.40	3/16	131T1	131A1	131H1
	-	1.0039	25.50	3/16	131T5	131A5	131H5
	1-1/64	1.0156	25.80	3/16	131T15	131A15	131H15
	-	1.0236	26.00	3/16	131T2	131A2	131H2
	1-1/32	1.0313	26.19	3/16	131T1	131A1	131H1
	-	1.0433	26.50	3/16	131T5	131A5	131H5
	1-3/64	1.0469	26.59	3/16	131T4	131A4	131H4
	1-1/16	1.0625	26.99	3/16	131T2	131A2	131H2
	-	1.0630	27.00	3/16	131T7	131A7	131H7
	-	1.0827	27.50	3/16	131T7	131A7	131H7
	1-3/32	1.0938	27.78	3/16	131T3	131A3	131H3
	-	1.1024	28.00	3/16	131T2	131A2	131H2
	1-7/64	1.1094	28.18	3/16	131T1	131A1	131H1
	-	1.1220	28.50	3/16	131T5	131A5	131H5
	1-1/8	1.1250	28.58	3/16	131T4	131A4	131H4
	-	1.1417	29.00	3/16	131T2	131A2	131H2
1-5/32	1.1563	29.37	3/16	131T5	131A5	131H5	
-	1.1614	29.50	3/16	131T5	131A5	131H5	
-	1.1811	30.00	3/16	131T3	131A3	131H3	
1-3/16	1.1875	30.16	3/16	131T1	131A1	131H1	
-	1.2008	30.50	3/16	131T5	131A5	131H5	
1-7/32	1.2188	30.96	3/16	131T7	131A7	131H7	
-	1.2205	31.00	3/16	131T1	131A1	131H1	
-	1.2260	31.14	3/16	131T2	131A2	131H2	
-	1.2310	31.26	3/16	131T3	131A3	131H3	
-	1.2340	31.34	3/16	131T4	131A4	131H4	
-	1.2402	31.50	3/16	131T5	131A5	131H5	
1-1/4	1.2500	31.75	3/16	131T1	131A1	131H1	
-	1.2598	32.00	3/16	131T2	131A2	131H2	
-	1.2795	32.50	3/16	131T5	131A5	131H5	
1-9/32	1.2813	32.54	3/16	131T1	131A1	131H1	
-	1.2992	33.00	3/16	131T3	131A3	131H3	
1-5/16	1.3125	33.34	3/16	131T1	131A1	131H1	
-	1.3189	33.50	3/16	131T5	131A5	131H5	
-	1.3386	34.00	3/16	131T4	131A4	131H4	
1-11/32	1.3438	34.13	3/16	131T1	131A1	131H1	
-	1.3582	34.50	3/16	131T4	131A4	131H4	
1-3/8	1.3750	34.93	3/16	131T1	131A1	131H1	
-	1.3780	35.00	3/16	131T5	131A5	131H5	

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

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

Inserts sold in quantities of 2

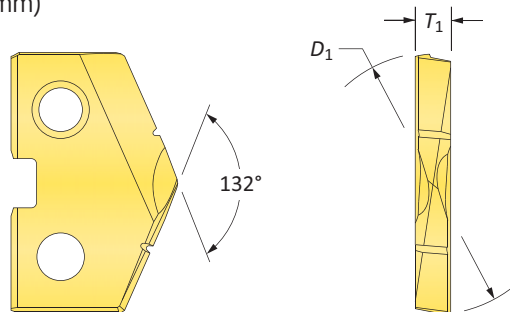
131T-XXXX	131A-XXXX
131N-XXXX	131H-XXXX

2




 DRILLING | T-A® Replaceable Insert Drilling System



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

HSS Inserts - Super Job

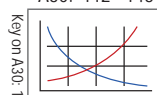
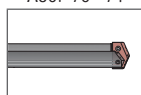

Series	Fractional Length	Insert			Part #		
		D_1 Inch	D_1 mm	T_1			
2	-	0.9646	24.50	3/16	1520245	1520245	1520245
	31/32	0.9688	24.61	3/16	1520231	1520231	1520231
	-	0.9760	24.79	3/16	1520270	1520270	1520270
	63/64	0.9843	25.00	3/16	152025	152025	152025
	1	1.0000	25.40	3/16	1520100	1520100	1520100
	-	1.0039	25.50	3/16	1520255	1520255	1520255
	1-1/64	1.0156	25.80	3/16	1520115	1520115	1520115
	-	1.0236	26.00	3/16	152020	152020	152020
	1-1/32	1.0313	26.19	3/16	1520101	1520101	1520101
	-	1.0433	26.50	3/16	1520205	1520205	1520205
	1-3/64	1.0469	26.59	3/16	1520140	1520140	1520140
	1-1/16	1.0625	26.99	3/16	1520102	1520102	1520102
	-	1.0630	27.00	3/16	152027	152027	152027
	-	1.0827	27.50	3/16	1520275	1520275	1520275
	1-3/32	1.0938	27.78	3/16	1520103	1520103	1520103
	-	1.1024	28.00	3/16	152020	152020	152020
	1-7/64	1.1094	28.18	3/16	1520100	1520100	1520100
	-	1.1220	28.50	3/16	1520205	1520205	1520205
	1-1/8	1.1250	28.58	3/16	1520104	1520104	1520104
	-	1.1417	29.00	3/16	152020	152020	152020
1-5/32	1.1563	29.37	3/16	1520105	1520105	1520105	
-	1.1614	29.50	3/16	1520205	1520205	1520205	
-	1.1811	30.00	3/16	152030	152030	152030	
2.5	1-3/16	1.1875	30.16	3/16	1520100	1520100	1520100
	-	1.2008	30.50	3/16	1520305	1520305	1520305
	1-7/32	1.2188	30.96	3/16	1520107	1520107	1520107
	-	1.2205	31.00	3/16	152031	152031	152031
	-	1.2260	31.14	3/16	15201220	15201220	15201220
	-	1.2310	31.26	3/16	15201231	15201231	15201231
	-	1.2340	31.34	3/16	15201234	15201234	15201234
	-	1.2402	31.50	3/16	1520315	1520315	1520315
	1-1/4	1.2500	31.75	3/16	1520100	1520100	1520100
	-	1.2598	32.00	3/16	152032	152032	152032
	-	1.2795	32.50	3/16	1520325	1520325	1520325
	1-9/32	1.2813	32.54	3/16	1520100	1520100	1520100
	-	1.2992	33.00	3/16	152033	152033	152033
	1-5/16	1.3125	33.34	3/16	1520110	1520110	1520110
	-	1.3189	33.50	3/16	1520335	1520335	1520335
	-	1.3386	34.00	3/16	152034	152034	152034
	1-11/32	1.3438	34.13	3/16	1520111	1520111	1520111
	-	1.3582	34.50	3/16	1520345	1520345	1520345
	1-3/8	1.3750	34.93	3/16	1520112	1520112	1520112
	-	1.3780	35.00	3/16	152035	152035	152035

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


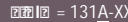


A30: 4 - 6

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

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

Inserts sold in quantities of 2

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

A30: 60

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DRILLING

BORING

REAMING

BURNISHING

THREADING

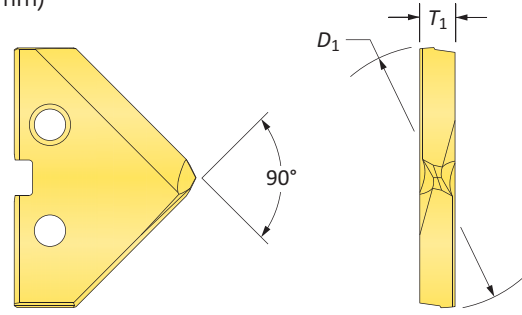
SPECIALS

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




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



2 Series Drill Insert

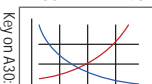


HSS Insert - Series Holder


Series	Fractional Length	Insert			2 Series Drill Insert		
		D ₁ Inch	D ₁ mm	T ₁			
2	-	0.9646	24.50	3/16	15222455	15222455	15222455
	31/32	0.9688	24.61	3/16	15222315	15222315	15222315
	-	0.9760	24.79	3/16	15222775	15222775	15222775
	63/64	0.9843	25.00	3/16	15222555	15222555	15222555
	1	1.0000	25.40	3/16	15222105	15222105	15222105
	-	1.0039	25.50	3/16	15222555	15222555	15222555
	1-1/64	1.0156	25.80	3/16	15222155	15222155	15222155
	-	1.0236	26.00	3/16	15222255	15222255	15222255
	1-1/32	1.0313	26.19	3/16	15222105	15222105	15222105
	-	1.0433	26.50	3/16	15222255	15222255	15222255
	1-3/64	1.0469	26.59	3/16	15222405	15222405	15222405
	1-1/16	1.0625	26.99	3/16	15222125	15222125	15222125
	-	1.0630	27.00	3/16	15222755	15222755	15222755
	-	1.0827	27.50	3/16	15222755	15222755	15222755
	1-3/32	1.0938	27.78	3/16	15222135	15222135	15222135
	-	1.1024	28.00	3/16	15222255	15222255	15222255
	1-7/64	1.1094	28.18	3/16	15222105	15222105	15222105
	-	1.1220	28.50	3/16	15222255	15222255	15222255
	1-1/8	1.1250	28.58	3/16	15222145	15222145	15222145
	-	1.1417	29.00	3/16	15222255	15222255	15222255
1-5/32	1.1563	29.37	3/16	15222155	15222155	15222155	
-	1.1614	29.50	3/16	15222255	15222255	15222255	
-	1.1811	30.00	3/16	15222355	15222355	15222355	
1-3/16	1.1875	30.16	3/16	15222105	15222105	15222105	
-	1.2008	30.50	3/16	15222355	15222355	15222355	
1-7/32	1.2188	30.96	3/16	15222175	15222175	15222175	
-	1.2205	31.00	3/16	15222155	15222155	15222155	
-	1.2260	31.14	3/16	15222225	15222225	15222225	
-	1.2310	31.26	3/16	152222315	152222315	152222315	
-	1.2340	31.34	3/16	152222345	152222345	152222345	
-	1.2402	31.50	3/16	15222155	15222155	15222155	
1-1/4	1.2500	31.75	3/16	15222105	15222105	15222105	
-	1.2598	32.00	3/16	15222255	15222255	15222255	
-	1.2795	32.50	3/16	15222255	15222255	15222255	
1-9/32	1.2813	32.54	3/16	15222105	15222105	15222105	
-	1.2992	33.00	3/16	15222355	15222355	15222355	
1-5/16	1.3125	33.34	3/16	152221175	152221175	152221175	
-	1.3189	33.50	3/16	15222355	15222355	15222355	
-	1.3386	34.00	3/16	15222455	15222455	15222455	
1-11/32	1.3438	34.13	3/16	152221115	152221115	152221115	
-	1.3582	34.50	3/16	15222455	15222455	15222455	
1-3/8	1.3750	34.93	3/16	152221125	152221125	152221125	
-	1.3780	35.00	3/16	15222555	15222555	15222555	

2 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



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

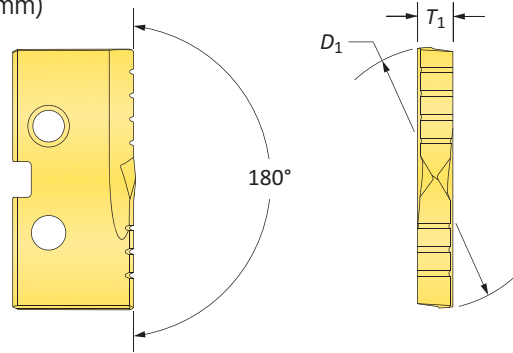
Inserts sold in quantities of 2

 = 131I-XXXX	 = 131A-XXXX
 = 131N-XXXX	 2 [®] = 131H-XXXX

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



Flat Bottom



HSS Insert - Spool Holder

Series	Fractional Length	Insert			Flat Bottom Part No.
		D ₁ Inch	D ₁ mm	T ₁	
2	-	0.9646	24.50	3/16	152-245-000
	31/32	0.9688	24.61	3/16	152-246-000
	-	0.9760	24.79	3/16	152-247-000
	63/64	0.9843	25.00	3/16	152-250-000
	1	1.0000	25.40	3/16	152-251-000
	-	1.0039	25.50	3/16	152-255-000
	1-1/64	1.0156	25.80	3/16	152-261-000
	-	1.0236	26.00	3/16	152-262-000
	1-1/32	1.0313	26.19	3/16	152-261-001
	-	1.0433	26.50	3/16	152-262-000
	1-3/64	1.0469	26.59	3/16	152-264-000
	1-1/16	1.0625	26.99	3/16	152-261-002
	-	1.0630	27.00	3/16	152-267-000
	-	1.0827	27.50	3/16	152-267-000
	1-3/32	1.0938	27.78	3/16	152-261-003
	-	1.1024	28.00	3/16	152-262-000
	1-7/64	1.1094	28.18	3/16	152-261-000
	-	1.1220	28.50	3/16	152-265-000
	1-1/8	1.1250	28.58	3/16	152-261-004
	-	1.1417	29.00	3/16	152-262-000
1-5/32	1.1563	29.37	3/16	152-261-005	
-	1.1614	29.50	3/16	152-262-000	
-	1.1811	30.00	3/16	152-263-000	
2.5	1-3/16	1.1875	30.16	3/16	152-261-000
	-	1.2008	30.50	3/16	152-263-000
	1-7/32	1.2188	30.96	3/16	152-261-007
	-	1.2205	31.00	3/16	152-263-000
	-	1.2260	31.14	3/16	152-261-002
	-	1.2310	31.26	3/16	152-261-003
	-	1.2340	31.34	3/16	152-261-004
	-	1.2402	31.50	3/16	152-263-000
	1-1/4	1.2500	31.75	3/16	152-261-000
	-	1.2598	32.00	3/16	152-262-000
	-	1.2795	32.50	3/16	152-262-000
	1-9/32	1.2813	32.54	3/16	152-261-000
	-	1.2992	33.00	3/16	152-263-000
	1-5/16	1.3125	33.34	3/16	152-261-000
	-	1.3189	33.50	3/16	152-263-000
	-	1.3386	34.00	3/16	152-264-000
	1-11/32	1.3438	34.13	3/16	152-261-000
	-	1.3582	34.50	3/16	152-264-000
	1-3/8	1.3750	34.93	3/16	152-261-000
	-	1.3780	35.00	3/16	152-263-000

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: 68 - 72

A30: 4 - 6

FN

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

Inserts sold in quantities of 2

131T-XXXX	131A-XXXX
131N-XXXX	2.5T® = 131H-XXXX

DRILLING

BORING

REAMING

BURNISHING

THREADING

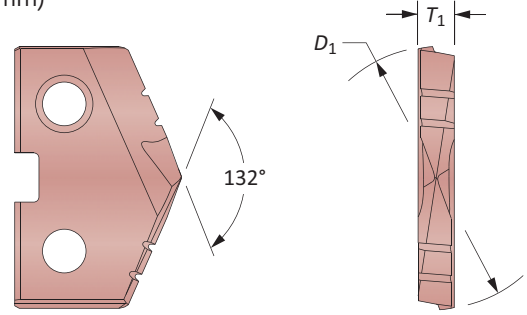
SPECIALS

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

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



3D view of the insert



HSS Insert - Super Job and HSS

Series	Fractional Length	Insert			Part No.	
		D ₁ Inch	D ₁ mm	T ₁	Super Job	HSS
2	-	1.0080	25.60	3/16	152 [Part No.]	132 [Part No.]
	1-1/64	1.0156	25.80	3/16	152 [Part No.]	132 [Part No.]
	1-1/32	1.0313	26.19	3/16	152 [Part No.]	132 [Part No.]

A30: 112 - 143
Key on A30: 1

A30: 70 - 74

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

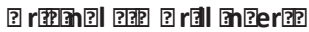
Inserts sold in quantities of 2

[Part No.] = 131I-XXXX	[Part No.] = 131A-XXXX
[Part No.] = 131N-XXXX	[Part No.] = 131H-XXXX

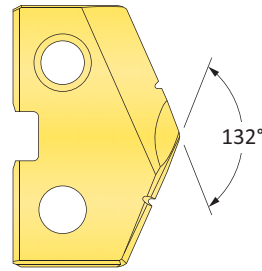
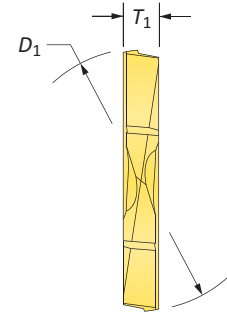
- DRILLING
- BORING
- REAMING
- BURNISHING
- THREADING
- SPECIALS

2




 DRILLING | T-A® Replaceable Insert Drilling System




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

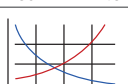


HSS Insert - HSS

Series	Fractional Length	Insert			Part #		
		D_1 Inch	D_1 mm	T_1			
2	-	0.9646	24.50	3/16	1320245	1320245	1320245
	31/32	0.9688	24.61	3/16	1320231	1320231	1320231
	-	0.9760	24.79	3/16	1320270	1320270	1320270
	63/64	0.9843	25.00	3/16	132025	132025	132025
	1	1.0000	25.40	3/16	1320100	1320100	1320100
	-	1.0039	25.50	3/16	1320255	1320255	1320255
	1-1/64	1.0156	25.80	3/16	1320115	1320115	1320115
	-	1.0236	26.00	3/16	132020	132020	132020
	1-1/32	1.0313	26.19	3/16	1320101	1320101	1320101
	-	1.0433	26.50	3/16	1320205	1320205	1320205
	1-3/64	1.0469	26.59	3/16	1320140	1320140	1320140
	1-1/16	1.0625	26.99	3/16	1320102	1320102	1320102
	-	1.0630	27.00	3/16	132027	132027	132027
	-	1.0827	27.50	3/16	1320275	1320275	1320275
	1-3/32	1.0938	27.78	3/16	1320103	1320103	1320103
	-	1.1024	28.00	3/16	132020	132020	132020
	1-7/64	1.1094	28.18	3/16	1320100	1320100	1320100
	-	1.1220	28.50	3/16	1320205	1320205	1320205
	1-1/8	1.1250	28.58	3/16	1320104	1320104	1320104
	-	1.1417	29.00	3/16	132020	132020	132020
1-5/32	1.1563	29.37	3/16	1320105	1320105	1320105	
-	1.1614	29.50	3/16	1320205	1320205	1320205	
-	1.1811	30.00	3/16	132030	132030	132030	
2.5	1-3/16	1.1875	30.16	3/16	1320100	1320100	1320100
	-	1.2008	30.50	3/16	1320305	1320305	1320305
	1-7/32	1.2188	30.96	3/16	1320107	1320107	1320107
	-	1.2205	31.00	3/16	132031	132031	132031
	-	1.2260	31.14	3/16	13201220	13201220	13201220
	-	1.2310	31.26	3/16	13201231	13201231	13201231
	-	1.2340	31.34	3/16	13201234	13201234	13201234
	-	1.2402	31.50	3/16	1320315	1320315	1320315
	1-1/4	1.2500	31.75	3/16	1320100	1320100	1320100
	-	1.2598	32.00	3/16	132032	132032	132032
	-	1.2795	32.50	3/16	1320325	1320325	1320325
	1-9/32	1.2813	32.54	3/16	1320100	1320100	1320100
	-	1.2992	33.00	3/16	132033	132033	132033
	1-5/16	1.3125	33.34	3/16	1320110	1320110	1320110
	-	1.3189	33.50	3/16	1320335	1320335	1320335
	-	1.3386	34.00	3/16	132034	132034	132034
	1-11/32	1.3438	34.13	3/16	1320111	1320111	1320111
	-	1.3582	34.50	3/16	1320345	1320345	1320345
	1-3/8	1.3750	34.93	3/16	1320112	1320112	1320112
	-	1.3780	35.00	3/16	132035	132035	132035


 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

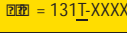
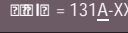

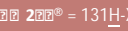
Key on A30: 1

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

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

Inserts sold in quantities of 2

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

A30: 64

www.alliedmachine.com | 1.330.343.4283

DRILLING

BORING

REAMING

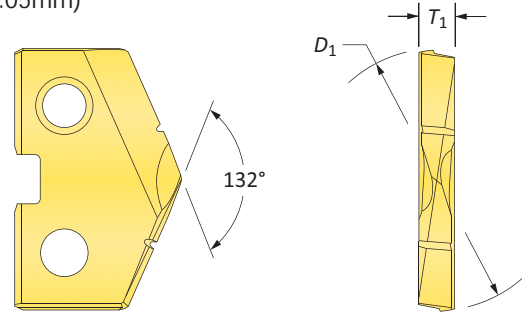
BURNISHING

THREADING



SPECIALS

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

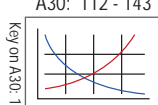
2 Series | Carbide | Diameter Range: 0.961" - 1.380" (24.41mm - 35.05mm)

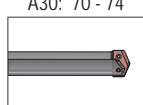


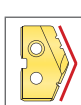
Carbide Insert - 2 Series


Series	Fractional Length	Insert			Series	
		D ₁ inch	D ₁ mm	T ₁		
2	-	0.9646	24.50	3/16	10222245	10222245
	31/32	0.9688	24.61	3/16	10222231	10222231
	-	0.9760	24.79	3/16	10222270	10222270
	63/64	0.9843	25.00	3/16	10222225	10222225
	1	1.0000	25.40	3/16	10222210	10222210
	-	1.0039	25.50	3/16	10222255	10222255
	1-1/64	1.0156	25.80	3/16	10222215	10222215
	-	1.0236	26.00	3/16	10222220	10222220
	1-1/32	1.0313	26.19	3/16	102222101	102222101
	-	1.0433	26.50	3/16	10222225	10222225
	1-3/64	1.0469	26.59	3/16	10222240	10222240
	1-1/16	1.0625	26.99	3/16	102222102	102222102
	-	1.0630	27.00	3/16	10222227	10222227
	-	1.0827	27.50	3/16	10222275	10222275
	1-3/32	1.0938	27.78	3/16	102222103	102222103
	-	1.1024	28.00	3/16	10222220	10222220
	1-7/64	1.1094	28.18	3/16	102222100	102222100
	-	1.1220	28.50	3/16	10222225	10222225
	1-1/8	1.1250	28.58	3/16	102222104	102222104
	-	1.1417	29.00	3/16	10222220	10222220
1-5/32	1.1563	29.37	3/16	102222105	102222105	
-	1.1614	29.50	3/16	10222225	10222225	
-	1.1811	30.00	3/16	10222230	10222230	
2.5	1-3/16	1.1875	30.16	3/16	102222100	102222100
	-	1.2008	30.50	3/16	10222225	10222225
	1-7/32	1.2188	30.96	3/16	102222107	102222107
	-	1.2205	31.00	3/16	10222231	10222231
	-	1.2260	31.14	3/16	10222222	10222222
	-	1.2310	31.26	3/16	102222231	102222231
	-	1.2340	31.34	3/16	102222234	102222234
	-	1.2402	31.50	3/16	102222105	102222105
	1-1/4	1.2500	31.75	3/16	102222100	102222100
	-	1.2598	32.00	3/16	10222232	10222232
	-	1.2795	32.50	3/16	10222225	10222225
	1-9/32	1.2813	32.54	3/16	102222100	102222100
	-	1.2992	33.00	3/16	10222233	10222233
	1-5/16	1.3125	33.34	3/16	102222110	102222110
	-	1.3189	33.50	3/16	102222335	102222335
	-	1.3386	34.00	3/16	10222234	10222234
	1-11/32	1.3438	34.13	3/16	102222111	102222111
	-	1.3582	34.50	3/16	102222345	102222345
	1-3/8	1.3750	34.93	3/16	102222112	102222112
	-	1.3780	35.00	3/16	10222235	10222235

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

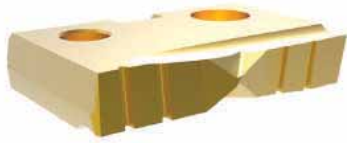
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. 

Inserts sold in quantities of 2

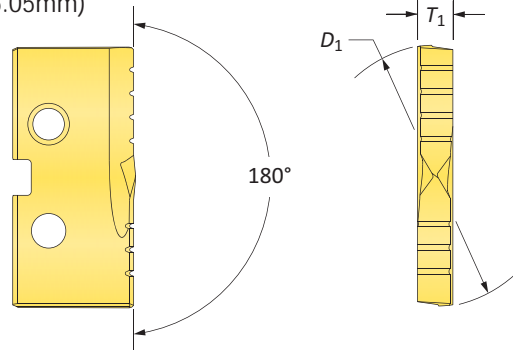
 = 131I-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

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



Flat Bottom



Carbide Insert - 2 Series

Series	Fractional Length	Insert			Flat Bottom Part No.
		D ₁ Inch	D ₁ mm	T ₁	
2	-	0.9646	24.50	3/16	10220245
	31/32	0.9688	24.61	3/16	1022031
	-	0.9760	24.79	3/16	102207
	63/64	0.9843	25.00	3/16	1022025
	1	1.0000	25.40	3/16	102201
	-	1.0039	25.50	3/16	10220255
	1-1/64	1.0156	25.80	3/16	1022015
	-	1.0236	26.00	3/16	102202
	1-1/32	1.0313	26.19	3/16	102201
	-	1.0433	26.50	3/16	10220255
	1-3/64	1.0469	26.59	3/16	1022014
	1-1/16	1.0625	26.99	3/16	1022012
	-	1.0630	27.00	3/16	1022027
	-	1.0827	27.50	3/16	10220275
	1-3/32	1.0938	27.78	3/16	1022013
	-	1.1024	28.00	3/16	102202
	1-7/64	1.1094	28.18	3/16	1022014
	-	1.1220	28.50	3/16	10220255
	1-1/8	1.1250	28.58	3/16	1022014
	-	1.1417	29.00	3/16	102202
1-5/32	1.1563	29.37	3/16	10220155	
-	1.1614	29.50	3/16	10220255	
-	1.1811	30.00	3/16	102203	
2.5	1-3/16	1.1875	30.16	3/16	1022012
	-	1.2008	30.50	3/16	1022035
	1-7/32	1.2188	30.96	3/16	1022017
	-	1.2205	31.00	3/16	102201
	-	1.2260	31.14	3/16	10220122
	-	1.2310	31.26	3/16	102201231
	-	1.2340	31.34	3/16	102201234
	-	1.2402	31.50	3/16	10220315
	1-1/4	1.2500	31.75	3/16	102201
	-	1.2598	32.00	3/16	1022032
	-	1.2795	32.50	3/16	10220325
	1-9/32	1.2813	32.54	3/16	102201
	-	1.2992	33.00	3/16	1022033
	1-5/16	1.3125	33.34	3/16	1022011
	-	1.3189	33.50	3/16	10220335
	-	1.3386	34.00	3/16	1022034
	1-11/32	1.3438	34.13	3/16	10220111
	-	1.3582	34.50	3/16	10220345
	1-3/8	1.3750	34.93	3/16	10220112
	-	1.3780	35.00	3/16	1022035

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

FN

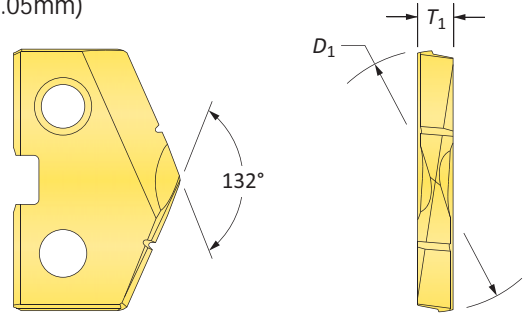
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 2

1022 = 131T-XXXX	1022A = 131A-XXXX
1022N = 131N-XXXX	2022H = 131H-XXXX

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

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



Carbide Insert - 2 Series

Series	Insert				2 Series Holder		3 Series Holder	2 Series Holder
	Fractional Length	D ₁ Inch	D ₁ mm	T ₁	Insert	Insert	Insert	Insert
2	-	0.9646	24.50	3/16	10520245	10520245	10320245	10220245
	31/32	0.9688	24.61	3/16	10520231	10520231	10320231	10220231
	-	0.9760	24.79	3/16	10520270	10520270	10320270	10220270
	63/64	0.9843	25.00	3/16	1052025	1052025	1032025	1022025
	1	1.0000	25.40	3/16	10520100	10520100	10320100	10220100
	-	1.0039	25.50	3/16	10520255	10520255	10320255	10220255
	1-1/64	1.0156	25.80	3/16	10520115	10520115	10320115	10220115
	-	1.0236	26.00	3/16	1052020	1052020	1032020	1022020
	1-1/32	1.0313	26.19	3/16	10520101	10520101	10320101	10220101
	-	1.0433	26.50	3/16	10520205	10520205	10320205	10220205
	1-3/64	1.0469	26.59	3/16	10520104	10520104	10320104	10220104
	1-1/16	1.0625	26.99	3/16	10520102	10520102	10320102	10220102
	-	1.0630	27.00	3/16	1052027	1052027	1032027	1022027
	-	1.0827	27.50	3/16	10520275	10520275	10320275	10220275
	1-3/32	1.0938	27.78	3/16	10520103	10520103	10320103	10220103
	-	1.1024	28.00	3/16	1052020	1052020	1032020	1022020
	1-7/64	1.1094	28.18	3/16	10520100	10520100	10320100	10220100
	-	1.1220	28.50	3/16	10520205	10520205	10320205	10220205
	1-1/8	1.1250	28.58	3/16	10520104	10520104	10320104	10220104
	-	1.1417	29.00	3/16	1052020	1052020	1032020	1022020
1-5/32	1.1563	29.37	3/16	10520105	10520105	10320105	10220105	
-	1.1614	29.50	3/16	10520205	10520205	10320205	10220205	
-	1.1811	30.00	3/16	1052030	1052030	1032030	1022030	
2.5	1-3/16	1.1875	30.16	3/16	10520100	10520100	10320100	10220100
	-	1.2008	30.50	3/16	10520305	10520305	10320305	10220305
	1-7/32	1.2188	30.96	3/16	10520107	10520107	10320107	10220107
	-	1.2205	31.00	3/16	1052031	1052031	1032031	1022031
	-	1.2260	31.14	3/16	10520120	10520120	10320120	10220120
	-	1.2310	31.26	3/16	105201231	105201231	103201231	102201231
	-	1.2340	31.34	3/16	105201234	105201234	103201234	102201234
	-	1.2402	31.50	3/16	10520315	10520315	10320315	10220315
	1-1/4	1.2500	31.75	3/16	10520100	10520100	10320100	10220100
	-	1.2598	32.00	3/16	1052032	1052032	1032032	1022032
	-	1.2795	32.50	3/16	10520325	10520325	10320325	10220325
	1-9/32	1.2813	32.54	3/16	10520100	10520100	10320100	10220100
	-	1.2992	33.00	3/16	1052033	1052033	1032033	1022033
	1-5/16	1.3125	33.34	3/16	10520110	10520110	10320110	10220110
	-	1.3189	33.50	3/16	10520335	10520335	10320335	10220335
	-	1.3386	34.00	3/16	1052034	1052034	1032034	1022034
	1-11/32	1.3438	34.13	3/16	10520111	10520111	10320111	10220111
	-	1.3582	34.50	3/16	10520345	10520345	10320345	10220345
	1-3/8	1.3750	34.93	3/16	10520112	10520112	10320112	10220112
	-	1.3780	35.00	3/16	1052035	1052035	1032035	1022035

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

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

Inserts sold in quantities of 2

1052 = 131I-XXXX	1032 = 131A-XXXX
1022 = 131N-XXXX	1022 = 131H-XXXX

DRILLING

BORING

REAMING

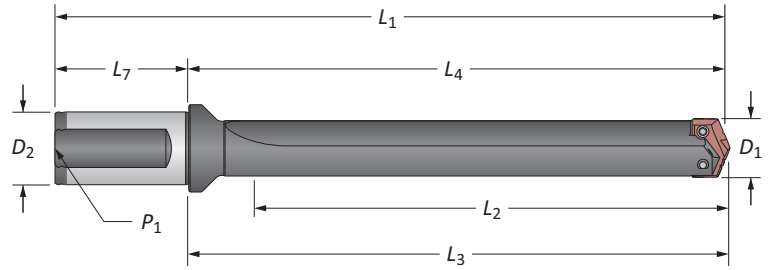
BURNISHING

THREADING

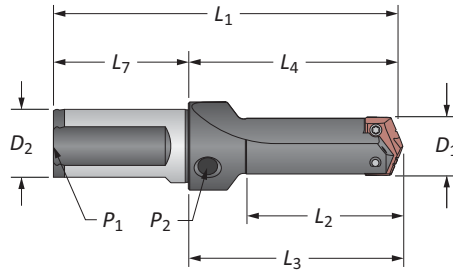
SPECIALS

2 Series | Flange Shank

2 Series | Flange Shank



Stub Length



Series

Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁		
i	2	Stub	31/32 - 1-3/8	2-1/4	3-31/64	3-5/8	5-49/64	1-1/4	2-9/32	1/4	2102S01250
		Short	31/32 - 1-3/8	3-5/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4	2202S01250
		Intermediate	31/32 - 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	2302S01250
		Standard	31/32 - 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	2402S01250
		Extended	31/32 - 1-3/8	11-3/8	13-1-16	13-13/64	15-11/32	1-1/4	2-9/32	1/4	2502S01250
i	2.5	Stub	1-3/16 - 1-3/8	3-5/8	4-55/64	5	7-9/64	1-1/4	2-9/32	1/4	21025S01250
		Short	1-3/16 - 1-3/8	3-5/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4	22025S01250
		Intermediate	1-3/16 - 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	23025S01250
		Standard	1-3/16 - 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	24025S01250
		Extended	1-3/16 - 1-3/8	11-3/8	13-1-16	13-13/64	15-11/32	1-1/4	2-9/32	1/4	25025S01250
m	2	Stub	25.0 - 35.0	57.2	88.5	92.1	148.5	32.0	60.0	1/4*	2102S03200
		Short	25.0 - 35.0	85.7	128.6	132.2	188.6	32.0	60.0	1/4*	2202S03200
		XL	25.0 - 35.0	511.0	554.1	557.7	614.1	32.0	60.0	1/4*	2702S03200
		3XL	25.0 - 35.0	692.0	735.1	738.7	795.1	32.0	60.0	1/4*	2802S03200
	2.5	Stub	30.0 - 35.0	92.1	123.4	127.0	183.4	32.0	60.0	1/4*	21025S03200
		Short	30.0 - 35.0	85.7	128.6	132.2	188.6	32.0	60.0	1/4*	22025S03200

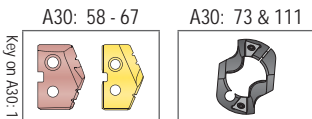
*Metric thread to BSP and ISO 7-1

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

Connection Accessories

					Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



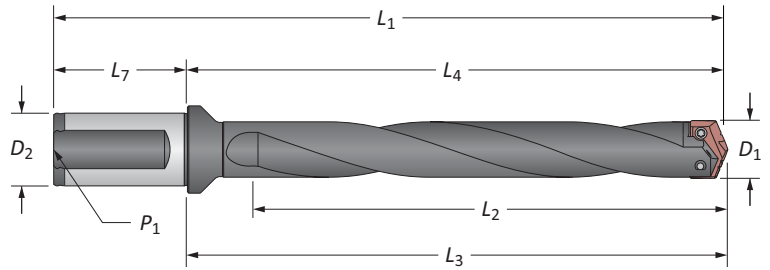
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

2 Series | Flange Shank

2 Series | Flange Shank



Selection

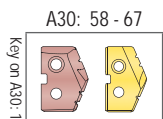
Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁		
i	2	Intermediate	31/32 - 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	2302001250
		Standard	31/32 - 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4	2402001250
		Standard Plus	31/32 - 1-3/8	9-3/8	11-1/16	11-13/64	13-31/64	1-1/4	2-9/32	1/4	2452001250
		Extended	31/32 - 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4	2502001250
		Long	31/32 - 1-3/8	16-1/8	17-53/64	7-31/32	20-1/4	1-1/4	2-9/32	1/4	2002001250
	2.5	Intermediate	1-3/16 - 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4	2302501250
m	2	Intermediate	25.0 - 35.0	136.5	179.4	183.0	239.4	32.0	60.0	1/4*	23020003200
		Standard	25.0 - 35.0	187.3	230.2	233.8	290.2	32.0	60.0	1/4*	24020003200
		Standard Plus	25.0 - 35.0	238.0	280.9	284.5	340.9	32.0	60.0	1/4*	24520003200
		Extended	25.0 - 35.0	288.9	331.8	335.4	391.8	32.0	60.0	1/4*	25020003200
		Long	25.0 - 35.0	410.0	452.9	456.5	512.9	32.0	60.0	1/4*	20020003200
	2.5	Intermediate	30.0 - 35.0	136.5	179.4	183.0	239.4	32.0	60.0	1/4*	23025003200
m	Standard	30.0 - 35.0	187.3	230.2	233.8	290.2	32.0	60.0	1/4*	24025003200	
	Extended	30.0 - 35.0	288.9	331.8	335.4	391.8	32.0	60.0	1/4*	25025003200	

*Metric thread to BSP and ISO 7-1

Connection Accessories

					Recommended Tightening Torque* 61.0 in-lbs (690 N-cm)
7495-IP15-1	7495N-IP15-1	8IP-15	8IP-15TL	8IP-15B	

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



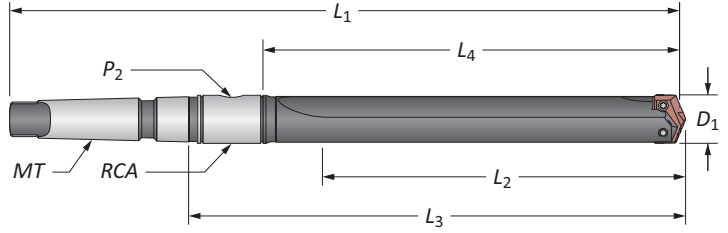
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

2 Series | Taper Shank

2 Series | Taper Shank



Specifications

Series	Length	D ₁	Body					Shank			Part No.
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	R		
2	Short	31/32 - 1-3/8	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	2T-3SR	2222S333	
	Short	31/32 - 1-3/8	3-3/8	4-1/2	6-19/64	10-25/32	#4	1/8	2T-3SR	2222S344	
	Intermediate	31/32 - 1-3/8	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	2T-3SR	2322S344	
	Standard	31/32 - 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	2422S333	
	Standard	31/32 - 1-3/8	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	2T-3SR	2422S344	
2.5	Extended	31/32 - 1-3/8	11-3/8	12-1/2	14-15/64	18-25/32	#4	1/4	2T-3SR	2522S344	
	Short	1-3/16 - 1-3/8	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	2T-3SR	2225S333	
	Short	1-3/16 - 1-3/8	3-3/8	4-1/2	6-37/64	11-1/16	#4	1/4	2T-4SR	2225S344	
	Intermediate	1-3/16 - 1-3/8	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	2T-4SR	2325S344	
	Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	2425S333	
2	Short	25.0 - 35.0	69.8	98.4	142.5	232.5	#4**	1/8*	2T-3SRM	2222S344	
	Short	30.0 - 35.0	69.8	98.4	142.5	232.5	#4**	1/8*	2T-4SRM	2225S344	

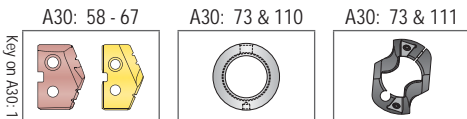
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

					Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



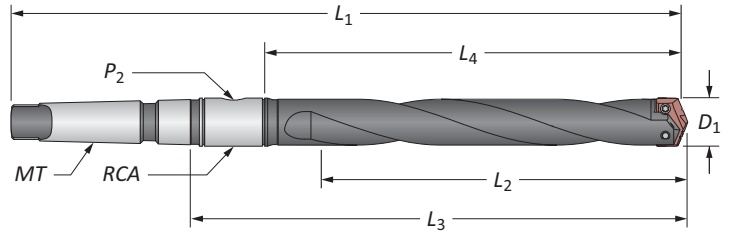
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

2 Series | Taper Shank

2 Series | Taper Shank



Selection

Series	Length	D ₁	Body				Shank			Part No.	
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	RCS		
i	2	Intermediate	31/32 - 1-3/8	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	2T-3SR	232222 2444
		Standard	31/32 - 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	242222 2433
		Standard	31/32 - 1-3/8	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	2T-3SR	242222 2444
		Extended	31/32 - 1-3/8	11-3/8	12-1/2	14-15/64	18-25/32	#4	1/8	2T-3SR	252222 2444
	2.5	Intermediate	1-3/16 - 1-3/8	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	2T-4SR	232252 2444
		Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	2T-3SR	242252 2433
		Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	10-37/64	15-1/6	#4	1/4	2T-4SR	242252 2444
		Extended	1-3/16 - 1-3/8	11-3/8	12-1/2	14-37/64	19-1/16	#4	1/4	2T-4SR	252252 2444
m	2	Intermediate	25.0 - 35.0	136.5	165.1	211.2	324.6	#4**	1/8*	2T-3SRM	232222 2444
		Standard	25.0 - 35.0	187.3	215.9	262.0	375.4	#4**	1/8*	2T-3SRM	242222 2444
		Extended	25.0 - 35.0	289.0	317.5	363.6	477.0	#4**	1/8*	2T-3SRM	252222 2444
	2.5	Intermediate	30.0 - 35.0	136.5	165.1	218.4	331.8	#4**	1/4*	2T-4SRM	232252 2444
		Standard	30.0 - 35.0	187.3	215.9	269.2	382.6	#4**	1/4*	2T-4SRM	242252 2444
		Standard	30.0 - 35.0	289.0	317.5	370.8	484.2	#4**	1/4*	2T-4SRM	242252 2444
		Standard	30.0 - 35.0	289.0	317.5	370.8	484.2	#4**	1/4*	2T-4SRM	242252 2444
		Extended	30.0 - 35.0	289.0	317.5	370.8	484.2	#4**	1/4*	2T-4SRM	252252 2444

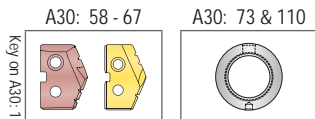
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

					Removable Tightening Torque* 61.0 in-lbs (690 N-cm)
7495-IP15-1	7495N-IP15-1	8IP-15	8IP-15TL	8IP-15B	

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

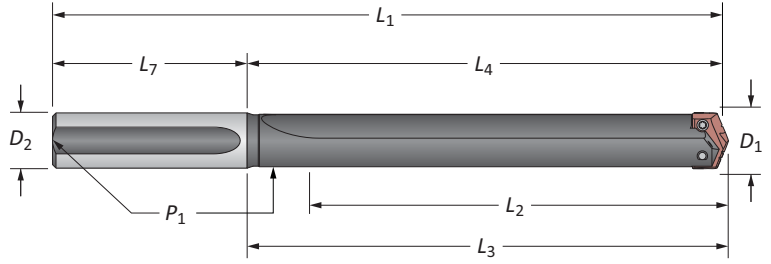


i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

2 Series | Straight Shank



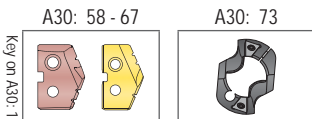
Specifications

Series	Design	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
2	Short	31/32 - 1-3/8	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8	22-25S-1-25
	Short	31/32 - 1-3/8	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8	22-25S-1-25
	Intermediate	31/32 - 1-3/8	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8	23-25S-1-25
	Standard	31/32 - 1-3/8	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8	24-25S-1-25
	Standard	31/32 - 1-3/8	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8	24-25S-1-25
	Extended	31/32 - 1-3/8	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8	25-25S-1-25
	XL	31/32 - 1-3/8	20-1/8	21-1/4	21-25/64	24-3/4	1-1/4	3-1/2	1/8	27-25S-1-25
2.5	3XL	31/32 - 1-3/8	27-1/4	28-3/8	28-33/64	31-7/8	1-1/4	3-1/2	1/8	28-25S-1-25
	Short	1-3/16 - 1-3/8	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8*	22-25S-1-25
	Short	1-3/16 - 1-3/8	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8*	22-25S-1-25
	Intermediate	1-3/16 - 1-3/8	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8*	23-25S-1-25
	Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8*	24-25S-1-25
	Standard	1-3/16 - 1-3/8	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8*	24-25S-1-25
	Extended	1-3/16 - 1-3/8	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8*	25-25S-1-25

Connection Accessories

					Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength



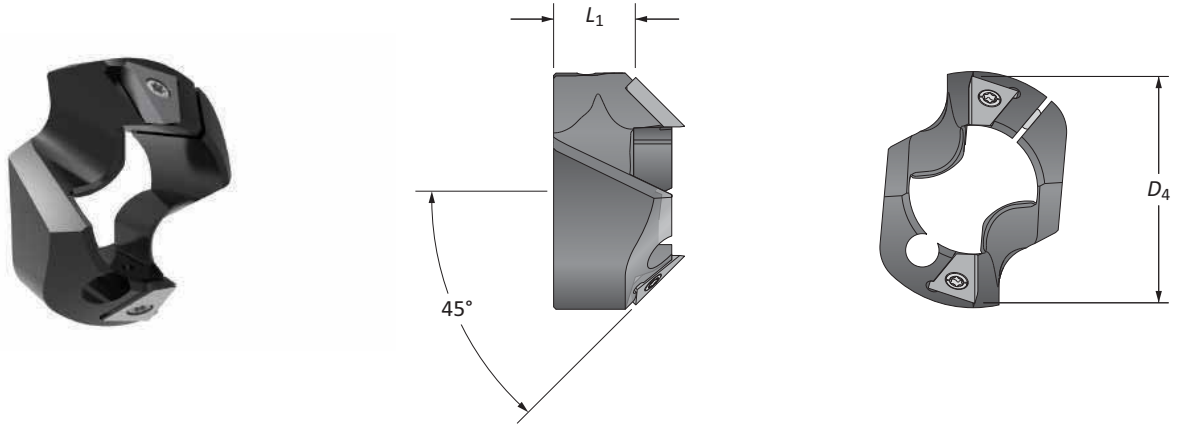
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

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

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

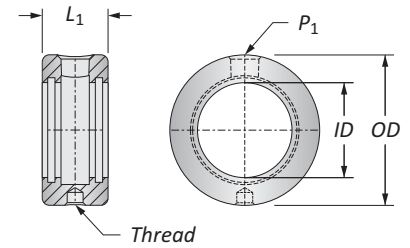


R 45 Chamfer Ring

Order Series	D ₁ Range	Chamfer Ring		Part No.	Insert Part No.	Insert Screw	Insert	Assembly Screw	Insert
2	0.9610 - 1.3800	D ₄	L ₁	R 45	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7514-IP20-1	8IP-20

Rotary Coolant Adapter

ID	OD	L ₁	Thread	P ₁	Part No.	Kit Part No.**	Recommen.
1	2-1/8	1-1/8	5/16-18	1/8	2SR	2T1-3SR	2T1-3OR-10
1-1/4	2-1/2	1-3/8	3/8-16	1/4	2SR	2T1-4SR	2T1-4OR-10
m 25.40	53.97	28.57	M8 x 1.25	1/8*	2SR	2T1-3SR	2T1-3OR-10
31.75	63.50	34.92	M10 x 1.50	1/4*	2SR	2T1-4SR	2T1-4OR-10



*Thread to BSP and ISO 7-1

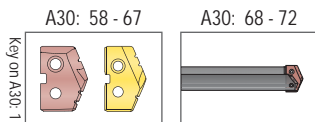
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

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

Connection Accessories

Insert Screw	Nylon Locking Screw	Insert Driver	Pre-Drill Bit	Recommen.	Recommended 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 $\mu = 0.14$ and develop 90% of ultimate yield strength

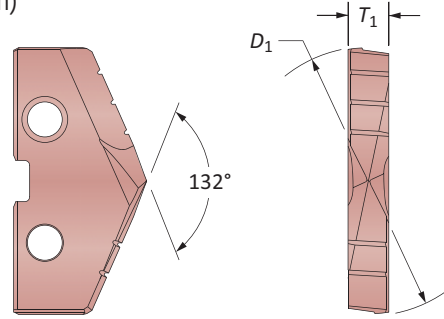


ⓘ = Imperial (in)
 ⓘ = Metric (mm)
 Inserts sold separately
 Screws sold in packs of 10
 O-rings sold in packs of 10

▲ 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.

DRILLING
 BORING
 REAMING
 BURNISHING
 THREADING
 SPECIALS

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



HSS Insert - Premium Bob

Fractional Length	Insert			Premium Bob	
	D ₁ Inch	D ₁ mm	T ₁	Part #	Part #
1-13/32	1.4063	35.72	1/4	40301113	40301113
-	1.4173	36.00	1/4	40301113	40301113
1-7/16	1.4375	36.51	1/4	40301114	40301114
-	1.4567	37.00	1/4	40301114	40301114
1-15/32	1.4688	37.31	1/4	40301115	40301115
-	1.4961	38.00	1/4	40301115	40301115
1-1/2	1.5000	38.10	1/4	40301116	40301116
1-17/32	1.5313	38.89	1/4	40301117	40301117
-	1.5354	39.00	1/4	40301117	40301117
-	1.5470	39.29	1/4	40301547	40301547
1-9/16	1.5625	39.69	1/4	40301118	40301118
-	1.5748	40.00	1/4	40301118	40301118
1-19/32	1.5938	40.48	1/4	40301119	40301119
-	1.6142	41.00	1/4	40301119	40301119
1-5/8	1.6250	41.28	1/4	40301120	40301120
-	1.6535	42.00	1/4	40301120	40301120
1-21/32	1.6563	42.07	1/4	40301121	40301121
1-11/16	1.6875	42.86	1/4	40301122	40301122
-	1.6929	43.00	1/4	40301122	40301122
1-23/32	1.7188	43.66	1/4	40301123	40301123
-	1.7323	44.00	1/4	40301123	40301123
1-3/4	1.7500	44.45	1/4	40301124	40301124
-	1.7717	45.00	1/4	40301124	40301124
1-25/32	1.7813	45.24	1/4	40301125	40301125
-	1.7913	45.50	1/4	40301125	40301125
-	1.7970	45.64	1/4	40301127	40301127
-	1.8110	46.00	1/4	40301127	40301127
1-13/16	1.8125	46.04	1/4	40301127	40301127
1-27/32	1.8438	46.83	1/4	40301127	40301127
-	1.8504	47.00	1/4	40301127	40301127
1-7/8	1.8750	47.63	1/4	40301128	40301128

A30: 112 - 143

Key on A30-1

A30: 82 - 85

A30: 4 - 6

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

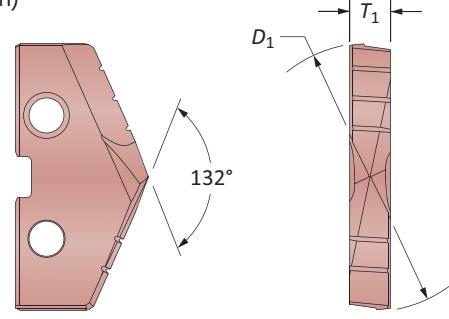
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1

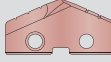

131T-XXXX	131A-XXXX
131N-XXXX	131H-XXXX

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

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



HSS Insert - Size Table

Fractional Length	Insert			Part No	
	D ₁ inch	D ₁ mm	T ₁		
1-13/32	1.4063	35.72	1/4	453 2113	453 113
-	1.4173	36.00	1/4	453 23	453 23
1-7/16	1.4375	36.51	1/4	453 2114	453 114
-	1.4567	37.00	1/4	453 27	453 27
1-15/32	1.4688	37.31	1/4	453 2115	453 115
-	1.4961	38.00	1/4	453 28	453 28
1-1/2	1.5000	38.10	1/4	453 2116	453 116
1-17/32	1.5313	38.89	1/4	453 2117	453 117
-	1.5354	39.00	1/4	453 29	453 29
-	1.5470	39.29	1/4	453 21547	453 1547
1-9/16	1.5625	39.69	1/4	453 2118	453 118
-	1.5748	40.00	1/4	453 24	453 24
1-19/32	1.5938	40.48	1/4	453 2119	453 119
-	1.6142	41.00	1/4	453 241	453 241
1-5/8	1.6250	41.28	1/4	453 2120	453 120
-	1.6535	42.00	1/4	453 242	453 242
1-21/32	1.6563	42.07	1/4	453 2121	453 121
1-11/16	1.6875	42.86	1/4	453 2122	453 122
-	1.6929	43.00	1/4	453 243	453 243
1-23/32	1.7188	43.66	1/4	453 2123	453 123
-	1.7323	44.00	1/4	453 244	453 244
1-3/4	1.7500	44.45	1/4	453 2124	453 124
-	1.7717	45.00	1/4	453 245	453 245
1-25/32	1.7813	45.24	1/4	453 2125	453 125
-	1.7913	45.50	1/4	453 2455	453 2455
-	1.7970	45.64	1/4	453 2127	453 127
-	1.8110	46.00	1/4	453 246	453 246
1-13/16	1.8125	46.04	1/4	453 2126	453 126
1-27/32	1.8438	46.83	1/4	453 2127	453 127
-	1.8504	47.00	1/4	453 247	453 247
1-7/8	1.8750	47.63	1/4	453 2128	453 128

A30: 112 - 143

Key on A30: 1

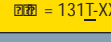
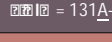
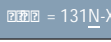
A30: 82 - 85

A30: 4 - 6

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

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

Inserts sold in quantities of 1

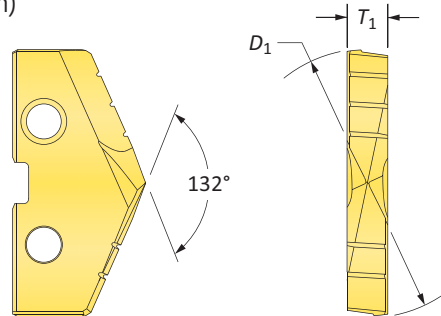
 = 131I-XXXX	 = 131A-XXXX
 = 131N-XXXX	= 131H-XXXX

3

 DRILLING | T-A® Replaceable Insert Drilling System



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

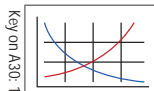
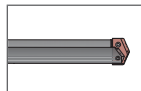

HSS Inserter - Premium Bob

Fractional Inches	Inserter			Part #
	D_1 inch	D_1 mm	T_1	
1-13/32	1.4063	35.72	1/4	40300113
-	1.4173	36.00	1/4	403000
1-7/16	1.4375	36.51	1/4	40300114
-	1.4567	37.00	1/4	4030007
1-15/32	1.4688	37.31	1/4	40300115
-	1.4961	38.00	1/4	4030000
1-1/2	1.5000	38.10	1/4	40300110
1-17/32	1.5313	38.89	1/4	40300117
-	1.5354	39.00	1/4	4030000
-	1.5470	39.29	1/4	403001047
1-9/16	1.5625	39.69	1/4	40300110
-	1.5748	40.00	1/4	4030000
1-19/32	1.5938	40.48	1/4	40300110
-	1.6142	41.00	1/4	4030001
1-5/8	1.6250	41.28	1/4	40300120
-	1.6535	42.00	1/4	4030002
1-21/32	1.6563	42.07	1/4	40300121
1-11/16	1.6875	42.86	1/4	40300122
-	1.6929	43.00	1/4	4030003
1-23/32	1.7188	43.66	1/4	40300123
-	1.7323	44.00	1/4	4030004
1-3/4	1.7500	44.45	1/4	40300124
-	1.7717	45.00	1/4	4030005
1-25/32	1.7813	45.24	1/4	40300125
-	1.7913	45.50	1/4	403000505
-	1.7970	45.64	1/4	403001007
-	1.8110	46.00	1/4	4030000
1-13/16	1.8125	46.04	1/4	40300120
1-27/32	1.8438	46.83	1/4	40300127
-	1.8504	47.00	1/4	4030007
1-7/8	1.8750	47.63	1/4	40300120

A30: 112 - 143

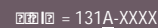
A30: 82 - 85

A30: 4 - 6

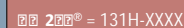



 HE, HI, HR, CR, SK,
BR, CI, NC, WC

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

 = 131T-XXXX

 = 131A-XXXX

 = 131N-XXXX

 2000® = 131H-XXXX

Inserts sold in quantities of 1

A30: 76

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DRILLING

BORING

REAMING

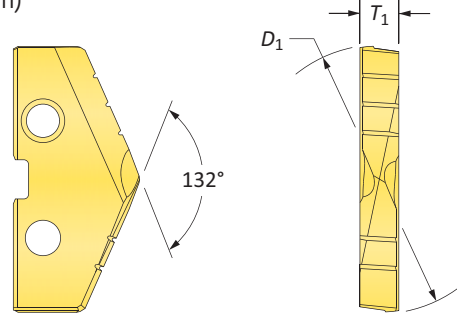
BURNISHING

THREADING

SPECIALS

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

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

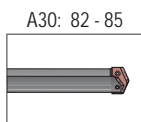


HSS Insert - Spool Bob

Fractional Length	Insert			Part No
	D ₁ inch	D ₁ mm	T ₁	
1-13/32	1.4063	35.72	1/4	153113
-	1.4173	36.00	1/4	153113
1-7/16	1.4375	36.51	1/4	153114
-	1.4567	37.00	1/4	153117
1-15/32	1.4688	37.31	1/4	153115
-	1.4961	38.00	1/4	153116
1-1/2	1.5000	38.10	1/4	153111
1-17/32	1.5313	38.89	1/4	153117
-	1.5354	39.00	1/4	153116
-	1.5470	39.29	1/4	1531547
1-9/16	1.5625	39.69	1/4	153111
-	1.5748	40.00	1/4	153111
1-19/32	1.5938	40.48	1/4	153111
-	1.6142	41.00	1/4	153141
1-5/8	1.6250	41.28	1/4	153112
-	1.6535	42.00	1/4	153142
1-21/32	1.6563	42.07	1/4	153112
1-11/16	1.6875	42.86	1/4	153112
-	1.6929	43.00	1/4	153143
1-23/32	1.7188	43.66	1/4	153113
-	1.7323	44.00	1/4	153144
1-3/4	1.7500	44.45	1/4	153114
-	1.7717	45.00	1/4	153145
1-25/32	1.7813	45.24	1/4	153115
-	1.7913	45.50	1/4	153145
-	1.7970	45.64	1/4	153147
-	1.8110	46.00	1/4	153147
1-13/16	1.8125	46.04	1/4	153112
1-27/32	1.8438	46.83	1/4	153117
-	1.8504	47.00	1/4	153147
1-7/8	1.8750	47.63	1/4	153112

A30: 112 - 143

Key on A30: 1



A30: 4 - 6

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

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

Inserts sold in quantities of 1

131I-XXXX	131A-XXXX
131N-XXXX	2131H-XXXX

3

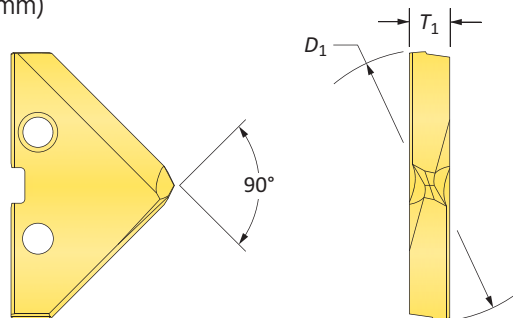
 DRILLING | T-A® Replaceable Insert Drilling System






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



SW 3000 300mfer



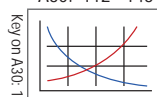
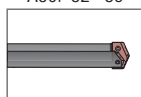
SS Insert - Super Job

Fractional Length	Insert			Order		
	D_1 Inch	D_1 mm	T_1			
1-13/32	1.4063	35.72	1/4	1530011300	1530011300	1530011300
-	1.4173	36.00	1/4	1530013500	1530013500	1530013500
1-7/16	1.4375	36.51	1/4	1530011400	1530011400	1530011400
-	1.4567	37.00	1/4	1530013700	1530013700	1530013700
1-15/32	1.4688	37.31	1/4	1530011500	1530011500	1530011500
-	1.4961	38.00	1/4	1530013800	1530013800	1530013800
1-1/2	1.5000	38.10	1/4	1530011000	1530011000	1530011000
1-17/32	1.5313	38.89	1/4	1530011700	1530011700	1530011700
-	1.5354	39.00	1/4	1530013900	1530013900	1530013900
-	1.5470	39.29	1/4	1530015470	1530015470	1530015470
1-9/16	1.5625	39.69	1/4	1530011100	1530011100	1530011100
-	1.5748	40.00	1/4	1530014000	1530014000	1530014000
1-19/32	1.5938	40.48	1/4	1530011900	1530011900	1530011900
-	1.6142	41.00	1/4	1530014100	1530014100	1530014100
1-5/8	1.6250	41.28	1/4	1530012000	1530012000	1530012000
-	1.6535	42.00	1/4	1530014200	1530014200	1530014200
1-21/32	1.6563	42.07	1/4	1530012100	1530012100	1530012100
1-11/16	1.6875	42.86	1/4	1530012200	1530012200	1530012200
-	1.6929	43.00	1/4	1530014300	1530014300	1530014300
1-23/32	1.7188	43.66	1/4	1530012300	1530012300	1530012300
-	1.7323	44.00	1/4	1530014400	1530014400	1530014400
1-3/4	1.7500	44.45	1/4	1530012400	1530012400	1530012400
-	1.7717	45.00	1/4	1530014500	1530014500	1530014500
1-25/32	1.7813	45.24	1/4	1530012500	1530012500	1530012500
-	1.7913	45.50	1/4	1530014550	1530014550	1530014550
-	1.7970	45.64	1/4	1530017070	1530017070	1530017070
-	1.8110	46.00	1/4	1530014600	1530014600	1530014600
1-13/16	1.8125	46.04	1/4	1530012600	1530012600	1530012600
1-27/32	1.8438	46.83	1/4	1530012700	1530012700	1530012700
-	1.8504	47.00	1/4	1530014700	1530014700	1530014700
1-7/8	1.8750	47.63	1/4	1530012800	1530012800	1530012800

A30: 112 - 143

A30: 82 - 85

A30: 4 - 6


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

131T-XXXX

131A-XXXX

131N-XXXX

200® = 131H-XXXX

Inserts sold in quantities of 1

A30: 78

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DRILLING

BORING

REAMING

BURNISHING

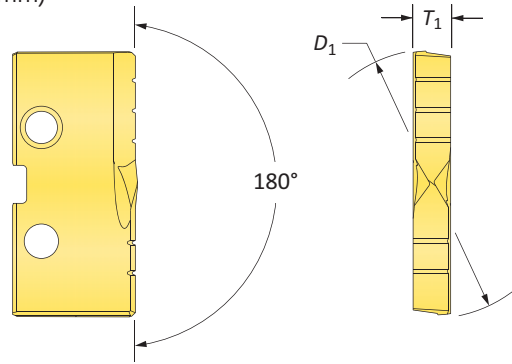
THREADING

SPECIALS

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



Flat Bottom



HSS Insert - Super Job

Fractional Length	D_1 inch	D_1 mm	T_1	Part No
1-13/32	1.4063	35.72	1/4	153113
-	1.4173	36.00	1/4	153113
1-7/16	1.4375	36.51	1/4	153114
-	1.4567	37.00	1/4	153114
1-15/32	1.4688	37.31	1/4	153115
-	1.4961	38.00	1/4	153115
1-1/2	1.5000	38.10	1/4	153111
1-17/32	1.5313	38.89	1/4	153117
-	1.5354	39.00	1/4	153117
-	1.5470	39.29	1/4	153147
1-9/16	1.5625	39.69	1/4	153111
-	1.5748	40.00	1/4	153142
1-19/32	1.5938	40.48	1/4	153111
-	1.6142	41.00	1/4	153141
1-5/8	1.6250	41.28	1/4	153112
-	1.6535	42.00	1/4	153142
1-21/32	1.6563	42.07	1/4	153121
1-11/16	1.6875	42.86	1/4	153122
-	1.6929	43.00	1/4	153143
1-23/32	1.7188	43.66	1/4	153123
-	1.7323	44.00	1/4	153144
1-3/4	1.7500	44.45	1/4	153124
-	1.7717	45.00	1/4	153145
1-25/32	1.7813	45.24	1/4	153125
-	1.7913	45.50	1/4	153145
-	1.7970	45.64	1/4	153147
-	1.8110	46.00	1/4	153147
1-13/16	1.8125	46.04	1/4	153127
1-27/32	1.8438	46.83	1/4	153127
-	1.8504	47.00	1/4	153147
1-7/8	1.8750	47.63	1/4	153127

A30: 112 - 143

A30: 82 - 85

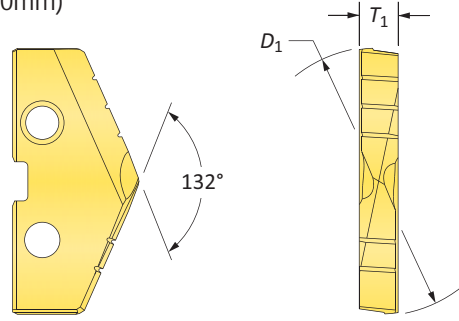
A30: 4 - 6

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

Inserts sold in quantities of 1

153113 = 131T-XXXX	153114 = 131A-XXXX
153115 = 131N-XXXX	153116 = 131H-XXXX

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



Carbide Insert - 02 K2

Fractional Length	Insert			Drill	
	D ₁ Inch	D ₁ mm	T ₁	02	02
1-13/32	1.4063	35.72	1/4	102300113	102300113
-	1.4173	36.00	1/4	102300114	102300114
1-7/16	1.4375	36.51	1/4	102300114	102300114
-	1.4567	37.00	1/4	102300115	102300115
1-15/32	1.4688	37.31	1/4	102300115	102300115
-	1.4961	38.00	1/4	102300116	102300116
1-1/2	1.5000	38.10	1/4	102300116	102300116
1-17/32	1.5313	38.89	1/4	102300117	102300117
-	1.5354	39.00	1/4	102300118	102300118
-	1.5470	39.29	1/4	102300119	102300119
1-9/16	1.5625	39.69	1/4	102300119	102300119
-	1.5748	40.00	1/4	102300120	102300120
1-19/32	1.5938	40.48	1/4	102300120	102300120
-	1.6142	41.00	1/4	102300121	102300121
1-5/8	1.6250	41.28	1/4	102300121	102300121
-	1.6535	42.00	1/4	102300122	102300122
1-21/32	1.6563	42.07	1/4	102300122	102300122
1-11/16	1.6875	42.86	1/4	102300123	102300123
-	1.6929	43.00	1/4	102300124	102300124
1-23/32	1.7188	43.66	1/4	102300123	102300123
-	1.7323	44.00	1/4	102300124	102300124
1-3/4	1.7500	44.45	1/4	102300124	102300124
-	1.7717	45.00	1/4	102300125	102300125
1-25/32	1.7813	45.24	1/4	102300125	102300125
-	1.7913	45.50	1/4	102300126	102300126
-	1.7970	45.64	1/4	102300127	102300127
-	1.8110	46.00	1/4	102300128	102300128
1-13/16	1.8125	46.04	1/4	102300128	102300128
1-27/32	1.8438	46.83	1/4	102300127	102300127
-	1.8504	47.00	1/4	102300128	102300128
1-7/8	1.8750	47.63	1/4	102300128	102300128

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

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

Inserts sold in quantities of 1

102300113 = 131T-XXXX	102300114 = 131A-XXXX
102300115 = 131N-XXXX	102300116 = 131H-XXXX

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

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

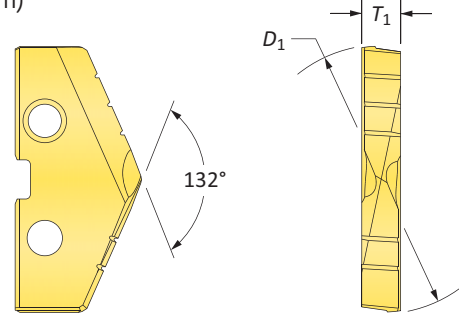


Table with 6 columns: Fractional, D1 inch, D1 mm, T1, and two columns for part numbers (131I and 131H).

Fractional Length	Insert			Part No.	
	D1 inc	D1 mm	T1	131I	131H
1-13/32	1.4063	35.72	1/4	131I113	131H113
-	1.4173	36.00	1/4	131I114	131H114
1-7/16	1.4375	36.51	1/4	131I114	131H114
-	1.4567	37.00	1/4	131I115	131H115
1-15/32	1.4688	37.31	1/4	131I115	131H115
-	1.4961	38.00	1/4	131I116	131H116
1-1/2	1.5000	38.10	1/4	131I116	131H116
1-17/32	1.5313	38.89	1/4	131I117	131H117
-	1.5354	39.00	1/4	131I118	131H118
-	1.5470	39.29	1/4	131I119	131H119
1-9/16	1.5625	39.69	1/4	131I119	131H119
-	1.5748	40.00	1/4	131I120	131H120
1-19/32	1.5938	40.48	1/4	131I120	131H120
-	1.6142	41.00	1/4	131I121	131H121
1-5/8	1.6250	41.28	1/4	131I121	131H121
-	1.6535	42.00	1/4	131I122	131H122
1-21/32	1.6563	42.07	1/4	131I122	131H122
1-11/16	1.6875	42.86	1/4	131I123	131H123
-	1.6929	43.00	1/4	131I124	131H124
1-23/32	1.7188	43.66	1/4	131I124	131H124
-	1.7323	44.00	1/4	131I125	131H125
1-3/4	1.7500	44.45	1/4	131I125	131H125
-	1.7717	45.00	1/4	131I126	131H126
1-25/32	1.7813	45.24	1/4	131I126	131H126
-	1.7913	45.50	1/4	131I127	131H127
-	1.7970	45.64	1/4	131I128	131H128
-	1.8110	46.00	1/4	131I129	131H129
1-13/16	1.8125	46.04	1/4	131I129	131H129
1-27/32	1.8438	46.83	1/4	131I130	131H130
-	1.8504	47.00	1/4	131I131	131H131
1-7/8	1.8750	47.63	1/4	131I131	131H131

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

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

Inserts sold in quantities of 1

131I-XXXX	131A-XXXX
131N-XXXX	222® = 131H-XXXX

DRILLING

DRILLING

BORING

BORING

REAMING

REAMING

BURNISHING

BURNISHING

THREADING

THREADING

SPECIALS

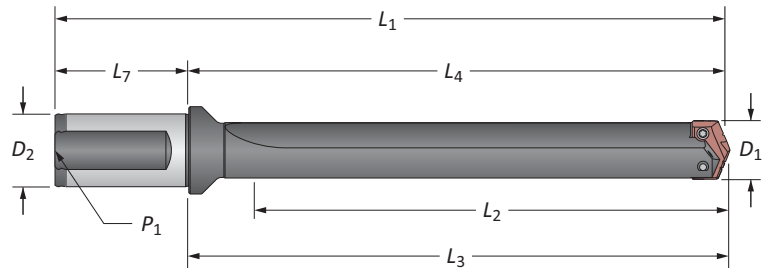
3

 DRILLING | T-A® Replaceable Insert Drilling System



3 Series | Flange Shank

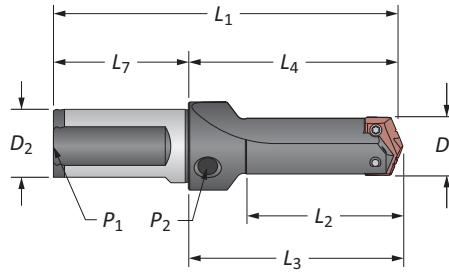
DRILLING

BORING



Stubb



REAMING

Series

		Body					Shank			
	D_1	L_2	L_4	L_3	L_1	D_2	L_7	P_1	Part No.	
i	Stub	1-13/32 - 1-7/8	3	4-59/64	5-7/64	7-39/64	1-1/2	2-11/16	1/4	2133S1500
	Short	1-13/32 - 1-7/8	4-3/4	6-13/16	7	9-1/2	1-1/2	2-11/16	1/4	2233S1500
	Intermediate	1-13/32 - 1-7/8	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/16	1/4	2333S1500
	Standard	1-13/32 - 1-7/8	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4	2433S1500
m	Stub	36.0 - 47.0	76.2	125.0	129.8	195.0	40.0	70.0	1/4*	2133S4000
	Short	36.0 - 47.0	120.7	173.0	177.8	243.0	40.0	70.0	1/4*	2233S4000
	Extended	36.0 - 47.0	349.3	401.6	406.4	471.6	40.0	70.0	1/4*	2533S4000
	XL	36.0 - 47.0	558.8	611.1	615.9	681.1	40.0	70.0	1/4*	2733S4000
	3XL	36.0 - 47.0	787.4	839.7	844.5	909.7	40.0	70.0	1/4*	2833S4000




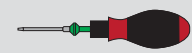

*Metric thread to BSP and ISO 7-1

Stubb length holders have a 1/4" side pipe tap (P_2)

BURNISHING

THREADING

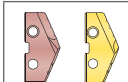
Connection Accessories

					Recommended Tightening Torque*
Insert Screw	Nylon Locking Screw	Drill Bit	Drill Bit	Reamer	121.3 in-lbs (1370 N-cm)
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B	

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

SPECIALS

A30: 74 - 81



i = Imperial (in)

m = Metric (mm)

Screws sold in quantities of 10

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

A30: 82

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3 Series | Flange Shank

3 Series | Flange Shank

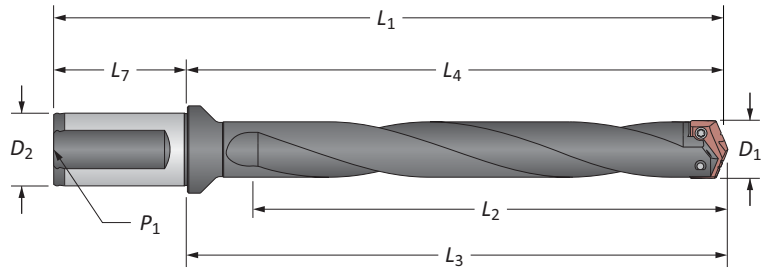


Table 1

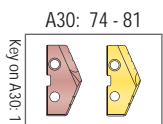
Series	Grade	D ₁	Body			Shank			Part No.	
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇		P ₁
i	Intermediate	1-13/32 - 1-7/8	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/16	1/4	23333 21500
	Standard	1-13/32 - 1-7/8	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4	24333 21500
m	Intermediate	25.0 - 35.0	165.1	217.5	222.3	287.5	40.0	70.0	1/4*	23333 24000
	Standard	25.0 - 35.0	209.6	261.9	266.7	331.9	40.0	70.0	1/4*	24333 24000

*Metric thread to BSP and ISO 7-1

Connection Accessories

					Tightening Torque*
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B	

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

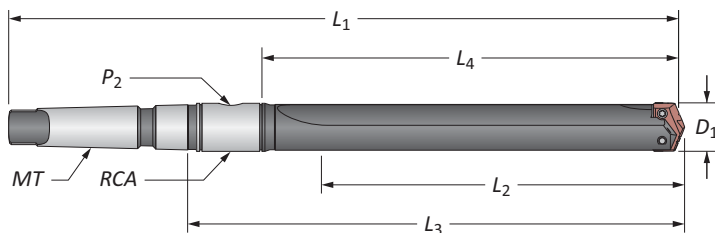


i = Imperial (in)
m = Metric (mm)
Screws sold in quantities of 10

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

3 Series | Taper Shank

3 Series | Taper Shank

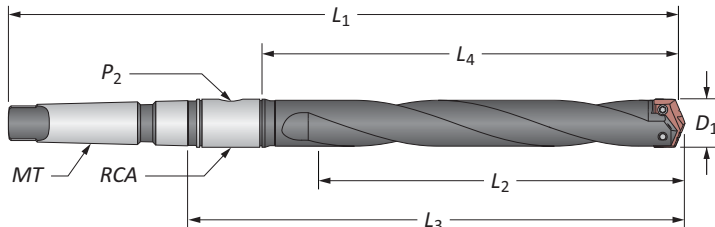


Specifications

Designation	D ₁	Body				L ₁	Shank			Part No.
		L ₂	L ₃	L ₄	MT		P ₂	R		
i	Short	1-13/32 - 1-7/8	4-3/4	6	8-1/8	12-9/16	#4	1/4	2T-4SR	2233S4
	Short	1-13/32 - 1-7/8	4-3/4	6	8-1/8	13-13/16	#5	1/4	2T-5SR	2233S5
	Intermediate	1-13/32 - 1-7/8	6-1/2	7-3/4	9-7/8	14-5/16	#4	1/4	2T-4SR	2333S4
	Standard	1-13/32 - 1-7/8	8-1/4	9-1/2	11-5/8	16-1/16	#4	1/4	2T-4SR	2433S4
	Standard	1-13/32 - 1-7/8	8-1/4	9-1/2	11-5/8	17-5/16	#5	1/4	2T-5SR	2433S5
	Extended	1-13/32 - 1-7/8	13-3/4	15	17-1/8	21-9/16	#4	1/4	2T-4SR	2533S4
	XL	1-13/32 - 1-7/8	22	22-1/4	25-3/8	29-13/16	#4	1/4	2T-4SR	2733S4
	3XL	1-13/32 - 1-7/8	31	32-1/4	34-3/8	38-13/16	#4	1/4	2T-4SR	2833S4
m	Short	36.0 - 47.0	120.6	152.4	206.4	319.1	#4**	1/4*	2T-4SRM	2233S4
	Extended	36.0 - 47.0	349.3	381.0	435.0	547.7	#4**	1/4*	2T-4SRM	2533S4
	XL	36.0 - 47.0	558.8	590.6	644.6	757.2	#4**	1/4*	2T-4SRM	2733S4
	3XL	36.0 - 47.0	787.4	819.2	873.2	985.8	#4**	1/4*	2T-4SRM	2833S4

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Specifications

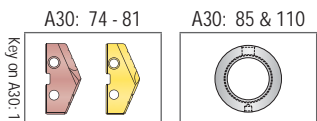
Designation	D ₁	Body				L ₁	Shank			Part No.
		L ₂	L ₃	L ₄	MT		P ₂	R		
m	Intermediate	36.0 - 47.0	165.1	196.9	250.9	363.6	#4	1/4*	2T-4SRM	2333S4
	Standard	36.0 - 47.0	209.5	241.3	295.3	408.0	#4	1/4*	2T-4SRM	2433S4

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

Connection Accessories

					Tightening Torque*
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B	

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



i = Imperial (in)

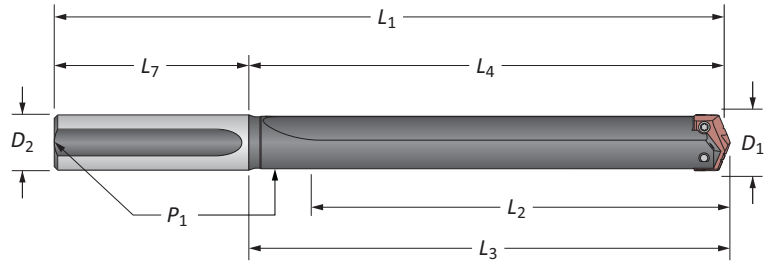
m = Metric (mm)

Screws sold in quantities of 10

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

3 Series | Straight Shank

3 Series | Straight Shank



Specifications

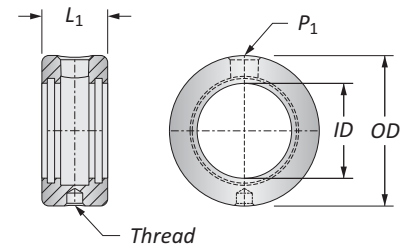
Designation	D ₁	Body				L ₁	Shank			Part No.
		L ₂	L ₄	L ₃	D ₂		L ₇	P ₁		
Short	1-13/32 - 1-7/8	4-3/4	6	6-3/16	10	1-1/4	4	1/4	2233S125	
Short	1-13/32 - 1-7/8	4-3/4	6	6-3/16	10	1-1/2	4	1/4	2233S150	
Intermediate	1-13/32 - 1-7/8	6-1/2	7-3/4	7-15/16	11-3/4	1-1/2	4	1/4	2333S150	
Standard	1-13/32 - 1-7/8	8-1/4	9-1/2	9-11/16	13-1/2	1-1/4	4	1/4	2433S125	
Standard	1-13/32 - 1-7/8	8-1/4	9-1/2	9-11/16	13-1/2	1-1/2	4	1/4	2433S150	
Extended	1-13/32 - 1-7/8	13-3/4	15-3/16	15-3/16	19	1-1/4	4	1/4	2533S125	
XL	1-13/32 - 1-7/8	22	23-7/16	23-7/16	27-1/4	1-1/2	4	1/4	2733S150	
3XL	1-13/32 - 1-7/8	31	32-7/16	32-7/16	36-1/4	1-1/2	4	1/4	2833S150	

3 Series | Rotary Coolant Adapters | Torx® Plus Screws

3 Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter Specifications

ID	OD	L ₁	Thread	P ₁	Part No.	Kit Part No.**		Recommen.
						SR	OR	
1-1/4	2-1/2	1-3/8	3/8-16	1/4	244SR	2T1-4SR	2T1-4OR-10	
1-3/4	3	1-3/8	3/8-16	1/4	245SR	2T1-5SR	2T1-5OR-10	
31.75	63.50	34.92	M10 x 1.50	1/4*	244SR	2T1-4SR	2T1-4OR-10	
44.45	76.20	34.92	M10 x 1.50	1/4*	245SR	2T1-5SR	2T1-5OR-10	



*Thread to BSP and ISO 7-1

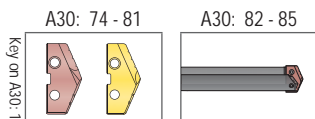
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

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

Connection Accessories

						Recommended Tightening Torque*
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B		121.3 in-lbs (1370 N-cm)

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



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

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

DRILLING

BORING

REAMING

BURNISHING

THREADING

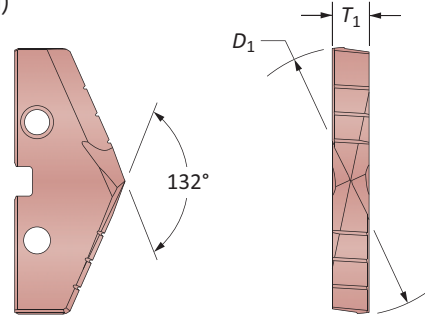
SPECIALS

4

 DRILLING | T-A® Replaceable Insert Drilling System



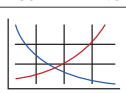
4 Series | HSS | Diameter Range: 1.850" - 2.570" (46.99mm - 65.28mm)


SS Inserter - Super Job

Fractional Length	Inserter			Super Job	
	D ₁ Inch	D ₁ mm	T ₁	Part #	Part #
-	1.8898	48.00	5/16	454004	454004
1-29/32	1.9063	48.42	5/16	454012	454012
-	1.9291	49.00	5/16	454047	454047
1-15/16	1.9375	49.21	5/16	454013	454013
-	1.9685	50.00	5/16	454057	454057
1-31/32	1.9688	50.01	5/16	4540131	4540131
2	2.0000	50.80	5/16	454027	454027
-	2.0079	51.00	5/16	454051	454051
2-1/32	2.0313	51.59	5/16	4540201	4540201
2-3/64	2.0472	52.00	5/16	454052	454052
2-1/16	2.0625	52.39	5/16	4540202	4540202
-	2.0866	53.00	5/16	454053	454053
2-3/32	2.0938	53.18	5/16	4540203	4540203
2-1/8	2.1250	53.98	5/16	4540204	4540204
-	2.1260	54.00	5/16	454054	454054
2-5/32	2.1563	54.77	5/16	4540205	4540205
-	2.1654	55.00	5/16	454055	454055
2-3/16	2.1875	55.56	5/16	4540207	4540207
-	2.2047	56.00	5/16	454057	454057
2-7/32	2.2188	56.36	5/16	4540207	4540207
-	2.2441	57.00	5/16	454057	454057
2-1/4	2.2500	57.15	5/16	4540207	4540207
2-9/32	2.2813	57.94	5/16	4540207	4540207
-	2.2835	58.00	5/16	454057	454057
2-5/16	2.3125	58.74	5/16	4540210	4540210
-	2.3228	59.00	5/16	454057	454057
2-11/32	2.3438	59.53	5/16	4540211	4540211
-	2.3622	60.00	5/16	454077	454077
2-3/8	2.3750	60.33	5/16	4540212	4540212
-	2.4016	61.00	5/16	454071	454071
2-13/32	2.4063	61.12	5/16	4540213	4540213
2-7/16	2.4375	61.91	5/16	4540214	4540214
-	2.4409	62.00	5/16	454072	454072
2-15/32	2.4688	62.71	5/16	4540215	4540215
-	2.4803	63.00	5/16	454073	454073
2-1/2	2.5000	63.50	5/16	4540217	4540217
-	2.5197	64.00	5/16	454074	454074
2-17/32	2.5313	64.29	5/16	4540217	4540217
-	2.5591	65.00	5/16	454075	454075
2-9/16	2.5625	65.09	5/16	4540217	4540217


A30: 112 - 143



A30: 90 - 92



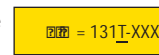

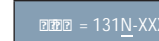
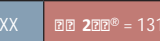
A30: 4 - 6



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

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

Inserts sold in quantities of 1

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

A30: 86

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DRILLING

BORING

REAMING

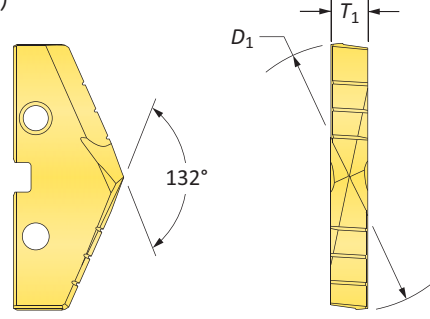
BURNISHING

THREADING

SPECIALS

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

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

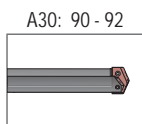


HSS Insert - HSS

Fractional Length	D ₁ inch	D ₁ mm	T ₁	Part Number
-	1.8898	48.00	5/16	434120
1-29/32	1.9063	48.42	5/16	434121
-	1.9291	49.00	5/16	434122
1-15/16	1.9375	49.21	5/16	434123
-	1.9685	50.00	5/16	434124
1-31/32	1.9688	50.01	5/16	434125
2	2.0000	50.80	5/16	434126
-	2.0079	51.00	5/16	434127
2-1/32	2.0313	51.59	5/16	434128
2-3/64	2.0472	52.00	5/16	434129
2-1/16	2.0625	52.39	5/16	434130
-	2.0866	53.00	5/16	434131
2-3/32	2.0938	53.18	5/16	434132
2-1/8	2.1250	53.98	5/16	434133
-	2.1260	54.00	5/16	434134
2-5/32	2.1563	54.77	5/16	434135
-	2.1654	55.00	5/16	434136
2-3/16	2.1875	55.56	5/16	434137
-	2.2047	56.00	5/16	434138
2-7/32	2.2188	56.36	5/16	434139
-	2.2441	57.00	5/16	434140
2-1/4	2.2500	57.15	5/16	434141
2-9/32	2.2813	57.94	5/16	434142
-	2.2835	58.00	5/16	434143
2-5/16	2.3125	58.74	5/16	434144
-	2.3228	59.00	5/16	434145
2-11/32	2.3438	59.53	5/16	434146
-	2.3622	60.00	5/16	434147
2-3/8	2.3750	60.33	5/16	434148
-	2.4016	61.00	5/16	434149
2-13/32	2.4063	61.12	5/16	434150
2-7/16	2.4375	61.91	5/16	434151
-	2.4409	62.00	5/16	434152
2-15/32	2.4688	62.71	5/16	434153
-	2.4803	63.00	5/16	434154
2-1/2	2.5000	63.50	5/16	434155
-	2.5197	64.00	5/16	434156
2-17/32	2.5313	64.29	5/16	434157
-	2.5591	65.00	5/16	434158
2-9/16	2.5625	65.09	5/16	434159

A30: 112 - 143

Key on A30: 1



A30: 4 - 6

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

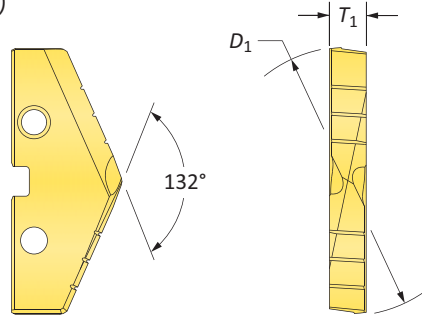
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1


131I-XXXX	131A-XXXX
131N-XXXX	200® = 131H-XXXX

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

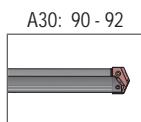
4 Series | HSS | Diameter Range: 1.850" - 2.570" (46.99mm - 65.28mm)



SS Insert - Speed Rob

Fractional	Insert			Part No
Denom	D ₁ inch	D ₁ mm	T ₁	
-	1.8898	48.00	5/16	154T12
1-29/32	1.9063	48.42	5/16	154T12T
-	1.9291	49.00	5/16	154T14
1-15/16	1.9375	49.21	5/16	154T13T
-	1.9685	50.00	5/16	154T15
1-31/32	1.9688	50.01	5/16	154T131
2	2.0000	50.80	5/16	154T2T
-	2.0079	51.00	5/16	154T51
2-1/32	2.0313	51.59	5/16	154T2T1
2-3/64	2.0472	52.00	5/16	154T52
2-1/16	2.0625	52.39	5/16	154T2T2
-	2.0866	53.00	5/16	154T53
2-3/32	2.0938	53.18	5/16	154T2T3
2-1/8	2.1250	53.98	5/16	154T2T4
-	2.1260	54.00	5/16	154T54
2-5/32	2.1563	54.77	5/16	154T2T5
-	2.1654	55.00	5/16	154T55
2-3/16	2.1875	55.56	5/16	154T2T6
-	2.2047	56.00	5/16	154T56
2-7/32	2.2188	56.36	5/16	154T2T7
-	2.2441	57.00	5/16	154T57
2-1/4	2.2500	57.15	5/16	154T2T8
2-9/32	2.2813	57.94	5/16	154T2T9
-	2.2835	58.00	5/16	154T58
2-5/16	2.3125	58.74	5/16	154T2T10
-	2.3228	59.00	5/16	154T59
2-11/32	2.3438	59.53	5/16	154T2T11
-	2.3622	60.00	5/16	154T60
2-3/8	2.3750	60.33	5/16	154T2T12
-	2.4016	61.00	5/16	154T61
2-13/32	2.4063	61.12	5/16	154T2T13
2-7/16	2.4375	61.91	5/16	154T2T14
-	2.4409	62.00	5/16	154T62
2-15/32	2.4688	62.71	5/16	154T2T15
-	2.4803	63.00	5/16	154T63
2-1/2	2.5000	63.50	5/16	154T2T16
-	2.5197	64.00	5/16	154T64
2-17/32	2.5313	64.29	5/16	154T2T17
-	2.5591	65.00	5/16	154T65
2-9/16	2.5625	65.09	5/16	154T2T18

A30: 112 - 143
Key on A30: 1



A30: 4 - 6

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

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

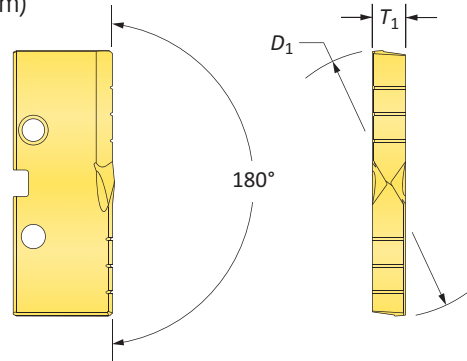
= 131T-XXXX	= 131A-XXXX
= 131N-XXXX	= 131H-XXXX

Inserts sold in quantities of 1

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



Flat Bottom



HSS Insert - Size Chart

Fractional Length	D ₁ inch	D ₁ mm	T ₁	Part No.
-	1.8898	48.00	5/16	154T12121
1-29/32	1.9063	48.42	5/16	154T12122
-	1.9291	49.00	5/16	154T12123
1-15/16	1.9375	49.21	5/16	154T12124
-	1.9685	50.00	5/16	154T12125
1-31/32	1.9688	50.01	5/16	154T12126
2	2.0000	50.80	5/16	154T12127
-	2.0079	51.00	5/16	154T12128
2-1/32	2.0313	51.59	5/16	154T12129
2-3/64	2.0472	52.00	5/16	154T12130
2-1/16	2.0625	52.39	5/16	154T12131
-	2.0866	53.00	5/16	154T12132
2-3/32	2.0938	53.18	5/16	154T12133
2-1/8	2.1250	53.98	5/16	154T12134
-	2.1260	54.00	5/16	154T12135
2-5/32	2.1563	54.77	5/16	154T12136
-	2.1654	55.00	5/16	154T12137
2-3/16	2.1875	55.56	5/16	154T12138
-	2.2047	56.00	5/16	154T12139
2-7/32	2.2188	56.36	5/16	154T12140
-	2.2441	57.00	5/16	154T12141
2-1/4	2.2500	57.15	5/16	154T12142
2-9/32	2.2813	57.94	5/16	154T12143
-	2.2835	58.00	5/16	154T12144
2-5/16	2.3125	58.74	5/16	154T12145
-	2.3228	59.00	5/16	154T12146
2-11/32	2.3438	59.53	5/16	154T12147
-	2.3622	60.00	5/16	154T12148
2-3/8	2.3750	60.33	5/16	154T12149
-	2.4016	61.00	5/16	154T12150
2-13/32	2.4063	61.12	5/16	154T12151
2-7/16	2.4375	61.91	5/16	154T12152
-	2.4409	62.00	5/16	154T12153
2-15/32	2.4688	62.71	5/16	154T12154
-	2.4803	63.00	5/16	154T12155
2-1/2	2.5000	63.50	5/16	154T12156
-	2.5197	64.00	5/16	154T12157
2-17/32	2.5313	64.29	5/16	154T12158
-	2.5591	65.00	5/16	154T12159
2-9/16	2.5625	65.09	5/16	154T12160

Key on A30: 1

A30: 112 - 143

A30: 90 - 92

A30: 4 - 6

FN

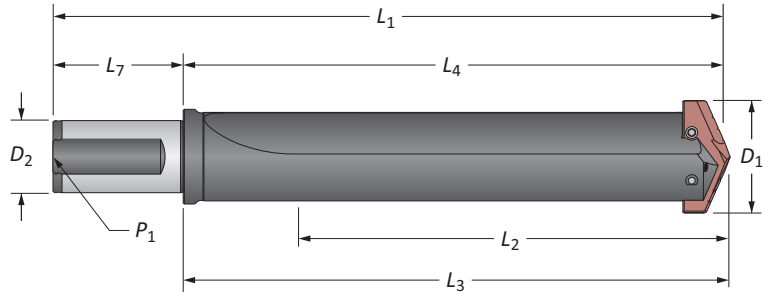
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1

= 131T-XXXX	= 131A-XXXX
= 131N-XXXX	= 131H-XXXX

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

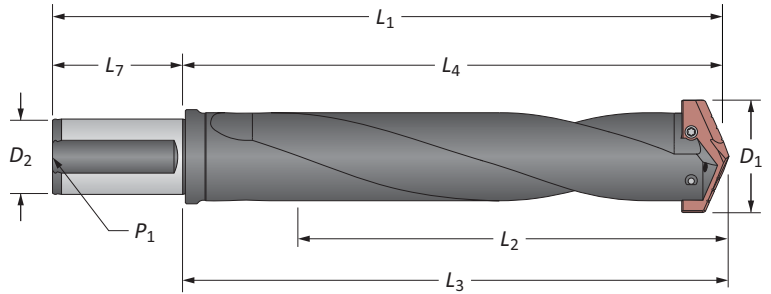
4 Series | Flange Shank



Specifications

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
i	Short	1-29/32 - 2-9/16	5-1/8	7-1/6	7-1/4	9-3/4	1-1/2	2-11/16	1/4	2204S01500
	Standard	1-29/32 - 2-9/16	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4	2404S01500
m	Short	48.0 - 65.0	130.2	179.4	184.0	249.4	40.0	70.0	1/4*	2204S04000
	Extended	48.0 - 65.0	422.3	471.5	476.0	541.5	40.0	70.0	1/4*	2504S04000
	XL	48.0 - 65.0	625.0	674.7	679.0	744.7	40.0	70.0	1/4*	2704S04000
	3XL	48.0 - 65.0	879.0	928.7	933.0	998.7	40.0	70.0	1/4*	2004S04000

*Metric thread to BSP and ISO 7-1



Specifications

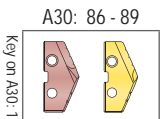
Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
i	Standard	1-29/32 - 2-9/16	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4	2404R01500
m	Standard	48.0 - 65.0	231.8	281.0	285.8	351.0	40.0	70.0	1/4*	2404R04000

*Metric thread to BSP and ISO 7-1

Connection Accessories

					Recommended Tightening Torque* 121.3 in-lbs (1370 N-cm)
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B	

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



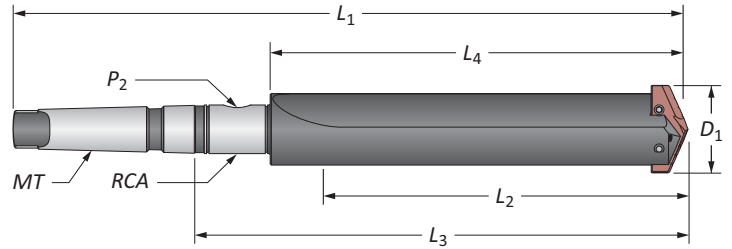
i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

4 Series | Taper Shank

4 Series | Taper Shank

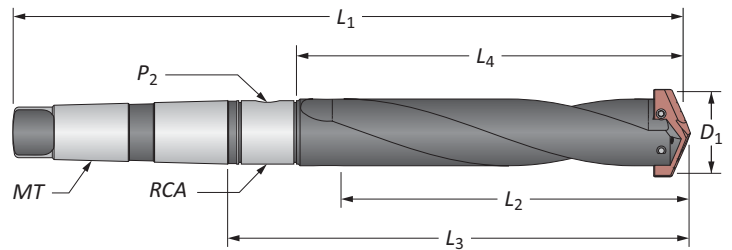


Specifications

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	R ₂	
i	Short	1-29/32 - 2-9/16	5-1/8	6-1/2	8-5/8	13-1/16	#4	1/4	2T-4SR	2244S004
	Short	1-29/32 - 2-9/16	5-1/8	6-1/2	8-5/8	14-5/16	#5	1/4	2T-5SR	2244S005
	Standard	1-29/32 - 2-9/16	9-1/8	10-1/2	12-5/8	17-1/16	#4	1/4	2T-4SR	2444S004
	Standard	1-29/32 - 2-9/16	9-1/8	10-1/2	12-5/8	18-5/16	#5	1/4	2T-5SR	2444S005
	Extended	1-29/32 - 2-9/16	16-5/8	18	20-1/8	25-13/16	#5	1/4	2T-5SR	2544S005
	XL	1-29/32 - 2-9/16	24-5/8	26	28-1/8	33-13/16	#5	1/4	2T-5SR	2744S005
	3XL	1-29/32 - 2-9/16	34-5/8	36	38-1/8	43-13/16	#5	1/4	2T-5SR	2844S005
m	Short	48.0 - 65.0	130.1	165.1	219.1	363.5	#5**	1/4*	2T-5SRM	2244S005
	Extended	48.0 - 65.0	422.3	457.2	511.2	655.6	#5**	1/4*	2T-5SRM	2544S005
	XL	48.0 - 65.0	625.0	660.4	714.4	858.8	#5**	1/4*	2T-5SRM	2744S005
	3XL	48.0 - 65.0	879.0	914.4	968.4	1112.8	#5**	1/4*	2T-5SRM	2844S005

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Specifications

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	R ₂	
m	Standard	48.0 - 65.0	231.8	266.7	320.7	465.1	#5**	1/4*	2T-5SRM	2444S005

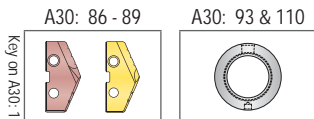
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

					Removable Tightening Torque*
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B	121.3 in-lbs (1370 N-cm)

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

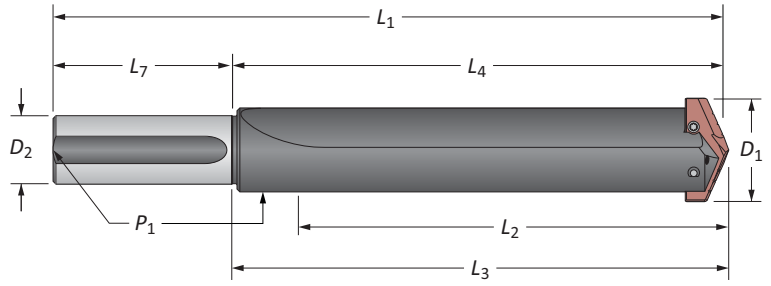


i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

4 Series | Straight Shank



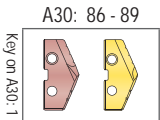
Specifications

Length	D ₁	Body				Shank			Part No.
		L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Short	1-29/32 - 2-9/16	5-1/8	6-1/2	6-11/16	10-1/2	1-1/2	4	1/4	2244S157
Short	1-29/32 - 2-9/16	5-1/8	6-1/2	6-11/16	10-1/2	1-3/4	4	1/4	2244S175
Standard	1-29/32 - 2-9/16	9-1/8	10-1/2	10-11/16	14-1/2	1-1/2	4	1/4	2444S157
Standard	1-29/32 - 2-9/16	9-1/8	10-1/2	10-11/16	14-1/2	1-3/4	4	1/4	2444S175
Extended	1-29/32 - 2-9/16	16-5/8	18	18-3/16	22	1-1/2	4	1/4	2544S157
XL	1-29/32 - 2-9/16	24-5/8	26	26-3/16	30	1-1/2	4	1/4	2744S157
3XL	1-29/32 - 2-9/16	34-5/8	36	36-3/16	40	1-1/2	4	1/4	2844S157

Connection Accessories

					Recommended Tightening Torque* 121.3 in-lbs (1370 N-cm)
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B	

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



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

Screws sold in quantities of 10

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

DRILLING

BORING

REAMING

BURNISHING

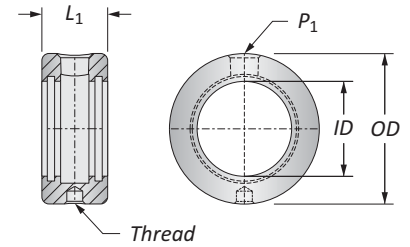
THREADING

SPECIALS

4 Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter

	ID	OD	L ₁	Thread	P ₁	O-ring	Kit Part No.**	Replacement
i	1-1/4	2-1/2	1-3/8	3/8-16	1/4	2SR	2T1-4SR	2T1-4OR-10
	1-3/4	3	1-3/8	3/8-16	1/4	2SR	2T1-5SR	2T1-5OR-10
m	31.75	63.50	34.92	M10 x 1.50	1/4*	2SR	2T1-4SR	2T1-4OR-10
	44.45	76.20	34.92	M10 x 1.50	1/4*	2SR	2T1-5SR	2T1-5OR-10



*Thread to BSP and ISO 7-1

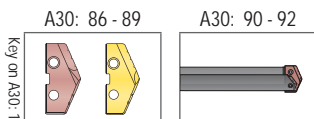
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

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

Connection Accessories

Imperial Screw	Nylon Locking Screw	Imperial Driver	Pre-drilled Torx Driver	Replacement	Recommended Tightening Torque*
7514-IP20-1	7514N-IP20-1	8IP-20	8IP-20TL	8IP-20B	121.3 in-lbs (1370 N-cm)

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ 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

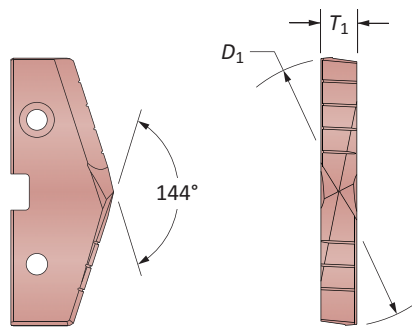
▲ Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your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

5

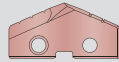

 DRILLING | T-A® Replaceable Insert Drilling System



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

SS Inserter - Super Rob o SS

Fractional Len	Inserter			Super Rob o	SS Inserter
	D_1 Inch	D_1 mm	T_1		
2-1/2	2.5000	63.50	7/16	455 21	435 21
-	2.5197	64.00	7/16	455 4	435 4
2-17/32	2.5313	64.29	7/16	455 217	435 217
2-9/16	2.5625	65.09	7/16	455 21	435 21
2-19/32	2.5938	65.88	7/16	455 21	435 21
-	2.5984	66.00	7/16	455	435
2-5/8	2.6250	66.68	7/16	455 22	435 22
2-21/32	2.6563	67.47	7/16	455 221	435 221
-	2.6772	68.00	7/16	455	435
2-11/16	2.6875	68.26	7/16	455 222	435 222
2-23/32	2.7188	69.05	7/16	455 223	435 223
2-3/4	2.7500	69.85	7/16	455 224	435 224
-	2.7559	70.00	7/16	455 7	435 7
2-25/32	2.7813	70.64	7/16	455 225	435 225
2-13/16	2.8125	71.44	7/16	455 22	435 22
-	2.8346	72.00	7/16	455 72	435 72
2-27/32	2.8438	72.23	7/16	455 227	435 227
2-7/8	2.8750	73.03	7/16	455 22	435 22
2-29/32	2.9063	73.82	7/16	455 22	435 22
-	2.9134	74.00	7/16	455 74	435 74
2-15/16	2.9375	74.41	7/16	455 23	435 23
2-31/32	2.9688	75.61	7/16	455 231	435 231
-	2.9921	76.00	7/16	455 7	435 7
3	3.0000	76.20	7/16	455 3	435 3

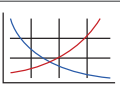
BORING


REAMING


BURNISHING

THREADING

SPECIALS


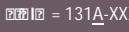
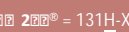
 A30: 112 - 143

 Key on A30-1

 A30: 98 - 100


 A30: 4 - 6

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

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

 Inserts sold in quantities of 1

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

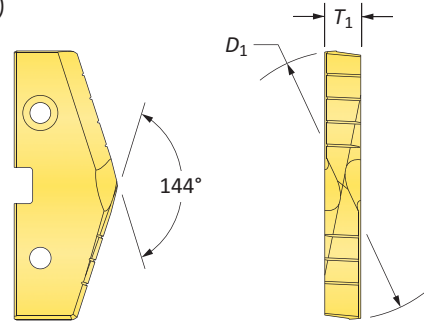
A30: 94

www.alliedmachine.com | 1.330.343.4283



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

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



HSS Insert - Super Cobalt Part No.*

Fractional Length	D ₁ inch	D ₁ mm	T ₁	Super Cobalt Part No.*	HSS Part No.
2-1/2	2.5000	63.50	7/16	155221	135221
-	2.5197	64.00	7/16	155224	135224
2-17/32	2.5313	64.29	7/16	1552217	1352217
2-9/16	2.5625	65.09	7/16	155221	135221
2-19/32	2.5938	65.88	7/16	155221	135221
-	2.5984	66.00	7/16	155227	135227
2-5/8	2.6250	66.68	7/16	155222	135222
2-21/32	2.6563	67.47	7/16	1552221	1352221
-	2.6772	68.00	7/16	155227	135227
2-11/16	2.6875	68.26	7/16	1552222	1352222
2-23/32	2.7188	69.05	7/16	1552223	1352223
2-3/4	2.7500	69.85	7/16	155224	135224
-	2.7559	70.00	7/16	155227	135227
2-25/32	2.7813	70.64	7/16	1552225	1352225
2-13/16	2.8125	71.44	7/16	155222	135222
-	2.8346	72.00	7/16	155227	135227
2-27/32	2.8438	72.23	7/16	1552227	1352227
2-7/8	2.8750	73.03	7/16	155222	135222
2-29/32	2.9063	73.82	7/16	155222	135222
-	2.9134	74.00	7/16	155227	135227
2-15/16	2.9375	74.41	7/16	155223	135223
2-31/32	2.9688	75.61	7/16	1552231	1352231
-	2.9921	76.00	7/16	155227	135227
3	3.0000	76.20	7/16	155223	135223

*Available as non-stocked standard

A30: 112 - 143

A30: 98 - 100

A30: 4 - 6

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

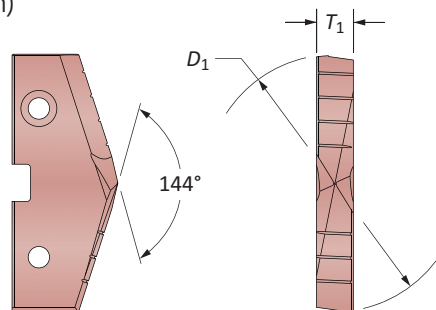
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1

155221 = 131I-XXXX	1552217 = 131A-XXXX
155222 = 131N-XXXX	1552231 = 131H-XXXX

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

(for use with 5 series holders)



SS - Steer Rob

Fractional Length	Insert			Steer Rob	SS
	D ₁ inch	D ₁ mm	T ₁	Part #	Part #
3-1/32	3.0313	76.99	7/16	4522331	4322331
3-1/16	3.0625	77.79	7/16	4522332	4322332
-	3.0709	78.00	7/16	452277	432277
3-3/32	3.0938	78.58	7/16	4522333	4322333
3-1/8	3.1250	79.38	7/16	4522334	4322334
-	3.1496	80.00	7/16	452222	432222
3-5/32	3.1563	80.17	7/16	4522335	4322335
3-3/16	3.1875	80.96	7/16	4522336	4322336
3-7/32	3.2188	81.76	7/16	4522337	4322337
-	3.2283	82.00	7/16	452222	432222
3-1/4	3.2500	82.55	7/16	4522338	4322338
3-9/32	3.2813	83.34	7/16	4522339	4322339
-	3.3071	84.00	7/16	452224	432224
3-5/16	3.3125	84.14	7/16	4522310	4322310
3-11/32	3.3438	84.93	7/16	4522311	4322311
3-3/8	3.3750	85.73	7/16	4522312	4322312
-	3.3858	86.00	7/16	452222	432222
3-13/32	3.4063	86.52	7/16	4522313	4322313
3-7/16	3.4375	87.31	7/16	4522314	4322314
-	3.4646	88.00	7/16	452222	432222
3-15/32	3.4688	88.11	7/16	4522315	4322315
3-1/2	3.5000	88.90	7/16	4522316	4322316

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

A30: 112 - 143
Key on A30-1

A30: 98 - 100

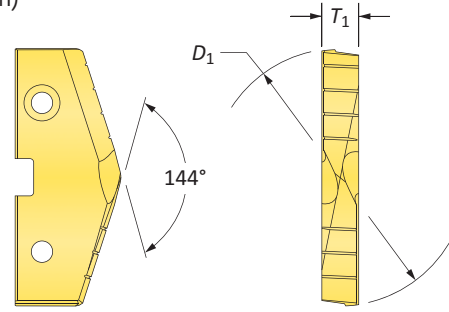
A30: 4 - 6
HI, HR, CR, SK, BR, NC, WC

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


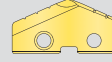
Inserts sold in quantities of 1

131T-XXXX = 131T-XXXX
131N-XXXX = 131N-XXXX
131H-XXXX = 131H-XXXX

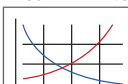
6 Series | HSS | Diameter Range: 3.001" - 3.507" (76.22mm - 89.08mm)
(for use with 5 series holders)





HSS Insert - Super Cobalt Part No.*


Fractional Length	D_1 inch	D_1 mm	T_1	Super Cobalt Part No.* 	HSS Part No. 
3-1/32	3.0313	76.99	7/16	15000301	13000301
3-1/16	3.0625	77.79	7/16	15000302	13000302
-	3.0709	78.00	7/16	150007	130007
3-3/32	3.0938	78.58	7/16	15000303	13000303
3-1/8	3.1250	79.38	7/16	15000304	13000304
-	3.1496	80.00	7/16	150008	130008
3-5/32	3.1563	80.17	7/16	15000305	13000305
3-3/16	3.1875	80.96	7/16	15000306	13000306
3-7/32	3.2188	81.76	7/16	15000307	13000307
-	3.2283	82.00	7/16	150002	130002
3-1/4	3.2500	82.55	7/16	15000308	13000308
3-9/32	3.2813	83.34	7/16	15000309	13000309
-	3.3071	84.00	7/16	150004	130004
3-5/16	3.3125	84.14	7/16	15000310	13000310
3-11/32	3.3438	84.93	7/16	15000311	13000311
3-3/8	3.3750	85.73	7/16	15000312	13000312
-	3.3858	86.00	7/16	150009	130009
3-13/32	3.4063	86.52	7/16	15000313	13000313
3-7/16	3.4375	87.31	7/16	15000314	13000314
-	3.4646	88.00	7/16	150010	130010
3-15/32	3.4688	88.11	7/16	15000315	13000315
3-1/2	3.5000	88.90	7/16	15000316	13000316

*Available as non-stocked standard

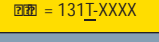
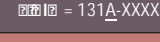

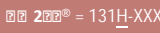
A30: 112 - 143


A30: 98 - 100


A30: 4 - 6

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

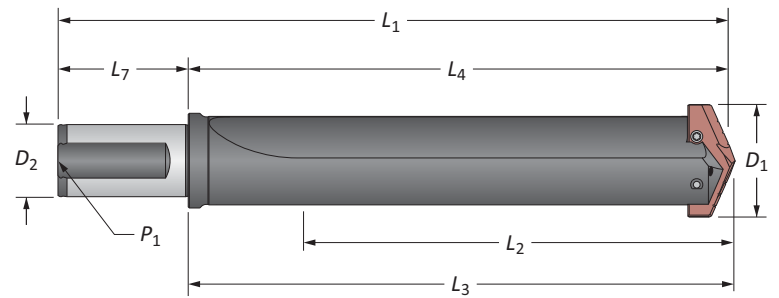
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. 

Inserts sold in quantities of 1

 = 131I-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

5 Series | Flange Shank

DRILLING



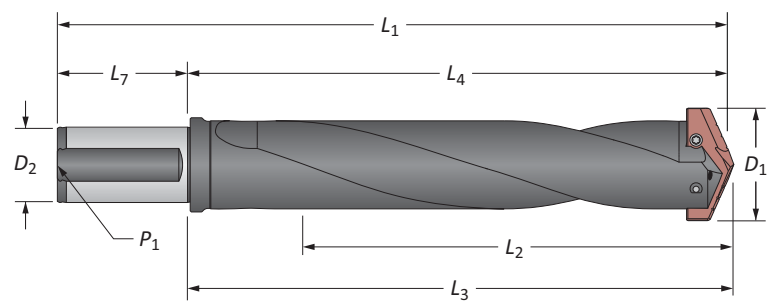
BORING

Specifications

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
i	Short	2-1/2 - 3-1/2	6-49/64	8-1/2	8-3/4	13-1/4	2	4-1/2	1/2	22850502000
	Extended	2-1/2 - 3-1/2	18-17/64	20	20-1/4	24-3/4	2	4-1/2	1/2	25850502000
m	Short	64.00 - 88.00	172	215.9	222.3	302.3	50.0	80.0	1/2*	22850505000
	Extended	64.00 - 88.00	464	508	514.4	594.4	50.0	80.0	1/2*	25850505000

*Metric thread to BSP and ISO 7-1

REAMING



BURNISHING

Specifications

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
i	Standard	2-1/2 - 3-1/2	10-3/4	12-1/2	12-3/4	17-1/4	2	4-1/2	1/2	24850502000
m	Standard	64.0 - 88.0	273	317.5	323.9	403.9	50.0	80.0	1/2*	24850505000

*Metric thread to BSP and ISO 7-1

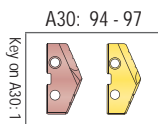
THREADING

Connection Accessories

					Recommended Tightening Torque* 155.0 in-lbs (1750 N-cm)
7619-IP25-1	-	8IP-25	-	-	

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

SPECIALS

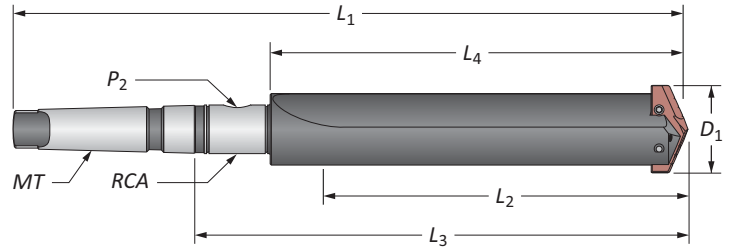


i = Imperial (in)
m = Metric (mm)
Screws sold in quantities of 10

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

5 Series | Taper Shank

5 Series | Taper Shank

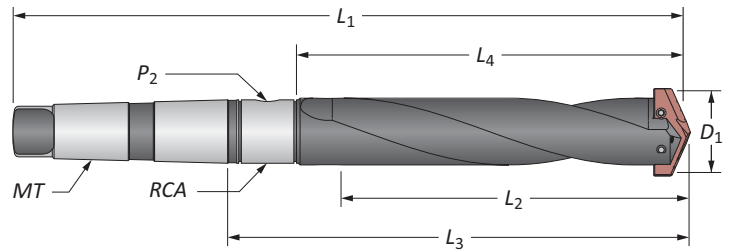


Series

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	R ₂	
i	Short	2-1/2 - 3-1/2	6-3/4	8-1/2	11-5/16	16-15/16	#5	1/2	2T-6SR	2255S0050
	Standard	2-1/2 - 3-1/2	10-3/4	12-1/2	15-5/16	20-15/16	#5	1/2	2T-6SR	2455S0050
	Extended	2-1/2 - 3-1/2	18-1/4	20	22-13/16	28-7/16	#5	1/2	2T-6SR	2555S0050
	XL	2-1/2 - 3-1/2	26	27-3/4	30-9/16	36-3/16	#5	1/2	2T-6SR	2755S0050
	3XL	2-1/2 - 3-1/2	35	36-3/4	39-9/16	45-3/16	#5	1/2	2T-6SR	2855S0050
m	Short	64.0 - 88.0	171.5	215.9	287.3	430.2	#5**	1/2*	2T-6SRM	2255S0050
	Extended	64.0 - 88.0	463.6	508.0	579.4	722.3	#5**	1/2*	2T-6SRM	2555S0050
	XL	64.0 - 88.0	660.0	704.8	776.2	919.1	#5**	1/2*	2T-6SRM	2755S0050
	3XL	64.0 - 88.0	889.0	933.4	1004.8	1147.7	#5**	1/2*	2T-6SRM	2855S0050

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Series

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	MT	P ₂	R ₂	
m	Standard	64.0 - 88.0	273.1	317.5	388.9	531.8	#5**	1/2*	2T-6SRM	2455R0050

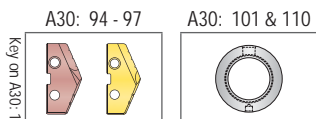
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

					Recommended Tightening Torque*
7619-IP25-1	-	8IP-25	-	-	155.0 in-lbs (1750 N-cm)

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



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

Screws sold in quantities of 10

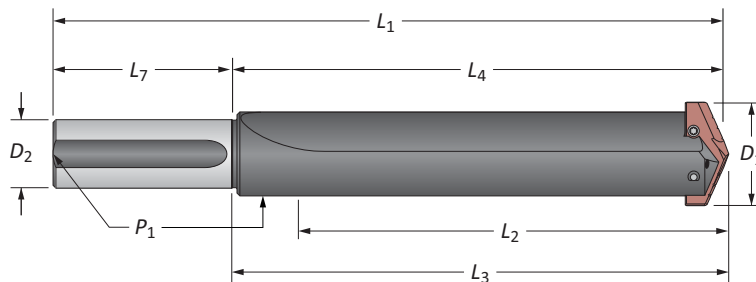
Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific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

5

 DRILLING | T-A® Replaceable Insert Drilling System



5 Series | Straight Shank


Length	D ₁	Body				Shank			Part No.
		L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Short	2-1/2 - 3-1/2	6-3/4	8-1/2	8-3/4	12-1/2	2	4	1/2	2285S02000
Standard	2-1/2 - 3-1/2	10-3/4	12-1/2	12-3/4	16-1/2	2	4	1/2	2485S02000
Extended	2-1/2 - 3-1/2	18-1/4	20	20-1/4	24	2	4	1/2	2585S02000
XL	2-1/2 - 3-1/2	26	27-3/4	28	31-3/4	2	4	1/2	2785S02000
3XL	2-1/2 - 3-1/2	35	36-3/4	37	40-3/4	2	4	1/2	2885S02000

2

REAMING




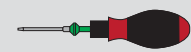

2

BURNISHING

2

THREADING

Connection Accessories

 Insert Screw	 Nylon Locking Screw	 Insert Driver	 Pre-Drill Bit	 Reamer	Recommended Tightening Torque*
7619-IP25-1	-	8IP-25	-	-	155.0 in-lbs (1750 N-cm)

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


A30: 94 - 97



i = Imperial (in)

m = Metric (mm)

Screws sold in quantities of 10

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

A30: 100

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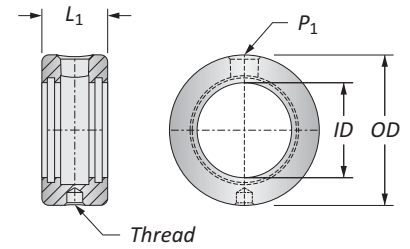
2

SPECIALS

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

Rotary Coolant Adapter

ID	OD	L ₁	Threads	P ₁	O-Rings	Kit Part No.**	Replacement
i 2-1/4	3-3/4	1-3/4	1/2-13	1/2	2 O-Rings	2T1-6SR	2T1-6OR-10
m 57.15	95.27	44.45	M12 x 1.75	1/2*	2 O-Rings	2T1-6SR	2T1-6OR-10



*Thread to BSP and ISO 7-1

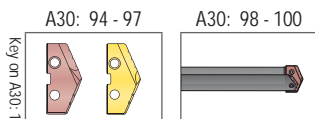
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

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

Connection Accessories

Insert Screw	Nylon Locking Screw	Insert Driver	Replacement Driver	Replacement	Recommended Tightening Torque*
7619-IP25-1	-	8IP-25	-	-	155.0 in-lbs (1750 N-cm)

*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ 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

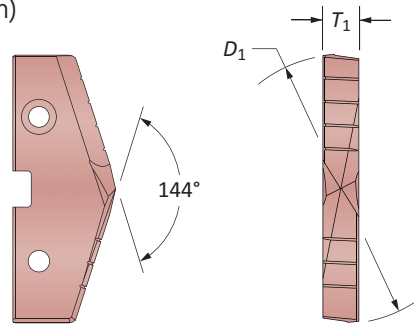
▲ Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A30: 146 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your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

7

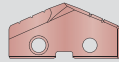

 DRILLING | T-A® Replaceable Insert Drilling System



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

SS Inserter - Super Rob o SS

Fractional len	Inserter			Super Rob o	SS o
	D_1 inc	D_1 mm	T_1		
3-17/32	3.5313	89.69	7/16	457 317	437 317
-	3.5433	90.00	7/16	457	437
3-9/16	3.5625	90.49	7/16	457 317	437 317
3-19/32	3.5938	91.28	7/16	457 317	437 317
-	3.6221	92.00	7/16	457 2	437 2
3-5/8	3.6250	92.08	7/16	457 327	437 327
3-21/32	3.6563	92.87	7/16	457 321	437 321
3-11/16	3.6875	93.66	7/16	457 322	437 322
-	3.7008	94.00	7/16	457 4	437 4
3-23/32	3.7188	94.46	7/16	457 323	437 323
3-3/4	3.7500	95.25	7/16	457 324	437 324
-	3.7795	96.00	7/16	457	437
3-25/32	3.7813	96.04	7/16	457 325	437 325
3-13/16	3.8125	96.84	7/16	457 327	437 327
3-27/32	3.8438	97.63	7/16	457 327	437 327
-	3.8583	98.00	7/16	457	437
3-7/8	3.8750	98.43	7/16	457 327	437 327
3-29/32	3.9063	99.22	7/16	457 327	437 327
-	3.9370	100.00	7/16	457 1 7	437 1 7
3-15/16	3.9375	100.01	7/16	457 337	437 337
3-31/32	3.9688	100.81	7/16	457 331	437 331
4	4.0000	101.60	7/16	457 47	437 47

DRILLING

BORING

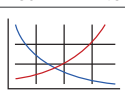
REAMING

BURNISHING

THREADING

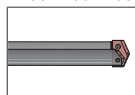
SPECIALS

A30: 112 - 143




Key on A30-1

A30: 106 - 108



A30: 4 - 6



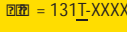
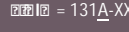

HI, HR, CR, SK,
BR, NC, WC

A30: 102

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Inserts sold in quantities of 1

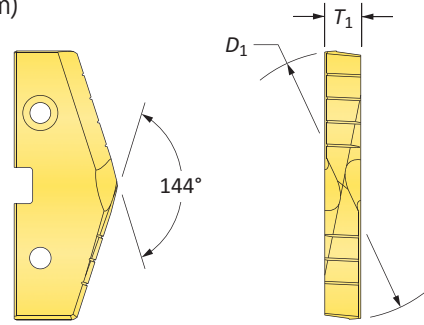
Coatings not listed above
can be supplied as
non-stocked standards.
Process fees apply. →

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX



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

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



HSS Insert - Super Cobalt Part No.*

Fractional Length	Insert			Super Cobalt Part No.*	HSS Part No.
	D ₁ inch	D ₁ mm	T ₁		
3-17/32	3.5313	89.69	7/16	157317	137317
-	3.5433	90.00	7/16	157318	137318
3-9/16	3.5625	90.49	7/16	157319	137319
3-19/32	3.5938	91.28	7/16	157320	137320
-	3.6221	92.00	7/16	157321	137321
3-5/8	3.6250	92.08	7/16	157322	137322
3-21/32	3.6563	92.87	7/16	157323	137323
3-11/16	3.6875	93.66	7/16	157324	137324
-	3.7008	94.00	7/16	157325	137325
3-23/32	3.7188	94.46	7/16	157326	137326
3-3/4	3.7500	95.25	7/16	157327	137327
-	3.7795	96.00	7/16	157328	137328
3-25/32	3.7813	96.04	7/16	157329	137329
3-13/16	3.8125	96.84	7/16	157330	137330
3-27/32	3.8438	97.63	7/16	157331	137331
-	3.8583	98.00	7/16	157332	137332
3-7/8	3.8750	98.43	7/16	157333	137333
3-29/32	3.9063	99.22	7/16	157334	137334
-	3.9370	100.00	7/16	157335	137335
3-15/16	3.9375	100.01	7/16	157336	137336
3-31/32	3.9688	100.81	7/16	157337	137337
4	4.0000	101.60	7/16	157338	137338

*Available as non-stocked standard

A30: 112 - 143

Key on A30: 1

A30: 106 - 108

A30: 4 - 6

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

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

Inserts sold in quantities of 1

= 131I-XXXX	= 131A-XXXX
= 131N-XXXX	= 131H-XXXX

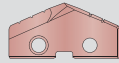

7

DRILLING | T-A® Replaceable Insert Drilling System

8 Series | HSS | Diameter Range: 4.001" - 4.507" (101.63mm - 114.48mm)

(for use with 7 series holders)

HSS Insert - Speed Robust HSS

Fractional Length	Insert			Speed Robust	HSS
	D_1 inch	D_1 mm	T_1		
4-1/64	4.0157	102.00	7/16	4520102	4300102
4-1/16	4.0625	103.19	7/16	4520402	4300402
4-3/32	4.0945	104.00	7/16	4520104	4300104
4-1/8	4.1250	104.75	7/16	4520404	4300404
-	4.1732	106.00	7/16	4520106	4300106
4-3/16	4.1875	106.36	7/16	4520406	4300406
4-1/4	4.2500	107.95	7/16	4520408	4300408
-	4.2520	108.00	7/16	4520108	4300108
4-5/16	4.3125	109.54	7/16	4520410	4300410
-	4.3307	110.00	7/16	4520110	4300110
4-3/8	4.3750	111.13	7/16	4520412	4300412
-	4.4094	112.00	7/16	4520112	4300112
4-7/16	4.4375	112.71	7/16	4520414	4300414
-	4.4882	114.00	7/16	4520114	4300114
4-1/2	4.5000	114.30	7/16	4520416	4300416

2

SPECIALS

 A30: 112 - 143
 Key on A30-1

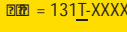
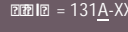

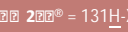
 A30: 106 - 108

 A30: 4 - 6

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

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

 Inserts sold in quantities of 1

 = 131T-XXXX	 = 131A-XXXX
 = 131N-XXXX	 = 131H-XXXX

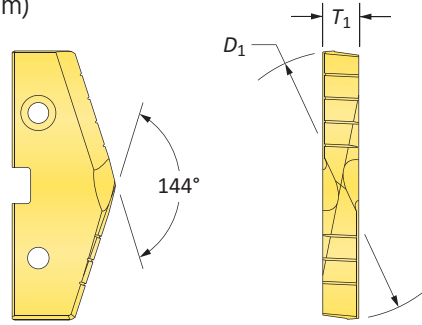
A30: 104

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8 Series | HSS | Diameter Range: 4.001" - 4.507" (101.63mm - 114.48mm)

(for use with 7 series holders)



HSS Insert - Super Cobalt Part No. *

Fractional Length	D ₁ inch	D ₁ mm	T ₁	Super Cobalt Part No. * 	HSS Part No.
4-1/64	4.0157	102.00	7/16	1500002	1300002
4-1/16	4.0625	103.19	7/16	1500042	1300042
4-3/32	4.0945	104.00	7/16	1500004	1300004
4-1/8	4.1250	104.75	7/16	1500044	1300044
-	4.1732	106.00	7/16	1500000	1300000
4-3/16	4.1875	106.36	7/16	1500040	1300040
4-1/4	4.2500	107.95	7/16	1500040	1300040
-	4.2520	108.00	7/16	1500000	1300000
4-5/16	4.3125	109.54	7/16	1500041	1300041
-	4.3307	110.00	7/16	1500010	1300010
4-3/8	4.3750	111.13	7/16	1500041	1300041
-	4.4094	112.00	7/16	1500012	1300012
4-7/16	4.4375	112.71	7/16	1500041	1300041
-	4.4882	114.00	7/16	1500014	1300014
4-1/2	4.5000	114.30	7/16	1500041	1300041

*Available as non-stocked standard

A30: 112 - 143

Key on A30: 1

A30: 106 - 108

A30: 4 - 6

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

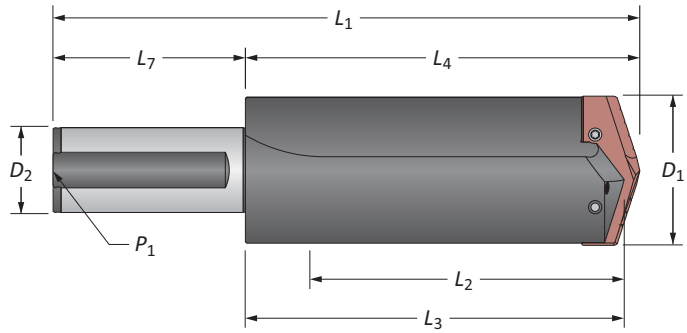
Coatings not listed above can be supplied as non-stocked standards. Process fees apply. →

Inserts sold in quantities of 1

= 131I-XXXX	= 131A-XXXX
= 131N-XXXX	= 131H-XXXX

7 Series | Flange Shank

DRILLING



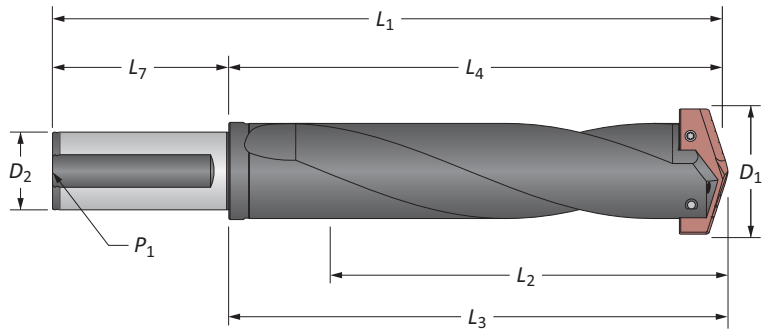
Specifications

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
i	Short	3-17/32 - 4-1/2	6-49/64	8-7/8	9-1/8	13-5/8	2	4-1/2	1/2	2207050000
	Extended	3-17/32 - 4-1/2	21-57/64	23-57/64	24-1/4	27-3/4	2	4-1/2	1/2	2507050000
m	Short	90.0 - 114.0	172	225.4	231.8	311.8	50.0	80.0	1/2*	2207050000
	Extended	90.0 - 114.0	556	606.9	616	696	50.0	80.0	1/2*	2507050000

*Metric thread to BSP and ISO 7-1

BORING

REAMING



Specifications

Series	Length	D ₁	Body				Shank			Part No.
			L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
i	Standard	3-17/32 - 4-1/2	10-3/4	12-7/8	13-1/8	17-5/8	2	4-1/2	1/2	2407050000
m	Standard	90.0 - 114.0	273	327	333.4	413.4	50.0	80.0	1/2*	2407050000

*Metric thread to BSP and ISO 7-1

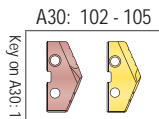
BURNISHING

THREADING

Connection Accessories

Insert Screw	Nylon Locking Screw	Insert Driver	Pre-Drill Bit	Reamer	Reamer	Recommended Tightening Torque*
7619-IP25-1	-	8IP-25	-	-	-	155.0 in-lbs (1750 N-cm)

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



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

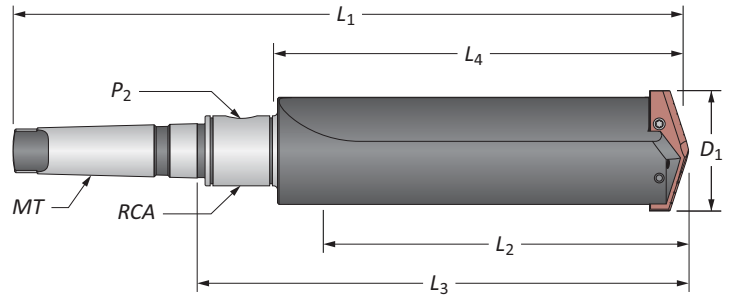
Screws sold in quantities of 10

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

SPECIALS

7 Series | Taper Shank

7 Series | Taper Shank

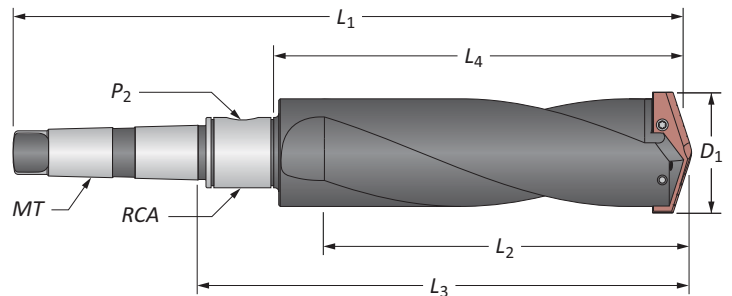


Series

Series	Length	D ₁	Body				Shank			Insert
			L ₂	L ₃	L ₄	L ₁	MT	P ₂	R	
i	Short	3-17/32 - 4-1/2	6-3/4	8-7/8	11-11/16	17-5/16	#5	1/2	2T-6SR	2277S0050
	Standard	3-17/32 - 4-1/2	10-3/4	12-7/8	15-11/16	21-5/16	#5	1/2	2T-6SR	2477S0050
	Extended	3-17/32 - 4-1/2	21-7/8	24	26-13/16	32-7/16	#5	1/2	2T-6SR	2577S0050
	XL	3-17/32 - 4-1/2	27	29-1/8	31-15/16	37-9/16	#5	1/2	2T-6SR	2777S0050
	3XL	3-17/32 - 4-1/2	37	39-1/8	41-5/16	47-9/16	#5	1/2	2T-6SR	2877S0050
m	Short	90.0 - 114.0	171.5	225.4	296.8	439.7	#5**	1/2*	2T-6SRM	2277S0050
	Extended	90.0 - 114.0	555.6	609.6	681.1	823.9	#5**	1/2*	2T-6SRM	2577S0050
	XL	90.0 - 114.0	685.0	739.7	811.2	954.0	#5**	1/2*	2T-6SRM	2777S0050
	3XL	90.0 - 114.0	939.0	993.7	1065.2	1208.0	#5**	1/2*	2T-6SRM	2877S0050

*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK



Series

Series	Length	D ₁	Body				Shank			Insert
			L ₂	L ₄	L ₃	L ₁	MT	P ₂	R	
m	Standard	90.0 - 114.0	273.1	327.0	398.5	541.3	#5**	1/2*	2T-6SRM	2477S0050

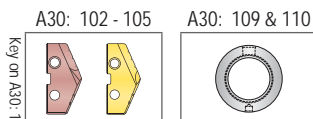
*Metric thread to BSP and ISO 7-1

**Per ISO 296 type BEK

Connection Accessories

					Recommended Tightening Torque*
7619-IP25-1	-	8IP-25	-	-	155.0 in-lbs (1750 N-cm)

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

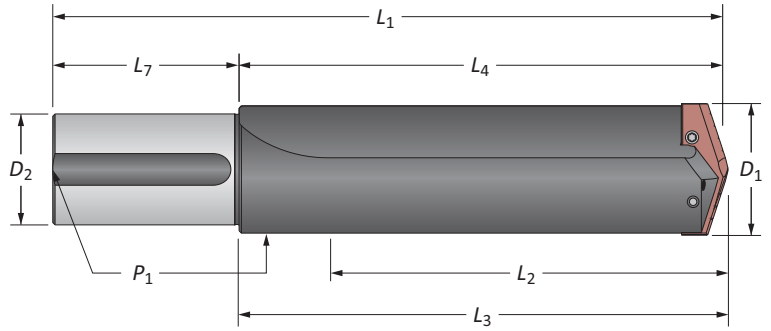


i = Imperial (in)
m = Metric (mm)

Screws sold in quantities of 10

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

7 Series | Straight Shank



Specifications

Length	D ₁	Body				Shank			Part No.
		L ₂	L ₄	L ₃	L ₁	D ₂	L ₇	P ₁	
Short	3-17/32 - 4-1/2	6-3/4	8-7/8	9-1/8	13-7/8	3	5	1/2	227752000
Standard	3-17/32 - 4-1/2	10-3/4	12-7/8	13-1/8	17-7/8	3	5	1/2	247752000
Extended	3-17/32 - 4-1/2	21-7/8	24	24-1/4	29	3	5	1/2	257752000
XL	3-17/32 - 4-1/2	27	29-1/8	29-3/8	34-1/8	3	5	1/2	277752000
3XL	3-17/32 - 4-1/2	37	39-1/8	39-3/8	44-1/8	3	5	1/2	297752000

DRILLING

BORING

REAMING

BURNISHING

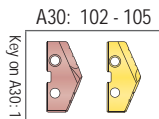
THREADING

SPECIALS

Connection Accessories

					Recommended Tightening Torque*
Insert Screw	Nylon Locking Screw	Insert Driver	Direct Torque Insert Driver	Retracement Tool	155.0 in-lbs (1750 N-cm)
7619-IP25-1	-	8IP-25	-	-	

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



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

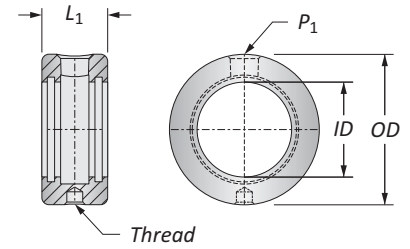
Screws sold in quantities of 10

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

7/8 Series | Rotary Coolant Adapters | Torx® Plus Screws

Rotary Coolant Adapter

	ID	OD	L ₁	Threads	P ₁	Kit Part No.**	Replacement
i	2-1/4	3-3/4	1-3/4	1/2-13	1/2	2T1-6SR	2T1-6OR-10
m	57.15	95.27	44.45	M12 x 1.75	1/2*	2T1-6SR	2T1-6OR-10



*Thread to BSP and ISO 7-1

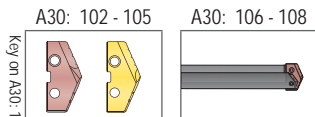
**RCA Repair Kit includes (2) O-rings, (2) snap rings, and (2) thrust washers

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

Connection Accessories

Item	Description	Part No.	Replacement	Tightening Torque*
	Insert Screw	7619-IP25-1	-	155.0 in-lbs (1750 N-cm)
	Nylon Locking Screw	-	-	
	Insert Driver	8IP-25	-	
	Replacement Driver	-	-	

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

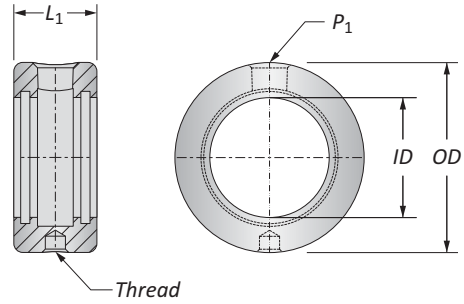


i = Imperial (in)
m = Metric (mm)
 Inserts sold separately
 Screws sold in packs of 10
 O-rings sold in packs of 10

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

Rotary Tool Adapter (RCA)

Morse Taper Shanks



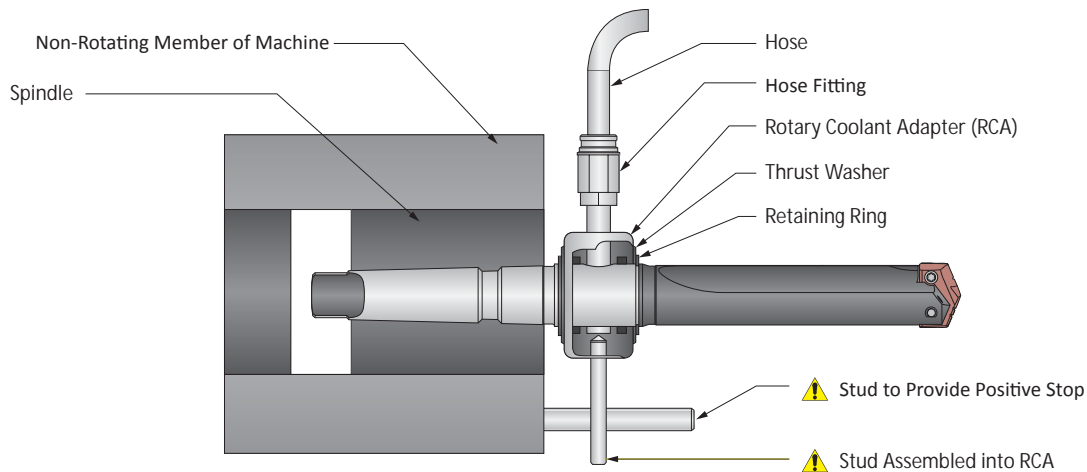
Imperial Series	ID	OD	L ₁	Thread	P ₁	Pressure	Recommended RPM	Kit Part No.**	Recommen	
i	Y, Z, 0	3/4	1-3/4	7/8	5/16 - 18	1/8	2000SR	3500	2T1-2SR	2T1-2OR-10
	1, 2	1	2-1/8	1-1/8	5/16 - 18	1/8	2000SR	2500	2T1-3SR	2T1-3OR-10
	2, 3, 4	1-1/4	2-1/2	1-3/8	3/8 - 16	1/4	2000SR	2000	2T1-4SR	2T1-4OR-10
	3, 4	1-3/4	3	1-3/8	3/8 - 16	1/4	2000SR	1500	2T1-5SR	2T1-5OR-10
	5, 7	2-1/4	3-3/4	1-3/4	1/2 - 13	1/2	2000SR	1100	2T1-6SR	2T1-6OR-10
m	Y, Z, 0	19.05	44.45	22.23	M8 x 1.25	1/8*	2000SR	3500	2T1-2SR	2T1-2OR-10
	1, 2	25.40	53.97	28.57	M8 x 1.25	1/8*	2000SR	2500	2T1-3SR	2T1-3OR-10
	2, 3, 4	31.75	63.50	34.92	M10 x 1.50	1/4*	2000SR	2000	2T1-4SR	2T1-4OR-10
	3, 4	44.45	76.20	34.92	M10 x 1.50	1/4*	2000SR	1500	2T1-5SR	2T1-5OR-10
	5, 7	57.15	95.27	44.45	M12 x 1.75	1/2*	2000SR	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

Max recommended pressure is 600 PSI (42 bar)

Recommendations above are based on water and oil based coolants



i = Imperial (in)

m = Metric (mm)

O-rings sold in packs of 10

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.

DRILLING

BORING

REAMING

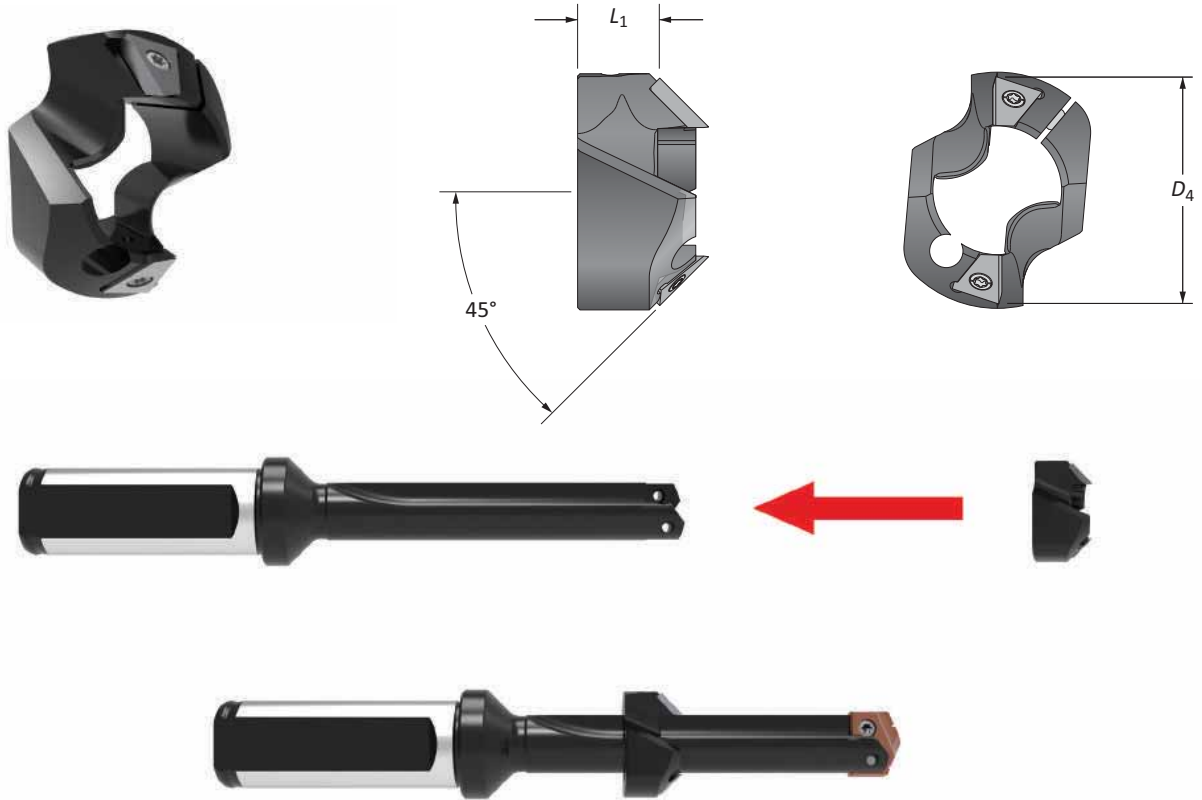
BURNISHING

THREADING

SPECIALS

T-A® R 45 Chamfer Ring

Straight Flute Holders



Holder Series	D ₁ Range	Chamfer Ring		Product Code	Insert	Insert Screw	Holder	Chamfer Screw	Holder
		D ₄	L ₁						
0	0.5118 - 0.6890	13/16	0.676	T-A R 45 00	T-ACRI-45-B-C5A	7255-IP8-1	8IP-8	7375-IP9-1	8IP-9
1	0.6900 - 0.8540	1-3/64	51/64	T-A R 45 01	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-A R 45 01.5	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-A R 45 02	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



T-A R 45 Chamfer Ring 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

Recommended Drill Bit Parameters

HSS Inserts

Material	Drill Size	SS Grade	SIZING		Feed Rate (IPM) by Diameter	
			1/2"	3/4"	3/4"	1 1/4"
Steel	Free Cutting Steel 1118, 1215, 12L14, etc.	HSS	200	325	0.008	0.012
		HSS	180	300	0.007	0.011
		HSS	160	280	0.006	0.010
	Tool Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	HSS	170	290	0.008 ❖	0.010
		HSS	160	275	0.007 ❖	0.010
		HSS	150	260	0.006 ❖	0.009
		HSS	140	240	0.005 ❖	0.009
	Premium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	HSS	160	275	0.007	0.010
		HSS	150	260	0.006	0.009
		HSS	140	240	0.006	0.009
		SC	130	225	0.005	0.008
	Alloy Steel 4140, 5140, 8640, etc.	HSS	150	240	0.007	0.010
HSS		140	225	0.006	0.009	
HSS		130	210	0.006	0.009	
SC		120	195	0.005	0.008	
SC		110	180	0.004	0.007	
Premium Sintered Alloy 4340, 4330V, 300M, etc.	SC	80	125	0.006 ❖	0.009	
	SC	60	100	0.005 ❖	0.008	
	SC	50	80	0.004 ❖	0.007	
Structural Steel A36, A285, A516, etc.	HSS	140	235	0.008 ❖	0.011	
	HSS	120	190	0.006 ❖	0.010	
	SC	100	160	0.005 ❖	0.009	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	SC	80	125	0.004	0.007	
	SC	60	105	0.004	0.007	
S	Premium Alloy Hastelloy B, Inconel 600, etc.	SC	30	45	0.004 ❖	0.007
		SC	25	40	0.004 ❖	0.006
	Premium Alloy	SC	35	55	0.004 ❖	0.007
		SC	30	50	0.003 ❖	0.006
	Precision Alloy S82	SC	75	110	0.006 ❖	0.008
SC	60	100	0.005 ❖	0.007		
K	Sintered Steel 400 Series 416, 420, etc.	SC	75	110	0.006 ❖	0.008
		SC	60	100	0.005 ❖	0.007
	Sintered Steel 300 Series 304, 316, 17-4PH, etc.	SC	75	110	0.003 ❖	0.007
		SC	60	100	0.003 ❖	0.006
	Super Sintered Steel	SC	60	85	0.003 ❖	0.007
SC	50	70	0.003 ❖	0.006		
P	Premium Hardox, AR400, T-1, etc.	SC	45	70	0.003 ❖	0.006
		SC	35	45	0.002 ❖	0.005
		-	-	-	0.004 ❖	0.006
	Premium Steel	SC	50	95	-	-
SC	35	45	0.002 ❖	0.005		
K	Nodular, Grey, Ductile Cast Iron	HSS	170	290	0.008	0.012
		HSS	150	260	0.007	0.011
		HSS	130	225	0.006	0.009
		SC	110	190	0.005	0.008
		SC	90	155	0.005	0.007
P	Premium Inconel	HSS	600	-	0.009	0.015
		HSS	300	-	0.008	0.013
	Premium Inconel	HSS	600	900	0.005	0.013
		HSS	300	650	0.005	0.007
	Premium Inconel	SC	170	270	0.006	0.009
		SC	130	210	0.005	0.007
	Premium	HSS	300	470	0.007	0.011
Premium	SC	130	190	0.003 ❖	0.004	

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

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 Chart by Diameter				
45°/4° 15°/1°	31°/32° 1°/32°	17°/32° 1°/32°	12°/32° 2°/32°	21°/32° 4°/32°
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	0.010	0.012	0.014	0.018
0.008	0.010	0.012	0.014	0.018
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

Feed Rate Chart by Diameter

3-Flute Drill					
Feed Rate	0.90	0.85	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90

Recommended Speed and Feed

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

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

Formulas

- RPM** = revolutions per minute (rev/min)

where:
 RPM = revolutions per minute (rev/min)
 SFM = speed (ft/min)
 DIA = diameter of drill (inch)
- IPR** = inches per minute (in/min)

where:
 IPM = inches per minute (in/min)
 RPM = revolutions per minute (rev/min)
 IPR = feed rate (in/rev)
- SFM** = speed (ft/min)

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

Tool Failure can be prevented by:

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

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

Recommended Drill Bit Parameters

Carbide Inserts

Material	Insert Size	SS Grade	SIP	Feed Rate (RPM by Diameter)				
				3/8"	3/4"	1 1/2"	3 1/2"	
Free Cutting 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	
Stren 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, O-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	Hem Alloy Hastelloy B, Inconel 600, etc.	C2	120	0.004 ❖	0.007	0.009	0.011	
		C2	95	0.004 ❖	0.006	0.008	0.010	
	Titanium Alloy	C2	140	0.004 ❖	0.007	0.008	0.011	
		C2	110	0.003 ❖	0.006	0.007	0.009	
	Titanium Alloy S82	C2	240	0.005 ❖	0.006	0.007	0.009	
C2		180	0.004 ❖	0.005	0.006	0.008		
P	Stainless Steel 400 Series 416, 420, etc.	C2	240	0.007 ❖	0.009	0.012	0.014	
		C2	180	0.006 ❖	0.008	0.011	0.012	
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	C2	240	0.006 ❖	0.007	0.009	0.012	
		C2	180	0.005 ❖	0.006	0.008	0.009	
	Super Inert Stainless Steel	C2	125	0.005 ❖	0.007	0.008	0.010	
		C2	100	0.004 ❖	0.006	0.007	0.009	

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

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.

Material	Drill Diameter (in)	SS Grade	SFM	Feed Rate (IPR) by Diameter			
				3/16"	3/32"	1/8"	5/32"
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
	300 - 400	C1	150	0.004 ❖	0.006	0.009	0.011
Austenitic Steel	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
Aluminum	30	C2	975	0.009	0.015	0.018	0.023
	180	C2	730	0.008	0.013	0.016	0.020
	30	C2	1385	0.005	0.013	0.016	0.020
	180	C2	975	0.005	0.007	0.012	0.014
	100 - 200	C2	360	0.006	0.009	0.012	0.015
	200 - 250	C2	300	0.005	0.007	0.009	0.011
	100	C2	650	0.007	0.011	0.013	0.018
	60	C2	420	0.003 ❖	0.004	0.007	0.010

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Recommended Speed and Feed Formulas

	0.75"	0.85"	0.90"	0.95"	1.00"
Speed	0.90	0.85	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

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

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

<p>1. $RPM = \frac{SFM}{DIA}$</p> <p>where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch)</p>	<p>2. $IPR = \frac{RPM}{RPM}$</p> <p>where: IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)</p>	<p>3. $SFM = RPM \cdot DIA$</p> <p>where: SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch)</p>
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⚠️ Important Note: Tool failure can occur prematurely. Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

Recommended Feed Rates by Diameter

HSS Inserts

Material	Diameter (mm)	HSS Grade	Sizing			Feed Rate (mm/rev)		
			200	280	320	330	330	
Free Cutting 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	
	Tool 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
	Premium 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	
Sintered 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, O-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	Premium 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
	Premium 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	
K	Sintered 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
	Sintered 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 Sintered Steel	135 - 185	SC, PC	60	80	70	0.005	0.005
185 - 275		SC, PC	50	65	60	0.004	0.005	
P	High Speed Steel 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	-	-	-	-	-
	Premium 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
P	Premium Inconel	30	HSS	600	850	750	0.008	0.013
		180	HSS	300	450	400	0.008	0.013
	Premium Inconel	30	HSS	600	850	750	0.004	0.006
		180	HSS	300	450	400	0.008	0.013
	Premium Inconel	100 - 200	SC	170	250	220	0.006	0.011
		200 - 250	SC	130	190	170	0.005	0.007
	Premium	100	HSS	300	445	400	0.007	0.012
	Premium	60	SC	130	165	150	0.002 ❖	0.003

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

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.

Speed Range Chart by Diameter				
45°/15°	31°/15°	17°/13°/32°	12°/17°/32°	21°/17°/32°
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

Tool Selection Chart

	Holder Length				
	1.00	1.50	2.00	2.50	3.00
Speed	0.90	0.85	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90

Recommended Speed and Feed

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

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

Formulas

- RPM** = revolutions per minute (rev/min)

where:
 RPM = revolutions per minute (rev/min)
 SFM = speed (ft/min)
 DIA = diameter of drill (inch)
- IPR** = inches per minute (in/min)

where:
 IPM = inches per minute (in/min)
 RPM = revolutions per minute (rev/min)
 IPR = feed rate (in/rev)
- SFM** = speed (ft/min)

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

Tool Selection Chart Tool failure can occur depending on the application.

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

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

Recommended Drill Bit Parameters by Material

Carbide Inserts

Material	Drill Size (mm)	Insert Size (mm)	Insert			Feed Rate (mm/min) by Diameter					
			Yellow	Grey	Blue	3mm	3.3mm	4.5mm	3.1mm	1.3mm	
Free Cutting Steel 1118, 1215, 12L14, etc.	100 - 150	C5	320	420	375	0.008	0.012	0.015	0.018	0.021	
	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	
	Tool Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	C5	300	390	360	0.008 ❖	0.010	0.013	0.017	0.019
		125 - 175	C5	260	340	295	0.007 ❖	0.010	0.013	0.016	0.018
		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
	Premium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	C5	260	340	295	0.007	0.010	0.013	0.016	0.018
		175 - 225	C5	240	310	275	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	180	230	205	0.005	0.008	0.011	0.014	0.016
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	C5	250	325	285	0.007	0.010	0.013	0.016	0.018
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	
Sintered Alloy 4340, 4330V, 300M, etc.	225 - 300	C5	160	200	180	0.006 ❖	0.009	0.010	0.012	0.015	
	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 A36, A285, A516, etc.	100 - 150	C5	240	310	275	0.008 ❖	0.011	0.014	0.016	0.018	
	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 H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	C5	160	220	190	0.004	0.007	0.009	0.011	0.013	
	200 - 250	C5	120	170	145	0.004	0.007	0.009	0.011	0.013	
S	Premium Alloy Hastelloy B, Inconel 600, etc.	140 - 220	C2	80	105	90	0.004 ❖	0.007	0.009	0.011	0.013
		220 - 310	C2	60	85	70	0.004 ❖	0.006	0.008	0.010	0.012
	Premium 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 S82	185 - 275	C2	160	210	185	0.007 ❖	0.006	0.011	0.014	0.016	
	275 - 350	C2	120	160	140	0.006 ❖	0.008	0.010	0.012	0.014	
P	Sintered Steel 400 Series 416, 420, etc.	185 - 275	C2	160	210	185	0.007 ❖	0.008	0.011	0.014	0.016
		275 - 350	C2	120	160	140	0.006 ❖	0.007	0.010	0.012	0.014
	Sintered Steel 300 Series 304, 316, 17-4PH, etc.	135 - 185	C2	160	210	185	0.005 ❖	0.007	0.009	0.010	0.012
		185 - 275	C2	120	160	140	0.004 ❖	0.006	0.008	0.009	0.010
	Super Sintered 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

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.

Material	Drill Diameter (mm)	Grade	SIP			Feed Rate (IPR) by Diameter				
			75	115	100	3/8"	3/4"	1 1/4"	1 3/4"	2"
Hardox, AR400, T-1, etc.	400	C5	75	115	100	0.003 ❖	0.006	0.008	0.010	0.012
	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
	300 - 400	C5	110	140	130	0.004 ❖	0.006	0.009	0.011	0.013
Ductile Cast Iron	400 - 500	C5	65	85	75	0.003 ❖	0.005	0.008	0.009	0.011
	120 - 150	C2, C3	320	460	415	0.008	0.012	0.015	0.019	0.023
Ductile Cast Iron	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
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
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 our Application Engineering department for assistance when machining these materials

Feed Rate and Feed Recommendations

	Holder	Holder	Holder	Holder	Holder
Speed	0.90	0.85	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

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

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

<p>1. $RPM = \frac{SFM}{DIA} \cdot 12$</p> <p>where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch)</p>	<p>2. $IPR = \frac{RPM}{RPM} \cdot 12$</p> <p>where: IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)</p>	<p>3. $SFM = RPM \cdot \frac{DIA}{12}$</p> <p>where: SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch)</p>
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⚠ Tool failure can cause injury or death

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

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

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Recommended Drill Bit Geometries for American Inco

HSS Inserts | Flat Bottom Geometry

Material	Range	HSS Grade	SPT				
			170	250	230	290	
Free Cutting 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	
	Tool 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
	Premium 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	
Sintered 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, O-2, S-3, etc.	150 - 200	SC	70	95	90	110	
	200 - 250	SC	50	80	75	95	
S	Titanium Alloy Hastelloy B, Inconel 600, etc.	140 - 220	SC	25	35	30	40
		220 - 310	SC	20	30	25	35
	Inconel 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	
K	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 Austenitic Stainless Steel	135 - 185	SC	65	90	85	110
185 - 275		SC	50	80	70	90	
P	High Speed Steel Hardox, AR400, T-1, etc.	400	SC	-	-	-	-
		500	SC	-	-	-	-
		600	N/A	-	-	-	-
Tool 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
P	Aluminum	30	HSS	520	750	650	-
		180	HSS	260	400	350	-
	Aluminum Alloy	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
Tool Steel	60	SC	115	150	130	170	

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

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 by Diameter					
3/8"	3/4"	1"	1 1/8"	1 1/2"	2"
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	0.006	0.007	0.009	0.010	0.012
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
0.004	0.006	0.007	0.009	0.010	0.011
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

Recommended Speed and Feed Parameters

	3/8"	3/4"	1"	1 1/8"	1 1/2"	2"
Speed	0.90	0.85	0.80	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90	0.90

Recommended Speed and Feed Example

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

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

Formulas

- RPM** = $\frac{SFM}{DIA}$

where:
 RPM = revolutions per minute (rev/min)
 SFM = speed (ft/min)
 DIA = diameter of drill (inch)
- IPR** = $\frac{RPM}{RPM}$

where:
 IPM = inches per minute (in/min)
 RPM = revolutions per minute (rev/min)
 IPR = feed rate (in/rev)
- SFM** = $\frac{RPM \cdot DIA}{12}$

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

Important Notes:

- 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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Recommended Feed Rates by Diameter

Carbide Inserts | Flat Bottom Geometry

Material	Diameter Range (mm)	Insert Grade	SPP				Feed Rate (mm/rev) by Diameter				
			1/2"	3/8"	1/4"	3/16"	3/8"	1/2"	3/4"	1"	
Free Cutting Steel 1118, 1215, 12L14, etc.	100 - 150	C2	270	380	325	425	0.007	0.010	0.013	0.015	
	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	
	Tool Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	C2	260	345	315	410	0.007 ❖	0.009	0.011	0.014
		125 - 175	C2	220	300	260	350	0.006 ❖	0.009	0.011	0.014
		175 - 225	C2	200	280	235	320	0.005 ❖	0.008	0.010	0.013
	Premium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	C2	180	240	215	285	0.004 ❖	0.008	0.010	0.013
		125 - 175	C2	220	300	260	350	0.006	0.009	0.011	0.014
		175 - 225	C2	200	280	240	320	0.005	0.008	0.010	0.013
		225 - 275	C2	180	240	210	285	0.005	0.008	0.010	0.013
	Alloy Steel 4140, 5140, 8640, etc.	275 - 325	C2	150	210	180	240	0.004	0.007	0.009	0.012
		125 - 175	C2	215	290	250	340	0.006	0.009	0.011	0.014
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	
Sintered Alloy 4340, 4330V, 300M, etc.	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	
	225 - 300	C2	140	170	160	220	0.005 ❖	0.008	0.009	0.010	
Structural Steel A36, A285, A516, 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	
	100 - 150	C2	205	265	240	325	0.007 ❖	0.009	0.012	0.014	
Tool Steel H-13, H-21, A-4, O-2, S-3, 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	
Cool Steel	150 - 200	C2	140	190	160	220	0.003	0.006	0.008	0.009	
	200 - 250	C2	100	150	120	160	0.003	0.006	0.008	0.009	
S	Premium Alloy Hastelloy B, Inconel 600, etc.	140 - 220	C2	70	90	80	110	0.003 ❖	0.006	0.008	0.009
		220 - 310	C2	50	70	60	80	0.003 ❖	0.005	0.007	0.009
	Premium 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 S82	185 - 275	C2	140	120	165	130	0.006 ❖	0.006	0.010	0.012	
	275 - 350	C2	110	90	125	105	0.005 ❖	0.005	0.009	0.010	
P	Sintered Steel 4PP Series 416, 420, etc.	185 - 275	C2	140	180	165	210	0.006 ❖	0.008	0.010	0.012
		275 - 350	C2	110	140	125	160	0.005 ❖	0.007	0.009	0.010
	Sintered Steel 3PP Series 304, 316, 17-4PH, etc.	135 - 185	C2	90	120	110	130	0.005 ❖	0.007	0.008	0.010
		185 - 275	C2	70	90	80	105	0.004 ❖	0.006	0.007	0.009
	Super Premium Sintered 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

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.

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Material	Drill Diameter (mm)	Drill Grade	SIP				Feed Rate (IPR) by Diameter			
			3/8"	1/2"	3/4"	1"	3/8"	1/2"	3/4"	1"
Hardox, AR400, T-1, etc.	400	C2	65	100	85	130	0.003 ❖	0.004	0.006	0.008
	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
	300 - 400	C2	100	125	110	135	0.004 ❖	0.006	0.007	0.009
Ductile Cast Iron	400 - 500	C2	60	75	65	110	0.003 ❖	0.005	0.06	0.007
	120 - 150	C2	270	405	360	450	0.007	0.010	0.013	0.016
Ductile Cast Iron	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
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
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 our Application Engineering department for assistance when machining these materials

Feed Rate and Feed Recommendations

	3/8"	1/2"	3/4"	1"	3"
Speed	0.90	0.85	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

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

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

Formulas

<p>1. $SFM = RPM \cdot DIA$</p> <p>where:</p> <ul style="list-style-type: none"> RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch) 	<p>2. $IPR = RPM \cdot DIA$</p> <p>where:</p> <ul style="list-style-type: none"> IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev) 	<p>3. $RPM = SFM / DIA$</p> <p>where:</p> <ul style="list-style-type: none"> SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch)
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⚠️ Tool Failure can cause Perforation to Occur

- 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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Recommended Speeds and Feeds by Diameter and Material

Carbide Inserts | Diamond Coating

Material	Coating	SFM	Feed Rate (IPR) by Diameter				
			3/16" - 1/2"	3/8" - 1 1/8"	1/2" - 1 1/2"	1 3/8" - 2"	
Polymer Coated	Carbon Steel	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 Fiber	N2	1000 - 1500	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Fiber	N2	1000 - 1500	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Resin	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
	Poly Resin	N2	250 - 1000	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Aluminum Resin	N2	250 - 1000	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Polymer Resin	N2	250 - 1000	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Resin Resin	N2	250 - 1000	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
Steel	Aluminum	N2	1000	0.008	0.013	0.016	0.020
	Steel 118	N2	1000	0.008	0.013	0.016	0.020
	118 Steel 15	N2	850 - 1000	0.008	0.013	0.016	0.020
	15 Steel 2	N2	650 - 850	0.008	0.013	0.016	0.020
	2 Steel 25	N2	500 - 650	0.008	0.013	0.016	0.020
	25 Steel	N2	200 - 500	0.008	0.013	0.016	0.020
	Resin	N2	250 - 500	0.008	0.013	0.016	0.020
	Iron	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 Alloy	N2	100 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Steel Alloy	N2	100 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Aluminum Alloy	N2	100 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
Permit	Carbon Green	N2	50 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Permit Green	N2	50 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014
	Permit Resin	N2	50 - 250	0.004 - 0.006	0.008 - 0.010	0.010 - 0.012	0.012 - 0.014

Speed and Feed Adjustment

	Diameter			
	3/16"	1/4"	3/8"	1/2"
Speed	0.90	0.85	0.80	0.80
Feed	-	0.95	0.90	0.90

Recommended Speed and Feed Example

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

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

$$0.008 \cdot 0.90 = 0.007 \text{ IPR}$$

⚠️ Important: Coolant requirements for T-A® holders

- 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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⚠️ 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	Drill Size	Lead	* Theo %	Probable Hole Size	Probable Hole Size	** Probable Hole Size
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%

Probable Hole Size

Tap Size	Drill Size	Lead	Theo %	Probable Hole Size	Probable Hole Size	Probable Hole Size
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:

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

Notes

- The above tap drill information represents probable thread percentages for the standard tap drills stocked at Allied Machine. Special insert diameters may be required in order to meet a user specific percentage of thread requirements.
- The .003 probable mean oversize hole condition is based on optimum cutting conditions. Probable percent of full thread may vary based on less ideal cutting conditions.
- The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.

Formulas

1. $RPM = \frac{SFM}{DIA}$	where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch)
2. $IPR = \frac{IPM}{RPM}$	where: IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)
3. $SFM = \frac{RPM \times DIA}{12}$	where: SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch)
4. $Thrust = \frac{IPR \times K_m}{DIA}$	where: Thrust = axial thrust (lbs) IPR = feed rate (in/rev) DIA = diameter of drill (inch) K_m = specific cutting energy (lbs/in ²)
5. $Tool Power = \frac{IPR \times RPM \times K_m \times DIA^2}{12}$	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)

Specific Cutting Energy

Type of Material	Drill Size	K_m (lbs/in ²)
Carbon and Alloy Steel	85 - 200 BHN	0.79
	200 - 275 BHN	0.94
	275 - 375 BHN	1.00
Tempered Alloy Steel	375 - 425 BHN	1.15
	-	1.44
Stainless Steel	135 - 275 BHN	0.94
	30 - 45 RC	1.08
Titanium	100 - 200 BHN	0.50
	200 - 300 BHN	1.08
Tool Steel	20 - 80 RB	0.43
	80 - 100 RB	0.72
Aluminum Alloy	-	0.72
Aluminum Alloy	-	0.22
Aluminum Alloy	-	0.16

Coolant Recommendations | Imperial (inch)

HSS Drill Inserts

Material	Pressure or Flow Rate	30°	33°	23°	1°	1°	2°	3°	
		PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM
Free Cutting Steel 1118, 1215, 12L14, etc.	PSI	175 - 185	100 - 120	105 - 140	80 - 115	75 - 100	40 - 50	65 - 90	
	GPM	2.5 - 2.6	2.8 - 3.0	4.4 - 5.2	7 - 8	12 - 14	30 - 33	38 - 44	
	Tool Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	PSI	165 - 170	75 - 90	75 - 95	60 - 80	55 - 75	30 - 40	50 - 65
		GPM	2.4 - 2.5	2.4 - 2.6	3.7 - 4.2	6 - 7	11 - 12	26 - 30	33 - 38
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	PSI	160 - 165	70 - 85	70 - 90	55 - 75	50 - 70	30 - 40	50 - 65
		GPM	2.3 - 2.4	2.3 - 2.6	3.7 - 4.2	5 - 6	10 - 12	26 - 30	33 - 38
	Alloy Steel 4140, 5140, 8640, etc.	PSI	160 - 165	65 - 75	65 - 80	50 - 70	45 - 60	30 - 35	40 - 50
		GPM	2.3 - 2.4	2.2 - 2.4	3.5 - 3.9	5 - 6	10 - 11	26 - 28	30 - 33
	Sintered Alloy 4340, 4330V, 300M, etc.	PSI	150 - 155	55 - 60	45 - 50	25 - 30	25 - 30	20 - 25	40 - 50
		GPM	2.3 - 2.4	2.1 - 2.2	2.9 - 3.1	4 - 5	7 - 8	21 - 23	23 - 26
	Structural Steel A36, A285, A516, etc.	PSI	160 - 165	75 - 85	65 - 80	40 - 55	40 - 50	25 - 30	40 - 50
		GPM	2.3 - 2.4	2.4 - 2.6	3.5 - 3.9	5 - 6	9 - 10	23 - 26	30 - 33
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	PSI	150 - 155	55 - 60	45 - 50	25 - 30	25 - 30	20 - 25	25 - 30	
	GPM	2.3 - 2.4	2.1 - 2.2	2.9 - 3.1	4 - 5	7 - 8	21 - 23	23 - 26	
S Hastelloy Hastelloy B, Inconel 600, etc.	PSI	150 - 155	60 - 65	50 - 55	30 - 35	25 - 30	25 - 30	44	
	GPM	2.3 - 2.4	2.2 - 2.3	3.1 - 3.2	4 - 5	7 - 8	23 - 26	33	
	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	
S Titanium Alloy S82	PSI	150 - 155	60 - 65	50 - 55	30 - 35	25 - 30	25 - 30	44	
	GPM	2.3 - 2.4	2.2 - 2.3	3.1 - 3.2	4 - 5	7 - 8	23 - 26	33	
	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	
S Stainless Steel 400 Series 416, 420, etc.	PSI	171	86	75	55	51	29	45	
	GPM	3	3	4	6	10	26	31	
	PSI	171	86	75	55	51	29	45	
	GPM	3	3	4	6	10	26	31	
S Stainless Steel 300 Series 304, 316, 17-4PH, etc.	PSI	171	86	75	55	51	29	45	
	GPM	3	3	4	6	10	26	31	
	PSI	171	86	75	55	51	29	45	
	GPM	3	3	4	6	10	26	31	
S Super Austenitic Stainless Steel	PSI	171	86	75	55	51	29	45	
	GPM	3	3	4	6	10	26	31	
	PSI	155	61	51	29	29	25	29	
	GPM	2	2	3	5	8	23	26	
S Hardox, AR400, T-1, etc.	PSI	155	61	51	29	29	25	29	
	GPM	2	2	3	5	8	23	26	
	PSI	155	61	51	29	29	25	29	
	GPM	2	2	3	5	8	23	26	
S Invar Steel	PSI	155	61	51	29	29	25	29	
	GPM	2	2	3	5	8	23	26	
	PSI	160	65	61	41	35	29	35	
	GPM	2	2	3	5	9	26	28	
K Invar Iron	PSI	160	65	61	41	35	29	35	
	GPM	2	2	3	5	9	26	28	
	PSI	210	180	230	159	125	51	80	
	GPM	3	4	6	9	16	33	42	
K Invar Iron	PSI	210	180	230	159	125	51	80	
	GPM	3	4	6	9	16	33	42	
	PSI	186	120	140	115	100	51	90	
	GPM	2.5	3	5	8	14	33	44	
K Invar Iron	PSI	159	65	61	41	35	29	35	
	GPM	2	2	3	5	9	26	28	
	PSI	186	120	140	115	100	51	90	
	GPM	2.5	3	5	8	14	33	44	

Recommended Coolant Flow Rates

Pressure or Flow Rate	Coolant Flow Rate				
	1.3	1.5	2	2	3
PSI	1.3	1.5	2	2	3
GPM	1.3	1.5	2	2	3

Recommended Coolant Flow Rate

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

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

Important Notes

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

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

Material	Pressure or Flow Rate	320 PSI	330 PSI	230 PSI	1 PSI	1.33 PSI	
Steel	Free Cutting Steel 1118, 1215, 12L14, etc.	PSI 195 GPM 2.6	140 3.3	160 5.5	140 9	155 18	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	PSI 180 GPM 2.5	105 2.9	105 4.4	110 8	115 15	
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	PSI 175 GPM 2.5	100 2.8	90 4.1	70 7	75 13	
	Alloy Steel 4140, 5140, 8640, etc.	PSI 165 GPM 2.4	85 2.6	100 4.3	75 6	70 12	
	Stainless Alloy 4340, 4330V, 300M, etc.	PSI 175 GPM 2.4	115 2.3	105 3.2	75 5	70 8	
	Structural Steel A36, A285, A516, etc.	PSI 175 GPM 2.5	115 3.0	105 4.4	75 6	70 12	
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	PSI 155 GPM 2.4	60 2.2	55 3.2	40 5	35 8	
	S	Special Alloy Hastelloy B, Inconel 600, etc.	PSI 247 GPM 3	160 4	174 6	160 9	130 16
		Titanium Alloy	PSI 247 GPM 3	160 4	174 6	160 9	130 16
		Titanium Alloy S82	PSI 247 GPM 3	160 4	174 6	160 9	130 16
		Aluminum	Aluminum Steel 400 Series 416, 420, etc.	PSI 329 GPM 3	239 4	260 7	250 12
	Aluminum Steel 300 Series 304, 316, 17-4PH, etc.		PSI 329 GPM 3	239 4	260 7	250 12	190 20
	Stainless Steel		PSI 329 GPM 3	239 4	260 7	250 12	190 20
	K		Hardox Hardox, AR400, T-1, etc.	PSI 210 GPM 3	75 2	70 4	49 5
Duraneel Steel			PSI 210 GPM 3	75 2	70 4	49 5	45 10
Special Alloy S82			PSI 225 GPM 3	104 3	90 4	90 7	80 13
Grey Cast Iron		PSI 225 GPM 3	104 3	90 4	90 7	80 13	
Titanium	Titanium	PSI 350 GPM 4	319 5	315 8	284 12	200 20	
	Aluminum Titanium	PSI 350 GPM 4	319 5	315 8	284 12	200 20	
	Titanium Bronze	PSI 290 GPM 3	239 4	239 7	220 11	174 19	
	Aluminum	PSI 350 GPM 4	319 5	315 7	284 12	200 20	
	Aluminum	PSI 290 GPM 3	239 4	239 7	220 11	174 19	
	Special	Aluminum	PSI 350 GPM 4	319 5	315 7	284 12	200 20
		Aluminum	PSI 290 GPM 3	239 4	239 7	220 11	174 19

Pressure and Flow Rate Recommendations

Pressure or Flow Rate	Holder Length				
	1.3	1.5	2	3	
Pressure or Flow Rate	1.3	1.5	2	2	3

Recommended Flow Rate Example

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

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

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
 - Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.
- Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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.

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

Recommended Drill Bit Diameters

HSS Inserts

Material	Drill Diameter	HSS Grade	Insert		Feed Rate (mm/rev) by Diameter		
			1/2" (12.7mm)	3/8" (9.5mm)	12.5mm	17.5mm	
Steel	Free Cutting 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
	Tool 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
	Premium 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	
Austenitic 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, O-2, S-3, etc.	150 - 200	SC	24	38	0.10	0.18	
	200 - 250	SC, PC	18	32	0.10	0.18	
S	Titanium 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
	Invar 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	
K	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 Austenitic Stainless Steel	135 - 185	SC, PC	18	26	0.08 ❖	0.18
185 - 275		SC, PC	15	22	0.08 ❖	0.15	
P	High Speed Steel 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	-	-	-	-
	Tool 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
P	Aluminum	30	HSS	183	-	0.23	0.38
		180	HSS	91	-	0.20	0.33
	Inconel	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

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				
1753 2437	2431 3537	3531 4737	4735 5537	5533 11437
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	0.25	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

Feed Rate (mm/rev) Speed (M/min) Feed (mm/rev)

	Holder	30	30	30	30
Speed	0.90	0.85	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90

Recommended Speed and Feed Rate

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

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

Formulas

- RPM** = revolutions per minute (rev/min)
M/min = speed (M/min)
DIA = diameter of drill (mm)
- mm/min** = mm per minute (mm/min)
RPM = revolutions per minute (rev/min)
mm/rev = feed rate (mm/rev)
- M/min** = speed (M/min)
RPM = revolutions per minute (rev/min)
DIA = diameter of drill (mm)

Tool holder can cause vibration and chatter

- 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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Recommended Drill Flutes for Carbide Inserts

Carbide Inserts

Material	Drill Size Range	SS Grade	Insert Size	Feed Rate (mm/rev) by Diameter				
				12.75	17.53	17.54	24.11	
Free Cutting 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
	Premium 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	
Sintered 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, O-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	Premium Alloy Hastelloy B, Inconel 600, etc.	C2	37	0.10 ❖	0.18	0.23	0.28	
		C2	29	0.10 ❖	0.15	0.20	0.25	
	Premium Alloy	C2	42	0.10 ❖	0.18	0.21	0.27	
		C2	33	0.08 ❖	0.15	0.18	0.23	
	AeroSpace Alloy S82	C2	73	0.12 ❖	0.16	0.18	0.22	
C2		56	0.10 ❖	0.14	0.16	0.19		
P	Sintered Steel 400 Series 416, 420, etc.	C2	73	0.18 ❖	0.23	0.30	0.36	
		C2	56	0.15 ❖	0.20	0.28	0.30	
	Sintered Steel 300 Series 304, 316, 17-4PH, etc.	C2	73	0.14 ❖	0.18	0.24	0.29	
		C2	56	0.12 ❖	0.16	0.22	0.24	
	Super Premium Sintered Steel	C2	38	0.12 ❖	0.17	0.22	0.26	
		C2	30	0.10 ❖	0.15	0.18	0.22	

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

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.

Material	Drill Diameter (mm)	SS Grade	Insert Size (mm)	Feed Rate (mm/rev) by Diameter				
				12.5	17.5	24.5	35	
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	
	Structural 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
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	
Aluminum	30	C2	300	0.23	0.38	0.46	0.58	
		C2	225	0.20	0.33	0.40	0.50	
	6061	C2	426	0.12	0.33	0.40	0.50	
		C2	300	0.12	0.18	0.30	0.35	
	7075	C2	110	0.15	0.24	0.30	0.38	
		C2	90	0.12	0.18	0.23	0.28	
	100	C2	200	0.18	0.27	0.33	0.45	
2024	C2	130	0.07	0.10	0.18	0.26		

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

Recommended Speed and Feed Parameters

Speed	Cooler Penetration				
	0.90	0.85	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

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

Formulas

<p>1. $RPM = \frac{31.8 \cdot V}{D}$</p> <p>where:</p> <ul style="list-style-type: none"> RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm) 	<p>2. $mm/min = RPM \cdot mm/rev$</p> <p>where:</p> <ul style="list-style-type: none"> mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev) 	<p>3. $V = \frac{RPM \cdot DIA}{3.14}$</p> <p>where:</p> <ul style="list-style-type: none"> M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm)
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⚠️ Important Note: Tool failure can occur during dry drilling.

- 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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Recommended Drill Sizes for HSS Inserts

HSS Inserts

Material	Insert Size	HSS Grade	Insert Type			Feed Rate Recommendation by Diameter		
			61	85	79	12.5	17.5	
Steel	Austenitic 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
	Tool 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
	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
	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	
Stren 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, O-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	Titanium 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
	Inconel 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	
K	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 Austenitic Steel	135 - 185	SC, PC	18	24	21	0.08 ❖	0.18
185 - 275		SC, PC	15	20	18	0.08 ❖	0.15	
P	High Speed Steel 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	-	-	-	-	-
	Tool 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
P	Aluminum	30	HSS	183	259	229	0.20	0.33
		180	HSS	91	137	122	0.20	0.33
	Aluminum Bronze	30	HSS	183	259	229	0.10	0.15
		180	HSS	91	137	122	0.20	0.33
	Aluminum Iron	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

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				
1753 2437	2431 3537	3531 4737	4735 5537	5533 11437
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	0.25	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

Feed Rate (mm/rev) Speed (M/min) Feed (mm/rev)

	Holder	30	30	30	30
Speed	0.90	0.85	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90

Recommended Speed and Feed

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

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

Formulas

- RPM** = revolutions per minute (rev/min)
M/min = speed (M/min)
DIA = diameter of drill (mm)
- mm/min** = mm per minute (mm/min)
RPM = revolutions per minute (rev/min)
mm/rev = feed rate (mm/rev)
- M/min** = speed (M/min)
RPM = revolutions per minute (rev/min)
DIA = diameter of drill (mm)

Tool holders can only be used with T-A® holders.

- 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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Recommended Feed Rates by Material

Carbide Inserts

Material	Insert Size	Grade	Insert			Feed Rate (mm/rev) by Diameter					
			1/2"	3/8"	1/4"	12.5mm	17.5mm	24mm	35mm	47mm	
Free Cutting 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	
	Tool 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
	Premium 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	
Sintered 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, O-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	Premium 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
	Premium 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	
P	Sintered 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
	Sintered 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 Premium Sintered 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

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.

Material	Diameter (mm)	Grade	Insert			Feed Rate (mm/rev) by Diameter				
			12mm	17mm	24mm	30mm	35mm	40mm	47mm	
Steel Hardox, AR400, T-1, etc.	400	C5	23	35	30	0.07	0.12	0.20	0.25	0.30
	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
	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	
Ductile Cast Iron	120 - 150	C2, C3	98	141	127	0.20	0.30	0.38	0.48	0.58
	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
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
	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
	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

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

Recommended Speed and Feed Recommendations

	12mm	17mm	24mm	30mm	35mm
Speed	0.90	0.85	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

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

<p>1. $RPM = \frac{3.14 \cdot D \cdot N}{1000}$</p> <p>where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm)</p>	<p>2. $mm/min = RPM \cdot mm/rev$</p> <p>where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev)</p>	<p>3. $N = \frac{M/min}{D}$</p> <p>where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm)</p>
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⚠ Tool failure can cause secondary damage

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

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

DRILLING
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BURISHING
THREADING
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Recommended Feed Rates per Revolution

HSS Inserts | Flat Bottom Geometry

Material	Insert Size (mm)	HSS Grade	Feed Rate (mm/rev)				
			0.075	0.125	0.175	0.225	
Free Cutting 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	
	Tool 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
	Premium 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	
Sintered 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, O-2, S-3, etc.	150 - 200	SC	21	29	27	33	
	200 - 250	SC	15	24	23	28	
S	Titanium Alloy Hastelloy B, Inconel 600, etc.	140 - 220	SC	7	10	9	13
		220 - 310	SC	6	9	7	10
	Inconel Alloy	140 - 220	SC	10	14	12	16
		220 - 310	SC	8	12	11	14
	Titanium Alloy S82	185 - 275	SC	20	27	26	34
275 - 350	SC	15	24	21	28		
K	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 Austenitic Stainless Steel	135 - 185	SC	20	27	26	34
185 - 275	SC	15	24	21	28		
P	High Speed Steel Hardox, AR400, T-1, etc.	400	SC	-	-	-	-
		500	SC	-	-	-	-
		600	N/A	-	-	-	-
Tool Steels	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
P	Aluminum	30	HSS	160	228	198	-
		180	HSS	79	122	107	-
	Inconel	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
Tool Steel	60	SC	35	45	40	53	

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

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					
	12mm	17.5mm	24mm	35mm	47mm
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
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0.08	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

Feed Rate (mm/rev) by Diameter

	12mm	17.5mm	24mm	35mm	47mm
0.90	0.85	0.80	0.80	0.80	0.75
-	0.95	0.90	0.90	0.90	0.90

Recommended Speed and Feed

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

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

Formulas

- RPM** **mm/min**

where:
 RPM = revolutions per minute (rev/min)
 M/min = speed (M/min)
 DIA = diameter of drill (mm)
- 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)
- mm/min** **RPM** **DIA**

where:
 M/min = speed (M/min)
 RPM = revolutions per minute (rev/min)
 DIA = diameter of drill (mm)

Tool holder can cause injury or death

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

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

Recommended Feed Rates per Revolution

Carbide Inserts | Flat Bottom Geometry

Material	Insert Grade	Insert Size	Insert Width (mm)				Feed Rate (mm/rev) by Diameter			
			12.75	17.53	24.32	35.27	12.75	17.53	24.32	35.27
Free Cutting Steel 1118, 1215, 12L14, etc.	C2	82	110	98	126	0.17	0.26	0.32	0.39	
		73	94	85	110	0.15	0.24	0.30	0.35	
		67	88	76	102	0.13	0.22	0.28	0.32	
	Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	C2	79	102	94	117	0.17 ❖	0.22	0.28	0.37
			67	88	76	102	0.15 ❖	0.22	0.28	0.35
			61	81	70	93	0.13 ❖	0.19	0.26	0.32
	Premium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	C2	79	102	94	117	0.17 ❖	0.22	0.28	0.37
			67	88	76	102	0.15 ❖	0.22	0.28	0.35
			61	81	70	93	0.13 ❖	0.19	0.26	0.32
			55	70	64	81	0.11 ❖	0.19	0.26	0.32
	Alloy Steel 4140, 5140, 8640, etc.	C2	64	85	75	99	0.15	0.22	0.28	0.35
			59	79	67	91	0.13	0.19	0.26	0.32
55			70	61	81	0.13	0.19	0.26	0.32	
52			66	58	76	0.11	0.17	0.24	0.30	
44			58	50	67	0.09	0.15	0.22	0.28	
Sintered Alloy 4340, 4330V, 300M, etc.	C2	41	52	47	59	0.13 ❖	0.19	0.22	0.26	
		37	47	41	55	0.11 ❖	0.17	0.19	0.24	
		30	41	37	47	0.09 ❖	0.15	0.17	0.22	
Structural Steel A36, A285, A516, etc.	C2	62	81	72	93	0.17 ❖	0.24	0.30	0.35	
		52	66	58	76	0.13 ❖	0.22	0.28	0.30	
		47	61	53	70	0.11 ❖	0.19	0.25	0.26	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	C2	41	58	49	67	0.09	0.15	0.19	0.24	
		30	44	37	50	0.09	0.15	0.19	0.24	
S	C2	21	27	23	32	0.09 ❖	0.15	0.19	0.24	
		15	21	18	24	0.09 ❖	0.13	0.17	0.22	
	C2	26	33	28	40	0.08 ❖	0.14	0.17	0.20	
		21	29	25	30	0.08 ❖	0.12	0.15	0.18	
C2	43	37	50	40	0.15 ❖	0.17	0.25	0.30		
	33	28	38	32	0.13 ❖	0.15	0.23	0.25		
P	C2	43	56	50	64	0.15 ❖	0.20	0.25	0.30	
		33	43	38	49	0.13 ❖	0.18	0.23	0.25	
	C2	28	37	33	40	0.13 ❖	0.17	0.21	0.25	
		21	28	25	32	0.11 ❖	0.15	0.19	0.21	
	C2	22	29	26	33	0.10 ❖	0.14	0.17	0.20	
C2	17	22	19	26	0.08 ❖	0.12	0.15	0.17		

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

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.

Material	Drill Diameter (mm)	Grade	Insert				Feed Rate (mm/rev) by Diameter			
			12mm	17mm	24mm	35mm	12mm	17mm	24mm	35mm
Steel Hardox, AR400, T-1, etc.	400	C2	20	31	26	39	0.06	0.10	0.16	0.20
	500	C2	13	23	18	31	0.04	0.08	0.12	0.16
	600	C2	10	19	14	25	0.03	0.06	0.10	0.13
	300 - 400	C2	30	38	34	41	0.08	0.14	0.18	0.22
Ductile Cast Iron	400 - 500	C2	18	22	20	33	0.06	0.12	0.16	0.18
	120 - 150	C2	82	120	108	137	0.17	0.26	0.32	0.41
Aluminum	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
Titanium	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
Inconel	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
Copper	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
Aluminum	60	C2	68	105	85	117	0.04	0.06	0.08	0.12

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

Recommended Speed and Feed Recommendations

	0.90	0.85	0.80	0.80	0.75
Speed	0.90	0.85	0.80	0.80	0.75
Feed	-	0.95	0.90	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

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

<p>1. $RPM = \frac{3.14 \cdot D \cdot S}{1000}$</p> <p>where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm)</p>	<p>2. $mm/min = RPM \cdot mm/rev$</p> <p>where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev)</p>	<p>3. $S = \frac{RPM \cdot 1000}{3.14 \cdot D}$</p> <p>where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm)</p>
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⚠ Tool failure can occur. Pre-drill holes to depth.

- 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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Recommended Drill Sizes and Feed Rates

Carbide Inserts | Diamond Coating

Material	Coating	Diamond Coating	Feed Rate (mm/rev) by Diameter				
			10 - 12.5	13 - 17.5	18 - 24	25 - 35	
Polymer Composites	Carbon Fiber	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 Fiber	N2	305 - 450	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Fiber	N2	305 - 450	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	FRP	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
	Poly Resin	N2	76 - 305	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Thermoplastic 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	
Steel Composites	Aluminum	N2	305	0.20	0.33	0.41	0.51
	Steel 100	N2	305	0.20	0.33	0.41	0.51
	100 to Steel 150	N2	259 - 305	0.20	0.33	0.41	0.51
	150 to Steel 200	N2	198 - 259	0.20	0.33	0.41	0.51
	200 to Steel 250	N2	152 - 198	0.20	0.33	0.41	0.51
	250 to Steel	N2	61 - 152	0.20	0.33	0.41	0.51
	FRP	N2	76 - 152	0.20	0.33	0.41	0.51
	Iron	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 Alloy	N2	30 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Brass Alloy	N2	30 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Aluminum Alloy	N2	30 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
Refractory	N2	30 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36	
Permit Composites	Carbon Green	N2	15 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Permit Green	N2	15 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36
	Permit Resin	N2	15 - 76	0.10 - 0.15	0.20 - 0.25	0.25 - 0.30	0.30 - 0.36

Feed Rate and Drill Size Recommendation

Feed	Diameter (mm)			
	10	15	20	30
Speed	0.90	0.85	0.80	0.80
Feed	-	0.95	0.90	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 50 M/min and 0.20 mm/rev for a standard length holder, then the speed and feed using a 3XL holder in the same application would be 37.5 M/min and 0.18 mm/rev.

$50 \cdot 0.75 = 37.5 \text{ M/min}$	$0.20 \cdot 0.90 = 0.18 \text{ mm/rev}$
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Important: Coolant is required for all applications.

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

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

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	Drill Size	Decimal Length	* Theo % Thread	Probable Mean Diameter	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%

Probable Mean Diameter

Tap Size	Drill Size	Decimal Length	Theo % Thread*	Probable Mean Diameter	Probable Hole Size	Probable Thread**
1/4 - 18	7/16	0.4375	-	0.075mm	11.19mm	-
3/8 - 18	9/16	0.5625	-	0.075mm	14.76mm	-
1/2 - 14	45/64	0.7031	-	0.075mm	18.33mm	-
3/4 - 14	29/32	0.9063	-	0.075mm	23.89mm	-

* Based on nominal tap drill diameter

** Based on .003" probable mean oversize

To calculate the percent of full thread for a given hole diameter:

$$\% \text{ Thread} = \left[\frac{76.93}{\text{Pitch (mm)}} \right] \left[\text{Basic Major Diameter of Thread (mm)} - \text{Drill Hole Size (mm)} \right]$$

Notes

- The above tap drill information represents probable thread percentages for the standard tap drills stocked at Allied Machine. Special insert diameters may be required in order to meet a user specific percentage of thread requirements.
- The .003 probable mean oversize hole condition is based on optimum cutting conditions. Probable percent of full thread may vary based on less ideal cutting conditions.
- The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.

Formulas

1. $RPM = \frac{31.8 \cdot V}{D}$ where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm)
2. $mm/min = \frac{RPM \cdot \text{mm/rev}}{1000}$ where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev)
3. $M/min = \frac{RPM \cdot \text{DIA}}{1000}$ where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm)
4. $Thrust = \frac{154 \cdot \text{mm/rev} \cdot \text{DIA} \cdot K_m}{1000}$ where: Thrust = axial thrust (N) mm/rev = feed rate (mm/rev) DIA = diameter of drill (mm) K_m = specific cutting energy (bar)
5. $\text{Tool Power} = \frac{\text{mm/rev} \cdot \text{RPM} \cdot \text{DIA} \cdot K_m \cdot 21000}{1000}$ 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)

Probable Mean Diameter

Type of Material	Brinell	K_m
Carbon and Alloy Steel	85 - 200 BHN	5.45
	200 - 275 BHN	6.48
	275 - 375 BHN	6.89
Bermeterre Alloy Steel	375 - 425 BHN	7.93
	-	9.93
Sintered Steel	135 - 275 BHN	6.48
	30 - 45 RC	7.45
Titan	100 - 200 BHN	3.45
	200 - 300 BHN	7.45
Tool Steel	20 - 80 RB	2.96
	80 - 100 RB	4.96
Aluminum Alloy	-	4.96
Inconel Alloy	-	1.52
Monel Alloy	-	1.10

Coolant Recommendations | Metric (mm)

HSS Drill Inserts

Material	Pressure or Flow Rate	12	13	18	25	38	51	70	
Free Cutting Steel 1118, 1215, 12L14, etc.	BAR	12 - 13	7 - 8	7 - 10	6 - 8	5 - 7	4	5 - 6	
	LPM	9.5 - 9.8	10.6 - 11.4	16.7 - 19.7	26.5 - 30.3	45.4 - 53.0	114 - 125	144 - 167	
	Tool Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	BAR	11 - 12	5 - 6	5 - 7	4 - 6	4 - 5	2 - 3	3 - 5
		LPM	9.1 - 9.5	9.1 - 9.8	14.0 - 15.9	22.7 - 26.5	41.6 - 45.4	98 - 114	125 - 144
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	BAR	11	5 - 6	5 - 6	4 - 5	3 - 5	2 - 3	3 - 5
		LPM	8.7 - 9.1	8.7 - 9.8	13.6 - 15.5	18.9 - 22.7	37.9 - 45.4	98 - 114	125 - 144
	Alloy Steel 4140, 5140, 8640, etc.	BAR	11	5	5 - 6	3 - 5	3 - 4	2	3
		LPM	8.7 - 9.1	8.3 - 9.1	13.2 - 14.8	18.9 - 22.7	31.9 - 41.6	98 - 106	114 - 125
	Sintered Alloy 4340, 4330V, 300M, etc.	BAR	10 - 11	4	3	2	2	1 - 2	2
		LPM	8.7 - 9.1	7.9 - 8.3	11.0 - 11.7	15.1 - 18.9	26.5 - 30.3	79 - 87	87 - 98
	Structural Steel A36, A285, A516, etc.	BAR	11	5 - 6	5 - 6	3 - 4	3	2	3
		LPM	8.7 - 9.1	9.1 - 9.8	13.2 - 14.8	18.9 - 22.7	34.1 - 37.9	87 - 98	114 - 125
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	BAR	10 - 11	4	3	2	2	1 - 2	2	
	LPM	8.7 - 9.1	7.9 - 8.3	11.0 - 11.7	15.1 - 18.9	26.5 - 30.3	79 - 87	87 - 98	
S Hastelloy Hastelloy B, Inconel 600, etc.	BAR	10 - 11	4 - 5	3 - 4	2	2	2	3	
	LPM	8.7 - 9.1	8.3 - 8.7	11.7 - 12.1	15.1 - 18.9	26.5 - 30.3	87 - 98	125	
	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	
S Titanium Alloy Ti-6Al-4V, etc.	BAR	10 - 11	4 - 5	3 - 4	2	2	2	3	
	LPM	8.7 - 9.1	8.3 - 8.7	11.7 - 12.1	15.1 - 18.9	26.5 - 30.3	87 - 98	125	
	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	
S Inconel Inconel 600, etc.	BAR	10 - 11	4 - 5	3 - 4	2	2	2	3	
	LPM	8.7 - 9.1	8.3 - 8.7	11.7 - 12.1	15.1 - 18.9	26.5 - 30.3	87 - 98	125	
	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	
S Stainless Steel 400 Series 416, 420, etc.	BAR	11.8	5.9	5.2	3.8	3.5	2	3.1	
	LPM	9.5	9.8	14	23	38	98	117	
	BAR	11.8	5.9	5.2	3.8	3.5	2	3.1	
	LPM	9.5	9.8	14	23	38	98	117	
S Stainless Steel 300 Series 304, 316, 17-4PH, etc.	BAR	11.8	5.9	5.2	3.8	3.5	2	3.1	
	LPM	9.5	9.8	14	23	38	98	117	
	BAR	11.8	5.9	5.2	3.8	3.5	2	3.1	
	LPM	9.5	9.8	14	23	38	98	117	
S Hardox, AR400, T-1, etc.	BAR	10.7	4.2	3.5	2	2	1.7	2	
	LPM	9.1	8.3	11.7	19	30	87	98	
	BAR	10.7	4.2	3.5	2	2	1.7	2	
	LPM	9.1	8.3	11.7	19	30	87	98	
S Maraging Steel	BAR	10.7	4.2	3.5	2	2	1.7	2	
	LPM	9.1	8.3	11.7	19	30	87	98	
	BAR	10.7	4.2	3.5	2	2	1.7	2	
	LPM	9.1	8.3	11.7	19	30	87	98	
K Sintered Carbide K10, etc.	BAR	11	4.5	4.2	2.8	2.4	2	2.4	
	LPM	9.1	8.7	12.5	19	34	98	106	
	BAR	11	4.5	4.2	2.8	2.4	2	2.4	
	LPM	9.1	8.7	12.5	19	34	98	106	
G Titanium Ti-6Al-4V, etc.	BAR	14.5	12.4	15.8	11	8.6	3.5	5.5	
	LPM	10	14	23	34	61	125	159	
	BAR	14.5	12.4	15.8	11	8.6	3.5	5.5	
	LPM	10	14	23	34	61	125	159	
	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	
	BAR	11	4.5	4.2	2.8	2.4	2	2.4	
	LPM	9.1	8.7	12.5	19	34	98	106	
G Inconel Inconel 600, etc.	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	

Recommended Coolant Flow Rates

Pressure or Flow Rate	1.3	1.5	2	2	3
Pressure or Flow Rate	1.3	1.5	2	2	3

Recommended Coolant Flow Rates

If the recommended pressure and flow is 12 bar and 22 LPM for a standard length holder, then the adjusted pressure and flow for a 3XL holder would be 36 bar and 66 LPM.

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

Important Notes

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

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

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

Material	Pressure or Flow Rate	12.5	13.17	17.24	25.35	36.47	
Free Cutting Steel 1118, 1215, 12L14, etc.	BAR	17 - 20	17	15	15	20	
	LPM	12.2	16.3	25.2	41.5	71.9	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	BAR	18	11	11	12	9
		LPM	11.4	13.3	20.6	36.5	62.0
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	BAR	17	10	10	10	8
		LPM	11.3	12.5	20.0	33.8	57.0
	Alloy Steel 4140, 5140, 8640, etc.	BAR	17	9	10	8	7
		LPM	11.1	12.3	19.3	30.0	55.8
	Austenitic Alloy 4340, 4330V, 300M, etc.	BAR	15	5	4	3	3
		LPM	10.4	9.1	12.6	18.8	33.6
	Structural Steel A36, A285, A516, etc.	BAR	16	9	8	7	5
		LPM	10.8	12.0	17.5	27.8	47.1
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	BAR	15	5	5	3	3
		LPM	10.4	9.1	13.6	19.7	36.5
S	Inconel Alloy Hastelloy B, Inconel 600, etc.	BAR	17	11	12	11	9
		LPM	11.1	13.5	21.9	35.4	62.0
	Titanium Alloy	BAR	17	11	12	11	9
		LPM	11.1	13.5	21.9	35.4	62.0
Superalloy S82	BAR	17	11	12	11	9	
	LPM	11.1	13.5	21.9	35.4	62.0	
A	Stainless Steel 400 Series 416, 420, etc.	BAR	22.7	16.5	17.9	17.2	13.1
		LPM	13	16.3	26.3	44.2	75
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	BAR	22.7	16.5	17.9	17.2	13.1
		LPM	13	16.3	26.3	44.2	75
	Super Inconel Steel	BAR	22.7	16.5	17.9	17.2	13.1
		LPM	13	16.3	26.3	44.2	75
D	Dual Phase Hardox, AR400, T-1, etc.	BAR	14.5	5.2	4.8	3.4	3.1
		LPM	10.4	9.1	13.6	19.7	36.5
	Ductile Iron	BAR	14.5	5.2	4.8	3.4	3.1
		LPM	10.4	9.1	13.6	19.7	36.5
K	Soft 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 Cast Iron	BAR	15.5	7.2	6.2	6.2	5.5
		LPM	10.7	10.8	15.4	26.5	48.7
P	Aluminum	BAR	24.1	22	21.7	19.6	13.8
		LPM	13.4	18.8	29	47.2	77
	Rotary 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

Coolant Selection Recommendations

Pressure or Flow	Holder Penetration				
	1.3	1.5	2	3	
Pressure or Flow	1.3	1.5	2	2	3

Recommended Coolant Example

If the recommended pressure and flow is 12 bar and 22 LPM for a standard length holder, then the adjusted pressure and flow for a 3XL holder would be 36 bar and 66 LPM.

$12 \cdot 3 = 36 \text{ bar}$	$22 \cdot 3 = 66 \text{ LPM}$
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Important Notes

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
 - Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.
- Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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.

DRILLING
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Troubleshooting Guide

	Potential Problem																						Possible Solutions
	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	Nothing of insert	Overize hole	Poor hole finish	Poor tool life	Power spikes - Load meter	Retract spiral	Step burned on insert	
Setup Condition	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Possible Solutions
<p>⚠ Use of Standard, Standard Plus, Extended, Long, Long Plus, XL, and 3XL holders.</p> <p>See page 8 for Deep Hole Drilling guidelines.</p>		2	3				7		9				13	14			17				21		<ul style="list-style-type: none"> Start with short holder and drill a minimum depth equal to 2xD (see page # for instructions). Spot hole with stub tool of same or greater included angle as T-A® drill insert. Decrease feed a minimum of 50% until establishing full diameter. Use special holder with wear pads or chrome bearing area to work with drill bushings.
Starting on an inclined surface.							7		9	10	11		13		15						21		<ul style="list-style-type: none"> Spot face surface to provide a flat entry surface. Spot hole with stub tool of same or greater included angle as T-A® drill insert. Decrease feed a minimum of 50% until establishing full diameter. Use special holder with wear pads or chrome bearing area to work with drill bushings.
Worn or misaligned spindle (lathe, screw machine, chucker).	1		3				7		9	10	11		13				17	18			21		<ul style="list-style-type: none"> Align spindle and turret or tailstock. Repair spindle. Spot hole with stub tool of same or greater included angle as T-A® drill insert.
Use of low rigidity machine tools (radial drills, multi-spindle drill press, etc.).		2	3	4			7		9	10			13	14							21		<ul style="list-style-type: none"> Spot hole with stub tool of same or greater included angle as T-A® drill insert. Reduce penetration rate to fall within the physical limits of the machine or setup (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						21		<ul style="list-style-type: none"> Provide additional support for the work piece. Reduce penetration rate to fall within the physical limits of the machine or setup (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				10		11					17	18	19	20		21	<ul style="list-style-type: none"> 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 (Do not reduce feed below threshold of good chip formation). Add a peck cycle to help clear chips.

1. Do not drill on a hole that is less than 2 diameters deep.

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

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

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	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				<ul style="list-style-type: none"> Pre-mill (spot face) entry or exit surface to remove interruption. Spot hole with stub tool of same or greater included angle as T-A® drill insert. Decrease feed as much as 50% through entry or exit interruption. Use short holders in low impact entry cuts.
Material harder than expected or running tools beyond recommended speeds.	1				5	6				10		12							19			22	<ul style="list-style-type: none"> Reduce speed if a step is worn in the insert, calculate SFM at the worn diameter. Reduce this value by 10% and apply this new value to the original tool diameter. Increase coolant pressure and volume. Improve coolant condition by use of quality products and regular maintenance. Select an insert grade (premium, super cobalt, or carbide) or coating (TiAlN, TiCN, or AM200®) that is more wear and heat resistant.
Poor material micro-structure or foreign particles (forgings and castings that have not been normalized or annealed, poorly prepared steel, flame cut parts and sand casting).				4		6				10		12	13			16			19				<ul style="list-style-type: none"> Compare performance of other tools for similar wear problems, which may indicate poor micro-structure. Anneal or 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 (see pages 10-11) Do not reduce feed below threshold of good chip formation).
Poor chip control.								9		10	11		13					17	18	19	20		<ul style="list-style-type: none"> Increase feed to recommended levels. Contact Allied Application Engineering team for technical recommendations. Increase coolant pressure and volume. Improve coolant condition by use of quality products and regular maintenance. See pages #-# for special purpose geometries.
Spot drilled holes with included angle less than that matching T-A® or cored holes.	1			4			7						13			16			19				<ul style="list-style-type: none"> Spot hole with short tool of same or greater included angle as T-A® drill insert. Reduce feed (see pages 10-11) Do not reduce feed below threshold of good chip formation) If possible, drill from solid.
Use of high wear resistant insert grades.				4						10													<ul style="list-style-type: none"> Use tougher grade of T-A® (from carbide to cobalt to HSS). See wear versus toughness chart on page #. Increase rigidity of setup.

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SPECIALS

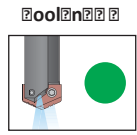
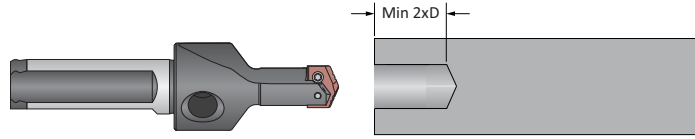
Deep Hole Drilling

For Lengths Greater Than 9xD (including Extended, Long, XL, 3XL, and Special Length)

DRILLING

1. Establish Pilot Hole
100 % RPM
100% IPR (mm/rev)

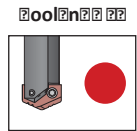
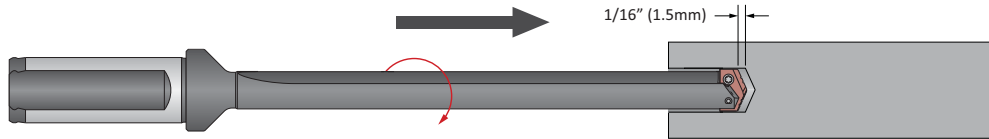
Establish the pilot hole using the same diameter short drill to a depth of 2xD minimum. Utilize a pilot drill with the same or larger included point angle.



BORING

2. Feed
50 RPM max
12 IPM (300 mm/min)

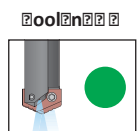
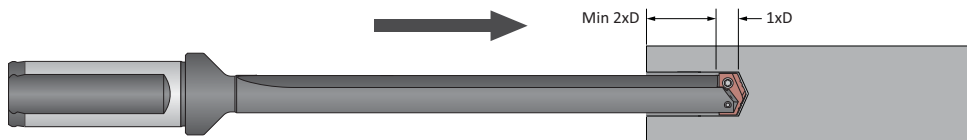
Feed the longer drill within 1/16" (1.5mm) short of the established pilot hole bottom at a **maximum of 5 R and 12 IPM (300 mm/min) feed rate.**



REAMING

3. Deep Hole Transition Drilling
50 % RPM
75% IPR (mm/rev)

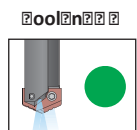
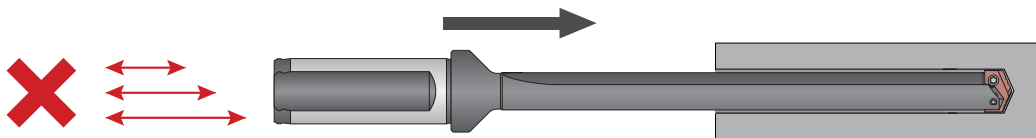
Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed. Minimum of 1 second dwell is required to meet full speed before feeding.



BURNISHING

4. Deep Hole Drilling
100% RPM
100% IPR (mm/rev)

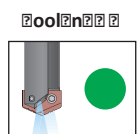
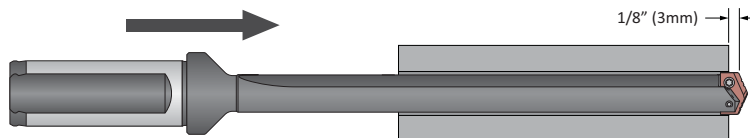
Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts. **No peck cycle recommended.**



THREADING

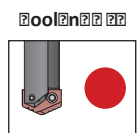
5. Deep Hole Drilling
50% RPM
75% IPR (mm/rev)

For Aero Hole only
Reduce speed by 50% and feed by 25% prior to breakout. Do not breakout more than 1/8" (3mm) past the full diameter of the drill.



6. Drill Retract
50 RPM max

Reduce speed to a **maximum of 5 R** before retracting from the hole.



SPECIALS

Important Notes

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

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DRILLING



BORING



REAMING



BURNISHING



THREADING



SPECIALS

Performance Partner

Replaceable Spade Drill Insert Drilling System

► **Immer Ready** 0.9688" - 8.5000"



Since the Performance

The Universal spade drill is the original design that launched Allied Machine into the holemaking industry. After the T-A® was introduced, customers who already owned the Universal style holders wanted the same benefits offered by the T-A without having to invest in an entirely new system.

The High Performance (HP) insert was created to provide similar performance as the T-A. The HP insert (along with an adapter for larger sizes) fits into existing Universal style holders.

When the customers speak, we listen.

Available Industries



Aerospace



Agriculture



Automotive



Energy



Firearms



General Machining



Oil & Gas

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



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

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

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



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

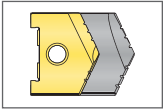
CAUTION means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

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

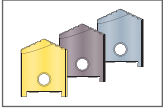
For more information, visit www.alliedmachine.com for the most up-to-date information and procedures.

Reference Icons

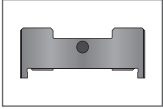
The following icons will appear throughout the catalog to help you navigate between products.



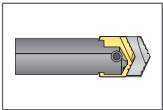
Performance Index Insert
Refers to the range of inserts that connect with the corresponding holders



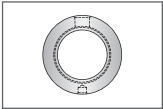
Universal Insert Coating Options
Details and overview of the different coatings available for Universal spade drill inserts



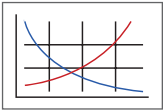
Insert Adapter Information
Detailed information regarding the corresponding adapter item



Performance Index Holder
Refers to the range of holders that connect with the corresponding inserts



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



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

Series	Drill Range
1	0.9688 - 1.2500
2	1.2500 - 1.7500
3	1.5000 - 2.3750
4	2.0000 - 2.8750
5	2.5000 - 3.3750
6	3.0000 - 3.8750
7	3.5000 - 4.5000
1 2 2	4.0000 - 5.0000
3 2 2	5.1250 - 8.5000

Introduction Information

System Overview 2 - 3
Product Nomenclature 4 - 5

Drill Series

A Series 6 - 9
B Series 10 - 13
C Series 14 - 17
D Series 18 - 21
E Series 22 - 25
F Series 26 - 29
G Series 30 - 33
H Series 34 - 37

Accessories

Adapters and Blade-Loc Screws 38 - 39
Rotary Coolant Adapters (RCA) 40
Top Mounting Plate 41
Cylindrical Grinding Fixtures 41

Recommended Cutting Data

Regrind Charts 42 - 43
High Performance Inserts 44 - 45
Universal Inserts 46 - 47
Deep Hole Drilling Guidelines 48



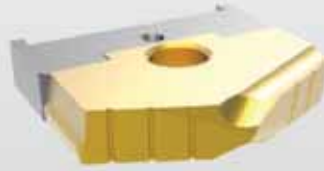
System Performance Index

DRILLING

High Performance Inserts



Series A



Series C
(adapter required)

Performance Index

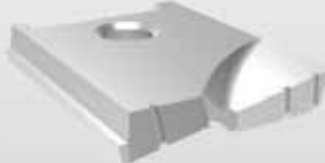
- Increase production 100 - 500% compared to uncoated Universal spade drill inserts
- Fit into Universal style holders
- Available in TiN and TiAlN coatings
- Single-piece design (A - C series) eliminates the need for adapters, which maximizes tool performance in these smaller sizes

BORING

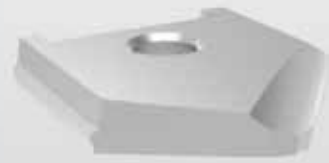
Universal Inserts



Series 4
Series 15



Flat Bottom



Series mfer

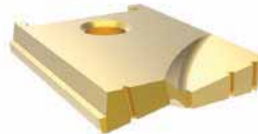
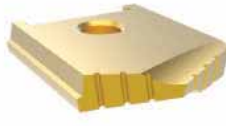
REAMING

Standard Inserts

- Standard inserts stocked uncoated
- Also available in TiN, TiAlN, and TiCN coatings, which improve tool life when compared to uncoated inserts

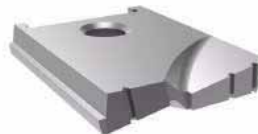
BURNISHING

TiN Coating	
Ordering Code: T	Example: 10224-0116



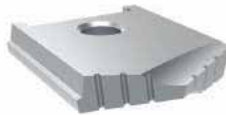
THREADING

TiAlN Coating	
Ordering Code: A	Example: 10224-0116



SPECIALS

TiCN Coating	
Ordering Code: N	Example: 10224-0116



System Performance Driller

DRILLING



Standard Series Driller

- Stub (#125)
- Short (#150)
- Short (#100)
- Standard (#200)
- Long (#250)



Power Series Driller

- Short (#300)
- Short (#300 TSC)
- Short (#400 SR)
- Standard (#500 SR)
- Long (#600 SR)
- XL (#700 SR)



5/8" Series Driller

- Short (#300)
- Short (#400)
- Standard (#500 SR)



Adapter

for High Performance D - H series inserts only



*For detailed information and set-up for adapters and Blade-Loc screw assembly, see page A40: 38

BORING

REAMING

BURNISHING

THREADING

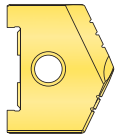
SPECIALS



Performance Spade Drill Insert

Performance Spade Drill Insert

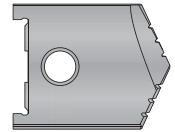
1	2	3	4	5
1	2	3	4	5



1 Spade Drill Insert 1 = Spade drill insert	2 Material 2 = High speed steel	3 Series 1 = A series 2 = B series 3 = C series 4 = D series 5 = E series 6 = F series 7 = G series 8 = H series	4 Coating 0 = TiN 1 = TiAlN 2 = TiCN	5 Dimension by 132 400 = Inch 4503 = Decimal
--	--	---	---	---

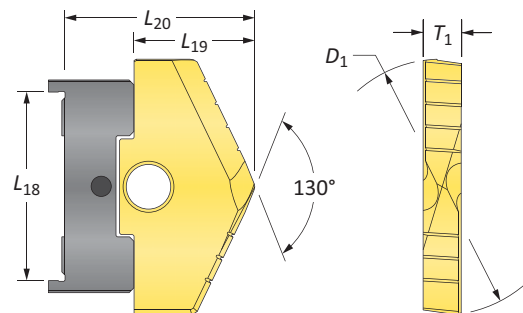
Reaming Spade Drill Insert

1	2	3	4	5	6
1	2	3	4	5	6



1 Spade Drill Insert 1 = Spade drill insert	2 Insert Style 2 = 130° Spade 4 = Flat Bottom 12 = 90° Spot and Chamfer	3 Series 1 = A series 2 = B series 3 = C series 4 = D series 5 = E series 6 = F series 7 = G series 8 = H1 - H2 series 9 = H3 - H9 series 0 = J series	4 Material 2 = M-2 (J series only) 4 = High speed steel (SPM-M4 HSS) 5 = High speed steel (CPM-T15 HSS)
--	--	---	--

5 Dimension by 132 400 = Inch 4503 = Decimal	Coating 0 = Uncoated 1 = TiN 2 = TiAlN 3 = TiCN
---	--



Reference Key

Symbol	Attribute
D_1	Insert diameter
L_{18}	Holder locating area
L_{19}	Reference length
L_{20}	High Performance length (with adapter)
T_1	Thickness

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

Product nomenclature

Performance number, Series and Holder

2	22	?	1	?	????
1	2	3	4		5



1 Holder
2 = Drill holder

2 Classification		
Series	Holder Series	Short Drill Series
22 = Stub #125 (NC)	14 = Short #300 (NC)	24 = Short #300 (NC)
24 = Short #150 (NC)	15 = Short #300 (TSC)	22 = Short #400 (C)
22 = Short #100 (C)	12 = Short #400 (C)	22 = Standard #500 (C)
22 = Standard #200 (C)	12 = Standard #500 (C)	
12 = Long #250 (C)	22 = Long #600 (C)	
	22 = XL #700 SR (C)	

C = Coolant | NC = No Coolant | TSC = Through Shank Coolant

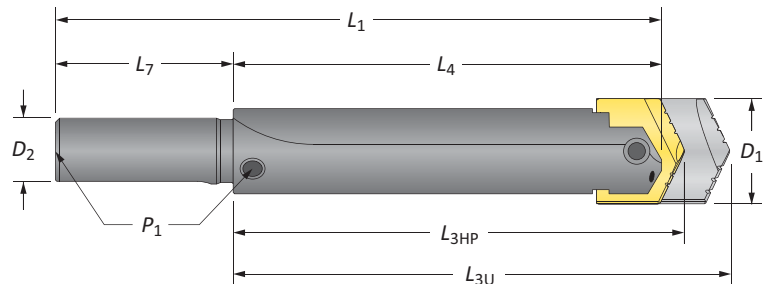
3 Series
1 = A series
2 = B series
3 = C series
4 = D series
5 = E series
2 = F series
7 = G series
2 = H series

4 Holder Style
1 = Universal

5 Shank Size and Configuration		
Series	Holder Series	Drill Series
275 = 0.750" Straight Shank	222 = #2 Morse Taper Shank	225 = 50 NMTB Shank
1222 = 1.000" Straight Shank	2223 = #3 Morse Taper Shank	
1252 = 1.250" Straight Shank	2224 = #4 Morse Taper Shank	
1522 = 1.500" Straight Shank	2225 = #5 Morse Taper Shank	
2222 = 2.000" Straight Shank	2222 = #6 Morse Taper Shank	
3222 = 3.000" Straight Shank		

Reference Key

Symbol	Attribute
D_1	Insert diameter
D_2	Shank diameter
L_1	Overall length
L_{3HP}	Reference length (High Performance)
L_{3U}	Reference length (Universal)
L_4	Flute length
L_7	Shank length
P_1	Pipe tap



DRILLING

BORING

REAMING

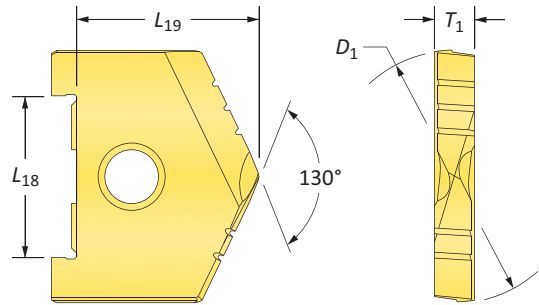
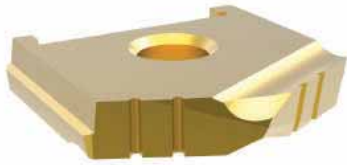
BURNISHING

THREADING

SPECIALS

Performance Series Insert

A Series | Diameter Range: 0.9688" - 1.3750"



Series	D ₁ [in]		Insert			Insert		
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	Part No.	Part No.	Part No.
A	31/32	0.9688	3/4	7/8	3/16	1210031	1210031	1210031
	1	1.0000	3/4	7/8	3/16	1210010	1210010	1210010
	1-1/32	1.0313	3/4	7/8	3/16	1210011	1210011	1210011
	1-1/16	1.0625	3/4	7/8	3/16	1210012	1210012	1210012
	1-3/32	1.0938	3/4	7/8	3/16	1210013	1210013	1210013
	1-1/8	1.1250	3/4	7/8	3/16	1210014	1210014	1210014
	1-5/32	1.1563	3/4	7/8	3/16	1210015	1210015	1210015
	1-3/16	1.1875	3/4	7/8	3/16	1210016	1210016	1210016
	1-7/32	1.2188	3/4	7/8	3/16	1210017	1210017	1210017
A Oversize	1-1/4	1.2500	3/4	7/8	3/16	1210018	1210018	1210018
	1-9/32	1.2813	3/4	7/8	3/16	1210019	1210019	1210019
	1-5/16	1.3125	3/4	7/8	3/16	12100110	12100110	12100110
	1-11/32	1.3438	3/4	7/8	3/16	12100111	12100111	12100111
	1-3/8	1.3750	3/4	7/8	3/16	12100112	12100112	12100112

Inserts sold in multiples of 1

A40: 44 - 45 A40: 8 - 9

Key on A40, 1

Sizes not shown are available upon request.
When ordering, please follow the example below:

Inc	7-63/64", 130° CPM-M4 (H8 series) = use Part No. 12247043
Dec	6.391", 130° CPM-M4 (H5 series) = use Part No. 12247010

DRILLING

BORING

REAMING

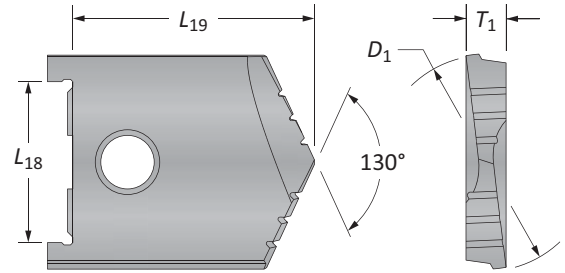
BURNISHING





THREADING

SPECIALS

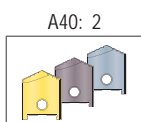
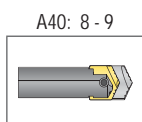
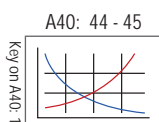
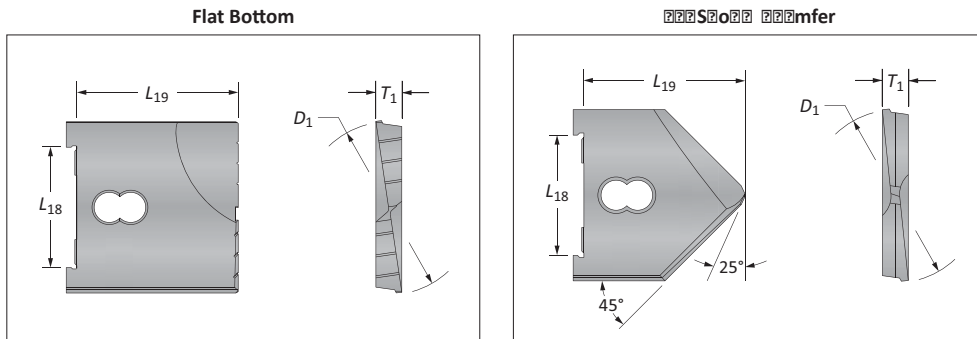
High Performance Universal Replaceable Insert

A Series | Diameter Range: 0.9688" - 1.3750"



Series	D ₁ in		Insert						
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	132222 4	132222 15	Flat Bottom	222222 22mfer
A	31/32	0.9688	3/4	1-5/32	3/16	12142231	☐	☐	22 R
	1	1.0000	3/4	1-5/32	3/16	12142212	☐	12414212	22 R
	1-1/32	1.0313	3/4	1-5/32	3/16	12142211	☐	☐	22 R
	1-1/16	1.0625	3/4	1-5/32	3/16	12142212	12215212	12414212	22 R
	1-3/32	1.0938	3/4	1-5/32	3/16	12142213	☐	☐	22 R
	1-1/8	1.1250	3/4	1-5/32	3/16	12142214	12215214	12414214	22 R
	1-5/32	1.1563	3/4	1-5/32	3/16	12142215	☐	☐	22 R
	1-3/16	1.1875	3/4	1-5/32	3/16	12142217	12215217	12414217	22 R
A Oversize	1-7/32	1.2188	3/4	1-5/32	3/16	12142217	☐	☐	22 R
	1-1/4	1.2500	3/4	1-5/32	3/16	12142218	☐	12414218	11214218
	1-9/32	1.2813	3/4	1-5/32	3/16	12142218	☐	☐	☐
	1-5/16	1.3125	3/4	1-5/32	3/16	12142211	☐	☐	☐
	1-11/32	1.3438	3/4	1-5/32	3/16	12142211	☐	☐	☐
	1-3/8	1.3750	3/4	1-5/32	3/16	12142212	☐	☐	☐

☐☐☐☐ POR = Priced on request



Sizes not shown are available upon request.
When ordering, please follow the example below:

in	1-17/64", 130° CPM-M4 (B series) = use Part No. 122242225
Decimal	1.5110", 130° Flat Bottom (C series) = use Part No. 124342112

DRILLING

BORING

REAMING

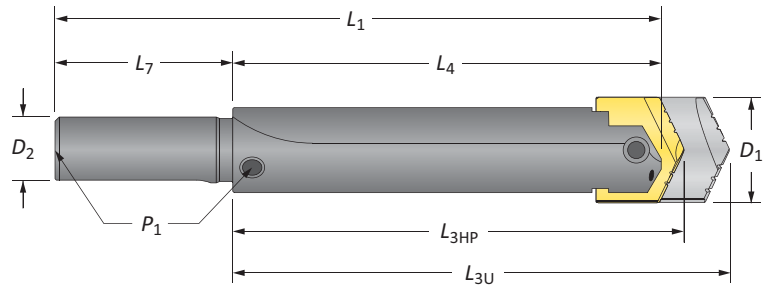
BURNISHING

THREADING

SPECIALS

Performance and Universal Replaceable Insert Drilling System

A Series

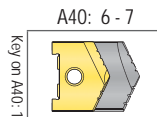


Specifications

Length	Diameter	Insert				Specs				Part No.	
		L _{3HP}	L _{3U}	L ₄	L ₁	D ₂	L ₇	P ₁	Style		
1	Short	31/32 - 1-3/8	3-1/4	3-17/32	3	6-1/2	3/4	3-1/2	-	#150	204110750
	Short	31/32 - 1-3/8	3-1/4	3-17/32	3	6-1/2	1	3-1/2	-	#150	204110000
	Short	31/32 - 1-3/8	3-1/4	3-17/32	3	6-1/2	1	3-1/2	1/8	#100	200110000
	Short	31/32 - 1-3/8	3-1/4	3-17/32	3	6-1/2	1-1/2	3-1/2	1/8	#100	200110500
	Standard	31/32 - 1-3/8	8	8-9/32	7-3/4	11-1/4	3/4	3-1/2	1/8	#200	200110750
	Standard	31/32 - 1-3/8	8	8-9/32	7-3/4	11-1/4	1	3-1/2	1/8	#200	200110000
	Standard	31/32 - 1-3/8	8	8-9/32	7-3/4	11-1/4	1-1/2	3-1/2	1/8	#200	200110500
	Long	31/32 - 1-3/8	15-1/4	15-17/32	15	18-1/2	1	3-1/2	1/8	#250	210110000

Connection Accessories

Torx Screw	Toroc Screw
#10-24 x 5/8"	-



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

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

DRILLING

BORING

REAMING

BURNISHING

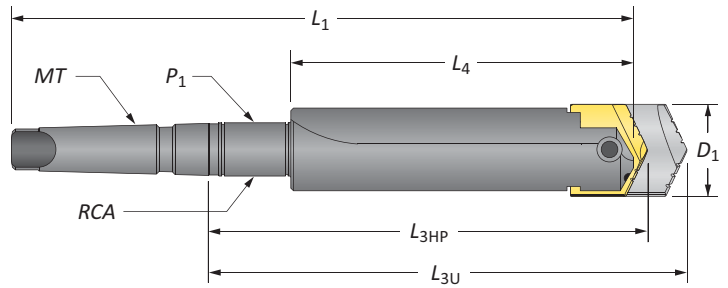
THREADING

SPECIALS



Performance and Number Speed and Feed Chart

A Series



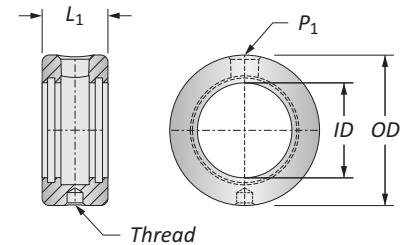
Order Sheet

Length	D ₁	Length				Speed					Part No.
		L _{3HP}	L _{3U}	L ₄	L ₁	MT	P ₁	RPM	Style	Part No.	
Short	31/32 - 1-3/8	3-7/16	3-23/32	3	6-7/8	#3	-	-	#300	214110003	
Short	31/32 - 1-3/8	3-1/2	3-13/16	3	7-7/8	#4	-	-	#300	214110004	
Short	31/32 - 1-3/8	3-7/16	3-23/32	3	6-7/8	#3	-	-	#300 TSC	215110003	
Short	31/32 - 1-3/8	5-3/16	5-15/32	3	9-9/16	#4	1/4	2T-4SR	#400 SR	210110004	
Standard	31/32 - 1-3/8	9-15/16	10-7/32	7-3/4	14-5/16	#4	1/4	2T-4SR	#500 SR	210110004	
Long	31/32 - 1-3/8	17-3/16	17-15/32	15	21-9/16	#4	1/4	2T-4SR	#600 SR	220110004	
XL	31/32 - 1-3/8	23-3/16	23-15/32	21	27-9/16	#4	1/4	2T-4SR	#700 SR	222110004	

*Through shank coolant, coolant inlet diameter = 1/4"

Rotary Coolant Adapter

ID	OD	L ₁	Thread	P ₁	RPM	Key	Recommen.
1-1/4	2-1/2	1-3/8	3/8 - NC	1/4	2204SR	2T1-4SR	2T1-4OR-10



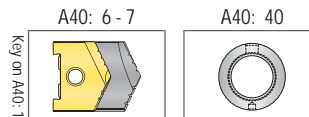
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

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

▲ Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

Dimensional Screw	Lock Screw
#10-24 x 5/8"	-



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

▲ Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

DRILLING

BORING

REAMING

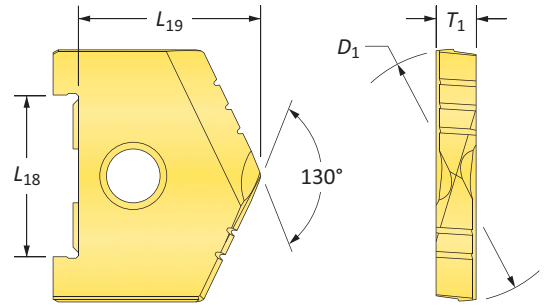
BURNISHING

THREADING

SPECIALS

Performance Series Insert

B Series | Diameter Range: 1.2500" - 1.7500"



Series	D ₁ [in]		[in]			[in]		
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	Part No.	Part No.	Part No.
B	1-1/4	1.2500	1-1/16	1-3/32	9/32	12200100	12200100	12200100
	1-9/32	1.2813	1-1/16	1-3/32	9/32	12200100	12200100	12200100
	1-5/16	1.3125	1-1/16	1-3/32	9/32	12200110	12200110	12200110
	1-11/32	1.3438	1-1/16	1-3/32	9/32	12200111	12200111	12200111
	1-3/8	1.3750	1-1/16	1-3/32	9/32	12200112	12200112	12200112
	1-13/32	1.4063	1-1/16	1-3/32	9/32	12200113	12200113	12200113
	1-7/16	1.4375	1-1/16	1-3/32	9/32	12200114	12200114	12200114
	1-15/32	1.4688	1-1/16	1-3/32	9/32	12200115	12200115	12200115
B Oversize	1-1/2	1.5000	1-1/16	1-3/32	9/32	12200110	12200110	12200110
	1-17/32	1.5313	1-1/16	1-3/32	9/32	12200117	12200117	12200117
	1-9/16	1.5625	1-1/16	1-3/32	9/32	12200110	12200110	12200110
	1-19/32	1.5938	1-1/16	1-3/32	9/32	12200110	12200110	12200110
	1-5/8	1.6250	1-1/16	1-3/32	9/32	12200120	12200120	12200120
	1-21/32	1.6563	1-1/16	1-3/32	9/32	12200121	12200121	12200121
	1-11/16	1.6875	1-1/16	1-3/32	9/32	12200122	12200122	12200122
	1-23/32	1.7188	1-1/16	1-3/32	9/32	12200123	12200123	12200123
1-3/4	1.7500	1-1/16	1-3/32	9/32	12200124	12200124	12200124	

Inserts sold in multiples of 1

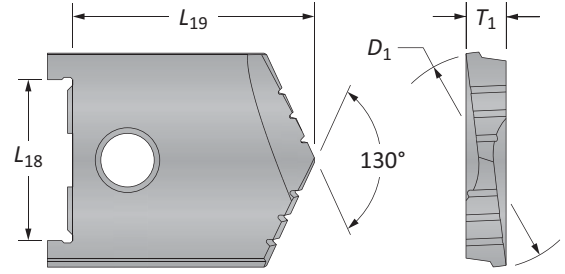
A40: 44 - 45 A40: 12 - 13

Sizes not shown are available upon request.
When ordering, please follow the example below:

[in]	7-63/64", 130° CPM-M4 (H8 series) = use Part No. 1220470043
[dec]	6.391", 130° CPM-M4 (H5 series) = use Part No. 1220470010

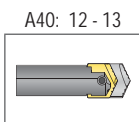
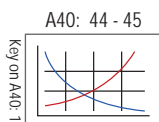
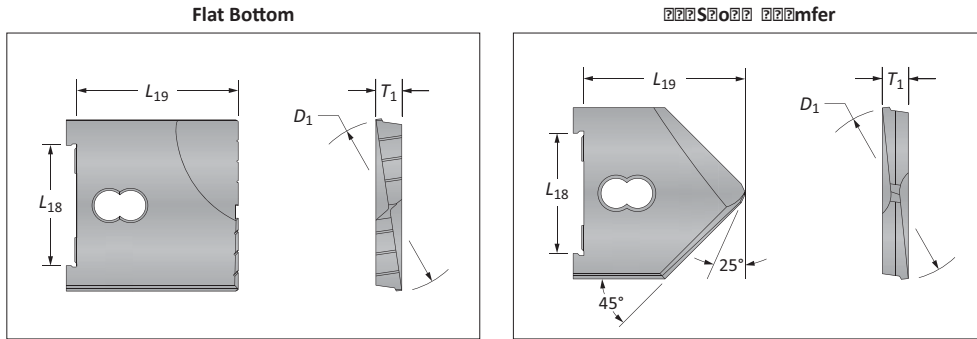
High Performance Universal Replaceable Insert

B Series | Diameter Range: 1.2500" - 1.7500"



Series	D ₁ Inch		Inch			13° CPM-M4		13° CPM-M15		Flat Bottom	Serrated
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	Part No.	Part No.	Part No.	Part No.		
B	1-1/4	1.2500	1-1/16	1-13/32	9/32	1224104		1424104	R		
	1-9/32	1.2813	1-1/16	1-13/32	9/32	1224108			R		
	1-5/16	1.3125	1-1/16	1-13/32	9/32	1224110	1225110	1424110	R		
	1-11/32	1.3438	1-1/16	1-13/32	9/32	1224111			R		
	1-3/8	1.3750	1-1/16	1-13/32	9/32	1224112		1424112	R		
	1-13/32	1.4063	1-1/16	1-13/32	9/32	1224113			R		
	1-7/16	1.4375	1-1/16	1-13/32	9/32	1224114		1424114	R		
	1-15/32	1.4688	1-1/16	1-13/32	9/32	1224115			R		
B Oversize	1-1/2	1.5000	1-1/16	1-13/32	9/32	1224116		1424116	11224116		
	1-17/32	1.5313	1-1/16	1-13/32	9/32	1224117					
	1-9/16	1.5625	1-1/16	1-13/32	9/32	1224118					
	1-19/32	1.5938	1-1/16	1-13/32	9/32	1224119					
	1-5/8	1.6250	1-1/16	1-13/32	9/32	1224120					
	1-21/32	1.6563	1-1/16	1-13/32	9/32	1224121					
	1-11/16	1.6875	1-1/16	1-13/32	9/32	1224122					
	1-23/32	1.7188	1-1/16	1-13/32	9/32	1224123					
1-3/4	1.7500	1-1/16	1-13/32	9/32	1224124						

POR = Priced on request



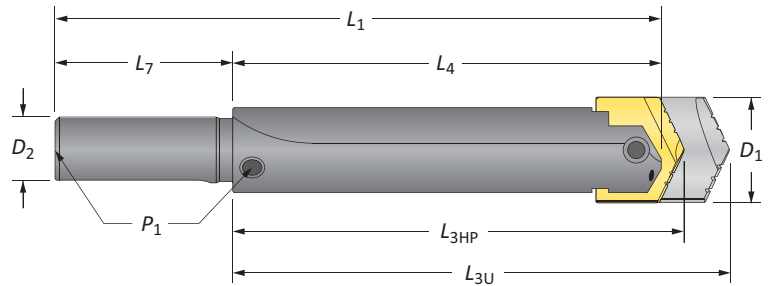
Sizes not shown are available upon request.
When ordering, please follow the example below:

Inch	1-17/64", 130° CPM-M4 (B series) = use Part No. 1224108
Decimal	1.5110", 130° Flat Bottom (C series) = use Part No. 1434115

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

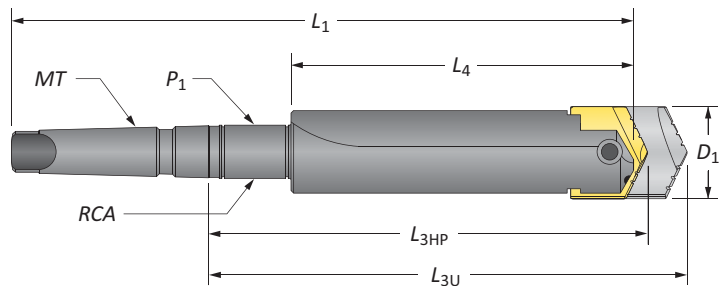
Performance and Universal Replaceable Insert Drilling System

B Series



Standard

Length	D ₁ Range	Diameter				Standard					Part No.
		L _{3HP}	L _{3U}	L ₄	L ₁	D ₂	L ₇	P ₁	Style		
i	Short	1-1/4 - 1-3/4	3-25/32	4-3/32	3-1/2	7	1	3-1/2	-	#150	204210000
	Short	1-1/4 - 1-3/4	3-25/32	4-3/32	3-1/2	7	1	3-1/2	1/4	#100	200210000
	Short	1-1/4 - 1-3/4	3-25/32	4-3/32	3-1/2	7	1-1/4	3-1/2	1/4	#100	200210250
	Short	1-1/4 - 1-3/4	3-25/32	4-3/32	3-1/2	7	1-1/2	3-1/2	1/4	#100	200210500
	Standard	1-1/4 - 1-3/4	8-13/32	8-23/32	8-1/8	11-5/8	1	3-1/2	1/4	#200	200210000
	Standard	1-1/4 - 1-3/4	8-13/32	8-23/32	8-1/8	11-5/8	1-1/4	3-1/2	1/4	#200	200210250
	Standard	1-1/4 - 1-3/4	8-13/32	8-23/32	8-1/8	11-5/8	1-1/2	3-1/2	1/4	#200	200210500
Long	1-1/4 - 1-3/4	15-9/32	15-19/32	15	18-1/2	1-1/4	3-1/2	1/4	#250	210210250	



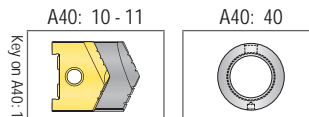
Reamer Standard

Length	D ₁ Range	Diameter				Standard					Part No.
		L _{3HP}	L _{3U}	L ₄	L ₁	MT	P ₁	R _{HP}	Style		
i	Short	1-1/4 - 1-3/4	3-31/32	4-9/32	3-1/2	7-3/8	#3	-	-	#300	214210003
	Short	1-1/4 - 1-3/4	4-1/32	4-11/32	3-1/2	8-3/8	#4	-	-	#300	214210004
	Short	1-1/4 - 1-3/4	4-1/32	4-11/32	3-1/2	8-3/8	#4	-	-	#300 TSC	215210004
	Short	1-1/4 - 1-3/4	5-23/32	6-1/32	3-1/2	10-1/16	#4	1/4	2T-4SR	#400 SR	210210004
	Standard	1-1/4 - 1-3/4	10-11/32	10-21/32	8-1/8	14-11/16	#4	1/4	2T-4SR	#500 SR	210210004
	Long	1-1/4 - 1-3/4	17-7/32	17-17/32	15	21-9/16	#4	1/4	2T-4SR	#600 SR	220210004
	XL	1-1/4 - 1-3/4	24-7/32	24-17/32	22	28-9/16	#4	1/4	2T-4SR	#700 SR	222210004

*Through shank coolant, coolant inlet diameter = 5/16"

Connection Accessories

Pin Screw	Pinloc Screw
1/4"-20 x 7/8	-



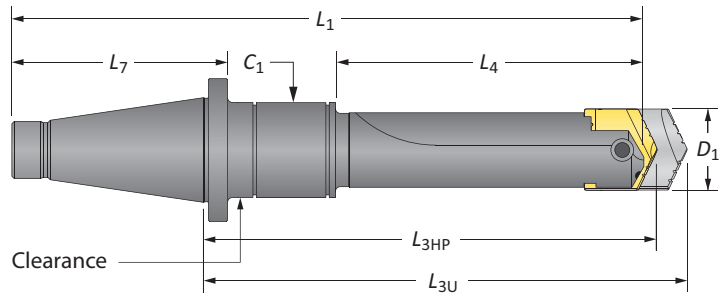
i = Imperial (in)
m = Metric (mm)

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



Performance and Versatility Series Drill Bit Holder

B Series



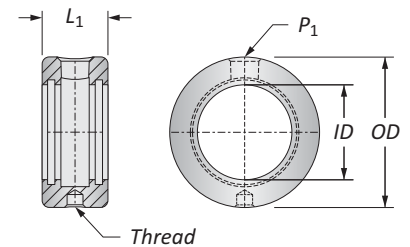
Specifications

Length	D ₁ Range	Diameter				Series						Part No.
		L _{3HP}	L _{3U}	L ₄	L ₁	MT	L ₇	C ₁	RPM	Style		
Short	1-1/4 - 1-3/4	5-13/32	5-23/32	4	10-1/8	50	5-5/8	-	-	#300	22421-5	
	1-1/4 - 1-3/4	7-3/32	7-13/32	4	11-13/16	50	5-5/8	3/8	2T-5SR	#400	2221-5	
	1-1/4 - 1-3/4	11-19/32	11-29/32	8-1/2	16-5/16	50	5-5/8	3/8	2T-5SR	#500	2221-5	

*All NMTB shank holders are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted. Once stock is depleted, items are available as quoted specials only.

Rotary Tooling Performance and Versatility Series

ID	OD	L ₁	Rotary Tool Thread	P ₁	Part No.	Replacement	
						Key Part No.	Replacement
1-1/4	2-1/2	1-3/8	3/8 - NC	1/4	224SR	2T1-4SR	2T1-4OR-10
1-3/4	3	1-3/8	3/8 - NC	1/4	225SR	2T1-5SR	2T1-5OR-10



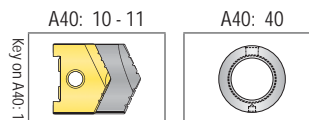
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

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

▲ Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

Blind Screw	Lock Screw
1/4"-20 x 7/8	-



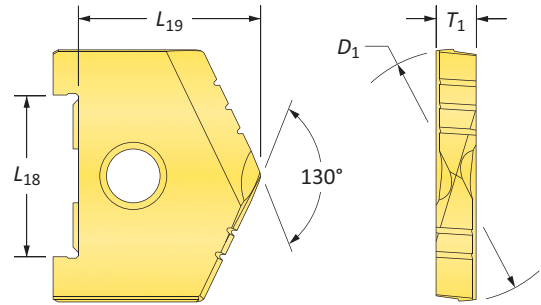
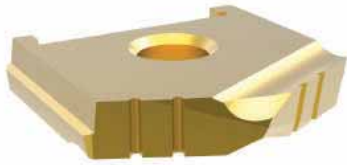
ⓘ = Imperial (in)
 Ⓜ = Metric (mm)
 O-rings sold in packs of 10

▲ **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.

DRILLING
 BORING
 REAMING
 BURNISHING
 THREADING
 SPECIALS

Performance Series Insert

C Series | Diameter Range: 1.5000" - 2.3750"



Series	D ₁ [in]		[in]			[in]		
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	11°	12°	13°
C	1-1/2	1.5000	1-1/4	1-19/64	5/16	123111	123111	123111
	1-17/32	1.5313	1-1/4	1-19/64	5/16	123117	123117	123117
	1-9/16	1.5625	1-1/4	1-19/64	5/16	123110	123110	123110
	1-19/32	1.5938	1-1/4	1-19/64	5/16	123110	123110	123110
	1-5/8	1.6250	1-1/4	1-19/64	5/16	123120	123120	123120
	1-21/32	1.6563	1-1/4	1-19/64	5/16	123121	123121	123121
	1-11/16	1.6875	1-1/4	1-19/64	5/16	123122	123122	123122
	1-23/32	1.7188	1-1/4	1-19/64	5/16	123123	123123	123123
	1-3/4	1.7500	1-1/4	1-19/64	5/16	123124	123124	123124
	1-25/32	1.7813	1-1/4	1-19/64	5/16	123125	123125	123125
	1-13/16	1.8125	1-1/4	1-19/64	5/16	123120	123120	123120
	1-27/32	1.8438	1-1/4	1-19/64	5/16	123127	123127	123127
	1-7/8	1.8750	1-1/4	1-19/64	5/16	123120	123120	123120
	1-29/32	1.9063	1-1/4	1-19/64	5/16	123120	123120	123120
	1-15/16	1.9375	1-1/4	1-19/64	5/16	123130	123130	123130
1-31/32	1.9688	1-1/4	1-19/64	5/16	123131	123131	123131	
2	2.0000	1-1/4	1-19/64	5/16	123200	123200	123200	
C Oversize	2-1/32	2.0313	1-1/4	1-19/64	5/16	123201	123201	123201
	2-1/16	2.0625	1-1/4	1-19/64	5/16	123202	123202	123202
	2-3/32	2.0938	1-1/4	1-19/64	5/16	123203	123203	123203
	2-1/8	2.1250	1-1/4	1-19/64	5/16	123204	123204	123204
	2-5/32	2.1563	1-1/4	1-19/64	5/16	123205	123205	123205
	2-3/16	2.1875	1-1/4	1-19/64	5/16	123200	123200	123200
	2-7/32	2.2188	1-1/4	1-19/64	5/16	123207	123207	123207
	2-1/4	2.2500	1-1/4	1-19/64	5/16	123200	123200	123200
	2-9/32	2.2813	1-1/4	1-19/64	5/16	123200	123200	123200
	2-5/16	2.3125	1-1/4	1-19/64	5/16	123210	123210	123210
	2-11/32	2.3438	1-1/4	1-19/64	5/16	123211	123211	123211
	2-3/8	2.3750	1-1/4	1-19/64	5/16	123212	123212	123212

Inserts sold in multiples of 1

A40: 44 - 45 A40: 16 - 17

Sizes not shown are available upon request.
When ordering, please follow the example below:

[in]	7-63/64", 130° CPM-M4 (H8 series) = use Part No. 12247043
[dec]	6.391", 130° CPM-M4 (H5 series) = use Part No. 12247010

DRILLING

BORING

REAMING

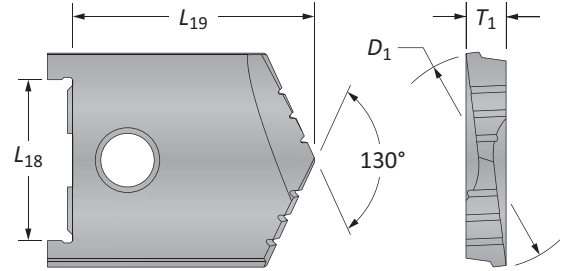
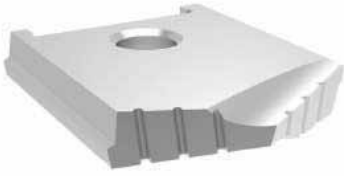
BURNISHING

THREADING

SPECIALS

High Performance Universal Replaceable Insert

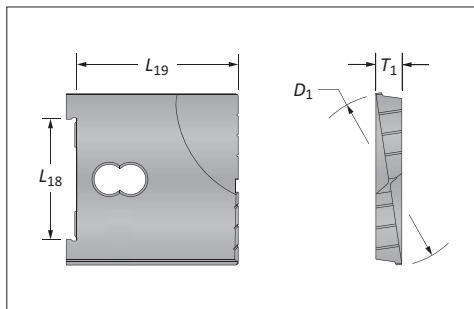
C Series | Diameter Range: 1.5000" - 2.3750"



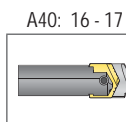
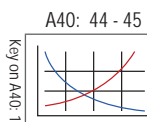
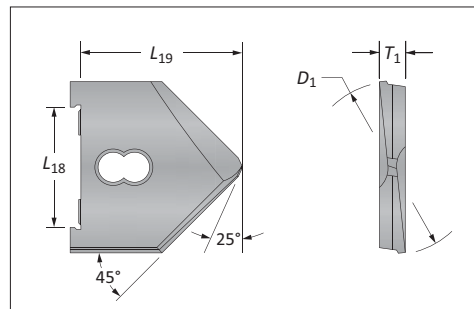
Series	D ₁ Inch		Insert			13° CPM M4		13° CPM M15		Flat Bottom		Sintered Carbide	
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
C	1-1/2	1.5000	1-1/4	2	5/16	102340110	102350110	104340110					
	1-17/32	1.5313	1-1/4	2	5/16	102340117							
	1-9/16	1.5625	1-1/4	2	5/16	102340110	102350110	104340110					
	1-19/32	1.5938	1-1/4	2	5/16	102340110							
	1-5/8	1.6250	1-1/4	2	5/16	102340120	102350120	104340120					
	1-21/32	1.6563	1-1/4	2	5/16	102340121							
	1-11/16	1.6875	1-1/4	2	5/16	102340122	102350122	104340122					
	1-23/32	1.7188	1-1/4	2	5/16	102340123							
	1-3/4	1.7500	1-1/4	2	5/16	102340124	102350124	104340124					
	1-25/32	1.7813	1-1/4	2	5/16	102340125							
	1-13/16	1.8125	1-1/4	2	5/16	102340120	102350120	104340120					
	1-27/32	1.8438	1-1/4	2	5/16	102340127							
	1-7/8	1.8750	1-1/4	2	5/16	102340120	102350120	104340120					
	1-29/32	1.9063	1-1/4	2	5/16	102340120							
	1-15/16	1.9375	1-1/4	2	5/16	102340130	102350130	104340130					
1-31/32	1.9688	1-1/4	2	5/16	102340131								
2	2.0000	1-1/4	2	5/16	102340200	102350200	104340200					112340200	
C Oversize	2-1/32	2.0313	1-1/4	2	5/16	102340201							
	2-1/16	2.0625	1-1/4	2	5/16	102340202							
	2-3/32	2.0938	1-1/4	2	5/16	102340203							
	2-1/8	2.1250	1-1/4	2	5/16	102340204							
	2-5/32	2.1563	1-1/4	2	5/16	102340205							
	2-3/16	2.1875	1-1/4	2	5/16	102340200							
	2-7/32	2.2188	1-1/4	2	5/16	102340207							
	2-1/4	2.2500	1-1/4	2	5/16	102340200							
	2-9/32	2.2813	1-1/4	2	5/16	102340200							
	2-5/16	2.3125	1-1/4	2	5/16	102340210							
2-11/32	2.3438	1-1/4	2	5/16	102340211								
2-3/8	2.3750	1-1/4	2	5/16	102340212								

Part No. POR = Priced on request

Flat Bottom



Sintered Carbide



Sizes not shown are available upon request.
When ordering, please follow the example below:

inch	1-17/64", 130° CPM-M4 (B series) = use Part No. 102240107
decimal	1.5110", 130° Flat Bottom (C series) = use Part No. 104340105

DRILLING

BORING

REAMING

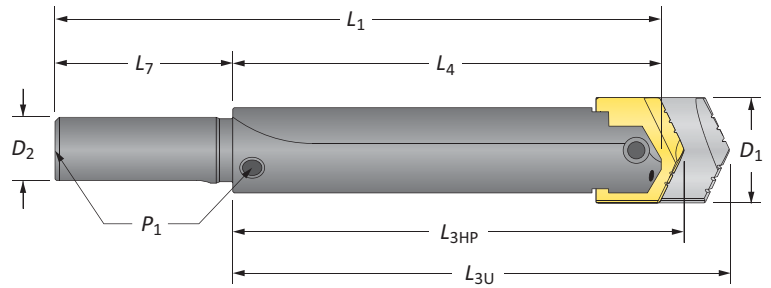
BURNISHING

THREADING

SPECIALS

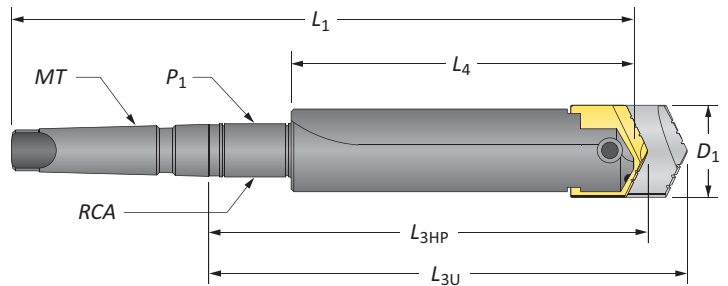
Performance and Universal Replaceable Insert Drilling System

C Series



Standard

Length	D ₁	Diameter				Standard					Part No.
		L _{3U}	L _{3HP}	L ₄	L ₁	D ₂	L ₇	P ₁	Style		
Stub	1-1/2 - 2-3/8	2-19/64	3	2	6	1-1/2	4	-	#125	22311525	
Short	1-1/2 - 2-3/8	4-19/64	5	4	8	1-1/4	4	-	#150	24311252	
Short	1-1/2 - 2-3/8	4-19/64	5	4	8	1-1/4	4	1/4	#100	22311252	
Short	1-1/2 - 2-3/8	4-19/64	5	4	8	1-1/2	4	1/4	#100	22311525	
Standard	1-1/2 - 2-3/8	8-51/64	9-1/2	8-1/2	12-1/2	1-1/4	4	1/4	#200	22311252	
Standard	1-1/2 - 2-3/8	8-51/64	9-1/2	8-1/2	12-1/2	1-1/2	4	1/4	#200	22311525	
Long	1-1/2 - 2-3/8	18-19/64	19	18	22	1-1/2	4	1/4	#250	21311525	





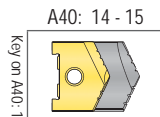
Reamer Standard

Length	D ₁	Diameter				Standard					Part No.
		L _{3U}	L _{3HP}	L ₄	L ₁	MT	P ₁	R ₂	Style		
Short	1-1/2 - 2-3/8	4-35/64	5-1/4	4	8-7/8	#4	-	-	#300	21431224	
Short	1-1/2 - 2-3/8	4-35/64	5-1/4	4	8-7/8	#4	-	-	#300 TSC	21531224	
Short	1-1/2 - 2-3/8	4-35/64	5-1/4	4	10-1/8	#5	-	-	#300 TSC	21531225	
Short	1-1/2 - 2-3/8	6-15/64	6-15/64	4	10-9/16	#4	1/4	2T-4SR	#400 SR	21311224	
Standard	1-1/2 - 2-3/8	10-47/64	11-7/16	8-1/2	15-1/16	#4	1/4	2T-4SR	#500 SR	21311224	
Standard	1-1/2 - 2-3/8	10-47/64	11-7/16	8-1/2	16-5/16	#5	1/4	2T-5SR	#500 SR	21311225	
Long	1-1/2 - 2-3/8	20-15/64	20-5/16	18	24-9/16	#4	1/4	2T-4SR	#600 SR	22311224	
Long	1-1/2 - 2-3/8	20-15/64	20-5/16	18	25-13/16	#5	1/4	2T-5SR	#600 SR	22311225	
XL	1-1/2 - 2-3/8	28-15/64	28-15/16	26	32-9/16	#4	1/4	2T-4SR	#700 SR	22311224	
XL	1-1/2 - 2-3/8	28-15/64	28-15/16	26	33-13/16	#5	1/4	2T-5SR	#700 SR	22311225	

*Through shank coolant, coolant inlet diameter = 5/16"

Connection Accessories

 Formlock Screw 1/4" - 20 x 1	 Loc Screw -
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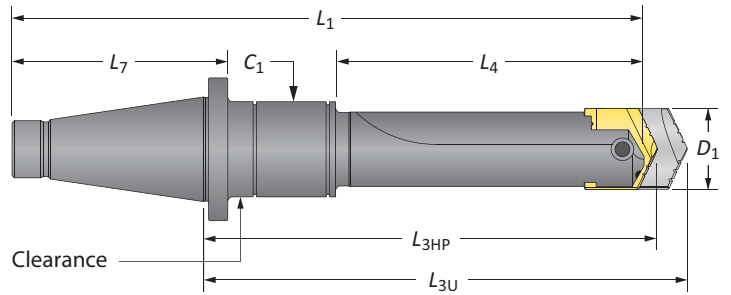


i = Imperial (in)
m = Metric (mm)

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

Performance and Number Series Drill Insert Holder

C Series



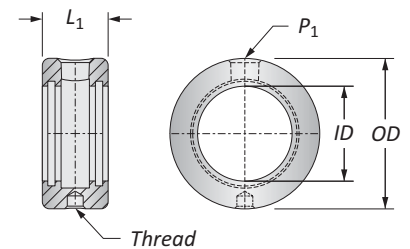
Standard Sizes

Length	D ₁	Holder				Series					Part No.
		L _{3HP}	L _{3U}	L ₄	L ₁	NMTB	L ₇	C ₁	R _{HP}	Style	
Short	1-1/2 - 2-3/8	5-27/64	6-1/8	4	10-1/8	50	5-5/8	-	-	#300	22431-5
Short	1-1/2 - 2-3/8	7-7/64	7-13/16	4	11-13/16	50	5-5/8	3/8	2T-5SR	#400	2231-5
Short	1-1/2 - 2-3/8	11-39/64	12-5/16	8-1/2	16-5/16	50	5-5/8	3/8	2T-5SR	#500	2231-5

*All NMTB shank holders are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted. Once stock is depleted, items are available as quoted specials only.

Rotary Reamer Repair Acceptance

ID	OD	L ₁	Reamer	P ₁	Part No.	Repair Kit	
						Kit Part No.	Reamer
1-1/4	2-1/2	1-3/8	3/8 - NC	1/4	2T-4SR	2T1-4SR	2T1-4OR-10
1-3/4	3	1-3/8	3/8 - NC	1/4	2T-5SR	2T1-5SR	2T1-5OR-10





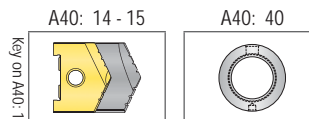
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

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

▲ Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

	
Metric Screw	Metric Screw
1/4"-20 x 1	-



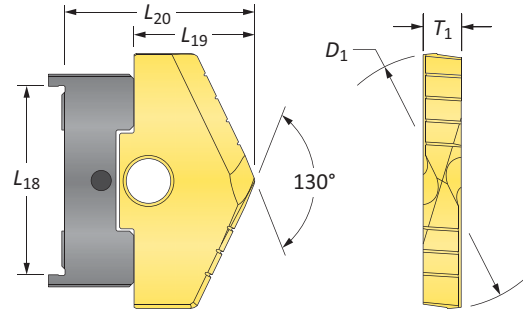
ⓘ = Imperial (in)
 Ⓜ = Metric (mm)
 O-rings sold in packs of 10

▲ **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.

DRILLING
 BORING
 REAMING
 BURNISHING
 THREADING
 SPECIALS

Performance Spade Drill Insert

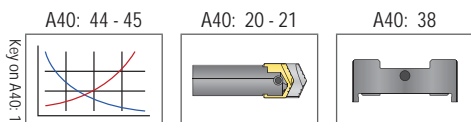
D Series | Diameter Range: 2.0000" - 2.8750"



Series	D ₁ Inc		Insert				Adapter			
	Fraction	Decimal	L ₁₉	L ₁₈	L ₂₀	T ₁	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
D	2	2.0000	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-1/32	2.0313	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-1/16	2.0625	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-3/32	2.0938	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-1/8	2.1250	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-5-32	2.1563	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-3-16	2.1875	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-7/32	2.2188	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-1/4	2.2500	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-9/32	2.2813	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-5/16	2.3125	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-11/32	2.3438	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-3/8	2.3750	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-13/32	2.4063	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-7/16	2.4375	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
2-15/32	2.4688	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter	
2-1/2	2.5000	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter	
D Oversize	2-17/32	2.5313	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-9/16	2.5625	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-19/32	2.5938	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-5/8	2.6250	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-21/32	2.6563	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-11/16	2.6875	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-23/32	2.7188	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-3/4	2.7500	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-25/35	2.7813	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
	2-13/16	2.8125	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter
2-27/32	2.8438	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter	
2-7/8	2.8750	1-3/4	1-3/16	1-55/64	3/8	1024U-Adapter	1024U-Adapter	1024U-Adapter	1024U-Adapter	

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Inserts sold in multiples of 1

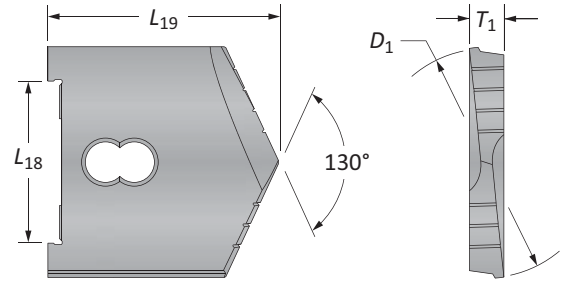
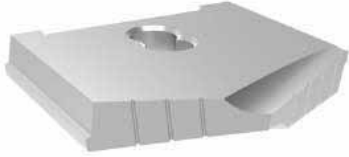


Sizes not shown are available upon request. When ordering, please follow the example below:

Inc	7-63/64", 130° CPM-M4 (H8 series) = use Part No. 1024U-Adapter
Decimal	6.391", 130° CPM-M4 (H5 series) = use Part No. 1024U-Adapter

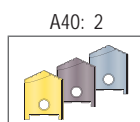
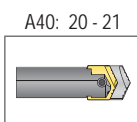
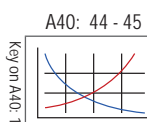
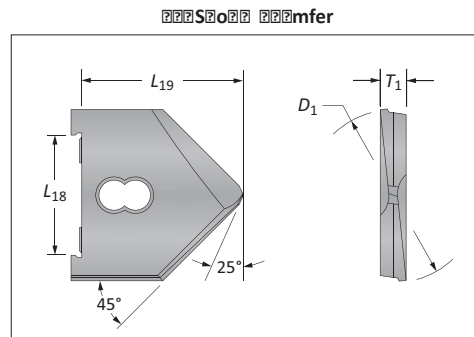
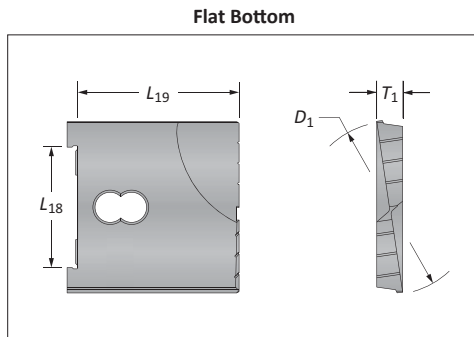
Drilling Series | Diameter Range: 2.0000" - 2.8750"

D Series | Diameter Range: 2.0000" - 2.8750"



Series	D ₁ Inch		Insert			13° CPM-M4		13° CPM-M15		Flat Bottom		Serrator	
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
D	2	2.0000	1-3/4	2-3/8	3/8	1244202	1244202	1444202	1444202	1444202	1444202	1444202	1444202
	2-1/32	2.0313	1-3/4	2-3/8	3/8	1244201	1244201	1444201	1444201	1444201	1444201	1444201	1444201
	2-1/16	2.0625	1-3/4	2-3/8	3/8	1244202	1244202	1444202	1444202	1444202	1444202	1444202	1444202
	2-3/32	2.0938	1-3/4	2-3/8	3/8	1244203	1244203	1444203	1444203	1444203	1444203	1444203	1444203
	2-1/8	2.1250	1-3/4	2-3/8	3/8	1244204	1244204	1444204	1444204	1444204	1444204	1444204	1444204
	2-5/32	2.1563	1-3/4	2-3/8	3/8	1244205	1244205	1444205	1444205	1444205	1444205	1444205	1444205
	2-3/16	2.1875	1-3/4	2-3/8	3/8	1244206	1244206	1444206	1444206	1444206	1444206	1444206	1444206
	2-7/32	2.2188	1-3/4	2-3/8	3/8	1244207	1244207	1444207	1444207	1444207	1444207	1444207	1444207
	2-1/4	2.2500	1-3/4	2-3/8	3/8	1244208	1244208	1444208	1444208	1444208	1444208	1444208	1444208
	2-9/32	2.2813	1-3/4	2-3/8	3/8	1244209	1244209	1444209	1444209	1444209	1444209	1444209	1444209
	2-5/16	2.3125	1-3/4	2-3/8	3/8	1244210	1244210	1444210	1444210	1444210	1444210	1444210	1444210
	2-11/32	2.3438	1-3/4	2-3/8	3/8	1244211	1244211	1444211	1444211	1444211	1444211	1444211	1444211
	2-3/8	2.3750	1-3/4	2-3/8	3/8	1244212	1244212	1444212	1444212	1444212	1444212	1444212	1444212
	2-13/32	2.4063	1-3/4	2-3/8	3/8	1244213	1244213	1444213	1444213	1444213	1444213	1444213	1444213
	2-7/16	2.4375	1-3/4	2-3/8	3/8	1244214	1244214	1444214	1444214	1444214	1444214	1444214	1444214
	2-15/32	2.4688	1-3/4	2-3/8	3/8	1244215	1244215	1444215	1444215	1444215	1444215	1444215	1444215
2-1/2	2.5000	1-3/4	2-3/8	3/8	1244216	1244216	1444216	1444216	1444216	1444216	1444216	1444216	
D Oversize	2-17/32	2.5313	1-3/4	2-3/8	3/8	1244217	1244217	1444217	1444217	1444217	1444217	1444217	1444217
	2-9/16	2.5625	1-3/4	2-3/8	3/8	1244218	1244218	1444218	1444218	1444218	1444218	1444218	1444218
	2-19/32	2.5938	1-3/4	2-3/8	3/8	1244219	1244219	1444219	1444219	1444219	1444219	1444219	1444219
	2-5/8	2.6250	1-3/4	2-3/8	3/8	1244220	1244220	1444220	1444220	1444220	1444220	1444220	1444220
	2-21/32	2.6563	1-3/4	2-3/8	3/8	1244221	1244221	1444221	1444221	1444221	1444221	1444221	1444221
	2-11/16	2.6875	1-3/4	2-3/8	3/8	1244222	1244222	1444222	1444222	1444222	1444222	1444222	1444222
	2-23/32	2.7188	1-3/4	2-3/8	3/8	1244223	1244223	1444223	1444223	1444223	1444223	1444223	1444223
	2-3/4	2.7500	1-3/4	2-3/8	3/8	1244224	1244224	1444224	1444224	1444224	1444224	1444224	1444224
	2-25/32	2.7813	1-3/4	2-3/8	3/8	1244225	1244225	1444225	1444225	1444225	1444225	1444225	1444225
	2-13/16	2.8125	1-3/4	2-3/8	3/8	1244226	1244226	1444226	1444226	1444226	1444226	1444226	1444226
2-27/32	2.8438	1-3/4	2-3/8	3/8	1244227	1244227	1444227	1444227	1444227	1444227	1444227	1444227	
2-7/8	2.8750	1-3/4	2-3/8	3/8	1244228	1244228	1444228	1444228	1444228	1444228	1444228	1444228	

1244228 POR = Priced on request



Sizes not shown are available upon request.
When ordering, please follow the example below:

inch	1-17/64", 130° CPM-M4 (B series) = use Part No. 1244202
decimal	1.5110", 130° Flat Bottom (C series) = use Part No. 1444202

DRILLING

BORING

REAMING

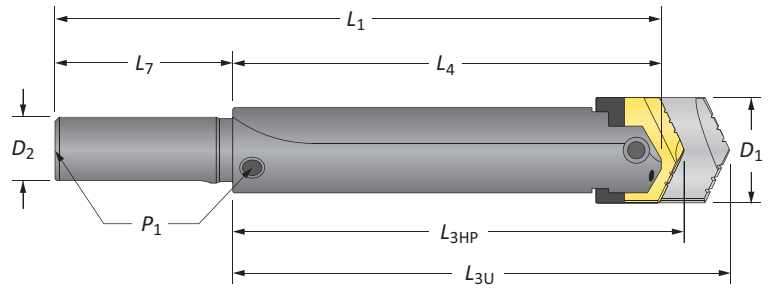
BURNISHING

THREADING

SPECIALS

Performance and Universal Replaceable Insert Drilling System

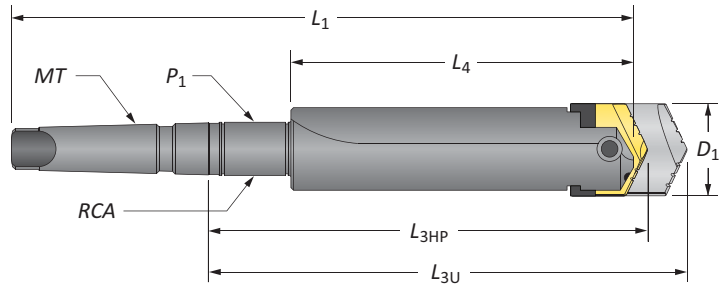
D Series



Standard

Length	D ₁	Diameter				Standard					Part No.
		L _{3U}	L _{3HP}	L ₄	L ₁	D ₂	L ₇	P ₁	Style		
Stub	2 - 2-7/8	2-19/64	3	2	6	1-1/2	4	-	#125	22411500	
Short	2 - 2-7/8	4-63/64	5-1/2	4-1/2	8-1/2	1-1/2	4	-	#150	24411500	
Short	2 - 2-7/8	4-63/64	5-1/2	4-1/2	8-1/2	1-1/2	4	1/4	#100	24411500	
Standard	2 - 2-7/8	9-31/64	10	9	13	1-1/2	4	1/4	#200	24411500	
Long	2 - 2-7/8	18-31/64	19	18	22	1-1/2	4	1/4	#250	214411500	

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.



Standard

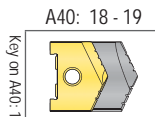
Length	D ₁	Diameter				Standard					Part No.
		L _{3U}	L _{3HP}	L ₄	L ₁	MT	P ₁	R ₂	Style		
Short	2 - 2-7/8	5-15/64	5-3/4	4-1/2	9-3/8	#4	-	-	#300	214411500	
Short	2 - 2-7/8	5-15/64	5-3/4	4-1/2	10-5/8	#5	-	-	#300	214411500	
Short	2 - 2-7/8	5-15/64	5-3/4	4-1/2	9-3/8	#4	-	-	#300 TSC	215411500	
Short	2 - 2-7/8	6-59/64	7-7/16	4-1/2	11-1/16	#4	1/4	2T-4SR	#400 SR	214411500	
Standard	2 - 2-7/8	11-27/64	11-15/16	9	15-9/16	#4	1/4	2T-4SR	#500 SR	214411500	
Standard	2 - 2-7/8	11-27/64	11-15/16	9	16-13/16	#5	1/4	2T-5SR	#500 SR	214411500	
Long	2 - 2-7/8	20-27/64	20-15/16	18	24-9/16	#4	1/4	2T-4SR	#600 SR	224411500	
Long	2 - 2-7/8	20-27/64	20-15/16	18	25-13/16	#5	1/4	2T-5SR	#600 SR	224411500	
XL	2 - 2-7/8	30-27/64	30-15/16	28	34-9/16	#4	1/4	2T-4SR	#700 SR	222411500	
XL	2 - 2-7/8	30-27/64	30-15/16	28	35-13/16	#5	1/4	2T-5SR	#700 SR	222411500	

*Through shank coolant, coolant inlet diameter = 5/16"

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Connection Accessories

Torx Screw	Torx Screw
3/8"-16 x 1-1/4"	5/16"-18 x 1/2"

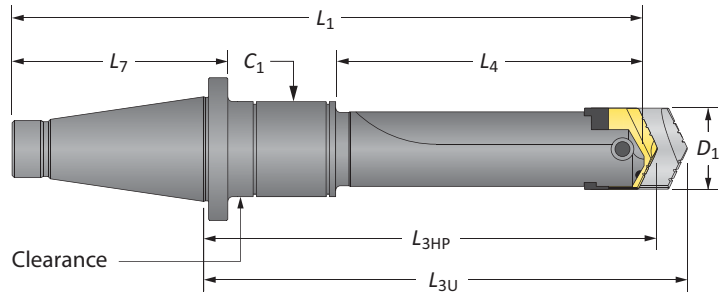


i = Imperial (in)
m = Metric (mm)

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

Performance and Universal Replaceable Insert Drilling System

D Series



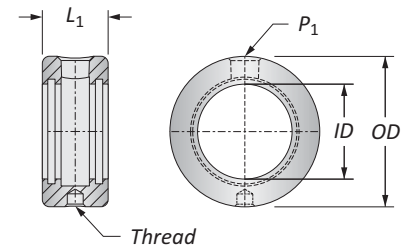
Specifications

Length	D ₁	Diameter				Series					
		L _{3HP}	L _{3U}	L ₄	L ₁	NMTB	L ₇	C ₁	RPM	Style	Part No.
Short	2 - 2-7/8	9-27/64	9-15/16	5-1/2	13-15/16	50	5-5/8	3/8	2T-55SR	#400	224125
	2 - 2-7/8	15-27/64	15-15/16	11-1/2	19-15/16	50	5-5/8	3/8	2T-55SR	#500	224125

*All NMTB shank holders are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted. Once stock is depleted, items are available as quoted specials only.

Rotary Reamer Performance Comparison

ID	OD	L ₁	Reamer	P ₁	Part No.	Reamer	
						Kit	Recess
1-1/4	2-1/2	1-3/8	3/8 - NC	1/4	2T1-4SR	2T1-4SR	2T1-4OR-10
1-3/4	3	1-3/8	3/8 - NC	1/4	2T1-5SR	2T1-5SR	2T1-5OR-10
2-1/2	4	1-3/4	1/2 - NC	1/2	2T1-55SR	2T1-55SR	2T1-55OR-10





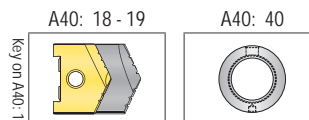
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

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

▲ Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

	
Blind Screw	Tap Screw
3/8" - 16 x 1-1/4"	5/16" - 18 x 1/2"



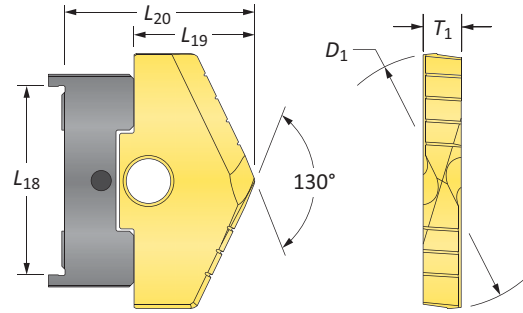
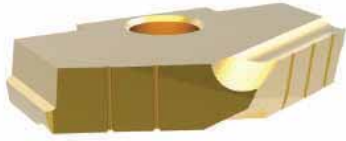
ⓘ = Imperial (in)
 ⓘ = Metric (mm)
 O-rings sold in packs of 10

▲ **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.

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

Performance Spade Drill Insert

E Series | Diameter Range: 2.5000" - 3.3750"



Series	D ₁ inc		Insert				Adapter			
	Fraction	Decimal	L ₁	L ₁	L ₂	T ₁	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
E	2-1/2	2.5000	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-17/32	2.5313	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-9/16	2.5625	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-19/32	2.5938	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-5/8	2.6250	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-21/32	2.6563	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-11/16	2.6875	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-23/32	2.7188	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-3/4	2.7500	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-25/32	2.7813	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-13/16	2.8125	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-27/32	2.8438	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-7/8	2.8750	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-29/32	2.9063	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	2-15/16	2.9375	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
2-31/32	2.9688	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter	
3	3.0000	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter	
E Oversize	3-1/32	3.0313	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	3-1/16	3.0625	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	3-3/32	3.0938	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	3-1/8	3.1250	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	3-5/32	3.1563	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	3-3/16	3.1875	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	3-7/32	3.2188	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	3-1/4	3.2500	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	3-9/32	3.2813	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
	3-5/16	3.3125	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter
3-11/32	3.3438	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter	
3-3/8	3.3750	2-1/16	1-7/16	2-3/32	7/16	1025U-Adapter	1025U-Adapter	1025U-Adapter	1025U-Adapter	

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Inserts sold in multiples of 1

A40: 44 - 45 A40: 24 - 25 A40: 38

Sizes not shown are available upon request. When ordering, please follow the example below:

inc	7-63/64", 130° CPM-M4 (H8 series) = use Part No. 1025U-Adapter
Decimal	6.391", 130° CPM-M4 (H5 series) = use Part No. 1025U-Adapter

DRILLING

BORING

REAMING

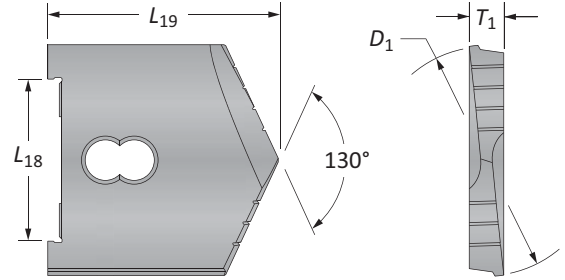
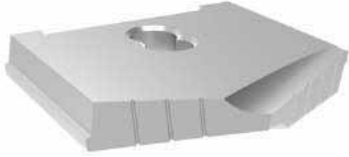
BURNISHING

THREADING

SPECIALS

High Performance Drill Insert

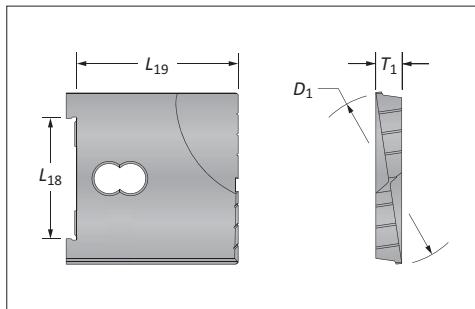
E Series | Diameter Range: 2.5000" - 3.3750"



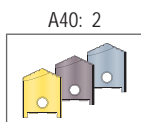
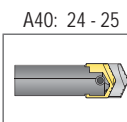
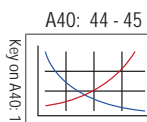
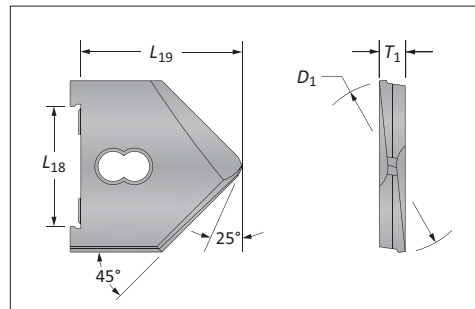
Series	D ₁ Inch		Insert			13° CPM M4		13° CPM M15		Flat Bottom		Sintered Carbide	
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
E	2-1/2	2.5000	2-1/16	2-5/8	7/16	102540210	102550210	104540210					R
	2-17/32	2.5313	2-1/16	2-5/8	7/16	102540217							R
	2-9/16	2.5625	2-1/16	2-5/8	7/16	102540210	102550210	104540210					R
	2-19/32	2.5938	2-1/16	2-5/8	7/16	102540210							R
	2-5/8	2.6250	2-1/16	2-5/8	7/16	102540220	102550220	104540220					R
	2-21/32	2.6563	2-1/16	2-5/8	7/16	102540221							R
	2-11/16	2.6875	2-1/16	2-5/8	7/16	102540222	102550222	104540222					R
	2-23/32	2.7188	2-1/16	2-5/8	7/16	102540223							R
	2-3/4	2.7500	2-1/16	2-5/8	7/16	102540224	102550224	104540224					R
	2-25/32	2.7813	2-1/16	2-5/8	7/16	102540225							R
	2-13/16	2.8125	2-1/16	2-5/8	7/16	102540220	102550220	104540220					R
	2-27/32	2.8438	2-1/16	2-5/8	7/16	102540227							R
	2-7/8	2.8750	2-1/16	2-5/8	7/16	102540220	102550220	104540220					R
	2-29/32	2.9063	2-1/16	2-5/8	7/16	102540220							R
	2-15/16	2.9375	2-1/16	2-5/8	7/16	102540230	102550230	104540230					R
2-31/32	2.9688	2-1/16	2-5/8	7/16	102540231							R	
3	3.0000	2-1/16	2-5/8	7/16	102540300	102550300	104540300					112540300	
E Oversize	3-1/32	3.0313	2-1/16	2-5/8	7/16	102540301							
	3-1/16	3.0625	2-1/16	2-5/8	7/16	102540302							
	3-3/32	3.0938	2-1/16	2-5/8	7/16	102540303							
	3-1/8	3.1250	2-1/16	2-5/8	7/16	102540304							
	3-5/32	3.1563	2-1/16	2-5/8	7/16	102540305							
	3-3/16	3.1875	2-1/16	2-5/8	7/16	102540300							
	3-7/32	3.2188	2-1/16	2-5/8	7/16	102540307							
	3-1/4	3.2500	2-1/16	2-5/8	7/16	102540300							
	3-9/32	3.2813	2-1/16	2-5/8	7/16	102540300							
	3-5/16	3.3125	2-1/16	2-5/8	7/16	102540310							
	3-11/32	3.3438	2-1/16	2-5/8	7/16	102540311							
3-3/8	3.3750	2-1/16	2-5/8	7/16	102540312								

POR = Priced on request

Flat Bottom



Sintered Carbide



Sizes not shown are available upon request.
When ordering, please follow the example below:

Inch	1-17/64", 130° CPM-M4 (B series) = use Part No. 1022401005
Decimal	1.5110", 130° Flat Bottom (C series) = use Part No. 1043401510

DRILLING

BORING

REAMING

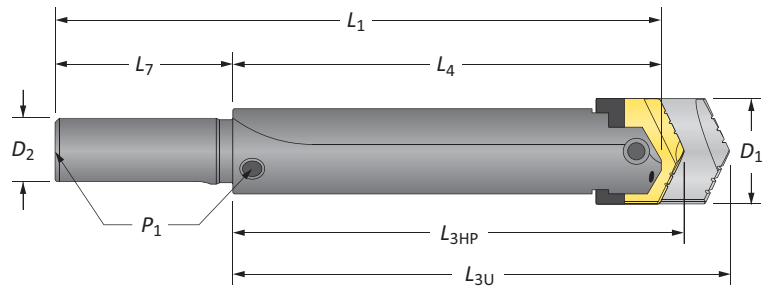
BURNISHING

THREADING

SPECIALS

Performance Drilling System

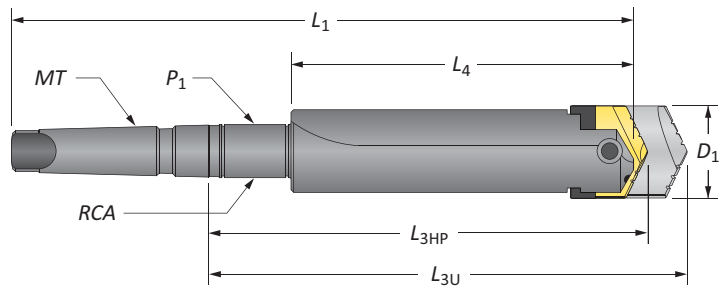
E Series



Specifications

Series	D ₁	Drill				Shank					Part No.
		L _{3U}	L _{3HP}	L ₄	L ₁	D ₂	L ₇	P ₁	Style		
Stub	2-1/2 - 3-3/8	3-1/32	3-9/16	2-1/2	6-1/2	2	4	-	#125	212510000	
Short	2-1/2 - 3-3/8	5-17/32	6-1/16	5	9	1-3/4	4	-	#150	214510175	
Short	2-1/2 - 3-3/8	5-17/32	6-1/16	5	9	1-3/4	4	1/2	#100	212510175	
Standard	2-1/2 - 3-3/8	10-17/32	11-1/16	10	14	2	4	1/2	#200	212510200	
Long	2-1/2 - 3-3/8	20-17/32	21-1/16	20	24	2	4	1/2	#250	212510250	

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.





Drill Specifications

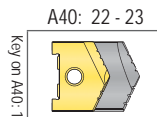
Series	D ₁	Drill				Shank					Part No.
		L _{3U}	L _{3HP}	L ₄	L ₁	MT	P ₁	R	Style		
Short	2-1/2 - 3-3/8	5-25/32	6-5/16	5	9-7/8	#4	-	-	#300	214510004	
Short	2-1/2 - 3-3/8	5-25/32	6-5/16	5	11-1/8	#5	-	-	#300	214510005	
Short	2-1/2 - 3-3/8	5-25/32	6-5/16	5	11-1/8	#5	-	-	#300 TSC	215510005	
Short	2-1/2 - 3-3/8	8-3/32	8-5/8	5	13-7/16	#5	1/2	2T-6SR	#400 SR	212510005	
Standard	2-1/2 - 3-3/8	13-3/32	13-5/8	10	18-7/16	#5	1/2	2T-6SR	#500 SR	212510005	
Long	2-1/2 - 3-3/8	23-3/32	23-5/8	20	28-7/16	#5	1/2	2T-6SR	#600 SR	222510005	
XL	2-1/2 - 3-3/8	33-3/32	33-5/8	30	38-7/16	#5	1/2	2T-6SR	#700 SR	222510005	

*Through shank coolant, coolant inlet diameter = 3/8"

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Connection Accessories

 Metric Screw 1/2"-13 x 1-3/4"	 Pilot Screw 5/16"-18 x 1/2"
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i = Imperial (in)
m = Metric (mm)

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

DRILLING

BORING

REAMING

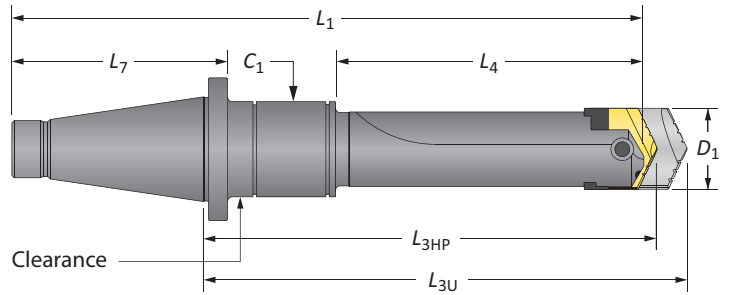
BURNISHING

THREADING

SPECIALS

Performance and Universal Replaceable Insert Drilling System

E Series



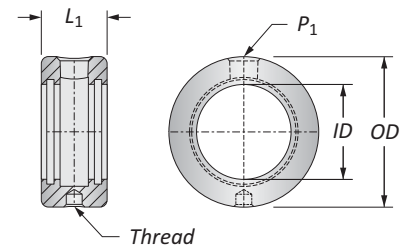
Specifications

Item	Length	D ₁	Dimension				Specs					Part No.
			L _{3HP}	L _{3U}	L ₄	L ₁	NMTB	L ₇	C ₁	RPM	Style	
i	Short	2-1/2 - 3-3/8	9-15/32	10	5-1/2	13-15/16	50	5-5/8	5/8	2T-55SR	#400	22510050
	Short	2-1/2 - 3-3/8	15-15/32	16	11-1/2	19-15/16	50	5-5/8	5/8	2T-55SR	#500	22510050

*All NMTB shank holders are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted. Once stock is depleted, items are available as quoted specials only.

Rotary Coolant Adapter Performance Characteristics

Item	ID	OD	L ₁	Rotary Coolant Thread	P ₁	RCA Part No.	
						Key Part No.	Repl. Cement
i	2-1/4	3-3/4	1-3/4	1/2 - NC	1/2	2255SR	2T1-6SR / 2T1-6OR-10
	2-1/2	4	1-3/4	1/2 - NC	1/2	2255SR	2T1-55SR / 2T1-55OR-10





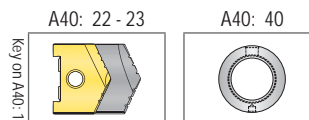
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

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

▲ Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

	
Blind Screw	Blow-off Screw
1/2" - 13 x 1-3/4"	5/16" - 18 x 1/2"



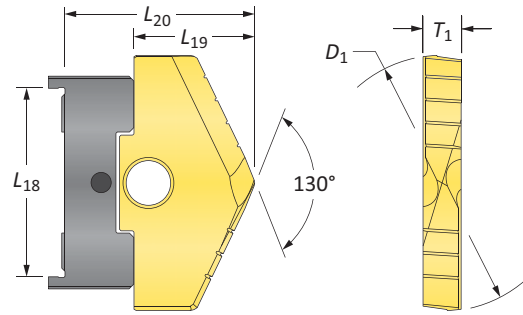
i = Imperial (in)
m = Metric (mm)
O-rings sold in packs of 10

▲ **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.

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

Performance Spade Drill Insert

F Series | Diameter Range: 3.0000" - 3.8750"



Series	D ₁ [in]		[in]				[in]			
	Fraction	Decimal	L ₁	L ₂	L ₃	T ₁	Part No.	Part No.	Part No.	Adapter
F	3	3.0000	2-5/8	1-13/16	2-17/32	1/2	1026U-301	1026U-301	1026U-301	1026U-Adapter
	3-1/32	3.0313	2-5/8	1-13/16	2-17/32	1/2	1026U-301	1026U-301	1026U-301	1026U-Adapter
	3-1/16	3.0625	2-5/8	1-13/16	2-17/32	1/2	1026U-302	1026U-302	1026U-302	1026U-Adapter
	3-3/32	3.0938	2-5/8	1-13/16	2-17/32	1/2	1026U-303	1026U-303	1026U-303	1026U-Adapter
	3-1/8	3.1250	2-5/8	1-13/16	2-17/32	1/2	1026U-304	1026U-304	1026U-304	1026U-Adapter
	3-5/32	3.1563	2-5/8	1-13/16	2-17/32	1/2	1026U-305	1026U-305	1026U-305	1026U-Adapter
	3-3/16	3.1875	2-5/8	1-13/16	2-17/32	1/2	1026U-306	1026U-306	1026U-306	1026U-Adapter
	3-7/32	3.2188	2-5/8	1-13/16	2-17/32	1/2	1026U-307	1026U-307	1026U-307	1026U-Adapter
	3-1/4	3.2500	2-5/8	1-13/16	2-17/32	1/2	1026U-308	1026U-308	1026U-308	1026U-Adapter
	3-9/32	3.2813	2-5/8	1-13/16	2-17/32	1/2	1026U-309	1026U-309	1026U-309	1026U-Adapter
	3-5/16	3.3125	2-5/8	1-13/16	2-17/32	1/2	1026U-310	1026U-310	1026U-310	1026U-Adapter
	3-11/32	3.3438	2-5/8	1-13/16	2-17/32	1/2	1026U-311	1026U-311	1026U-311	1026U-Adapter
	3-3/8	3.3750	2-5/8	1-13/16	2-17/32	1/2	1026U-312	1026U-312	1026U-312	1026U-Adapter
	3-13/32	3.4063	2-5/8	1-13/16	2-17/32	1/2	1026U-313	1026U-313	1026U-313	1026U-Adapter
	3-7/16	3.4375	2-5/8	1-13/16	2-17/32	1/2	1026U-314	1026U-314	1026U-314	1026U-Adapter
3-15/32	3.4688	2-5/8	1-13/16	2-17/32	1/2	1026U-315	1026U-315	1026U-315	1026U-Adapter	
3-1/2	3.5000	2-5/8	1-13/16	2-17/32	1/2	1026U-316	1026U-316	1026U-316	1026U-Adapter	
F Oversize	3-17/32	3.5313	2-5/8	1-13/16	2-17/32	1/2	1026U-317	1026U-317	1026U-317	1026U-Adapter
	3-9/16	3.5625	2-5/8	1-13/16	2-17/32	1/2	1026U-317	1026U-317	1026U-317	1026U-Adapter
	3-19/32	3.5938	2-5/8	1-13/16	2-17/32	1/2	1026U-318	1026U-318	1026U-318	1026U-Adapter
	3-5/8	3.6250	2-5/8	1-13/16	2-17/32	1/2	1026U-319	1026U-319	1026U-319	1026U-Adapter
	3-21/32	3.6563	2-5/8	1-13/16	2-17/32	1/2	1026U-320	1026U-320	1026U-320	1026U-Adapter
	3-11/16	3.6875	2-5/8	1-13/16	2-17/32	1/2	1026U-321	1026U-321	1026U-321	1026U-Adapter
	3-23/32	3.7188	2-5/8	1-13/16	2-17/32	1/2	1026U-322	1026U-322	1026U-322	1026U-Adapter
	3-3/4	3.7500	2-5/8	1-13/16	2-17/32	1/2	1026U-323	1026U-323	1026U-323	1026U-Adapter
	3-25/32	3.7813	2-5/8	1-13/16	2-17/32	1/2	1026U-324	1026U-324	1026U-324	1026U-Adapter
	3-13/16	3.8125	2-5/8	1-13/16	2-17/32	1/2	1026U-325	1026U-325	1026U-325	1026U-Adapter
3-27/32	3.8438	2-5/8	1-13/16	2-17/32	1/2	1026U-326	1026U-326	1026U-326	1026U-Adapter	
3-7/8	3.8750	2-5/8	1-13/16	2-17/32	1/2	1026U-327	1026U-327	1026U-327	1026U-Adapter	

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Inserts sold in multiples of 1

A40: 44 - 45 A40: 28 - 29 A40: 38

Sizes not shown are available upon request. When ordering, please follow the example below:

in	7-63/64", 130° CPM-M4 (H8 series) = use Part No. 1026U-301
dec	6.391", 130° CPM-M4 (H5 series) = use Part No. 1026U-301

DRILLING

BORING

REAMING

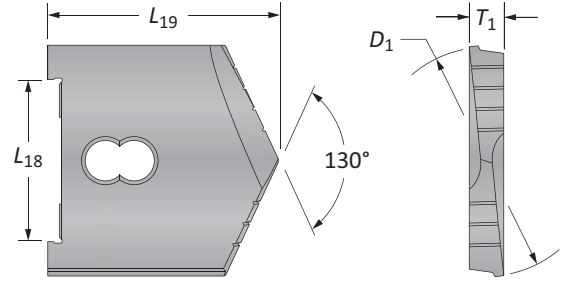
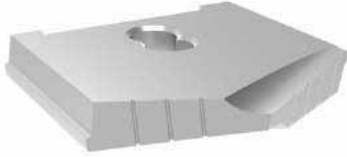
BURNISHING

THREADING

SPECIALS

High Performance Drill Insert

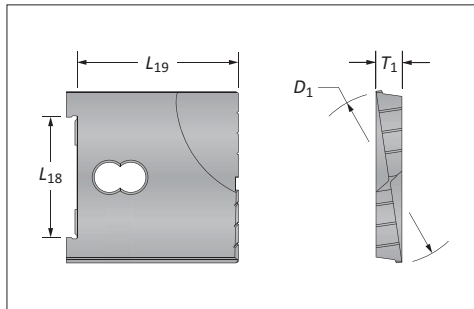
F Series | Diameter Range: 3.0000" - 3.8750"



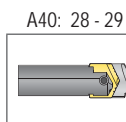
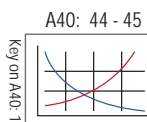
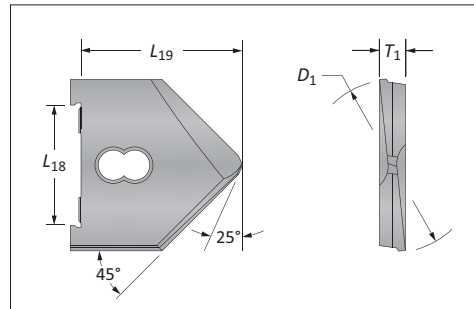
Series	D ₁ Inch		Inch			Part Number			
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	130° CPM M4	130° CPM M15	Flat Bottom	Superferr
F	3	3.0000	2-5/8	3-1/8	1/2	102040300	102050300	104040300	00R
	3-1/32	3.0313	2-5/8	3-1/8	1/2	102040301	00	00	00R
	3-1/16	3.0625	2-5/8	3-1/8	1/2	102040302	102050302	104040302	00R
	3-3/32	3.0938	2-5/8	3-1/8	1/2	102040303	00	00	00R
	3-1/8	3.1250	2-5/8	3-1/8	1/2	102040304	102050304	104040304	00R
	3-5/32	3.1563	2-5/8	3-1/8	1/2	102040305	00	00	00R
	3-3/16	3.1875	2-5/8	3-1/8	1/2	102040306	102050306	104040306	00R
	3-7/32	3.2188	2-5/8	3-1/8	1/2	102040307	00	00	00R
	3-1/4	3.2500	2-5/8	3-1/8	1/2	102040308	00	00	00R
	3-9/32	3.2813	2-5/8	3-1/8	1/2	102040309	00	00	00R
	3-5/16	3.3125	2-5/8	3-1/8	1/2	102040310	102050310	104040310	00R
	3-11/32	3.3438	2-5/8	3-1/8	1/2	102040311	00	00	00R
	3-3/8	3.3750	2-5/8	3-1/8	1/2	102040312	00	00	00R
	3-13/32	3.4063	2-5/8	3-1/8	1/2	102040313	00	00	00R
	3-7/16	3.4375	2-5/8	3-1/8	1/2	102040314	102050314	104040314	00R
	3-15/32	3.4688	2-5/8	3-1/8	1/2	102040315	00	00	00R
3-1/2	3.5000	2-5/8	3-1/8	1/2	102040316	00	104040316	112040316	
F Oversize	3-17/32	3.5313	2-5/8	3-1/8	1/2	102040317	00	00	00
	3-9/16	3.5625	2-5/8	3-1/8	1/2	102040318	00	00	00
	3-19/32	3.5938	2-5/8	3-1/8	1/2	102040319	00	00	00
	3-5/8	3.6250	2-5/8	3-1/8	1/2	102040320	00	00	00
	3-21/32	3.6563	2-5/8	3-1/8	1/2	102040321	00	00	00
	3-11/16	3.6875	2-5/8	3-1/8	1/2	102040322	00	00	00
	3-23/32	3.7188	2-5/8	3-1/8	1/2	102040323	00	00	00
	3-3/4	3.7500	2-5/8	3-1/8	1/2	102040324	00	00	00
	3-25/32	3.7813	2-5/8	3-1/8	1/2	102040325	00	00	00
	3-13/16	3.8125	2-5/8	3-1/8	1/2	102040326	00	00	00
3-27/32	3.8438	2-5/8	3-1/8	1/2	102040327	00	00	00	
3-7/8	3.8750	2-5/8	3-1/8	1/2	102040328	00	00	00	

0000 POR = Priced on request

Flat Bottom



Superferr



Sizes not shown are available upon request.
When ordering, please follow the example below:

Inch	1-17/64", 130° CPM-M4 (B series) = use Part No. 102240300
Decimal	1.5110", 130° Flat Bottom (C series) = use Part No. 104340311

DRILLING

BORING

REAMING

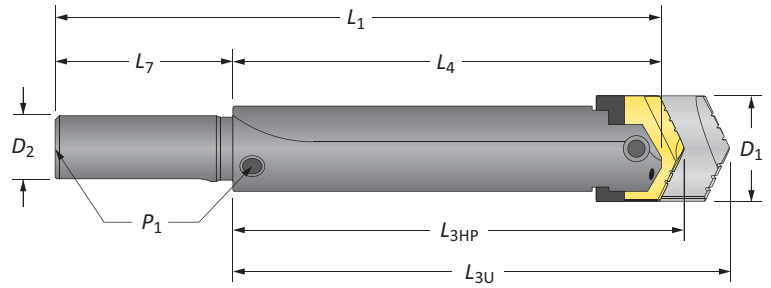
BURNISHING

THREADING

SPECIALS

Performance and Universal Replaceable Insert Drilling System

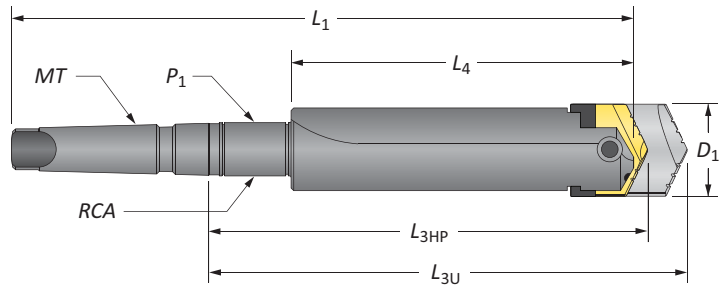
F Series



Specifications

Designation	D ₁	Drill				Shank					Part No.
		L _{3HP}	L _{3U}	L ₄	L ₁	D ₂	L ₇	P ₁	Style		
Stub	3 - 3-7/8	3-13/32	4	2-3/4	6-3/4	2-1/2	4	-	#125	2020102500	
Short	3 - 3-7/8	6-5/32	6-3/4	5-1/2	9-1/2	2	4	-	#150	2040102000	
Short	3 - 3-7/8	6-5/32	6-3/4	5-1/2	9-1/2	2	4	1/2	#100	2000102000	
Short	3 - 3-7/8	6-5/32	6-3/4	5-1/2	9-1/2	2-1/2	4	1/2	#100	2000102500	
Standard	3 - 3-7/8	12-5/32	12-3/4	11-1/2	15-1/2	2	4	1/2	#200	2000102000	
Long	3 - 3-7/8	20-21/32	21-1/4	20	24	2-1/2	4	1/2	#250	2100102500	

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.



Other Specifications

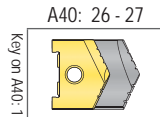
Designation	D ₁	Drill				Shank					Part No.
		L _{3HP}	L _{3U}	L ₄	L ₁	MT	P ₁	R	Style		
Short	3 - 3-7/8	6-13/32	7	5-1/2	11-5/8	#5	-	-	#300	2140102005	
Short	3 - 3-7/8	6-13/32	7	5-1/2	11-5/8	#5	-	-	#300 TSC	2150102005	
Short	3 - 3-7/8	8-23/32	9-5/16	5-1/2	13-15/16	#5	1/2	2T-6SR	#400 SR	2100102005	
Standard	3 - 3-7/8	14-23/32	15-5/16	11-1/2	19-15/16	#5	1/2	2T-6SR	#500 SR	2100102005	
Long	3 - 3-7/8	23-7/32	23-13/16	20	28-7/16	#5	1/2	2T-6SR	#600 SR	2200102005	
XL	3 - 3-7/8	36-7/32	36-13/16	33	41-7/16	#5	1/2	2T-6SR	#700 SR	2220102005	

*Through shank coolant, coolant inlet diameter = 3/8"

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Connection Accessories

Hex Shank Screw	Hex Neck Screw
1/2"-13 x 1-3/4"	5/16"-18 x 1/2"



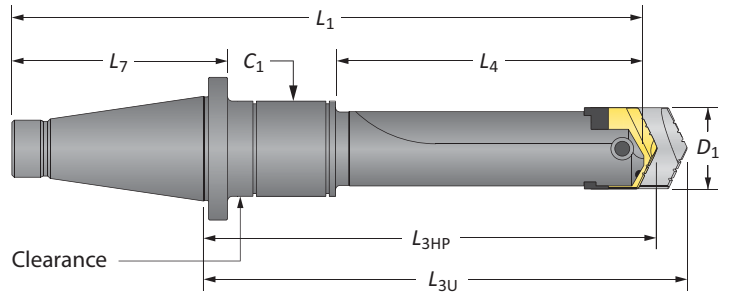
i = Imperial (in)
m = Metric (mm)

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



Performance and Versatility Series Drill Bit Holder

F Series



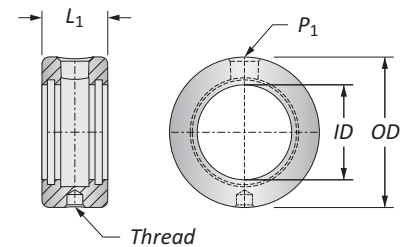
Specifications

Item	Length	D ₁	Holder				Shank					Part No.
			L _{3HP}	L _{3U}	L ₄	L ₁	NMTB	L ₇	C ₁	R ₂	Style	
i	Short	3 - 3-7/8	7-9/32	7-7/8	5-1/2	11-5/8	50	5-5/8	-	-	#300	2241105
	Short	3 - 3-7/8	9-19/32	10-3/16	5-1/2	13-15/16	50	5-5/8	5/8	2T-60SR	#400	2221105
	Short	3 - 3-7/8	15-19/32	16-3/16	11-1/2	19-15/16	50	5-5/8	5/8	2T-60SR	#500	2221105

*All NMTB shank holders are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted. Once stock is depleted, items are available as quoted specials only.

RCA Assembly and Connection

Item	ID	OD	L ₁	RCA Thread	P ₁	RCA Part	
						Part No.	Replacement
i	2-1/4	3-3/4	1-3/4	1/2 - NC	1/2	2T-60SR	2T1-6SR
	3	4-1/2	1-3/4	1/2 - NC	1/2	2T1-60SR	2T1-60OR-10



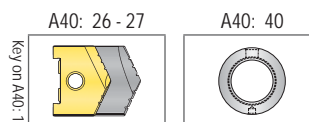
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

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

▲ Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

Blind Screw	Blind Screw
1/2"-13 x 1-3/4"	5/16"-18 x 1/2"



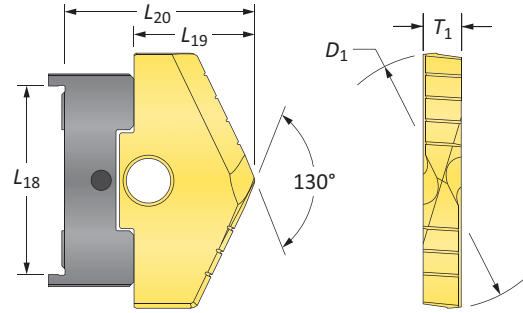
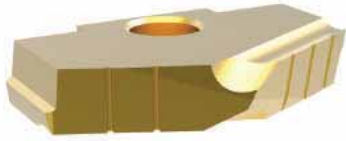
i = Imperial (in)
m = Metric (mm)
O-rings sold in packs of 10

▲ **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.

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

Performance Spade Drill Insert

G Series | Diameter Range: 3.5000" - 4.5000"



Series	D ₁ [in]		[in]				[in]				Adapter
	Fraction	Decimal	L ₁₈	L ₁₉	L ₂₀	T ₁	Part No.	Part No.	Part No.	Part No.	
G	3-1/2	3.5000	3-1/16	1-15/16	2-23/32	5/8	102703310	102703310	102703310	1027U-Adapter	
	3-17/32	3.5313	3-1/16	1-15/16	2-23/32	5/8	102703317	102703317	102703317	1027U-Adapter	
	3-9/16	3.5625	3-1/16	1-15/16	2-23/32	5/8	102703310	102703310	102703310	1027U-Adapter	
	3-19/32	3.5938	3-1/16	1-15/16	2-23/32	5/8	102703310	102703310	102703310	1027U-Adapter	
	3-5/8	3.6250	3-1/16	1-15/16	2-23/32	5/8	102703320	102703320	102703320	1027U-Adapter	
	3-21/32	3.6563	3-1/16	1-15/16	2-23/32	5/8	102703321	102703321	102703321	1027U-Adapter	
	3-11/16	3.6875	3-1/16	1-15/16	2-23/32	5/8	102703322	102703322	102703322	1027U-Adapter	
	3-23/32	3.7188	3-1/16	1-15/16	2-23/32	5/8	102703323	102703323	102703323	1027U-Adapter	
	3-3/4	3.7500	3-1/16	1-15/16	2-23/32	5/8	102703324	102703324	102703324	1027U-Adapter	
	3-25/32	3.7813	3-1/16	1-15/16	2-23/32	5/8	102703325	102703325	102703325	1027U-Adapter	
	3-13/16	3.8125	3-1/16	1-15/16	2-23/32	5/8	102703320	102703320	102703320	1027U-Adapter	
	3-27/32	3.8438	3-1/16	1-15/16	2-23/32	5/8	102703327	102703327	102703327	1027U-Adapter	
	3-7/8	3.8750	3-1/16	1-15/16	2-23/32	5/8	102703320	102703320	102703320	1027U-Adapter	
	3-29/32	3.9063	3-1/16	1-15/16	2-23/32	5/8	102703320	102703320	102703320	1027U-Adapter	
	3-15/16	3.9375	3-1/16	1-15/16	2-23/32	5/8	102703330	102703330	102703330	1027U-Adapter	
3-31/32	3.9688	3-1/16	1-15/16	2-23/32	5/8	102703331	102703331	102703331	1027U-Adapter		
4	4.0000	3-1/16	1-15/16	2-23/32	5/8	102703400	102703400	102703400	1027U-Adapter		
G Oversize	4-1/16	4.0625	3-1/16	1-15/16	2-23/32	5/8	102703402	102703402	102703402	1027U-Adapter	
	4-1/8	4.1250	3-1/16	1-15/16	2-23/32	5/8	102703404	102703404	102703404	1027U-Adapter	
	4-3/16	4.1875	3-1/16	1-15/16	2-23/32	5/8	102703400	102703400	102703400	1027U-Adapter	
	4-1/4	4.2500	3-1/16	1-15/16	2-23/32	5/8	102703400	102703400	102703400	1027U-Adapter	
	4-5/16	4.3125	3-1/16	1-15/16	2-23/32	5/8	102703410	102703410	102703410	1027U-Adapter	
	4-3/8	4.3750	3-1/16	1-15/16	2-23/32	5/8	102703412	102703412	102703412	1027U-Adapter	
	4-7/16	4.4375	3-1/16	1-15/16	2-23/32	5/8	102703414	102703414	102703414	1027U-Adapter	
4-1/2	4.5000	3-1/16	1-15/16	2-23/32	5/8	102703410	102703410	102703410	1027U-Adapter		

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Inserts sold in multiples of 1

Key on A40-1

A40: 44 - 45

A40: 32 - 33

A40: 38

Sizes not shown are available upon request.
When ordering, please follow the example below:

in	7-63/64", 130° CPM-M4 (H8 series) = use Part No. 10270340043
dec	6.391", 130° CPM-M4 (H5 series) = use Part No. 10270340010

DRILLING

BORING

REAMING

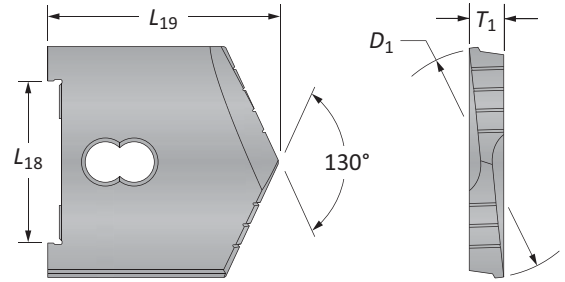
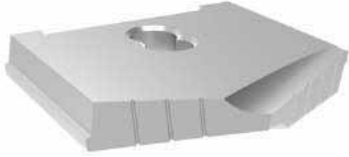
BURNISHING

THREADING

SPECIALS

High Performance Series Universal Replaceable Insert

G Series | Diameter Range: 3.5000" - 4.5000"

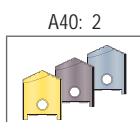
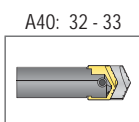
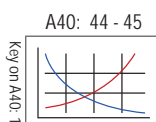
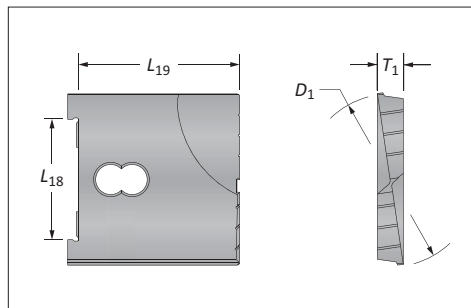


Series	D ₁ Inch		Insert			13° CPM M4	13° CPM M15	Flat Bottom
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁			
G	3-1/2	3.5000	3-1/16	3-3/8	5/8	102740310	102750310	104740310
	3-17/32	3.5313	3-1/16	3-3/8	5/8	102740317		
	3-9/16	3.5625	3-1/16	3-3/8	5/8	102740310	102750310	104740310
	3-19/32	3.5938	3-1/16	3-3/8	5/8	102740310		
	3-5/8	3.6250	3-1/16	3-3/8	5/8	102740320	102750320	104740320
	3-21/32	3.6563	3-1/16	3-3/8	5/8	102740321		
	3-11/16	3.6875	3-1/16	3-3/8	5/8	102740322	102750322	104740322
	3-23/32	3.7188	3-1/16	3-3/8	5/8	102740323		
	3-3/4	3.7500	3-1/16	3-3/8	5/8	102740324	102750324	104740324
	3-25/32	3.7813	3-1/16	3-3/8	5/8	102740325		
	3-13/16	3.8125	3-1/16	3-3/8	5/8	102740320	102750320	104740320
	3-27/32	3.8438	3-1/16	3-3/8	5/8	102740327		
	3-7/8	3.8750	3-1/16	3-3/8	5/8	102740320	102750320	104740320
	3-29/32	3.9063	3-1/16	3-3/8	5/8	102740320		
3-15/16	3.9375	3-1/16	3-3/8	5/8	102740330	102750330	104740330	
3-31/32	3.9688	3-1/16	3-3/8	5/8	102740331			
4	4.0000	3-1/16	3-3/8	5/8	102740400	102750400	104740400	
G Oversize	4-1/16	4.0625	3-1/16	3-3/8	5/8	102740402		
	4-1/8	4.1250	3-1/16	3-3/8	5/8	102740404		
	4-3/16	4.1875	3-1/16	3-3/8	5/8	102740400		
	4-1/4	4.2500	3-1/16	3-3/8	5/8	102740400		
	4-5/16	4.3125	3-1/16	3-3/8	5/8	102740410		
	4-3/8	4.3750	3-1/16	3-3/8	5/8	102740412		
	4-7/16	4.4375	3-1/16	3-3/8	5/8	102740414		
4-1/2	4.5000	3-1/16	3-3/8	5/8	102740410			

POR = Priced on request

Inserts sold in multiples of 1

Flat Bottom



Sizes not shown are available upon request.
When ordering, please follow the example below:

Inch	1-17/64", 130° CPM-M4 (B series) = use Part No. 1022401050
Decimal	1.5110", 130° Flat Bottom (C series) = use Part No. 1043401510

DRILLING

BORING

REAMING

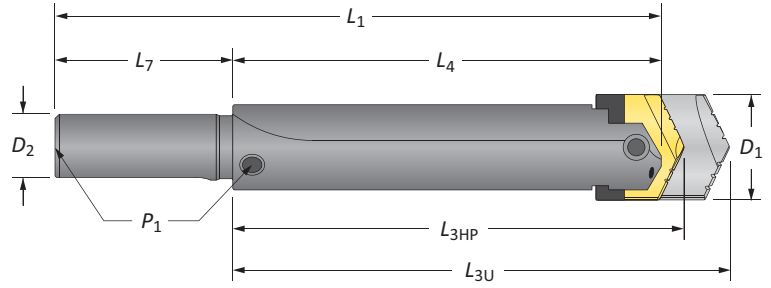
BURNISHING

THREADING

SPECIALS

Performance and Universal Replaceable Insert Drilling System

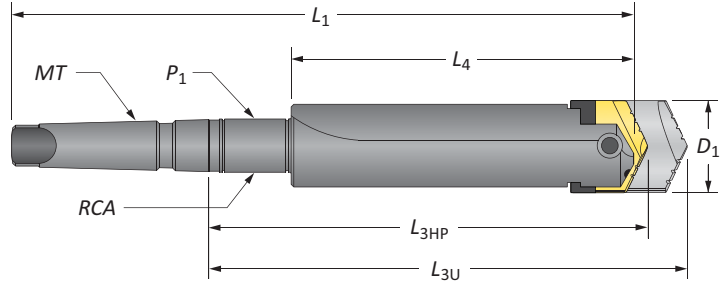
G Series



Standard

Length	D ₁	Diameter				Shank					Part No.
		L _{3U}	L _{3HP}	L ₄	L ₁	D ₂	L ₇	P ₁	Style		
i	Short	3-1/2 - 4-1/2	6-25/32	7-7/16	6	11	2-1/2	5	1/2	#100	217125
	Standard	3-1/2 - 4-1/2	13-25/32	14-7/16	13	18	2-1/2	5	1/2	#200	217125

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.



Reamer

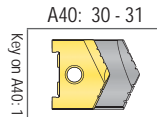
Length	D ₁	Diameter				Shank					Part No.
		L _{3U}	L _{3HP}	L ₄	L ₁	MT	P ₁	R	Style		
i	Short	3-1/2 - 4-1/2	7-1/32	7-11/16	6	12-1/8	#5	-	-	#300	2147125
	Short	3-1/2 - 4-1/2	7-1/32	7-11/16	6	12-1/8	#5	-	-	#300 TSC	2157125
	Short	3-1/2 - 4-1/2	9-11/32	10	6	14-7/16	#5	1/2	2T-6SR	#400 SR	217125
	Standard	3-1/2 - 4-1/2	16-11/32	17	13	21-7/16	#5	1/2	2T-6SR	#500 SR	217125
	Long	3-1/2 - 4-1/2	27-11/32	28	24	32-7/16	#5	1/2	2T-6SR	#600 SR	227125
	XL	3-1/2 - 4-1/2	40-11/32	41	37	45-7/16	#5	1/2	2T-6SR	#700 SR	2227125

*Through shank coolant, coolant inlet diameter = 3/8"

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Connection Accessories

Pin Screw	Pin Lock Screw
3/4"-10 x 2-1/2"	5/16"-18 x 1/2"



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

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

DRILLING

BORING

REAMING

BURNISHING

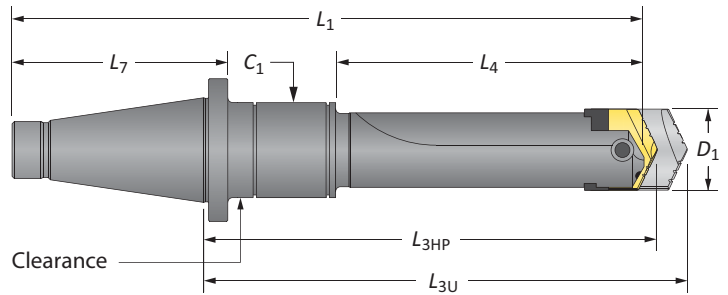
THREADING

SPECIALS



Performance and Versatility Series Drill Insert Drilling System

G Series



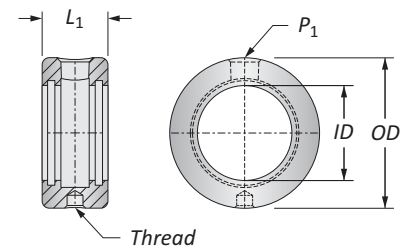
Standard Sizes

Length	D ₁	Insert				Standard					Part No.
		L _{3HP}	L _{3U}	L ₄	L ₁	NMTB	L ₇	C ₁	RPM	Style	
Short	3-1/2 - 4-1/2	8-29/32	9-9/16	7	13-1/8	50	5-5/8	-	-	#300	22471-005
Short	3-1/2 - 4-1/2	11-7/32	11-7/8	7	15-7/16	50	5-5/8	5/8	2T-65SR	#400	2271-005
Short	3-1/2 - 4-1/2	19-13/32	20	15	23-7/16	50	5-5/8	5/8	2T-65SR	#500	2271-005

*All NMTB shank holders are discontinued items. Items listed are available (subject to prior sale) at list prices until stock is depleted. Once stock is depleted, items are available as quoted specials only.

Rotary Tool Adapter Accessories

ID	OD	L ₁	Rotary Tool		Part No.	Replacement	
			Thread	P ₁		Key Part No.	Replacement
2-1/4	3-3/4	1-3/4	1/2 - NC	1/2	2T-65SR	2T1-6SR	2T1-6OR-10
3-3/4	5-1/2	1-3/4	1/2 - NC	1/2	2T-65SR	2T1-65SR	2T1-65OR-10



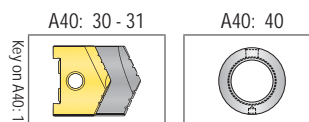
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

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

▲ Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

Blind Screw	Blind Screw
3/4"-10 x 2-1/2"	5/16"-18 x 1/2"



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

▲ 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.

DRILLING

BORING

REAMING

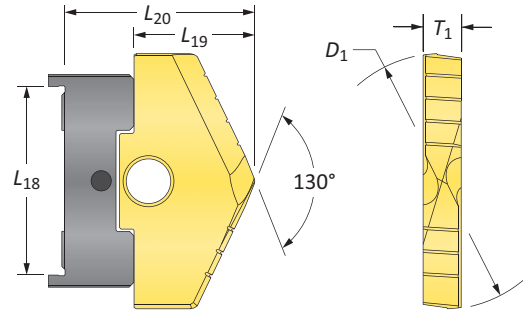
BURNISHING

THREADING

SPECIALS

Performance Spade Drill Insert

H Series | Diameter Range: 4.0000" - 5.0000"



Series	D ₁ [in]		[in]				[in]				Adapter
	Fraction	Decimal	L ₁₈	L ₁₉	L ₂₀	T ₁	Part No.	Part No.	Part No.	Part No.	
H ¹	4	4.0000	3-1/2	2-3/16	3-3/32	11/16	1028U-400	1028U-402	1028U-404	1028U-408	1028U-Adapter
	4-1/16	4.0625	3-1/2	2-3/16	3-3/32	11/16	1028U-402	1028U-402	1028U-402	1028U-402	1028U-Adapter
	4-1/8	4.1250	3-1/2	2-3/16	3-3/32	11/16	1028U-404	1028U-404	1028U-404	1028U-404	1028U-Adapter
	4-3/16	4.1875	3-1/2	2-3/16	3-3/32	11/16	1028U-404	1028U-404	1028U-404	1028U-404	1028U-Adapter
	4-1/4	4.2500	3-1/2	2-3/16	3-3/32	11/16	1028U-404	1028U-404	1028U-404	1028U-404	1028U-Adapter
	4-5/16	4.3125	3-1/2	2-3/16	3-3/32	11/16	1028U-410	1028U-410	1028U-410	1028U-410	1028U-Adapter
	4-3/8	4.3750	3-1/2	2-3/16	3-3/32	11/16	1028U-412	1028U-412	1028U-412	1028U-412	1028U-Adapter
	4-7/16	4.4375	3-1/2	2-3/16	3-3/32	11/16	1028U-414	1028U-414	1028U-414	1028U-414	1028U-Adapter
H ²	4-1/2	4.5000	3-1/2	2-3/16	3-3/32	11/16	1028U-410	1028U-410	1028U-410	1028U-410	1028U-Adapter
	4-9/16	4.5625	3-1/2	2-3/16	3-3/32	11/16	1028U-410	1028U-410	1028U-410	1028U-410	1028U-Adapter
	4-5/8	4.6250	3-1/2	2-3/16	3-3/32	11/16	1028U-420	1028U-420	1028U-420	1028U-420	1028U-Adapter
	4-11/16	4.6875	3-1/2	2-3/16	3-3/32	11/16	1028U-422	1028U-422	1028U-422	1028U-422	1028U-Adapter
	4-3/4	4.7500	3-1/2	2-3/16	3-3/32	11/16	1028U-424	1028U-424	1028U-424	1028U-424	1028U-Adapter
	4-13/16	4.8125	3-1/2	2-3/16	3-3/32	11/16	1028U-420	1028U-420	1028U-420	1028U-420	1028U-Adapter
	4-7/8	4.8750	3-1/2	2-3/16	3-3/32	11/16	1028U-420	1028U-420	1028U-420	1028U-420	1028U-Adapter
	4-15/16	4.9375	3-1/2	2-3/16	3-3/32	11/16	1028U-430	1028U-430	1028U-430	1028U-430	1028U-Adapter
5	5.0000	3-1/2	2-3/16	3-3/32	11/16	1028U-500	1028U-500	1028U-500	1028U-500	1028U-Adapter	

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Inserts sold in multiples of 1

A40: 44 - 45 A40: 36 - 37 A40: 38

Key on A40-1

Sizes not shown are available upon request.
When ordering, please follow the example below:

[in]	7-63/64", 130° CPM-M4 (H8 series) = use Part No. 1028U-407-0043
[dec]	6.391", 130° CPM-M4 (H5 series) = use Part No. 1028U-407-0010

DRILLING

BORING

REAMING

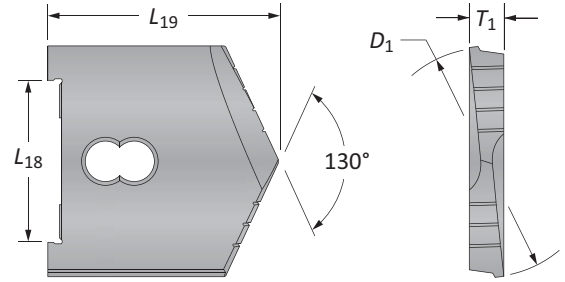
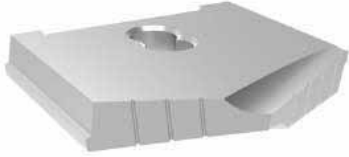
BURNISHING

THREADING

SPECIALS

High Performance Series Universal Replaceable Insert

H¹ - H² Series | Diameter Range: 4.0000" - 8.5000"

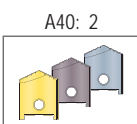
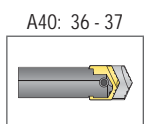
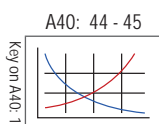
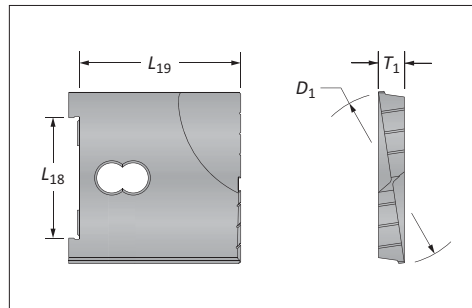


Series	D ₁ (in)		Length			Series		
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	130° CPM-M4	130° CPM-M15	Flat Bottom
H ¹	4	4.0000	3-1/2	3-11/16	11/16	102040404	102050404	104040404
	4-1/16	4.0625	3-1/2	3-11/16	11/16	102040402		
	4-1/8	4.1250	3-1/2	3-11/16	11/16	102040404	102050404	104040404
	4-3/16	4.1875	3-1/2	3-11/16	11/16	102040404		
	4-1/4	4.2500	3-1/2	3-11/16	11/16	102040404		104040404
	4-5/16	4.3125	3-1/2	3-11/16	11/16	102040410		
	4-3/8	4.3750	3-1/2	3-11/16	11/16	102040412		104040412
	4-7/16	4.4375	3-1/2	3-11/16	11/16	102040414		
H ²	4-1/2	4.5000	3-1/2	3-11/16	11/16	102040410	102050410	104040410
	4-9/16	4.5625	3-1/2	3-11/16	11/16	102040410		
	4-5/8	4.6250	3-1/2	3-11/16	11/16	102040420		104040420
	4-11/16	4.6875	3-1/2	3-11/16	11/16	102040422		
	4-3/4	4.7500	3-1/2	3-11/16	11/16	102040424		104040424
	4-13/16	4.8125	3-1/2	3-11/16	11/16	102040420		
	4-7/8	4.8750	3-1/2	3-11/16	11/16	102040420		104040420
	4-15/16	4.9375	3-1/2	3-11/16	11/16	102040430		
	5	5.0000	3-1/2	3-11/16	11/16	102040500	102050500	104040500

POR = Priced on request

Inserts sold in multiples of 1

Flat Bottom



Sizes not shown are available upon request. When ordering, please follow the example below:

in	1-17/64", 130° CPM-M4 (B series) = use Part No. 102201000
in	1.5110", 130° Flat Bottom (C series) = use Part No. 104340110

DRILLING

BORING

REAMING

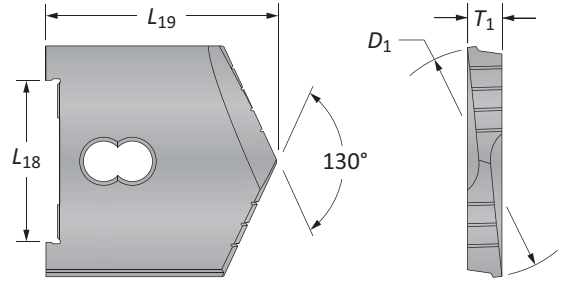
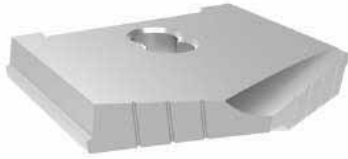
BURNISHING

THREADING

SPECIALS

High Performance and Universal Replaceable Insert Drilling System

H³ - H⁹ Series | Diameter Range: 5.1250" - 8.5000"



Series	D ₁ [in]		[in]			Part No.
	Fraction	Decimal	L ₁₈	L ₁₉	T ₁	
H ³	5-1/8	5.1250	3-1/2	3-11/16	11/16	13244504
	5-1/4	5.2500	3-1/2	3-11/16	11/16	13244508
	5-3/8	5.3750	3-1/2	3-11/16	11/16	13244512
	5-1/2	5.5000	3-1/2	3-11/16	11/16	13244516
H ⁴	5-5/8	5.6250	3-1/2	3-11/16	11/16	13244520
	5-3/4	5.7500	3-1/2	3-11/16	11/16	13244524
	5-7/8	5.8750	3-1/2	3-11/16	11/16	13244528
	6	6.0000	3-1/2	3-11/16	11/16	13244532
H ⁵	6-1/8	6.1250	3-1/2	3-11/16	11/16	13244536
	6-1/4	6.2500	3-1/2	3-11/16	11/16	13244540
	6-3/8	6.3750	3-1/2	3-11/16	11/16	13244544
	6-1/2	6.5000	3-1/2	3-11/16	11/16	13244548
H ⁶	6-5/8	6.6250	3-1/2	3-11/16	11/16	13244552
	6-3/4	6.7500	3-1/2	3-11/16	11/16	13244556
	6-7/8	6.8750	3-1/2	3-11/16	11/16	13244560
	7	7.0000	3-1/2	3-11/16	11/16	13244564
H ⁷	7-1/8	7.1250	3-1/2	3-11/16	11/16	13244568
	7-1/4	7.2500	3-1/2	3-11/16	11/16	13244572
	7-3/8	7.3750	3-1/2	3-11/16	11/16	13244576
	7-1/2	7.5000	3-1/2	3-11/16	11/16	13244580
H ⁸	7-5/8	7.6250	3-1/2	3-11/16	11/16	13244584
	7-3/4	7.7500	3-1/2	3-11/16	11/16	13244588
	7-7/8	7.8750	3-1/2	3-11/16	11/16	13244592
	8	8.0000	3-1/2	3-11/16	11/16	13244596
H ⁹	8-1/8	8.1250	3-1/2	3-11/16	11/16	13244600
	8-1/4	8.2500	3-1/2	3-11/16	11/16	13244604
	8-3/8	8.3750	3-1/2	3-11/16	11/16	13244608
	8-1/2	8.5000	3-1/2	3-11/16	11/16	13244612

Key on A40, 1

A40: 44 - 45

A40: 36 - 37

A40: 2

Sizes not shown are available upon request.
When ordering, please follow the example below:

[in]	1-17/64", 130° CPM-M4 (B series) = use Part No. 13224102050
[dec]	1.5110", 130° Flat Bottom (C series) = use Part No. 13434105110

DRILLING

BORING

REAMING

BURNISHING

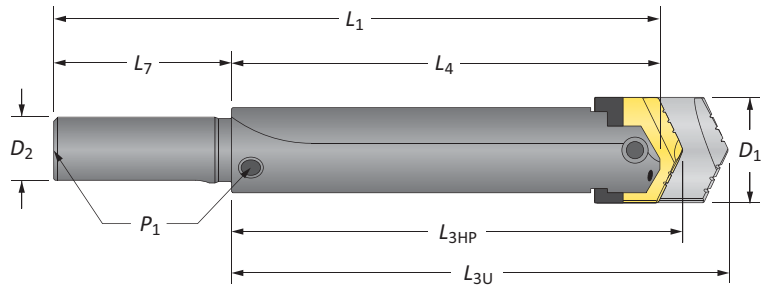
THREADING

SPECIALS



Performance and Number Speed and Feed Chart H Series

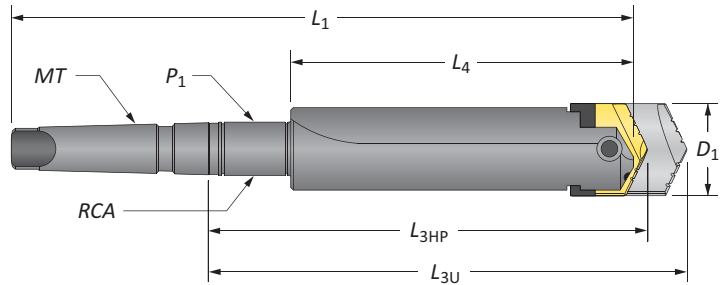
H Series



Speed and Feed

Feed	D ₁	Diameter				Speed				Style	Part No
		L _{3U}	L _{3HP}	L ₄	L ₁	D ₂	L ₇	P ₁	SR		
i	Short	4 - 8-1/2	7-31/32	8-9/16	7	13	2-1/2	6	1/2	#100	21111125SR
	Standard	4 - 8-1/2	15-31/32	16-9/16	15	21	2-1/2	6	1/2	#200	21111125SR

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.



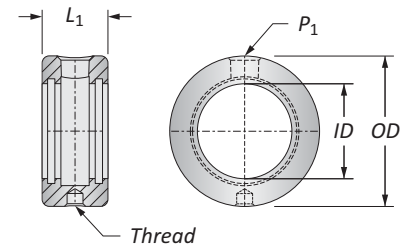
Speed and Feed

Feed	D ₁	Diameter				Speed				Style	Part No
		L _{3U}	L _{3HP}	L ₄	L ₁	MT	P ₁	R	SR		
i	Short	4 - 8-1/2	8-7/32	8-13/16	7	13-1/8	#5	-	-	#300	21411125SR
	Short	4 - 8-1/2	10-17/32	11-1/8	7	15-7/16	#5	1/2	2T-6SR	#400 SR	21111125SR
	Standard	4 - 8-1/2	18-17/32	19-1/8	15	23-7/16	#5	1/2	2T-6SR	#500 SR	21111125SR
	Standard	4 - 8-1/2	18-17/32	19-1/8	15	25-7/8	#6	1/2	2T-55SR	#500 SR	21111125SR
	Long	4 - 8-1/2	27-19/32	28-3/16	24	34-7/8	#6	1/2	2T-55SR	#600 SR	22211125SR
	XL	4 - 8-1/2	43-19/32	44-3/16	40	50-7/8	#6	1/2	2T-55SR	#700 SR	22211125SR

Adapter is required for D-H series High Performance spade drills. Adapters sold separately.

Rotary Tooling Performance and Feed Chart

ID	OD	L ₁	Thread	P ₁	Part No	Key Part No	Replacemen
2-1/4	3-3/4	1-3/4	1/2 - NC	1/2	21111125SR	2T1-6SR	2T1-6OR-10
2-1/2	4	1-3/4	1/2 - NC	1/2	21111125SR	2T1-55SR	2T1-55OR-10



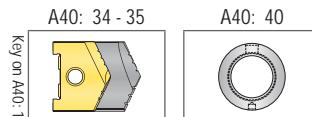
*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

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

▲ Refer to page A40: 40 for proper RCA assembly and safety information

Connection Accessories

3/4"-10 x 2-1/2"	3/8"-16 x 3/4"



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

▲ Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A40: 48 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

DRILLING

BORING

REAMING

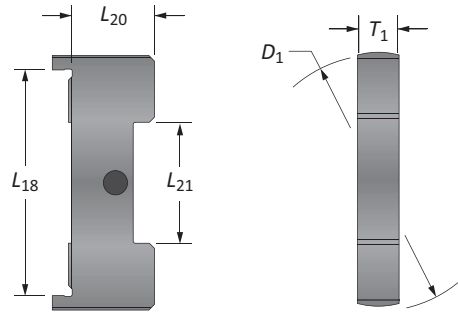
BURNISHING

THREADING

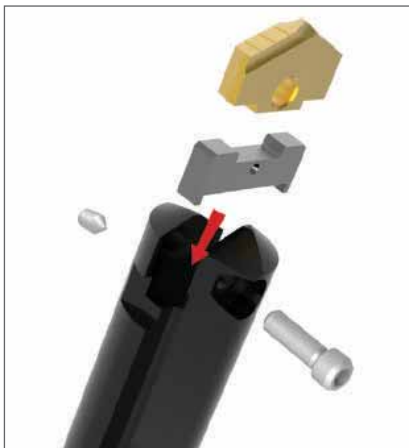
SPECIALS

Performance Spade Drill Insert

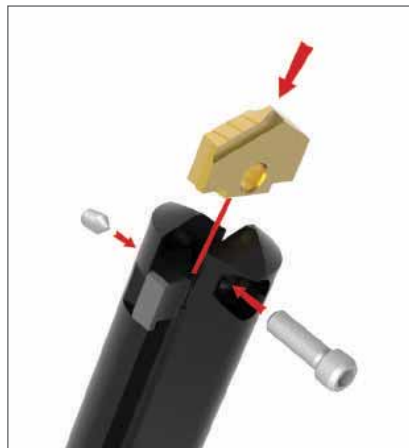
D - H Series



Series	D ₁	Adapter				Part No.
		L ₁₈	L ₂₀	L ₂₁	T ₁	
D	1.995	1-3/4	43/64	15/16	3/8	10240 Adapter
E	2.495	2-1/16	21/32	1-3/16	7/16	10250 Adapter
F	2.995	2-5/8	23/32	1-1/4	1/2	10260 Adapter
G	3.495	3-1/16	25/32	1-13/16	5/8	10270 Adapter
H	3.995	3-1/2	29/32	2-1/4	11/16	10280 Adapter



Step 1
Position the adapter into the holder.



Step 2
Slide the insert into the adapter inside the holder.



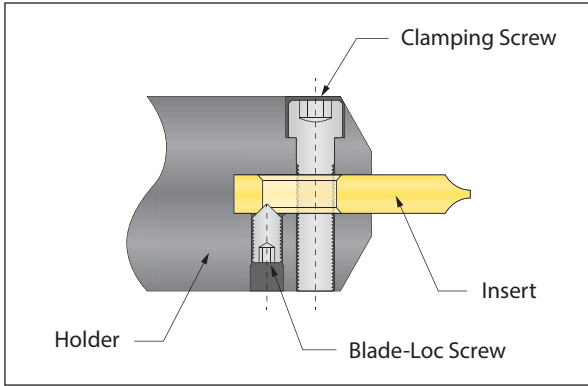
Step 3
Insert and tighten both the clamping screw and Blade-Loc screw to secure the insert and adapter into position.

Adapter Interchangeability

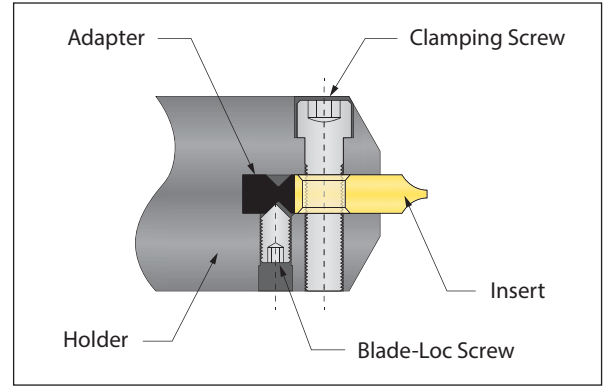
- Adapters allow the use of complete spade drill insert range
- Needed for D - H series (not required for A - C series)
- Adapter + High Performance insert combination can be interchanged with Universal insert and/or other holders
- Manufactured to ANSI B94.49-1975 TYPE I specifications

Universal Replaceable Insert Drilling System

D - H Series



Standard Series Drill Holder



Performance Series Drill Holder

Standard Series Drill Holder

- Helps align the spade drill while locking it in place
- Protects against tool movement during the drilling cycle and when the tool is being retracted from the hole
- Standard feature in D - H series holders

Performance Series Drill Holder

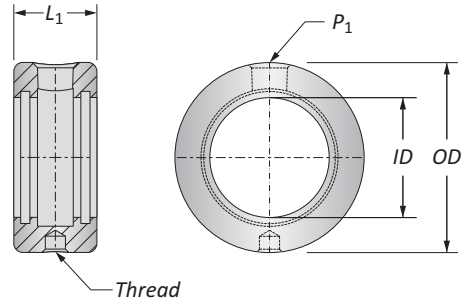
- Secures the adapter to the holder
- Allows inserts to be exchanged without any need to remove, clean, and re-insert the adapter

Series	Blade-Loc Screw	Blade-Loc Screw
A	#10-24 x 5/8	-
B	1/4"-20 x 7/8	-
C	1/4"-20 x 1	-
D	3/8"-16 x 1-1/4"	5/16"-18 x 1/2"
E	1/2"-13 x 1-3/4"	5/16"-18 x 1/2"
F	5/8"-10 x 2	5/16"-18 x 1/2"
G	3/4"-10 x 2-1/2	5/16"-18 x 1/2"
H	3/4"-10 x 2-1/2	3/8"-16 x 3/4"



Rotary Tooling Series

Morse Taper Shanks



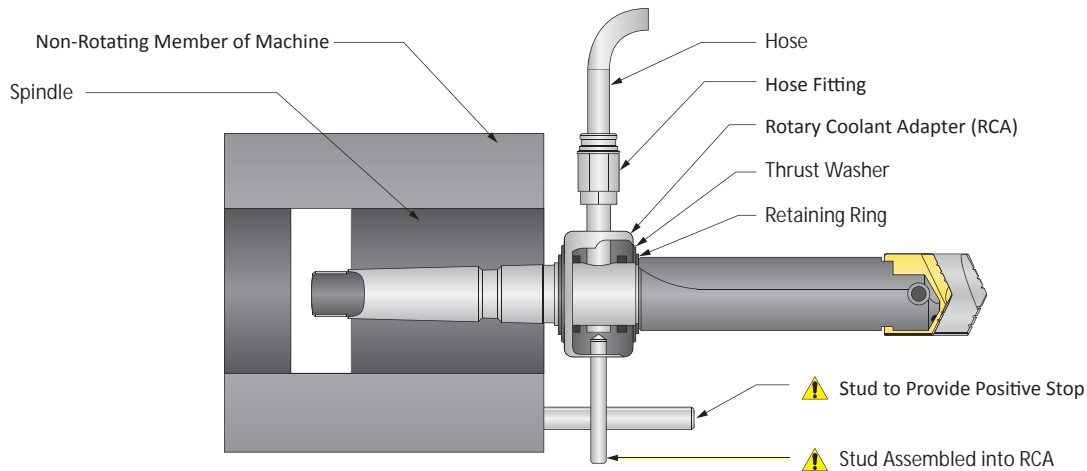
Order Series	ID	OD	L ₁	Part No	P ₁	Part No	Recommended RPM	Recommended Kit	Replacement
100000	1.75	2.75	1.50	300 000	1.04	2004SR	2000	2T1-4SR	2T1-4OR-10
100000	1.375	3	1.50	300 000	1.04	2005SR	1500	2T1-5SR	2T1-5OR-10
200000	2.75	3.75	1.50	102 000	1.02	2006SR	1100	2T1-6SR	2T1-6OR-10
200000	2.75	4	1.50	102 000	1.02	2005SR	1100	2T1-55SR	2T1-55OR-10
3	3	4.75	1.50	102 000	1.02	2006SR	900	2T1-60SR	2T1-60OR-10
300000	3.75	5.75	1.50	102 000	1.02	2005SR	700	2T1-65SR	2T1-65OR-10

*RCA comes complete with (1) RCA, (2) O-rings, (2) snap rings, and (2) thrust washers

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

Max recommended pressure is 600 PSI (42 bar)

Recommendations above are based on water and oil based coolants



i = Imperial (in)

m = Metric (mm)

O-rings sold in packs of 10

⚠️ 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.

DRILLING

BORING

REAMING


BURNISHING

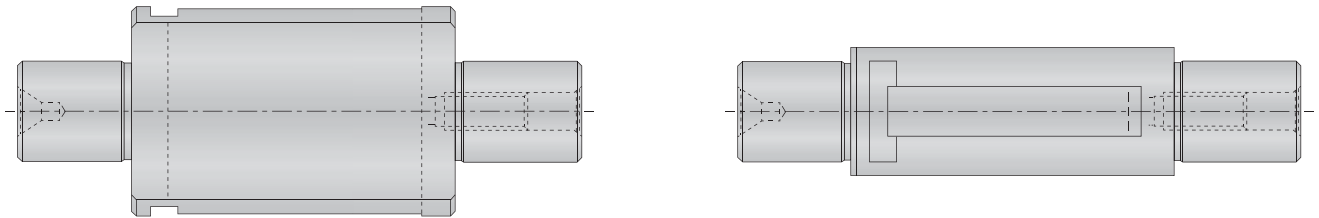
THREADING

SPECIALS




Top Mounting Plate

	Description
250002505	Top mounting plate only. It is available for those who already have a Universal grinding fixture or may wish to adapt it to some other device. The plate comes complete with all the hardware required to locate and clamp any series Universal style spade drill to the plate.



Cylindrical Grinding Fixture

Series	Diameter Range	
A	15/16 - 1-3/8	244102500
B	1-1/4 - 1-3/4	244202505
C	1-1/2 - 2-3/8	244302570
D	2 - 2-7/8	244402575
E	2-1/2 - 3-3/8	244502500
F	3 - 3-7/8	244602505
G	3-1/2 - 4-1/2	244702500
H*	4 - 8-1/2	244802505

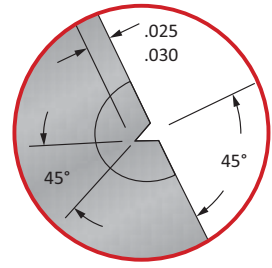
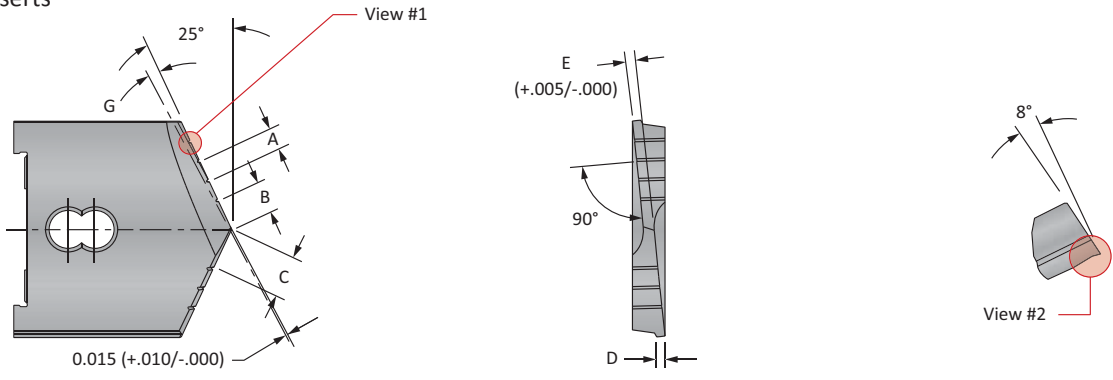
Items included with the Cylindrical Grinding Fixture: (1) set screw, (1) slip pin

*Applies to drills with a reference length of 3-11/16". Cylindrical Grinding Fixtures for drills with a 4-11/16" reference length will be quoted upon request

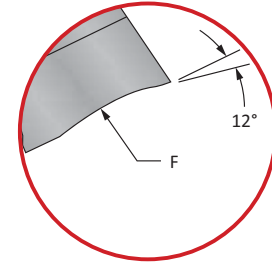


Regrind

Universal Inserts



View #1



View #2

Series

Series	Insert Size	Size Range							
AA	1/4	1 - 1-3/8	0.125	0.156	0.218	0.065	0.070	1/4	3°
A	3/16	31/32 - 1-3/8	0.125	0.156	0.218	0.065	0.065	1/4	3°
B	9/32	1-1/4 - 1-3/4	0.150	0.250	0.325	0.070	0.090	5/16	3°
C	5/16	1-1/2 - 2-3/8	0.200	0.250	0.350	0.080	0.100	5/16	3°
D	3/8	2 - 2-7/8	0.250	0.375	0.500	0.100	0.120	3/8	3°
E	7/16	2-1/2 - 3-3/8	0.300	0.437	0.587	0.100	0.140	3/8	3°
F	1/2	3 - 3-7/8	0.350	0.437	0.612	0.125	0.170	3/8	3°
G	5/8	3-1/2 - 4-1/2	0.350	0.500	0.675	0.140	0.200	3/8	3°
H ¹ - H ²	11/16	4 - 5	0.400	0.500	0.700	0.165	0.225	1/2	3°
H ³	11/16	5-1/8 - 5-1/2	0.500	0.500	0.750	0.185	0.250	1/2	3°
H ⁴ - H ⁹	11/16	5-5/8 - 8-1/2	0.500	0.500	0.750	0.185	0.250	1/2	2°

Maintain cutting edges of the tool within 0.001" T.I.R.

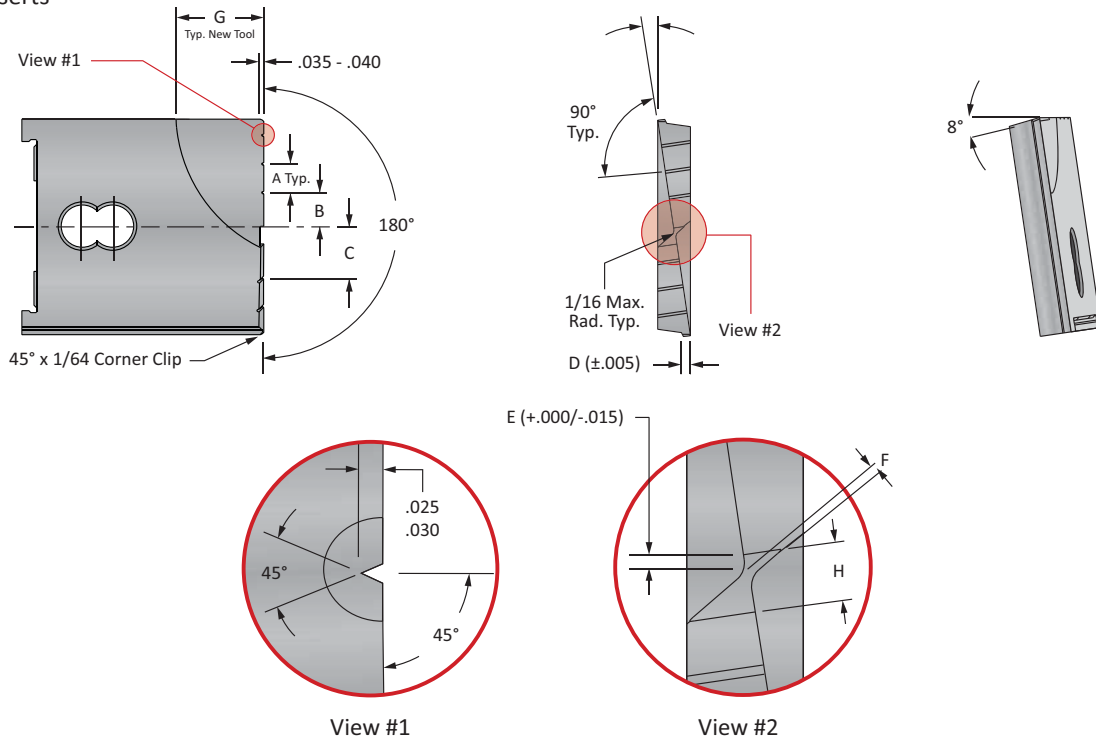
Performance Regrind High Performance inserts should be reground and coated by Allied Machine before returning them to production. The real economy of High Performance spade inserts is their improved production rates (100% and 500%) and increased tool life (3 to 20 times). Factory regrounding and coating provides like-new tool performance. Our factory service reduces your total cost-per-hole.

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS



Reamers

Universal Inserts



Flat Bottom Spade Drill Inserts

Series	Insert Size	Size Range								
AA	1/4	1 - 1-1/8	0.150	0.250	0.325	0.065	1/64 - 1/32	0.075	7/16	1/8
A	3/16	31/32 - 1-3/8	0.150	0.250	0.325	0.065	1/64 - 1/32	0.075	7/16	1/8
B	9/32	1-1/4 - 1-3/4	0.200	0.250	0.350	0.070	1/64 - 1/32	0.075	1/2	1/8
C	5/16	1-1/2 - 2-3/8	0.200	0.250	0.350	0.080	1/32 - 3/64	0.075	5/8	1/8
D	3/8	2 - 2-7/8	0.300	0.375	0.525	0.100	1/32 - 3/64	0.129	7/8	3/16
E	7/16	2-1/2 - 3-3/8	0.300	0.375	0.525	0.100	1/32 - 1/16	0.129	1-1/8	3/16
F	1/2	3 - 3-7/8	0.300	0.500	0.650	0.125	1/32 - 1/16	0.156	1-1/4	1/4
G	5/8	3-1/2 - 4-1/2	0.400	0.500	0.700	0.140	1/32 - 1/16	0.156	1-1/2	1/4
H ¹ - H ²	11/16	4 - 5	0.500	0.500	0.750	0.165	1/32 - 1/16	0.156	1-1/2	1/4

Grind cutting edge 0.005" above center line at the center of the new tool

Maintain flatness and height across the cutting edges of the tool within 0.001" T.I.R.

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

Recommended Cutting Data | Imperial (inch)

High Performance Spade Inserts

Material	Diameter (inch)	Insert Size	Insert Size	Insert Size	Feed Rate (IPR) by Diameter			
					1/4" - 1/2"	1/2" - 3/4"	3/4" - 1"	1" - 1 1/2"
Free Cutting Steel 1118, 1215, 12L14, etc.	100 - 150	200	280	260	.016	.020	.023	0.28
	150 - 200	180	260	235	.016	.020	.023	.028
	200 - 250	160	240	210	.016	.020	.023	.028
Tool Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	170	250	220	.015	.019	.023	.027
	125 - 175	160	240	210	.015	.019	.023	.027
	175 - 225	150	225	195	.014	.018	.021	.024
	225 - 275	140	210	180	.014	.018	.021	.024
Premium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	160	240	210	.015	.019	.023	.027
	175 - 225	150	225	195	.014	.018	.021	.024
	225 - 275	140	210	180	.014	.018	.021	.024
	275 - 325	130	195	170	.012	.016	.019	.022
Alloy Steel 4140, 5140, 8640, etc.	125 - 175	150	210	195	.014	.017	.019	.022
	175 - 225	140	195	180	.014	.017	.019	.022
	225 - 275	130	180	170	.014	.017	.019	.022
	275 - 325	120	170	155	.012	.015	.017	.020
	325 - 375	110	155	145	.012	.015	.017	.020
Stren Alloy 4340, 4330V, 300M, etc.	225 - 300	80	110	100	.010	.014	.017	.020
	300 - 350	60	85	80	.010	.014	.017	.020
	350 - 400	50	70	65	.009	.012	.015	.018
Structural Steel A36, A285, A516, etc.	100 - 150	140	200	180	.014	.018	.021	.026
	150 - 250	120	170	155	.012	.016	.019	.024
	250 - 350	100	140	130	.010	.014	.017	.020
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	80	110	105	.010	.012	.015	.017
	200 - 250	60	90	85	.010	.012	.015	.017
S Hastelloy Hastelloy B, Inconel 600, etc.	140 - 220	30	40	35	.010	.012	.015	-
	220 - 310	25	35	30	.008	.010	.012	-
K Stainless Steel 303, 416, 420, 17-4 PH, etc.	135 - 185	75	105	95	.011	.014	.016	.020
	185 - 275	60	90	80	.010	.012	.014	.018
K Titanium	120 - 150	170	250	220	.020	.024	.027	.030
	150 - 200	150	225	195	.018	.022	.025	.028
	200 - 220	130	195	170	.016	.018	.021	.024
	220 - 260	110	165	145	.012	.014	.017	.020
	260 - 320	90	135	120	.009	.012	.014	.016
Titanium	30	600	850	750	.020	.022	.025	.025
	180	300	450	400	.018	.022	.025	.025

Deep Hole Drilling Speed and Feed Recommendations

Speed	X-L Holder Penetration	
	Zone	Feed
Speed	0.90	0.80
Feed	-	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 200 SFM and 0.016 IPR for a standard length holder, then the speed and feed using an XL holder in the same application would be 160 SFM and 0.014 IPR.

$200 \cdot 0.80 = 160 \text{ SFM}$	$0.016 \cdot 0.90 = 0.014 \text{ IPR}$
------------------------------------	--

1. Initial Setup Tool holder can be used directly or pre-drilled

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

Refer to page A40: 48 for Deep Hole Drilling Guidelines. Visit www.alliedmachine.com/deep-hole-drilling for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

2. General Note The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation chart 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.

Coolant Recommendations | Imperial (inch)

High Performance Spade Inserts

Material	Properties	Coolant by Diameter				
		1/4" - 1/2"	1/2" - 1"	2" - 3"	3" - 5"	
Free Cutting Steel 1118, 1215, 12L14, etc.	Hardness (BHN)	100 - 250	100 - 250	100 - 250	100 - 250	
	Coolant Pressure (PSI)	105 - 150	55 - 75	45 - 60	35 - 45	
	Coolant Volumetric Flow Rate (GPM)	6.3 - 7.6	15 - 18	31 - 36	47 - 53	
	Low Carbon Steel	Hardness (BHN)	85 - 275	85 - 275	85 - 275	85 - 275
		Coolant Pressure (PSI)	80 - 115	45 - 55	35 - 45	30 - 35
		Coolant Volumetric Flow Rate (GPM)	5.5 - 6.6	14 - 15	28 - 31	43 - 46
	Medium Carbon Steel	Hardness (BHN)	125 - 325	125 - 325	125 - 325	125 - 325
		Coolant Pressure (PSI)	70 - 100	40 - 50	35 - 40	30 - 35
		Coolant Volumetric Flow Rate (GPM)	5.2 - 6.2	13 - 15	28 - 30	43 - 46
Alloy Steel	Hardness (BHN)	125 - 375	125 - 375	125 - 375	125 - 375	
	Coolant Pressure (PSI)	60 - 85	30 - 40	30 - 35	25 - 30	
	Coolant Volumetric Flow Rate (GPM)	4.8 - 5.7	11 - 13	26 - 28	39 - 43	
High Strength Alloy 4340, 4330V, 300M, etc.	Hardness (BHN)	225 - 400	225 - 400	225 - 400	225 - 400	
	Coolant Pressure (PSI)	25 - 30	20 - 25	20 - 25	20 - 25	
	Coolant Volumetric Flow Rate (GPM)	3.1 - 3.4	9 - 10	21 - 23	35 - 39	
Structural Steel A36, A285, A516, etc.	Hardness (BHN)	100 - 350	100 - 350	100 - 350	100 - 350	
	Coolant Pressure (PSI)	50 - 70	30 - 35	25 - 30	25 - 30	
	Coolant Volumetric Flow Rate (GPM)	4.4 - 5.2	11 - 12	23 - 26	39 - 43	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	Hardness (BHN)	150 - 250	150 - 250	150 - 250	150 - 250	
	Coolant Pressure (PSI)	25 - 30	20 - 25	20 - 25	20 - 25	
	Coolant Volumetric Flow Rate (GPM)	3.1 - 3.4	9 - 10	21 - 23	35 - 43	
S Hastelloy Hastelloy B, Inconel 600, etc.	Hardness (BHN)	140 - 310	140 - 310	140 - 310	140 - 310	
	Coolant Pressure (PSI)	35 - 40	25 - 30	25 - 30	-	
	Coolant Volumetric Flow Rate (GPM)	3.6 - 3.9	10 - 11	23 - 26	-	
K Stainless Steel 303, 416, 420, 17-4 PH, etc.	Hardness (BHN)	135 - 275	135 - 275	135 - 275	135 - 275	
	Coolant Pressure (PSI)	50 - 65	30 - 35	25 - 30	25 - 30	
	Coolant Volumetric Flow Rate (GPM)	4.4 - 5.0	11 - 12	23 - 26	39 - 43	
K Titanium	Hardness (BHN)	120 - 320	120 - 320	120 - 320	120 - 320	
	Coolant Pressure (PSI)	40 - 50	25 - 30	25 - 30	20 - 25	
	Coolant Volumetric Flow Rate (GPM)	3.9 - 4.4	10 - 11	23 - 26	35 - 43	
G Invarium	Hardness (BHN)	30 - 180	30 - 180	30 - 180	30 - 180	
	Coolant Pressure (PSI)	150 - 220	80 - 115	60 - 80	55 - 70	
	Coolant Volumetric Flow Rate (GPM)	7.6 - 9.1	19 - 22	36 - 42	59 - 66	

Deep Hole Drilling Speeds and Feed Recommendations

Drill Type	Hole Diameter	
	1.3"	2"
Pressure and Flow	1.3	2

Recommended Speed and Feed Example

If the recommended pressure and flow is 150 PSI and 6.3 GPM for a standard length holder, then the adjusted pressure and flow using an XL holder in the same application would be 300 PSI and 12.6 GPM.

$150 \cdot 2 = 300 \text{ PSI}$	$6.3 \cdot 2 = 12.6 \text{ GPM}$
---------------------------------	----------------------------------

⚠️ Important: Tool failure can occur. Verify the following:

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

Refer to page A40 for Deep Hole Drilling Guidelines. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

The coolant pressure and flow rate recommendation below represents a good approximation to obtain optimum tool life and chip evacuation at the recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the HP/Universal drilling system will still function at reduced penetration rates. Contact our Application Engineering department for more specific recommendations of coolant requirements and/or speeds and feeds.

DRILLING
BORING
REAMING
BURISHING
THREADING
SPECIALS

Recommended Cutting Data | Imperial (inch)

Universal Spade Inserts

Material	Diameter (in)	SFM	Feed Rate (IPR) by Diameter				
			1/4 - 1/2	1/2 - 3/4	3/4 - 1	1 - 1 1/4	
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	100	.014	.016	.020	.024	
	150 - 200	90	.013	.015	.019	.022	
	200 - 250	80	.012	.014	.018	.020	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	80	.012	.015	.018	.020
		125 - 175	75	.012	.014	.017	.020
		175 - 225	60	.010	.014	.016	.018
		225 - 275	55	.010	.013	.016	.018
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	65	.010	.014	.018	.020
		175 - 225	60	.010	.014	.016	.020
		225 - 275	50	.008	.013	.016	.018
		275 - 325	45	.008	.012	.014	.016
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	60	.010	.014	.018	.020
175 - 225		55	.010	.014	.016	.020	
225 - 275		45	.008	.013	.016	.018	
275 - 325		35	.008	.012	.014	.016	
325 - 375		30	.008	.012	.014	.016	
Austenitic Alloy 4340, 4330V, 300M, etc.	225 - 300	40	.008	.012	.014	.016	
	300 - 350	30	.006	.010	.014	.016	
	350 - 400	25	.006	.008	.014	.016	
Structural Steel A36, A285, A516, etc.	100 - 150	70	.012	.016	.018	.020	
	150 - 250	60	.010	.014	.016	.018	
	250 - 350	50	.008	.012	.014	.016	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	50	.009	.011	.014	.016	
	200 - 250	40	.008	.010	.013	.015	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	20	.008	.010	.012	-
		220 - 310	15	.007	.009	.011	-
K	Stainless Steel 303, 416, 420, 17-4 PH, etc.	135 - 185	45	.008	.012	.015	.018
		185 - 275	35	.007	.010	.013	.016
K	Titanium	120 - 150	100	.016	.020	.022	.025
		150 - 200	80	.015	.018	.020	.022
		200 - 220	70	.011	.014	.018	.020
		220 - 260	60	.008	.012	.015	.017
		260 - 320	45	.008	.010	.012	.014
K	Aluminum	30	275	.018	.026	.032	.042
		180	200	.018	.026	.032	.042

Deep Hole Drilling Speed and Feed Recommendations

Material	Holder Length	
	Standard	XL
Steel	0.90	0.80
Feed	-	0.90

Recommended Speed and Feed Example

If the recommended speed and feed is 100 SFM and 0.016 IPR for a standard length holder, then the speed and feed using an XL holder in the same application would be 80 SFM and 0.014 IPR.

$$100 \cdot 0.80 = 80 \text{ SFM}$$

$$0.016 \cdot 0.90 = 0.014 \text{ IPR}$$

1. Coolant Pre-drill Depth Recommendation

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

Refer to page A40: 48 for Deep Hole Drilling Guidelines. Visit www.alliedmachine.com/deep-hole-drilling for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation chart 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.

Coolant Recommendations | Imperial (inch)

Universal Spade Inserts

Material	Metric	by Diameter				
		1.0125	1.125	2.0	3.0	
Free Cutting Steel 1118, 1215, 12L14, etc.	Hardness (BHN)	100 - 250	100 - 250	100 - 250	100 - 250	
	Coolant Pressure (PSI)	40	25	25	20	
	Coolant Volumetric Flow Rate (GPM)	3.9	10	23	35	
	Low Carbon Steel	Hardness (BHN)	85 - 275	85 - 275	85 - 275	85 - 275
		Coolant Pressure (PSI)	30	20	20	20
		Coolant Volumetric Flow Rate (GPM)	3.4	9	21	35
	Medium Carbon Steel	Hardness (BHN)	125 - 325	125 - 325	125 - 325	125 - 325
		Coolant Pressure (PSI)	25	20	20	20
		Coolant Volumetric Flow Rate (GPM)	3.1	9	21	35
Alloy Steel	Hardness (BHN)	125 - 375	125 - 375	125 - 375	125 - 375	
	Coolant Pressure (PSI)	20	20	20	20	
	Coolant Volumetric Flow Rate (GPM)	2.8	9	21	35	
High Strength Alloy 4340, 4330V, 300M, etc.	Hardness (BHN)	225 - 400	225 - 400	225 - 400	225 - 400	
	Coolant Pressure (PSI)	25	20	20	20	
	Coolant Volumetric Flow Rate (GPM)	3.1	9	21	35	
Structural Steel A36, A285, A516, etc.	Hardness (BHN)	100 - 350	100 - 350	100 - 350	100 - 350	
	Coolant Pressure (PSI)	25	20	20	20	
	Coolant Volumetric Flow Rate (GPM)	3.1	9	21	35	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	Hardness (BHN)	150 - 250	150 - 250	150 - 250	150 - 250	
	Coolant Pressure (PSI)	25	20	20	20	
	Coolant Volumetric Flow Rate (GPM)	3.1	9	21	35	
S Hastelloy Hastelloy B, Inconel 600, etc.	Hardness (BHN)	140 - 310	140 - 310	140 - 310	140 - 310	
	Coolant Pressure (PSI)	25	20	20	20	
	Coolant Volumetric Flow Rate (GPM)	3.1	9	21	35	
K Stainless Steel 303, 416, 420, 17-4 PH, etc.	Hardness (BHN)	135 - 275	135 - 275	135 - 275	135 - 275	
	Coolant Pressure (PSI)	25	25	20	20	
	Coolant Volumetric Flow Rate (GPM)	3.1	10	21	35	
K Titanium	Hardness (BHN)	120 - 320	120 - 320	120 - 320	120 - 320	
	Coolant Pressure (PSI)	25	20	20	20	
	Coolant Volumetric Flow Rate (GPM)	3.1	9	21	35	
G Titanium	Hardness (BHN)	30 - 180	30 - 180	30 - 180	30 - 180	
	Coolant Pressure (PSI)	55	35	30	30	
	Coolant Volumetric Flow Rate (GPM)	4.6	12	26	40	

Free Hole Drilling Speeds and Feed Recommendations

Diameter (in)	Cooler Length	
	1.3	2
1.3	1.3	2

Recommended Speed and Feed Example

If the recommended pressure and flow is 150 PSI and 6.3 GPM for a standard length holder, then the adjusted pressure and flow using an XL holder in the same application would be 300 PSI and 12.6 GPM.

$150 \cdot 2 = 300 \text{ PSI}$	$6.3 \cdot 2 = 12.6 \text{ GPM}$
---------------------------------	----------------------------------

⚠️ Important Coolant Tip: Establish Initial Hole

- When using holders without support bushing, use a short length holder to establish an initial hole that is a minimum of 2 diameters deep.
 - Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.
- Refer to page A40: 48 for Deep Hole Drilling Guidelines. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

The coolant pressure and flow rate recommendation below represents a good approximation to obtain optimum tool life and chip evacuation at the recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the HP/Universal drilling system will still function at reduced penetration rates. Contact our Application Engineering department for more specific recommendations of coolant requirements and/or speeds and feeds.

DRILLING
BORING
REAMING
BURISHING
THREADING
SPECIALS



Deep Hole Drilling

DRILLING

BORING

REAMING

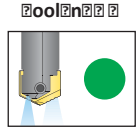
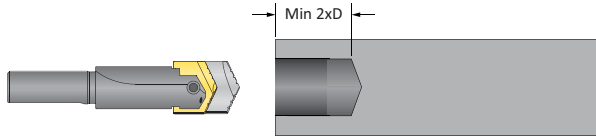
BURNISHING

THREADING

SPECIALS

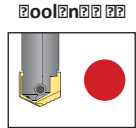
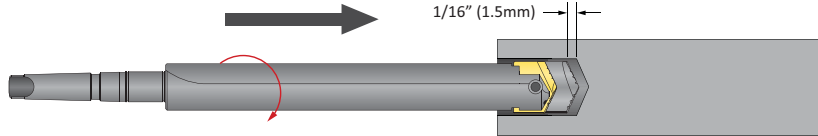
1. Pilot Hole
100% RPM
100% IPR (mm/rev)

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.



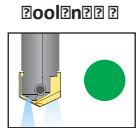
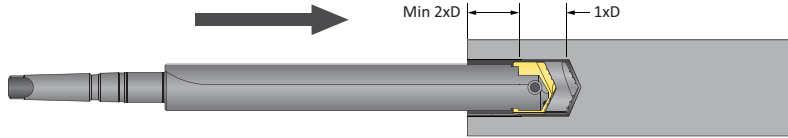
2. Feed
50 RPM max
12 IPM (300 mm/min)

Feed the longer drill within 1/16" (1.5mm) short of the established pilot hole bottom at a maximum of 5 R and 12 IPM (300 mm/min) feed rate.



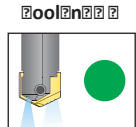
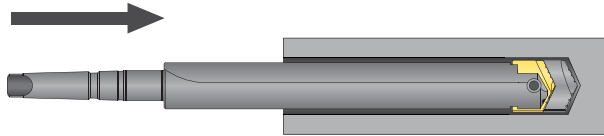
3. Deep Hole Transition Drilling
50% RPM
75% IPR (mm/rev)

Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed. Minimum of 1 second dwell is required to meet full speed before feeding.



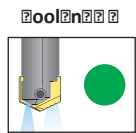
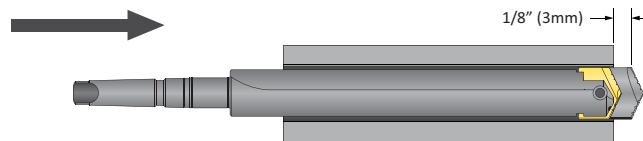
4. Deep Hole Drilling
100% RPM
100% IPR (mm/rev)

Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts. *No peck cycle recommended.*



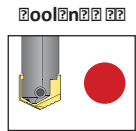
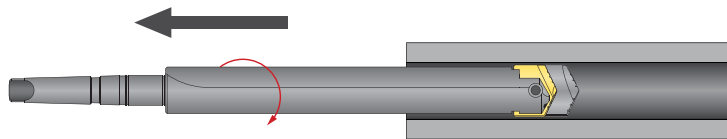
5. Deep Hole Drilling Breakout
50% RPM
75% IPR (mm/rev)

For Broaching Hole only
Reduce speed by 50% and feed by 25% prior to breakout. Do not breakout more than 1/8" (3mm) past the full diameter of the drill.



6. Drill Retract
50 RPM max

Reduce speed to a maximum of 5 R before retracting from the hole.



1. R Cool Cool before can be performed

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

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



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DRILLING



BORING



REAMING



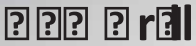
BURNISHING



THREADING



SPECIALS



Deep Hole / Large Diameter Drilling System

► **1.4961" - 4.0000" (38.00mm - 101.60mm)**

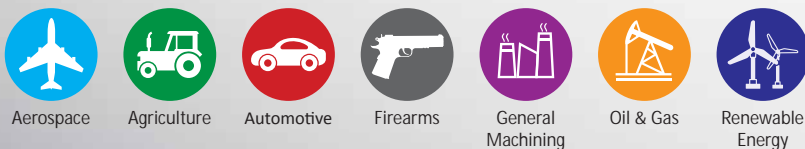


Benefits of the APX System

The APX deep hole/large diameter drilling system delivers the strength and versatility needed for any deep hole drilling application. The breakthrough geometry is designed to increase penetration rates and tool life. By allowing for higher spindle speeds, the APX lets you take advantage of the power curve on modern CNC machines.

Excellent chip control	Improves hole quality and surface finish	Provides maximum durability and stability
------------------------	--	---

Applications



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.



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

WARNING 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.

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

Visit our website for the most up-to-date information and procedures.

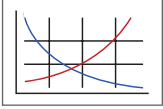
Reference Icon

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



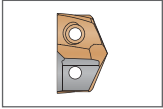
Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



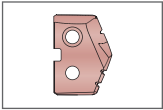
Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling



GEN3SYS XT Pilot Insert

Lists the GEN3SYS XT pilot insert options for each APX Drill series



Original T-A and GEN2 T-A

Lists the Original T-A® and GEN2 T-A® pilot insert options for each APX Drill series

Series	Diameter Range	
	Imperial (inch)	Metric (mm)
33	1.2992 - 1.4688	33.00 - 37.99
38	1.4961 - 1.7322	38.00 - 43.99
44	1.7323 - 2.0075	44.00 - 50.99
51	2.0076 - 2.2438	51.00 - 56.99
57	2.2439 - 2.4799	57.00 - 62.99
63	2.4800 - 2.7555	63.00 - 69.99
70	2.7556 - 2.9917	70.00 - 75.99
76	2.9918 - 3.2673	76.00 - 82.99
83	3.2674 - 3.5035	83.00 - 88.99
89	3.5036 - 3.7400	89.00 - 94.99
95	3.7401 - 4.0000	95.00 - 101.60

Introduction Information

Drill Selection Guide / Assembly Details 2 - 3
 Pilot Insert Options / Details 4
 Product Nomenclature 5

Series

33 Series 6 - 7
 38 Series 8 - 9
 44 Series 10 - 11
 51 Series 12 - 13
 57 Series 14 - 15
 63 Series 16 - 17
 70 Series 18 - 19
 76 Series 20 - 21
 83 Series 22 - 23
 89 Series 24 - 25
 95 Series 26 - 27

Recommended Cutting Data

Imperial (inch) 28
 Metric (mm) 29
 Deep Hole Drilling Guidelines 30



Drill Selection Guide

Series	33	37	44	51	57
Range	6 - 7	8 - 9	10 - 11	12 - 13	14 - 15
D ₅ inch	1.2992 - 1.4960	1.4961 - 1.7322	1.7323 - 2.0075	2.0076 - 2.2438	2.2439 - 2.4799
D ₅ mm	33.00 - 37.99	38.00 - 43.99	44.00 - 50.99	51.00 - 56.99	57.00 - 62.99
Inserts					
Insert Style					
Insert Size	5/16	3/8"	3/8", 1/2"	1/2", 9/16"	9/16"
Clearance	NO	NO	NO	NO	NO
Flutes					
Flute Length inch	4-7/16 - 14-29/32	5-1/8 - 17-1/4	6 - 20-1/8	6-3/8 - 22-3/8	7-1/8 - 24-3/4
Flute Length mm	112.6 - 378.6	130.5 - 439.9	151.5 - 510.0	161.8 - 570.0	179.9 - 626.9
Flute Count					
Series	0, 1	0, 1	1	1	1, 2
3S Series	16, 18, 20	15, 17, 18, 20	17, 18, 22	18, 20, 22	22, 24, 26

Style Drill Inserts

- Utilizes both Original T-A® and GEN2 T-A® inserts (0 - 2 series)
- Multiple geometry options are available to achieve optimal results in different types of applications

GEN2 T-A Pilot Inserts Original T-A Pilot Inserts

3S Style Drill Inserts

- Utilizes GEN3SYS® XT inserts (15 - 32 series)
- Multiple geometry options are available to achieve optimal results in different types of applications

GEN3SYS XT Pilot Inserts

Flanged Straight Shank

CAT40 / CAT50 Integral Shank

Ø3	7Ø	7Ø	Ø3	ØØ	Ø5
					
16 - 17	18 - 19	20 - 21	22 - 23	24 - 25	26 - 27
2.4800 - 2.7555	2.7556 - 2.9917	2.9918 - 3.2673	3.2674 - 3.5035	3.5036 - 3.7400	3.7401 - 4.0000
63.00 - 69.99	70.00 - 75.99	76.00 - 82.99	83.00 - 88.99	89.00 - 94.99	95.00 - 101.60
					
					
9/16"	3/8"	1/2"	1/2"	9/16"	9/16"
NO	YES	YES	YES	YES	YES
7-7/8 - 27-1/8	8-3/4 - 27-7/8	9-1/2 - 26-1/8	10-1/8 - 27-3/4	10-7/8 - 27-5/8	11-7/8 - 27-1/2
200.8 - 688.3	218.8 - 709.4	239.9 - 664.0	257.8 - 704.9	275.8 - 701.8	302.0 - 698.5
2	2	2	2	2	2
26, 29, 32	29	29	32	29	32



Step 1

Lower the APX head assembly onto the APX holder.



Step 2

Insert the head mounting screws into points A and B. Tighten until the head is properly secured to the holder.

Step 3

Tighten with the head mounting driver using the torque setting chart below.

Torque Setting Chart

Series	Screw	Driver	Torque
38 - 63	75020-IP20-1		60 in-lb (678 N-cm)
70 - 95	78027-IP30-1		250 in-lb (2825 N-cm)



Pilot Insert Options

DRILLING

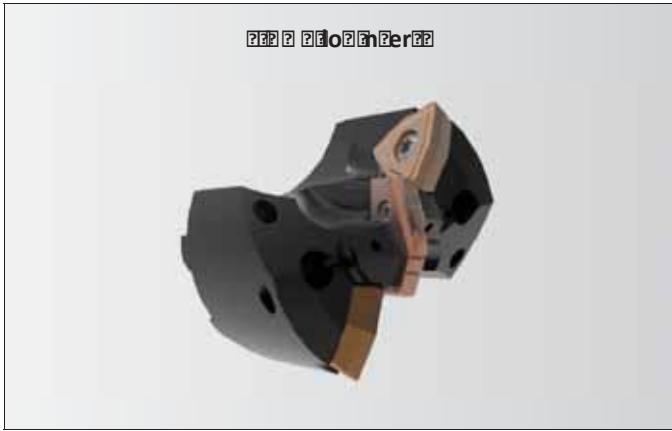
BORING

REAMING

BURNISHING

THREADING

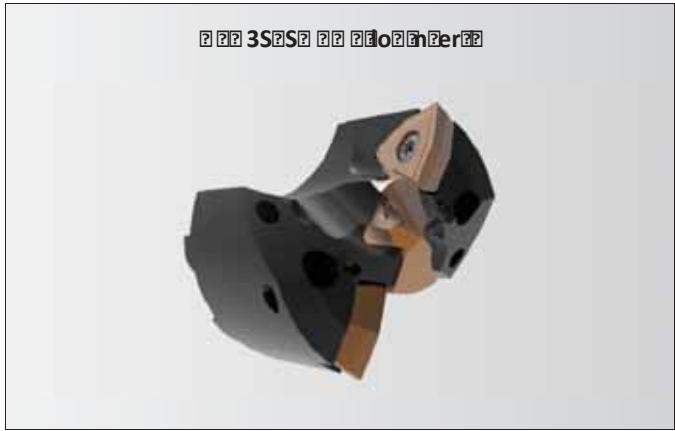
SPECIALS



2-Flute Pilot Insert

2-Flute Geometry

- Designed for rigid machining applications, primarily used for drilling exotic and high alloy materials
- Ideal for general use when the surface speed needs to be increased



3S-Flute Pilot Insert

3S-Flute Geometry

- Designed with corner and cutting edge enhancements to deliver more reliability, durability, and productivity
- Increases penetration rates and tool life
- Available in C1 or C2 carbide



GEN2 T-A High Efficiency (-HE)

- Designed for improved chip formation in elastic materials like low carbon steels
- Maximizes performance and increases value



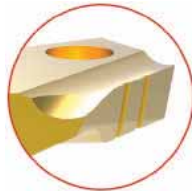
XT Geometry

- Increases durability and tool life in ductile, nodular, and grey cast irons
- Available in C2 carbide



XT Geometry

- Excellent choice for general purpose use
- Provides fast penetration rates that produce good hole size and finish
- Combines highly efficient, stable cutting action to minimize power consumption



XT Xtreme Geometry

- The toughest XT geometry available
- Designed for harder steels and less than ideal machining applications
- Available in C1 or C2 carbide



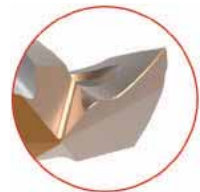
XT Xtreme Geometry

- Unique lip and point design for excellent chip control
- Improved capabilities in long-chipping materials such as low carbon steels and soft alloy steels
- Enhanced performance in lower powered machines for better chip formation at lower feed rates



Stainless Steel Geometry

- Designed with a specific geometry to provide unmatched chip control and tool life in austenitic and PH stainless steels, as well as high temperature alloys such as Inconel, Hastelloy, and Titanium alloys
- Available in C2 carbide



SK2 Geometry

- Designed to enhance chip formation in materials with high elasticity/ductility and poor chip forming characteristics
- SK2 corner preparation for increased tool life
- Improves chip formation in structural, cast, and forged steels

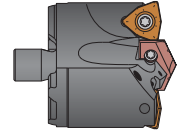


For a complete offering of pilot inserts, see sections (GEN3SYS Drilling Systems) and (T-A Drilling Systems) of our catalog.

Drilling

Drill

1	3	15	7	11
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1. Head	2. Series	
H = Head	33 = 33 series 38 = 38 series 44 = 44 series 51 = 51 series 57 = 57 series 63 = 63 series	70 = 70 series 76 = 76 series 83 = 83 series 89 = 89 series 95 = 95 series

3. Hole Series		
0 series	15 = 15 series	24 = 24 series
1 series	17 = 17 series	26 = 26 series
2 series	18 = 18 series	29 = 29 series
	20 = 20 series	32 = 32 series
	22 = 22 series	

4. Effective Cutting
H = Double effective S = Single effective

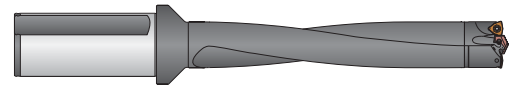
5. Drill Diameter
H = Inch 15 = 153 = Decimal M = Metric

Drill Shank Dimensions
Non-stocked diameters are also available. Please refer to the price list for applicable process fees. Follow the ordering examples below:

- Inch: 38 series, T-A (1 series), 1.6790" = H38H17H77
- Metric: 38 series, T-A (1 series), 42.15mm = H38H17H215

Drill Holder

1	3	5	7	2
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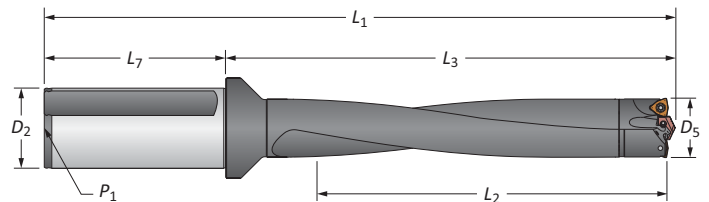
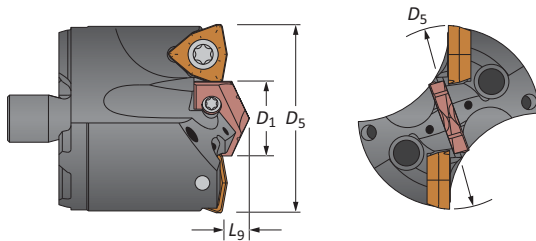


1. Holder	2. Series	
H = Holder	33 = 33 series 38 = 38 series 44 = 44 series 51 = 51 series 57 = 57 series 63 = 63 series	70 = 70 series 76 = 76 series 83 = 83 series 89 = 89 series 95 = 95 series

3. Drill Length
H3 = 3xD H5 = 5xD H8 = 8xD H10 = 10xD

4. Drill Style
H = Helical

5. Shank
H15 = 1-1/2" flanged straight shank H2 = 2" flanged straight shank H4 = 40mm flanged straight shank H5 = 50mm flanged straight shank H44 = CAT40 integral shank H55 = CAT50 integral shank

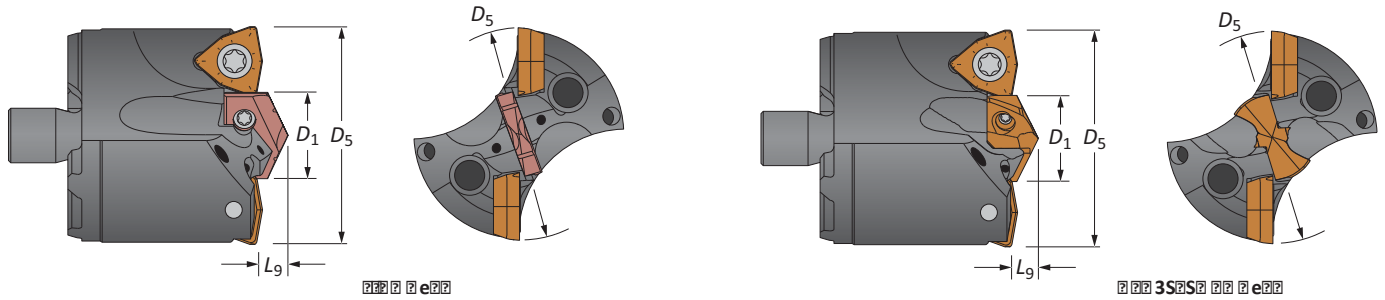


Symbol	Attribute
D ₁	Pilot insert diameter
D ₅	Major cutting diameter
L ₉	Pilot insert length

Symbol	Attribute	Symbol	Attribute
D ₂	Shank diameter	L ₃	Holder reference length
D ₅	Drill diameter range	L ₇	Shank length
L ₁	Overall length	P ₁	Rear pipe tap
L ₂	Drill depth		

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

33 Series | Diameter Range: 1.2992" - 1.4688" (33.00mm - 37.99mm)



D ₅ fractional	D ₅ [in]	D ₅ mm	D ₁	L ₉	33 Series			33S Series			Insert Size
					Part No.	Series	Insert	Part No.	Series	Insert	
-	1.2992	33.00	16	1/4	33000003	0	4C*OH-16	33100003	16	7C*16P-16	5/16
1-5/16	1.3125	33.34	16	1/4	33000011	0	4C*OH-16	33100011	16	7C*16P-16	5/16
-	1.3386	34.00	18	1/4	33010004	1	4C*1H-18	33100004	18	7C*18P-18	5/16
1-11/32	1.3438	34.13	18	1/4	33010011	1	4C*1H-18	33100011	18	7C*18P-18	5/16
1-3/8	1.3750	34.93	18	1/4	33010012	1	4C*1H-18	33100012	18	7C*18P-18	5/16
-	1.3780	35.00	18	1/4	33010005	1	4C*1H-18	33100005	18	7C*18P-18	5/16
1-13/32	1.4063	35.72	18	1/4	33010013	1	4C*1H-18	33100013	18	7C*18P-18	5/16
-	1.4173	36.00	20	1/4	33010006	1	4C*1H-20	33200006	20	7C*20P-20	5/16
1-7/16	1.4375	36.51	20	1/4	33010014	1	4C*1H-20	33200014	20	7C*20P-20	5/16
-	1.4567	37.00	20	1/4	33010007	1	4C*1H-20	33200007	20	7C*20P-20	5/16
1-15/32	1.4688	37.31	20	1/4	33010015	1	4C*1H-20	33200015	20	7C*20P-20	5/16

*Denotes carbide grade (1 = C1, 2 = C2)

Coating	Size	Grade	Geometry	Part No.	Insert Screw	Insert Driver	Tightening Torque
AM300®	5/16	C5	Standard	33050000	IS-10-1	8IP-10	27.0 in-lbs (305 N-cm)
AM300®	5/16	C1	Standard	33050001	IS-10-1	8IP-10	27.0 in-lbs (305 N-cm)
AM300®	5/16	C5	High Rake	33050002 R	IS-10-1	8IP-10	27.0 in-lbs (305 N-cm)

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

Insert Style	Series	Insert Screw	Insert Driver	Tightening Torque
T-A	0	72567-IP8-1	8IP-8	15.5 in-lbs (175 N-cm)
T-A	1	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	16	72556-IP8-1	8IP-8	15.5 in-lbs (175 N-cm)
GEN3SYS	18	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	20	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)

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

A50: 28 - 29 | A50: 2 - 5 | Section A20 | Section A30

Non-stocked diameters are also available. Follow the examples shown below.

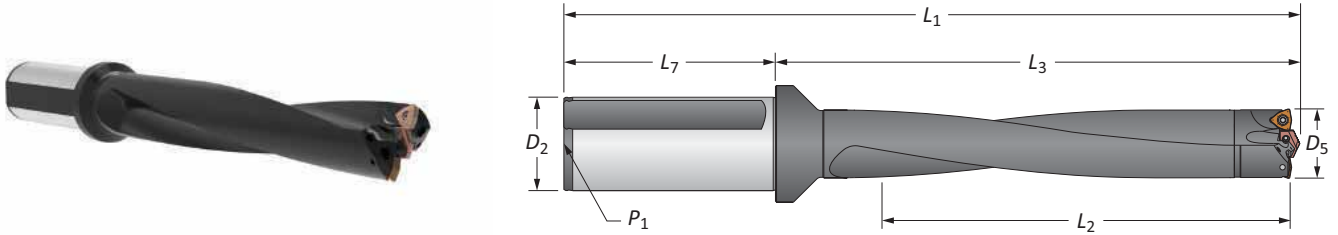
Part No.	38 series, T-A (1 series), 1.6790"	Part No. = 33010007
Part No.	38 series, T-A (1 series), 42.15mm	Part No. = 33010015

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



33 Series | Diameter Range: 1.2992" - 1.4688" (33.00mm - 37.99mm)

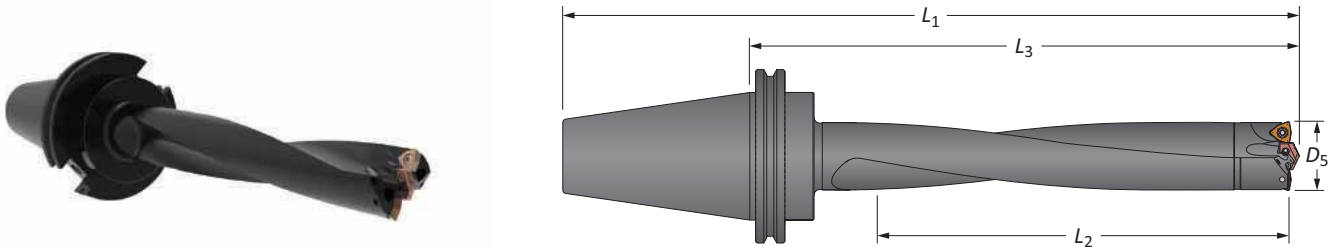
33 Series | Diameter Range: 1.2992" - 1.4688" (33.00mm - 37.99mm)



Series Specifications

Series	Length	D ₅	Body			Shank			Part No.
			L ₂	L ₃	L ₁	L ₇	D ₂	P ₁	
i	3xD	1.2992 - 1.4960	4-7/16	6-19/32	9-9/32	2-11/16	1-1/2	1/4	33330 1522
	5xD	1.2992 - 1.4960	7-27/64	9-37/64	12-9/32	2-11/16	1-1/2	1/4	33350 1522
	8xD	1.2992 - 1.4960	11-59/64	14-5/64	16-3/4	2-11/16	1-1/2	1/4	33370 1522
	10xD	1.2992 - 1.4960	14-29/32	17-1/16	19-3/4	2-11/16	1-1/2	1/4	33120 1522
m	3xD	33.00 - 37.99	112.6	167.4	237.4	70.0	40.0	1/4*	33330 2422
	5xD	33.00 - 37.99	188.6	243.4	313.4	70.0	40.0	1/4*	33350 2422
	8xD	33.00 - 37.99	302.6	357.4	427.4	70.0	40.0	1/4*	33370 2422
	10xD	33.00 - 37.99	378.6	433.4	503.4	70.0	40.0	1/4*	33120 2422



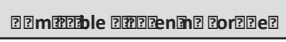
*Thread to BSP and ISO 7-1



Series Specifications

Series	Length	D ₅		Body			Shank	Part No.
		Inch	mm	L ₂	L ₃	L ₁		
i	3xD	1.2992 - 1.4960	33.00 - 37.99	4-7/16	7-3/8	10-3/16	CV40	33330 2442
	5xD	1.2992 - 1.4960	33.00 - 37.99	7-27/64	10-23/64	13-11/64	CV40	33350 2442
	8xD	1.2992 - 1.4960	33.00 - 37.99	11-59/64	14-55/64	17-21/32	CV40	33370 2442
	10xD	1.2992 - 1.4960	33.00 - 37.99	14-29/32	17-27/32	20-21/32	CV40	33120 2442
m	3xD	1.2992 - 1.4960	33.00 - 37.99	4-7/16	7-3/8	11-1/2	CV50	33330 2452
	5xD	1.2992 - 1.4960	33.00 - 37.99	7-27/64	10-23/64	14-31/64	CV50	33350 2452
	8xD	1.2992 - 1.4960	33.00 - 37.99	11-59/64	14-55/64	18-31/32	CV50	33370 2452
	10xD	1.2992 - 1.4960	33.00 - 37.99	14-29/32	17-27/32	21-31/32	CV50	33120 2452

Connection Accessories

		
Mounting Screw	Mounting Screw Driver	Replaceable Insert
75020-IP20-1	8IP-20	60 in-lb (678 N-cm)

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

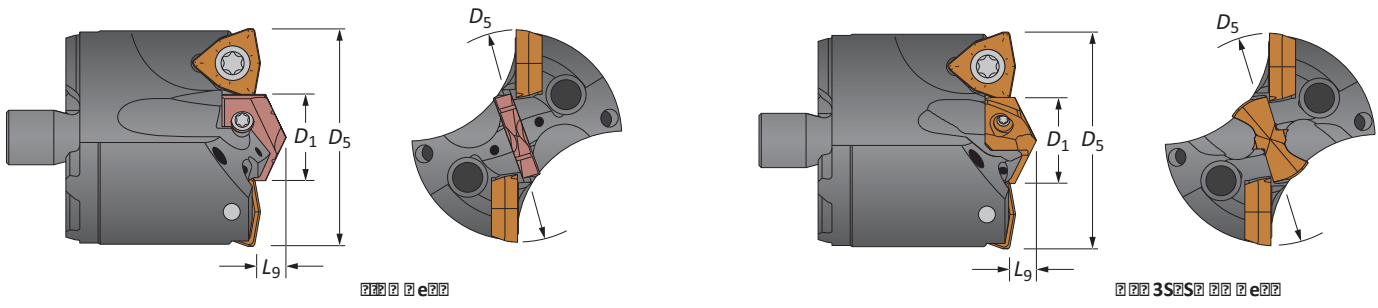
Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Mounting screws sold in multiples of 4

38 Series | Diameter Range: 1.4961" - 1.7322" (38.00mm - 43.99mm)

DRILLING



BORING

D ₅ fractional	D ₅ inc	D ₅ mm	D ₁	L ₉	GEN3SYS			GEN3SYS			Insert Size
					Part No.	Series	Insert	Part No.	Series	Insert	
-	1.4961	38.00	5/8	19/64	38150	0	4C*OH-0020	38150	15	7C*15P-0020	3/8
1-1/2	1.5000	38.10	5/8	19/64	38150	117	4C*OH-0020	38150	117	7C*15P-0020	3/8
1-17/32	1.5313	38.90	5/8	19/64	38150	117	4C*OH-0020	38150	117	7C*15P-0020	3/8
-	1.5354	39.00	5/8	19/64	38150	0	4C*OH-0020	38150	0	7C*15P-0020	3/8
1-9/16	1.5625	39.69	5/8	19/64	38150	117	4C*OH-0020	38150	117	7C*15P-0020	3/8
-	1.5748	40.00	11/16	19/64	38170	0	4C*OH-0022	38170	0	7C*17P-0022	3/8
1-19/32	1.5938	40.48	11/16	19/64	38170	117	4C*OH-0022	38170	117	7C*17P-0022	3/8
-	1.6142	41.00	11/16	19/64	38170	0	4C*OH-0022	38170	0	7C*17P-0022	3/8
1-5/8	1.6250	41.28	11/16	19/64	38170	120	4C*OH-0022	38170	120	7C*17P-0022	3/8
-	1.6535	42.00	3/4	19/64	38110	0	4C*OH-0024	38110	0	7C*18P-0024	3/8
1-21/32	1.6563	42.07	3/4	19/64	38110	121	4C*OH-0024	38110	121	7C*18P-0024	3/8
1-11/16	1.6875	42.86	3/4	19/64	38110	122	4C*OH-0024	38110	122	7C*18P-0024	3/8
-	1.6929	43.00	13/16	19/64	38200	0	4C*OH-0026	38200	0	7C*20P-0026	3/8
1-23/32	1.7188	43.66	13/16	19/64	38200	123	4C*OH-0026	38200	123	7C*20P-0026	3/8

*Denotes carbide grade (1 = C1, 2 = C2)

BURNISHING

Coating	Size	Grade	Geometry	Insert	Insert Screw	Insert Driver	Max Torque
AM300®	3/8	C5	Standard	4000	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)
AM300®	3/8	C1	Standard	4000	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)
AM300®	3/8	C5	High Rake	4000 R	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)
AM300®	3/8	C5	High Impact	4000 H	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)

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

Threading

Thread Style	Series	Insert Screw	Insert Driver	Max Torque
T-A	0	72567-IP8-1	8IP-8	15.5 in-lbs (175 N-cm)
T-A	1	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	15	7247-IP7-1	8IP-7	7.4 in-lbs (84 N-cm)
GEN3SYS	17	72567-IP8-1	8IP-8	15.5 in-lbs (175 N-cm)
GEN3SYS	18	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	20	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)

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

A50: 28 - 29

A50: 2 - 5

Section A20

Section A30

Non-stocked diameters are also available. Follow the examples shown below.

Inc	38 series, T-A (1 series), 1.6790"	Part No. = 38110
Part	38 series, T-A (1 series), 42.15mm	Part No. = 38110

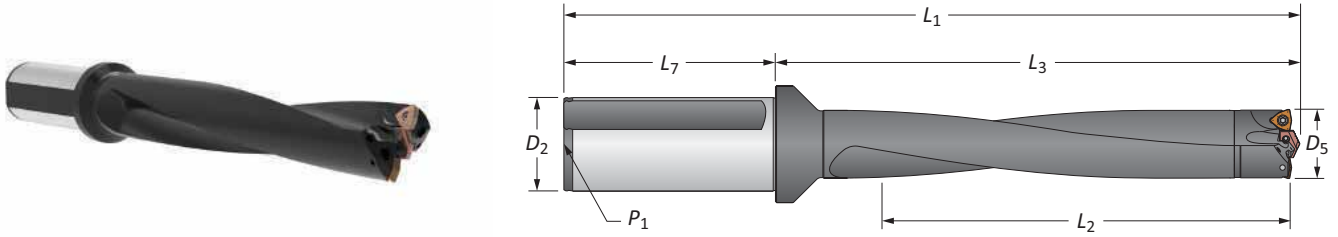
IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

SPECIALS



Drill

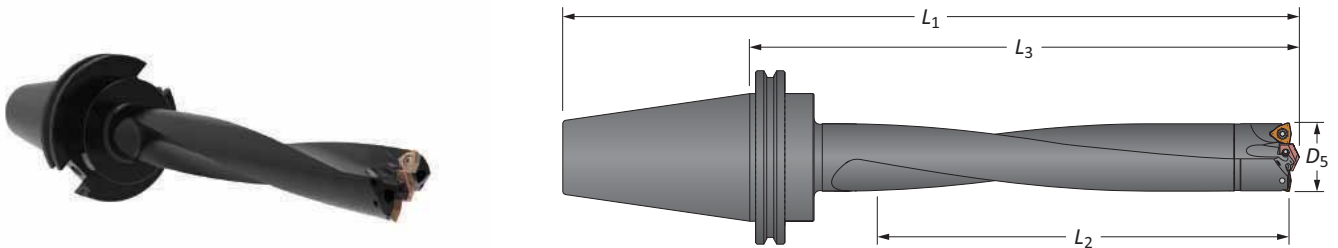
38 Series | Diameter Range: 1.4961" - 1.7322" (38.00mm - 43.99mm)



Specifications

Series	Diameter	D ₅	Length			Section	P ₁	Part No.		
			L ₂	L ₃	L ₁					
i	3xD	1.4961 - 1.7322	5-1/8	7-47/64	10-25/64	2-11/16	1-1/2	1/4	380301500	
	5xD	1.4961 - 1.7322	8-5/8	11-13/64	13-55/64	2-11/16	1-1/2	1/4	380501500	
	8xD	1.4961 - 1.7322	13-7/8	16-25/64	19-3/64	2-11/16	1-1/2	1/4	380801500	
	10xD	1.4961 - 1.7322	17-1/4	19-27/32	22-33/64	2-11/16	1-1/2	1/4	381001500	
	3xD	1.4961 - 1.7322	5-1/8	7-47/64	12-15/64	4-1/2	2	1/4	380302000	
	5xD	1.4961 - 1.7322	8-5/8	11-13/64	15-45/64	4-1/2	2	1/4	380502000	
	8xD	1.4961 - 1.7322	13-7/8	16-25/64	20-57/64	4-1/2	2	1/4	380802000	
	10xD	1.4961 - 1.7322	17-1/4	19-27/32	24-59/64	4-1/2	2	1/4	381002000	
	m	3xD	38.00 - 43.99	130.5	196.5	265.7	70.0	40.0	1/4*	380304000
		5xD	38.00 - 43.99	220.0	284.5	353.7	70.0	40.0	1/4*	380504000
8xD		38.00 - 43.99	352.0	416.5	485.7	70.0	40.0	1/4*	380804000	
10xD		38.00 - 43.99	439.9	503.9	573.7	70.0	40.0	1/4*	381004000	
3xD		38.00 - 43.99	130.5	196.5	276.5	80.0	50.0	1/4*	380305000	
5xD		38.00 - 43.99	220.0	284.5	364.5	80.0	50.0	1/4*	380505000	
8xD		38.00 - 43.99	352.0	416.5	496.3	80.0	50.0	1/4*	380805000	
10xD		38.00 - 43.99	439.9	503.9	583.9	80.0	50.0	1/4*	381005000	



*Thread to BSP and ISO 7-1



Threaded Section

Series	Diameter	D ₅		Length			Section	Part No.
		Inch	mm	L ₂	L ₃	L ₁		
i	3xD	1.4961 - 1.7322	38.00 - 43.99	5-1/8	8-5/16	11	CV40	380304000
	5xD	1.4961 - 1.7322	38.00 - 43.99	8-5/8	11-49/64	14-29/64	CV40	380504000
	8xD	1.4961 - 1.7322	38.00 - 43.99	13-7/8	16-31/32	19-21/32	CV40	380804000
	10xD	1.4961 - 1.7322	38.00 - 43.99	17-1/4	20-7/16	23-1/8	CV40	381004000
	3xD	1.4961 - 1.7322	38.00 - 43.99	5-1/8	8-5/16	12-5/16	CV50	380305000
	5xD	1.4961 - 1.7322	38.00 - 43.99	8-5/8	11-49/64	15-49/64	CV50	380505000
	8xD	1.4961 - 1.7322	38.00 - 43.99	13-7/8	16-31/32	20-31/32	CV50	380805000
	10xD	1.4961 - 1.7322	38.00 - 43.99	17-1/4	20-7/16	24-7/16	CV50	381005000

Connection Accessories

		Recommended Torque
Mounting Screw	Mounting Screw Driver	
75020-IP20-1	8IP-20	60 in-lb (678 N-cm)

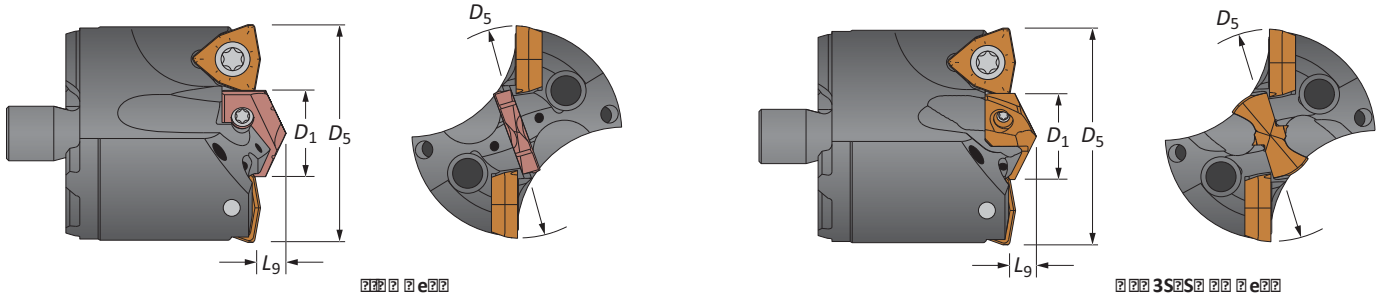
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Mounting screws sold in multiples of 4

44 Series | Diameter Range: 1.7323" - 2.0075" (44.00mm - 50.99mm)



D ₅ fractional	D ₅ inch	D ₅ mm	D ₁	L ₉	Series		Insert Part No.	GEN3SYS Series		Insert Part No.	Series
					Part No.	Series		Part No.	Series		
-	1.7323	44.00	7/8	21/64	441004	1	4C*1H-0028	442204	22	7C*22P-0028	3/8
1-3/4	1.7500	44.45	7/8	21/64	4410124	1	4C*1H-0028	44220124	22	7C*22P-0028	3/8
-	1.7717	45.00	7/8	21/64	4410045	1	4C*1H-0028	4422045	22	7C*22P-0028	3/8
1-25/32	1.7813	45.25	7/8	21/64	4410125	1	4C*1H-0028	44220125	22	7C*22P-0028	3/8
-	1.8110	46.00	15/16	21/64	4410047	1	4C*1H-0030	4422047	22	7C*22P-0030	3/8
1-13/16	1.8125	46.04	15/16	21/64	4410127	1	4C*1H-0030	44220127	22	7C*22P-0030	3/8
1-27/32	1.8438	46.83	15/16	21/64	4410127	1	4C*1H-0030	44220127	22	7C*22P-0030	3/8
-	1.8504	47.00	15/16	21/64	4410047	1	4C*1H-0030	4422047	22	7C*22P-0030	3/8
1-7/8	1.8750	47.63	15/16	21/64	4410127	1	4C*1H-0030	44220127	22	7C*22P-0030	3/8
-	1.8898	48.00	45/64	21/64	4410047	1	4C*1H-.703	4417047	17	7C*17P-.703	1/2
1-29/32	1.9063	48.42	45/64	21/64	4410127	1	4C*1H-.703	44170127	17	7C*17P-.703	1/2
-	1.9291	49.00	45/64	21/64	4410047	1	4C*1H-.703	4417047	17	7C*17P-.703	1/2
1-15/16	1.9375	49.21	45/64	21/64	4410133	1	4C*1H-.703	44170133	17	7C*17P-.703	1/2
-	1.9685	50.00	47/64	21/64	4410057	1	4C*1H-.734	4417057	18	7C*18P-.734	1/2
1-31/32	1.9688	50.01	47/64	21/64	4410131	1	4C*1H-.734	44170131	18	7C*18P-.734	1/2
2	2.0000	50.80	47/64	21/64	4410227	1	4C*1H-.734	44170227	18	7C*18P-.734	1/2

*Denotes carbide grade (1 = C1, 2 = C2)

Coating	Size	Grade	Geometry	Insert Part No.	Insert Screw	Insert Driver	Recommended Torque
AM300®	3/8	C5	Standard	441004	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)
AM300®	3/8	C1	Standard	4410124	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)
AM300®	3/8	C5	High Rake	4410045	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)
AM300®	3/8	C5	High Impact	4410125	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)
AM300®	1/2	C5	Standard	4410047	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C1	Standard	4410127	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C5	High Rake	4410047	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C5	High Impact	4410127	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)

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

Insert Style	Series	Insert Screw	Insert Driver	Recommended Torque
T-A	1	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	17	72567-IP8-1	8IP-8	15.5 in-lbs (175 N-cm)
GEN3SYS	18	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	22	739-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)

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

A50: 28 - 29

A50: 2 - 5

Section A20

Section A30

Non-stocked diameters are also available. Follow the examples shown below.

inch	38 series, T-A (1 series), 1.6790"	Part No. = 333104277
metric	38 series, T-A (1 series), 42.15mm	Part No. = 333104215

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

DRILLING

BORING

REAMING

BURNISHING

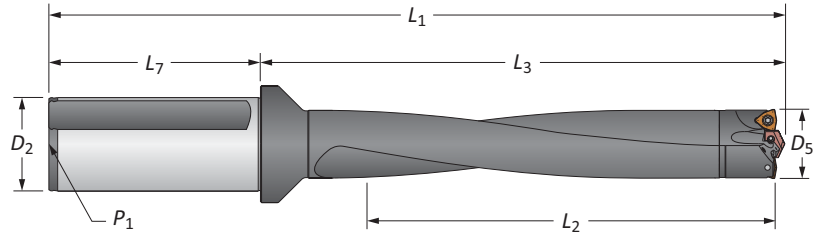
THREADING

SPECIALS



44 Series | Diameter Range: 1.7323" - 2.0075" (44.00mm - 50.99mm)

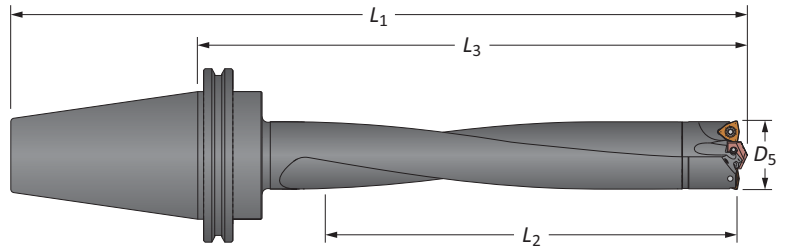
44 Series | Diameter Range: 1.7323" - 2.0075" (44.00mm - 50.99mm)



Standard Series

Series	Designation	D ₅	L ₂	Body L ₃	L ₁	L ₇	Section D ₂	P ₁	Part No.	
i	3xD	1.7323 - 2.0075	6	8-17/32	11-15/64	2-11/16	1-1/2	1/4	443301500	
	5xD	1.7323 - 2.0075	10	12-35/64	15-1/4	2-11/16	1-1/2	1/4	445501500	
	8xD	1.7323 - 2.0075	16	18-37/64	21-17/64	2-11/16	1-1/2	1/4	447701500	
	10xD	1.7323 - 2.0075	20-1/8	22-19/32	25-9/32	2-11/16	1-1/2	1/4	441901500	
	3xD	1.7323 - 2.0075	6	8-33/64	13-1/32	4-1/2	2	1/4	443302000	
	5xD	1.7323 - 2.0075	10	12-35/64	17-3/64	4-1/2	2	1/4	445502000	
	8xD	1.7323 - 2.0075	16	18-37/64	23-5/64	4-1/2	2	1/4	447702000	
	10xD	1.7323 - 2.0075	20-1/8	22-19/32	27-3/32	4-1/2	2	1/4	441902000	
	m	3xD	44.00 - 50.99	151.5	216.8	286.9	70.0	40.0	1/4*	443304000
		5xD	44.00 - 50.99	255.0	318.8	388.9	70.0	40.0	1/4*	445504000
8xD		44.00 - 50.99	407.9	471.8	541.8	70.0	40.0	1/4*	447704000	
10xD		44.00 - 50.99	510.0	573.8	643.8	70.0	40.0	1/4*	441904000	
3xD		44.00 - 50.99	151.5	216.8	296.9	80.0	50.0	1/4*	443305000	
5xD		44.00 - 50.99	255.0	318.8	398.8	80.0	50.0	1/4*	445505000	
8xD		44.00 - 50.99	407.9	471.8	551.7	80.0	50.0	1/4*	447705000	
10xD		44.00 - 50.99	510.0	573.8	653.8	80.0	50.0	1/4*	441905000	



*Thread to BSP and ISO 7-1



Thread Series

Series	Designation	D ₅		Body L ₃	L ₁	Section	Part No.	
		Inch	mm					
i	3xD	1.7323 - 2.0075	44.00 - 50.99	6	9-1/4	11-15/16	CV40	443304000
	5xD	1.7323 - 2.0075	44.00 - 50.99	10	13-17/64	15-61/64	CV40	445504000
	8xD	1.7323 - 2.0075	44.00 - 50.99	16	19-19/64	21-63/64	CV40	447704000
	10xD	1.7323 - 2.0075	44.00 - 50.99	20-1/8	23-5/16	26	CV40	441904000
	3xD	1.7323 - 2.0075	44.00 - 50.99	6	9-1/4	13-1/4	CV50	443305000
	5xD	1.7323 - 2.0075	44.00 - 50.99	10	13-17/64	17-17/64	CV50	445505000
	8xD	1.7323 - 2.0075	44.00 - 50.99	16	19-19/64	23-19/64	CV50	447705000
	10xD	1.7323 - 2.0075	44.00 - 50.99	20	23-5/16	27-5/16	CV50	441905000

Connection Accessories

 Mounting Screw 75020-IP20-1	 Mounting Screw Driver 8IP-20	Recommended Torque 60 in-lb (678 N-cm)
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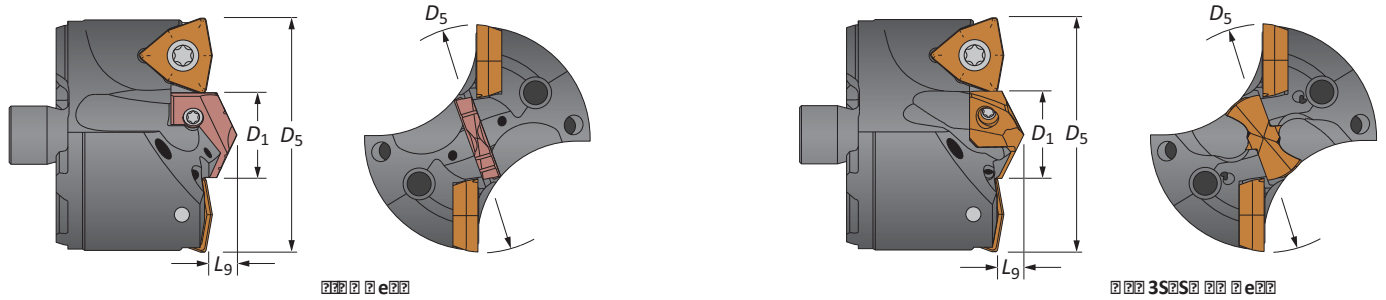
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Mounting screws sold in multiples of 4

51 Series | Diameter Range: 2.0076" - 2.2438" (51.00mm - 56.99mm)



D ₅ fractional	D ₅ inch	D ₅ mm	D ₁	L ₉	Series		Insert	GEN3SYS Series		Insert	Size
					Part No.	Series		Part No.	Series		
-	2.0079	51.00	25/32	11/32	51101051	1	4C*1H-0025	51101051	18	7C*18P-0025	1/2
2-1/32	2.0313	51.59	25/32	11/32	511010201	1	4C*1H-0025	511010201	18	7C*18P-0025	1/2
-	2.0472	52.00	25/32	11/32	51101052	1	4C*1H-0025	51101052	18	7C*18P-0025	1/2
2-1/16	2.0625	52.39	25/32	11/32	511010202	1	4C*1H-0025	511010202	18	7C*18P-0025	1/2
-	2.0866	53.00	27/32	11/32	51101053	1	4C*1H-0027	51201053	20	7C*20P-0027	1/2
2-3/32	2.0938	53.18	27/32	11/32	511010203	1	4C*1H-0027	512010203	20	7C*20P-0027	1/2
2-1/8	2.1250	53.98	27/32	11/32	511010204	1	4C*1H-0027	512010204	20	7C*20P-0027	1/2
-	2.1260	54.00	15/16	11/32	51101054	1	4C*1H-0030	51220054	22	7C*22P-0030	1/2
2-5/32	2.1563	54.77	15/16	11/32	511010205	1	4C*1H-0030	512200205	22	7C*22P-0030	1/2
-	2.1654	55.00	15/16	11/32	51101055	1	4C*1H-0030	51220055	22	7C*22P-0030	1/2
2-3/16	2.1875	55.56	15/16	11/32	511010206	1	4C*1H-0030	512200206	22	7C*22P-0030	1/2
-	2.2047	56.00	15/16	11/32	51101056	1	4C*1H-0030	51220056	22	7C*22P-0030	1/2
2-7/32	2.2188	56.36	13/16	11/32	511010207	1	4C*1H-0026	512010207	20	7C*20P-0026	9/16

*Denotes carbide grade (1 = C1, 2 = C2)

Coating	Size	Grade	Geometry	Insert	Insert Screw	Insert Driver	Tightening Torque
AM300®	1/2	C5	Standard	51101051	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C1	Standard	511010201	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C5	High Rake	51101052 R	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C5	High Impact	511010202 HI	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	9/16	C5	Standard	51101053	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C1	Standard	511010203	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C5	High Rake	511010203 R	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C5	High Impact	511010204 HI	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)

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

Insert Style	Series	Insert Screw	Insert Driver	Tightening Torque
T-A	1	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	18	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	20	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	22	739-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)

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

A50: 28 - 29 | A50: 2 - 5 | Section A20 | Section A30

Non-stocked diameters are also available. Follow the examples shown below.

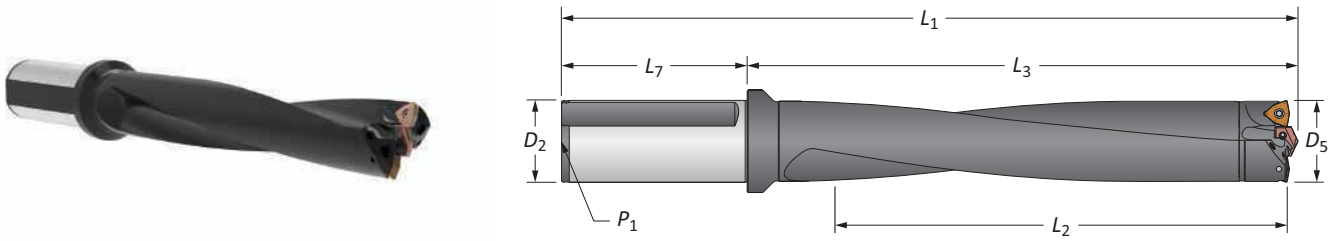
inch	38 series, T-A (1 series), 1.6790"	Part No. = 300101077
metric	38 series, T-A (1 series), 42.15mm	Part No. = 30010104215

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



51 Series | Diameter Range: 2.0076" - 2.2438" (51.00mm - 56.99mm)

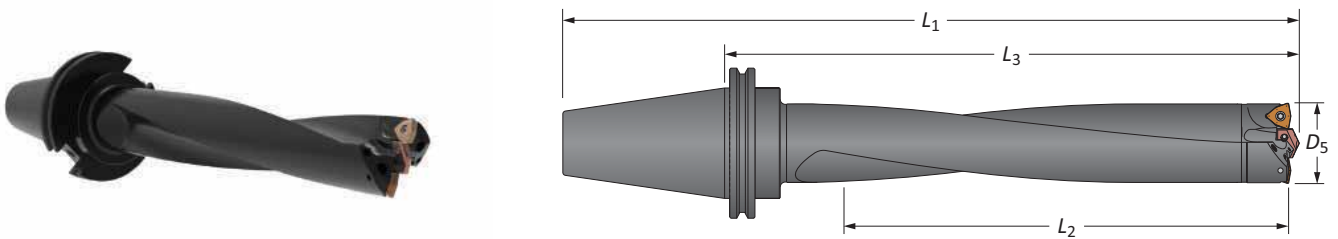
51 Series | Diameter Range: 2.0076" - 2.2438" (51.00mm - 56.99mm)



Specifications

Series	Flute Count	D ₅	Length			S ₂	P ₁	Part No.
			L ₂	L ₃	L ₁			
i	3xD	2.0076 - 2.2438	6-3/8	8-7/8	13-3/8	4-1/2	2	51030 2222
	5xD	2.0076 - 2.2438	11-1/8	13-3/8	17-7/8	4-1/2	2	51050 2222
	8xD	2.0076 - 2.2438	17-7/8	20-3/32	24-19/32	4-1/2	2	51080 2222
	10xD	2.0076 - 2.2438	22-3/8	24-19/32	29-3/32	4-1/2	2	51100 2222
m	3xD	51.00 - 56.99	161.8	225.5	305.5	80.0	50.0	51030 5522
	5xD	51.00 - 56.99	285.0	339.6	419.6	80.0	50.0	51050 5522
	8xD	51.00 - 56.99	455.9	510.5	590.5	80.0	50.0	51080 5522
	10xD	51.00 - 56.99	570.0	624.6	704.6	80.0	50.0	51100 5522



*Thread to BSP and ISO 7-1



51 Series Specifications

Series	Flute Count	D ₅		Length			S ₂	Part No.
		inch	mm	L ₂	L ₃	L ₁		
i	3xD	2.0076 - 2.2438	51.00 - 56.99	6-3/8	9-47/64	13-47/64	CV50	51030 2255
	5xD	2.0076 - 2.2438	51.00 - 56.99	11-1/4	14-7/32	18-7/32	CV50	51050 2255
	8xD	2.0076 - 2.2438	51.00 - 56.99	17-7/8	20-61/64	24-61/64	CV50	51080 2255
	10xD	2.0076 - 2.2438	51.00 - 56.99	22-3/8	25-7/16	29-7/16	CV50	51100 2255

Connection Accessories

		Recommended Torque
75020-IP20-1	8IP-20	60 in-lb (678 N-cm)

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

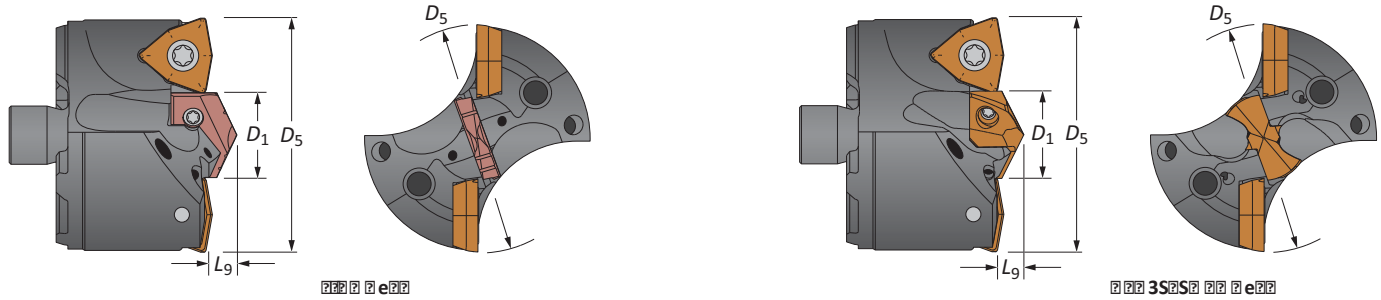
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i = Imperial (in)
m = Metric (mm)

Mounting screws sold in multiples of 4

57 Series | Diameter Range: 2.2439" - 2.4799" (57.00mm - 62.99mm)

57 Series | Diameter Range: 2.2439" - 2.4799" (57.00mm - 62.99mm)



D ₅ fractional	D ₅ inch	D ₅ mm	D ₁	L ₉	Series		Insert	GEN3SYS Series		Insert	Shank Size
					Part No.	Series		Part No.	Series		
-	2.2441	57.00	29/32	25/64	57221057	1	4C*1H-0029	57221057	22	7C*22P-0029	9/16
2-1/4	2.2500	57.15	29/32	25/64	57221022	1	4C*1H-0029	57221022	22	7C*22P-0029	9/16
2-9/32	2.2813	57.94	29/32	25/64	57221022	1	4C*1H-0029	57221022	22	7C*22P-0029	9/16
-	2.2835	58.00	29/32	25/64	57221052	1	4C*1H-0029	57221052	22	7C*22P-0029	9/16
2-5/16	2.3125	58.74	29/32	25/64	57221021	1	4C*1H-0029	57221021	22	7C*22P-0029	9/16
-	2.3228	59.00	15/16	25/64	57221052	1	4C*1H-0030	57221052	22	7C*22P-0030	9/16
2-11/32	2.3438	59.53	15/16	25/64	572210211	1	4C*1H-0030	572210211	22	7C*22P-0030	9/16
-	2.3622	60.00	15/16	25/64	57221022	1	4C*1H-0030	57221022	22	7C*22P-0030	9/16
2-3/8	2.3750	60.33	15/16	25/64	572210212	1	4C*1H-0030	572210212	22	7C*22P-0030	9/16
-	2.4016	61.00	1	25/64	57242021	2	4C*2H-0100	57242021	24	7C*24P-0100	9/16
2-13/32	2.4063	61.12	1	25/64	572420213	2	4C*2H-0100	572420213	24	7C*24P-0100	9/16
2-7/16	2.4375	61.91	1	25/64	572420214	2	4C*2H-0100	572420214	24	7C*24P-0100	9/16
-	2.4409	62.00	1-1/16	25/64	57262022	2	4C*2H-0102	57262022	26	7C*26P-0102	9/16
2-15/32	2.4688	62.71	1-1/16	25/64	572620215	2	4C*2H-0102	572620215	26	7C*26P-0102	9/16

*Denotes carbide grade (1 = C1, 2 = C2)

Coating	Size	Grade	Geometry	Insert	Insert Screw	Insert Driver	Tightening Torque
AM300®	9/16	C5	Standard	57221057	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C1	Standard	57221022	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C5	High Rake	57221052	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C5	High Impact	57221021	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)

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

Insert Style	Series	Insert Screw	Insert Driver	Tightening Torque
T-A	1	7375-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
T-A	2	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
GEN3SYS	22	739-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	24	739-IP9-1	8IP-9	27.0 in-lbs (305 N-cm)
GEN3SYS	26	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)

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

A50: 28 - 29

A50: 2 - 5

Section A20

Section A30

Non-stocked diameters are also available. Follow the examples shown below.

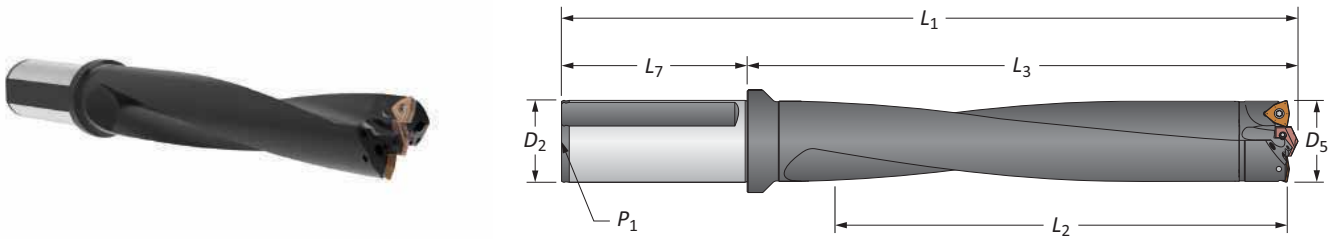
inch	38 series, T-A (1 series), 1.6790"	Part No. = 3321077
metric	38 series, T-A (1 series), 42.15mm	Part No. = 332104215

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



57 Series | Diameter Range: 2.2439" - 2.4799" (57.00mm - 62.99mm)

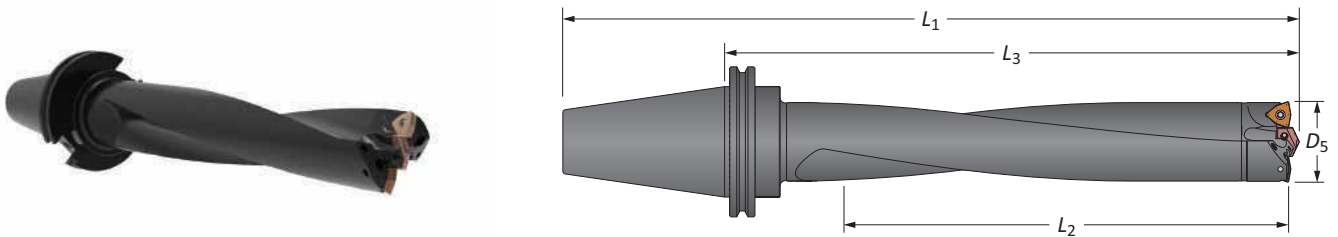
57 Series | Diameter Range: 2.2439" - 2.4799" (57.00mm - 62.99mm)



Series Specifications

Series	Length	D ₅	Length			D ₂	P ₁	Part No.
			L ₂	L ₃	L ₁			
i	3xD	2.2439 - 2.4799	7-1/8	9-35/64	14-1/16	4-1/2	2	57030 0200
	5xD	2.2439 - 2.4799	12-3/8	14-33/64	19-1/64	4-1/2	2	57050 0200
	8xD	2.2439 - 2.4799	19-3/4	21-31/32	26-15/32	4-1/2	2	57080 0200
	10xD	2.2439 - 2.4799	24-3/4	26-59/64	31-27/64	4-1/2	2	57100 0200
m	3xD	57.00 - 62.99	179.9	242.7	322.7	80.0	50.0	57030 0500
	5xD	57.00 - 62.99	315.0	368.6	448.6	80.0	50.0	57050 0500
	8xD	57.00 - 62.99	503.9	557.8	637.8	80.0	50.0	57080 0500
	10xD	57.00 - 62.99	626.9	683.8	763.8	80.0	50.0	57100 0500



*Thread to BSP and ISO 7-1



Series Specifications

Series	Length	D ₅		Length			Series	Part No.
		Inch	mm	L ₂	L ₃	L ₁		
i	3xD	2.2439 - 2.4799	57.00 - 62.99	7-1/8	10-17/32	14-17/32	CV50	57030 0205
	5xD	2.2439 - 2.4799	57.00 - 62.99	12-3/8	15-31/64	19-31/64	CV50	57050 0205
	8xD	2.2439 - 2.4799	57.00 - 62.99	19-7/8	22-15/16	26-15/16	CV50	57080 0205
	10xD	2.2439 - 2.4799	57.00 - 62.99	24-3/4	27-57/64	31-57/64	CV50	57100 0205

Connection Accessories

		Permissible Torque
Mounting Screw	Mounting Screw Driver	
75020-IP20-1	8IP-20	60 in-lb (678 N-cm)

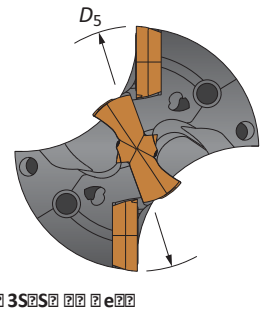
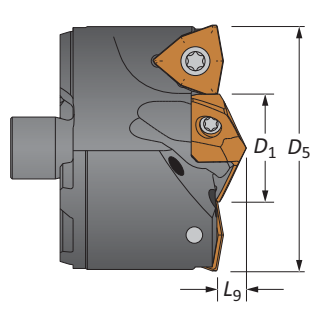
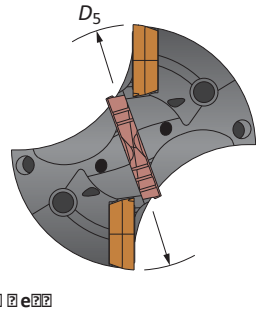
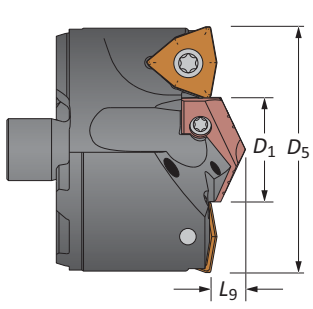
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Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Mounting screws sold in multiples of 4

63 Series | Diameter Range: 2.4800" - 2.755" (63.00mm - 69.99mm)



D ₅ fractional	D ₅ inch	D ₅ mm	D ₁	L ₉	GEN3SYS			GEN3SYS 32			Insert Size
					Series	Insert	Series	Insert	Series		
-	2.4803	63.00	1-1/8	7/16	GEN3SYS 23	2	4C*2H-0104	GEN3SYS 23	26	7C*26P-0104	9/16
2-1/2	2.5000	63.50	1-1/8	7/16	GEN3SYS 217	2	4C*2H-0104	GEN3SYS 217	26	7C*26P-0104	9/16
-	2.5197	64.00	1-1/8	7/16	GEN3SYS 24	2	4C*2H-0104	GEN3SYS 24	26	7C*26P-0104	9/16
2-17/32	2.5313	64.29	1-1/8	7/16	GEN3SYS 217	2	4C*2H-0104	GEN3SYS 217	26	7C*26P-0104	9/16
-	2.5591	65.00	1-1/8	7/16	GEN3SYS 25	2	4C*2H-0104	GEN3SYS 25	26	7C*26P-0104	9/16
2-9/16	2.5625	65.09	1-3/16	7/16	GEN3SYS 217	2	4C*2H-0106	GEN3SYS 217	29	7C*29P-0106	9/16
2-19/32	2.5938	65.88	1-3/16	7/16	GEN3SYS 217	2	4C*2H-0106	GEN3SYS 217	29	7C*29P-0106	9/16
-	2.5984	66.00	1-3/16	7/16	GEN3SYS 27	2	4C*2H-0106	GEN3SYS 27	29	7C*29P-0106	9/16
2-5/8	2.6250	66.68	1-3/16	7/16	GEN3SYS 222	2	4C*2H-0106	GEN3SYS 222	29	7C*29P-0106	9/16
-	2.6378	67.00	1-1/4	7/16	GEN3SYS 27	2	4C*2H-0108	GEN3SYS 27	29	7C*29P-0108	9/16
2-21/32	2.6563	67.47	1-1/4	7/16	GEN3SYS 221	2	4C*2H-0108	GEN3SYS 221	29	7C*29P-0108	9/16
-	2.6772	68.00	1-1/4	7/16	GEN3SYS 27	2	4C*2H-0108	GEN3SYS 27	29	7C*29P-0108	9/16
2-11/16	2.6875	68.26	1-1/4	7/16	GEN3SYS 222	2	4C*2H-0108	GEN3SYS 222	29	7C*29P-0108	9/16
-	2.7165	69.00	1-5/16	7/16	GEN3SYS 27	2	4C*2H-0110	GEN3SYS 27	32	7C*32P-0110	9/16
2-23/32	2.7188	69.06	1-5/16	7/16	GEN3SYS 223	2	4C*2H-0110	GEN3SYS 223	32	7C*32P-0110	9/16
2-3/4	2.7500	69.85	1-5/16	7/16	GEN3SYS 224	2	4C*2H-0110	GEN3SYS 224	32	7C*32P-0110	9/16

*Denotes carbide grade (1 = C1, 2 = C2)

Coating	Size	Grade	Geometry	Insert	Insert Screw	Insert Driver	Recommended Torque
AM300®	9/16	C5	Standard	GEN3SYS 23	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C1	Standard	GEN3SYS 217	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C5	High Rake	GEN3SYS 24 R	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C5	High Impact	GEN3SYS 25	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)

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

Insert Style	Series	Insert Screw	Insert Driver	Recommended Torque
T-A	2	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
GEN3SYS	26	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
GEN3SYS	29	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
GEN3SYS	32	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)

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

A50: 28 - 29

A50: 2 - 5

Section A20

Section A30

Non-stocked diameters are also available. Follow the examples shown below.

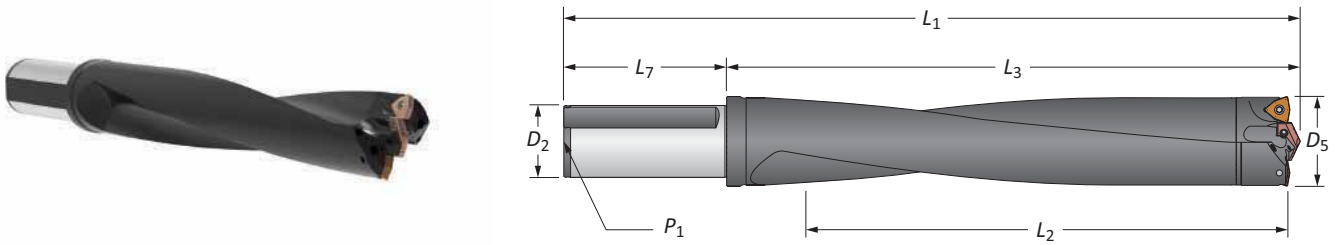
inch	38 series, T-A (1 series), 1.6790"	Part No. = GEN3SYS 23
metric	38 series, T-A (1 series), 42.15mm	Part No. = GEN3SYS 23

IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



63 Series | Diameter Range: 2.4800" - 2.755" (63.00mm - 69.99mm)

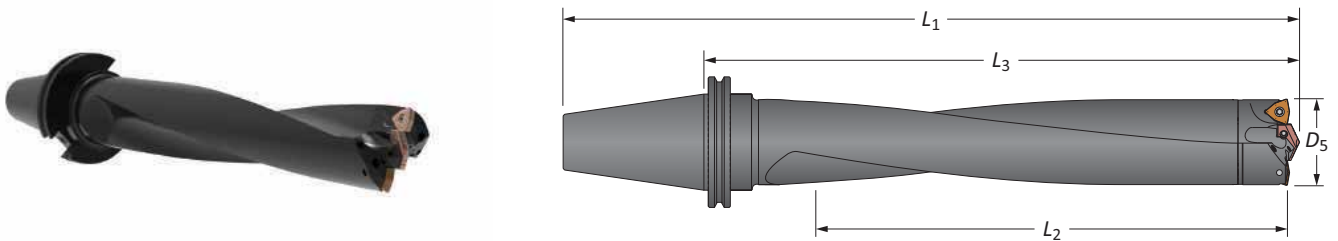
63 Series | Diameter Range: 2.4800" - 2.755" (63.00mm - 69.99mm)



Specifications

Series	Flute Length	D ₅	Body			Shank		Thread	
			L ₂	L ₃	L ₁	L ₇	D ₂		P ₁
i	3xD	2.4800 - 2.7555	7-7/8	10-11/32	14-27/32	4-1/2	2	1/4	33030 2000
	5xD	2.4800 - 2.7555	13-3/4	15-27/32	20-11/32	4-1/2	2	1/4	33050 2000
	8xD	2.4800 - 2.7555	22-1/8	24-1/8	28-5/8	4-1/2	2	1/4	33080 2000
	10xD	2.4800 - 2.7555	27-1/8	29-11/64	33-43/64	4-1/2	2	1/4	33100 2000
m	3xD	63.00 - 69.99	200.8	262.6	342.6	80.0	50.0	1/4*	33030 5000
	5xD	63.00 - 69.99	350.0	402.6	482.6	80.0	50.0	1/4*	33050 5000
	8xD	63.00 - 69.99	560.0	612.6	692.6	80.0	50.0	1/4*	33080 5000
	10xD	63.00 - 69.99	688.3	740.9	820.9	80.0	50.0	1/4*	33100 5000



*Thread to BSP and ISO 7-1



5 Series Specifications

Series	Flute Length	D ₅		Body			Shank	Thread
		Inch	mm	L ₂	L ₃	L ₁		
i	3xD	2.4800 - 2.7555	63.00 - 69.99	7-7/8	11-7/16	15-7/16	CV50	33030 20050
	5xD	2.4800 - 2.7555	63.00 - 69.99	13-3/4	16-15/16	20-15/16	CV50	33050 20050
	8xD	2.4800 - 2.7555	63.00 - 69.99	22	25-13/64	29-13/64	CV50	33080 20050
	10xD	2.4800 - 2.7555	63.00 - 69.99	26-1/2	29-43/64	33-43/64	CV50	33100 20050

Connection Accessories

		Permissible Torque
Mounting Screw	Mounting Screw Driver	
75020-IP20-1	8IP-20	60 in-lb (678 N-cm)

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

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com/deep-hole-drilling for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

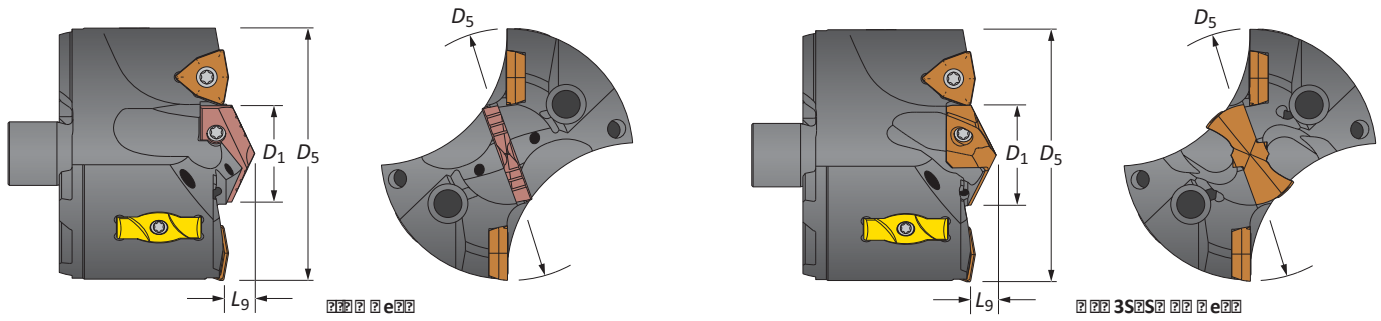
Mounting screws sold in multiples of 4

3
DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS



70 Series | Diameter Range: 2.7556" - 2.9917" (70.00mm - 75.99mm)

70 Series | Diameter Range: 2.7556" - 2.9917" (70.00mm - 75.99mm)



D ₅ fractional	D ₅ inch	D ₅ mm	D ₁	L _g	Series 2			Series 29			Insert Size
					Part No.	Series	Insert	Part No.	Series	Insert	
-	2.7559	70.00	1-7/32	25/64	702507	2	4C*2H-0107	702507	29	7C*29P-0107	3/8
2-13/16	2.8125	71.44	1-7/32	25/64	702522	2	4C*2H-0107	702522	29	7C*29P-0107	3/8
-	2.8346	72.00	1-7/32	25/64	702572	2	4C*2H-0107	702572	29	7C*29P-0107	3/8
2-7/8	2.8750	73.03	1-7/32	25/64	702522	2	4C*2H-0107	702522	29	7C*29P-0107	3/8
-	2.9134	74.00	1-7/32	25/64	702574	2	4C*2H-0107	702574	29	7C*29P-0107	3/8
2-15/16	2.9375	74.61	1-7/32	25/64	702523	2	4C*2H-0107	702523	29	7C*29P-0107	3/8

*Denotes carbide grade (1 = C1, 2 = C2)

Coating	Size	Grade	Geometry	Insert	Insert Screw	Insert Driver	Recommended Torque
AM300®	3/8	C5	Standard	4000	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)
AM300®	3/8	C1	Standard	4000	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)
AM300®	3/8	C5	High Rake	4000 R	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)
AM300®	3/8	C5	High Impact	4000 H	73595-IP15-1	8IP-15	41.0 in-lbs (465 N-cm)

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

Part No.	Insert Screw	Insert Driver	Recommended Torque
70705	7358-IP10-1	8IP-10	27.0 in-lbs (300 N-cm)

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

Part No.	Series	Insert Screw	Insert Driver	Recommended Torque
T-A	2	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
GEN3SYS	29	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)

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

A50: 28 - 29

A50: 2 - 5

Section A20

Section A30

Non-stocked diameters are also available. Follow the examples shown below.

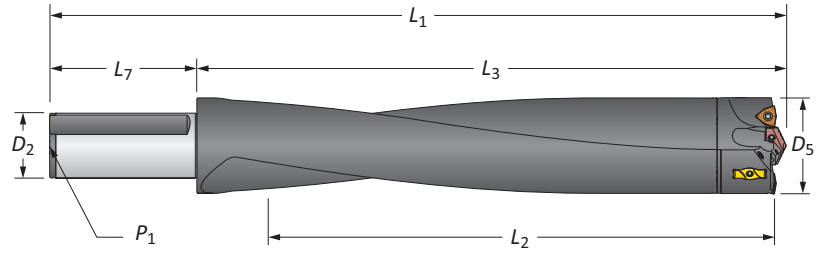
inch	38 series, T-A (1 series), 1.6790"	Part No. = 3010707
mm	38 series, T-A (1 series), 42.15mm	Part No. = 30104215

Wear pads sold in multiples of 2 | Wear pad screws sold in multiples of 4
 IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



70 Series | Diameter Range: 2.7556" - 2.9917" (70.00mm - 75.99mm)

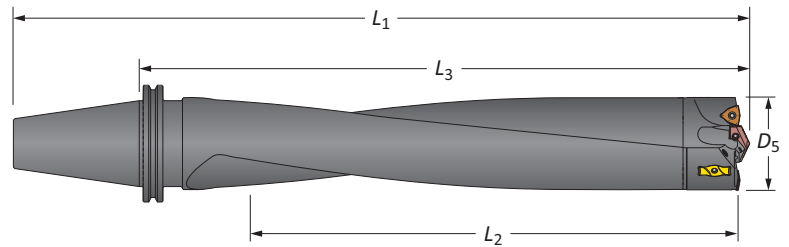
70 Series | Diameter Range: 2.7556" - 2.9917" (70.00mm - 75.99mm)



Specifications

Series	Length	D ₅	Body			Shank			Part No.
			L ₂	L ₃	L ₁	L ₇	D ₂	P ₁	
i	3xD	2.7556 - 2.9917	8-3/4	10-19/32	15-3/32	4-1/2	2	1/4	70030 0200
	5xD	2.7556 - 2.9917	14-7/8	16-37/64	21-5/64	4-1/2	2	1/4	70050 0200
	8xD	2.7556 - 2.9917	23-7/8	25-35/64	30-3/64	4-1/2	2	1/4	70080 0200
	10xD	2.7556 - 2.9917	27-7/8	29-35/64	34-3/64	4-1/2	2	1/4	70100 0200
m	3xD	70.00 - 75.99	218.8	269.0	349.0	80.0	50.0	1/4*	70030 0500
	5xD	70.00 - 75.99	380.0	421.1	501.1	80.0	50.0	1/4*	70050 0500
	8xD	70.00 - 75.99	608.0	649.0	729.0	80.0	50.0	1/4*	70080 0500
	10xD	70.00 - 75.99	709.4	750.3	830.3	80.0	50.0	1/4*	70100 0500

*Thread to BSP and ISO 7-1



50 Series Specifications

Series	Length	D ₅		Body			Shank	Part No.
		Inch	mm	L ₂	L ₃	L ₁		
i	3xD	2.7556 - 2.9917	70.00 - 75.99	8-3/4	12-7/32	16-7/32	CV50	70030 0205
	5xD	2.7556 - 2.9917	70.00 - 75.99	14-7/8	18-13/64	22-13/64	CV50	70050 0205
	8xD	2.7556 - 2.9917	70.00 - 75.99	23-7/8	27-5/32	31-5/32	CV50	70080 0205
	10xD	2.7556 - 2.9917	70.00 - 75.99	26-3/4	29-61/64	33-61/64	CV50	70100 0205

Connection Accessories

		Recommended Torque
78027-IP30-1	8IP-30B	250 in-lb (2825 N-cm)

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

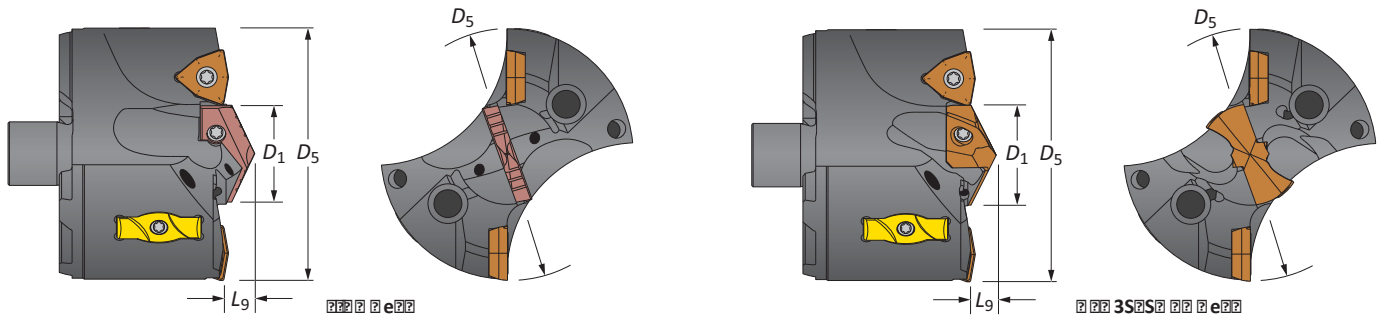
Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Mounting screws sold in multiples of 4



76 Series | Diameter Range: 2.9918" - 3.2673" (76.00mm - 82.99mm)



D ₅ fractional	D ₅ inch	D ₅ mm	D ₁	L ₉	Series		Insert Part No.	Series 3S2S		Insert Part No.	Insert Size
					Series	Series					
-	2.9921	76.00	1-7/32	13/32	762S27	2	4C*2H-0107	762S27	29	7C*29P-0107	1/2
3	3.0000	76.20	1-7/32	13/32	762S32	2	4C*2H-0107	762S32	29	7C*29P-0107	1/2
3-1/16	3.0625	77.79	1-7/32	13/32	762S32	2	4C*2H-0107	762S32	29	7C*29P-0107	1/2
-	3.0709	78.00	1-7/32	13/32	762S27	2	4C*2H-0107	762S27	29	7C*29P-0107	1/2
3-1/8	3.1250	79.38	1-7/32	13/32	762S34	2	4C*2H-0107	762S34	29	7C*29P-0107	1/2
-	3.1496	80.00	1-7/32	13/32	762S27	2	4C*2H-0107	762S27	29	7C*29P-0107	1/2
3-3/16	3.1875	80.96	1-7/32	13/32	762S32	2	4C*2H-0107	762S32	29	7C*29P-0107	1/2
-	3.2282	82.00	1-7/32	13/32	762S22	2	4C*2H-0107	762S22	29	7C*29P-0107	1/2
3-1/4	3.2500	82.55	1-7/32	13/32	762S32	2	4C*2H-0107	762S32	29	7C*29P-0107	1/2

*Denotes carbide grade (1 = C1, 2 = C2)

Coating	Size	Grade	Geometry	Insert Part No.	Insert Screw	Insert Driver	Recommended Torque
AM300®	1/2	C5	Standard	762S27	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C1	Standard	762S32	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C5	High Rake	762S32 R	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C5	High Impact	762S32	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)

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

Part No.	Insert Screw	Insert Driver	Recommended Torque
762S	7358-IP10-1	8IP-10	27.0 in-lbs (300 N-cm)

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

Insert Style	Series	Insert Screw	Insert Driver	Recommended Torque
T-A	2	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
GEN3SYS	29	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)

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

A50: 28 - 29

A50: 2 - 5

Section A20

Section A30

Non-stocked diameters are also available. Follow the examples shown below.

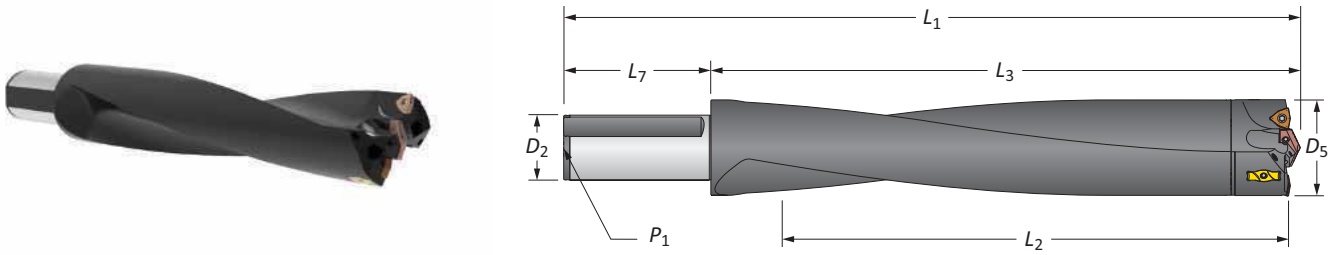
inch	38 series, T-A (1 series), 1.6790"	Part No. = 38117
mm	38 series, T-A (1 series), 42.15mm	Part No. = 38117

Wear pads sold in multiples of 2 | Wear pad screws sold in multiples of 4
IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



76 Series | Diameter Range: 2.9918" - 3.2673" (76.00mm - 82.99mm)

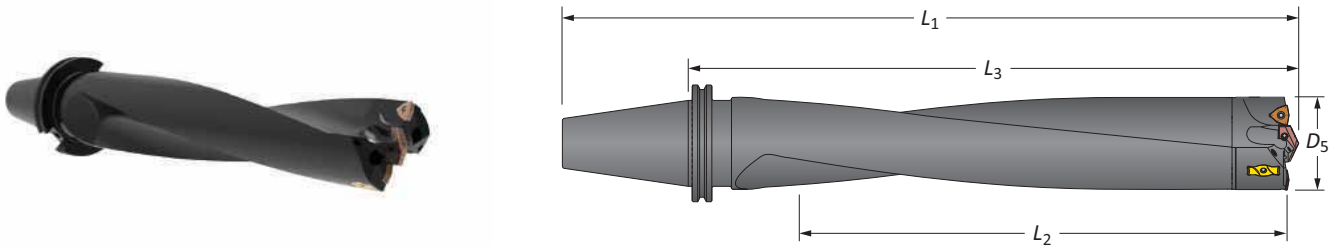
76 Series | Diameter Range: 2.9918" - 3.2673" (76.00mm - 82.99mm)



Series Specifications

Series	Flute	D ₅	Body			L ₇	D ₂	P ₁	Part No.
			L ₂	L ₃	L ₁				
i	3xD	2.9918 - 3.2673	9-1/2	11-33/64	16-1/64	4-1/2	2	1/4	76030 76000
	5xD	2.9918 - 3.2673	16-3/8	18-3/64	22-35/64	4-1/2	2	1/4	76050 76000
	8xD	2.9918 - 3.2673	26-1/8	27-27/32	32-11/32	4-1/2	2	1/4	76080 76000
m	3xD	76.00 - 82.99	239.9	292.4	372.4	80.0	50.0	1/4*	76030 50000
	5xD	76.00 - 82.99	415.0	458.2	538.2	80.0	50.0	1/4*	76050 50000
	8xD	76.00 - 82.99	664.0	707.1	787.1	80.0	50.0	1/4*	76080 50000

*Thread to BSP and ISO 7-1



Series Specifications

Series	Flute	D ₅		Body			Series	Part No.
		Inch	mm	L ₂	L ₃	L ₁		
i	3xD	2.9918 - 3.2673	76.00 - 82.99	9-1/2	12-57/64	16-57/64	CV50	76030 50050
	5xD	2.9918 - 3.2673	76.00 - 82.99	16-3/8	19-27/64	23-27/64	CV50	76050 50050
	8xD	2.9918 - 3.2673	76.00 - 82.99	26-1/8	29-7/32	33-7/32	CV50	76080 50050

Connection Accessories

		Recommended Torque
78027-IP30-1	8IP-30B	250 in-lb (2825 N-cm)

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

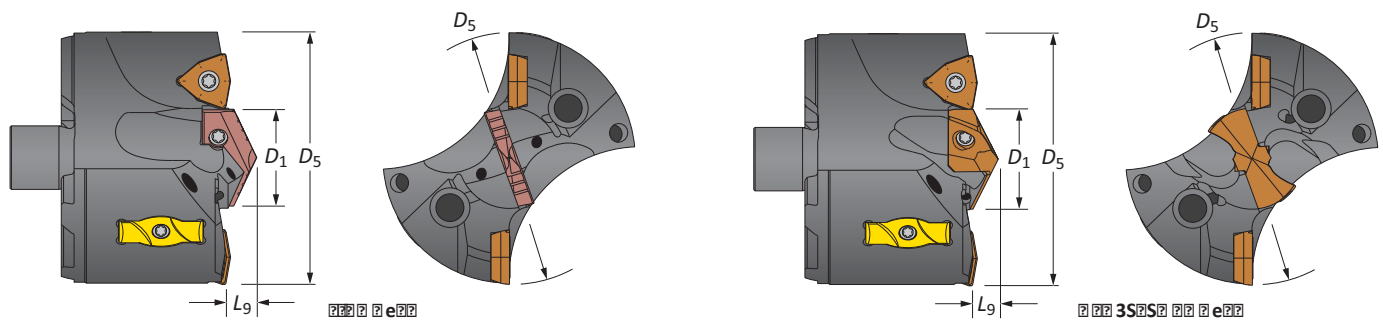
Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Mounting screws sold in multiples of 4

DRILLING

83 Series | Diameter Range: 3.2674" - 3.5035" (83.00mm - 88.99mm)



BORING

D ₅ fractional	D ₅ inch	D ₅ mm	D ₁	L ₉	Series		Insert	Series 3S		Insert	Series
					Part No.	Series		Part No.	Series		
-	3.3071	84.00	1-3/8	7/16	832S4	2	4C*2H-0112	833S4	32	7C*32P-0112	1/2
3-5/16	3.3125	84.14	1-3/8	7/16	832S31	2	4C*2H-0112	833S31	32	7C*32P-0112	1/2
3-3/8	3.3750	85.73	1-3/8	7/16	832S312	2	4C*2H-0112	833S312	32	7C*32P-0112	1/2
-	3.3859	86.00	1-3/8	7/16	832S	2	4C*2H-0112	833S	32	7C*32P-0112	1/2
3-7/16	3.4375	87.31	1-3/8	7/16	832S314	2	4C*2H-0112	833S314	32	7C*32P-0112	1/2
-	3.4646	88.00	1-3/8	7/16	832S	2	4C*2H-0112	833S	32	7C*32P-0112	1/2
3-1/2	3.5000	88.90	1-3/8	7/16	832S31	2	4C*2H-0112	833S31	32	7C*32P-0112	1/2

*Denotes carbide grade (1 = C1, 2 = C2)

REAMING

Coating	Size	Grade	Geometry	Insert	Insert Screw	Insert Driver	Removable Retention Torque
AM300®	1/2	C5	Standard	832S	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C1	Standard	832S	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C5	High Rake	832S R	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
AM300®	1/2	C5	High Impact	832S H	74012-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)

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

BURNISHING

Insert	Insert Screw	Insert Driver	Removable Retention Torque
832S	7358-IP10-1	8IP-10	27.0 in-lbs (300 N-cm)

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

THREADING

Insert Style	Series	Insert Screw	Insert Driver	Removable Retention Torque
T-A	2	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
GEN3SYS	32	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)

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

SPECIALS

A50: 28 - 29

A50: 2 - 5

Section A20

Section A30

Key on A50: 1

Non-stocked diameters are also available. Follow the examples shown below.

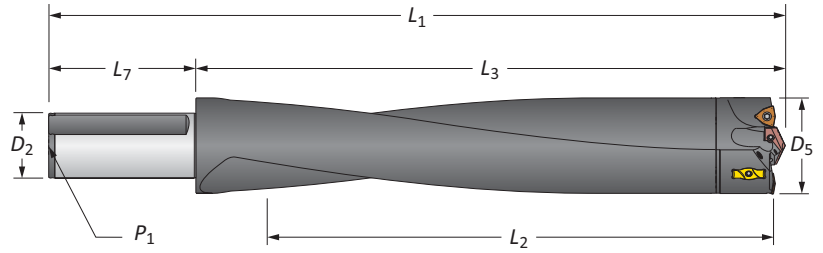
inch	38 series, T-A (1 series), 1.6790"	Part No. = 8321077
metric	38 series, T-A (1 series), 42.15mm	Part No. = 832104215

Wear pads sold in multiples of 2 | Wear pad screws sold in multiples of 4
 IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



83 Series | Diameter Range: 3.2674" - 3.5035" (83.00mm - 88.99mm)

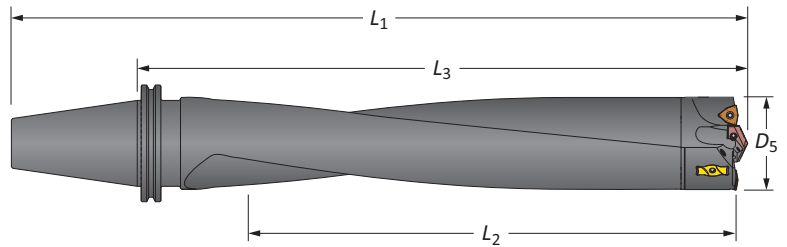
83 Series | Diameter Range: 3.2674" - 3.5035" (83.00mm - 88.99mm)



Specifications

Series	Flute	D ₅	Body			Shank			Part No.
			L ₂	L ₃	L ₁	L ₇	D ₂	P ₁	
i	3xD	3.2674 - 3.5035	10-1/8	12-5/16	16-13/16	4-1/2	2	1/4	8303050000
	5xD	3.2674 - 3.5035	17-1/2	19-5/16	23-13/16	4-1/2	2	1/4	8305050000
	8xD	3.2674 - 3.5035	27-3/4	29-35/64	34-3/64	4-1/2	2	1/4	8307050000
m	3xD	83.00 - 88.99	257.8	312.5	392.6	80.0	50.0	1/4*	8303050000
	5xD	83.00 - 88.99	445.0	490.5	570.5	80.0	50.0	1/4*	8305050000
	8xD	83.00 - 88.99	704.9	750.3	830.3	80.0	50.0	1/4*	8307050000



*Thread to BSP and ISO 7-1



5 Series Specifications

Series	Flute	D ₅		Body			Shank	Part No.
		Inch	mm	L ₂	L ₃	L ₁		
i	3xD	3.2674 - 3.5035	83.00 - 88.99	10-1/8	13-11/16	17-11/16	CV50	8303050050
	5xD	3.2674 - 3.5035	83.00 - 88.99	17-1/2	20-11/16	24-11/16	CV50	8305050050
	8xD	3.2674 - 3.5035	83.00 - 88.99	26-7/8	30-3/64	34-3/64	CV50	8307050050

Connection Accessories

		Mounting Torque
78027-IP30-1	8IP-30B	250 in-lb (2825 N-cm)

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

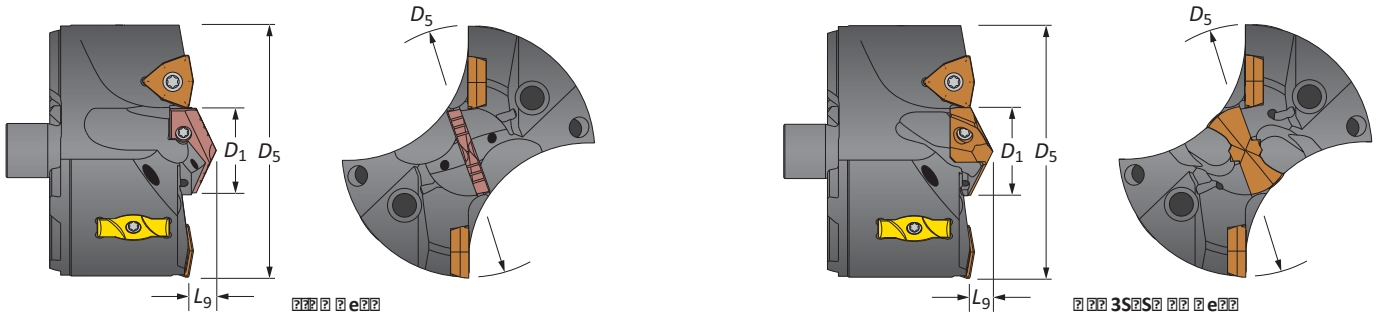
Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Mounting screws sold in multiples of 4

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

89 Series | Diameter Range: 3.5036" - 3.7400" (89.00mm - 94.99mm)



D ₅ fractional	D ₅ inc	D ₅ mm	D ₁	L ₉	Series 2			Series 3S			Insert Size
					Part No	Series	Insert	Part No	Series	Insert	
-	3.5433	90.00	1-1/4	27/64	2922S2	2	4C*2H-0108	2922S2	29	7C*29P-0108	9/16
3-9/16	3.5625	90.49	1-1/4	27/64	2922S231	2	4C*2H-0108	2922S231	29	7C*29P-0108	9/16
-	3.6220	92.00	1-1/4	27/64	2922S22	2	4C*2H-0108	2922S22	29	7C*29P-0108	9/16
3-5/8	3.6250	92.08	1-1/4	27/64	2922S232	2	4C*2H-0108	2922S232	29	7C*29P-0108	9/16
3-11/16	3.6875	93.66	1-1/4	27/64	2922S2322	2	4C*2H-0108	2922S2322	29	7C*29P-0108	9/16
-	3.7008	94.00	1-1/4	27/64	2922S24	2	4C*2H-0108	2922S24	29	7C*29P-0108	9/16

*Denotes carbide grade (1 = C1, 2 = C2)

Coating	Size	Grade	Geometry	Insert	Insert Screw	Insert Driver	Removable Torque
AM300®	9/16	C5	Standard	2922S2	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C1	Standard	2922S231	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C5	High Rake	2922S22	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C5	High Impact	2922S2322	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)

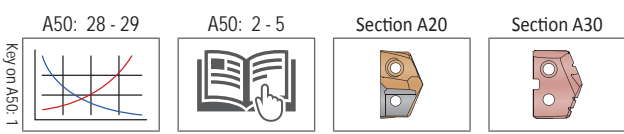
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Part No	Insert Screw	Insert Driver	Removable Torque
2922S5	7358-IP10-1	8IP-10	27.0 in-lbs (300 N-cm)

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

Part No	Series	Insert Screw	Insert Driver	Removable Torque
T-A	2	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
GEN3SYS	29	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)

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



Non-stocked diameters are also available. Follow the examples shown below.

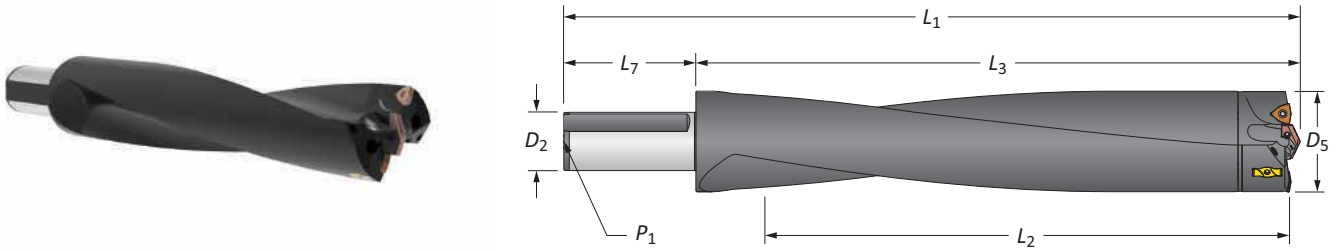
inc	38 series, T-A (1 series), 1.6790"	Part No. = 2922S172922S7
inc	38 series, T-A (1 series), 42.15mm	Part No. = 2922S172922S15

Wear pads sold in multiples of 2 | Wear pad screws sold in multiples of 4
IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10



89 Series | Diameter Range: 3.5036" - 3.7400" (89.00mm - 94.99mm)

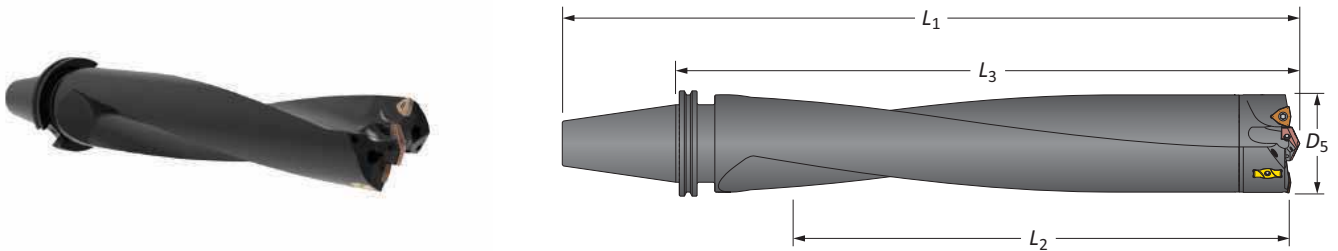
89 Series | Diameter Range: 3.5036" - 3.7400" (89.00mm - 94.99mm)



Specifications

Series	Flute	D ₅	Body			Shank			Material
			L ₂	L ₃	L ₁	L ₇	D ₂	P ₁	
i	3xD	3.5036 - 3.7400	10-7/8	13-1/8	17-5/8	4-1/2	2	1/4	Aluminum
	5xD	3.5036 - 3.7400	18-5/8	20-5/8	25-1/8	4-1/2	2	1/4	Steel
	8xD	3.5036 - 3.7400	27-5/8	29-35/64	34-3/64	4-1/2	2	1/4	Stainless Steel
m	3xD	89.00 - 94.99	275.8	333.6	413.6	80.0	50.0	1/4*	Aluminum
	5xD	89.00 - 94.99	475.0	523.7	603.7	80.0	50.0	1/4*	Steel
	8xD	89.00 - 94.99	701.8	750.3	830.3	80.0	50.0	1/4*	Stainless Steel

*Thread to BSP and ISO 7-1



5 Series Specifications

Series	Flute	D ₅		Body			Shank	Material
		Inch	mm	L ₂	L ₃	L ₁		
i	3xD	3.5036 - 3.7400	89.00 - 94.99	10-7/8	14-33/64	18-33/64	CV50	Aluminum
	5xD	3.5036 - 3.7400	89.00 - 94.99	18-5/8	22	26	CV50	Steel
	8xD	3.5036 - 3.7400	89.00 - 94.99	26-3/4	30-1/32	34-1/32	CV50	Stainless Steel

Connection Accessories

		Mounting Torque
78027-IP30-1	8IP-30B	250 in-lb (2825 N-cm)

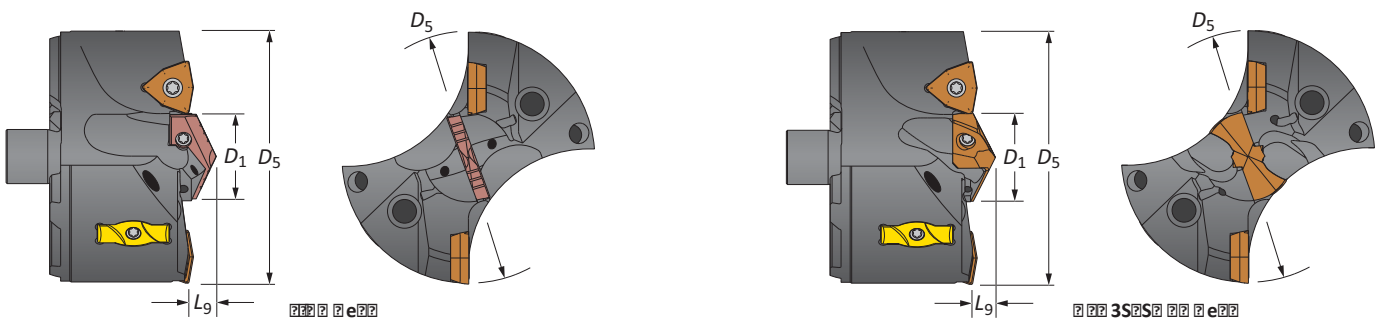
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Mounting screws sold in multiples of 4

95 Series | Diameter Range: 3.7401" - 4.0000" (95.00mm - 101.60mm)



D ₅ fractional	D ₅ inch	D ₅ mm	D ₁	L ₉	Series		Insert	Series 3S		Insert	Insert Size
					Part No.	Series		Part No.	Series		
3-3/4	3.7500	95.25	1-3/8	29/64	7352S324	2	4C*2H-0112	73532S324	32	7C*32P-0112	9/16
-	3.7795	96.00	1-3/8	29/64	7352S327	2	4C*2H-0112	73532S327	32	7C*32P-0112	9/16
3-13/16	3.8125	96.84	1-3/8	29/64	7352S328	2	4C*2H-0112	73532S328	32	7C*32P-0112	9/16
-	3.8583	98.00	1-3/8	29/64	7352S329	2	4C*2H-0112	73532S329	32	7C*32P-0112	9/16
3-7/8	3.8750	98.43	1-3/8	29/64	7352S330	2	4C*2H-0112	73532S330	32	7C*32P-0112	9/16
-	3.9370	100.00	1-3/8	29/64	7352S331	2	4C*2H-0112	73532S331	32	7C*32P-0112	9/16
3-15/16	3.9375	100.01	1-3/8	29/64	7352S333	2	4C*2H-0112	73532S333	32	7C*32P-0112	9/16
4	4.0000	101.60	1-3/8	29/64	7352S340	2	4C*2H-0112	73532S340	32	7C*32P-0112	9/16

*Denotes carbide grade (1 = C1, 2 = C2)

Coating	Size	Grade	Geometry	Insert	Insert Screw	Insert Wrench	Removable Torque
AM300®	9/16	C5	Standard	7352S324	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C1	Standard	7352S327	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C5	High Rake	7352S328	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)
AM300®	9/16	C5	High Impact	7352S329	75014-IP20-1	8IP-20	121.0 in-lbs (1370 N-cm)

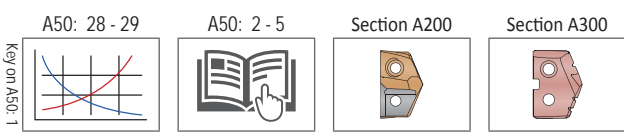
*Tightening torques are calculated with a friction coefficient of $\mu = 0.14$ and develop 90% of ultimate yield strength

Part No.	Insert Screw	Insert Wrench	Removable Torque
7352S	7358-IP10-1	8IP-10	27.0 in-lbs (300 N-cm)

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

Part No.	Series	Insert Screw	Insert Wrench	Removable Torque
T-A	2	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)
GEN3SYS	32	7495-IP15-1	8IP-15	61.0 in-lbs (690 N-cm)

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

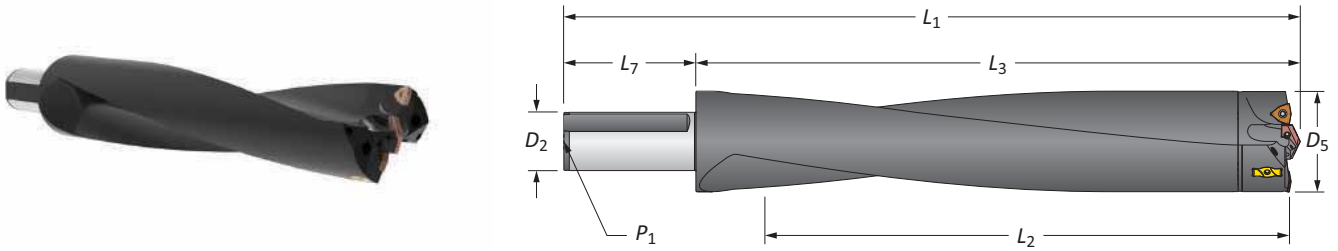


Non-stocked diameters are also available. Follow the examples shown below.
 inch 38 series, T-A (1 series), 1.6790" Part No. = 381177
 metric 38 series, T-A (1 series), 42.15mm Part No. = 381177

Wear pads sold in multiples of 2 | Wear pad screws sold in multiples of 4
 IC inserts sold in multiples of 2 | Insert screws sold in multiples of 10

Drill

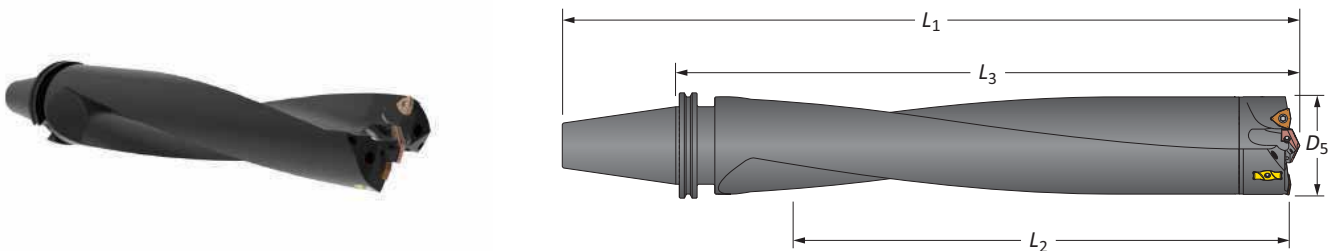
95 Series | Diameter Range: 3.7401" - 4.0000" (95.00mm - 101.60mm)



Specifications

Series	Flute	D ₅	Body			Shank			Material
			L ₂	L ₃	L ₁	L ₇	D ₂	P ₁	
i	3xD	3.7401 - 4.0000	11-7/8	14-9/32	18-25/32	4-1/2	2	1/4	5230 5235
	5xD	3.7401 - 4.0000	20	22-19/64	26-51/64	4-1/2	2	1/4	5250 5255
	8xD	3.7401 - 4.0000	27-1/2	29-51/64	34-19/64	4-1/2	2	1/4	5270 5275
m	3xD	95.00 - 101.60	302.0	362.8	442.8	80.0	50.0	1/4*	5230 5235
	5xD	95.00 - 101.60	508.0	566.2	646.2	80.0	50.0	1/4*	5250 5255
	8xD	95.00 - 101.60	698.5	756.7	836.7	80.0	50.0	1/4*	5270 5275

*Thread to BSP and ISO 7-1




Specifications

Series	Flute	D ₅	Body			Shank	Material
			Inch	mm	L ₂		
i	3xD	3.7401 - 4.0000	95.00 - 101.60	11-7/8	15-43/64	19-43/64	CV50
	5xD	3.7401 - 4.0000	95.00 - 101.60	20	23-43/64	27-43/64	CV50
	8xD	3.7401 - 4.0000	95.00 - 101.60	26-5/8	30-9/32	34-9/32	CV50

Connection Accessories

Mounting Screw	Mounting Screw Bit	Mounting Torque
78027-IP30-1	8IP-30B	250 in-lb (2825 N-cm)

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

 Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A50: 30 for deep hole drilling guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

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

Mounting screws sold in multiples of 4



Recommended Drilling Parameters by Material

Material	Diameter Range	Feed Rate (IPR) by Diameter									
		Insert		5/16"	3/8"	1/2"	5/8"	3/4"	1 1/8"	1 1/2"	2"
		Series	Feed	33	30-44	44-51	51-57-63	70	70-83	80-85	
Material	Series	Feed	1 1/2"	1 3/4"	1 7/8"	2 1/8"	2 3/8"	2 7/8"	3 1/2"	4"	
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 250	450 - 750	T-A/GEN3SYS	.006 - .011	.007 - .012	.009 - .012	.009 - .012	.006 - .010	.007 - .011	.007 - .012	
Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	450 - 750	T-A/GEN3SYS	.006 - .011	.007 - .012	.009 - .012	.009 - .012	.006 - .010	.007 - .011	.007 - .012	
Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	450 - 750	T-A/GEN3SYS	.006 - .011	.007 - .012	.009 - .012	.009 - .012	.006 - .010	.007 - .011	.007 - .012	
Alloy Steel 4140, 5140, 8640, etc.	125 - 375	400 - 700	T-A/GEN3SYS	.005 - .007	.005 - .009	.007 - .010	.007 - .011	.005 - .009	.006 - .010	.006 - .010	
High Strength Alloy 4340, 4330V, 300M, etc.	225 - 400	300 - 500	T-A/GEN3SYS	.005 - .006	.005 - .007	.005 - .008	.006 - .009	.005 - .007	.005 - .008	.006 - .008	
Structural Steel A36, A285, A516, etc.	100 - 350	450 - 750	T-A/GEN3SYS	.006 - .008	.007 - .009	.008 - .010	.009 - .011	.005 - .009	.006 - .010	.007 - .010	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 250	300 - 500	T-A/GEN3SYS	.005 - .006	.005 - .007	.007 - .009	.008 - .010	.005 - .007	.006 - .009	.007 - .010	
High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	200 - 400	T-A	.004 - .005	.004 - .007	.006 - .009	.007 - .009	.004 - .006	.005 - .007	.005 - .007	
High Temp Alloy	140 - 310	300 - 500	T-A	.005 - .007	.006 - .008	.007 - .009	.008 - .010	.004 - .006	.005 - .007	.005 - .007	
Superalloy S82	185 - 350	400 - 600	T-A/GEN3SYS	.004 - .006	.005 - .007	.006 - .008	.006 - .008	.004 - .006	.005 - .007	.005 - .007	
Stainless Steel 400 Series 416, 420, etc.	185 - 350	300 - 500	T-A/GEN3SYS	.006 - .008	.007 - .009	.008 - .010	.009 - .011	.005 - .007	.007 - .009	.007 - .010	
Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	300 - 500	T-A/GEN3SYS	.005 - .007	.006 - .008	.007 - .009	.008 - .010	.004 - .008	.006 - .010	.006 - .010	
Super Inert Stainless Steel	135 - 275	250 - 450	T-A/GEN3SYS	.004 - .006	.005 - .007	.007 - .009	.007 - .009	.004 - .007	.006 - .009	.007 - .010	
Hardox Hardox, AR400, T-1, etc.	400 - 600	300 - 500	T-A	.003 - .005	.004 - .006	.006 - .008	.007 - .009	.003 - .005	.004 - .006	.004 - .006	
Hardened Steel	300 - 500	300 - 500	T-A	.004 - .005	.005 - .006	.006 - .008	.006 - .008	.003 - .005	.004 - .006	.004 - .006	
K Nodular, Grey, Ductile Cast Iron	120 - 320	500 - 800	T-A/GEN3SYS	.005 - .009	.006 - .010	.008 - .012	.010 - .012	.008 - .010	.009 - .011	.010 - .012	
Aluminum 6061-T6, 7075-T6	30 - 180	600 - 800	T-A/GEN3SYS	.009 - .012	.010 - .014	.012 - .016	.012 - .016	.006 - .009	.008 - .011	.008 - .012	
Aluminum 7075-T6	30 - 180	600 - 800	T-A/GEN3SYS	.007 - .011	.008 - .012	.010 - .014	.010 - .014	.006 - .009	.008 - .011	.008 - .012	
Aluminum Bronze	100 - 250	400 - 700	T-A/GEN3SYS	.005 - .007	.005 - .008	.007 - .010	.009 - .011	.006 - .009	.007 - .010	.008 - .012	
Brass	30 - 100	800	T-A/GEN3SYS	.006 - .008	.007 - .009	.008 - .010	.009 - .012	.006 - .008	.007 - .009	.008 - .012	
Copper	60	700	T-A/GEN3SYS	.002 - .005	.003 - .006	.006 - .008	.008 - .010	.006 - .008	.006 - .008	.006 - .008	

Coolant Recommendations

Series	Pressure (PSI)	Flow Rate (GPM)
33	350	10
30	300	10
44	275	12
51	250	18
57	225	20
63	200	22
70	150	25
70	100	28
83	100	30
80	100	33
85	100	33

Calculations

Feed	Formula
SFM	RPM • 0.262 • Diameter
RPM	(SFM • 3.82) / Diameter
IPR	RPM • IPR

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 also available through our Application Engineering Team.

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 APX 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.

Important Note: Tool pressure can cause secondary or pre-rotation. For APX holders 8xD or longer, do not rotate tool more than 50 RPM unless it is engaged with workpiece or fixture. Refer to page A50: 30 for Deep Hole Drilling Guidelines in this section of the catalog. Visit www.alliedmachine.com or call 1-800-441-1111 for the most up-to-date information and procedures. Factory technical assistance is also available for your specific applications.

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

Recommended Parameters Chart

Material	Drill Diameter	Feed Rate Recommendation by Diameter									
		Insert		51mm	30mm	12mm	11mm	30mm	12mm	11mm	
		Series	33	34	44	51	57	70	70	75	
Material	Drill Diameter	Series	33	34	44	51	57	70	70	75	
Free Cutting Steel 1118, 1215, 12L14, etc.	100 - 250	137 - 229	T-A/GEN3SYS	0.15 - 0.28	0.18 - 0.30	0.23 - 0.30	0.23 - 0.30	0.15 - 0.25	0.18 - 0.28	0.18 - 0.30	
Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	137 - 229	T-A/GEN3SYS	0.15 - 0.28	0.18 - 0.30	0.23 - 0.30	0.23 - 0.30	0.15 - 0.25	0.18 - 0.28	0.18 - 0.30	
Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	137 - 229	T-A/GEN3SYS	0.15 - 0.28	0.18 - 0.30	0.23 - 0.30	0.23 - 0.30	0.15 - 0.25	0.18 - 0.28	0.18 - 0.30	
Alloy Steel 4140, 5140, 8640, etc.	125 - 375	122 - 213	T-A/GEN3SYS	0.13 - 0.18	0.13 - 0.23	0.18 - 0.25	0.18 - 0.28	0.13 - 0.23	0.15 - 0.25	0.15 - 0.25	
High Speed Alloy 4340, 4330V, 300M, etc.	225 - 400	91 - 152	T-A/GEN3SYS	0.13 - 0.15	0.13 - 0.18	0.13 - 0.20	0.15 - 0.23	0.13 - 0.18	0.13 - 0.20	0.15 - 0.20	
Stainless Steel A36, A285, A516, etc.	100 - 350	137 - 229	T-A/GEN3SYS	0.15 - 0.20	0.18 - 0.23	0.20 - 0.25	0.23 - 0.28	0.13 - 0.23	0.15 - 0.25	0.15 - 0.25	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 250	91 - 152	T-A/GEN3SYS	0.13 - 0.15	0.13 - 0.18	0.18 - 0.23	0.20 - 0.25	0.13 - 0.18	0.15 - 0.23	0.18 - 0.25	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	61 - 122	T-A	0.10 - 0.13	0.10 - 0.18	0.15 - 0.23	0.18 - 0.23	0.10 - 0.15	0.13 - 0.18	0.13 - 0.18
	Titanium Alloy	140 - 310	91 - 152	T-A	0.13 - 0.18	0.15 - 0.20	0.18 - 0.23	0.20 - 0.25	0.10 - 0.15	0.13 - 0.18	0.13 - 0.18
	Super Inconel Alloy S82	185 - 350	122 - 183	T-A/GEN3SYS	0.10 - 0.15	0.13 - 0.18	0.15 - 0.20	0.15 - 0.20	0.10 - 0.15	0.13 - 0.18	0.13 - 0.18
R	Stainless Steel 400 Series 416, 420, etc.	185 - 350	91 - 152	T-A/GEN3SYS	0.15 - 0.20	0.18 - 0.23	0.20 - 0.25	0.23 - 0.28	0.13 - 0.18	0.18 - 0.23	0.18 - 0.25
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	91 - 152	T-A/GEN3SYS	0.13 - 0.18	0.15 - 0.20	0.18 - 0.23	0.20 - 0.25	0.10 - 0.20	0.15 - 0.25	0.15 - 0.25
	Super Inconel Stainless Steel	135 - 275	76 - 137	T-A/GEN3SYS	0.10 - 0.15	0.13 - 0.18	0.18 - 0.23	0.18 - 0.23	0.10 - 0.18	0.15 - 0.23	0.18 - 0.25
P	High Speed Steel Hardox, AR400, T-1, etc.	400 - 600	91 - 152	T-A	0.07 - 0.13	0.10 - 0.15	0.15 - 0.20	0.18 - 0.23	0.08 - 0.13	0.10 - 0.15	0.10 - 0.15
	High Speed Steel	300 - 500	91 - 152	T-A	0.10 - 0.13	0.13 - 0.15	0.15 - 0.20	0.15 - 0.20	0.08 - 0.13	0.10 - 0.20	0.10 - 0.20
K	Nodular, Grey, Ductile Cast Iron	120 - 320	152 - 244	T-A/GEN3SYS	0.13 - 0.23	0.15 - 0.25	0.20 - 0.30	0.25 - 0.30	0.20 - 0.25	0.23 - 0.28	0.25 - 0.30
B	Aluminum	30 - 180	183 - 244	T-A/GEN3SYS	0.23 - 0.30	0.25 - 0.36	0.30 - 0.40	0.30 - 0.40	0.15 - 0.23	0.20 - 0.28	0.20 - 0.30
	Aluminum	30 - 180	183 - 244	T-A/GEN3SYS	0.18 - 0.28	0.20 - 0.30	0.25 - 0.36	0.25 - 0.36	0.15 - 0.23	0.20 - 0.28	0.20 - 0.30
	Aluminum Bronze	100 - 250	123 - 213	T-A/GEN3SYS	0.13 - 0.18	0.13 - 0.20	0.18 - 0.25	0.23 - 0.28	0.15 - 0.23	0.18 - 0.25	0.20 - 0.30
	Brass	30 - 100	244	T-A/GEN3SYS	0.15 - 0.20	0.18 - 0.23	0.20 - 0.25	0.23 - 0.30	0.15 - 0.20	0.18 - 0.23	0.20 - 0.25
	Copper	60	213	T-A/GEN3SYS	0.05 - 0.13	0.08 - 0.15	0.15 - 0.20	0.20 - 0.25	0.08 - 0.15	0.15 - 0.20	0.15 - 0.20

Coolant Recommendations

Series	Pressure (PSI)	Flow Rate (GPM)
33	24	38
30	21	38
44	19	45
51	17	68
57	16	76
03	14	83
70	10	95
70	7	106
03	7	114
07	7	125
05	7	125

Calculations

Unit	Formula
mm	$RPM \cdot 0.003 \cdot \text{Diameter}$
RPM	$(M/min \cdot 318.47) / \text{Diameter}$
mm/min	$RPM \cdot \text{mm/rev}$

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 also available through our Application Engineering Team.

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 APX 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.

Warning: Tool failure can occur. For APX holders 8xD or longer, do not rotate tool more than 50 RPM unless it is engaged with workpiece or fixture. Refer to page A50: 30 for Deep Hole Drilling Guidelines in this section of the catalog. Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is also available for your specific applications.

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

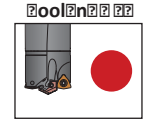
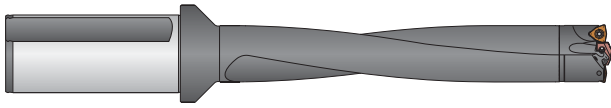


Deep Hole Drilling Cycle

DRILLING

1. Approach
50 RPM max
12 IPM (300 mm/min)

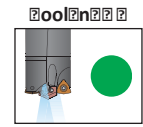
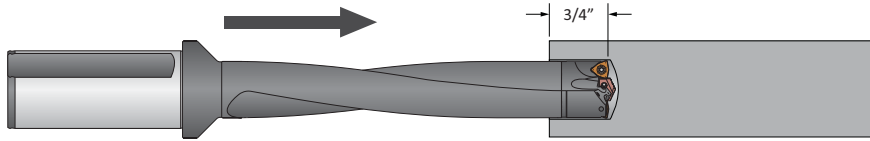
Feed the longer drill within 1/16" (1.5mm) short of the workpiece at a maximum of 50 RPM and 12 IPM (300 mm/min) feed rate.



BORING

2. Bore
Speed at 75% of recommended start
Feed at 50% of recommended start

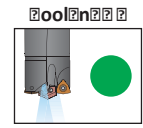
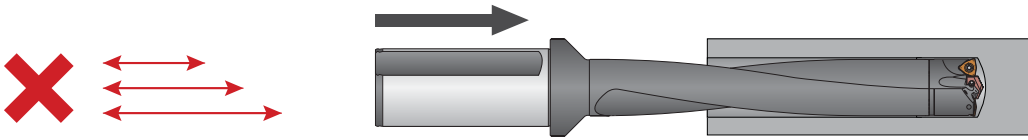
Drill 3/4" deep at 75% recommended speed and 50% recommended feed to establish the hole.



REAMING

3. Deep Hole Drilling
100 % RPM
100% IPR (mm/rev)

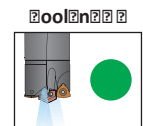
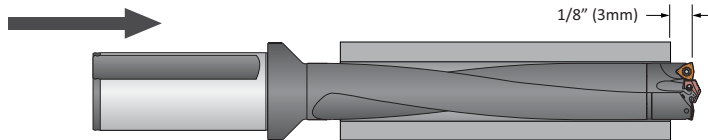
Drill to full depth at recommended speed and feed for longer drills (according to Allied Machine speed and feed charts). **Do not cycle recommended**



BURNISHING

4. Deep Hole Drilling
50% RPM
100% IPR (mm/rev)

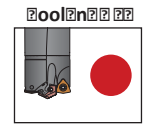
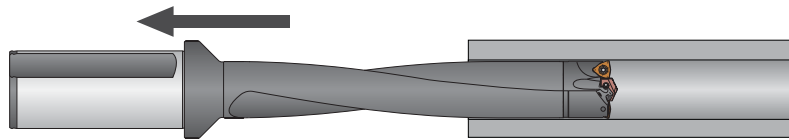
For broaching only
Reduce speed by 50% prior to breakout.
Do not break out more than 1/8" (3mm) past the full diameter of the drill.



THREADING

5. Retract
50 RPM max

Reduce speed to a maximum of 50 RPM before retracting from the hole.



SPECIALS

1. DRILLING Coolant can cause dermatitis or burns. NEVER rotate these tool holders more than 50 RPM without proper engagement with a workpiece or fixture. Failure to do so could result in tool failure and/or personal injury. Visit www.alliedmachine.com/deep-hole-drilling for the most up-to-date information and procedures. Factory technical assistance is also available for your specific applications.



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DRILLING



BORING



REAMING



BURNISHING



THREADING



SPECIALS

Revolution Drill®

Large Diameter Replaceable IC Insert Drilling System

► **Diameter Range:** 1.875" - 4.000" (47.6mm - 101.0mm)

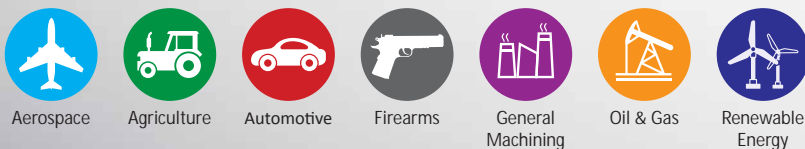


Large Scale Innovation

The Revolution Drill has an innovative design that allows for adjustability of 0.200" (5.1mm) on diameter. This eliminates the need for special tooling and/or subsequent boring operations. With the ability to drill from solid, the Revolution Drill does not require a previously drilled pilot hole. The replaceable cartridges reduce set-up time, and the indexable inserts protect your investment. The insert design provides excellent chip control and aggressive penetration rates.

Drills from solid	Drill depths up to 4.5xD	Excellent chip control
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Applicable Industries



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.



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

WARNING 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.

CAUTION and **WARNING** 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.

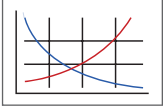
Reference Icons

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



Setup / Assembly 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)
34	1.875 - 2.000	47.6 - 50.8
34	2.000 - 2.200	50.8 - 55.9
34	2.200 - 2.400	55.9 - 61.0
42	2.400 - 2.600	61.0 - 66.0
44	2.600 - 2.800	66.0 - 71.1
44	2.800 - 3.000	71.1 - 76.2
44	3.000 - 3.200	76.2 - 81.3
52	3.200 - 3.400	81.3 - 86.4
54	3.400 - 3.600	86.4 - 91.4
54	3.600 - 3.800	91.4 - 96.5
54	3.800 - 4.000	96.5 - 101.6

Introduction Information

Product Overview 2 - 3
 Set-up Instructions 4
 Product Nomenclature 5

Drill Series

34 Series 6 - 7
 36 Series 8 - 9
 38 Series 10 - 11
 42 Series 12 - 13
 44 Series 14
 46 Series 15
 48 Series 16
 52 Series 17
 54 Series 18
 56 Series 19
 58 Series 20

Recommended Cutting Data

Imperial (inch) 22
 Metric (mm) 23



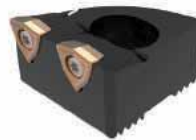
Product Overview

Series	Diameter Range		Length to Diameter Ratio	Shank Options			Inserts per Cartridge	Page
	Imperial (in)	Metric (mm)		Straight	???	???		
34	1.875 - 2.000	47.6 - 50.8	2.2, 3.5, 4.5	✓	✓	✓	2	6 - 7
36	2.000 - 2.200	50.8 - 55.9	2.2, 3.5, 4.5	✓	✓	✓	2	8 - 9
38	2.200 - 2.400	55.9 - 61.0	2.2, 3.5, 4.5	✓	✓	✓	2	10 - 11
42	2.400 - 2.600	61.0 - 66.0	2.2, 3.5, 4.5	✓	✓	✓	2	12 - 13
44	2.600 - 2.800	66.0 - 71.1	2.2, 3.5	✓		✓	3	14
46	2.800 - 3.000	71.1 - 76.2	2.2, 3.5	✓		✓	3	15
48	3.000 - 3.200	76.2 - 81.3	1.0, 2.5	✓		✓	3	16
52	3.200 - 3.400	81.3 - 86.4	1.0, 2.5	✓		✓	3	17
54	3.400 - 3.600	86.4 - 91.4	1.0, 2.5	✓		✓	3	18
56	3.600 - 3.800	91.4 - 96.5	1.0, 2.5	✓		✓	4	19
58	3.800 - 4.000	96.5 - 101.6	1.0, 2.5	✓		✓	4	20

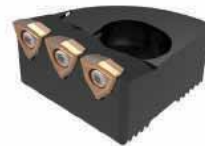
NOTE: Stacked plate styles are also available

Features & Benefits

- Adjustability of 0.200" (5.1mm) on diameter
- Drill depths up to 4.5xD (standard)
- The replaceable cartridges protect your investment
- Adjustable diameter reduces inventory and cost
- The insert design allows for excellent chip control and aggressive penetration rates
- No pilot hole needed



2 Inserts
(34 - 42 series)



3 Inserts
(44 - 54 series)



4 Inserts
(56 - 58 series)



Shank Options



Straight Shank
(all series)



CAT40 Shank
(34, 36, 38, 42 series)



CAT50 Shank
(all series)

Body Lengths

- 1.0xD (48, 52, 54, 56, 58 series)
- 2.2xD (34, 36, 38, 42, 44, 46 series)
- 2.5xD (48, 52, 54, 56, 58 series)
- 3.5xD (34, 36, 38, 42, 44, 46 series)
- 4.5xD (34, 36, 38, 42, 44, 46 series)

DRILLING

BORING

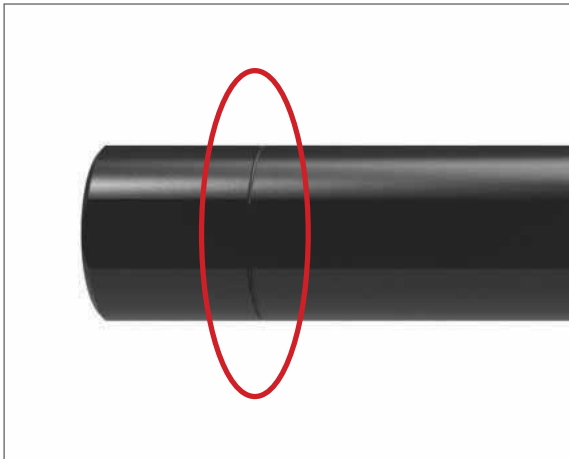
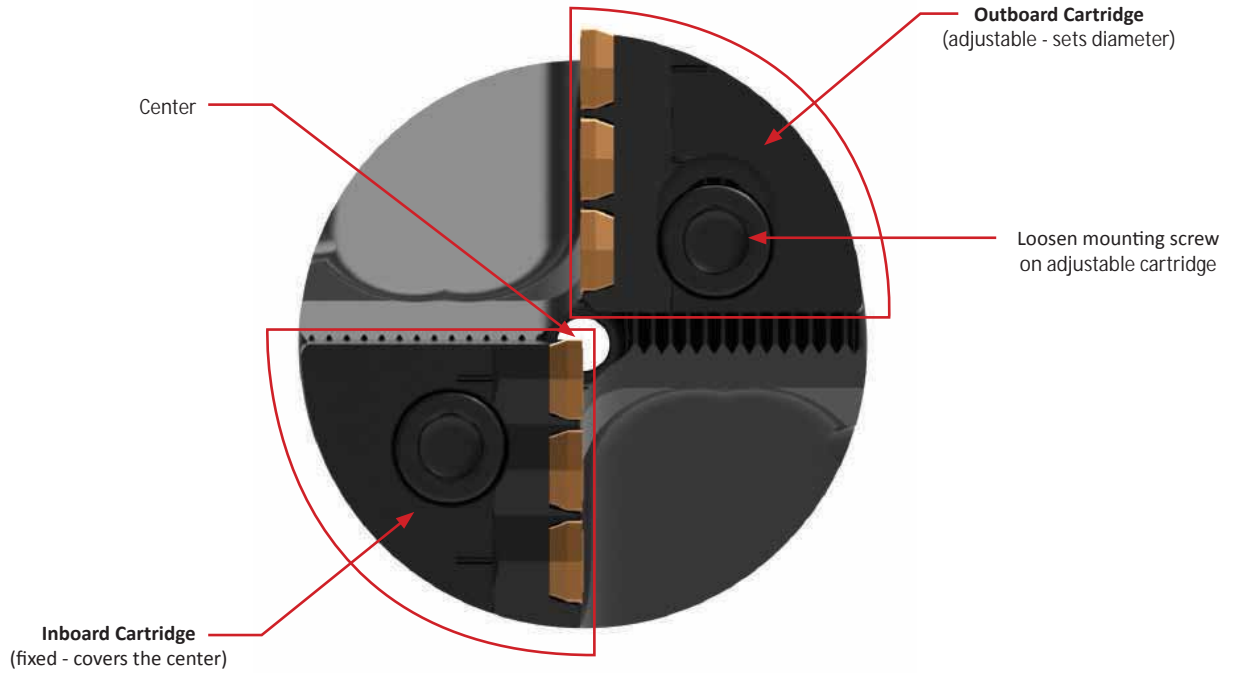
REAMING

BURNISHING

THREADING

SPECIALS

Product Overview



Straight Shanks

- Designed for lathe applications
- Can be cut off for use in end-mill holders
- The score mark (circled above) is provided for recommended cut length
- Cut and deburr at the score mark
- This improves rigidity when the body sits against the face of an end-mill holder





Set-up Instructions

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS



Step 1:
Mount the fixed cartridge and tighten the mounting screw to 11-14 ft-lbf (15-19 N-m).



Step 2:
Finger-tighten the mounting screw on the adjustable cartridge.



Step 3:
Set the diameter using the adjustment screw against the mounting screw. Place the drill in a pre-setter to ensure the correct diameter setting.



Step 4:
Tighten the mounting screw to 11-14 ft-lbf (15-19 N-m).

IC Inserts

- The design allows for excellent chip control and aggressive penetration rates
- The proprietary AM200® and AM300® coatings increase tool life above competitors' premium coatings
- The same inserts are used for both Revolution Drill and Opening Drill products



AM300®



AM200®



TiN

Insert Application Recommendations

Carbide Grade Options

C5 (P35)	General purpose carbide grade suitable for most applications. ▶ <i>Common application in steels and stainless steels.</i>
C1 (K35)	Toughest carbide grade. Provides the best combination of edge strength and tool life. ▶ <i>Recommended for less rigid applications.</i>
C2 (K25)	Higher wear resistant carbide suitable for abrasive material applications. ▶ <i>Recommended for grey, ductile, and nodular irons.</i>

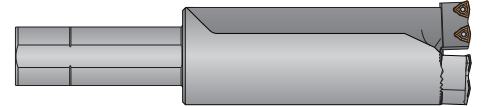
Additional Geometry Option

High Rake (HR)	Provides superior chip control and tool life in long chipping carbon and alloy steels below 200 Bhn.
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Product Nomenclature

Revolution Drill Holders

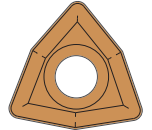
R	34	22	150L
1	2	3	4



1. Drill Style	2. Series	3. Length to Diameter Ratio	4. Shank Information
<p>R = Standard</p> <p>SP = Stacked Plate</p>	<p>34 = 34 series 44 = 44 series 54 = 54 series</p> <p>3² = 36 series 4² = 46 series 5² = 56 series</p> <p>3³ = 38 series 4³ = 48 series 5³ = 58 series</p> <p>42 = 42 series 52 = 52 series</p>	<p>10 = 1.0xD</p> <p>22 = 2.2xD</p> <p>25 = 2.5xD</p> <p>35 = 3.5xD</p> <p>45 = 4.5xD</p>	<p>150L = 1-1/2 Ø straight</p> <p>2²2² = 2.0 Ø straight</p> <p>4²2² = 40mm ISO 9766</p> <p>5²2² = 50mm ISO 9766</p> <p>2²4² = CAT40</p> <p>2²5² = CAT50</p>

Revolution Drill Inserts

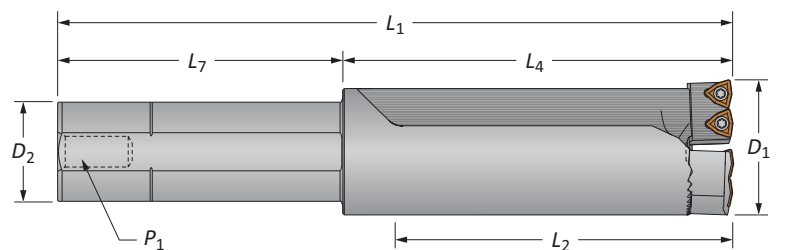
1	5	3	2	1	H	HR
1	2	3	4	5	6	7



1. Compatible with:	2. IC Type	3. Thickness	4. Radius	5. Carbide Grade
<p>Opening Drill</p> <p>Revolution Drill</p>	<p>05 = 5/16"</p>	<p>T3 = 5/32"</p>	<p>08 = 1/32"</p>	<p>Blank = C5 (P35)</p> <p>1 = C1 (K35)</p> <p>2 = C2 (K25)</p>
6. Coating	7. Geometry			
<p>P = AM300®</p> <p>H = AM200®</p> <p>1 = TiN</p> <p>2 = TiAlN</p> <p>3 = TiCN</p> <p>4 = Uncoated</p>	<p>Blank = General Purpose</p> <p>HR = High Rake</p>			

Reference Key

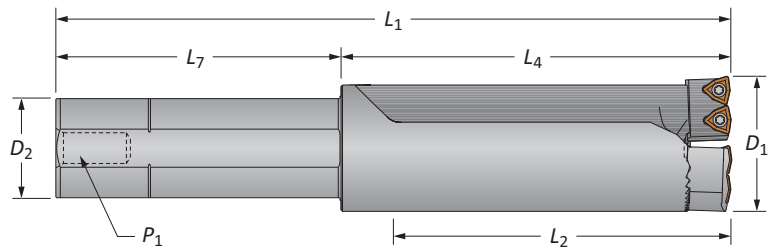
Symbol	Attribute
D_1	Drill diameter range
D_2	Shank diameter
L_1	Overall length
L_2	Maximum drill depth
L_4	Holder length
L_7	Shank length
P_1	Rear pipe tap





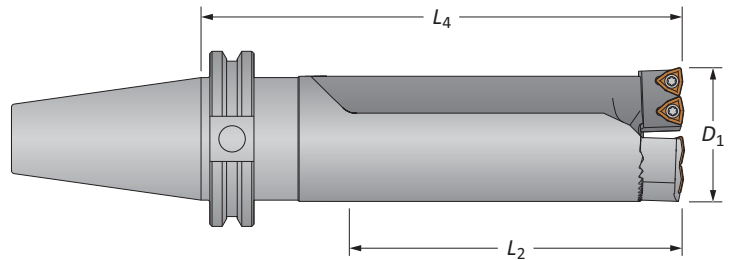
Revolution Drill Holders

34 Series | Diameter Range: 1.875" - 2.000" (47.6mm - 50.8mm)



Straight Shank

Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges	
			L ₂	L ₄	L ₁	D ₂	L ₇	P ₁			
i	Standard	2.2xD	1.875 - 2.000	4-17/32	5-13/32	9-13/32	1-1/2	4	1/4	R34X22-150L	C34-...
	Standard	3.5xD	1.875 - 2.000	7-1/32	7-29/32	11-29/32	1-1/2	4	1/4	R34X35-150L	C34-...
	Standard	4.5xD	1.875 - 2.000	9-1/32	9-29/32	13-29/32	1-1/2	4	1/4	R34X45-150L	C34-...
	Stacked Plate	2.2xD	1.875 - 2.000	4-27/64	5-5/16	9-5/16	1-1/2	4	1/4	SP34X22-150L	C34SP-...
m	Standard	2.2xD	47.6 - 50.8	114.9	137.4	207.4	40	70	-	R342224	C34-...
	Standard	3.5xD	47.6 - 50.8	178.4	200.9	270.9	40	70	-	R343524	C34-...
	Standard	4.5xD	47.6 - 50.8	229.2	251.7	321.7	40	70	-	R344524	C34-...
	Stacked Plate	2.2xD	47.6 - 50.8	112.4	134.8	204.8	40	70	-	SP34X22-40M	C34SP-...

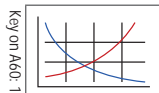


CV40 Shank

Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges
			L ₂	L ₄			
i	Standard	2.2xD	1.875 - 2.000	4-17/32	6-25/32	R342224	C34-...
	Standard	3.5xD	1.875 - 2.000	7-1/32	9-9/32	R343524	C34-...
	Standard	4.5xD	1.875 - 2.000	9-1/32	11-9/32	R344524	C34-...
	Stacked Plate	2.2xD	1.875 - 2.000	4-27/64	6-11/16	SP34X22-CV40	C34SP-...

A60: 22 - 23

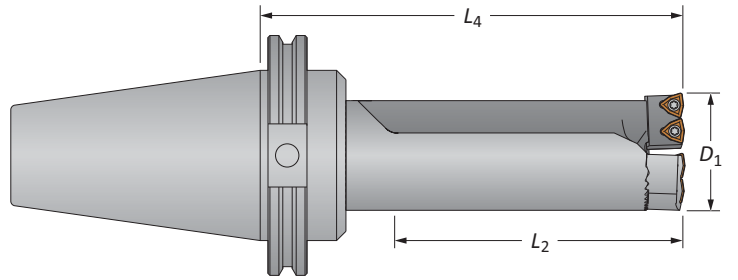
A60: 2 - 4



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

Revolution Drill Holders

34 Series | Diameter Range: 1.875" - 2.000" (47.6mm - 50.8mm)



CV50 Shank

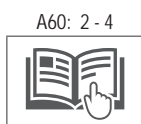
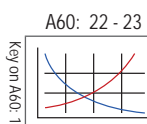
Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges
			L ₂	L ₄			
Standard	2.2xD	1.875 - 2.000	4-17/32	6-25/32	CAT50	R34 22225	C34-...
Standard	3.5xD	1.875 - 2.000	7-1/32	9-9/32	CAT50	R34 35225	C34-...
Standard	4.5xD	1.875 - 2.000	9-1/32	11-9/32	CAT50	R34 45225	C34-...
Stacked Plate	2.2xD	1.875 - 2.000	4-27/64	6-11/16	CAT50	SP34X22-CV50	C34SP-...

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R34...	C34-ADJ	2	MS-17M-1	AS-18T9-1
	C34SP-FIX	2	MS-17M-1	AS-18T9-1
SP34...	C34SP-ADJ	2	MS-17M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard	OP-05T308-1P	OP-05T308-H	OP-05T308-1T	IS-10-1
C1 (K35)	Standard	OP-05T308-1P	OP-05T308-1H	OP-05T308-1T	IS-10-1
C2 (K25)	Standard	OP-05T308-1P	OP-05T308-2H		IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR		IS-10-1



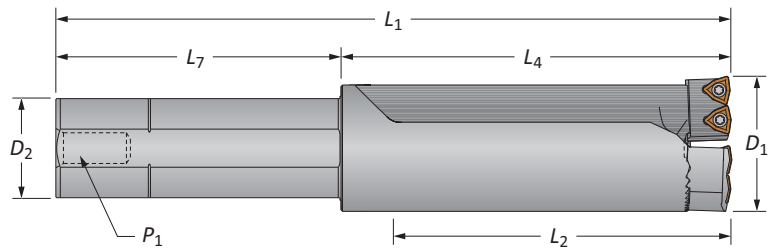
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)



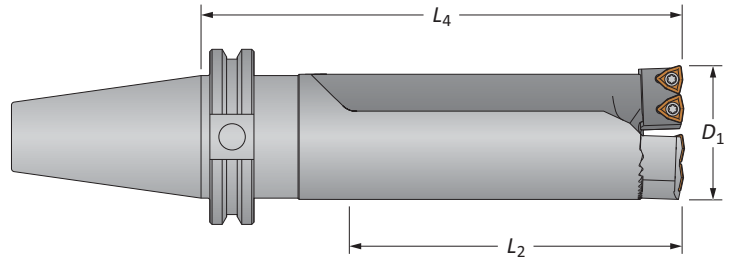
Revolution Drill Holders

36 Series | Diameter Range: 2.000" - 2.200" (50.8mm - 55.9mm)



Straight Shank

Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges	
			L ₂	L ₄	L ₁	D ₂	L ₇	P ₁			
i	Standard	2.2xD	2.000 - 2.200	4-61/64	5-57/64	9-57/64	1-1/2	4	1/4	R36X22-150L	C36-...
	Standard	3.5xD	2.000 - 2.200	7-45/64	8-41/64	12-41/64	1-1/2	4	1/4	R36X35-150L	C36-...
	Standard	4.5xD	2.000 - 2.200	9-61/64	10-57/64	14-57/64	1-1/2	4	1/4	R36X45-150L	C36-...
	Stacked Plate	2.2xD	2.000 - 2.200	4-57/64	5-13/16	9-13/16	1-1/2	4	1/4	SP36X22-150L	C36SP-...
m	Standard	2.2xD	50.8 - 55.9	126.0	149.6	219.6	40	70	-	R36X22-40M	C36-...
	Standard	3.5xD	50.8 - 55.9	195.8	219.4	289.4	40	70	-	R36X35-40M	C36-...
	Standard	4.5xD	50.8 - 55.9	253.0	276.6	346.6	40	70	-	R36X45-40M	C36-...
	Stacked Plate	2.2xD	50.8 - 55.9	124.0	147.6	217.6	40	70	-	SP36X22-40M	C36SP-...



CV40 Shank

Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges	
			L ₂	L ₄				
i	Standard	2.2xD	2.000 - 2.200	4-61/64	7-17/64	CAT40	R36X22-CV40	C36-...
	Standard	3.5xD	2.000 - 2.200	7-45/64	10-1/64	CAT40	R36X35-CV40	C36-...
	Standard	4.5xD	2.000 - 2.200	9-61/64	12-17/64	CAT40	R36X45-CV40	C36-...
	Stacked Plate	2.2xD	2.000 - 2.200	4-57/64	7-35/64	CAT40	SP36X22-CV40	C36SP-...

A60: 22 - 23 A60: 2 - 4

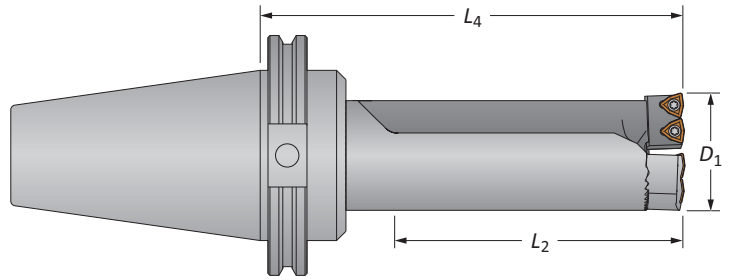
Key on A60: 1

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



Revolution Drill Holders

36 Series | Diameter Range: 2.000" - 2.200" (50.8mm - 55.9mm)



CV50 Shank

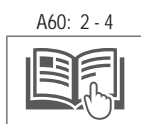
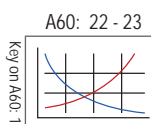
Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges
			L ₂	L ₄			
Standard	2.2xD	2.000 - 2.200	4-61/64	7-17/64	CAT50	R32222052	C36-...
Standard	3.5xD	2.000 - 2.200	7-45/64	10-1/64	CAT50	R32352052	C36-...
Standard	4.5xD	2.000 - 2.200	9-61/64	12-17/64	CAT50	R32452052	C36-...
Stacked Plate	2.2xD	2.000 - 2.200	4-57/64	7-35/64	CAT50	SP36X22-CV50	C36SP-...

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R36...		2	MS-17M-1	AS-18T9-1
	C36-ADJ	2	MS-17M-1	AS-18T9-1
SP36...	C36SP-FIX	2	MS-17M-1	AS-18T9-1
	C36SP-ADJ	2	MS-17M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard		OP-05T308-H		IS-10-1
C1 (K35)	Standard		OP-05T308-1P	OP-05T308-1H	IS-10-1
C2 (K25)	Standard		OP-05T308-2H		IS-10-1
C5 (P35)	High Rake		OP-05T308-PHR	OP-05T308-HHR	IS-10-1



Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

3D

DRILLING | Revolution Drill® Large Diameter Replaceable IC Insert Drilling System

Revolution Drill Holders

38 Series | Diameter Range: 2.200" - 2.400" (55.9mm - 61.0mm)

Straight Shank

Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges	
			L ₂	L ₄	L ₁	D ₂	L ₇	P ₁			
i	Standard	2.2xD	2.200 - 2.400	5-29/64	6-25/64	10-25/64	1-1/2	4	1/4	R38X22-150L	C38-...
	Standard	3.5xD	2.200 - 2.400	8-29/64	9-25/64	13-25/64	1-1/2	4	1/4	R38X35-150L	C38-...
	Standard	4.5xD	2.200 - 2.400	10-61/64	11-57/64	15-57/64	1-1/2	4	1/4	R38X45-150L	C38-...
	Stacked Plate	2.2xD	2.200 - 2.400	5-3/8	6-19/64	10-19/64	1-1/2	4	1/4	SP38X22-150L	C38SP-...
m	Standard	2.2xD	55.9 - 61.0	138.7	162.2	232.2	40	70	-	R38X22-40M	C38-...
	Standard	3.5xD	55.9 - 61.0	214.9	238.4	308.4	40	70	-	R38X35-40M	C38-...
	Standard	4.5xD	55.9 - 61.0	278.4	301.9	371.9	40	70	-	R38X45-40M	C38-...
	Stacked Plate	2.2xD	55.9 - 61.0	136.5	160.0	230.0	40	70	-	SP38X22-40M	C38SP-...

CV40 Shank

Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges	
			L ₂	L ₄				
i	Standard	2.2xD	2.200 - 2.400	5-29/64	7-49/64	CAT40	R38X22-CV40	C38-...
	Standard	3.5xD	2.200 - 2.400	8-29/64	10-49/64	CAT40	R38X35-CV40	C38-...
	Standard	4.5xD	2.200 - 2.400	10-61/64	13-17/64	CAT40	R38X45-CV40	C38-...
	Stacked Plate	2.2xD	2.200 - 2.400	5-3/8	7-43/64	CAT40	SP38X22-CV40	C38SP-...

A60: 22 - 23

A60: 2 - 4

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

A60: 10

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DRILLING

BORING

REAMING

BURNISHING

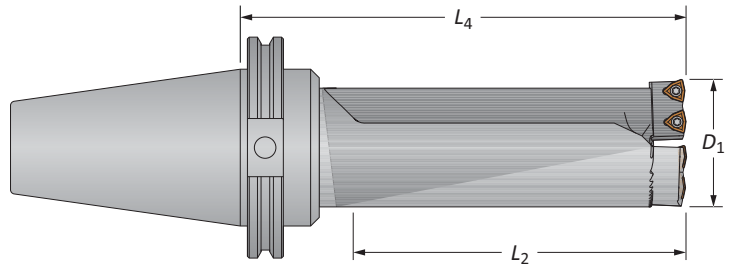
THREADING

SPECIALS



Revolution Drill Holders

38 Series | Diameter Range: 2.200" - 2.400" (55.9mm - 61.0mm)



CV50 Shank

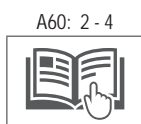
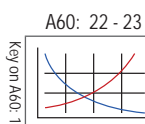
Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges
			L ₂	L ₄			
Standard	2.2xD	2.200 - 2.400	5-29/64	7-49/64	CAT50	R3222205	C38-...
Standard	3.5xD	2.200 - 2.400	8-29/64	10-49/64	CAT50	R3235005	C38-...
Standard	4.5xD	2.200 - 2.400	10-61/64	13-17/64	CAT50	R3245005	C38-...
Stacked Plate	2.2xD	2.200 - 2.400	5-3/8	7-43/64	CAT50	SP38X22-CV50	C38SP-...

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R38...		2	MS-17M-1	AS-18T9-1
	C38-ADJ	2	MS-17M-1	AS-18T9-1
SP38...	C38SP-FIX	2	MS-17M-1	AS-18T9-1
	C38SP-ADJ	2	MS-17M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard		OP-05T308-H		IS-10-1
C1 (K35)	Standard		OP-05T308-1P	OP-05T308-1H	IS-10-1
C2 (K25)	Standard		OP-05T308-2H		IS-10-1
C5 (P35)	High Rake		OP-05T308-PHR	OP-05T308-HHR	IS-10-1



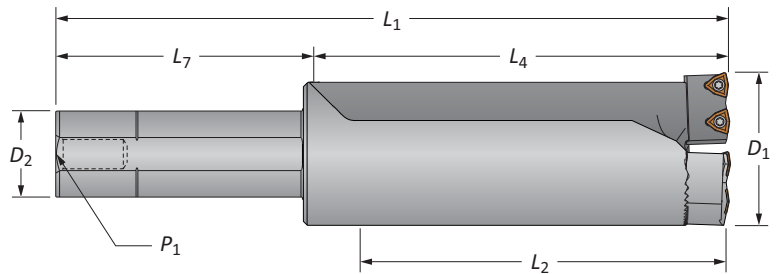
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)



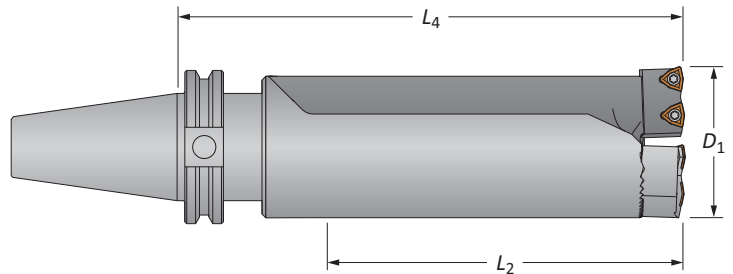
Revolution Drill Holders

42 Series | Diameter Range: 2.400" - 2.600" (61.0mm - 66.0mm)



Straight Shank

Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges	
			L ₂	L ₄	L ₁	D ₂	L ₇	P ₁			
i	Standard	2.2xD	2.400 - 2.600	5-45/64	6-49/64	10-49/64	1-1/2	4	1/4	R42X22-150L	C42-...
	Standard	3.5xD	2.400 - 2.600	9-13/64	10-17/64	14-17/64	1-1/2	4	1/4	R42X35-150L	C42-...
	Standard	4.5xD	2.400 - 2.600	11-45/64	12-49/64	16-49/64	1-1/2	4	1/4	R42X45-150L	C42-...
	Stacked Plate	2.2xD	2.400 - 2.600	5-3/4	6-13/16	10-13/16	1-1/2	4	1/4	SP42X22-150L	C42SP-...
m	Standard	2.2xD	61.0 - 66.0	144.9	171.7	241.7	40	70	-	R422240	C42-...
	Standard	3.5xD	61.0 - 66.0	233.8	260.6	330.6	40	70	-	R423540	C42-...
	Standard	4.5xD	61.0 - 66.0	297.3	324.1	394.1	40	70	-	R424540	C42-...
	Stacked Plate	2.2xD	61.0 - 66.0	146.1	172.9	242.9	40	70	-	SP42X22-40M	C42SP-...

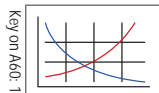


CV40 Shank

Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges	
			L ₂	L ₄				
i	Standard	2.2xD	2.400 - 2.600	5-45/64	8-9/64	CAT40	R422240	C42-...
	Standard	3.5xD	2.400 - 2.600	9-13/64	11-41/64	CAT40	R423540	C42-...
	Standard	4.5xD	2.400 - 2.600	11-45/64	14-9/64	CAT40	R424540	C42-...
	Stacked Plate	2.2xD	2.400 - 2.600	5-3/4	8-3/16	CAT40	SP42X22-CV40	C42SP-...

A60: 22 - 23

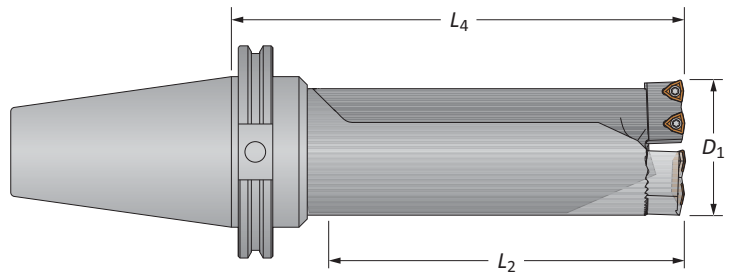
A60: 2 - 4



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

Revolution Drill Holders

42 Series | Diameter Range: 2.400" - 2.600" (61.0mm - 66.0mm)



CV50 Shank

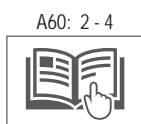
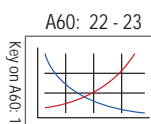
Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges
			L ₂	L ₄			
Standard	2.2xD	2.400 - 2.600	5-45/64	8-9/64	CAT50	R42 22225	C42-...
Standard	3.5xD	2.400 - 2.600	9-13/64	11-41/64	CAT50	R42 35225	C42-...
Standard	4.5xD	2.400 - 2.600	11-45/64	14-9/64	CAT50	R42 45225	C42-...
Stacked Plate	2.2xD	2.400 - 2.600	5-3/4	8-3/16	CAT50	SP42X22-CV50	C42SP-...

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R42...	C42-ADJ	2	MS-19M-1	AS-18T9-1
SP42...	C42SP-FIX	2	MS-19M-1	AS-18T9-1
	C42SP-ADJ	2	MS-19M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard	OP-05T308-1P	OP-05T308-H	OP-05T308-1T	IS-10-1
C1 (K35)	Standard	OP-05T308-1P	OP-05T308-1H	OP-05T308-1T	IS-10-1
C2 (K25)	Standard	OP-05T308-1P	OP-05T308-2H		IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR		IS-10-1



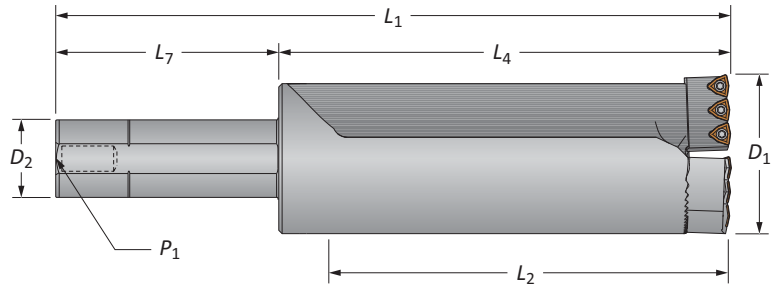
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)



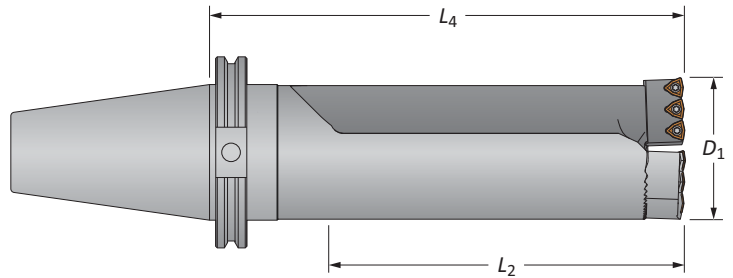
Revolution Drill Holders

44 Series | Diameter Range: 2.600" - 2.800" (66.0mm - 71.1mm)



Straight Shank

Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges	
			L ₂	L ₄	L ₁	D ₂	L ₇	P ₁			
i	Standard	2.2xD	2.600 - 2.800	6-13/64	7-1/2	11-1/2	1-1/2	4	1/4	R44X22-150L	C44-...
	Standard	3.5xD	2.600 - 2.800	9-61/64	11-1/4	15-1/4	1-1/2	4	1/4	R44X35-150L	C44-...
	Stacked Plate	2.2xD	2.600 - 2.800	6-1/4	7-35/64	11-35/64	1-1/2	4	1/4	SP44X22-150L	C44SP-...
m	Standard	2.2xD	66.0 - 71.1	157.6	190.7	260.7	40	70	-	R44223422	C44-...
	Standard	3.5xD	66.0 - 71.1	252.9	285.9	355.9	40	70	-	R44353422	C44-...
	Stacked Plate	2.2xD	66.0 - 71.1	158.7	191.7	261.7	40	70	-	SP44X22-40M	C44SP-...



CV50 Shank

Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges	
			L ₂	L ₄				
i	Standard	2.2xD	2.600 - 2.800	6-13/64	8-7/8	CAT50	R44223425	C44-...
	Standard	3.5xD	2.600 - 2.800	9-61/64	12-5/8	CAT50	R44353425	C44-...
	Stacked Plate	2.2xD	2.600 - 2.800	6-1/4	8-59/64	CAT50	SP44X22-CV50	C44SP-...

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R44...	R44223422	3	MS-19M-1	AS-18T9-1
	C44-ADJ	3	MS-19M-1	AS-18T9-1
SP44...	C44SP-FIX	3	MS-19M-1	AS-18T9-1
	C44SP-ADJ	3	MS-19M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard	OP-05T308-1P	OP-05T308-H	OP-05T308-1T	IS-10-1
C1 (K35)	Standard	OP-05T308-1P	OP-05T308-1H	OP-05T308-1T	IS-10-1
C2 (K25)	Standard	OP-05T308-2P	OP-05T308-2H	OP-05T308-2T	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	OP-05T308-PHR	IS-10-1

A60: 22 - 23
 A60: 2 - 4

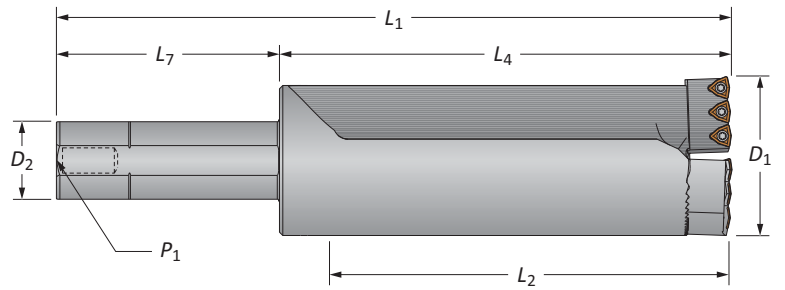
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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



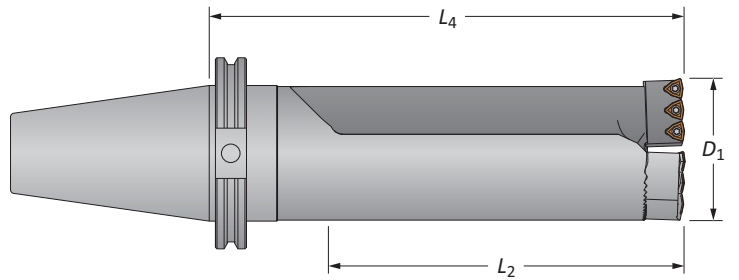
Revolution Drill Holders

46 Series | Diameter Range: 2.800" - 3.000" (71.1mm - 76.2mm)



Straight Shank

	Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges
				L ₂	L ₄	L ₁	D ₂	L ₇	P ₁		
i	Standard	2.2xD	2.800 - 3.000	6-45/64	8	12	1-1/2	4	1/4	R46X22-150L	C46-...
	Standard	3.5xD	2.800 - 3.000	10-29/64	11-3/4	15-3/4	1-1/2	4	1/4	R46X35-150L	C46-...
	Stacked Plate	2.2xD	2.800 - 3.000	6-3/4	8-3/64	12-3/64	1-1/2	4	1/4	SP46X22-150L	C46SP-...
m	Standard	2.2xD	71.1 - 76.2	170.4	203.4	273.4	40	70	-	R46X22-150M	C46-...
	Standard	3.5xD	71.1 - 76.2	265.6	298.6	368.6	40	70	-	R46X35-150M	C46-...
	Stacked Plate	2.2xD	71.1 - 76.2	171.4	204.4	274.4	40	70	-	SP46X22-40M	C46SP-...



CV50 Shank

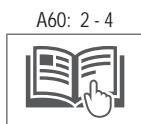
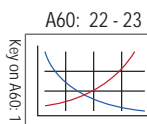
	Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges
				L ₂	L ₄			
i	Standard	2.2xD	2.800 - 3.000	6-45/64	9-25/64	CAT50	R46X22-CV50	C46-...
	Standard	3.5xD	2.800 - 3.000	10-29/64	13-1/8	CAT50	R46X35-CV50	C46-...
	Stacked Plate	2.2xD	2.800 - 3.000	6-3/4	9-27/64	CAT50	SP46X22-CV50	C46SP-...

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R46...	C46-ADJ	3	MS-21M-1	AS-18T9-1
	C46SP-FIX	3	MS-21M-1	AS-18T9-1
SP46...	C46SP-ADJ	3	MS-21M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard	OP-05T308-1P	OP-05T308-H	OP-05T308-1T	IS-10-1
C1 (K35)	Standard	OP-05T308-1P	OP-05T308-1H	OP-05T308-1T	IS-10-1
C2 (K25)	Standard	OP-05T308-2P	OP-05T308-2H	OP-05T308-2T	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	OP-05T308-1T	IS-10-1



Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

4

DRILLING | Revolution Drill® Large Diameter Replaceable IC Insert Drilling System

Revolution Drill Holders

48 Series | Diameter Range: 3.000" - 3.200" (76.2mm - 81.3mm)

Straight Shank

Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges	
			L ₂	L ₄	L ₁	D ₂	L ₇	P ₁			
i	Standard	1.0xD	3.000 - 3.200	3-5/32	4-33/64	9-1/64	2	4-1/2	1/4	R48X10-200L	C48-...
	Standard	2.5xD	3.000 - 3.200	7-29/32	9-17/64	13-49/64	2	4-1/2	1/4	R48X25-200L	C48-...
	Stacked Plate	1.0xD	3.000 - 3.200	3-15/64	4-19/32	9-3/32	2	4-1/2	1/4	SP48X10-200L	C48SP-...
	Stacked Plate	2.5xD	3.000 - 3.200	7-63/64	9-11/32	13-27/32	2	4-1/2	1/4	SP48X25-200L	C48SP-...
m	Standard	1.0xD	76.2 - 81.3	80.2	114.5	194.5	50	80	-	R48X10-50M	C48-...
	Standard	2.5xD	76.2 - 81.3	200.9	235.2	315.2	50	80	-	R48X25-50M	C48-...
	Stacked Plate	1.0xD	76.2 - 81.3	82.2	116.5	196.5	50	80	-	SP48X10-50M	C48SP-...
	Stacked Plate	2.5xD	76.2 - 81.3	202.9	237.2	317.2	50	80	-	SP48X25-50M	C48SP-...

CV50 Shank

Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges
			L ₂	L ₄			
i	Standard	1.0xD	3.000 - 3.200	3-5/32	5-57/64	R48X10-CV50	C48-...
	Standard	2.5xD	3.000 - 3.200	7-29/32	10-41/64	R48X25-CV50	C48-...
	Stacked Plate	1.0xD	3.000 - 3.200	3-15/64	5-31/32	SP48X10-CV50	C48SP-...
	Stacked Plate	2.5xD	3.000 - 3.200	7-63/64	10-23/32	SP48X25-CV50	C48SP-...

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R48...		3	MS-21M-1	AS-18T9-1
		3	MS-21M-1	AS-18T9-1
SP48...		3	MS-21M-1	AS-18T9-1
		3	MS-21M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard		OP-05T308-H		IS-10-1
C1 (K35)	Standard		OP-05T308-1H		IS-10-1
C2 (K25)	Standard		OP-05T308-2H		IS-10-1
C5 (P35)	High Rake		OP-05T308-PHR		IS-10-1

A60: 22 - 23

A60: 2 - 4

Key on A60: 1

 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

A60: 16

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DRILLING

BORING

REAMING

BURNISHING

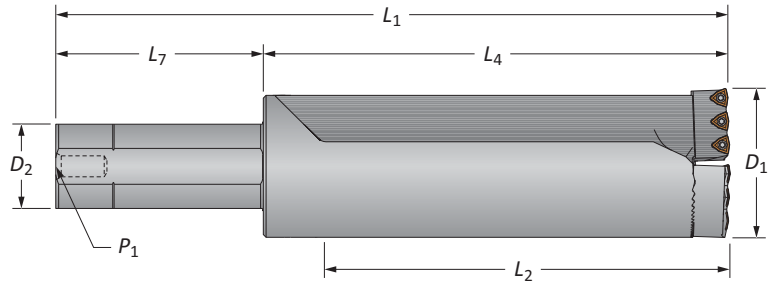
THREADING

SPECIALS



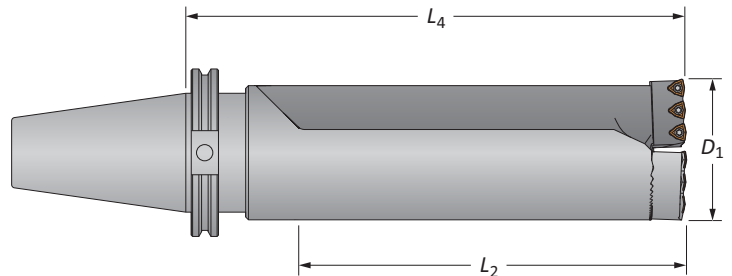
Revolution Drill Holders

52 Series | Diameter Range: 3.200" - 3.400" (81.3mm - 86.4mm)



Straight Shank

Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges	
			L ₂	L ₄	L ₁	D ₂	L ₇	P ₁			
i	Standard	1.0xD	3.200 - 3.400	3-27/64	5-1/64	9-33/64	2	4-1/2	1/4	R52X10-200L	C52-...
	Standard	2.5xD	3.200 - 3.400	8-27/64	10-1/64	14-33/64	2	4-1/2	1/4	R52X25-200L	C52-...
	Stacked Plate	1.0xD	3.200 - 3.400	3-31/64	5-5/64	9-37/64	2	4-1/2	1/4	SP52X10-200L	C52SP-...
	Stacked Plate	2.5xD	3.200 - 3.400	8-31/64	10-5/64	14-37/64	2	4-1/2	1/4	SP52X25-200L	C52SP-...
m	Standard	1.0xD	81.3 - 86.4	86.7	127.2	207.2	50	80	-	R52X10-50M	C52-...
	Standard	2.5xD	81.3 - 86.4	213.7	254.2	334.2	50	80	-	R52X25-50M	C52-...
	Stacked Plate	1.0xD	81.3 - 86.4	88.6	129.1	209.1	50	80	-	SP52X10-50M	C52SP-...
	Stacked Plate	2.5xD	81.3 - 86.4	215.6	256.1	336.1	50	80	-	SP52X25-50M	C52SP-...



CV50 Shank

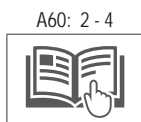
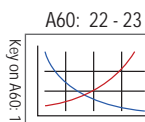
Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges
			L ₂	L ₄			
i	Standard	1.0xD	3.200 - 3.400	3-27/64	CAT50	R52X10-CV50	C52-...
	Standard	2.5xD	3.200 - 3.400	8-27/64	CAT50	R52X25-CV50	C52-...
	Stacked Plate	1.0xD	3.200 - 3.400	3-31/64	CAT50	SP52X10-CV50	C52SP-...
	Stacked Plate	2.5xD	3.200 - 3.400	8-31/64	CAT50	SP52X25-CV50	C52SP-...

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R52...	C52-ADJ	3	MS-19M-1	AS-18T9-1
	C52SP-FIX	3	MS-19M-1	AS-18T9-1
SP52...	C52SP-FIX	3	MS-19M-1	AS-18T9-1
	C52SP-ADJ	3	MS-19M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard	OP-05T308-1P	OP-05T308-H	OP-05T308-1T	IS-10-1
C1 (K35)	Standard	OP-05T308-1P	OP-05T308-1H	OP-05T308-1T	IS-10-1
C2 (K25)	Standard	OP-05T308-1P	OP-05T308-2H		IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR		IS-10-1



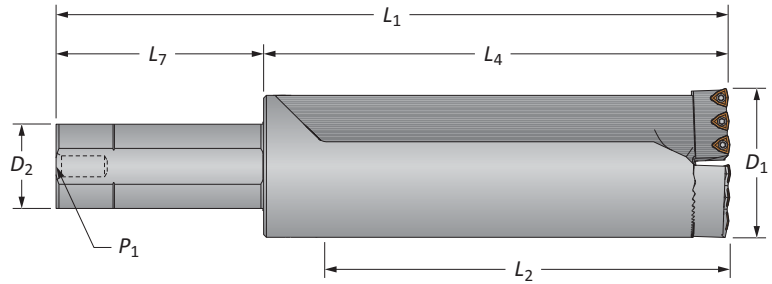
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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



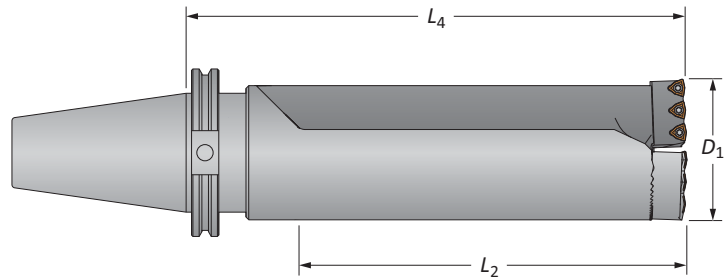
Revolution Drill Holders

54 Series | Diameter Range: 3.400" - 3.600" (86.4mm - 91.4mm)



Straight Shank

Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges	
			L ₂	L ₄	L ₁	D ₂	L ₇	P ₁			
i	Standard	1.0xD	3.400 - 3.600	3-21/32	5-17/64	9-49/64	2	4-1/2	1/4	R54X10-200L	C54-...
	Standard	2.5xD	3.400 - 3.600	8-29/32	10-33/64	15-1/64	2	4-1/2	1/4	R54X25-200L	C54-...
	Stacked Plate	1.0xD	3.400 - 3.600	3-23/32	5-21/64	9-53/64	2	4-1/2	1/4	SP54X10-200L	C54SP-...
	Stacked Plate	2.5xD	3.400 - 3.600	8-31/32	10-37/64	15-5/64	2	4-1/2	1/4	SP54X25-200L	C54SP-...
m	Standard	1.0xD	86.4 - 91.4	92.9	133.6	213.6	50	80	-	R54X10-50M	C54-...
	Standard	2.5xD	86.4 - 91.4	226.3	266.9	346.9	50	80	-	R54X25-50M	C54-...
	Stacked Plate	1.0xD	86.4 - 91.4	94.5	135.1	215.1	50	80	-	SP54X10-50M	C54SP-...
	Stacked Plate	2.5xD	86.4 - 91.4	227.8	268.5	348.5	50	80	-	SP54X25-50M	C54SP-...



CV50 Shank

Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges	
			L ₂	L ₄				
i	Standard	1.0xD	3.400 - 3.600	3-21/32	6-41/64	CAT50	R54X10-CV50	C54-...
	Standard	2.5xD	3.400 - 3.600	8-29/32	11-57/64	CAT50	R54X25-CV50	C54-...
	Stacked Plate	1.0xD	3.400 - 3.600	3-23/32	6-11/16	CAT50	SP54X10-CV50	C54SP-...
	Stacked Plate	2.5xD	3.400 - 3.600	8-31/32	11-15/16	CAT50	SP54X25-CV50	C54SP-...

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R54...	R54-ADJ	3	MS-19M-1	AS-18T9-1
	C54-ADJ	3	MS-19M-1	AS-18T9-1
SP54...	C54SP-FIX	3	MS-19M-1	AS-18T9-1
	C54SP-ADJ	3	MS-19M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard	OP-05T308-1P	OP-05T308-H	OP-05T308-1T	IS-10-1
C1 (K35)	Standard	OP-05T308-1P	OP-05T308-1H	OP-05T308-1T	IS-10-1
C2 (K25)	Standard	OP-05T308-1P	OP-05T308-2H	OP-05T308-1T	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	OP-05T308-1T	IS-10-1

A60: 22 - 23 A60: 2 - 4

Key on A60: 1

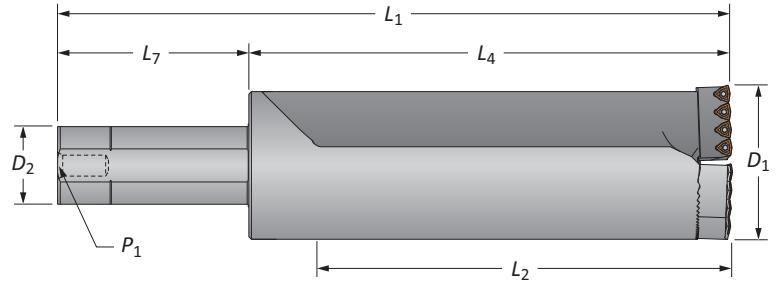
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

i = Imperial (in)
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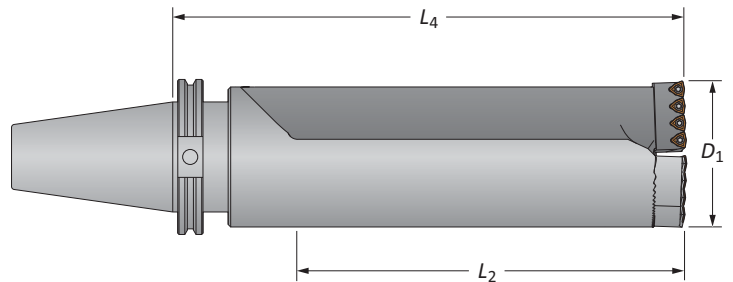
Revolution Drill Holders

56 Series | Diameter Range: 3.600" - 3.800" (91.4mm - 96.5mm)



Straight Shank

Style	Length	D ₁ Range	Holder			Shank			Part No.	Cartridges	
			L ₂	L ₄	L ₁	D ₂	L ₇	P ₁			
i	Standard	1.0xD	3.600 - 3.800	3-7/8	5-3/4	10-1/4	2	4-1/2	1/4	R56X10-200L	C56-...
	Standard	2.5xD	3.600 - 3.800	9-3/8	11-1/4	15-3/4	2	4-1/2	1/4	R56X25-200L	C56-...
	Stacked Plate	1.0xD	3.600 - 3.800	3-15/16	5-13/16	10-5/16	2	4-1/2	1/4	SP56X10-200L	C56SP-...
	Stacked Plate	2.5xD	3.600 - 3.800	9-7/16	11-5/16	15-13/16	2	4-1/2	1/4	SP56X25-200L	C56SP-...
m	Standard	1.0xD	91.4 - 96.5	98.6	146.2	226.2	50	80	-	R56X10-50M	C56-...
	Standard	2.5xD	91.4 - 96.5	238.3	285.9	365.9	50	80	-	R56X25-50M	C56-...
	Stacked Plate	1.0xD	91.4 - 96.5	99.9	147.6	227.6	50	80	-	SP56X10-50M	C56SP-...
	Stacked Plate	2.5xD	91.4 - 96.5	239.6	287.3	367.3	50	80	-	SP56X25-50M	C56SP-...



CV50 Shank

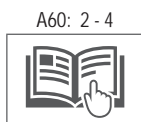
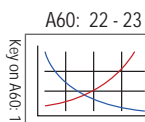
Style	Length	D ₁ Range	Holder		Shank	Part No.	Cartridges	
			L ₂	L ₄				
i	Standard	1.0xD	3.600 - 3.800	3-7/8	7-1/8	CAT50	R56X10-CV50	C56-...
	Standard	2.5xD	3.600 - 3.800	9-3/8	12-5/8	CAT50	R56X25-CV50	C56-...
	Stacked Plate	1.0xD	3.600 - 3.800	3-15/16	7-3/16	CAT50	SP56X10-CV50	C56SP-...
	Stacked Plate	2.5xD	3.600 - 3.800	9-7/16	12-11/16	CAT50	SP56X25-CV50	C56SP-...

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R56...	C56-ADJ	4	MS-21M-1	AS-18T9-1
	C56SP-FIX	4	MS-21M-1	AS-18T9-1
SP56...	C56SP-FIX	4	MS-21M-1	AS-18T9-1
	C56SP-ADJ	4	MS-21M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard	OP-05T308-1P	OP-05T308-H	OP-05T308-1T	IS-10-1
C1 (K35)	Standard	OP-05T308-1P	OP-05T308-1H	OP-05T308-1T	IS-10-1
C2 (K25)	Standard	OP-05T308-1P	OP-05T308-2H		IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR		IS-10-1

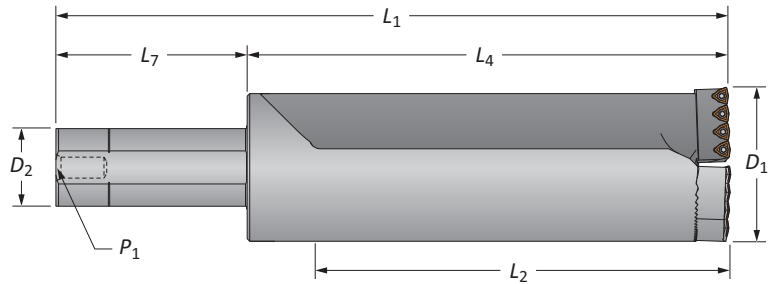


Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

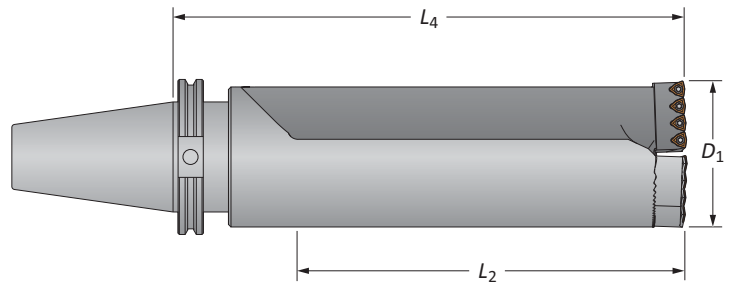
Revolution Drill Holders

58 Series | Diameter Range: 3.800" - 4.000" (96.5mm - 101.6mm)



Straight Shank

Style	Length	D_1 Range	Holder			Shank			Part No.	Cartridges	
			L_2	L_4	L_1	D_2	L_7	P_1			
i	Standard	1.0xD	3.800 - 4.000	3-7/8	5-3/4	10-1/4	2	4-1/2	1/4	R58X10-200L	C58-...
	Standard	2.5xD	3.800 - 4.000	9-7/8	11-3/4	16-1/4	2	4-1/2	1/4	R58X25-200L	C58-...
	Stacked Plate	1.0xD	3.800 - 4.000	3-15/16	5-13/16	10-5/16	2	4-1/2	1/4	SP58X10-200L	C58SP-...
	Stacked Plate	2.5xD	3.800 - 4.000	9-15/16	11-13/16	16-5/16	2	4-1/2	1/4	SP58X25-200L	C58SP-...
m	Standard	1.0xD	96.5 - 101.6	98.6	146.2	226.2	50	80	-	R58X10-50M	C58-...
	Standard	2.5xD	96.5 - 101.6	251.0	298.6	378.6	50	80	-	R58X25-50M	C58-...
	Stacked Plate	1.0xD	96.5 - 101.6	99.8	147.4	227.4	50	80	-	SP58X10-50M	C58SP-...
	Stacked Plate	2.5xD	96.5 - 101.6	252.2	299.8	379.8	50	80	-	SP58X25-50M	C58SP-...



CV50 Shank

Style	Length	D_1 Range	Holder		Shank	Part No.	Cartridges	
			L_2	L_4				
i	Standard	1.0xD	3.800 - 4.000	3-7/8	7-1/8	CAT50	R58X10-CV50	C58-...
	Standard	2.5xD	3.800 - 4.000	9-7/8	13-1/8	CAT50	R58X25-CV50	C58-...
	Stacked Plate	1.0xD	3.800 - 4.000	3-15/16	7-3/16	CAT50	SP58X10-CV50	C58SP-...
	Stacked Plate	2.5xD	3.800 - 4.000	9-15/16	13-3/16	CAT50	SP58X25-CV50	C58SP-...

Cartridges

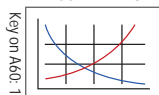
Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R58...		4	MS-21M-1	AS-18T9-1
		4	MS-21M-1	AS-18T9-1
SP58...		4	MS-21M-1	AS-18T9-1
		4	MS-21M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard		OP-05T308-H		IS-10-1
C1 (K35)	Standard		OP-05T308-1P	OP-05T308-1H	IS-10-1
C2 (K25)	Standard		OP-05T308-2H		IS-10-1
C5 (P35)	High Rake		OP-05T308-PHR	OP-05T308-HHR	IS-10-1

A60: 22 - 23

A60: 2 - 4


 Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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



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DRILLING



BORING



REAMING



BURNISHING






THREADING



SPECIALS



Recommended Cutting Data | Imperial (inch)

ISO	Material	Hardness (BHN)	Speed (SFM)			Feed Rate (IPR)
			 AM300®	 AM200®	 TiN	
S	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 250	900 - 1300	850 - 1200	700 - 900	.0035 - .007
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	850 - 1250	800 - 1150	650 - 850	.003 - .0065
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	800 - 1050	750 - 950	600 - 850	.0035 - .0065
	Alloy Steel 4140, 5140, 8640, etc.	125 - 375	750 - 1000	700 - 900	600 - 850	.0035 - .0065
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 400	600 - 850	550 - 750	400 - 650	.003 - .005
	Structural Steel A36, A285, A516, etc.	100 - 350	850 - 1050	800 - 950	650 - 850	.003 - .0065
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 250	400 - 800	350 - 700	250 - 650	.0025 - .005
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	250 - 450	250 - 350	150 - 300	.0025 - .005
K	Stainless Steel 400 Series 416, 420, etc.	185 - 350	600 - 850	550 - 750	400 - 650	.003 - .006
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	600 - 850	550 - 750	400 - 650	.003 - .006
	Super Duplex Stainless Steel	135 - 275	500 - 750	450 - 650	300 - 550	.002 - .005
K	Nodular, Grey, Ductile Cast Iron	120 - 320	700 - 900	650 - 800	500 - 700	.004 - .008
K	Cast Aluminum	30 - 180	1250 - 1650	1200 - 1550	950 - 1100	.006 - .012
	Wrought Aluminum	30 - 180	1250 - 1650	1200 - 1550	950 - 1100	.006 - .012
	Brass	30 - 100	950 - 1350	900 - 1250	750 - 1100	.005 - .009

Material Constants

Type of Material	Hardness (BHN)	K _m (lbs/in ²)
Free Machining Steel	100 - 250	0.75
Low Carbon Steel	85 - 275	0.85
Medium Carbon Steel	125 - 325	0.90
Alloy Steel	125 - 375	1.00
High Strength Steel	225 - 400	1.15
Structural Steel	100 - 350	1.00
Tool Steel	150 - 250	0.90
High Temperature Alloy	140 - 310	1.44
Titanium Alloy	140 - 310	0.72
Aerospace Alloy	185 - 350	0.70
Stainless Steel 400 Series	185 - 350	1.08
Stainless Steel 300 Series	135 - 275	0.94
Super Duplex Stainless Steel	135 - 275	0.94
Wear Plate	400 - 600	1.60
Hardened Steel	300 - 500	1.40
Nodular, Ductile Cast Iron	120 - 320	0.65
Grey Cast Iron	120 - 320	0.75
Cast Aluminum	30 - 180	0.40
Wrought Aluminum	30 - 180	0.40
Aluminum Bronze	100 - 250	0.50
Brass	100	0.35
Copper	60	0.30

Formulas

1.	RPM = (3.82 • SFM) / DIA <i>where:</i> RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch)
2.	HP = (0.6676 • DIA ² • IPR • RPM • K _m) / 0.80 <i>where:</i> Tool Power = tool power (HP) DIA = diameter of drill (inch) IPR = feed rate (in/rev) RPM = revolutions per minute (rev/min) K _m = specific cutting energy (lbs/in ²) machine efficiency (using 0.80 as constant)
3.	Thrust = 148,500 • IPR • DIA • K _m <i>where:</i> Thrust = axial thrust (lbs) IPR = feed rate (in/rev) DIA = diameter of drill (inch) K _m = specific cutting energy (lbs/in ²)
5.	Torque = (HP • 5252) / RPM <i>where:</i> Torque = torque (ft/lbs) HP = tool power (HP) RPM = revolutions per minute (rev/min)

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*.

IMPORTANT: The speeds and feeds listed above are considered a general starting point for all applications. Factory technical assistance is available for your specific applications through our Application Engineering department.

DRILLING

BORING




REAMING

BURNISHING

THREADING

SPECIALS

Recommended Cutting Data | Metric (mm)

ISO	Material	Hardness (BHN)	Speed (M/min)			Feed Rate (mm/rev)
			 AM300®	 AM200®	 TiN	
S	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 250	274 - 396	259 - 366	213 - 274	0.09 - 0.18
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	259 - 381	244 - 351	198 - 259	0.08 - 0.17
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	244 - 320	229 - 290	183 - 259	0.09 - 0.17
	Alloy Steel 4140, 5140, 8640, etc.	125 - 375	229 - 305	213 - 274	183 - 259	0.09 - 0.17
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 400	183 - 259	168 - 229	122 - 198	0.08 - 0.13
	Structural Steel A36, A285, A516, etc.	100 - 350	259 - 320	244 - 290	198 - 259	0.08 - 0.17
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 250	122 - 244	107 - 213	76 - 198	0.06 - 0.13
K	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	76 - 137	76 - 107	46 - 91	0.06 - 0.11
	Stainless Steel 400 Series 416, 420, etc.	185 - 350	183 - 259	168 - 229	122 - 198	0.08 - 0.15
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	183 - 259	168 - 229	122 - 198	0.08 - 0.15
K	Super Duplex Stainless Steel	135 - 275	152 - 228	137 - 198	91 - 152	0.05 - 0.12
	Nodular, Grey, Ductile Cast Iron	120 - 320	213 - 274	198 - 244	152 - 213	0.10 - 0.20
K	Cast Aluminum	30 - 180	381 - 503	381 - 472	290 - 335	0.15 - 0.30
	Wrought Aluminum	30 - 180	381 - 503	381 - 472	290 - 335	0.15 - 0.30
	Brass	30 - 100	290 - 411	274 - 381	229 - 335	0.13 - 0.23

Material Constants

Type of Material	Hardness (BHN)	K _m (lbs/in ²)
Free Machining Steel	100 - 250	5.17
Low Carbon Steel	85 - 275	5.86
Medium Carbon Steel	125 - 325	6.21
Alloy Steel	125 - 375	6.90
High Strength Steel	225 - 400	7.93
Structural Steel	100 - 350	6.90
Tool Steel	150 - 250	6.21
High Temperature Alloy	140 - 310	9.93
Titanium Alloy	140 - 310	4.97
Aerospace Alloy	185 - 350	4.48
Stainless Steel 400 Series	185 - 350	7.45
Stainless Steel 300 Series	135 - 275	6.48
Super Duplex Stainless Steel	135 - 275	6.48
Wear Plate	400 - 600	11.04
Hardened Steel	300 - 500	9.66
Nodular, Ductile Cast Iron	120 - 320	4.48
Grey Cast Iron	120 - 320	5.17
Cast Aluminum	30 - 180	2.76
Wrought Aluminum	30 - 180	2.76
Aluminum Bronze	100 - 250	3.45
Brass	100	2.41
Copper	60	2.07

Formulas

1. RPM = $(318.31 \cdot M/min) / DIA$ where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of drill (mm)
2. kW = $(DIA^2 \cdot mm/rev \cdot RPM \cdot K_m) / 181,018$ where: kW = tool power (kW) DIA = diameter of drill (mm) mm/rev = feed rate (mm/rev) RPM = revolutions per minute (rev/min) K _m = specific cutting energy (kPa) machine efficiency (using 181,018 as constant)
3. Thrust = $148.78 \cdot mm/rev \cdot DIA \cdot K_m$ where: Thrust = axial thrust (N) mm/rev = feed rate (mm/rev) DIA = diameter of drill (mm) K _m = specific cutting energy (kPa)
5. Torque = $(kW \cdot 9549.3) / RPM$ where: Torque = torque (Nm) HP = tool power (kW) RPM = revolutions per minute (rev/min)

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*.

IMPORTANT: The speeds and feeds listed above are considered a general starting point for all applications. Factory technical assistance is available for your specific applications through our Application Engineering department.

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

Large Diameter Replaceable IC Insert Drilling System

► Weldon Rn 2.000" - 5.620" (50.8mm - 142.8mm)



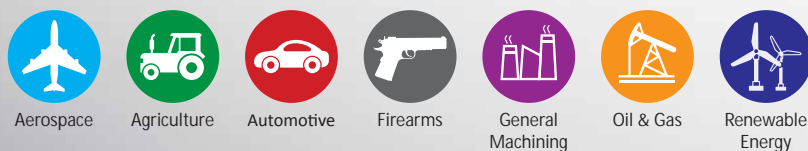
See the Weldon Drill to solve your problem

The Opening Drill is an extremely effective tool designed to enlarge existing holes. It is available in nine different shank styles: Straight, ABS 63, CAT V40, CAT V50, HSK 63A/C, HSK 100A/C, BT 40, BT 50, and DIN50.

In a *single* operation, an existing hole can be opened and large amounts of material can be removed. The insert design reduces chip size and improves evacuation. Also, inventory and cost are reduced by the adjustable diameters.

Excellent chip control	Improves hole quality and surface finish	Provides maximum durability and stability
------------------------	--	---

Available Industries



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.



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

WARNING 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.

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

Go to Weldon.com for the most up-to-date information and procedures.

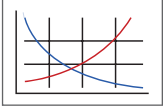
Reference Icons

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



Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling

Series	Imperial Range	
	Imperial Inch	Imperial mm
1	2.00 - 2.50	50.8 - 63.5
2	2.50 - 3.00	63.5 - 76.2
3	3.00 - 4.12	76.2 - 104.7
4	4.12 - 5.62	104.7 - 142.8

Introduction Information

Product Overview 2
 Set-up Instructions 3
 Product Nomenclature 4

Product Style

Straight 5
 CAT40 6
 CAT50 7
 BT40 8
 BT50 9
 HSK63 10
 HSK100 11
 ABS63 12
 DIN50 13

Recommended Cutting Data

Imperial (inch) 14 - 15
 Metric (mm) 16 - 17

Revolution Drill

Benefits

- Can be used as a rotating or stationary tool
- Can be used in rough boring operations
- Available in multiple different shanks (see chart below)
- Smooth cutting action and quiet operations in lathes and mills
- Special lengths, diameters, and shanks are available upon request

Features

- Opens an existing hole in a single operation
- Ignores core shifts up to 1/8" (3.175mm) providing straight and true holes without the need for boring
- Allows for large amounts of material removal
- Unique design enables larger holes to be made on low horsepower machines
- Replaceable cartridges protect your investment
- Adjustable diameters reduce inventory and cost

Shank Options



Straight



CAT40



CAT50



BT40



BT50



HSK63



HSK100



DIN50



ABS63



3 Flute



2 Flute



1 Flute



2 Flute
(OP1 - OP3 series)



3 Flute
(OP4 series)

Insert Application Recommendations

Carbide Grade Options

- | | |
|----------|--|
| C5 (P35) | General purpose carbide grade suitable for most applications.
▶ <i>Common application in steels and stainless steels.</i> |
| C1 (K35) | Toughest carbide grade. Provides the best combination of edge strength and tool life.
▶ <i>Recommended for less rigid applications.</i> |
| C2 (K25) | Higher wear resistant carbide suitable for abrasive material applications.
▶ <i>Recommended for grey, ductile, and nodular irons.</i> |

Additional Geometry Option

- | | |
|----------------|--|
| High Rake (HR) | Provides superior chip control and tool life in long chipping carbon and alloy steels below 200 Bhn. |
|----------------|--|

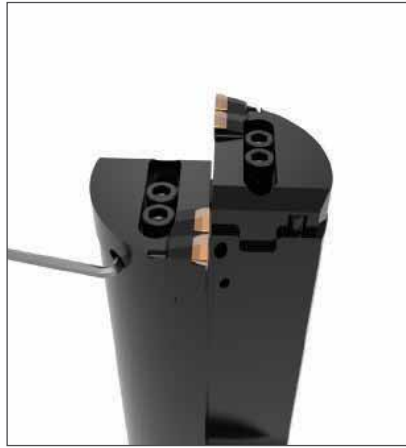
Benefits

- The design allows for excellent chip control and aggressive penetration rates
- The proprietary AM200® and AM300® coatings increase tool life above competitors' premium coatings
- The same inserts are used for both Revolution Drill and Opening Drill products

Set-up Instructions



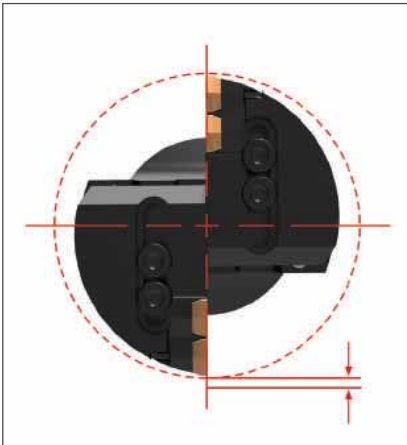
Step 1
Loosen the mounting screws on both cartridges.



Step 2
Set one cartridge to the finish diameter by tightening the adjustment screw against the adjustment pin.



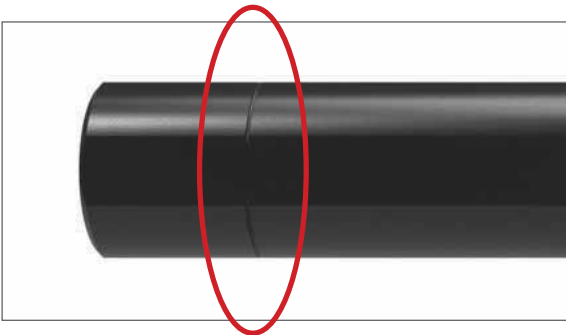
Step 3
Tighten the mounting screws on the cartridge to 11-14 ft-lbf (15-19 N-m).



Step 4
Set the opposing cartridge with 0.160" to 0.200" radial offset inward by tightening the adjustment screw against the adjustment pin (optimum situation for each insert to remove equal material).



Step 5
Tighten the mounting screws on the cartridge to 11-14 ft-lbf (15-19 N-m).



Notes

- Designed for lathe applications
- Can be cut off for use in end-mill holders
- The score mark (circled to the left) is provided for recommended cut length
- Cut and deburr at the score mark
- This improves rigidity when the body sits against the face of an end-mill holder

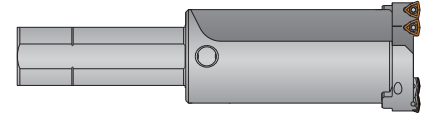




Product Overview

Product Line

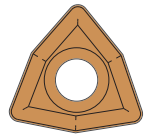
1	1S	SS15
1	2	3



1 Series <ul style="list-style-type: none"> 1 = 2.00" - 2.50" (50.8mm - 63.5mm) 2 = 2.50" - 3.00" (63.5mm - 76.2mm) 3 = 3.00" - 4.12" (76.2mm - 104.7mm) 4 = 4.12" - 5.62" (104.7mm - 142.8mm) 	2 Series <ul style="list-style-type: none"> 1S = Short 1 = Long 	3 Series Type <ul style="list-style-type: none"> SS15 = 1-1/2ϕ straight SS25 = 2-1/2ϕ straight 4 = 40mm straight 5 = 50mm straight 4 = CAT40 5 = CAT50 4 = BT40 5 = BT50 SK3 = HSK 63A/C SK100 = HSK 100A/C S3 = ABS63 5 = DIN50
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Product Line

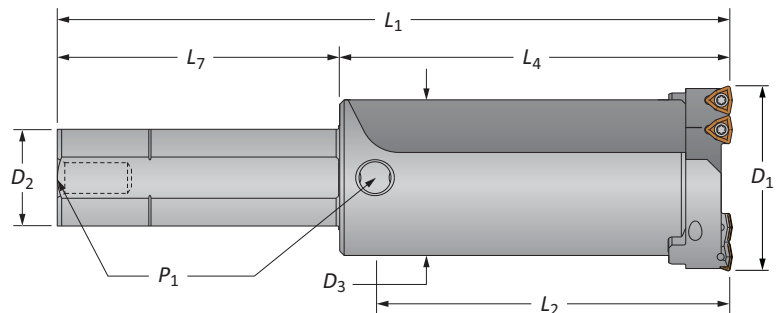
1	5	3	4	1	6	R
1	2	3	4	5	6	7



1 Compatible with: Opening Drill Revolution Drill	2 Type $\phi 5 = 5/16"$	3 Flute $\phi 3 = 5/32"$	4 Rake $\phi = 1/32"$	5 Insert $\phi 5 = C5 (P35)$ 1 = C1 (K35) 2 = C2 (K25)
6 Coating <ul style="list-style-type: none"> $\phi = AM300^{\circ}$ $\phi = AM200^{\circ}$ $\phi = TiN$ $\phi = TiAlN$ $\phi = TiCN$ $\phi = Uncoated$ 	7 Geometry <ul style="list-style-type: none"> $\phi 5 = General Purpose$ $\phi R = High Rake$ 			

Reference Key

Symbol	Attribute
D_1	Drill diameter range
D_2	Shank diameter
D_3	Body diameter
L_1	Overall length
L_2	Maximum drill depth
L_4	Holder length
L_7	Shank length
P_1	Rear pipe tap



DRILLING

BORING

REAMING

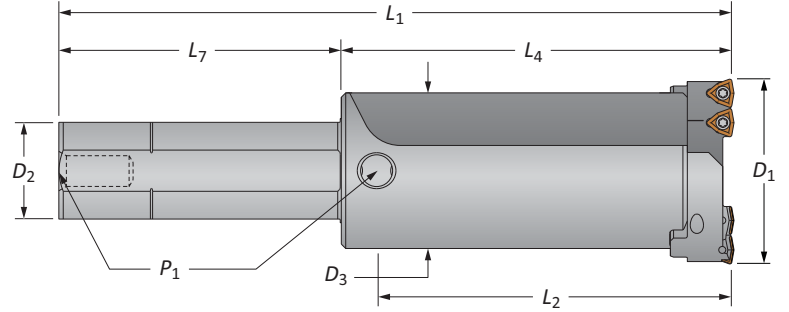
BURNISHING

THREADING

SPECIALS

Opening Drill® Large Diameter Replaceable IC Insert Drilling System

Straight Shank | Diameter Range: 2.00" - 5.62" (50.8mm - 142.8mm)



Insert

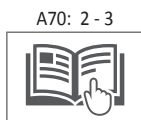
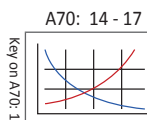
Insert	Length	D ₁ Range	Insert			Shank			Insert Code	Part Code	
			D ₃	L ₂	L ₄	L ₁	D ₂	L ₇			P ₁
i	Short	2.00 - 2.50	1.840	3-9/32	4-3/64	8-3/64	1-1/2	4	1/4 NPT	1115S15	OP1-WC05
	Long	2.00 - 2.50	1.840	5-17/32	6-19/64	10-19/64	1-1/2	4	1/4 NPT	1117S15	OP1-WC05
	Short	2.50 - 3.00	2.220	4-43/64	5-1/2	9-1/2	1-1/2	4	1/4 NPT	2115S15	OP2-WC05
	Long	2.50 - 3.00	2.220	7-43/64	8-1/2	12-1/2	1-1/2	4	1/4 NPT	2117S15	OP2-WC05
	Short	3.00 - 4.12	2.806	5-7/64	6	10	1-1/2	4	1/4 NPT	3115S15	OP3-WC05
	Long	3.00 - 4.12	2.806	9-7/64	10	14	1-1/2	4	1/4 NPT	3117S15	OP3-WC05
	Short	4.12 - 5.62	3.500	5-1/64	6	10-1/2	2	4-1/2	1/4 NPT	4115S20	OP4-WC05
	Long	4.12 - 5.62	3.500	10-33/64	11-1/2	16	2	4-1/2	1/4 NPT	4117S20	OP4-WC05
m	Short	50.8 - 63.5	1.840	83.5	102.9	172.9	40	70	-	1115S20	OP1-WC05
	Long	50.8 - 63.5	1.840	140.6	160.1	230.1	40	70	-	1117S20	OP1-WC05
	Short	63.5 - 76.2	2.220	118.5	139.8	209.8	40	70	-	2115S20	OP2-WC05
	Long	63.5 - 76.2	2.220	194.7	216.0	286.0	40	70	-	2117S20	OP2-WC05
	Short	76.2 - 104.7	2.806	129.9	152.5	222.5	40	70	-	3115S20	OP3-WC05
	Long	76.2 - 104.7	2.806	231.5	254.1	324.1	40	70	-	3117S20	OP3-WC05
	Short	104.7 - 142.8	3.500	127.4	152.5	232.5	50	80	-	4115S20	OP4-WC05
	Long	104.7 - 142.8	3.500	254.4	292.2	372.2	50	80	-	4117S20	OP4-WC05

Part Code

Replacemen Part Code	Qty	Mounting Screw	Adjusting Screw
1115S15	2	MS-13M-1	AS-10T9-1
1117S15	2	MS-15M-1	AS-10T9-1
2115S15	2	MS-15M-1	AS-12T9-1
2117S15	3	MS-15M-1	AS-14T9-1

Insert

Part Code	Geometry	3 Flute	2 Flute	Flute	Insert Screw
C5 (P35)	Standard	533333	533333	533333	IS-10-1
C1 (K35)	Standard	533333	533333	533333	IS-10-1
C2 (K25)	Standard	533333	533333	533333	IS-10-1
C5 (P35)	High Rake	533333 R	533333 R	533333	IS-10-1



Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

DRILLING

BORING

REAMING

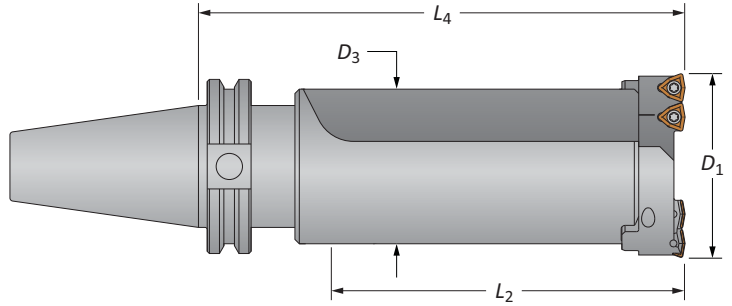
BURNISHING

THREADING

SPECIALS

Penetration Control

CAT40 Shank | Diameter Range: 2.00" - 5.62" (50.8mm - 142.8mm)



Control

	Penetration	D ₁ Range	D ₃	L ₂	L ₄	Inserts	Insert Screws
i	Short	2.00 - 2.50	1.840	3-9/32	5-27/64	OP1-S4	OP1-WC05
	Long	2.00 - 2.50	1.840	5-17/32	7-43/64	OP1-S4	OP1-WC05
	Short	2.50 - 3.00	2.220	4-43/64	6-7/8	OP2-S4	OP2-WC05
	Long	2.50 - 3.00	2.220	7-43/64	9-7/8	OP2-S4	OP2-WC05
	Short	3.00 - 4.12	2.806	5-7/64	7-3/8	OP3-S4	OP3-WC05
	Long	3.00 - 4.12	2.806	9-7/64	11-3/8	OP3-S4	OP3-WC05
	Short	4.12 - 5.62	3.500	5-1/64	7-3/8	OP4-S4	OP4-WC05

Reamer

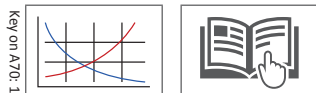
Reamer	Inserts	Mounting Screw	Adjusting Screw
OP1-S4	2	MS-13M-1	AS-10T9-1
OP2-S4	2	MS-15M-1	AS-10T9-1
OP3-S4	2	MS-15M-1	AS-12T9-1
OP4-S4	3	MS-15M-1	AS-14T9-1

Inserts

Insert	Geometry	OP1-S4	OP2-S4	OP3-S4	Insert Screw
C5 (P35)	Standard	IS-10-1	IS-10-1	IS-10-1	IS-10-1
C1 (K35)	Standard	IS-10-1	IS-10-1	IS-10-1	IS-10-1
C2 (K25)	Standard	IS-10-1	IS-10-1	IS-10-1	IS-10-1
C5 (P35)	High Rake	IS-10-1	IS-10-1	IS-10-1	IS-10-1

A70: 14 - 17

A70: 2 - 3



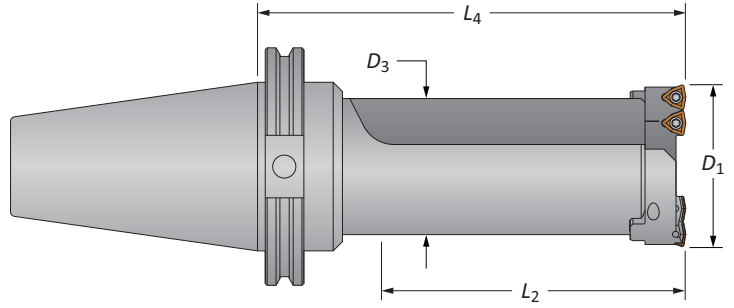
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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



Opening Drill® Large Diameter Replaceable IC Insert Drilling System

CAT50 Shank | Diameter Range: 2.00" - 5.62" (50.8mm - 142.8mm)



Dimensional Table

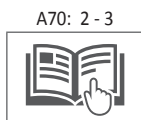
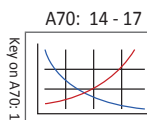
Insert	D ₁ Range	Dimension			Insert Code	Insert Type
		D ₃	L ₂	L ₄		
Short	2.00 - 2.50	1.840	3-9/32	5-27/64	11S005	OP1-WC05
			5-17/32	7-43/64		
Long	2.00 - 2.50	1.840	4-43/64	6-7/8	21S005	OP2-WC05
			7-43/64	9-7/8		
Short	2.50 - 3.00	2.220	5-7/64	7-3/8	31S005	OP3-WC05
			9-7/64	11-3/8		
Long	2.50 - 3.00	2.220	5-1/64	7-3/8	41S005	OP4-WC05
			10-33/64	12-7/8		

Accessories

Replacement Insert	Insert Size	Mounting Screw	Adjusting Screw
11S005	2	MS-13M-1	AS-10T9-1
21S005	2	MS-15M-1	AS-10T9-1
31S005	2	MS-15M-1	AS-12T9-1
41S005	3	MS-15M-1	AS-14T9-1

Inserts

Insert Code	Geometry	3-Flute	2-Flute	Flute	Insert Screw
C5 (P35)	Standard	503000R	503000	503000	IS-10-1
C1 (K35)	Standard	503000L	503000L	503000L	IS-10-1
C2 (K25)	Standard	503000R	503000R		IS-10-1
C5 (P35)	High Rake	503000R	503000R		IS-10-1



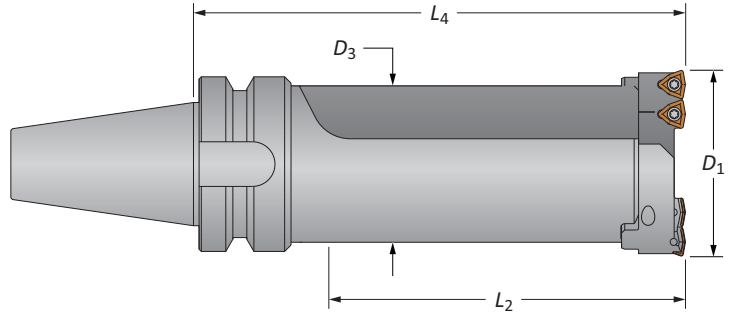
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

Opening Drill®

BT40 Shank | Diameter Range: 2.00" - 5.62" (50.8mm - 142.8mm)



Opening Drill

Metric	Length	D ₁ Range	Opening Drill			Insert	Part Number
			D ₃	L ₂	L ₄		
m	Short	50.8 - 63.5	1.840	83.5	137.8	OP1-S4	OP1-WC05
	Long	50.8 - 63.5	1.840	140.6	195.0	OP1-S4	OP1-WC05
	Short	63.5 - 76.2	2.220	118.5	174.7	OP2-S4	OP2-WC05
	Long	63.5 - 76.2	2.220	194.7	250.9	OP2-S4	OP2-WC05
	Short	76.2 - 104.7	2.806	129.9	187.4	OP3-S4	OP3-WC05
	Long	76.2 - 104.7	2.806	231.5	289.0	OP3-S4	OP3-WC05
	Short	104.7 - 142.8	3.500	127.4	187.4	OP4-S4	OP4-WC05

Accessories

Recommen- ded	Insert Size	Mounting Screw	Adjusting Screw
OP1-05	2	MS-13M-1	AS-10T9-1
OP2-05	2	MS-15M-1	AS-10T9-1
OP3-05	2	MS-15M-1	AS-12T9-1
OP4-05	3	MS-15M-1	AS-14T9-1

Inserts

Insert Size	Geometry	OP 3	OP 2	OP 1	Insert Screw
C5 (P35)	Standard	OP53	OP53	OP53	IS-10-1
C1 (K35)	Standard	OP53	OP53	OP53	IS-10-1
C2 (K25)	Standard	OP53	OP53	OP53	IS-10-1
C5 (P35)	High Rake	OP53R	OP53R	OP53	IS-10-1

A70: 14 - 17 A70: 2 - 3

Key on A70-1

Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

DRILLING

BORING

REAMING

BURNISHING

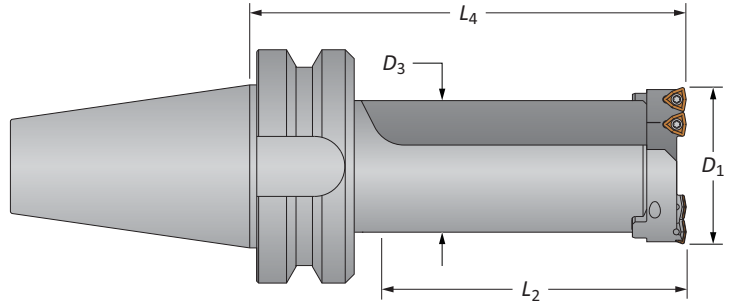
THREADING

SPECIALS



Benefits of the Opening Drill

BT50 Shank | Diameter Range: 2.00" - 5.62" (50.8mm - 142.8mm)



Options

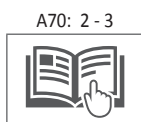
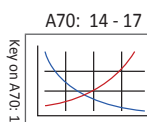
Metric	Length	D ₁ Range	Options			Insert	Insert
			D ₃	L ₂	L ₄		
mm	Short	50.8 - 63.5	1.840	83.5	147.4	11S005	OP1-WC05
	Long	50.8 - 63.5	1.840	140.6	204.5	11S005	OP1-WC05
	Short	63.5 - 76.2	2.220	118.5	174.7	21S005	OP2-WC05
	Long	63.5 - 76.2	2.220	194.7	260.4	21S005	OP2-WC05
	Short	76.2 - 104.7	2.806	129.9	196.9	31S005	OP3-WC05
	Long	76.2 - 104.7	2.806	231.5	298.5	31S005	OP3-WC05
	Short	104.7 - 142.8	3.500	127.4	196.9	41S005	OP4-WC05
	Long	104.7 - 142.8	3.500	254.4	336.5	41S005	OP4-WC05

Accessories

Replacement Insert	Insert	Mounting Screw	Adjusting Screw
11S005	2	MS-13M-1	AS-10T9-1
21S005	2	MS-15M-1	AS-10T9-1
31S005	2	MS-15M-1	AS-12T9-1
41S005	3	MS-15M-1	AS-14T9-1

Inserts

Insert	Geometry	3	2	1	Insert Screw
C5 (P35)	Standard	53000	53000	53000	IS-10-1
C1 (K35)	Standard	53000	53000	53000	IS-10-1
C2 (K25)	Standard	53000	53000		IS-10-1
C5 (P35)	High Rake	53000 R	53000 R		IS-10-1



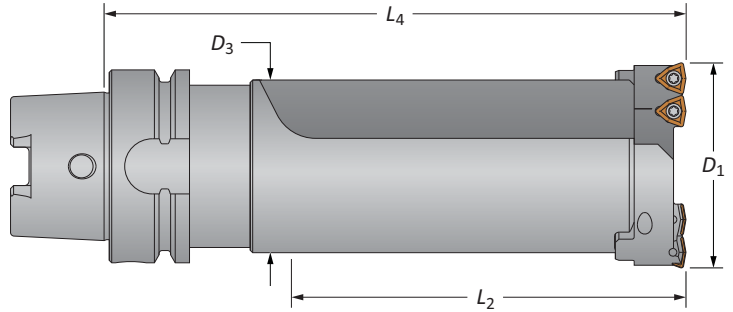
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)

DRILLING
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Opening Drill® Large Diameter Replaceable IC Insert Drilling System

HSK63 Shank | Diameter Range: 2.00" - 5.62" (50.8mm - 142.8mm)



Dimensions

Insert	D ₁ Range	D ₃	Shank		Insert Code	Part Number
			L ₂	L ₄		
Short	2.00 - 2.50	1.840	3-9/32	5-59/64	OP1-SK3	OP1-WC05
			5-17/32	8-11/64		
Long	2.00 - 2.50	1.840	4-43/64	7-3/8	OP2-SK3	OP2-WC05
			7-43/64	10-3/8		
Short	2.50 - 3.00	2.220	5-7/64	7-7/8	OP3-SK3	OP3-WC05
			9-7/64	11-7/8		
Long	2.50 - 3.00	2.220	5-1/64	7-7/8	OP4-SK3	OP4-WC05

Accessories

Reamer	Insert	Mounting Screw	Adjusting Screw
OP1-SK3	2	MS-13M-1	AS-10T9-1
OP2-SK3	2	MS-15M-1	AS-10T9-1
OP3-SK3	2	MS-15M-1	AS-12T9-1
OP4-SK3	3	MS-15M-1	AS-14T9-1

Inserts

Insert Code	Geometry	Insert 1	Insert 2	Insert 3	Insert Screw
C5 (P35)	Standard	IS-10-1	IS-10-1	IS-10-1	IS-10-1
C1 (K35)	Standard	IS-10-1	IS-10-1	IS-10-1	IS-10-1
C2 (K25)	Standard	IS-10-1	IS-10-1	IS-10-1	IS-10-1
C5 (P35)	High Rake	IS-10-1	IS-10-1	IS-10-1	IS-10-1

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Key on A70-1

Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

DRILLING

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BURNISHING

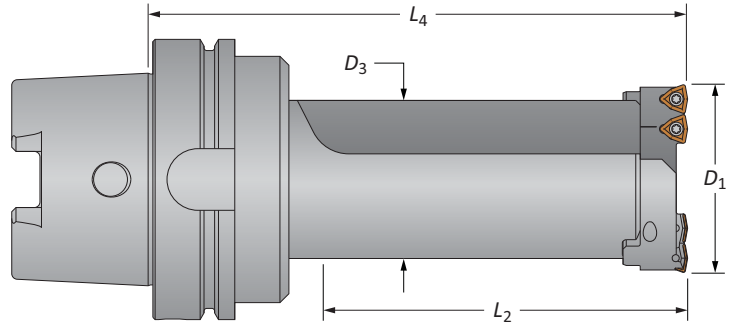
THREADING

SPECIALS



Opening Drill

HSK100 Shank | Diameter Range: 2.00" - 5.62" (50.8mm - 142.8mm)



Table

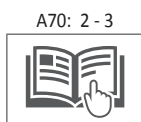
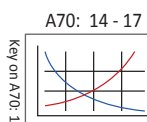
	Length	D ₁ Range	D ₃	L ₂	L ₄	Insert	Insert Screw
i	Short	2.00 - 2.50	1.840	3-9/32	6-1/64	SK1	OP1-WC05
	Long	2.00 - 2.50	1.840	5-17/32	8-17/64	SK1	OP1-WC05
	Short	2.50 - 3.00	2.220	4-43/64	7-15/32	SK1	OP2-WC05
	Long	2.50 - 3.00	2.220	7-43/64	10-15/32	SK1	OP2-WC05
	Short	3.00 - 4.12	2.806	5-7/64	7-31/32	SK1	OP3-WC05
	Long	3.00 - 4.12	2.806	9-7/64	11-31/32	SK1	OP3-WC05
	Short	4.12 - 5.62	3.500	5-1/64	7-31/32	SK1	OP4-WC05
	Long	4.12 - 5.62	3.500	10-33/64	13-15/32	SK1	OP4-WC05

Accessories

Replacement Insert	Insert	Mounting Screw	Adjusting Screw
SK1 P35	2	MS-13M-1	AS-10T9-1
SK1 K35	2	MS-15M-1	AS-10T9-1
SK1 K25	2	MS-15M-1	AS-12T9-1
SK1 P35	3	MS-15M-1	AS-14T9-1

Inserts

Insert	Geometry	3-Flute	2-Flute	Flute	Insert Screw
C5 (P35)	Standard	IS-10-1	IS-10-1	IS-10-1	IS-10-1
C1 (K35)	Standard	IS-10-1	IS-10-1	IS-10-1	IS-10-1
C2 (K25)	Standard	IS-10-1	IS-10-1	IS-10-1	IS-10-1
C5 (P35)	High Rake	IS-10-1 R	IS-10-1 R	IS-10-1	IS-10-1



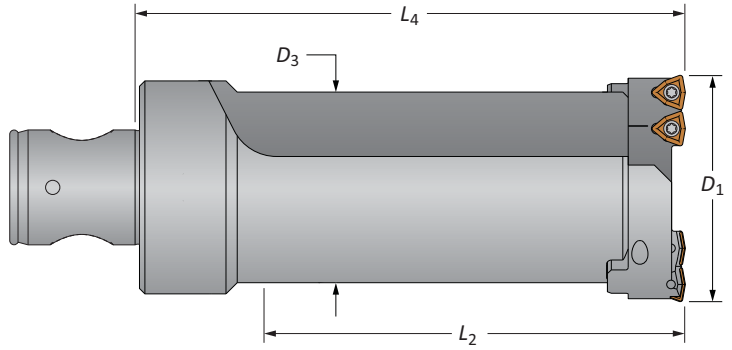
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

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Opening Drill® Large Diameter Replaceable IC Insert Drilling System

ABS63 Shank | Diameter Range: 2.00" - 5.62" (50.8mm - 142.8mm)



Dimensions

Length	D ₁ Range	D ₃	Length		Inserts	Part Number
			L ₂	L ₄		
Short	2.00 - 2.50	1.840	3-9/32	5-1/2	OP1-S	OP1-WC05
			5-17/32	7-3/4	OP1-M	OP1-WC05
Long	2.50 - 3.00	2.220	4-43/64	6-1/4	OP2-S	OP2-WC05
			7-43/64	9-1/4	OP2-M	OP2-WC05
Short	3.00 - 4.12	2.806	5-7/64	6-3/4	OP3-S	OP3-WC05
			9-7/64	10-3/4	OP3-M	OP3-WC05
Short	4.12 - 5.62	3.500	5-1/64	6-3/4	OP4-S	OP4-WC05

Accessories

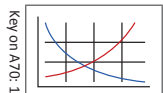
Reamer	Inserts	Mounting Screw	Adjusting Screw
OP1-S/OP1-M	2	MS-13M-1	AS-10T9-1
OP2-S/OP2-M	2	MS-15M-1	AS-10T9-1
OP3-S/OP3-M	2	MS-15M-1	AS-12T9-1
OP4-S	3	MS-15M-1	AS-14T9-1

Inserts

Insert	Geometry	OP3-S	OP2-S	OP1-S	Insert Screw
C5 (P35)	Standard	OP3-S3	OP2-S3	OP1-S3	IS-10-1
C1 (K35)	Standard	OP3-S3	OP2-S3	OP1-S3	IS-10-1
C2 (K25)	Standard	OP3-S3	OP2-S3	OP1-S3	IS-10-1
C5 (P35)	High Rake	OP3-S3R	OP2-S3R	OP1-S3	IS-10-1

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A70: 2 - 3



Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
 IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

DRILLING

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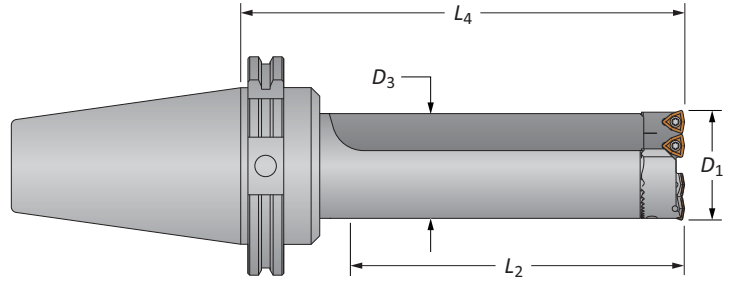
BURNISHING

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Opening Drill® Large Diameter Replaceable IC Insert Drilling System

DIN50 Shank | Diameter Range: 2.00" - 5.62" (50.8mm - 142.8mm)



Dimensions

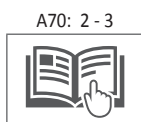
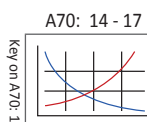
Metric	Length	D ₁ Range	Dimension			Insert Code	Insert Type
			D ₃	L ₂	L ₄		
mm	Short	50.8 - 63.5	1.840	83.5	137.9	OP1-S50	OP1-WC05
	Long	50.8 - 63.5	1.840	140.6	195.1	OP1-S50	OP1-WC05
	Short	63.5 - 76.2	2.220	118.5	174.8	OP2-S50	OP2-WC05
	Long	63.5 - 76.2	2.220	194.7	251.0	OP2-S50	OP2-WC05
	Short	76.2 - 104.7	2.806	129.9	187.5	OP3-S50	OP3-WC05
	Long	76.2 - 104.7	2.806	231.5	289.1	OP3-S50	OP3-WC05
	Short	104.7 - 142.8	3.500	127.4	187.5	OP4-S50	OP4-WC05
	Long	104.7 - 142.8	3.500	254.4	327.2	OP4-S50	OP4-WC05

Accessories

Replacement Insert	Insert Size	Mounting Screw	Adjusting Screw
OP1-S50	2	MS-13M-1	AS-10T9-1
OP2-S50	2	MS-15M-1	AS-10T9-1
OP3-S50	2	MS-15M-1	AS-12T9-1
OP4-S50	3	MS-15M-1	AS-14T9-1

Inserts

Insert Code	Geometry	3-Flute	2-Flute	1-Flute	Insert Screw
C5 (P35)	Standard	IS-503000	IS-503000	IS-503000	IS-10-1
C1 (K35)	Standard	IS-503000	IS-503000	IS-503000	IS-10-1
C2 (K25)	Standard	IS-503000	IS-503000	IS-503000	IS-10-1
C5 (P35)	High Rake	IS-503000R	IS-503000R	IS-503000	IS-10-1



Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

I = Imperial (in)
M = Metric (mm)

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Recommended Cutting Data | Imperial (inch)

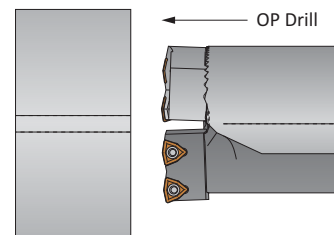
Material	Drill Range	Steel			Feed Rate
		3 Flute	2 Flute	1 Flute	
Free Cutting Steel 1118, 1215, 12L14, etc.	100 - 250	900 - 1300	850 - 1200	700 - 900	.0035 - .007
Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	850 - 1250	800 - 1150	650 - 850	.003 - .0065
Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	800 - 1050	750 - 950	600 - 850	.0035 - .0065
Alloy Steel 4140, 5140, 8640, etc.	125 - 375	750 - 1000	700 - 900	600 - 850	.0035 - .0065
Stren Alloy 4340, 4330V, 300M, etc.	225 - 400	600 - 850	550 - 750	400 - 650	.003 - .005
Structural Steel A36, A285, A516, etc.	100 - 350	850 - 1050	800 - 950	650 - 850	.003 - .0065
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 250	400 - 800	350 - 700	250 - 650	.0025 - .005
S Stem Alloy Hastelloy B, Inconel 600, etc.	140 - 310	250 - 450	250 - 350	150 - 300	.0025 - .005
Stainless Steel 400 Series 416, 420, etc.	185 - 350	600 - 850	550 - 750	400 - 650	.003 - .006
Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	600 - 850	550 - 750	400 - 650	.003 - .006
Super Invar Stainless Steel	135 - 275	500 - 750	450 - 650	300 - 550	.002 - .005
K Nodular, Grey, Ductile Cast Iron	120 - 320	700 - 900	650 - 800	500 - 700	.004 - .008
Aluminum	30 - 180	1250 - 1650	1200 - 1550	950 - 1100	.006 - .012
Brass	30 - 180	1250 - 1650	1200 - 1550	950 - 1100	.006 - .012
Copper	30 - 100	950 - 1350	900 - 1250	750 - 1100	.005 - .009

Minimum Pilot Hole Diameter | Minimum Diameter

Ex: To open an existing diameter hole to 2.75" diameter, an OP2 tool would be used. The minimum pilot hole diameter would be: **2.75" x 1.125" = 3.09375"**

Penetration Rate	Drill Diameter Range	K
OP1	2.00 - 2.50	1.880
OP2	2.50 - 3.00	1.880
OP3	3.00 - 4.12	1.880
OP4	4.12 - 5.62	2.680

Pre-drilled part or core



The speeds and feeds listed above are considered a general starting point for all applications. Factory technical assistance is available for your specific applications through our Application Engineering department.

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Formulas and Constants | Imperial (inch)

Table 1: Material Constants

Material	Drill Speed (RPM)	K _m (lbs/in ²)
Free Cutting Steel	100 - 250	0.75
Low Carbon Steel	85 - 275	0.85
Medium Carbon Steel	125 - 325	0.90
Alloy Steel	125 - 375	1.00
High Strength Steel	225 - 400	1.15
Structural Steel	100 - 350	1.00
Tool Steel	150 - 250	0.90
High Temperature Alloy	140 - 310	1.44
Inconel Alloy	140 - 310	0.72
Titanium Alloy	185 - 350	0.70
Stainless Steel 400 Series	185 - 350	1.08
Stainless Steel 300 Series	135 - 275	0.94
Stainless Steel 300 Series	135 - 275	0.94
Aluminum	400 - 600	1.60
Inconel Steel	300 - 500	1.40
Nodular, Ductile Cast Iron	120 - 320	0.65
Grey Cast Iron	120 - 320	0.75
Cast Iron	30 - 180	0.40
Cast Iron	30 - 180	0.40
Cast Iron	100 - 250	0.50
Brass	100	0.35
Copper	60	0.30

Formulas

1. $RPM = \frac{SFM}{DIA_F}$
where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA _F = finish diameter of drill (inch)
2. $HP = \frac{IPR \cdot DIA_F^2 \cdot RPM}{5252} \cdot K_m \cdot \eta$
where: Tool Power = tool power (HP) DIA _F = finish diameter of drill (inch) DIA _P = pre-drill diameter (inch) IPR = feed rate (in/rev) RPM = revolutions per minute (rev/min) K _m = specific cutting energy (lbs/in ²) machine efficiency (using 0.80 as constant)
3. $Thrust = \frac{IPR \cdot DIA_F^2 \cdot RPM}{1415} \cdot K_m$
where: Thrust = axial thrust (lbs) IPR = feed rate (in/rev) DIA _F = finish diameter of drill (inch) DIA _P = pre-drill diameter (inch) K _m = specific cutting energy (lbs/in ²)
5. $Torque = \frac{HP \cdot 5252}{RPM}$
where: Torque = torque (ft/lbs) HP = tool power (HP) RPM = revolutions per minute (rev/min)

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*.



Recommended Cutting Data | Metric (mm)

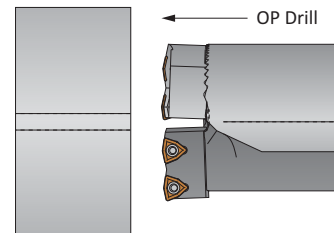
Material	Drill Diameter Range	Speed (RPM)			Feed Rate (mm/rev)
		OP3	OP2	OP1	
Free Cutting Steel 1118, 1215, 12L14, etc.	100 - 250	274 - 396	259 - 366	213 - 274	0.09 - 0.18
Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	259 - 381	244 - 351	198 - 259	0.08 - 0.17
Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	244 - 320	229 - 290	183 - 259	0.09 - 0.17
Alloy Steel 4140, 5140, 8640, etc.	125 - 375	229 - 305	213 - 274	183 - 259	0.09 - 0.17
Stren Alloy 4340, 4330V, 300M, etc.	225 - 400	183 - 259	168 - 229	122 - 198	0.08 - 0.13
Structural Steel A36, A285, A516, etc.	100 - 350	259 - 320	244 - 290	198 - 259	0.08 - 0.17
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 250	122 - 244	107 - 213	76 - 198	0.06 - 0.13
S Hastelloy Hastelloy B, Inconel 600, etc.	140 - 310	76 - 137	76 - 107	46 - 91	0.06 - 0.11
Stainless Steel 400 Series 416, 420, etc.	185 - 350	183 - 259	168 - 229	122 - 198	0.08 - 0.15
Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	183 - 259	168 - 229	122 - 198	0.08 - 0.15
Super Invariant Stainless Steel	135 - 275	152 - 228	137 - 198	91 - 152	0.05 - 0.12
K Nodular, Grey, Ductile Cast Iron	120 - 320	213 - 274	198 - 244	152 - 213	0.10 - 0.20
Aluminum	30 - 180	381 - 503	381 - 472	290 - 335	0.15 - 0.30
Brass	30 - 180	381 - 503	381 - 472	290 - 335	0.15 - 0.30
Copper	30 - 100	290 - 411	274 - 381	229 - 335	0.13 - 0.23

Minimum Pilot Hole Diameter (mm) | Maximum Diameter (mm)

Ex: To open an existing diameter hole to 69.85mm diameter, an OP2 tool would be used. The minimum pilot hole diameter would be: 47.75 | 47.75 | 22.75

Open Drill Series	Drill Diameter Range	Ø
OP1	50.8 - 63.5	47.75
OP2	63.5 - 76.2	47.75
OP3	76.2 - 104.6	47.75
OP4	104.6 - 142.7	68.07

Pre-drilled part or core



The speeds and feeds listed above are considered a general starting point for all applications. Factory technical assistance is available for your specific applications through our Application Engineering department.

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Formulas and Constants | Metric (mm)

Table 1: Specific Cutting Energy (K_m)

Type of Material	Drill Diameter Range (mm)	K _m (kJ/m ³)
Free Cutting Steel	100 - 250	5.17
Low Carbon Steel	85 - 275	5.86
Medium Carbon Steel	125 - 325	6.21
Alloy Steel	125 - 375	6.90
High Strength Steel	225 - 400	7.93
Structural Steel	100 - 350	6.90
Tool Steel	150 - 250	6.21
High Temperature Alloy	140 - 310	9.93
Titanium Alloy	140 - 310	4.97
Superalloy	185 - 350	4.48
Stainless Steel 400 Series	185 - 350	7.45
Stainless Steel 300 Series	135 - 275	6.48
Stainless Steel 300 Series	135 - 275	6.48
Aluminum	400 - 600	11.04
Inconel Steel	300 - 500	9.66
Nodular, Ductile Cast Iron	120 - 320	4.48
Grey Cast Iron	120 - 320	5.17
Cast Iron	30 - 180	2.76
Cast Iron	30 - 180	2.76
Cast Iron	100 - 250	3.45
Brass	100	2.41
Copper	60	2.07

Formulas

- RPM** = $1000 \times \frac{V_c}{\pi \times D \times E}$

where:
 RPM = revolutions per minute (rev/min)
 M/min = speed (M/min)
 DIA_F = finish diameter of drill (mm)
- IPR** = $\frac{1000 \times P}{V_c \times \pi \times D \times E \times K_m \times 0.205154}$

where:
 kW = tool power (kW)
 DIA_F = finish diameter of drill (mm)
 DIA_P = pre-drill diameter (mm)
 mm/rev = feed rate (mm/rev)
 RPM = revolutions per minute (rev/min)
 K_m = specific cutting energy (kPa)
 machine efficiency (using 205,154 as constant)
- Thrust** = $14000 \times \frac{IPR \times D \times E \times K_m}{RPM}$

where:
 Thrust = axial thrust (N)
 IPR = feed rate (mm/rev)
 DIA_F = finish diameter of drill (mm)
 DIA_P = pre-drill diameter (mm)
 K_m = specific cutting energy (kPa)
- Torque** = $54000 \times \frac{P}{RPM}$

where:
 Torque = torque (Nm)
 kW = tool power (kW)
 RPM = revolutions per minute (rev/min)

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*.

Structural Steel Drilling Solutions

Replaceable Insert Drilling System | GEN3SYS® XT | Original T-A® and GEN2 T-A®

- ▶ **GEN3SYS XT Diameter Range:** 0.4331" - 1.3780" (11.00mm - 35.00mm)
- ▶ **GEN2 T-A Diameter Range:** 0.511" - 1.882" (12.98mm - 47.80mm)



Take on Tough Drilling

Allied Machine's Structural Steel Drilling System is designed for maximum performance in structural steel materials and applications. These solutions utilize the GEN3SYS XT, Original T-A, and GEN2 T-A designs and capabilities.

With multiple geometries and coatings, you're sure to find the solution that is right for you. Tough drilling is tough no more.

Excellent chip control	Improves hole quality and surface finish	Provides maximum durability and stability
------------------------	--	---

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.



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

WARNING 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.

CAUTION and **ATTENTION** 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.

Applicable Industries



Structural Steel

Structural Steel Drilling Solutions Contents

Introduction Information

- Structural Steel Drilling Overview 2
- Case Study Example 3
- GEN3SYS® XT System Overview 4
- T-A® System Overview 5
- Product Nomenclature 6 - 7

GEN3SYS® XT Drill Series

- 12 - 14 Series 8 - 9
- 15 - 16 Series 10 - 11
- 17 - 18 Series 12 - 13
- 20 - 22 Series 14 - 15
- 24 - 26 Series 16 - 17
- 29 - 32 Series 18 - 19

T-A® Drill Series

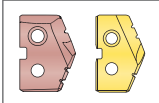
- 0 Series 20 - 23
- 1 Series 24 - 27
- 2 Series 28 - 31
- 3 Series 32 - 34

- Deep Hole Drilling Guidelines 35


Recommended Cutting Data

- GEN3SYS XT System 36 - 37
- T-A System 38 - 39


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



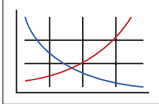
Corresponding T-A Inserts
Refers to the corresponding T-A insert items that connect with each specific holder series



Corresponding T-A Holders
Refers to the corresponding T-A holder items that connect with each specific insert series



Setup / Assembly Information
Detailed instructions and information regarding the corresponding part(s)



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

Series	GEN3SYS XT Diameter Range	
	Imperial (inch)	Metric (mm)
12	0.4724 - 0.5117	12.00 - 12.99
13	0.5118 - 0.5511	13.00 - 13.99
14	0.5512 - 0.5905	14.00 - 14.99
15	0.5906 - 0.6298	15.00 - 15.99
1 [□]	0.6299 - 0.6692	16.00 - 16.99
17	0.6693 - 0.7086	17.00 - 17.99
1 [□]	0.7087 - 0.7873	18.00 - 19.99
2 [□]	0.7874 - 0.8660	20.00 - 21.99
22	0.8661 - 0.9448	22.00 - 23.99
24	0.9449 - 1.0235	24.00 - 25.99
2 [□]	1.0236 - 1.1416	26.00 - 28.99
2 [□]	1.1417 - 1.2597	29.00 - 31.99
32	1.2598 - 1.3780	32.00 - 35.00

Series	T-A Diameter Range	
	Imperial (inch)	Metric (mm)
[□]	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



Structural Steel Drilling

Achieving Optimal Results in Structural Steel

Drilling in structural steel materials can be a difficult process, and achieving optimal results becomes a major issue. Allied Machine's structural steel drilling solutions have been specifically designed to produce the best results in the toughest materials. With solutions in both the T-A® and GEN3SYS® XT product lines, you have multiple options to solve your application problems.



Insert Style Comparison

	 352S2 Structural Steel	 Thin Wall	 Notch Point®	 152S2 Structural Steel	 High Efficiency
Material less than 7/16" thick		<input checked="" type="checkbox"/>			
Material over 7/16" thick	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Reduced exit burr			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Includes Notch Point® geometry			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Available from carbide	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
Stocked in common sizes for the Structural Steel industry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

Case Study Example

CASE STUDY

Project Profile: Structural Steel I-Beam Construction
Tooling Solution: T-A® Structural Steel Drilling System

The Problem:

Previously, the customer was using a competitor spade drill running at the following parameters:

- 650 RPM
- 0.010 IPR (0.25 mm/rev)
- 6.5 IPM (165.1 mm/min)

The tool drilled a 0.875" (22.23mm) diameter hole to a 0.4375" (11.11mm) depth. The drill had a tool life of **only 20 holes**.

The poor tool performance was brought to the attention of the technician, who was familiar with Allied Machine products. The following day, Allied Machine tooling was brought in for testing. The customer needed improvement in the tool life of the inserts.

The Solution:

Allied Machine recommended the T-A Structural Steel Drilling System.

- **Insert** = 151A-0028-TW (#1 series T-A insert with TiAlN coating and Thin Wall geometry)
- **Holder** = 25010H-004IS052 (#1 series T-A holder with #4 Morse Taper shank and helical flute)

The tool ran at the following parameters:

- 440 RPM
- 0.010 IPR (0.25 mm/rev)
- 4.4 IPM (111.7 mm/min)

The tool achieved the desired diameter and depth. But most of all, the tool produced **1,500 holes**.

Summary:

The customer was able to take advantage of Allied Machine's vast experience in the structural steel drilling niche. Allied's wide variety of stocked solutions for specific customer problems allows for a remarkable increase in tool life.

The T-A Structural Steel Drilling System defeated the competition, decreasing the total cost-per-hole from \$2.02 to just \$0.22. This reduction resulted in a **savings of 89%** for the customer.

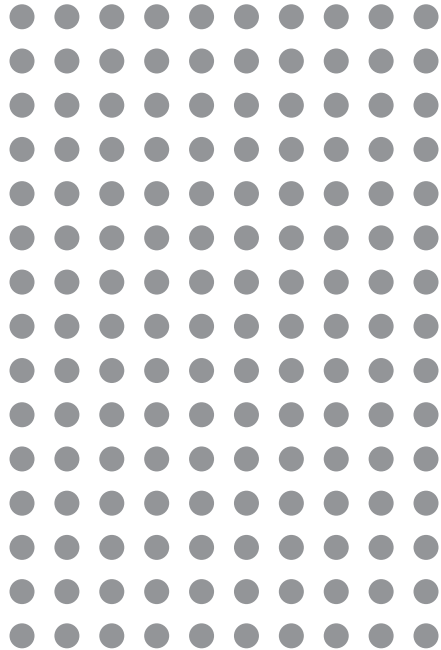


The PROOF is in the NUMBERS

Competitor Insert Tool Life
(number of holes = 20)



T-A Structural Steel Insert Tool Life
(number of holes = 1,500)



Overall **SAVINGS** of
89%

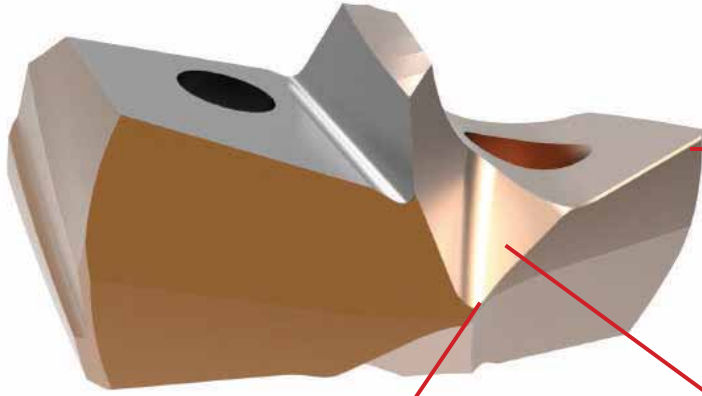




GEN3SYS® XT Structural Steel Drilling System

STRUCTURAL STEEL ENHANCEMENTS

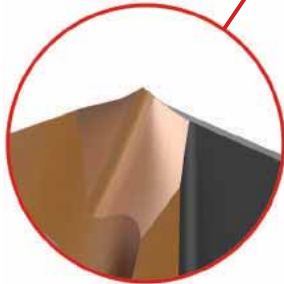
GEN3SYS XT



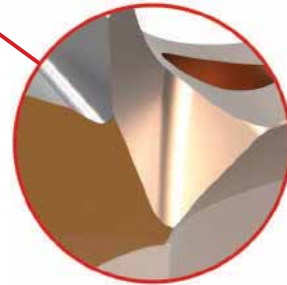
Available in AM300® Coating



Improved Radial Rake
Improves chip control



Serrated Point
Increases stability



Improved Notch Point
Reduces lead-off



Holder Anatomy

1. Flanged Shank with Flat
2. Coolant Inlet
3. Flute (straight only)
4. Coolant Outlets



Straight Flute

NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

T-A® Structural Steel Drilling System

STRUCTURAL STEEL ENHANCEMENTS

Original T-A & GEN2 T-A

GEN2 T-A Insert

Available in AM200® Coating

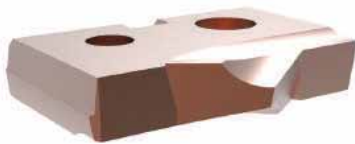


High Efficiency (-HE)

- Improves performance
- Improves tool life
- Improves chip formation in structural steel materials

Original T-A Inserts

Available in AM200® and TiAlN Coatings



Thin Wall (-TW)

- Designed for drilling 7/16" thick or less I-Beam or structural materials
- Increases hole diameter tolerance
- Improves hole roundness
- Decreases material deflection



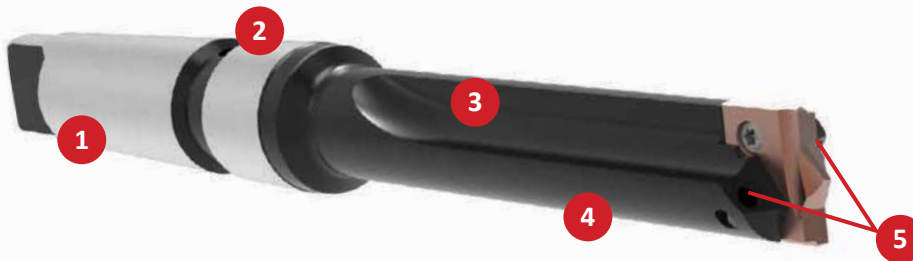
Notch Point® (-NP)

- Provides excellent self-centering characteristics
- Reduces bell mouth and tool lead-off
- Reduces axial thrust requirements



Structural Steel (-SS)

- Designed for drilling 7/16" thick or thicker I-Beam or structural materials
- Reduces exit burrs
- Increases stability
- Lowers drilling forces
- Includes Notch Point® web geometry



Holder Anatomy

1. Morse Taper Shank
2. Coolant Inlet
3. Flute (straight or helical)
4. Built-up Body Diameter
5. Coolant Outlets



Straight Flute

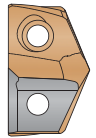


Helical Flute

GEN3SYS® XT Drill Nomenclature

GEN3SYS XT Drill Inserts

7	2	14	1	11	S
1	2	3	4	5	6

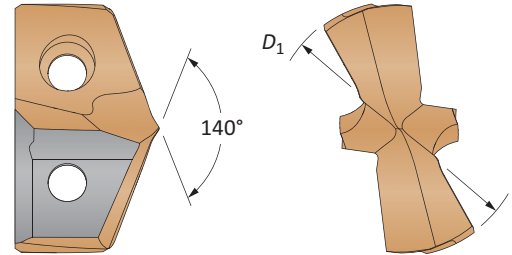


1. XT Drill Insert 7 = XT insert	2. Insert Material 2 = C2 (K20) carbide	3. Series 12 = 12 series 17 = 17 series 24 = 24 series 14 = 14 series 18 = 18 series 26 = 26 series 15 = 15 series 20 = 20 series 29 = 29 series 16 = 16 series 22 = 22 series 32 = 32 series	4. Coating = AM300®
--	---	--	-------------------------------

5. Diameter 12 = Inch 1 = Metric	6. Geometry S = Structural steel
---	--

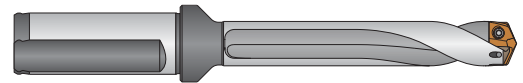
Reference Key

Symbol	Attribute
D_1	Insert diameter



GEN3SYS XT Drill Holders

S	3	12	1	2	1
1	2	3	4	5	6

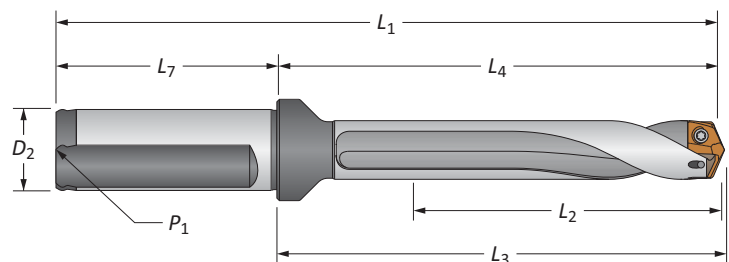


1. Holder S = Structural steel holder	2. Length 3 = 3x Diameter 5 = 5x Diameter 7 = 7x Diameter	3. Series 12 = 12 series 17 = 17 series 24 = 24 series 14 = 14 series 18 = 18 series 26 = 26 series 15 = 15 series 20 = 20 series 29 = 29 series 16 = 16 series 22 = 22 series 32 = 32 series	4. Body Diameter = Standard 5 = Oversized
---	---	--	--

5. Shank Diameter <table border="1"> <thead> <tr> <th colspan="2">Imperial (in)</th> <th colspan="2">Metric (mm)</th> </tr> </thead> <tbody> <tr> <td>3 = 5/8"</td> <td>125 = 1-1/4"</td> <td>16 = 16mm</td> <td>32 = 32mm</td> </tr> <tr> <td>75 = 3/4"</td> <td>150 = 1-1/2"</td> <td>20 = 20mm</td> <td>40 = 40mm</td> </tr> <tr> <td>100 = 1"</td> <td></td> <td>25 = 25mm</td> <td></td> </tr> </tbody> </table>	Imperial (in)		Metric (mm)		3 = 5/8"	125 = 1-1/4"	16 = 16mm	32 = 32mm	75 = 3/4"	150 = 1-1/2"	20 = 20mm	40 = 40mm	100 = 1"		25 = 25mm		6. Shank Style = Flanged with flat = Flanged metric with flat = Cylindrical (no flat) = Cylindrical metric (no flat)
Imperial (in)		Metric (mm)															
3 = 5/8"	125 = 1-1/4"	16 = 16mm	32 = 32mm														
75 = 3/4"	150 = 1-1/2"	20 = 20mm	40 = 40mm														
100 = 1"		25 = 25mm															

Reference Key

Symbol	Attribute
D_2	Shank diameter
L_1	Overall length
L_2	Drill depth
L_3	Holder reference length
L_4	Holder body length
L_7	Shank length
P_1	Rear pipe tap

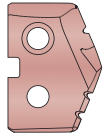










DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

T-A® Drill Nomenclature

T-A Drill Inserts

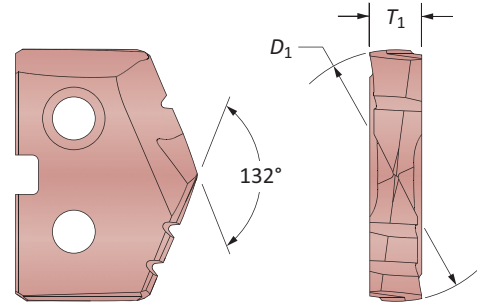
4	5	3	H	115	HE
1	2	3	4	5	6








1. Insert	2.   	3. Series	4. Coating	5. Diameter	6. Geometry
1 = Original T-A 4 = GEN2 T-A	5 = Super cobalt 11 = C1 (K35) carbide	 = 0 series 1 = 1 series 2 = 2 series 3 = 3 series	H = AM200®  = TiAlN	 17 = Inch .515 = Decimal 13 = Metric	 = Thin Wall  = Notch Point® SS = Structural Steel HE = High Efficiency

Reference Key















Symbol	Attribute
D_1	Insert diameter
T_1	Insert thickness




T-A Drill Holders

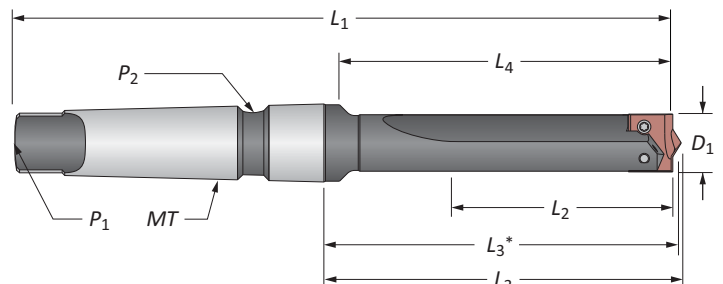
2	4 	2 	S	 114		
1	2	3	4	5	6	7



1. Holder	2. Length	3. Series	4.  
2 = T-A holder	2  = Short 4  = Standard 5  = Extended 1  = Long	 = 0 series  5 = 0.5 series 1  = 1 series 15 = 1.5 series 2  = 2 series 25 = 2.5 series 3  = 3 series	S = Straight H = Helical
5. Shank Designator	6. Shank Code	7. Minimum Insert Diameter	
 3 = 3MT  4 = 4MT	 = Imperial Morse taper structural steel	In increments of 1/64 of an inch	

Reference Key

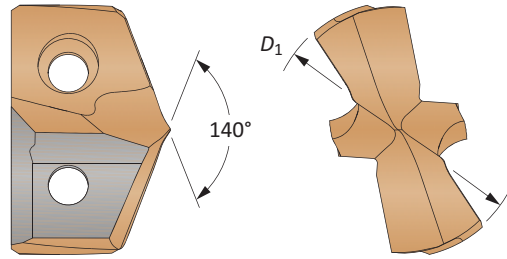
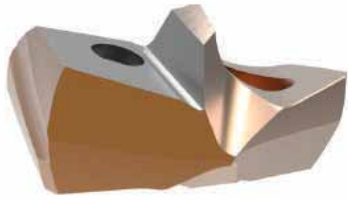
Symbol	Attribute	Symbol	Attribute
D_1	Drill insert range	L_4	Flute length
L_1	Overall length	P_1	Rear pipe tap
L_2	Drill depth	P_2	Side pipe tap
L_3	Holder reference length	MT	Morse taper size
L_3 	Holder reference length		




*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

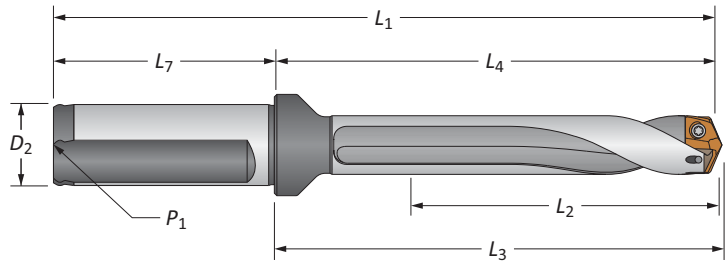
GEN3SYS® XT Structural Steel Drilling System

12 Series | Diameter Range: 0.4724" - 0.5117" (12.00mm - 12.99mm)




Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D ₁ inch	D ₁ mm	Structural Steel Part No.
C2 (K20)	-	0.4724	12.00	72127125








Holders

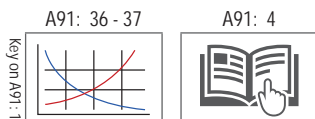
Length	Body				Shank				Part No.
	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁		
i 3xD	1-17/32	2-5/8	2-45/64	4-21/32	2-1/32	3/4	1/8	YES	S312775
i 5xD	2-9/16	3-41/64	3-47/64	5-43/64	2-1/32	3/4	1/8	YES	S512775
i 7xD	3-37/64	4-43/64	4-3/4	6-45/64	2-1/32	3/4	1/8	YES	S712775
m 3xD	39.0	68.8	68.8	118.8	50	20	1/8*	YES	S312775
m 5xD	65.0	94.8	94.8	144.8	50	20	1/8*	YES	S512775
m 7xD	90.9	120.8	120.8	170.8	50	20	1/8*	YES	S712775

*Thread to BSP and ISO 7-1

Connection Accessories

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

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



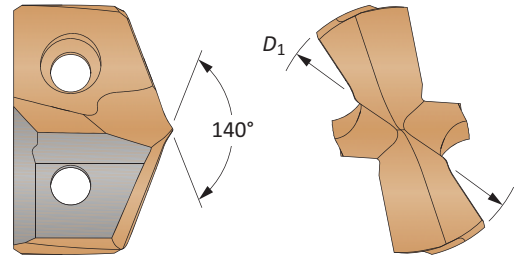
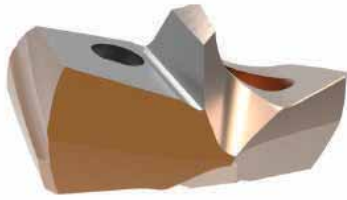
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

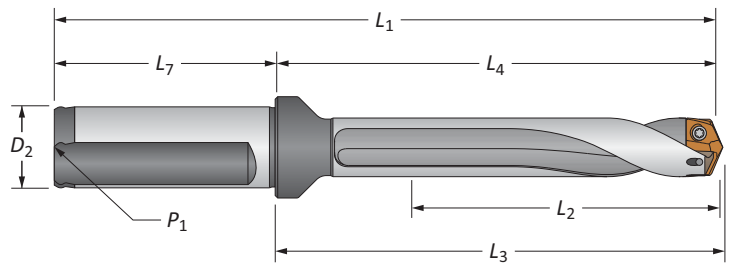
GEN3SYS® XT Structural Steel Drilling System

14 Series | Diameter Range: 0.5512" - 0.5905" (14.00mm - 14.99mm)



Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D ₁ inch	D ₁ mm	Structural Steel Part No.
C2 (K20)	-	0.5512	14.00	7@214@14S@
	9/16	0.5625	14.29	7@214@14.29S@




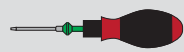



Holders

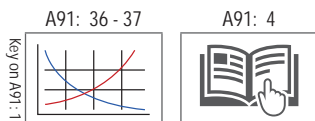
Length	Body				Shank				Part No.	
	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁	①①①		
i	3xD	1-25/32	2-27/32	2-61/64	4-7/8	2-1/32	3/4	1/8	YES	S@314@75@
	5xD	2-61/64	4-1/32	4-1/8	6-1/16	2-1/32	3/4	1/8	YES	S@514@75@
	7xD	4-9/64	5-13/64	5-5/16	7-15/64	2-1/32	3/4	1/8	YES	S@714@75@
m	3xD	45.0	72.4	75.0	122.4	50	20	1/8*	YES	S@314@75@
	5xD	75.0	102.4	104.9	152.4	50	20	1/8*	YES	S@514@75@
	7xD	104.9	132.3	134.9	182.3	50	20	1/8*	YES	S@714@75@

*Thread to BSP and ISO 7-1

Connection Accessories

					Admissible Tightening Torque*
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	
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 $\mu = 0.14$ and develop 90% of ultimate yield strength



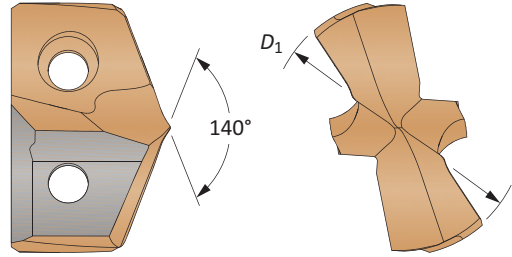
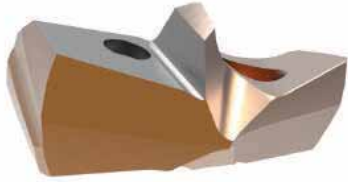
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

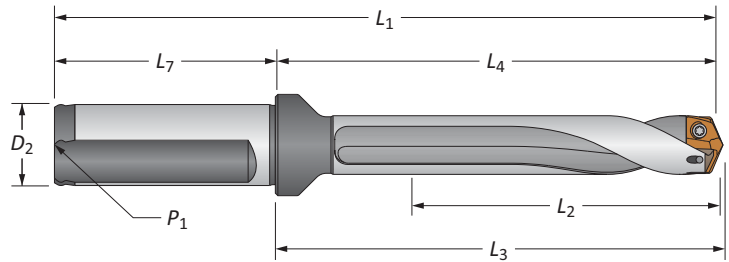
GEN3SYS® XT Structural Steel Drilling System

15 Series | Diameter Range: 0.5906" - 0.6298" (15.00mm - 15.99mm)



Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D ₁ inch	D ₁ mm	Structural Steel Part No.
C2 (K20)	5/8	0.6250	15.88	722152222222








Holders

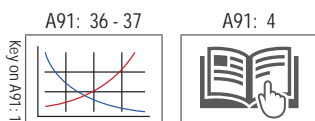
Length	Body				Shank				Part No.
	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁	IP7	
3xD	1-57/64	2-61/64	3-3/64	4-63/64	2-1/32	3/4	1/8	YES	S22315222222
5xD	3-5/32	4-7/32	4-5/16	6-1/4	2-1/32	3/4	1/8	YES	S22515222222
7xD	4-27/64	5-15/32	5-37/64	7-1/2	2-1/32	3/4	1/8	YES	S22715222222
3xD	48.0	75.1	77.6	125.1	50	20	1/8*	YES	S22315222222
5xD	80.0	107.0	109.6	157.0	50	20	1/8*	YES	S22515222222
7xD	111.9	139.0	141.6	189.0	50	20	1/8*	YES	S22715222222

*Thread to BSP and ISO 7-1

Connection Accessories

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

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



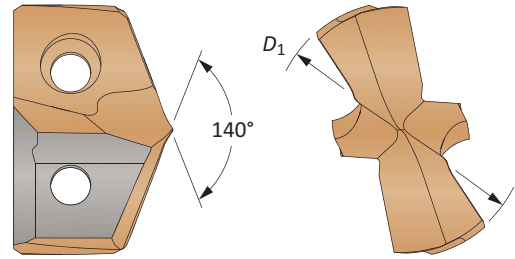
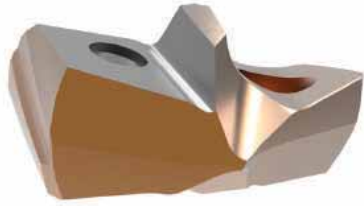
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

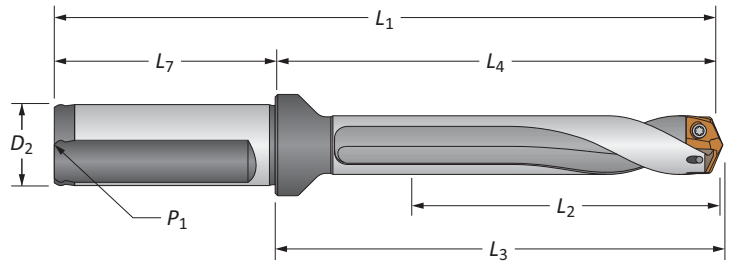
GEN3SYS® XT Structural Steel Drilling System

16 Series | Diameter Range: 0.6299" - 0.6692" (16.00mm - 16.99mm)



Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D ₁ inch	D ₁ mm	Structural Steel Part No.
C2 (K20)	-	0.6299	16.00	72100185



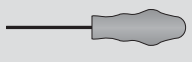
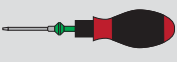
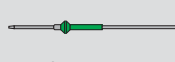


Holders

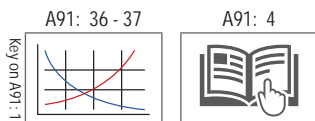
	Length	Body				Shank				Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁	???	
i	3xD	3-1/64	3-13/64	3-5/16	5-15/64	2-1/32	3/4	1/8	YES	S3100075
	5xD	3-23/64	4-17/32	4-21/32	6-9/16	2-1/32	3/4	1/8	YES	S5100075
	7xD	4-11/16	5-7/8	5-63/64	7-29/32	2-1/32	3/4	1/8	YES	S7100075
m	3xD	51.0	81.3	84.2	131.3	50	20	1/8*	YES	S31000200
	5xD	84.9	115.3	118.2	165.3	50	20	1/8*	YES	S51000200
	7xD	118.9	149.3	152.2	199.3	50	20	1/8*	YES	S71000200

*Thread to BSP and ISO 7-1

Connection Accessories

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

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



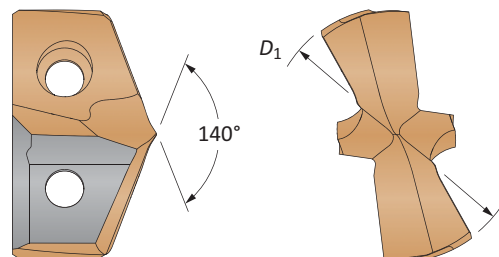
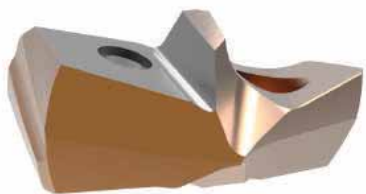
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10





NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

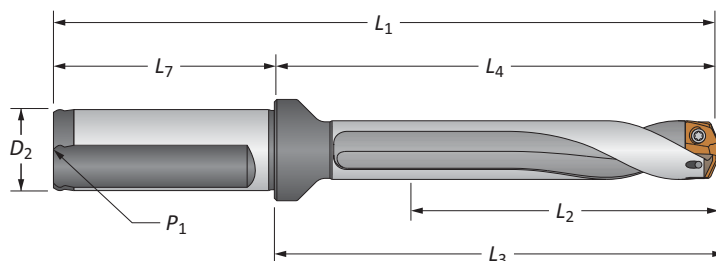
GEN3SYS® XT Structural Steel Drilling System

17 Series | Diameter Range: 0.6693" - 0.7086" (17.00mm - 17.99mm)






















Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D ₁ inch	D ₁ mm	Structural Steel Part No.
C2 (K20)	11/16	0.6875	17.46	7  217  225 








Holders

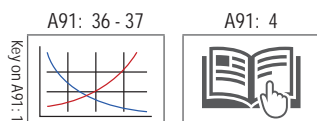
Length	Body				Shank					Part No.
	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
i 3xD	2-1/8	3-5/16	3-27/64	5-11/32	2-1/32	3/4	1/8	YES	S  317  75 	
i 5xD	3-35/64	4-23/32	4-27/32	6-3/4	2-1/32	3/4	1/8	YES	S  517  75 	
i 7xD	4-31/32	6-9/64	6-1/4	8-11/64	2-1/32	3/4	1/8	YES	S  717  75 	
m 3xD	54.0	84.1	87.0	134.1	50	20	1/8*	YES	S  317  75 	
m 5xD	89.9	120.0	122.9	170.0	50	20	1/8*	YES	S  517  75 	
m 7xD	125.9	156.0	158.9	206.0	50	20	1/8*	YES	S  717  75 	

*Thread to BSP and ISO 7-1

Connection Accessories

					Admissible Tightening Torque*
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	
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 $\mu = 0.14$ and develop 90% of ultimate yield strength



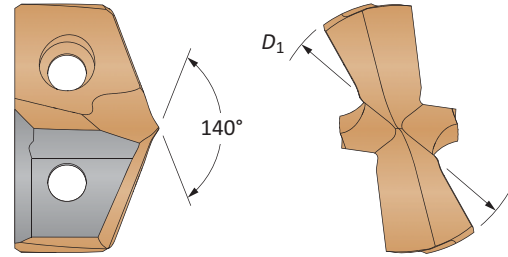
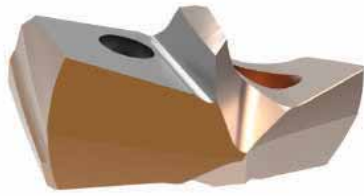
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

GEN3SYS® XT Structural Steel Drilling System

18 Series | Diameter Range: 0.7087" - 0.7873" (18.00mm - 19.99mm)



Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D_1 inch	D_1 mm	Structural Steel Part No.
C2 (K20)	-	0.7087	18.00	7210018S

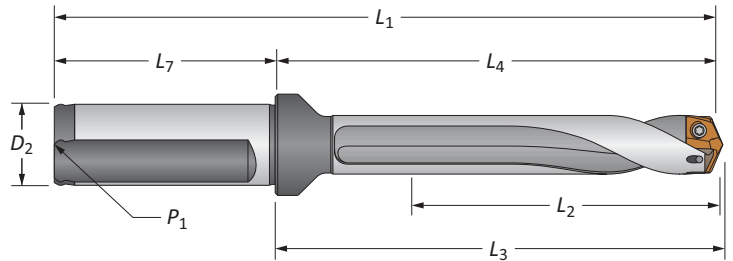
DRILLING

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BORING

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REAMING



Holders

Length	Body				Shank				Flute	Part No.
	L_2	L_4	L_3	L_1	L_7	D_2	P_1			
i 3xD	2-3/8	3-45/64	3-53/64	5-63/64	2-9/32	1	1/8	YES	S23100075	
i 5xD	3-15/16	5-9/32	5-25/64	7-9/16	2-9/32	1	1/8	YES	S25100075	
i 7xD	5-33/64	6-27/32	6-31/32	9-1/8	2-9/32	1	1/8	YES	S27100075	
m 3xD	60.0	94.0	97.1	144.0	50	20	1/8*	YES	S231000200	
m 5xD	99.9	134.0	137.1	184.0	50	20	1/8*	YES	S251000200	
m 7xD	139.9	174.0	177.1	224.0	50	20	1/8*	YES	S271000200	

*Thread to BSP and ISO 7-1



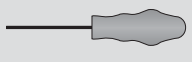
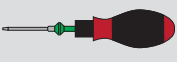
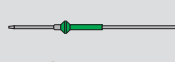
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BURNISHING

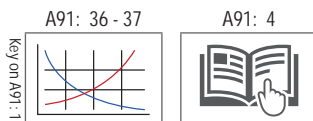
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THREADING

Connection Accessories

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

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



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

Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

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SPECIALS


2

 DRILLING | Structural Steel Replaceable Insert Drilling System

GEN3SYS® XT Structural Steel Drilling System

20 Series | Diameter Range: 0.7874" - 0.8660" (20.00mm - 21.99mm)

Inserts






Insert				
Carbide Substrate	Fractional Equivalent	D_1 inch	D_1 mm	Structural Steel Part No.
C2 (K20)	-	0.7874	20.00	7222222222
	13/16	0.8125	20.64	7222222222

Holders

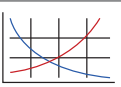
Length	Body				Shank				Part No.
	L_2	L_4	L_3	L_1	L_7	D_2	P_1	???	
3xD	2-17/32	3-15/16	4-1/16	6-7/32	2-9/32	1	1/8	YES	S322222222
5xD	4-11/32	5-43/64	5-51/64	7-61/64	2-9/32	1	1/8	YES	S522222222
7xD	6-1/16	7-13/32	7-17/32	9-11/16	2-9/32	1	1/8	YES	S722222222
3xD	66.0	100.1	103.3	156.1	56	25	1/8*	YES	S3222222522
5xD	110.0	144.1	147.2	200.1	56	25	1/8*	YES	S5222222522
7xD	153.9	188.1	191.2	244.1	56	25	1/8*	YES	S7222222522


*Thread to BSP and ISO 7-1

Connection Accessories

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

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

A91: 36 - 37 

A91: 4 

Key on A91: 1

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

Inserts sold in multiples of 1 | Screws sold in multiples of 10

NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

A91: 14

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DRILLING

BORING

REAMING

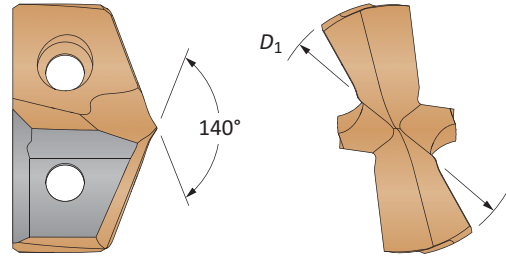
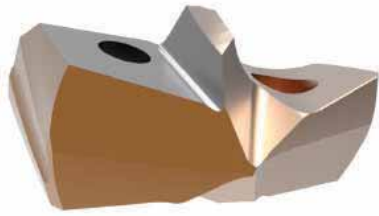
BURNISHING

THREADING


SPECIALS

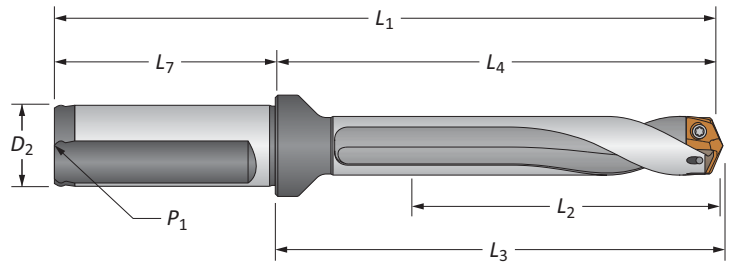
GEN3SYS® XT Structural Steel Drilling System

22 Series | Diameter Range: 0.8661" - 0.9448" (22.00mm - 23.99mm)



Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D ₁ inch	D ₁ mm	Structural Steel Part No.
C2 (K20)	-	0.8661	22.00	7-222-22S
	7/8	0.8750	22.23	7-222-22.25S
	15/16	0.9375	23.81	7-222-23.75S




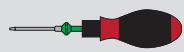



Holders

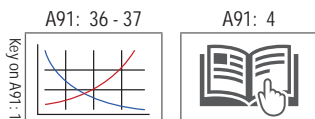
Length	Body				Shank				Part No.	
	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁	???		
i	3xD	2-53/64	4-9/64	4-9/32	6-27/64	2-9/32	1	1/8	YES	S-322-25
	3xD	2-53/64	4-9/64	4-9/32	6-27/64	2-9/32	1	1/8	YES	S-3225-25
	5xD	4-23/32	6-1/32	6-11/64	8-5/16	2-9/32	1	1/8	YES	S-522-25
	5xD	4-23/32	6-1/32	6-11/64	8-5/16	2-9/32	1	1/8	YES	S-5225-25
	7xD	6-39/64	7-59/64	8-1/16	10-13/64	2-9/32	1	1/8	YES	S-722-25
	7xD	6-39/64	7-59/64	8-1/16	10-13/64	2-9/32	1	1/8	YES	S-7225-25
m	3xD	72.0	105.3	108.7	161.3	56	25	1/8*	YES	S-322-25
	3xD	72.0	105.3	108.7	161.3	56	25	1/8*	YES	S-3225-25
	5xD	119.9	153.3	156.7	209.3	56	25	1/8*	YES	S-522-25
	5xD	119.9	153.3	156.7	209.3	56	25	1/8*	YES	S-5225-25
	7xD	167.9	201.3	204.7	257.3	56	25	1/8*	YES	S-722-25
	7xD	167.9	201.3	204.7	257.3	56	25	1/8*	YES	S-7225-25

*Thread to BSP and ISO 7-1 | **Oversized body holder (minimum drill diameter = 23mm)

Connection Accessories

					Admissible Tightening Torque*
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	
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 $\mu = 0.14$ and develop 90% of ultimate yield strength



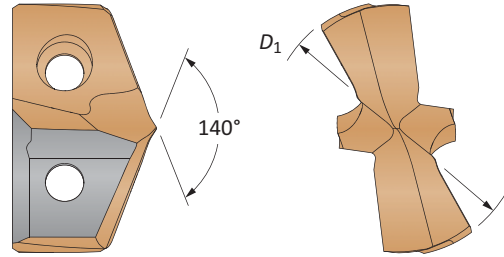
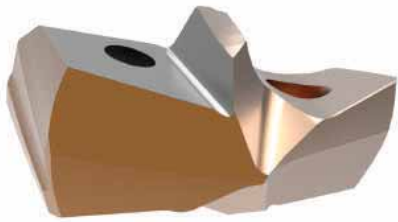
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

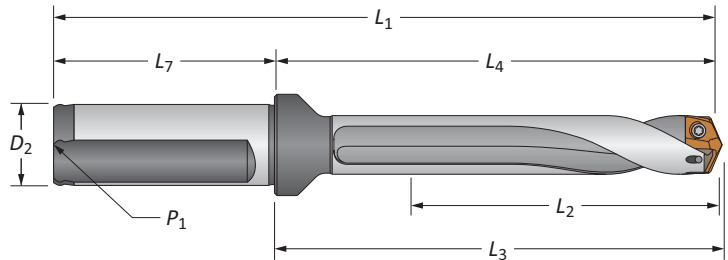
GEN3SYS® XT Structural Steel Drilling System

24 Series | Diameter Range: 0.9449" - 1.0235" (24.00mm - 25.99mm)




Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D ₁ inch	D ₁ mm	Structural Steel Part No.
C2 (K20)	-	0.9449	24.00	722424S
	1	1.0000	25.40	722425S








Holders

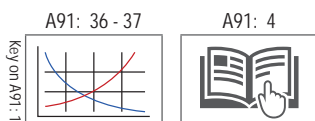
Length	Body				Shank				Part No.
	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁		
i 3xD	3-5/64	4-31/64	4-5/8	6-49/64	2-9/32	1	1/8	YES	S32425
i 5xD	5-1/8	6-17/32	6-21/32	8-13/16	2-9/32	1	1/8	YES	S52425
i 7xD	7-11/64	8-37/64	8-45/64	10-55/64	2-9/32	1	1/8	YES	S72425
m 3xD	78.0	113.8	117.3	169.8	56	25	1/8*	YES	S32425
m 5xD	129.9	165.8	169.2	221.8	56	25	1/8*	YES	S52425
m 7xD	181.9	217.8	221.2	273.8	56	25	1/8*	YES	S72425

*Thread to BSP and ISO 7-1

Connection Accessories

					Admissible Tightening Torque*
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	
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 $\mu = 0.14$ and develop 90% of ultimate yield strength



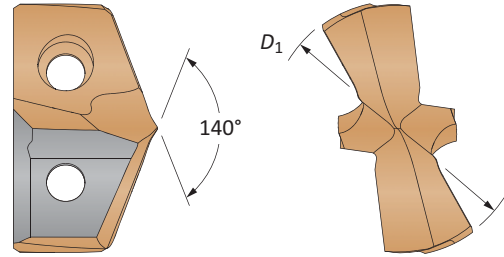
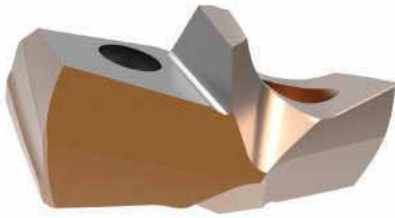
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10






























NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

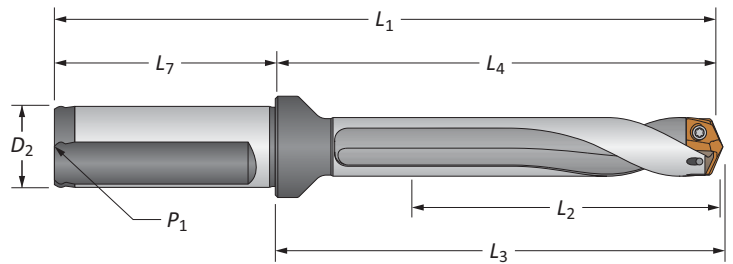
GEN3SYS® XT Structural Steel Drilling System

26 Series | Diameter Range: 1.0236" - 1.1416" (26.00mm - 28.99mm)




























Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D ₁ inch	D ₁ mm	Structural Steel Part No.
C2 (K20)	-	1.0236	26.00	7  22  22  1  2  S  S
	1-1/16	1.0625	26.99	7  22  22  1  2  S  S
	-	1.0630	27.00	7  22  22  2  S  S
	-	1.1024	28.00	7  22  22  2  S  S
	1-1/8	1.1250	28.58	7  22  22  1  4  S  S








Holders

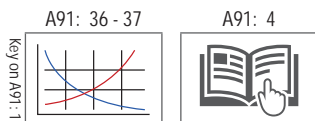
Length	Body				Shank				Part No.	
	L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁			
i	3xD	3-27/64	5-1/16	5-3/16	7-11/32	2-9/32	1-1/4	1/4	YES	S  32  2  2  S
	5xD	5-23/32	7-11/32	7-31/64	9-5/8	2-9/32	1-1/4	1/4	YES	S  52  2  2  S
	7xD	7-63/64	9-5/8	9-49/64	11-29/32	2-9/32	1-1/4	1/4	YES	S  72  2  2  S
m	3xD	87.0	128.1	131.4	188.1	60	32	1/4*	YES	S  32  2  2  S
	5xD	145.0	186.1	189.4	246.1	60	32	1/4*	YES	S  52  2  2  S
	7xD	202.9	244.0	247.4	304.0	60	32	1/4*	YES	S  72  2  2  S

*Thread to BSP and ISO 7-1

Connection Accessories

					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 $\mu = 0.14$ and develop 90% of ultimate yield strength



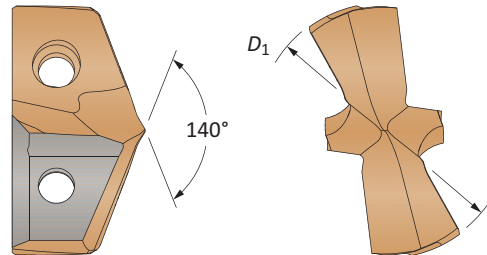
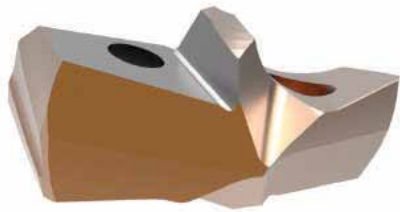
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

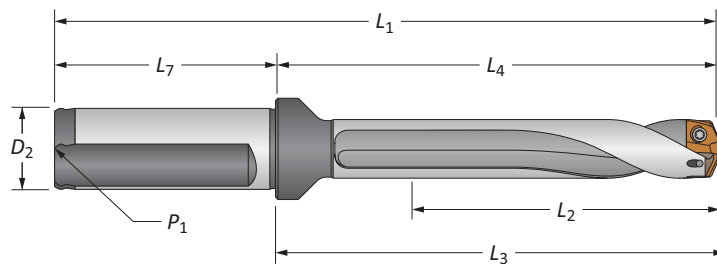
GEN3SYS® XT Structural Steel Drilling System

29 Series | Diameter Range: 1.1417" - 1.2597" (29.00mm - 31.99mm)




Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D_1 inch	D_1 mm	Structural Steel Part No.
C2 (K20)	-	1.1417	29.00	7222222222
	-	1.1811	30.00	7222222222
	1-3/16	1.1875	30.16	7222222122
	-	1.2205	31.00	7222222122
	1-1/4	1.2500	31.75	7222222122








Holders

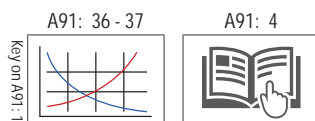
Length	Body				Shank				Part No.
	L_2	L_4	L_3	L_1	L_7	D_2	P_1		
3xD	3-25/32	5-3/8	5-33/64	7-21/32	2-9/32	1-1/4	1/4	YES	S2232222222
5xD	6-19/64	7-29/32	8-3/64	10-3/16	2-9/32	1-1/4	1/4	YES	S2252222222
7xD	8-13/16	10-27/64	10-9/16	12-45/64	2-9/32	1-1/4	1/4	YES	S2272222222
3xD	96.0	136.2	139.7	196.2	60	32	1/4*	YES	S2232222222
5xD	159.9	200.1	203.7	260.1	60	32	1/4*	YES	S2252222222
7xD	223.9	264.1	267.7	324.1	60	32	1/4*	YES	S2272222222

*Thread to BSP and ISO 7-1

Connection Accessories

					Admissible Tightening Torque*
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	
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 $\mu = 0.14$ and develop 90% of ultimate yield strength



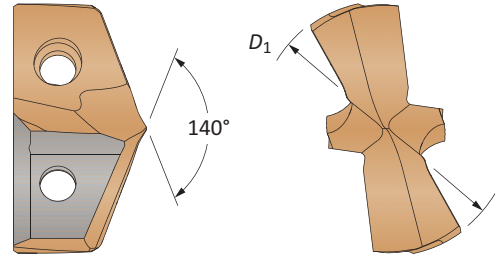
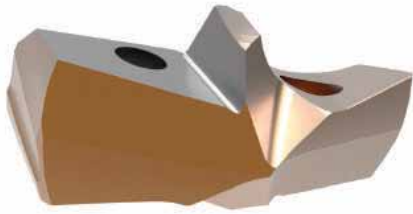
i = Imperial (in)
m = Metric (mm)

Inserts sold in multiples of 1 | Screws sold in multiples of 10


NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

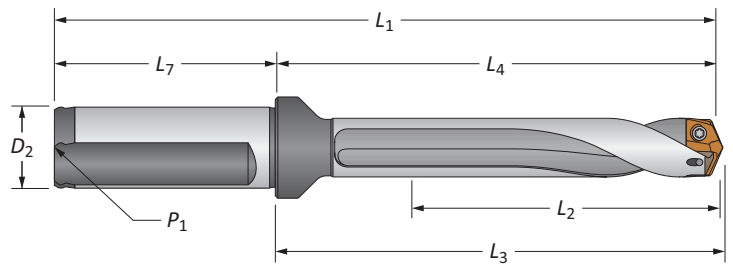
GEN3SYS® XT Structural Steel Drilling System

32 Series | Diameter Range: 1.2598" - 1.3780" (32.00mm - 35.00mm)



Inserts

Insert				
Carbide Substrate	Fractional Equivalent	D ₁ inch	D ₁ mm	Structural Steel Part No.
C2 (K20)	-	1.2598	32.00	7-232-2S
	-	1.2992	33.00	7-232-3S
	1-5/16	1.3125	33.34	7-232-11S
	1-3/8	1.3750	34.93	7-232-112S




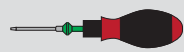



Holders

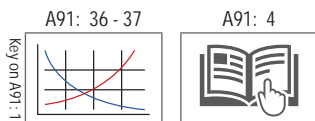
	Length	Body				Shank				Part No.
		L ₂	L ₄	L ₃	L ₁	L ₇	D ₂	P ₁	��	
i	3xD	4-9/64	6-7/32	6-3/8	8-29/32	2-11/16	1-1/2	1/4	YES	S-332-2S
	5xD	6-59/64	8-31/32	9-1/8	11-21/32	2-11/16	1-1/2	1/4	YES	S-532-15S
	7xD	9-41/64	11-23/32	11-57/64	14-13/32	2-11/16	1-1/2	1/4	YES	S-732-15S
m	3xD	105.0	157.7	162.0	217.7	60	32	1/4*	YES	S-332-2M
	5xD	105.0	157.7	162.0	227.7	70	40	1/4*	YES	S-332-4M
	5xD	175.0	227.7	232.0	287.7	60	32	1/4*	YES	S-532-2M
	5xD	175.0	227.7	232.0	297.7	70	40	1/4*	YES	S-532-4M
	7xD	244.9	297.7	302.2	357.7	60	32	1/4*	YES	S-732-2M
7xD	244.9	297.7	302.2	367.7	70	40	1/4*	YES	S-732-4M	

*Thread to BSP and ISO 7-1

Connection Accessories

					Admissible Tightening Torque*
Insert Screws	Nylon Locking Screws	Insert Driver	Preset Torque Hand Driver	Replacement Tips	
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 $\mu = 0.14$ and develop 90% of ultimate yield strength



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

Inserts sold in multiples of 1 | Screws sold in multiples of 10

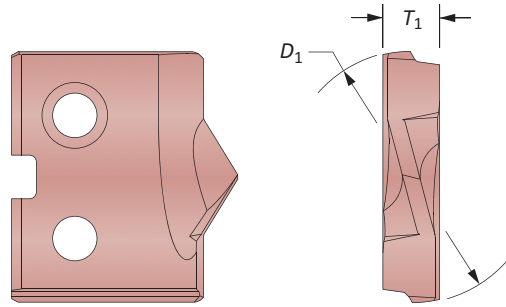
NOTICE: Structural Steel GEN3SYS XT holders are specifically designed to be used only with ST geometry inserts. Using other GEN3SYS XT or XT Pro insert geometries in these holders could lead to chip packing and tool failure. Contact Application Engineering for questions regarding proper use of tools.

Original T-A® Structural Steel Drill Inserts

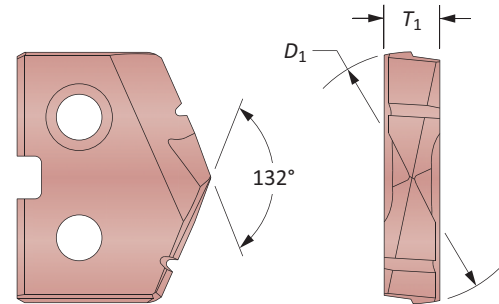
0 Series | Diameter Range: 0.5512" - 0.6875" (14.00mm - 17.46mm)



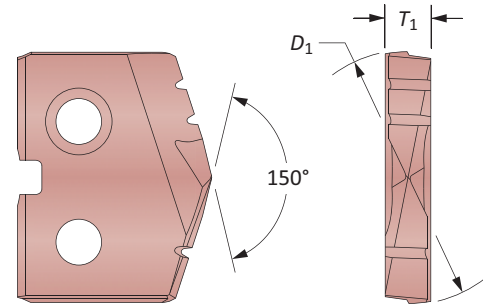
Thin Wall
For material up to 7/16" thick



Notch Point®
For material over 7/16" thick

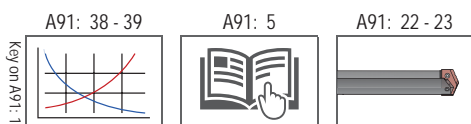


150° Structural Steel
For material over 7/16" thick and for reduced exit burr



HSS Inserts | Sintered Cobalt

Series	Insert				Thin Wall		Notch Point		150° Structural Steel	
	Fractional Equivalent	D ₁ inch	D ₁ mm	T ₁	AM200 Part No.	TiAlN Part No.	AM200 Part No.	TiAlN Part No.	AM200 Part No.	TiAlN Part No.
0	-	0.5512	14.00	1/8	150H-14-TW	1500014000	150H-14-NP	1500014000	150H-14-SS	150001405S
	9/16	0.5625	14.29	1/8	150H-0018-TW	15000018000	150H-0018-NP	15000018000	150H-0018-SS	1500001805S
0.5	5/8	0.6250	15.88	1/8	150H-0020-TW	15000020000	150H-0020-NP	15000020000	150H-0020-SS	1500002005S
	11/16	0.6875	17.46	1/8	150H-0022-TW	15000022000	150H-0022-NP	15000022000	150H-0022-SS	1500002205S



Inserts sold in multiples of 2

DRILLING

BORING

REAMING

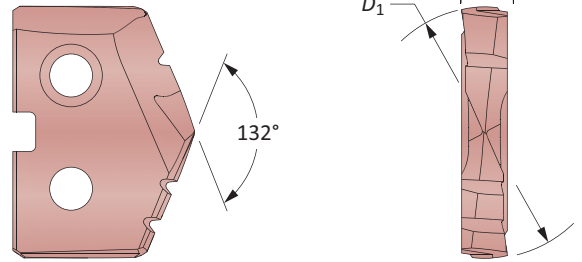
BURNISHING

THREADING



SPECIALS

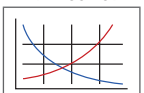

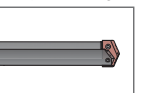
GEN2 T-A® Structural Steel Drill Inserts

0 Series | Diameter Range: 0.5512" - 0.6875" (14.00mm - 17.46mm)



HSS Inserts  | Carbide Inserts 

Series	Fractional Equivalent	Insert			Part No.	
		D_1 inch	D_1 mm	T_1	 Sber Bob	 C1 (K35)
0	-	0.5512	14.00	1/8	450H-14-HE	4C10H-14-HE
	9/16	0.5625	14.29	1/8	450H-0018-HE	4C10H-0018-HE
0.5	5/8	0.6250	15.88	1/8	450H-0020-HE	4C10H-0020-HE
	-	0.6299	16.00	1/8	450H-16-HE	4C10H-16-HE
	11/16	0.6875	17.46	1/8	450H-0022-HE	4C10H-0022-HE

A91: 38 - 39  A91: 5  A91: 22 - 23 

Key on A91: 1

Inserts sold in multiples of 2

DRILLING

BORING

REAMING

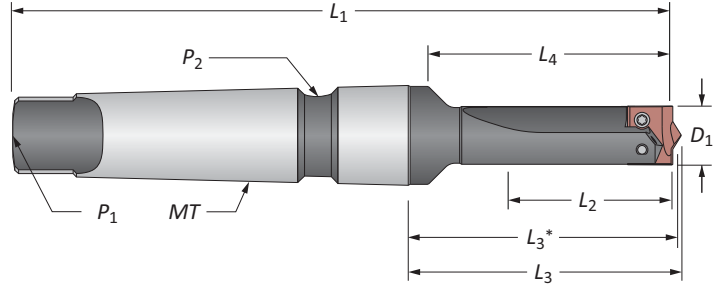
BURNISHING

THREADING

SPECIALS

T-A® Structural Steel Drill Insert Holders

0 Series | Taper Shank



Straight Flute #3 Morse Taper

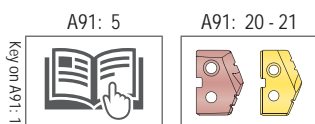
Series	Length	D ₁	Body					Shank			Part No.	
			L ₂	L ₄	L ₃	L ₃ [□]	L ₁	MT	P ₁	P ₂		
i	0	Short	9/16	1-3/8	2-3/16	2-35/64	2-31/64	6-1/16	#3	TTC	TSC	2222S0033523
	0.5	Short	5/8	1-3/8	2-3/16	2-35/64	2-31/64	6-1/16	#3	TTC	TSC	2225S0033524
		Short	11/16	1-3/8	2-3/16	2-35/64	2-31/64	6-1/16	#3	TTC	TSC	2225S00335244
m	0	Short	14	35	56	64.7	63.1	154	#3	TTC	TSC	2222S0033523
		Short	16	35	56	64.7	63.1	154	#3	TTC	TSC	2222S0033524
		Short	17.5	35	56	64.7	63.1	154	#3	TTC	TSC	2222S00335244

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

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 $\mu = 0.14$ and develop 90% of ultimate yield strength

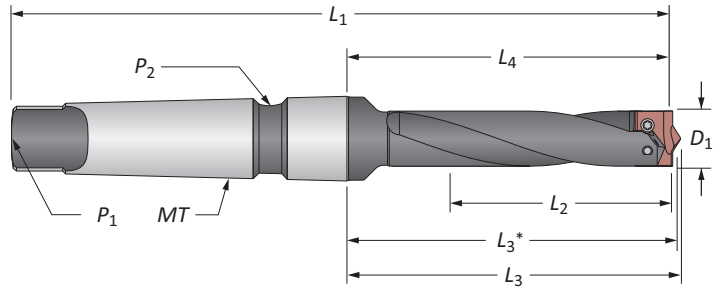


i = Imperial (in)
m = Metric (mm)
Screws sold in multiples of 10



T-A® Structural Steel Drill Insert Holders

O Series | Taper Shank



Helical Flute #3 Morse Taper

Series	Length	D ₁	Body					Shank			Part No.	
			L ₂	L ₄	L ₃	L ₃ [Ⓜ]	L ₁	MT	P ₁	P ₂		
i	0	Standard	9/16	2-1/2	3-5/16	3-43/64	3-39/64	7-3/16	#3	TTC	TSC	24000H-003IS036
		Extended	9/16	6-1/2	9-7/16	9-51/64	9-19/32	13-5/64	#3	TTC	TSC	25000H-003IS036
	0.5	Standard	5/8	2-1/2	3-5/16	3-43/64	3-39/64	7-3/16	#3	TTC	TSC	24005H-003IS040
		Extended	11/16	6-1/2	9-7/16	9-51/64	9-19/32	13-5/64	#3	TTC	TSC	25005H-003IS044
m	0	Standard	14	64	84	93.3	91.7	183	#3	TTC	TSC	24000H-003IS036
		Extended	14	165	240	248.8	243.7	338	#3	TTC	TSC	25000H-003IS036
	0.5	Standard	16	64	84	93.3	91.7	183	#3	TTC	TSC	24005H-003IS040
		Extended	17.5	165	240	248.8	243.7	338	#3	TTC	TSC	25005H-003IS044

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

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

Screws sold in multiples of 10

Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A91: 35 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.

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

1

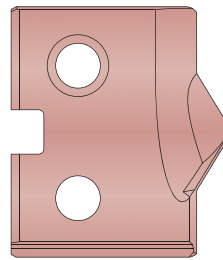
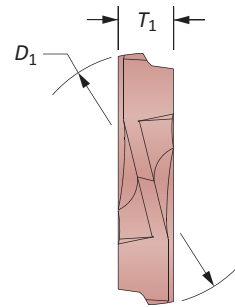
 DRILLING | Structural Steel Replaceable Insert Drilling System

Original T-A® Structural Steel Drill Inserts

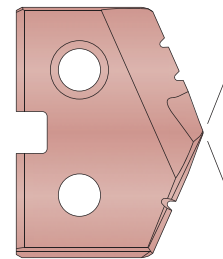
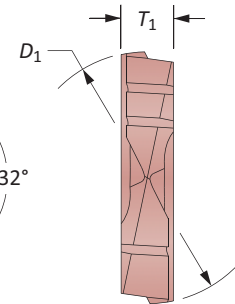
1 Series | Diameter Range: 0.7087" - 0.9449" (18.00mm - 24.00mm)



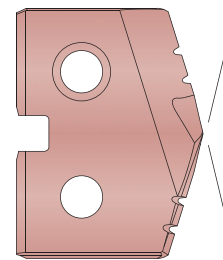
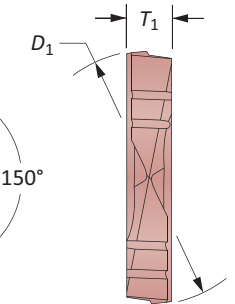
Thin Wall
For material up to 7/16" thick








Notch Point®
For material over 7/16" thick

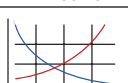

15% Stronger Steel
For material over 7/16" thick and for reduced exit burr






HSS Inserts  

Series	Insert					Thin Wall		Notch Point		15% Stronger Steel	
	Fractional Equivalent	D_1 inch	D_1 mm	T_1							
1	-	0.7087	18.00	5/32	151H-18-TW	151P21P2P2P2	151H-18-NP	151P21P2P2P2	151H-18-SS	151P21P2P2P2	
	13/16	0.8125	20.64	5/32	151H-0026-TW	151P22P2P2P2P2	151H-0026-NP	151P22P2P2P2P2	151H-0026-SS	151P22P2P2P2P2	
	-	0.8268	21.00	5/32	151H-21-TW	151P22P2P2P2	151H-21-NP	151P22P2P2P2	151H-21-SS	151P22P2P2P2	
	-	0.8661	22.00	5/32	151H-22-TW	151P22P2P2P2	151H-22-NP	151P22P2P2P2	151H-22-SS	151P22P2P2P2	
1.5	7/8	0.8750	22.23	5/32	151H-0028-TW	151P22P2P2P2P2	151H-0028-NP	151P22P2P2P2P2	151H-0028-SS	151P22P2P2P2P2	
	15/16	0.9375	23.81	5/32	151H-0030-TW	151P22P2P2P2P2	151H-0030-NP	151P22P2P2P2P2	151H-0030-SS	151P22P2P2P2P2	
	-	0.9449	24.00	5/32	151H-24-TW	151P22P2P2P2	151H-24-NP	151P22P2P2P2	151H-24-SS	151P22P2P2P2	

Key on A91: 1

A91: 38 - 39 

A91: 5 

A91: 26 - 27 

Inserts sold in multiples of 2

A91: 24

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DRILLING

BORING

REAMING

BURNISHING

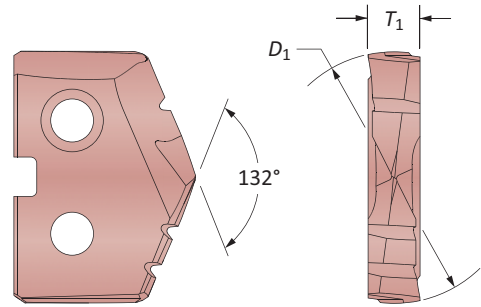
THREADING

SPECIALS



GEN2 T-A® Structural Steel Drill Inserts

1 Series | Diameter Range: 0.7087" - 0.9449" (18.00mm - 24.00mm)



HSS Inserts | Carbide Inserts

Series	Fractional Equivalent	Insert			Part No.	
		D_1 inch	D_1 mm	T_1	 Singer Bob	 C1 (K35)
1	-	0.7087	18.00	5/32	451H-18-HE	4C11H-18-HE
	13/16	0.8125	20.64	5/32	451H-0026-HE	4C11H-0026-HE
	-	0.8268	21.00	5/32	451H-21-HE	4C11H-21-HE
	-	0.8661	22.00	5/32	451H-22-HE	4C11H-22-HE
1.5	7/8	0.8750	22.23	5/32	451H-0028-HE	4C11H-0028-HE
	15/16	0.9375	23.81	5/32	451H-0030-HE	4C11H-0030-HE
	-	0.9449	24.00	5/32	451H-24-HE	4C11H-24-HE

Key on A91: 1

A91: 38 - 39

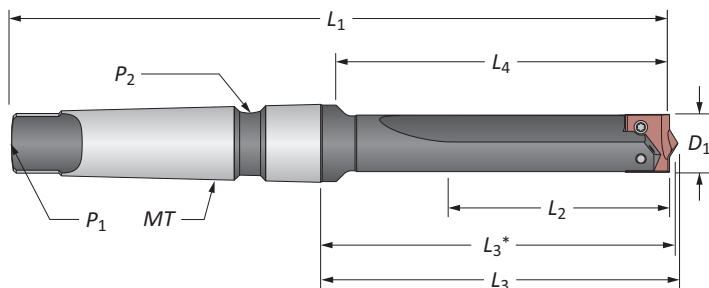
A91: 5

A91: 26 - 27

Inserts sold in multiples of 2

T-A® Structural Steel Drill Insert Holders

1 Series | Taper Shank



Straight Flute #3 Morse Taper

Series	Length	D_1	Body					Shank			Part No.	
			L_2	L_4	L_3	L_3^{\square}	L_1	MT	P_1	P_2		
i	1	Short	18mm	2-3/4	3-7/8	4-17/64	4-13/64	7-3/4	#3	TTC	TSC	22010S00045045
	1	Short	13/16	2-3/4	3-7/8	4-17/64	4-13/64	7-3/4	#3	TTC	TSC	22010S00045052
i	1.5	Short	7/8	2-3/4	3-7/8	4-17/64	4-13/64	7-3/4	#3	TTC	TSC	22015S00045050
	1.5	Short	15/16	2-3/4	3-7/8	4-17/64	4-13/64	7-3/4	#3	TTC	TSC	22015S00045000
m	1	Short	18	70	98	108.4	106.8	197	#3	TTC	TSC	22010S00045045
	1	Short	21	70	98	108.4	106.8	197	#3	TTC	TSC	22010S00045052
m	1.5	Short	22	70	98	108.4	106.8	197	#3	TTC	TSC	22015S00045050
	1.5	Short	24	70	98	108.4	106.8	197	#3	TTC	TSC	22015S00045000




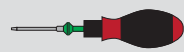

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

Straight Flute #4 Morse Taper

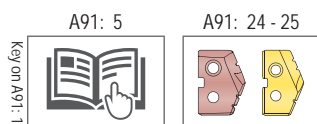
Series	Length	D_1	Body					Shank			Part No.	
			L_2	L_4	L_3	L_3^{\square}	L_1	MT	P_1	P_2		
i	1	Short	18mm	2-3/4	3-7/8	4-21/64	4-17/64	8-3/4	#4	TTC	TSC	22010S00045045
	1	Short	13/16	2-3/4	3-7/8	4-21/64	4-17/64	8-3/4	#4	TTC	TSC	22010S00045052
i	1.5	Short	7/8	2-3/4	3-7/8	4-21/64	4-17/64	8-3/4	#4	TTC	TSC	22015S00045050
	1.5	Short	15/16	2-3/4	3-7/8	4-21/64	4-17/64	8-3/4	#4	TTC	TSC	22015S00045000
m	1	Short	18	70	98	109.9	108.3	222	#4	TTC	TSC	22010S00045045
	1	Short	21	70	98	109.9	108.3	222	#4	TTC	TSC	22010S00045052
m	1.5	Short	22	70	98	109.9	108.3	222	#4	TTC	TSC	22015S00045050
	1.5	Short	24	70	98	109.9	108.3	222	#4	TTC	TSC	22015S00045000

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

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 $\mu = 0.14$ and develop 90% of ultimate yield strength

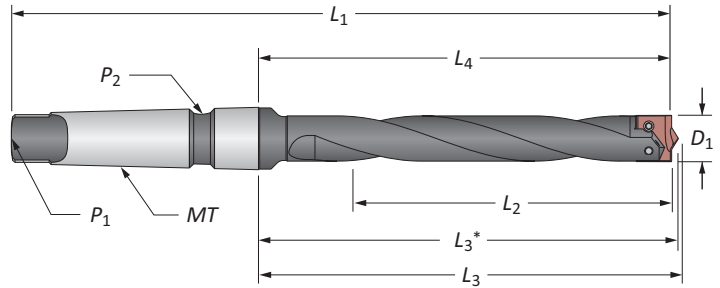


i = Imperial (in)
m = Metric (mm)

Screws sold in multiples of 10

T-A® Structural Steel Drill Insert Holders

1 Series | Taper Shank



Helical Flute #3 Morse Taper

Series	Length	D ₁	Body					Shank			Part No.	
			L ₂	L ₄	L ₃	L ₃ [□]	L ₁	MT	P ₁	P ₂		
i	1	Standard	18mm	4-3/4	5-7/8	6-17/64	6-13/64	9-3/4	#3	TTC	TSC	24010H-003IS045
		Standard	13/16	4-3/4	5-7/8	6-17/64	6-13/64	9-3/4	#3	TTC	TSC	24010H-003IS052
	Extended	18mm	6-1/2	9-11/32	9-47/64	9-1/2	13-7/32	#3	TTC	TSC	⚠ 25010H-003IS045	
	Extended	13/16	6-1/2	9-11/32	9-47/64	9-1/2	13-7/32	#3	TTC	TSC	⚠ 25010H-003IS052	
1.5	Standard	7/8	4-3/4	5-7/8	6-17/64	6-13/64	9-3/4	#3	TTC	TSC	24015H-003IS056	
	Standard	15/16	4-3/4	5-7/8	6-17/64	6-13/64	9-3/4	#3	TTC	TSC	24015H-003IS060	
	Extended	15/16	6-1/2	9-11/32	9-47/64	9-15/32	13-7/32	#3	TTC	TSC	⚠ 25015H-003IS060	
m	1	Standard	18	121	149	159.2	157.6	248	#3	TTC	TSC	24010H-003IS045
		Standard	21	121	149	159.2	157.6	248	#3	TTC	TSC	24010H-003IS052
		Extended	18	165	237	247.3	241.3	336	#3	TTC	TSC	⚠ 25010H-003IS045
		Extended	22	165	237	247.3	241.3	336	#3	TTC	TSC	⚠ 25010H-003IS052
	1.5	Standard	22	121	149	159.2	157.6	248	#3	TTC	TSC	24015H-003IS056
		Standard	24	121	149	159.2	157.6	248	#3	TTC	TSC	24015H-003IS060
		Extended	24	165	237	247.3	234.5	336	#3	TTC	TSC	⚠ 25015H-003IS060

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry


Helical Flute #4 Morse Taper

Series	Length	D ₁	Body					Shank			Part No.	
			L ₂	L ₄	L ₃	L ₃ [□]	L ₁	MT	P ₁	P ₂		
i	1	Standard	18mm	4-3/4	5-7/8	6-21/64	6-17/64	10-3/4	#4	TTC	TSC	24010H-004IS045
		Standard	13/16	4-3/4	5-7/8	6-21/64	6-17/64	10-3/4	#4	TTC	TSC	24010H-004IS052
		Extended	13/16	6-1/2	9-9/32	9-47/64	9-43/64	14-5/32	#4	TTC	TSC	⚠ 25010H-004IS052
		Long	13/16	6-1/2	15-25/32	16-15/64	16-11/64	20-21/32	#4	TTC	TSC	⚠ 26010H-004IS052
	1.5	Standard	7/8	4-3/4	5-7/8	6-21/64	6-17/64	10-3/4	#4	TTC	TSC	24015H-004IS056
		Standard	15/16	4-3/4	5-7/8	6-21/64	6-17/64	10-3/4	#4	TTC	TSC	24015H-004IS060
m	1	Extended	15/16	6-1/2	9-9/32	9-47/64	9-43/64	14-5/32	#4	TTC	TSC	⚠ 25015H-004IS060
		Long	15/16	6-1/2	15-13/16	16-17/64	16-13/64	20-11/16	#4	TTC	TSC	⚠ 26015H-004IS060
		Standard	18	121	149	159.2	157.6	248	#4	TTC	TSC	24010H-004IS045
		Standard	21	121	149	159.2	157.6	248	#4	TTC	TSC	24010H-004IS052
	1.5	Extended	22	165	237	247.3	241.3	336	#4	TTC	TSC	⚠ 25010H-004IS052
		Long	22	165	237	247.3	241.3	336	#4	TTC	TSC	⚠ 26010H-004IS052
		Standard	22	121	149	159.2	157.6	248	#4	TTC	TSC	24015H-004IS056
		Standard	24	121	149	159.2	157.6	248	#4	TTC	TSC	24015H-004IS060
1.5	Extended	24	165	237	247.3	234.5	336	#4	TTC	TSC	⚠ 25015H-004IS060	
	Long	24	165	237	247.3	234.5	336	#4	TTC	TSC	⚠ 26015H-004IS060	

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

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

Screws sold in multiples of 10

 Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A91: 35 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.

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

2

DRILLING | Structural Steel Replaceable Insert Drilling System

Original T-A® Structural Steel Drill Inserts

2 Series | Diameter Range: 1.0000" - 1.3750" (25.40mm - 34.93mm)

Thin Wall
For material up to 7/16" thick

Notch Point®
For material over 7/16" thick

150° Structural Steel
For material over 7/16" thick and for reduced exit burr

HSS Inserts

Series	Insert					Thin Wall		Notch Point		150° Structural Steel	
	Fractional Equivalent	D_1 inch	D_1 mm	T_1							
2	1	1.0000	25.40	3/16	152H-0100-TW	152P02100000	152H-0100-NP	152P02100000	152H-0100-SS	152P02100000	
	-	1.0236	26.00	3/16	152H-26-TW	152P02260000	152H-26-NP	152P02260000	152H-26-SS	152P02260000	
	1-1/16	1.0625	26.99	3/16	152H-0102-TW	152P02102000	152H-0102-NP	152P02102000	152H-0102-SS	152P02102000	
	-	1.0630	27.00	3/16	152H-27-TW	152P02270000	152H-27-NP	152P02270000	152H-27-SS	152P02270000	
2.5	1-1/8	1.1250	28.58	3/16	152H-0104-TW	152P02104000	152H-0104-NP	152P02104000	152H-0104-SS	152P02104000	
	1-3/16	1.1875	30.16	3/16	152H-0106-TW	152P02106000	152H-0106-NP	152P02106000	152H-0106-SS	152P02106000	
	-	1.2205	31.00	3/16	152H-31-TW	152P02310000	152H-31-NP	152P02310000	152H-31-SS	152P02310000	
	1-1/4	1.2500	31.75	3/16	152H-0108-TW	152P02108000	152H-0108-NP	152P02108000	152H-0108-SS	152P02108000	
	-	1.2992	33.00	3/16	152H-33-TW	152P02330000	152H-33-NP	152P02330000	152H-33-SS	152P02330000	
	1-5/16	1.3125	33.34	3/16	152H-0110-TW	152P02110000	152H-0110-NP	152P02110000	152H-0110-SS	152P02110000	
	1-3/8	1.3750	34.93	3/16	152H-0112-TW	152P02112000	152H-0112-NP	152P02112000	152H-0112-SS	152P02112000	

A91: 38 - 39 A91: 5 A91: 30 - 31

Key on A91: 1

Inserts sold in multiples of 2

A91: 28

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DRILLING

BORING

REAMING

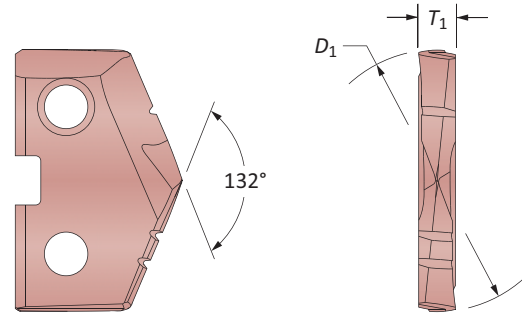
BURNISHING

THREADING

SPECIALS

GEN2 T-A® Structural Steel Drill Inserts

2 Series | Diameter Range: 1.0000" - 1.3750" (25.40mm - 34.93mm)



HSS Inserts | Carbide Inserts

Series	Fractional Equivalent	Insert			Part No.	
		D_1 inch	D_1 mm	T_1	Sber Bob	C1 (K35)
2	1	1.0000	25.40	3/16	452H-0100-HE	4C12H-0100-HE
	-	1.0236	26.00	3/16	452H-26-HE	4C12H-26-HE
	1-1/16	1.0625	26.99	3/16	452H-0102-HE	4C12H-0102-HE
	-	1.0630	27.00	3/16	452H-27-HE	4C12H-27-HE
	1-1/8	1.1250	28.58	3/16	452H-0104-HE	4C12H-0104-HE
2.5	1-3/16	1.1875	30.16	3/16	452H-0106-HE	4C12H-0106-HE
	-	1.2205	31.00	3/16	452H-31-HE	4C12H-31-HE
	1-1/4	1.2500	31.75	3/16	452H-0108-HE	4C12H-0108-HE
	-	1.2992	33.00	3/16	452H-33-HE	4C12H-33-HE
	1-5/16	1.3125	33.34	3/16	452H-0110-HE	4C12H-0110-HE
	1-3/8	1.3750	34.93	3/16	452H-0112-HE	4C12H-0112-HE

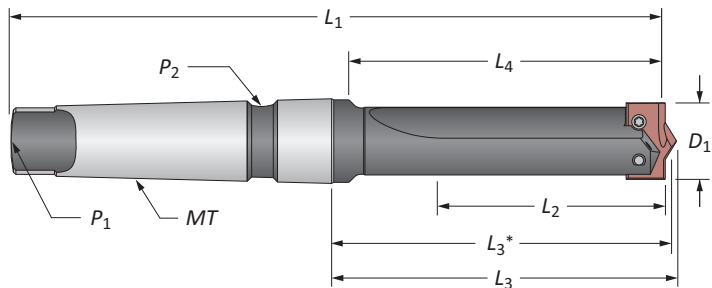
A91: 38 - 39 A91: 5 A91: 30 - 31

Key on A91: 1

Inserts sold in multiples of 2

T-A® Structural Steel Drill Insert Holders

2 Series | Taper Shank




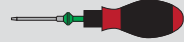



Straight Flute #4 Morse Taper

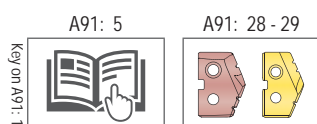
Series	Length	D_1	Body					Shank			Part No.	
			L_2	L_4	L_3	L_3^{\square}	L_1	MT	P_1	P_2		
i	2	Short	1 - 1-3/8	3-3/8	4-1/2	4-63/64	4-57/64	9-3/8	#4	TTC	TSC	220255007405107
	2.5	Short	1-3/16 - 1-3/8	3-3/8	4-1/2	4-63/64	4-57/64	9-3/8	#4	TTC	TSC	220255007405112
m	2	Short	26	86	114	126.6	124.2	238	#4	TTC	TSC	220255007405107
	2.5	Short	31	86	114	126.6	124.2	238	#4	TTC	TSC	220255007405112

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

Connection Accessories

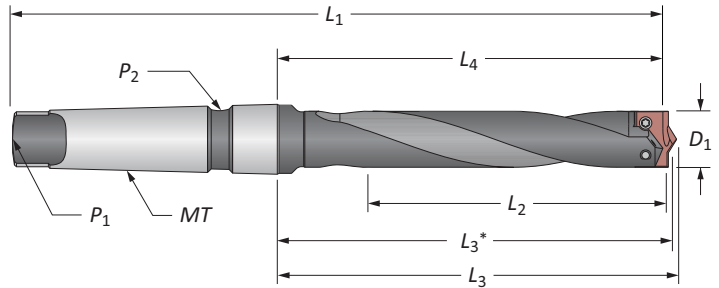
Series	 Insert Screws	 Nylon Locking Screws	 Insert Driver	 Preset Torque Hand Driver	 Replacement Tips	Admissible Tightening Torque*
2	7495-IP15-1	7495N-IP15-1	8IP-15	8IP-15TL	8IP-15B	61.0 in-lbs (690 N-cm)
2.5	7495-IP15-1	7495N-IP15-1	8IP-15	8IP-15TL	8IP-15B	61.0 in-lbs (690 N-cm)

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



T-A® Structural Steel Drill Insert Holders

2 Series | Taper Shank



Helical Flute #3 Morse Taper

Series	Length	D ₁	Body					Shank			Part No.
			L ₂	L ₄	L ₃	L ₃ [□]	L ₁	MT	P ₁	P ₂	
i 2	Extended	1 - 1-3/8	6-1/2	9-11/32	9-3/4	9-29/64	13-7/32	#3	TTC	TSC	25020H-003IS100
m 2	Extended	26	165	237	247.7	240.1	336	#3	TTC	TSC	25020H-003IS100

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

Helical Flute #4 Morse Taper

Series	Length	D ₁	Body					Shank			Part No.
			L ₂	L ₄	L ₃	L ₃ [□]	L ₁	MT	P ₁	P ₂	
i 2	Standard	1 - 1-3/8	5-3/8	6-1/2	6-63/64	6-57/64	11-3/8	#4	TTC	TSC	24020H-004IS100
	Extended	1 - 1-3/8	6-1/2	9-7/32	9-3/4	9-43/64	15-5/32	#4	TTC	TSC	25020H-004IS100
	Long	1 - 1-3/8	6-1/2	16	16-15/32	16-25/64	20-7/8	#4	TTC	TSC	26020H-004IS100
i 2.5	Standard	1-3/16 - 1-3/8	5-3/8	6-1/2	6-63/64	6-57/64	11-3/8	#4	TTC	TSC	24025H-004IS112
m 2	Standard	26	137	165	177.4	175.0	289	#4	TTC	TSC	24020H-004IS100
	Extended	26	165	237	247.7	240.1	336	#4	TTC	TSC	25020H-004IS100
	Long	26	165	406	418.3	416.3	530	#4	TTC	TSC	26020H-004IS100
	Standard	31	137	165	177.4	175.0	289	#4	TTC	TSC	24025H-004IS112

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

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

Screws sold in multiples of 10

⚠ Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page A91: 35 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.

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS

3

DRILLING | Structural Steel Replaceable Insert Drilling System

Original T-A® Structural Steel Drill Inserts

3 Series | Diameter Range: 1.4375" - 1.5625" (36.51mm - 39.69mm)

Thin Wall
For material up to 7/16" thick

Notch Point®
For material over 7/16" thick

15° Structural Steel
For material over 7/16" thick and for reduced exit burr

HSS Inserts

Insert				Thin Wall		Notch Point		15° Structural Steel	
Fractional Equivalent	D_1 inch	D_1 mm	T_1						
				AM200 Part No.	TiAlN Part No.	AM200 Part No.	TiAlN Part No.	AM200 Part No.	TiAlN Part No.
1-7/16	1.4375	36.51	1/4	153H-0114-TW	153 114	153H-0114-NP	153 114	153H-0114-SS	153 114 SS
1-1/2	1.5000	38.10	1/4	153H-0116-TW	153 116	153H-0116-NP	153 116	153H-0116-SS	153 116 SS
-	1.5354	39.00	1/4	153H-39-TW	153 39	153H-39-NP	153 39	153H-39-SS	153 39 SS
1-9/16	1.5625	39.69	1/4	153H-0118-TW	153 118	153H-0118-NP	153 118	153H-0118-SS	153 118 SS

SPECIALS

A91: 38 - 39 A91: 5 A91: 34

Key on A91: 1

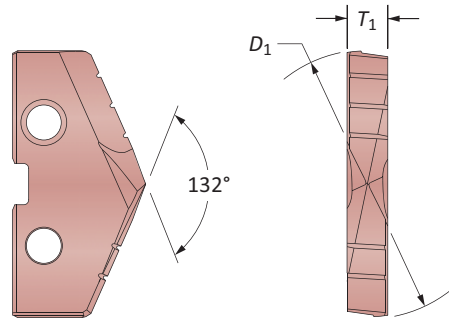
Inserts sold in multiples of 1

A91: 32

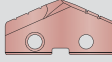
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GEN2 T-A® Structural Steel Drill Inserts

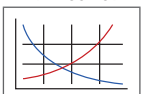
3 Series | Diameter Range: 1.4375" - 1.5625" (36.51mm - 39.69mm)



HSS Inserts    


Fractional Equivalent	Insert			Part No.  Sinter Carbide
	D_1 inch	D_1 mm	T_1	
1-7/16	1.4375	36.51	1/4	453H-0114-HE
1-1/2	1.5000	38.10	1/4	453H-0116-HE
-	1.5354	39.00	1/4	453H-39-HE
1-9/16	1.5625	39.69	1/4	453H-0118-HE

A91: 38 - 39

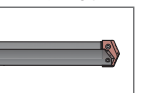


Key on A91: 1

A91: 5



A91: 34

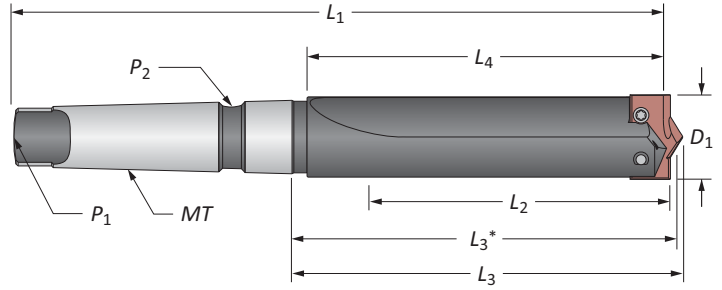


Inserts sold in multiples of 1

T-A® Structural Steel Drill Insert Holders

3 Series | Taper Shank

DRILLING



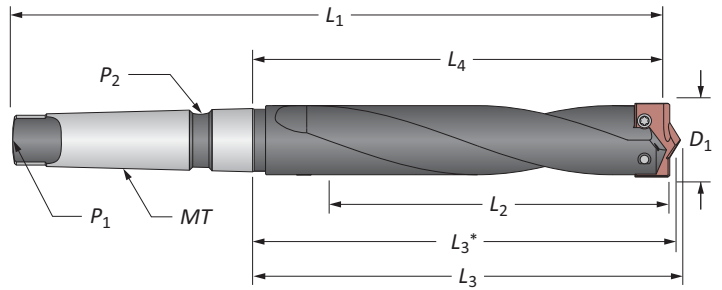
Straight Flute #4 Morse Taper

Length	D ₁	Body					Shank			Part No.
		L ₂	L ₄	L ₃	L ₃ [Ⓜ]	L ₁	MT	P ₁	P ₂	
i Short	1-13/32 - 1-7/8	4-3/4	6	6-1/2	6-7/16	10-7/8	#4	TTC	TSC	22030H-004S126

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

BORING

REAMING



Helical Flute #4 Morse Taper

Length	D ₁	Body					Shank			Part No.
		L ₂	L ₄	L ₃	L ₃ [Ⓜ]	L ₁	MT	P ₁	P ₂	
i Standard	1-13/32 - 1-7/8	6-1/2	7-3/4	8-1/4	8-3/16	12-5/8	#4	TTC	TSC	24030H-004IS126

*If using Structural Steel holder with Notch Point®, GEN2 T-A, or 150° Structural Steel T-A drill insert geometry

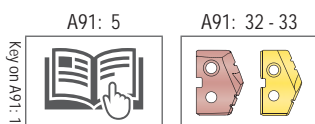
BURNISHING

THREADING

Connection Accessories

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

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

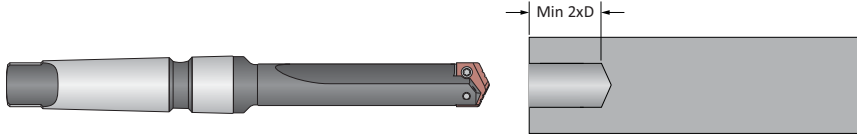
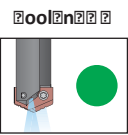

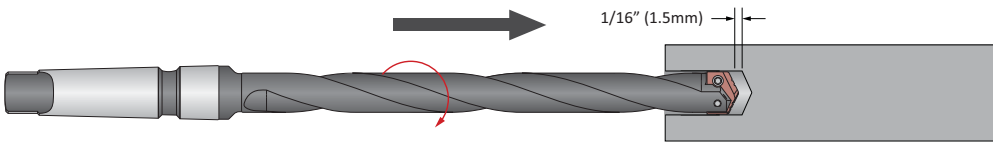
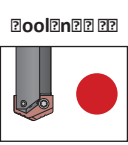
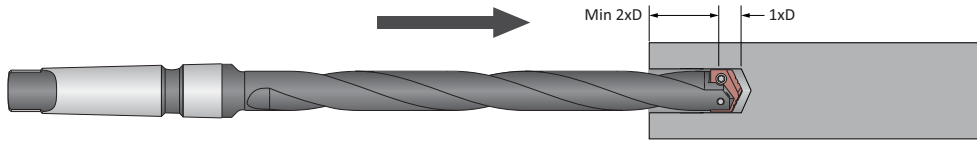
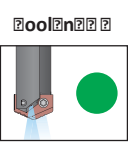
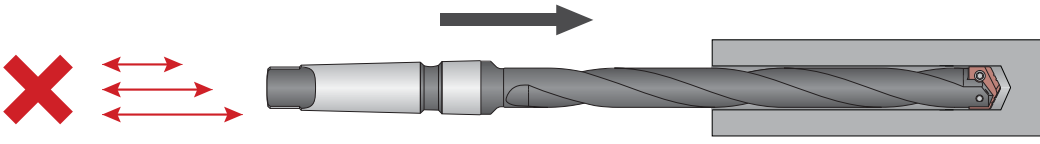
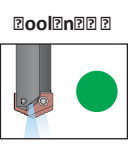
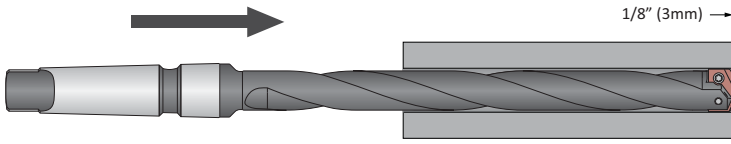
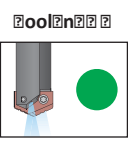

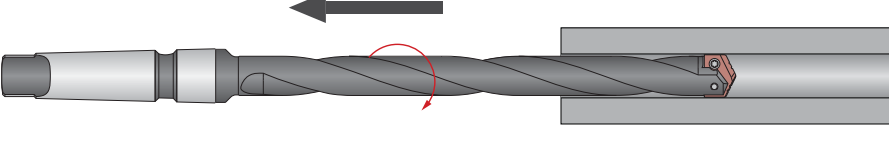
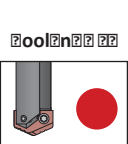



i = Imperial (in)
m = Metric (mm)
 Screws sold in multiples of 10

SPECIALS

Deep Hole Drilling Guidelines

For Use with Drills Greater than 9xD (Extended, Long, XL, 3XL, and Special Length)

<p>1. Pilot Hole 100 % RPM 100% IPR (mm/rev)</p>	<p>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.</p> 	
<p> 2. Feed-in 50 RPM max 12 IPM (300 mm/min)</p>	<p>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.</p> 	
<p>3. Deep Hole Transition Drilling 50 % RPM 75% IPR (mm/rev)</p>	<p>Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed. Minimum of 1 second dwell is required to meet full speed before feeding.</p> 	
<p>4. Deep Hole Drilling - Blind 100% RPM 100% IPR (mm/rev)</p>	<p>Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts. <i>No peck cycle recommended.</i></p> 	
<p>5. Deep Hole Drilling - at Breakout 50% RPM 75% IPR (mm/rev)</p>	<p>For through holes only: Reduce speed by 50% and feed by 25% prior to breakout. Do not breakout more than 1/8" (3mm) past the full diameter of the drill.</p> 	
<p> 6. Drill Retract 50 RPM max</p>	<p>Reduce speed to a maximum of 50 RPM before retracting from the hole.</p> 	

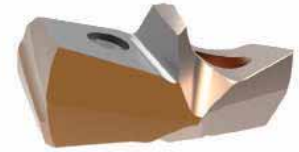
 **Tool failure can cause serious injury. To prevent:**

- 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 holders 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.

Recommended Cutting Data

GEN3SYS® XT



Imperial (inch)

	Speed (SFM) - Mist Coolant		Feed Rate (IPR) by Diameter			
	Hardness (BHN)	AM300 Speed	12 series	14 series	15 series	16 series
Structural Steel A36, A285, A516, A572, etc.	100 - 150	350	0.008	0.010	0.010	0.012
	150 - 250	300	0.007	0.009	0.009	0.010
	250 - 350	260	0.006	0.008	0.008	0.009

Metric (mm)

	Speed (M/mm) - Mist Coolant		Feed Rate (mm/rev) by Diameter			
	Hardness (BHN)	AM300 Speed	12 series	14 series	15 series	16 series
Structural Steel A36, A285, A516, A572, etc.	100 - 150	107	0.20	0.25	0.25	0.30
	150 - 250	91	0.18	0.23	0.23	0.25
	250 - 350	79	0.15	0.20	0.20	0.23

Speed and Feed Multiplier

	Depth of Cut	
	<= 1.5xD	> 1.5xD
Speed	See above chart	0.75
Feed	See above chart	0.90

NOTE: The speeds and feeds listed above are based on a rigid setup using air mist through tool coolant. Speed may be increased up to 50% if using high pressure flood or through coolant.

NOTE: If drilling dry without coolant, speed must be reduced significantly based on setup, drill depth, and material hardness. Up to 50% speed and feed reduction may be necessary in these types of applications. Contact the Application Engineering department for assistance.

NOTE: If drilling material thickness of 0.500" (12.7mm) or less, a minimum of 10% reduction in feed is required to minimize material deflection.

Feed Rate (IPR) by Diameter

17 series 0.6693 - 0.7086	18 series 0.7087 - 0.7873	20 series 0.7874 - 0.8660	22 series 0.8661 - 0.9448	24 series 0.9449 - 1.0235	26 series 1.0236 - 1.1416	29 series 1.1417 - 1.2597	32 series 1.2598 - 1.3780
0.012	0.014	0.015	0.016	0.017	0.018	0.019	0.019
0.010	0.012	0.014	0.015	0.016	0.017	0.018	0.018
0.009	0.011	0.012	0.013	0.014	0.015	0.016	0.016

Feed Rate (mm/rev) by Diameter

17 series 17.00 - 17.99	18 series 18.00 - 19.99	20 series 20.00 - 21.99	22 series 22.00 - 23.99	24 series 24.00 - 25.99	26 series 26.00 - 28.99	29 series 29.00 - 31.99	32 series 32.00 - 35.00
0.30	0.36	0.38	0.41	0.43	0.46	0.48	0.48
0.25	0.30	0.36	0.38	0.41	0.43	0.46	0.46
0.23	0.28	0.30	0.33	0.36	0.38	0.41	0.41

Recommended Cutting Data | Imperial (inch)

Original T-A® | GEN2 T-A®

DRILLING



Thin Wall Inserts

Series 00000

Material	Speed (SFM) - Mist Coolant			Feed Rate (IPR) by Diameter			
	Hardness (BHN)	AM200 Speed	TiAlN Speed	0 series	1 series	2 series	3 series
Structural Steel A36, A285, A516, etc.	100 - 150	125	110	0.012	0.018	0.019	0.020
	150 - 250	115	100	0.011	0.016	0.017	0.019
	250 - 350	105	90	0.010	0.014	0.016	0.018

BORING



Notch Point® and 150° Structural Steel Inserts

Series 00000

Material	Speed (SFM) - Mist Coolant			Feed Rate (IPR) by Diameter			
	Hardness (BHN)	AM200 Speed	TiAlN Speed	0 series	1 series	2 series	3 series
Structural Steel A36, A285, A516, etc.	100 - 150	125	110	0.010	0.012	0.014	0.018
	150 - 250	115	100	0.009	0.011	0.012	0.016
	250 - 350	105	90	0.008	0.010	0.011	0.014

REAMING



GEN2 T-A Inserts

Series 00000

Material	Speed (SFM) - Mist Coolant			Feed Rate (IPR) by Diameter			
	Hardness (BHN)	AM200 Speed	TiAlN Speed	0 series	1 series	2 series	3 series
Structural Steel A36, A285, A516, etc.	100 - 150	125	110	0.010	0.012	0.014	0.018
	150 - 250	115	100	0.009	0.011	0.012	0.016
	250 - 350	105	90	0.008	0.010	0.011	0.014

BURNISHING

GEN2 T-A Inserts

Carbide C1 (K35)

Material	Speed (SFM) - Mist Coolant			Feed Rate (IPR) by Diameter			
	Hardness (BHN)	AM200 Speed	TiAlN Speed	0 series	1 series	2 series	3 series
Structural Steel A36, A285, A516, etc.	100 - 150	165	110	0.008	0.011	0.015	0.017
	150 - 250	155	100	0.006	0.010	0.013	0.015
	250 - 350	140	90	0.005	0.009	0.012	0.013

THREADING

SPECIALS

NOTE: The speeds and feeds listed above are based on a rigid setup using air mist through tool coolant. Speed may be increased up to 50% if using high pressure flood or through coolant.

NOTE: If drilling dry without coolant, speed must be reduced significantly based on setup, drill depth, and material hardness. Up to 50% speed and feed reduction may be necessary in these types of applications. Contact the Application Engineering department for assistance.



Recommended Cutting Data | Metric (mm)

Original T-A® | GEN2 T-A®



Thin Wall Inserts



Series 00000

Material	Speed (M/mm) - Mist Coolant			Feed Rate (mm/rev) by Diameter			
	Hardness (BHN)	 AM200 Speed	 TiAlN Speed	0 series 14 Ø1Ø	1 series 1Ø Ø24	2 series 25 Ø35	3 series 3Ø Ø47
Structural Steel A36, A285, A516, etc.	100 - 150	39	34	0.30	0.45	0.48	0.50
	150 - 250	35	31	0.28	0.40	0.43	0.48
	250 - 350	32	28	0.25	0.36	0.40	0.45



Notch Point® and 150° Structural Steel Inserts


Series 00000

Material	Speed (M/mm) - Mist Coolant			Feed Rate (mm/rev) by Diameter			
	Hardness (BHN)	 AM200 Speed	 TiAlN Speed	0 series 14 Ø1Ø	1 series 1Ø Ø24	2 series 25 Ø35	3 series 3Ø Ø47
Structural Steel A36, A285, A516, etc.	100 - 150	39	34	0.25	0.30	0.36	0.45
	150 - 250	35	31	0.23	0.28	0.30	0.40
	250 - 350	35	28	0.20	0.25	0.28	0.36




GEN2 T-A Inserts

Series 00000

Material	Speed (M/mm) - Mist Coolant		Feed Rate (mm/rev) by Diameter			
	Hardness (BHN)	 AM200 Speed	0 series 14 Ø1Ø	1 series 1Ø Ø24	2 series 25 Ø35	3 series 3Ø Ø47
Structural Steel A36, A285, A516, etc.	100 - 150	39	0.25	0.30	0.36	0.46
	150 - 250	35	0.23	0.28	0.30	0.40
	250 - 350	35	0.20	0.25	0.28	0.36

GEN2 T-A Inserts

Carbide C1 (K35)

Material	Speed (M/mm) - Mist Coolant		Feed Rate (mm/rev) by Diameter			
	Hardness (BHN)	 AM200 Speed	0 series 14 Ø1Ø	1 series 1Ø Ø24	2 series 25 Ø35	3 series 3Ø Ø47
Structural Steel A36, A285, A516, etc.	100 - 150	50	0.20	0.28	0.38	0.43
	150 - 250	47	0.15	0.25	0.33	0.38
	250 - 350	43	0.13	0.23	0.30	0.33

NOTE: The speeds and feeds listed above are based on a rigid setup using air mist through tool coolant. Speed may be increased up to 50% if using high pressure flood or through coolant.

NOTE: If drilling dry without coolant, speed must be reduced significantly based on setup, drill depth, and material hardness. Up to 50% speed and feed reduction may be necessary in these types of applications. Contact the Application Engineering department for assistance.



High Performance Multi-Step Action

Durable and precise, the AccuPort 432 holders provide a strong and rigid platform for the drilling of hydraulic ports. The precision ground insert location on each holder ensures total repeatability and simple, uncomplicated changing of the replaceable inserts.

With the AccuPort technology, you can drill and finish port forms in **ONE** operation. Save time and money with AccuPort.

Single operation hydraulic port cutting system	No pre-drilling required	Replaceable inserts eliminate regrinding and resetting
--	--------------------------	--

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.



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

WARNING 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.

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

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

AccuPort 432



Aerospace



Agriculture



Automotive



Marine / Shipbuilding

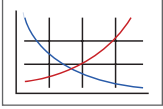
Reference Icons

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



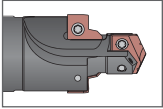
Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling



AccuPort 432 Holder

Refers to the full details of the holder items included in each kit



Recommended Kits

Lists the available kits complete with AccuPort tool and AccuThread™ solid carbide thread mill

Introduction Information

Product Overview 2 - 4
 Product Nomenclature 5

Port Specifications

SAE J-1926 / ISO 11926-1 / MS-16142 6 - 11
 ISO 6149-1:2006 / SAE J-2244/1 12 - 13
 SAE AS5202 / AND10050 14 - 15
 JDS-G173.1 16 - 17

Porting Pre-Drill Dimensions

SAE J-1926 / ISO 11926-1 / MS-16142 18 - 21
 ISO 6149-1:2006 / SAE J-2244/1 22 - 25
 SAE AS5202 / AND10050 26 - 27
 JDS-G173.1 28

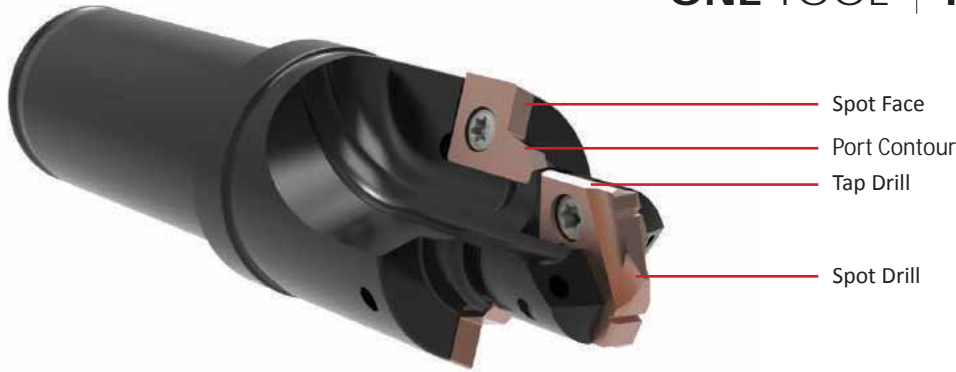
Recommended Cutting Data (Imperial)

Imperial (inch)		HSS 30 - 31
		Carbide 32 - 33
Metric (mm)		HSS 34 - 35
		Carbide 36 - 37



Proportional Performance

ONE TOOL | FOUR OPERATIONS


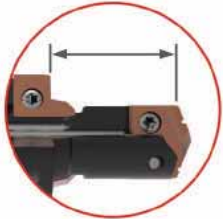








Advanced Solutions, Outstanding Results

As designers and manufacturing engineers push the limits of production technology to improve productivity and performance, Allied Machine has continued to innovate and develop new solutions like the unique AccuPort 432 hydraulic port contour cutter system. Every product in the AccuPort system is designed to deliver maximum performance in a diverse range of hydraulic port cutting applications and demanding manufacturing environments.

Using precision replaceable inserts for both the drilling and port forming operations, AccuPort eliminates the need for tool regrinding and enables absolute repeatability, excellent surface finish, and reduced cost-per-hole. The AccuPort drills, forms, and precision-finishes the hydraulic port in **one** pass. This replaces up to three separate cutting operations in a single tool to deliver outstanding improvements in productivity, accuracy, and repeatability.

Hydraulic systems are present in an incredibly diverse range of industries. Anywhere a hydraulic port is required, AccuPort can provide a more cost effective and higher performance solution in a fraction of the time taken for traditional methods using separate drills, special forming tools, and spot facers.

Port Specification	Options
 <p>Metric SAE J-1926 ISO 11926-1 MS-16142</p>	<p>Extended minor diameter length option also available</p> 
 <p>Imperial ISO 6149-1:2006 SAE J-2244/1</p>	<p>Holders made with ID ridge Utilizes inserts with or without ID ridge</p> <p> ID ridge</p> <p> No ID ridge</p> 
 <p>John Deere JDS-G173.1</p>	<p>Adheres to John Deere port standards</p>
 <p>Military SAE AS5202</p>	<p>Also conforms to AND10050 specification by using an alternate tap drill size for a UN thread</p>

DRILLING

BORING

REAMING

BURNISHING

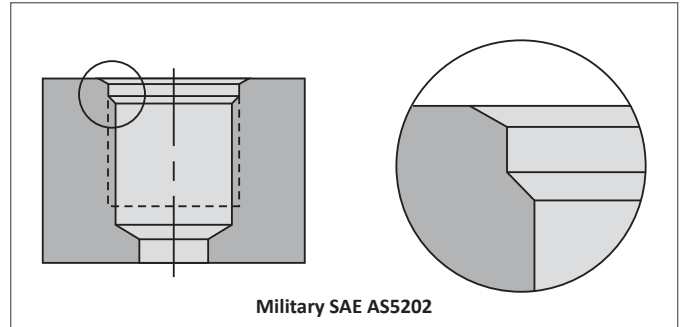
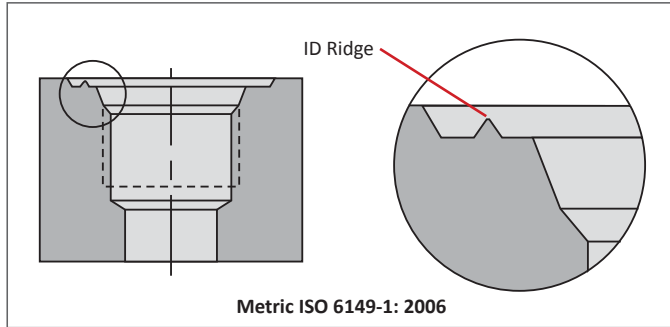
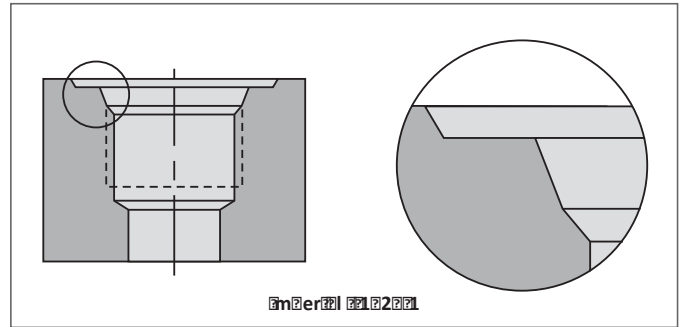
THREADING

SPECIALS



Choosing the Right System

Every product in the AccuPort 432 product line is designed to deliver maximum performance in a diverse range of hydraulic port cutting applications and demanding manufacturing environments. The innovative design delivers the best possible range of benefits in terms of productivity, cost-per-hole, and tool life.



Common Industry Sectors and Components



Aerospace
Pumps
Landing Gear
Brake Cylinders
Manifolds



Agriculture
Pumps
Manifolds
Cylinders and Rams
Gear Pumps



Automotive
Motor Valves
Relief Valves
Brake Cylinders
Power Steering Pumps

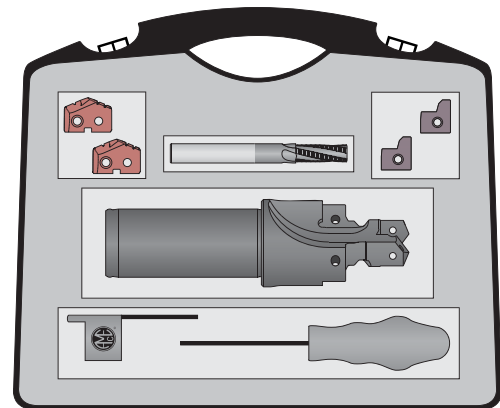


Marine / Shipbuilding
Pumps
Cylinders and Rams
Motors
Manifolds

The Complete Package

Producing fully finished threaded hydraulic ports has never been easier. The Port and Thread Finishing Kit includes the AccuPort 432 contour cutter with a dedicated AccuThread™ solid carbide threadmill in a single kit. You also receive the T-A® inserts and port form inserts needed to complete the assembly.

Port kits incorporate the AccuThread solid carbide threadmills to increase the manufacturing flexibility by allowing hydraulic ports to be produced in just two operations. In addition, where a unique port profile is required, Allied Machine provides a dedicated special tooling solution using our extensive tool design and manufacturing experience to meet precise specifications.



DRILLING
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Reliable Performance

T-A® Drill Insert Grades			
HSS Super Cobalt (Original T-A® / GEN2 T-A®)	Carbide C5 (P40) (Original T-A® only)	Carbide C1 (K10) (GEN2 T-A® only)	Carbide C3 (K35) (Original T-A® only)
Suited for good to rigid machining applications, used for drilling exotic and high alloy materials, or general use when surface speed needs to be increased for use in material hardness up to 350 BHN 121kg.	Excellent for drilling free machining steel, low/medium carbon steels, alloy steels, high strength steels, tool steels, and hardened steels.	Excellent for drilling free machining steel, low/medium carbon steels, alloy steels, high strength steels, tool steels, and hardened steels.	Designed for drilling grey/white cast irons. The special geometry offers substantial increases in penetration rates and provides exceptional edge strength and tool life.

Form		2	3
			
AM200®	TiAlN	AM200®	TiN

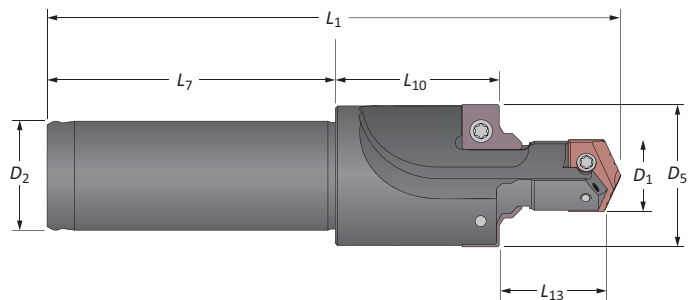
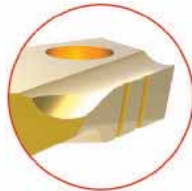
GEN2 T-A Standard Geometry

- Designed for rigid machining applications, primarily used for drilling exotic and high alloy materials
- Ideal for general use when the surface speed needs to be increased



Original T-A Standard Geometry

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



Made-to-Order Tool Specifications

Scan and email a copy of the table below to Allied's Application Engineering Department to receive pricing for a made-to-order AccuPort 432 Port Contour Cutter.

Send emails to appeng@alliedmachine.com

Tube Dash No.	Specification	Port Thread Size	D ₁	L ₁₃	D ₅	L ₁₀	L ₁	D ₂	L ₇
	<input type="checkbox"/> J1926 <input type="checkbox"/> ISO 6149 <input type="checkbox"/> ISO 6149 (no ridge) <input type="checkbox"/> JDS-G173.1 <input type="checkbox"/> AS5202								

Company Name **Phone**
Distributor Name **Fax**

DRILLING

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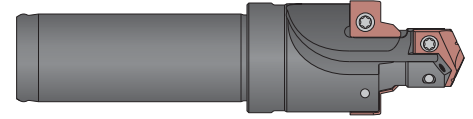
SPECIALS



AccuPort 432 Port Contour Cutters

AccuPort 432 Port Contour Cutters

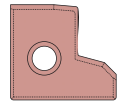
1	2	3	4
063F	04		063F



1 Port Specifications	2 Port Tube Dash No.	3 T-A® Insert Series	4 Shank Configuration																								
<ul style="list-style-type: none"> 063F = Imperial - J1926-1 075F = Imperial - J1926-1 (extended minor length) 100F = Metric (ISO) - 6149-1 125F = John Deere - G173.1 AS5202 = Military - AS5202 	<table border="1"> <tr><td>04</td><td>14</td></tr> <tr><td>05</td><td>18</td></tr> <tr><td>06</td><td>18</td></tr> <tr><td>08</td><td>20</td></tr> <tr><td>10</td><td>24</td></tr> <tr><td>12</td><td>32</td></tr> </table>	04	14	05	18	06	18	08	20	10	24	12	32	<ul style="list-style-type: none"> Y = Y series Z = Z series 0 = 0 series 1 = 1 series 2 = 2 series 3 = 3 series 4 = 4 series 	<table border="1"> <tr> <th>Imperial</th> <th>Metric</th> </tr> <tr> <td>063F = 5/8" flanged</td> <td>16mm = 16mm flanged</td> </tr> <tr> <td>075F = 3/4" flanged</td> <td>20FM = 20mm flanged</td> </tr> <tr> <td>100F = 1" flanged</td> <td>25FM = 25mm flanged</td> </tr> <tr> <td>125F = 1-1/4" flanged</td> <td>32mm = 32mm flanged</td> </tr> <tr> <td>150F = 1-1/2" flanged</td> <td></td> </tr> </table>	Imperial	Metric	063F = 5/8" flanged	16mm = 16mm flanged	075F = 3/4" flanged	20FM = 20mm flanged	100F = 1" flanged	25FM = 25mm flanged	125F = 1-1/4" flanged	32mm = 32mm flanged	150F = 1-1/2" flanged	
04	14																										
05	18																										
06	18																										
08	20																										
10	24																										
12	32																										
Imperial	Metric																										
063F = 5/8" flanged	16mm = 16mm flanged																										
075F = 3/4" flanged	20FM = 20mm flanged																										
100F = 1" flanged	25FM = 25mm flanged																										
125F = 1-1/4" flanged	32mm = 32mm flanged																										
150F = 1-1/2" flanged																											

AccuPort 432 Port Contour Cutters

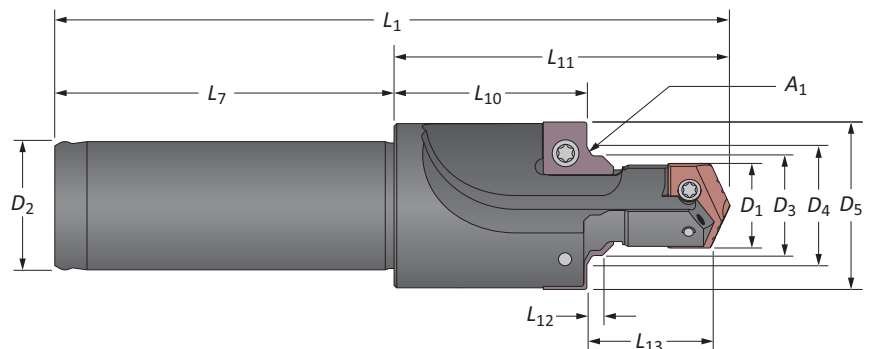
1	2	3	4	5
063F	02	R	C5	



1 Port Specifications	2 Insert Size	3 Port Specifications	4 Substrate	5. Coating																
<ul style="list-style-type: none"> 063F = Imperial 14mm = Metric (ISO) 1731 = John Deere AS5202 = Military 	<table border="1"> <tr><td>02</td><td>10</td></tr> <tr><td>03</td><td>11</td></tr> <tr><td>04</td><td>12</td></tr> <tr><td>05</td><td>14</td></tr> <tr><td>06</td><td>18</td></tr> <tr><td>07</td><td>20</td></tr> <tr><td>08</td><td>24</td></tr> <tr><td>09</td><td>32</td></tr> </table>	02	10	03	11	04	12	05	14	06	18	07	20	08	24	09	32	<ul style="list-style-type: none"> 063F = No ID ridge R = ID ridge 	<ul style="list-style-type: none"> C5 = C5 carbide 03 = C3 carbide 	<ul style="list-style-type: none"> TiAlN AM200®
02	10																			
03	11																			
04	12																			
05	14																			
06	18																			
07	20																			
08	24																			
09	32																			

Reference Key

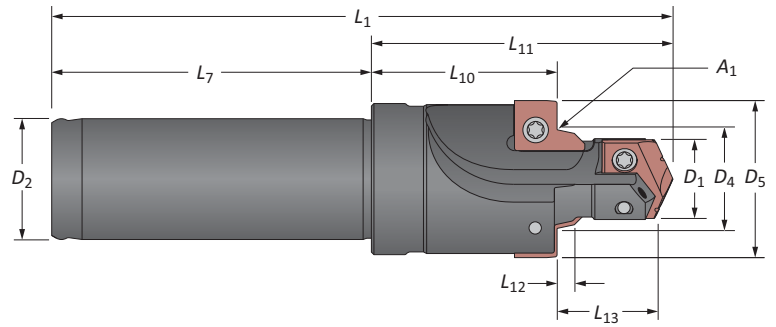
Symbol	Attribute
A ₁	Seal angle
D ₁	Minor diameter
D ₂	Shank diameter
D ₃	Pilot diameter
D ₄	Seal angle diameter
D ₅	Spot face diameter
L ₁	Overall length
L ₇	Shank length
L ₁₀	Spot face to shoulder length
L ₁₁	Total head length
L ₁₂	Seal angle length
L ₁₃	Minor diameter length



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BURNISHING
THREADING
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SAE J-1926 / ISO 11926-1 / MS-16142

Imperial Shank Holders



Dash	Cutting			Seal Angle			Diameter			Shank		Port Thread Size	Part No.
	D ₁	L ₁₃	D ₅	A ₁	D ₄	L ₁₂	L ₁₁	L ₁₀	L ₁	L ₇	D ₂		
-4	0.386	0.551	0.840	12°	0.490	0.106	1.527	0.896	3.402	1.875	0.625	7/16-20 UNF-2B	J1926-04Y-063F
-5	0.453	0.551	0.926	12°	0.553	0.106	1.527	0.885	3.402	1.875	0.625	1/2-20 UNF-2B	J1926-05Z-063F
-6	0.512	0.610	0.989	12°	0.618	0.106	1.857	1.144	3.826	1.969	0.750	9/16-18 UNF-2B	J1926-060-075F
-8	0.689	0.689	1.206	15°	0.813	0.106	1.982	1.150	3.951	1.969	0.750	3/4-16 UNF-2B	J1926-080-075F
-10	0.807	0.787	1.344	15°	0.945	0.106	2.140	1.185	4.421	2.281	1.000	7/8-14 UNF-2B	J1926-101-100F
-12	0.984	0.906	1.655	15°	1.150	0.138	2.640	1.530	4.921	2.281	1.250	1 1/16-12 UN-2B	J1926-122-125F
-14	1.102	0.906	1.781	15°	1.276	0.138	2.640	1.504	4.921	2.281	1.250	1 3/16-12 UN-2B	J1926-142-125F
-16	1.231	0.906	1.934	15°	1.400	0.138	2.640	1.477	4.921	2.281	1.250	1 5/16-12 UN-2B	J1926-162-125F
-20	1.535	0.906	2.306	15°	1.715	0.138	3.062	1.835	5.750	2.688	1.500	1 5/8-12 UN-2B	J1926-203-150F
-24	1.791	0.906	2.564	15°	1.965	0.138	3.062	1.778	5.750	2.688	1.500	1 7/8-12 UN-2B	J1926-243-150F
-32	2.421	0.906	3.470	15°	2.589	0.138	3.812	2.393	6.500	2.688	1.500	2 1/2-12 UN-2B	J1926-324-150F
-4	9.80	14.00	21.30	12°	12.50	2.70	38.80	22.80	86.40	47.60	15.90	7/16-20 UNF-2B	J1926-04Y-063F
-5	11.50	14.00	23.50	12°	14.10	2.70	38.80	22.50	86.40	47.60	15.90	1/2-20 UNF-2B	J1926-05Z-063F
-6	13.00	15.50	25.10	12°	15.70	2.70	47.20	29.00	97.20	50.00	19.10	9/16-18 UNF-2B	J1926-060-075F
-8	17.50	17.50	30.60	15°	20.70	2.70	50.30	29.20	100.40	50.00	19.10	3/4-16 UNF-2B	J1926-080-075F
-10	20.50	20.00	34.10	15°	24.00	2.70	54.40	30.10	112.30	57.90	25.40	7/8-14 UNF-2B	J1926-101-100F
-12	25.00	23.00	42.00	15°	29.20	3.50	67.10	38.90	125.00	57.90	31.80	1 1/16-12 UN-2B	J1926-122-125F
-14	28.00	23.00	45.20	15°	32.40	3.50	67.10	38.20	125.00	57.90	31.80	1 3/16-12 UN-2B	J1926-142-125F
-16	31.20	23.00	49.10	15°	35.60	3.50	67.10	37.50	125.00	57.90	31.80	1 5/16-12 UN-2B	J1926-162-125F
-20	39.00	23.00	58.50	15°	43.60	3.50	77.80	46.60	146.00	68.30	38.10	1 5/8-12 UN-2B	J1926-203-150F
-24	45.50	23.00	65.10	15°	49.90	3.50	77.80	45.20	146.00	68.30	38.10	1 7/8-12 UN-2B	J1926-243-150F
-32	61.50	23.00	88.10	15°	65.80	3.50	96.80	60.80	165.10	68.30	38.10	2 1/2-12 UN-2B	J1926-324-150F

*Port contour cutters are available with extended pilot length (L₁₃). See pages A92: 10-11 for items.

A92: 30 - 37 A92: 2 - 4 A92: 18 - 21

Key on A92: 1

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

DRILLING

BORING

REAMING

BURNISHING

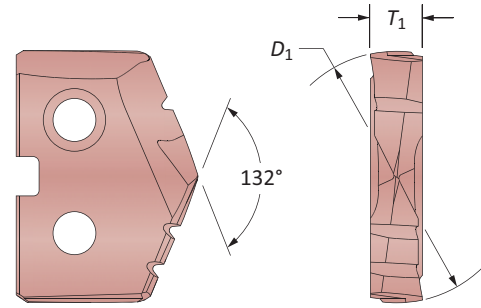
THREADING

SPECIALS



SAE J-1926 / ISO 11926-1 / MS-16142

Inserts



See section A3 for complete T-A insert details

Original T-A® / GEN2 T-A® Drill Inserts

Part Number	Part Number	Series	Super Cobalt	Coated	Insert Screw	Insert Driver	Recommended Torque
-4	J1926-04Y-063F	Y	45YH-.386	4C12H-063	724-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-5	J1926-05Z-063F	Z	45ZH-11.5	4C12H-11.5	7247-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-6	J1926-060-075F	0	450H-13	4C10H-13	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	J1926-080-075F	0	450H-0022	4C10H-0022	72567-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	J1926-101-100F	1	451H-20.5	4C11H-20.5	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-12	J1926-122-125F	2	452H-25	4C12H-25	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-14	J1926-142-125F	2	452H-28	4C12H-28	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-16	J1926-162-125F	2	452H-1.231	4C12H-1.231	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-20	J1926-203-150F	3	453H-39	1C53A-39	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-24	J1926-243-150F	3	453H-45.5	1C53A-45.5	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-32	J1926-324-150F	4	454H-61.5	1C53A-61.5	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)

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

Port Form Drill Inserts

Part Number	Part Number	C3 Carbide (AM200®)	C5 Carbide (TiAlN)	Insert Screw	Insert Driver	Recommended Torque
-4	J1926-04Y-063F	J1926-02-C3H	J1926-02-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-5	J1926-05Z-063F	J1926-03-C3H	J1926-03-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-6	J1926-060-075F	J1926-03-C3H	J1926-03-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	J1926-080-075F	J1926-07-C3H	J1926-07-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	J1926-101-100F	J1926-04-C3H	J1926-04-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-12	J1926-122-125F	J1926-08-C3H	J1926-08-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-14	J1926-142-125F	J1926-08-C3H	J1926-08-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-16	J1926-162-125F	J1926-09-C3H	J1926-09-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-20	J1926-203-150F	J1926-10-C3H	J1926-10-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-24	J1926-243-150F	J1926-11-C3H	J1926-11-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-32	J1926-324-150F	J1926-12-C3H	J1926-12-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)

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

A92: 30 - 37

A92: 2 - 4

A92: 18 - 21

Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

DRILLING

BORING

REAMING

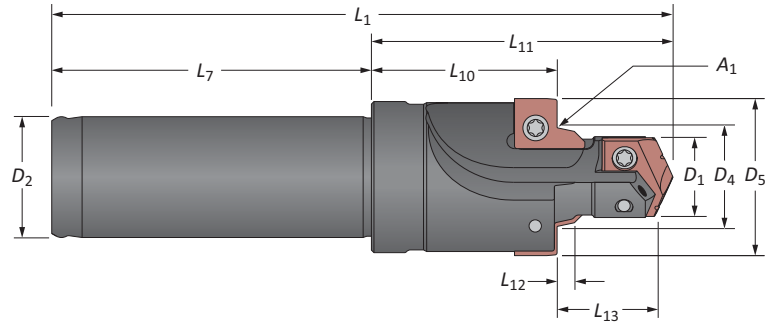
BURNISHING

THREADING

SPECIALS

SAE J-1926 / ISO 11926-1 / MS-16142

Metric Shank Holders



Dash Code	Cutting			Seal Angle			Holder			Shank		Port Thread Size	Part No.
	D ₁	L ₁₃	D ₅	A ₁	D ₄	L ₁₂	L ₁₁	L ₁₀	L ₁	L ₇	D ₂		
-4	0.386	0.551	0.840	12°	0.490	0.106	1.777	0.896	3.180	1.650	0.630	7/16-20 UNF-2B	J1926-04Y-16FM
-5	0.453	0.551	0.926	12°	0.553	0.106	1.777	0.885	3.650	1.650	0.630	1/2-20 UNF-2B	J1926-05Z-16FM
-6	0.512	0.610	0.989	12°	0.618	0.106	1.857	1.144	3.510	1.650	0.787	9/16-18 UNF-2B	J1926-06O-20FM
-8	0.689	0.689	1.206	15°	0.813	0.106	1.982	1.150	3.630	1.650	0.787	3/4-16 UNF-2B	J1926-08O-20FM
-10	0.807	0.787	1.344	15°	0.945	0.106	2.140	1.185	4.230	2.091	0.984	7/8-14 UNF-2B	J1926-10I-25FM
-12	0.984	0.906	1.655	15°	1.150	0.138	2.640	1.530	4.920	2.280	1.260	1 1/16-12 UN-2B	J1926-12Z-25FM
-14	1.102	0.906	1.781	15°	1.276	0.138	2.640	1.504	4.920	2.280	1.260	1 3/16-12 UN-2B	J1926-14Z-25FM
-16	1.231	0.906	1.934	15°	1.400	0.138	2.640	1.477	4.920	2.280	1.260	1 5/16-12 UN-2B	J1926-16Z-25FM
-20	1.535	0.906	2.306	15°	1.715	0.138	3.062	1.835	5.640	2.580	1.260	1 5/8-12 UN-2B	J1926-20Z-32FM*
-24	1.791	0.906	2.564	15°	1.965	0.138	3.062	1.778	5.640	2.580	1.260	1 7/8-12 UN-2B	J1926-24Z-32FM
-32	2.421	0.906	3.470	15°	2.589	0.138	3.812	2.393	6.390	2.580	1.260	2 1/2-12 UN-2B	J1926-32Z-32FM
<hr/>													
-4	9.80	14.00	21.30	12°	12.50	2.70	45.10	22.80	80.70	41.90	16.00	7/16-20 UNF-2B	J1926-04Y-16FM
-5	11.50	14.00	23.50	12°	14.10	2.70	45.10	22.50	92.80	41.90	16.00	1/2-20 UNF-2B	J1926-05Z-16FM
-6	13.00	15.50	25.10	12°	15.70	2.70	47.20	29.00	89.10	41.90	20.00	9/16-18 UNF-2B	J1926-06O-20FM
-8	17.50	17.50	30.60	15°	20.70	2.70	50.30	29.20	92.30	41.90	20.00	3/4-16 UNF-2B	J1926-08O-20FM
-10	20.50	20.00	34.10	15°	24.00	2.70	54.40	30.10	107.40	53.10	25.00	7/8-14 UNF-2B	J1926-10I-25FM
-12	25.00	23.00	42.00	15°	29.20	3.50	67.10	38.90	125.00	57.90	32.00	1 1/16-12 UN-2B	J1926-12Z-25FM
-14	28.00	23.00	45.20	15°	32.40	3.50	67.10	38.20	125.00	57.90	32.00	1 3/16-12 UN-2B	J1926-14Z-25FM
-16	31.20	23.00	49.10	15°	35.60	3.50	67.10	37.50	125.00	57.90	32.00	1 5/16-12 UN-2B	J1926-16Z-25FM
-20	39.00	23.00	58.50	15°	43.60	3.50	77.80	46.60	143.30	65.50	32.00	1 5/8-12 UN-2B	J1926-20Z-32FM*
-24	45.50	23.00	65.10	15°	49.90	3.50	77.80	45.20	143.30	65.50	32.00	1 7/8-12 UN-2B	J1926-24Z-32FM
-32	61.50	23.00	88.10	15°	65.80	3.50	96.80	60.80	162.30	65.50	32.00	2 1/2-12 UN-2B	J1926-32Z-32FM

***NOTICE:** Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

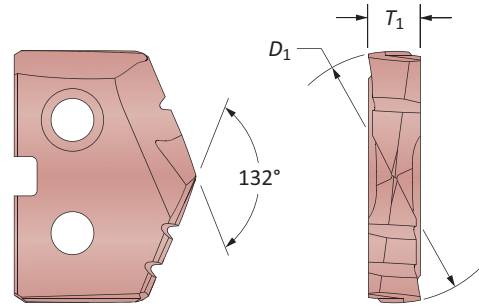
A92: 30 - 37 A92: 2 - 4 A92: 18 - 21

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



SAE J-1926 / ISO 11926-1 / MS-16142

Inserts



See section A3 for complete T-A insert details

Original T-A® / GEN2 T-A® Drill Inserts

Part Number	Part Number	Series	Super Cobalt	Coated	Insert Screw	Insert Driver	Recommended Torque
-4	J1926-04Y-16FM	Y	45YH-.386	4C10H-0022	724-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-5	J1926-05Z-16FM	Z	45ZH-11.5	4C12H-11.5	7247-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-6	J1926-060-20FM	0	450H-13	4C10H-13	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	J1926-080-20FM	0	450H-0022	4C10H-0022	72567-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	J1926-101-25FM	1	451H-20.5	4C11H-20.5	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-12	J1926-122-32FM	2	452H-25	4C12H-25	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-14	J1926-142-32FM	2	452H-28	4C12H-28	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-16	J1926-162-32FM	2	452H-1.231	4C12H-1.231	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-20	J1926-203-32FM*	3	453H-39	1C53A-39	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-24	J1926-243-32FM*	3	453H-45.5	1C53A-45.5	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-32	J1926-324-32FM*	4	454H-61.5	1C53A-61.5	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

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

Port Form Drill Inserts

Part Number	Part Number	C3 Carbide (AM200®)	C5 Carbide (TiAlN)	Insert Screw	Insert Driver	Recommended Torque
-4	J1926-04Y-16FM	J1926-02-C3H	J1926-02-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-5	J1926-05Z-16FM	J1926-03-C3H	J1926-03-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-6	J1926-060-20FM	J1926-03-C3H	J1926-03-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	J1926-080-20FM	J1926-07-C3H	J1926-07-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	J1926-101-25FM	J1926-04-C3H	J1926-04-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-12	J1926-122-32FM	J1926-08-C3H	J1926-08-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-14	J1926-142-32FM	J1926-08-C3H	J1926-08-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-16	J1926-162-32FM	J1926-09-C3H	J1926-09-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-20	J1926-203-32FM*	J1926-10-C3H	J1926-10-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-24	J1926-243-32FM*	J1926-11-C3H	J1926-11-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-32	J1926-324-32FM*	J1926-12-C3H	J1926-12-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

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

Key on A92.1

A92: 30 - 37

A92: 2 - 4

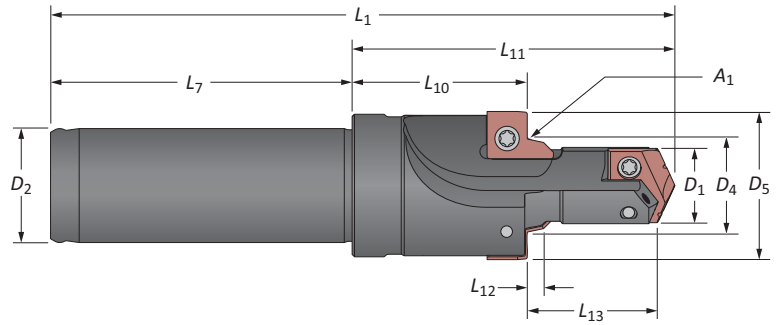
A92: 18 - 21

Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

DRILLING
 BORING
 REAMING
 BURNISHING
 THREADING
 SPECIALS

SAE J-1926 / ISO 11926-1 / MS-16142

Imperial Shank Holders | Extended Minor Diameter Lengths (L_{13})



Dash	Cutting			Seal Angle			Holder			Shank		Port Thread Size	Part No.
	D_1	L_{13}	D_5	A_1	D_4	L_{12}	L_{11}	L_{10}	L_1	L_7	D_2		
-4	0.386	0.801	0.840	12°	0.490	0.106	1.777	0.896	3.650	1.875	0.625	7/16-20 UNF-2B	X1926-04Y-063F
-5	0.453	0.801	0.926	12°	0.553	0.106	1.777	0.885	3.650	1.875	0.625	1/2-20 UNF-2B	X1926-05Z-063F
-6	0.512	0.860	0.989	12°	0.618	0.106	2.107	1.144	4.070	1.969	0.750	9/16-18 UNF-2B	X1926-060-075F
-8	0.689	0.939	1.206	15°	0.813	0.106	2.232	1.150	4.200	1.969	0.750	3/4-16 UNF-2B	X1926-080-075F
-10	0.807	1.037	1.344	15°	0.945	0.106	2.390	1.185	4.670	2.281	1.000	7/8-14 UNF-2B	X1926-101-100F
-12	0.984	1.156	1.655	15°	1.150	0.138	2.890	1.530	5.170	2.281	1.250	1 1/16-12 UN-2B	X1926-122-125F
-14	1.102	1.156	1.781	15°	1.276	0.138	2.890	1.504	5.170	2.281	1.250	1 3/16-12 UN-2B	X1926-142-125F
-16	1.231	1.156	1.934	15°	1.400	0.138	2.890	1.477	5.170	2.281	1.250	1 5/16-12 UN-2B	X1926-162-125F
-20	1.535	1.156	2.306	15°	1.715	0.138	3.312	1.835	6.000	2.688	1.500	1 5/8-12 UN-2B	X1926-203-150F
-24	1.791	1.156	2.564	15°	1.965	0.138	3.312	1.778	6.000	2.688	1.500	1 7/8-12 UN-2B	X1926-243-150F
-32	2.421	1.156	3.470	15°	2.589	0.138	4.062	2.393	6.750	2.688	1.500	2 1/2-12 UN-2B	X1926-324-150F
Imperial (in)													
-4	9.80	20.30	21.30	12°	12.50	2.70	45.10	22.80	92.80	47.60	15.90	7/16-20 UNF-2B	X1926-04Y-063F
-5	11.50	20.30	23.50	12°	14.10	2.70	45.10	22.50	92.80	47.60	15.90	1/2-20 UNF-2B	X1926-05Z-063F
-6	13.00	21.80	25.10	12°	15.70	2.70	53.50	29.00	103.50	50.00	19.10	9/16-18 UNF-2B	X1926-060-075F
-8	17.50	23.80	30.60	15°	20.70	2.70	56.70	29.20	106.70	50.00	19.10	3/4-16 UNF-2B	X1926-080-075F
-10	20.50	26.30	34.10	15°	24.00	2.70	60.70	30.10	118.60	57.90	25.40	7/8-14 UNF-2B	X1926-101-100F
-12	25.00	29.30	42.00	15°	29.20	3.50	73.40	38.90	131.30	57.90	31.80	1 1/16-12 UN-2B	X1926-122-125F
-14	28.00	29.30	45.20	15°	32.40	3.50	73.40	38.20	131.30	57.90	31.80	1 3/16-12 UN-2B	X1926-142-125F
-16	31.20	29.30	49.10	15°	35.60	3.50	73.40	37.50	131.30	57.90	31.80	1 5/16-12 UN-2B	X1926-162-125F
-20	39.00	29.30	58.50	15°	43.60	3.50	84.10	46.60	152.40	68.30	38.10	1 5/8-12 UN-2B	X1926-203-150F
-24	45.50	29.30	65.10	15°	49.90	3.50	84.10	45.20	152.40	68.30	38.10	1 7/8-12 UN-2B	X1926-243-150F
-32	61.50	29.30	88.10	15°	65.80	3.50	103.20	60.80	171.40	68.30	38.10	2 1/2-12 UN-2B	X1926-324-150F
Metric (mm)													

A92: 30 - 37 A92: 2 - 4 A92: 18 - 21

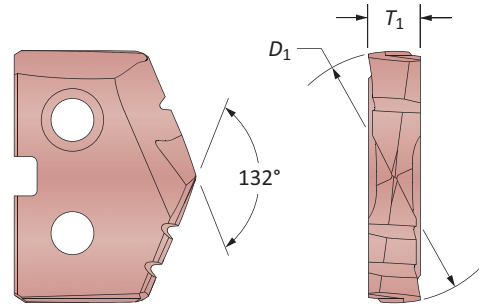
Key on A92: 1

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



SAE J-1926 / ISO 11926-1 / MS-16142

Inserts



See section A3 for complete T-A insert details

Original T-A® / GEN2 T-A® Drill Inserts

Part No.	Part No.	Series	Super Cobalt	Coated	Insert Screw	Insert Driver	Recommended Torque
-4	X1926-04Y-063F	Y	45YH-.386	4C11Z-063	724-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-5	X1926-05Z-063F	Z	45ZH-11.5	4C12H-11.5	7247-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-6	X1926-060-075F	0	450H-13	4C10H-13	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	X1926-080-075F	0	450H-0022	4C10H-0022	72567-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	X1926-101-100F	1	451H-20.5	4C11H-20.5	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-12	X1926-122-125F	2	452H-25	4C12H-25	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-14	X1926-142-125F	2	452H-28	4C12H-28	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-16	X1926-162-125F	2	452H-1.231	4C12H-1.231	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-20	X1926-203-150F	3	453H-39	1C53A-39	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-24	X1926-243-150F	3	453H-45.5	1C53A-45.5	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-32	X1926-324-150F	4	454H-61.5	1C53A-61.5	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)

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

Port Form Drill Inserts

Part No.	Part No.	C3 Carbide (AM200®)	C5 Carbide (TiAlN)	Insert Screw	Insert Driver	Recommended Torque
-4	X1926-04Y-063F	J1926-02-C3H	J1926-02-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-5	X1926-05Z-063F	J1926-03-C3H	J1926-03-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-6	X1926-060-075F	J1926-03-C3H	J1926-03-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	X1926-080-075F	J1926-07-C3H	J1926-07-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	X1926-101-100F	J1926-04-C3H	J1926-04-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-12	X1926-122-125F	J1926-08-C3H	J1926-08-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-14	X1926-142-125F	J1926-08-C3H	J1926-08-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-16	X1926-162-125F	J1926-09-C3H	J1926-09-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-20	X1926-203-150F	J1926-10-C3H	J1926-10-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-24	X1926-243-150F	J1926-11-C3H	J1926-11-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-32	X1926-324-150F	J1926-12-C3H	J1926-12-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)

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

Key on A92.1

A92: 30 - 37

A92: 2 - 4

A92: 18 - 21

Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

DRILLING

BORING

REAMING

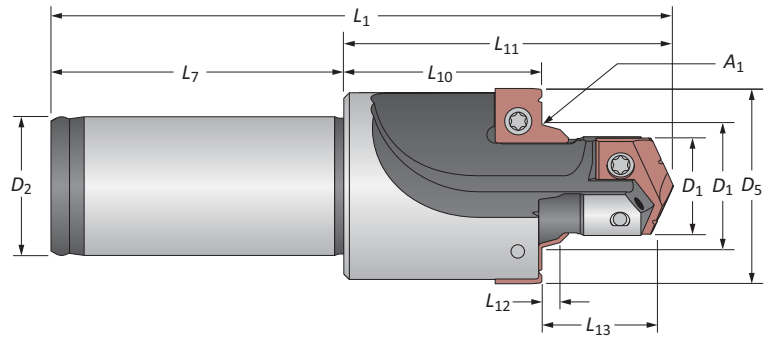
BURNISHING

THREADING

SPECIALS

ISO 6149-1:2006 / SAE J-2244/1

Metric Shank Holders



Dash Code	Cutting			Seal Angle			Holder			Shank		Port Size	Part #
	D ₁	L ₁₃	D ₅	A ₁	D ₄	L ₁₂	L ₁₁	L ₁₀	L ₁	L ₇	D ₂		
-4	0.413	0.556	0.945	15°	0.544	0.102	1.527	0.876	3.180	1.650	0.630	M12 X 1.5	I6149-04RY-16FM
-5	0.492	0.556	1.024	15°	0.623	0.102	1.527	0.858	3.180	1.650	0.630	M14 X 1.5	I6149-05RZ-16FM
-6	0.571	0.615	1.102	15°	0.702	0.102	1.857	1.116	3.510	1.650	0.787	M16 X 1.5	I6149-06R0-20FM
-8	0.650	0.674	1.181	15°	0.781	0.102	1.982	1.164	3.630	1.650	0.787	M18 X 1.5	I6149-08R0-20FM
-10	0.807	0.717	1.339	15°	0.938	0.102	2.140	1.246	4.230	2.091	0.984	M22 X 1.5	I6149-10R1-25FM
-12	0.984	0.874	1.575	15°	1.159	0.130	2.640	1.552	4.920	2.280	1.260	M27 X 2	M14R12R2B2
-14	1.102	0.874	1.733	15°	1.277	0.130	2.640	1.526	4.920	2.280	1.260	M30 X 2	M14R14R2B2
-16	1.220	0.874	1.929	15°	1.395	0.130	2.640	1.499	4.920	2.280	1.260	M33 X 2	M14R16R2B2
-20	1.575	0.895	2.362	15°	1.749	0.130	3.062	1.828	5.640	2.580	1.260	M42 X 2	I6149-20R3-32FM*
-24	1.811	0.993	2.602	15°	1.985	0.130	3.062	1.676	5.640	2.580	1.260	M48 X 2	M14R24R3B2
-32	2.283	1.092	2.992	15°	2.458	0.130	3.812	2.228	6.390	2.580	1.260	M60 X 2	M14R32R4B2
-4	10.50	14.10	24.00	15°	13.81	2.60	38.80	22.20	80.70	41.90	16.00	M12 X 1.5	I6149-04RY-16FM
-5	12.50	14.10	26.00	15°	15.80	2.60	38.80	21.80	80.70	41.90	16.00	M14 X 1.5	I6149-05RZ-16FM
-6	14.50	15.60	28.00	15°	17.80	2.60	47.20	28.30	89.10	41.90	20.00	M16 X 1.5	I6149-06R0-20FM
-8	16.50	17.10	30.00	15°	19.80	2.60	50.30	29.60	92.20	41.90	20.00	M18 X 1.5	I6149-08R0-20FM
-10	20.50	18.20	34.00	15°	23.80	2.60	54.40	31.60	107.50	53.10	25.00	M22 X 1.5	I6149-10R1-25FM
-12	25.00	22.20	40.00	15°	29.40	3.30	67.10	39.40	125.00	57.90	32.00	M27 X 2	M14R12R2B2
-14	28.00	22.20	44.00	15°	32.40	3.30	67.10	38.80	125.00	57.90	32.00	M30 X 2	M14R14R2B2
-16	31.00	22.20	49.00	15°	35.40	3.30	67.10	38.10	125.00	57.90	32.00	M33 X 2	M14R16R2B2
-20	40.00	22.70	60.00	15°	44.40	3.30	77.80	46.40	143.30	65.50	32.00	M42 X 2	I6149-20R3-32FM*
-24	46.00	25.20	66.10	15°	50.40	3.30	77.80	42.60	143.30	65.50	32.00	M48 X 2	M14R24R3B2
-32	58.00	27.70	76.00	15°	62.40	3.30	96.80	56.60	162.30	65.50	32.00	M60 X 2	M14R32R4B2

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

A92: 30 - 37 A92: 2 - 4 A92: 22 - 25

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

DRILLING

BORING

REAMING

BURNISHING

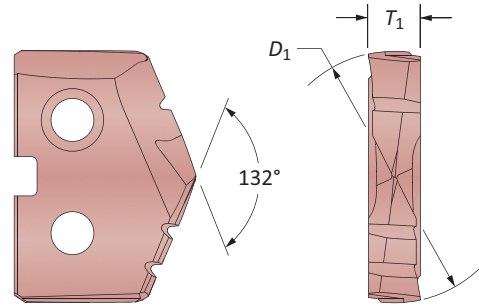
THREADING

SPECIALS



ISO 6149-1:2006 / SAE J-2244/1

Inserts



See section A3 for complete T-A insert details

Original T-A® / GEN2 T-A® Drill Inserts

Part No.	Part No.	Series	Super Cobalt	Carbide	Insert Screw	Insert Driver	Recommended Torque
-4	I6149-04RY-16FM	Y	45YH-10.5	4C1YH-10.5	724-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-5	I6149-05RZ-16FM	Z	45ZH-12.5	4C1ZH-12.5	7247-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-6	I6149-06R0-20FM	0	450H-14.5	4C10H-14.5	72567-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	I6149-08R0-20FM	0	450H-16.5	4C10H-16.5	72567-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	I6149-10R1-25FM	1	451H-20.5	4C11H-20.5	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-12	I6149-12R2-32FM	2	452H-25	4C12H-25	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-14	I6149-14R2-32FM	2	452H-28	4C12H-28	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-16	I6149-16R2-32FM	2	452H-31	4C12H-31	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-20	I6149-20R3-32FM*	3	453H-40	1C53A-40	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-24	I6149-24R3-32FM*	3	453H-46	1C53A-46	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-32	I6149-32R4-32FM*	4	454H-58	1C53A-58	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

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

Port Form Drill Inserts

Part No.	Part No.	Part No. - C3 Carbide (AM200®)		Part No. - C5 Carbide (TiAlN)		Insert Screw	Insert Driver	Recommended Torque
		ID Ridge	No ID Ridge	ID Ridge	No ID Ridge			
-4	I6149-04RY-16FM	I6149-04R-C3H	I6149-04-C3H	I6149-04R-C5A	I6149-04-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-5	I6149-05RZ-16FM	I6149-04R-C3H	I6149-04-C3H	I6149-04R-C5A	I6149-04-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-6	I6149-06R0-20FM	I6149-06R-C3H	I6149-06-C3H	I6149-06R-C5A	I6149-06-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	I6149-08R0-20FM	I6149-06R-C3H	I6149-06-C3H	I6149-06R-C5A	I6149-06-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	I6149-10R1-25FM	I6149-04R-C3H	I6149-04-C3H	I6149-04R-C5A	I6149-04-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-12	I6149-12R2-32FM	I6149-12R-C3H	I6149-12-C3H	I6149-12R-C5A	I6149-12-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-14	I6149-14R2-32FM	I6149-14R-C3H	I6149-14-C3H	I6149-14R-C5A	I6149-14-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-16	I6149-16R2-32FM	I6149-16R-C3H	I6149-16-C3H	I6149-16R-C5A	I6149-16-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-20	I6149-20R3-32FM*	I6149-20R-C3H	I6149-20-C3H	I6149-20R-C5A	I6149-20-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-24	I6149-24R3-32FM*	I6149-24R-C3H	I6149-24-C3H	I6149-24R-C5A	I6149-24-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-32	I6149-32R4-32FM*	I6149-32R-C3H	I6149-32-C3H	I6149-32R-C5A	I6149-32-C5A	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

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

A92: 30 - 37

A92: 2 - 4

A92: 22 - 25

Y - 2 series T-A inserts sold in multiples of 2
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 Insert screws sold in multiples of 10

DRILLING

BORING

REAMING

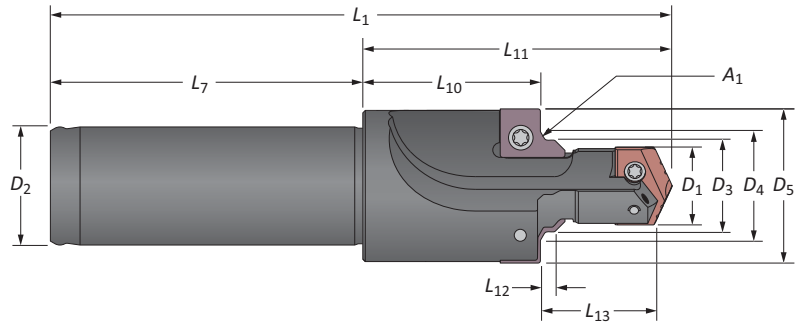
BURNISHING

THREADING

SPECIALS

SAE AS5202 / AND10050

Imperial Shank Holders



Dash	Cutting				Seal Angle			Diameter				Shank		Thread Size	Thread Size*	Part No.
	D ₁	D ₁ ²	L ₁₃	D ₅	A ₁	D ₄	L ₁₂	D ₃	L ₁₁	L ₁₀	L ₁	L ₇	D ₂			
-4	0.390	0.386	0.661	0.875	60°	0.564	0.083	0.454	1.637	0.896	3.510	1.875	0.625	7/16-20 UNJF-3B	7/16-20 UNF-3B	AS5202-04Y-063F
-5	0.453	0.451	0.661	0.916	60°	0.625	0.083	0.517	1.637	0.882	3.510	1.875	0.625	1/2-20 UNJF-3B	1/2-20 UNF-3B	AS5202-05Z-063F
-6	0.510	0.506	0.714	0.979	60°	0.688	0.083	0.580	1.940	1.119	3.910	1.969	0.750	9/16-18 UNJF-3B	9/16-18 UNF-3B	AS5202-06Z-075F
-8	0.689	0.688	0.839	1.198	60°	0.875	0.094	0.769	2.107	1.125	4.080	1.969	0.750	3/4-16 UNJF-3B	3/4-16 UNF-3B	AS5202-080-075F
-10	0.807	0.801	0.935	1.354	60°	1.002	0.107	0.896	2.290	1.189	4.570	2.281	1.000	7/8-14 UNJF-3B	7/8-14 UNF-3B	AS5202-101-100F
-12	0.984	0.976	1.069	1.635	60°	1.237	0.125	1.086	2.765	1.494	5.050	2.281	1.250	1 1/16-12 UNJ-3B	1 1/16-12 UN-3B	AS5202-122-125F
-14	1.109	1.102	1.069	1.775	60°	1.363	0.125	1.211	2.765	1.465	5.050	2.281	1.250	1 3/16-12 UNJ-3B	1 3/16-12 UN-3B	AS5202-142-125F
-16	1.234	1.226	1.069	1.920	60°	1.487	0.125	1.336	2.765	1.437	5.050	2.281	1.250	1 5/16-12 UNJ-3B	1 5/16-12 UN-3B	AS5202-162-125F
-20	1.547	1.535	1.121	2.280	60°	1.799	0.125	1.648	3.187	1.745	5.880	2.688	1.500	1 5/8-12 UNJ-3B	1 5/8-12 UN-3B	AS5202-203-150F
-24	1.797	1.791	1.132	2.570	60°	2.050	0.125	1.898	3.187	1.676	5.880	2.688	1.500	1 7/8-12 UNJ-3B	1 7/8-12 UN-3B	AS5202-243-150F
-32	2.421	2.413	1.373	3.490	60°	2.676	0.125	2.524	3.687	1.802	6.380	2.688	1.500	2 1/2-12 UNJ-3B	2 1/2-12 UN-3B	AS5202-324-150F
-4	9.90	9.80	16.79	22.23	60°	14.34	2.11	11.53	41.58	22.76	89.20	47.63	15.88	7/16-20 UNJF-3B	7/16-20 UNF-3B	AS5202-04Y-063F
-5	11.50	11.45	16.79	23.27	60°	15.88	2.11	13.13	41.58	22.39	89.20	47.63	15.88	1/2-20 UNJF-3B	1/2-20 UNF-3B	AS5202-05Z-063F
-6	12.95	12.85	18.14	24.87	60°	17.46	2.11	14.73	49.28	28.43	99.29	50.01	19.05	9/16-18 UNJF-3B	9/16-18 UNF-3B	AS5202-06Z-075F
-8	17.50	17.46	21.31	30.43	60°	22.23	2.39	19.53	53.52	28.57	103.53	50.01	19.05	3/4-16 UNJF-3B	3/4-16 UNF-3B	AS5202-080-075F
-10	20.50	20.35	23.75	34.39	60°	25.46	2.72	22.76	58.17	30.19	116.10	57.94	25.40	7/8-14 UNJF-3B	7/8-14 UNF-3B	AS5202-101-100F
-12	25.00	24.80	27.15	41.53	60°	31.42	3.18	27.58	70.23	37.94	128.17	57.94	31.75	1 1/16-12 UNJ-3B	1 1/16-12 UN-3B	AS5202-122-125F
-14	28.17	28.00	27.15	45.09	60°	34.61	3.18	30.76	70.23	37.22	128.17	57.94	31.75	1 3/16-12 UNJ-3B	1 3/16-12 UN-3B	AS5202-142-125F
-16	31.34	31.15	27.15	48.77	60°	37.77	3.18	33.93	70.23	36.51	128.17	57.94	31.75	1 5/16-12 UNJ-3B	1 5/16-12 UN-3B	AS5202-162-125F
-20	39.29	39.00	28.47	57.91	60°	45.69	3.18	41.86	80.95	44.32	149.23	68.28	38.10	1 5/8-12 UNJ-3B	1 5/8-12 UN-3B	AS5202-203-150F
-24	45.64	45.50	28.75	65.28	60°	52.07	3.18	48.21	80.95	42.58	149.23	68.28	38.10	1 7/8-12 UNJ-3B	1 7/8-12 UN-3B	AS5202-243-150F
-32	61.49	61.30	34.87	88.65	60°	67.97	3.18	64.11	93.65	45.78	161.93	68.28	38.10	2 1/2-12 UNJ-3B	2 1/2-12 UN-3B	AS5202-324-150F

*AND10050 specifications shown in red

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

A92: 30 - 37 A92: 2 - 4 A92: 26 - 27

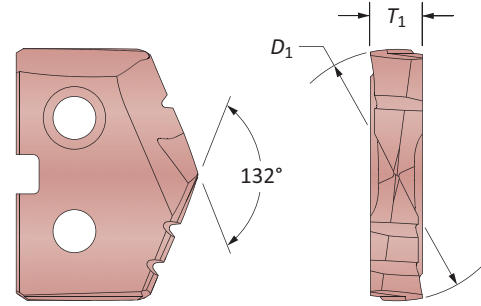
Key on A92: 1

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



SAE AS5202 / AND10050

Inserts



See section A3 for complete T-A insert details

Original T-A® / GEN2 T-A® Drill Inserts

Part No.	Part No.	Series	Super Cobalt		Part No.	Insert Screw	Insert Driver	Recommended Torque	
-4	AS5202-04Y-063F	Y	45YH-.390	45YH-.386	4C1YH-.390	4C1YH-.390	724-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-5	AS5202-05Z-063F	Z	45ZH-11.5	45ZH-.451	4C1ZH-11.5	4C1ZH-.451	7247-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-6	AS5202-06Z-075F	Z	45ZH-.510	45ZH-.506	4C1ZH-.510	4C1ZH-.506	72567-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	AS5202-080-075F	0	450H-17.5	450H-0022	4C10H-17.5	4C10H-0022	72567-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	AS5202-101-100F	1	451H-20.5	451H-.801	4C11H-20.5	4C11H-.801	739-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-12	AS5202-122-125F	2	452H-25	452H-.976	4C12H-25	4C12H-.976	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-14	AS5202-142-125F	2	452H-1.109	452H-.28	4C12H-1.109	4C12H-.28	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-16	AS5202-162-125F	2	452H-1.234	452H-1.226	4C12H-1.234	4C12H-1.226	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-20	AS5202-203-150F	3	453H-1.547	453H-.39	1C53A-1.547	1C53A-.39	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-24	AS5202-243-150F	3	453H-1.797	453H-45.5	1C53A-1.797	1C53A-45.5	7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-32	AS5202-324-150F	4	454H-2.421	454H-2.413			7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)

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

NOTE: AND10050 specifications shown in red

Port Form Drill Inserts

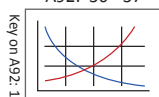
Part No.	Part No.	C5 Carbide (TiAlN)	Insert Screw	Insert Driver	Recommended Torque
-4	AS5202-04Y-063F	AS5202-04-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-5	AS5202-05Z-063F	AS5202-05-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-6	AS5202-06Z-075F	AS5202-06-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	AS5202-080-075F	AS5202-08-C5A	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	AS5202-101-100F	AS5202-10-C5A	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-12	AS5202-122-125F	AS5202-12-C5A	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-14	AS5202-142-125F	AS5202-14-C5A	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-16	AS5202-162-125F	AS5202-16-C5A	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-20	AS5202-203-150F	AS5202-20-C5A	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-24	AS5202-243-150F	AS5202-24-C5A	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-32	AS5202-324-150F	AS5202-32-C5A	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)

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

A92: 30 - 37

A92: 2 - 4

A92: 26 - 27



Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

DRILLING

BORING

REAMING

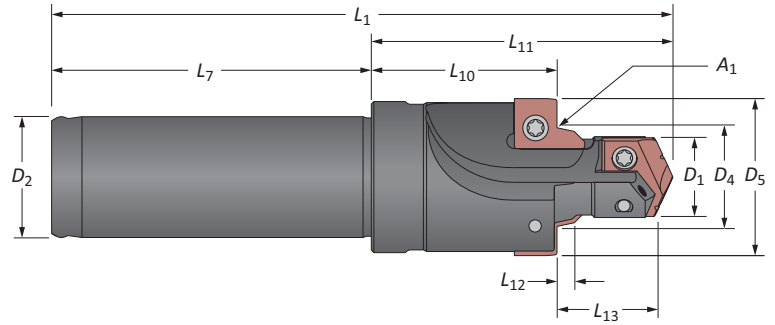
BURNISHING

THREADING

SPECIALS

JDS-G173.1

Metric Shank Holders



Dash Code	Cutting			Seal Angle			Shank			Shank		Port Size	Part #
	D ₁	L ₁₃	D ₅	A ₁	D ₄	L ₁₂	L ₁₁	L ₁₀	L ₁	L ₇	D ₂		
-4	0.413	0.709	0.945	15°	0.547	0.104	1.580	0.875	3.320	1.650	0.630	M12 X 1.5	G1731-04Y-16FM
-5	0.492	0.709	1.024	15°	0.626	0.104	1.580	0.858	3.320	1.650	0.630	M14 X 1.5	G1731-05Z-16FM
-6	0.571	0.748	1.142	15°	0.705	0.104	1.870	1.117	3.630	1.650	0.787	M16 X 1.5	G1731-06O-20FM
-8	0.650	0.827	1.220	15°	0.783	0.104	2.020	1.161	3.770	1.650	0.787	M18 X 1.5	G1731-08O-20FM
-10	0.807	0.866	1.378	15°	0.941	0.104	2.140	1.246	4.370	2.090	0.984	M22 X 1.5	G1731-10I-25FM
-12	0.984	1.063	1.614	15°	1.161	0.132	2.680	1.553	5.100	2.280	1.260	M27 X 2	G1731-12I-32FM
-14	1.102	1.063	1.732	15°	1.280	0.132	2.680	1.526	5.100	2.280	1.260	M30 X 2	G1731-14I-32FM
-16	1.221	1.063	1.969	15°	1.398	0.132	2.680	1.500	5.100	2.280	1.260	M33 X 2	G1731-16I-32FM
-18	1.417	1.063	2.165	15°	1.594	0.132	3.020	1.844	5.780	2.580	1.260	M38 X 2	G1731-18I-32FM
-20	1.575	1.063	2.402	15°	1.752	0.132	3.020	1.809	5.780	2.580	1.260	M42 X 2	G1731-20I-32FM*
-24	1.811	1.142	2.638	15°	1.988	0.132	3.020	1.687	5.780	2.580	1.260	M48 X 2	G1731-24I-32FM
-32	2.284	1.260	3.031	15°	2.461	0.132	3.780	2.300	6.550	2.580	1.260	M60 X 2	G1731-32I-32FM
C**	0.728	0.787	1.299	15°	0.862	0.104	2.000	1.281	4.230	2.090	0.984	M20 X 1.5	G1731-CV1-25FM
-4	10.50	18.00	24.00	15°	13.90	2.65	40.10	22.20	84.50	41.90	16.00	M12 X 1.5	G1731-04Y-16FM
-5	12.50	18.00	26.00	15°	15.90	2.65	40.10	21.80	84.50	41.90	16.00	M14 X 1.5	G1731-05Z-16FM
-6	14.50	19.00	29.00	15°	17.90	2.65	47.60	28.40	92.20	41.90	20.00	M16 X 1.5	G1731-06O-20FM
-8	16.50	21.00	31.00	15°	19.90	2.65	51.20	29.50	95.80	41.90	20.00	M18 X 1.5	G1731-08O-20FM
-10	20.50	22.00	35.00	15°	23.90	2.65	54.40	31.60	111.00	53.10	25.00	M22 X 1.5	G1731-10I-25FM
-12	25.00	27.00	41.00	15°	29.50	3.35	68.10	39.40	129.60	57.90	32.00	M27 X 2	G1731-12I-32FM
-14	28.00	27.00	44.00	15°	32.50	3.35	68.10	39.70	129.60	57.90	32.00	M30 X 2	G1731-14I-32FM
-16	31.00	27.00	50.00	15°	35.50	3.35	68.10	38.10	129.60	57.90	32.00	M33 X 2	G1731-16I-32FM
-18	36.00	27.00	55.00	15°	40.50	3.35	76.60	46.80	146.80	65.50	32.00	M38 X 2	G1731-18I-32FM
-20	40.00	27.00	61.00	15°	44.50	3.35	76.60	45.90	146.80	65.50	32.00	M42 X 2	G1731-20I-32FM*
-24	46.00	29.00	67.00	15°	50.50	3.35	76.60	42.80	146.80	65.50	32.00	M48 X 2	G1731-24I-32FM
-32	58.00	32.00	77.00	15°	62.50	3.35	96.10	58.40	166.40	65.50	32.00	M60 X 2	G1731-32I-32FM
C**	18.50	20.00	33.00	15°	21.90	2.65	50.80	32.50	107.40	53.10	25.00	M20 X 1.5	G1731-CV1-25FM

***NOTICE:** Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

**Cartridge cavity

A92: 30 - 37

A92: 2 - 4

A92: 28

Key on A92.1

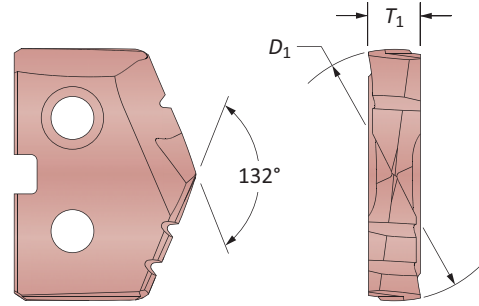
i = Imperial (in)
m = Metric (mm)

DRILLING
 BORING
 REAMING
 BURNISHING
 THREADING
 SPECIALS



JDS-G173.1

Inserts



See section A3 for complete T-A insert details

GEN2 T-A® Drill Inserts

Dash	Part Number	Series	Super Cobalt	Carbide	Insert Screw	Insert Driver	Tightening Torque
-4	G1731-04Y-16FM	Y	45YH-10.5	4C2YH-10.5	724-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-5	G1731-05Z-16FM	Z	45ZH-12.5	4C2ZH-12.5	7247-IP7-1	8IP-7	7.4 in/lbs (84 N-cm)
-6	G1731-060-20FM	0	450H-14.5	4C20H-14.5	72567-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	G1731-080-20FM	0	450H-16.5	4C20H-16.5	72567-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	G1731-101-25FM	1	451H-20.5	4C21H-20.5	739-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-12	G1731-122-32FM	2	452H-25	4C22H-25	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-14	G1731-142-32FM	2	452H-28	4C22H-28	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-16	G1731-162-32FM	2	452H-31	4C22H-31	7495-IP15-1	8IP-15	61.0 in/lbs (690 N-cm)
-18	G1731-183-32FM*	3	453H-36		7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-20	G1731-203-32FM*	3	453H-40		7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-24	G1731-243-32FM*	3	453H-46		7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
-32	G1731-324-32FM*	4	454H-58		7514-IP20-1	8IP-20	121.3 in/lbs (1370 N-cm)
C***	G1731-CV1-25FM	1	451H-18.5	4C21H-18.5	739-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

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

***Cartridge cavity

Port Form Drill Inserts

Dash	Part Number	C3 Carbide (AM200®)	Insert Screw	Insert Driver	Tightening Torque
-4	G1731-04Y-16FM	G1731-01-C3H	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-5	G1731-05Z-16FM	G1731-01-C3H	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-6	G1731-060-20FM	G1731-02-C3H	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-8	G1731-080-20FM	G1731-02-C3H	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-10	G1731-101-25FM	G1731-02-C3H	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-12	G1731-122-32FM	G1731-03-C3H	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-14	G1731-142-32FM	G1731-03-C3H	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)
-16	G1731-162-32FM	G1731-04-C3H	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-18	G1731-183-32FM*	G1731-04-C3H	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-20	G1731-203-32FM*	G1731-05-C3H	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-24	G1731-243-32FM*	G1731-05-C3H	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
-32	G1731-324-32FM*	G1731-06-C3H	7375-IP9-1	8IP-9	27.0 in/lbs (305 N-cm)
C***	G1731-CV1-25FM	G1731-02-C3H	72556-IP8-1	8IP-8	15.5 in/lbs (175 N-cm)

*NOTICE: Due to the cutting forces generated by this tool, a mechanical chuck is required. Please contact Application Engineering with any questions.

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

***Cartridge cavity

A92: 30 - 37

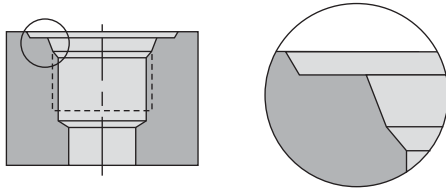
A92: 2 - 4

A92: 28

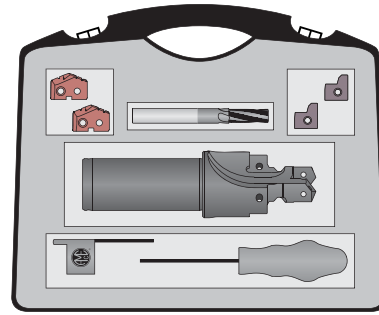
Y - 2 series T-A inserts sold in multiples of 2
 3 - 4 series T-A inserts sold in multiples of 1
 Port form inserts sold in multiples of 2
 Insert screws sold in multiples of 10

DRILLING

J1926 | Imperial | Ferrous Materials

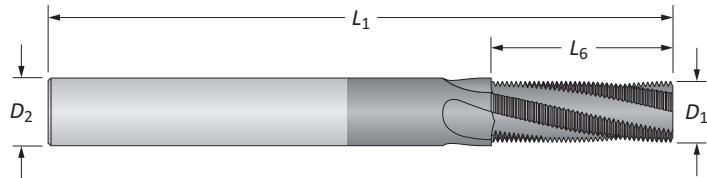


SAE J-1926-1 / ISO 11926-1



BORING

Dash	AccuPort 432			Super Cobalt (AM200®)		C5 Carbide (TiAlN)		AccuThread™ Thread Mill (AM210®)		Key
	Part No.	Port Thread Size	Qty	Part No.	Qty	Part No.	Qty	Part No.	Qty	
-4	J1926-04Y-063F	7/16-20 UNF-2B	1	45YH-.386	2	J1926-02-C5A	2	TMAK0438-20	1	ATKK04-1926
-5	J1926-05Z-063F	1/2-20 UNF-2B	1	45ZH-11.5	2	J1926-03-C5A	2	TMAK0438-20	1	ATKK05-1926
-6	J1926-060-075F	9/16-18 UNF-2B	1	450H-13	2	J1926-03-C5A	2	TMAK0563-18	1	ATKK06-1926
-8	J1926-080-075F	3/4-16 UNF-2B	1	450H-0022	2	J1926-07-C5A	2	TMAK0750-16	1	ATKK08-1926
-10	J1926-101-100F	7/8-14 UNF-2B	1	451H-20.5	2	J1926-04-C5A	2	TMAK0875-14	1	ATKK10-1926
-12	J1926-122-125F	1-1/16-12 UN-2B	1	452H-25	2	J1926-08-C5A	2	TMAK1063-12	1	ATKK12-1926
-14	J1926-142-125F	1-3/16-12 UN-2B	1	452H-28	2	J1926-08-C5A	2	TMAK1063-12	1	ATKK14-1926
-16	J1926-162-125F	1-5/16-12 UN-2B	1	452H-1.231	2	J1926-09-C5A	2	TMAK1063-12	1	ATKK16-1926
-20	J1926-203-150F	1-5/8-12 UN-2B	1	453H-39	1	J1926-10-C5A	2	TMAK1063-12	1	ATKK20-1926
-24	J1926-243-150F	1-7/8-12 UN-2B	1	453H-45.5	1	J1926-11-C5A	2	TMAK1063-12	1	ATKK24-1926
-32	J1926-324-150F	2-1/2-12 UN-2B	1	454H-61.5	1	J1926-12-C5A	2	TMAK1063-12	1	ATKK32-1926



REAMING

Port Size	Flutes	AccuThread™ Thread Mill				Flutes	Key
		D ₁	L ₆	D ₂	L ₁		
-4 to -5	20	0.335	0.600	0.375	3.5	4	TMAK0438-20
-6	18	0.370	0.666	0.375	3.5	4	TMAK0563-18
-8	16	0.495	0.750	0.500	3.5	4	TMAK0750-16
-10	14	0.495	0.857	0.500	3.5	4	TMAK0875-14
-12 to -32	12	0.495	0.917	0.500	3.5	4	TMAK1063-12

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

SPECIALS

A92: 30 - 37

A92: 2 - 4

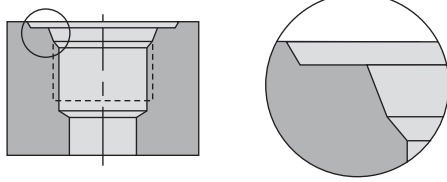
A92: 6 - 7

Key on A92: 1

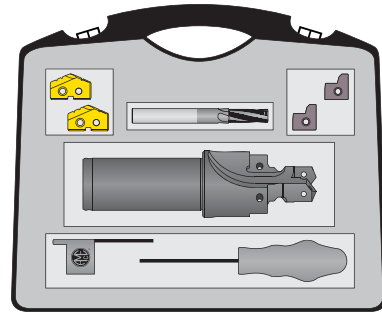


Drilling | Reaming | Threading | Key

J1926 | Imperial | Non-Ferrous Materials

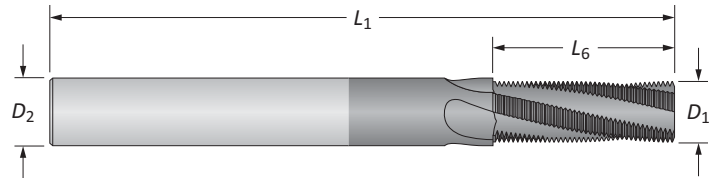


SAE J-1926-1 / ISO 11926-1



Drilling | Reaming | Threading | Key

Dash	AccuPort 432			Super Cobalt (TiN)		C5 Carbide (TiAlN)		AccuPort 432 Reamer Bit		Key
	Part No.	Port Thread Size	Qty	Part No.	Qty	Part No.	Qty	Part No.	Qty	
-4	J1926-04Y-063F	7/16-20 UNF-2B	1	45YH-.386	2	J1926-02-C5A	2	TMAU0438-20	1	ATKU04-1926
-5	J1926-05Z-063F	1/2-20 UNF-2B	1	45ZH-11.5	2	J1926-03-C5A	2	TMAU0438-20	1	ATKU05-1926
-6	J1926-060-075F	9/16-18 UNF-2B	1	450H-13	2	J1926-03-C5A	2	TMAU0563-18	1	ATKU06-1926
-8	J1926-080-075F	3/4-16 UNF-2B	1	450H-0022	2	J1926-07-C5A	2	TMAU0750-16	1	ATKU08-1926
-10	J1926-101-100F	7/8-14 UNF-2B	1	451H-20.5	2	J1926-04-C5A	2	TMAU0875-14	1	ATKU10-1926
-12	J1926-122-125F	1-1/16-12 UN-2B	1	452H-25	2	J1926-08-C5A	2	TMAU1063-12	1	ATKU12-1926
-14	J1926-142-125F	1-3/16-12 UN-2B	1	452H-28	2	J1926-08-C5A	2	TMAU1063-12	1	ATKU14-1926
-16	J1926-162-125F	1-5/16-12 UN-2B	1	452H-1.231	2	J1926-09-C5A	2	TMAU1063-12	1	ATKU16-1926
-20	J1926-203-150F	1-5/8-12 UN-2B	1	453H-39	1	J1926-10-C5A	2	TMAU1063-12	1	ATKU20-1926
-24	J1926-243-150F	1-7/8-12 UN-2B	1	453H-45.5	1	J1926-11-C5A	2	TMAU1063-12	1	ATKU24-1926
-32	J1926-324-150F	2-1/2-12 UN-2B	1	454H-61.5	1	J1926-12-C5A	2	TMAU1063-12	1	ATKU32-1926



AccuThread™ Port Specific Solid Carbide Thread Mills

Port Size	Flutes	AccuThread 432				Flutes	Part No.
		D ₁	L ₆	D ₂	L ₁		
-4 to -5	20	0.335	0.600	0.375	3.5	4	TMAU0438-20
-6	18	0.370	0.666	0.375	3.5	4	TMAU0563-18
-8	16	0.495	0.750	0.500	3.5	4	TMAU0750-16
-10	14	0.495	0.857	0.500	3.5	4	TMAU0875-14
-12 to -32	12	0.495	0.917	0.500	3.5	4	TMAU1063-12

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

A92: 30 - 37

A92: 2 - 4

A92: 6 - 7

Key on A92.1

DRILLING

BORING

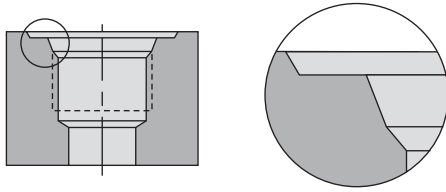
REAMING

BURNISHING

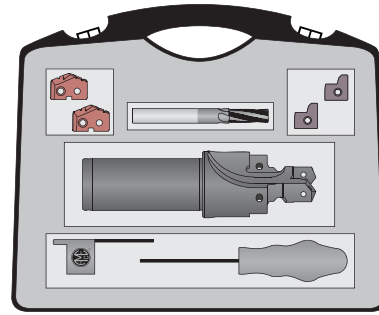
THREADING

SPECIALS

DRILLING | J1926 | Metric | Ferrous Materials

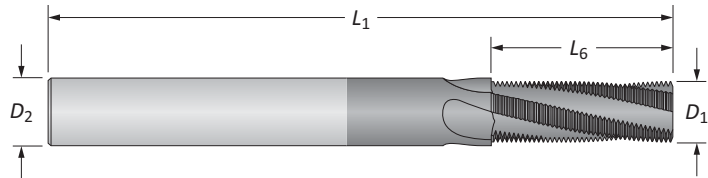


SAE J-1926-1 / ISO 11926-1



DRILLING | J1926 | Metric | Ferrous Materials

Part No.	Port Thread Size	Qty	Super Cobalt (AM200®)	Qty	C5 Carbide (TiAlN)	Qty	AM210®	Qty	Part No.
J1926-04Y-16FM	7/16-20 UNF-2B	1	45YH-.386	2	J1926-02-C5A	2	TMAK0438-20M	1	ATKK04-1926M
J1926-05Z-16FM	1/2-20 UNF-2B	1	45ZH-11.5	2	J1926-03-C5A	2	TMAK0438-20M	1	ATKK05-1926M
J1926-06O-20FM	9/16-18 UNF-2B	1	45OH-13	2	J1926-03-C5A	2	TMAK0563-18M	1	ATKK06-1926M
J1926-08O-20FM	3/4-16 UNF-2B	1	45OH-0022	2	J1926-07-C5A	2	TMAK0750-16M	1	ATKK08-1926M
J1926-10I-25FM	7/8-14 UNF-2B	1	45IH-20.5	2	J1926-04-C5A	2	TMAK0875-14M	1	ATKK10-1926M
J1926-12Z-32FM	1-1/16-12 UN-2B	1	45ZH-25	2	J1926-08-C5A	2	TMAK1063-12M	1	ATKK12-1926M
J1926-14Z-32FM	1-3/16-12 UN-2B	1	45ZH-28	2	J1926-08-C5A	2	TMAK1063-12M	1	ATKK14-1926M
J1926-16Z-32FM	1-5/16-12 UN-2B	1	45ZH-1.231	2	J1926-09-C5A	2	TMAK1063-12M	1	ATKK16-1926M
J1926-20Z-32FM	1-5/8-12 UN-2B	1	45ZH-39	1	J1926-10-C5A	2	TMAK1063-12M	1	ATKK20-1926M
J1926-24Z-32FM	1-7/8-12 UN-2B	1	45ZH-45.5	1	J1926-11-C5A	2	TMAK1063-12M	1	ATKK24-1926M
J1926-32Z-32FM	2-1/2-12 UN-2B	1	454H-61.5	1	J1926-12-C5A	2	TMAK1063-12M	1	ATKK32-1926M



AccuThread™ Port Specific Solid Carbide Thread Mills

Port Size	Flutes	D ₁	L ₆	D ₂	L ₁	Flutes	Part No.
-4 to -5	20	8.51	15.24	10.00	73.00	4	TMAK0438-20M
-6	18	9.40	16.92	10.00	73.00	4	TMAK0563-18M
-8	16	11.94	19.05	12.00	84.00	4	TMAK0750-16M
-10	14	11.94	21.77	12.00	84.00	4	TMAK0875-14M
-12 to -32	12	11.94	23.29	12.00	84.00	4	TMAK1063-12M

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

Key on A92: 1

A92: 30-37

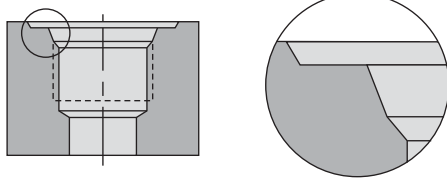
A92: 2-4

A92: 8-9

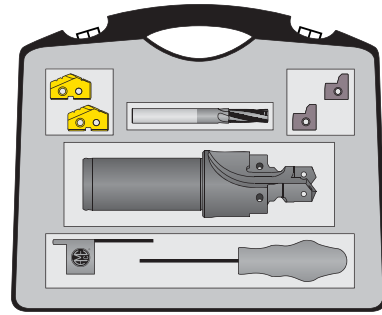


Drilling | Metric | Non-Ferrous Materials

J1926 | Metric | Non-Ferrous Materials

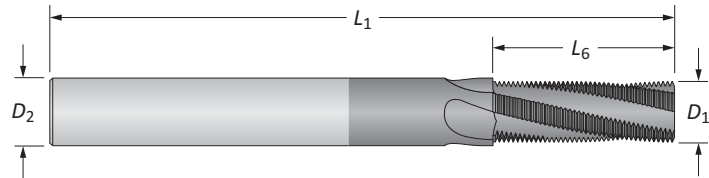


SAE J-1926-1 / ISO 11926-1



Drilling | Metric | Non-Ferrous Materials

Dash	AccuPort 432			Super Cobalt (TiN)		C5 Carbide (TiAlN)		AccuPort 432 Thread Mill		Key
	Part No.	Port Thread Size	Qty	Part No.	Qty	Part No.	Qty	Part No. (AM210®)	Qty	
-4	J1926-04Y-16FM	7/16-20 UNF-2B	1	15YT-386	2	J1926-02-C5A	2	TMAU0438-20M	1	ATKU04-1926M
-5	J1926-05Z-16FM	1/2-20 UNF-2B	1	15ZT-11.5	2	J1926-03-C5A	2	TMAU0438-20M	1	ATKU05-1926M
-6	J1926-06O-20FM	9/16-18 UNF-2B	1	150T-13	2	J1926-03-C5A	2	TMAU0563-18M	1	ATKU06-1926M
-8	J1926-08O-20FM	3/4-16 UNF-2B	1	150T-0022	2	J1926-07-C5A	2	TMAU0750-16M	1	ATKU08-1926M
-10	J1926-10I-25FM	7/8-14 UNF-2B	1	151T-20.5	2	J1926-04-C5A	2	TMAU0875-14M	1	ATKU10-1926M
-12	J1926-12Z-32FM	1-1/16-12 UN-2B	1	152T-25	2	J1926-08-C5A	2	TMAU1063-12M	1	ATKU12-1926M
-14	J1926-14Z-32FM	1-3/16-12 UN-2B	1	152T-28	2	J1926-08-C5A	2	TMAU1063-12M	1	ATKU14-1926M
-16	J1926-16Z-32FM	1-5/16-12 UN-2B	1	152T-1.231	2	J1926-09-C5A	2	TMAU1063-12M	1	ATKU16-1926M
-20	J1926-20Z-32FM	1-5/8-12 UN-2B	1	453T-39	1	J1926-10-C5A	2	TMAU1063-12M	1	ATKU20-1926M
-24	J1926-24Z-32FM	1-7/8-12 UN-2B	1	453T-45.5	1	J1926-11-C5A	2	TMAU1063-12M	1	ATKU24-1926M
-32	J1926-32Z-32FM	2-1/2-12 UN-2B	1	454T-61.5	1	J1926-12-C5A	2	TMAU1063-12M	1	ATKU32-1926M



AccuThread™ Port Specific Solid Carbide Thread Mills

Port Size	Flutes	AccuThread Thread Mill				Flutes	Key
		D ₁	L ₆	D ₂	L ₁		
-4 to -5	20	8.51	15.24	10.00	73.00	4	TMAU0438-20M
-6	18	9.40	16.92	10.00	73.00	4	TMAU0563-18M
-8	16	11.94	19.05	12.00	84.00	4	TMAU0750-16M
-10	14	11.94	21.77	12.00	84.00	4	TMAU0875-14M
-12 to -32	12	11.94	23.29	12.00	84.00	4	TMAU1063-12M

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

A92: 30 - 37

A92: 2 - 4

A92: 8 - 9

Key on A92.1

DRILLING

BORING

REAMING

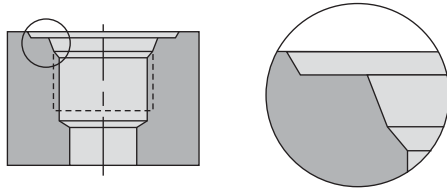
BURNISHING

THREADING

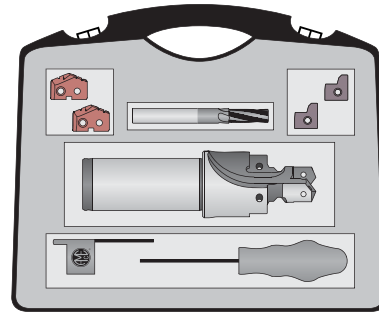
SPECIALS

DRILLING

16149 | No ID Ridge | Ferrous Materials

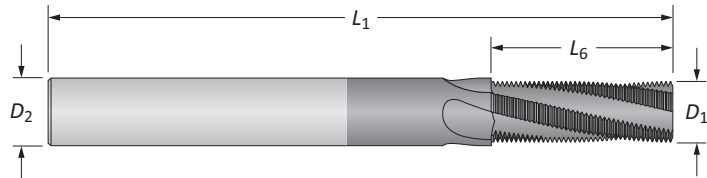


ISO 6149-1:2006 / SAE J-2244/1



BORING

Dash No.	AccuPort 432			Super Cobalt (AM200®)		C5 Carbide (TiAlN)		TMMK (AM210®)		Key No.
	Part No.	Port Thread Size	Qty	Part No.	Qty	Part No.	Qty	Part No.	Qty	
-4	I6149-04RY-16FM	M12 X 1.5	1	45YH-10.5	2	I6149-04-C5A	2	TMMK1000-150M	1	ATKK04-6149
-5	I6149-05RZ-16FM	M14 X 1.5	1	45ZH-12.5	2	I6149-04-C5A	2	TMMK1400-150M	1	ATKK05-6149
-6	I6149-06R0-20FM	M16 X 1.5	1	450H-14.5	2	I6149-06-C5A	2	TMMK1400-150M	1	ATKK06-6149
-8	I6149-08R0-20FM	M18 X 1.5	1	450H-16.5	2	I6149-06-C5A	2	TMMK1800-150M	1	ATKK08-6149
-10	I6149-10R1-25FM	M22 X 1.5	1	451H-20.5	2	I6149-04-C5A	2	TMMK1800-150M	1	ATKK10-6149
-12	I6149-12R2-32FM	M27 X 2	1	452H-25	2	I6149-12-C5A	2	TMMK2000-200M	1	ATKK12-6149
-14	I6149-14R2-32FM	M30 X 2	1	452H-28	2	I6149-14-C5A	2	TMMK2000-200M	1	ATKK14-6149
-16	I6149-16R2-32FM	M33 X 2	1	452H-31	2	I6149-16-C5A	2	TMMK2000-200M	1	ATKK16-6149
-20	I6149-20R3-32FM	M42 X 2	1	453H-40	1	I6149-20-C5A	2	TMMK2000-200M	1	ATKK20-6149
-24	I6149-24R3-32FM	M48 X 2	1	453H-46	1	I6149-24-C5A	2	TMMK2000-200M	1	ATKK24-6149
-32	I6149-32R4-32FM	M60 X 2	1	454H-58	1	I6149-32-C5A	2	TMMK2000-200M	1	ATKK32-6149



REAMING

Port Size	Pitch	TMMK (AM210®)				Qty	Key No.
		D ₁	L ₂	D ₂	L ₁		
-4	1.50	7.40	19.50	8.00	64.00	4	TMMK1000-150M
-5 to -6	1.50	10.90	27.00	12.00	84.00	4	TMMK1400-150M
-8 to -10	1.50	11.90	31.50	12.00	84.00	4	TMMK1800-150M
-12 to -32	2.00	11.95	30.00	12.00	84.00	4	TMMK2000-200M

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

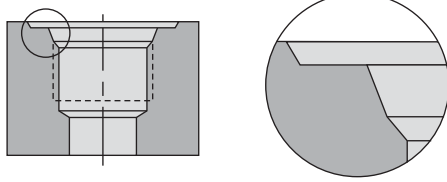
SPECIALS

A92: 30 - 37 A92: 2 - 4 A92: 12 - 13

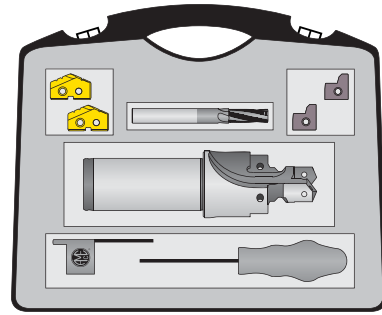


Port Form Specific Machining Key

I6149 | No ID Ridge | Non-Ferrous Materials

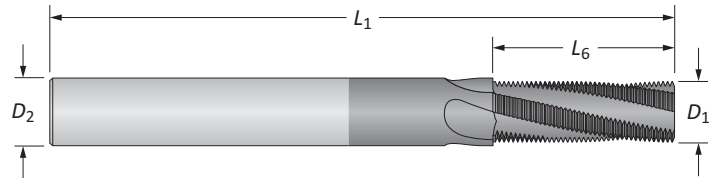


ISO 6149-1:2006 / SAE J-2244/1



Port Form Specific Machining Key

Dash	AccuPort 432			Super Cobalt (TiN)		C5 Carbide (TiAlN)		AccuPort 432 Thread Mill		Key
	Part No.	Port Thread Size	Qty	Part No.	Qty	Part No.	Qty	Part No.	Qty	
-4	I6149-04RY-16FM	M12 X 1.5	1	15YT-10.5	2	I6149-04-C5A	2	TMMU1000-150M	1	ATKU04-6149
-5	I6149-05RZ-16FM	M14 X 1.5	1	15ZT-12.5	2	I6149-04-C5A	2	TMMU1400-150M	1	ATKU05-6149
-6	I6149-06R0-20FM	M16 X 1.5	1	150T-14.5	2	I6149-06-C5A	2	TMMU1400-150M	1	ATKU06-6149
-8	I6149-08R0-20FM	M18 X 1.5	1	150T-16.5	2	I6149-06-C5A	2	TMMU1800-150M	1	ATKU08-6149
-10	I6149-10R1-25FM	M22 X 1.5	1	151T-20.5	2	I6149-04-C5A	2	TMMU1800-150M	1	ATKU10-6149
-12	I6149-12R2-32FM	M27 X 2	1	152T-25	2	I6149-12-C5A	2	TMMU2000-200M	1	ATKU12-6149
-14	I6149-14R2-32FM	M30 X 2	1	152T-28	2	I6149-14-C5A	2	TMMU2000-200M	1	ATKU14-6149
-16	I6149-16R2-32FM	M33 X 2	1	152T-31	2	I6149-16-C5A	2	TMMU2000-200M	1	ATKU16-6149
-20	I6149-20R3-32FM	M42 X 2	1	453T-40	1	I6149-20-C5A	2	TMMU2000-200M	1	ATKU20-6149
-24	I6149-24R3-32FM	M48 X 2	1	453T-46	1	I6149-24-C5A	2	TMMU2000-200M	1	ATKU24-6149
-32	I6149-32R4-32FM	M60 X 2	1	454T-58	1	I6149-32-C5A	2	TMMU2000-200M	1	ATKU32-6149



AccuThread™ Port Specific Solid Carbide Thread Mills

Port Size	Port Dia	AccuThread Thread Mill				Qty	Part No.
		D ₁	L ₀	D ₂	L ₁		
-4	1.50	7.40	19.50	8.00	64.00	4	TMMU1000-150M
-5 to -6	1.50	10.90	27.00	12.00	84.00	4	TMMU1400-150M
-8 to -10	1.50	11.90	31.50	12.00	84.00	4	TMMU1800-150M
-12 to -32	2.00	11.95	30.00	12.00	84.00	4	TMMU2000-200M

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

A92: 30 - 37

A92: 2 - 4

A92: 12 - 13

Key on A92.1

DRILLING

BORING

REAMING

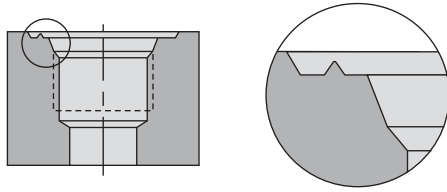
BURNISHING

THREADING

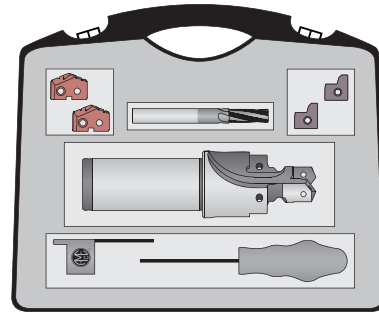
SPECIALS

DRILLING | ID Ridge | Ferrous Materials

16149 | ID Ridge | Ferrous Materials

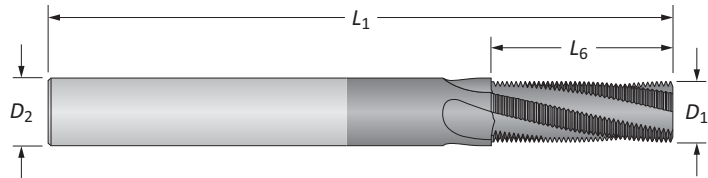


ISO 6149-1:2006 / SAE J-2244/1



DRILLING | ID Ridge | Ferrous Materials

Dash	AccuPort 432			Super Cobalt (AM200®)		C5 Carbide (TiAlN)		TMMK (AM210®)		Key
	Part No.	Port Thread Size	Qty	Part No.	Qty	Part No.	Qty	Part No.	Qty	
-4	I6149-04RY-16FM	M12 X 1.5	1	45YH-10.5	2	I6149-04R-C5A	2	TMMK1000-150M	1	ATKK04R-6149
-5	I6149-05RZ-16FM	M14 X 1.5	1	45ZH-12.5	2	I6149-04R-C5A	2	TMMK1400-150M	1	ATKK05R-6149
-6	I6149-06R0-20FM	M16 X 1.5	1	450H-14.5	2	I6149-06R-C5A	2	TMMK1400-150M	1	ATKK06R-6149
-8	I6149-08R0-20FM	M18 X 1.5	1	450H-16.5	2	I6149-06R-C5A	2	TMMK1800-150M	1	ATKK08R-6149
-10	I6149-10R1-25FM	M22 X 1.5	1	451H-20.5	2	I6149-04R-C5A	2	TMMK1800-150M	1	ATKK10R-6149
-12	I6149-12R2-32FM	M27 X 2	1	452H-25	2	I6149-12R-C5A	2	TMMK2000-200M	1	ATKK12R-6149
-14	I6149-14R2-32FM	M30 X 2	1	452H-28	2	I6149-14R-C5A	2	TMMK2000-200M	1	ATKK14R-6149
-16	I6149-16R2-32FM	M33 X 2	1	452H-31	2	I6149-16R-C5A	2	TMMK2000-200M	1	ATKK16R-6149
-20	I6149-20R3-32FM	M42 X 2	1	453H-40	1	I6149-20R-C5A	2	TMMK2000-200M	1	ATKK20R-6149
-24	I6149-24R3-32FM	M48 X 2	1	453H-46	1	I6149-24R-C5A	2	TMMK2000-200M	1	ATKK24R-6149
-32	I6149-32R4-32FM	M60 X 2	1	454H-58	1	I6149-32R-C5A	2	TMMK2000-200M	1	ATKK32R-6149



AccuThread™ Port Specific Solid Carbide Thread Mills

Port Size	Pitch	TMMK (AM210®)				Qty	Key
		D ₁	L ₆	D ₂	L ₁		
-4	1.50	7.40	19.50	8.00	64.00	4	TMMK1000-150M
-5 to -6	1.50	10.90	27.00	12.00	84.00	4	TMMK1400-150M
-8 to -10	1.50	11.90	31.50	12.00	84.00	4	TMMK1800-150M
-12 to -32	2.00	11.95	30.00	12.00	84.00	4	TMMK2000-200M

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

Key on A92: 1

A92: 30 - 37

A92: 2 - 4

A92: 12 - 13

DRILLING

BORING

REAMING

BURNISHING

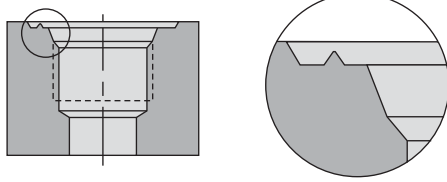
THREADING

SPECIALS

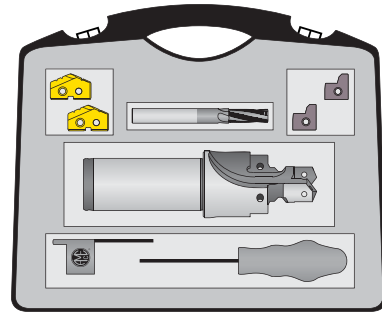


Drilling Performance KPI

I6149 | ID Ridge | Non-Ferrous Materials

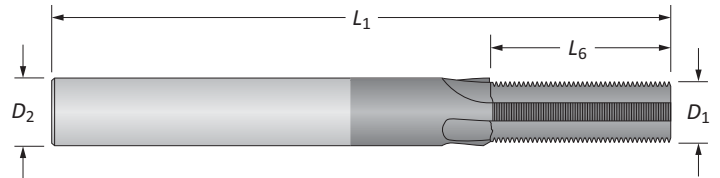


ISO 6149-1:2006 / SAE J-2244/1



Drilling Performance KPI

Dance Dash	AccuPort 432			Super Cobalt (TiN)		C5 Carbide (TiAlN)		AccuPort 432		KPI
	Part No.	Port Thread Size	Qty	Part No.	Qty	Part No.	Qty	Part No.	Qty	
-4	I6149-04RY-16FM	M12 X 1.5	1	15YT-10.5	2	I6149-04R-C5A	2	TMMU1000-150M	1	ATKU04R-6149
-5	I6149-05RZ-16FM	M14 X 1.5	1	15ZT-12.5	2	I6149-04R-C5A	2	TMMU1400-150M	1	ATKU05R-6149
-6	I6149-06R0-20FM	M16 X 1.5	1	150T-14.5	2	I6149-06R-C5A	2	TMMU1400-150M	1	ATKU06R-6149
-8	I6149-08R0-20FM	M18 X 1.5	1	150T-16.5	2	I6149-06R-C5A	2	TMMU1800-150M	1	ATKU08R-6149
-10	I6149-10R1-25FM	M22 X 1.5	1	151T-20.5	2	I6149-04R-C5A	2	TMMU1800-150M	1	ATKU10R-6149
-12	I6149-12R2-32FM	M27 X 2	1	152T-25	2	I6149-12R-C5A	2	TMMU2000-200M	1	ATKU12R-6149
-14	I6149-14R2-32FM	M30 X 2	1	152T-28	2	I6149-14R-C5A	2	TMMU2000-200M	1	ATKU14R-6149
-16	I6149-16R2-32FM	M33 X 2	1	152T-31	2	I6149-16R-C5A	2	TMMU2000-200M	1	ATKU16R-6149
-20	I6149-20R3-32FM	M42 X 2	1	453T-40	1	I6149-20R-C5A	2	TMMU2000-200M	1	ATKU20R-6149
-24	I6149-24R3-32FM	M48 X 2	1	453T-46	1	I6149-24R-C5A	2	TMMU2000-200M	1	ATKU24R-6149
-32	I6149-32R4-32FM	M60 X 2	1	454T-58	1	I6149-32R-C5A	2	TMMU2000-200M	1	ATKU32R-6149



AccuThread™ Port Specific Solid Carbide Thread Mills

Port Size	D ₂	AccuThread 432				Qty	Part No.
		D ₁	L ₀	D ₂	L ₁		
-4	1.50	7.40	19.50	8.00	64.00	4	TMMU1000-150M
-5 to -6	1.50	10.90	27.00	12.00	84.00	4	TMMU1400-150M
-8 to -10	1.50	11.90	31.50	12.00	84.00	4	TMMU1800-150M
-12 to -32	2.00	11.95	30.00	12.00	84.00	4	TMMU2000-200M

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

Key on A92.1

A92: 30 - 37

A92: 2 - 4

A92: 12 - 13

DRILLING

BORING

REAMING

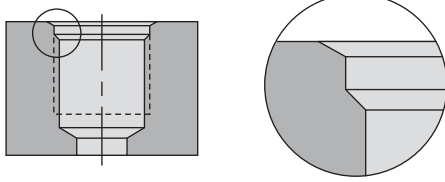
BURNISHING

THREADING

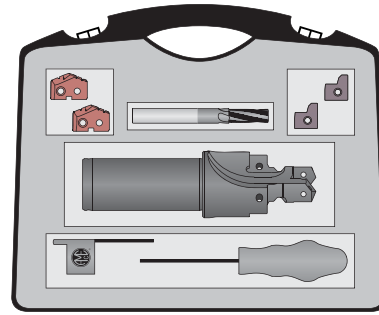
SPECIALS

DRILLING

AS5202 | Ferrous Materials

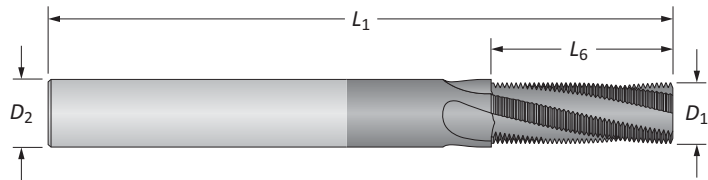


SAE AS5202



BORING

Dash No.	AccuPort 432			Super Cobalt (AM200®)		C5 Carbide (TiAlN)		TMAK Thread Mill (AM210®)		Key Part No.
	Part No.	Port Thread Size	Qty	Part No.	Qty	Part No.	Qty	Part No.	Qty	
-4	AS5202-04Y-063F	7/16-20 UNJF-3B	1	45YH-.390	2	AS5202-04-C5A	2	TMAK0438-20	1	ATKK04-5202
-5	AS5202-05Z-063F	1/2-20 UNJF-3B	1	45ZH-11.5	2	AS5202-05-C5A	2	TMAK0438-20	1	ATKK05-5202
-6	AS5202-06Z-075F	9/16-18 UNJF-3B	1	45ZH-.510	2	AS5202-06-C5A	2	TMAK0563-18	1	ATKK06-5202
-8	AS5202-08O-075F	3/4-16 UNJF-3B	1	450H-17.5	2	AS5202-08-C5A	2	TMAK0750-16	1	ATKK08-5202
-10	AS5202-10I-100F	7/8-14 UNJF-3B	1	451H-20.5	2	AS5202-10-C5A	2	TMAK0875-14	1	ATKK10-5202
-12	AS5202-12Z-125F	1-1/16-12 UNJ-3B	1	452H-25	2	AS5202-12-C5A	2	TMAK1063-12	1	ATKK12-5202
-14	AS5202-14Z-125F	1-3/16-12 UNJ-3B	1	452H-1.109	2	AS5202-14-C5A	2	TMAK1063-12	1	ATKK14-5202
-16	AS5202-16Z-125F	1-5/16-12 UNJ-3B	1	452H-1.234	2	AS5202-16-C5A	2	TMAK1063-12	1	ATKK16-5202
-20	AS5202-20Z-150F	1-5/8-12 UNJ-3B	1	453H-1.547	1	AS5202-20-C5A	2	TMAK1063-12	1	ATKK20-5202
-24	AS5202-24Z-150F	1-7/8-12 UNJ-3B	1	453H-1.797	1	AS5202-24-C5A	2	TMAK1063-12	1	ATKK24-5202
-32	AS5202-32Z-150F	2-1/2-12 UNJ-3B	1	454H-61.5	1	AS5202-32-C5A	2	TMAK1063-12	1	ATKK32-5202



REAMING

Port Size	Flutes	TMAK Thread Mill				Flutes	Part No.
		D ₁	L ₆	D ₂	L ₁		
-4 to -5	20	0.335	0.600	0.375	3.5	4	TMAK0438-20
-6	18	0.370	0.666	0.375	3.5	4	TMAK0563-18
-8	16	0.495	0.750	0.500	3.5	4	TMAK0750-16
-10	14	0.495	0.857	0.500	3.5	4	TMAK0875-14
-12 to -32	12	0.495	0.917	0.500	3.5	4	TMAK1063-12

AccuThread™ Port Specific Solid Carbide Thread Mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

SPECIALS

Key on A92: 1

A92: 30 - 37

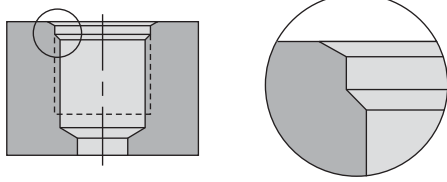
A92: 2 - 4

A92: 14 - 15

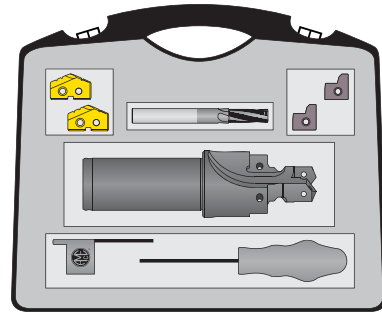


AccuPort 432® Port Contour Cutters

AS5202 | Non-Ferrous Materials

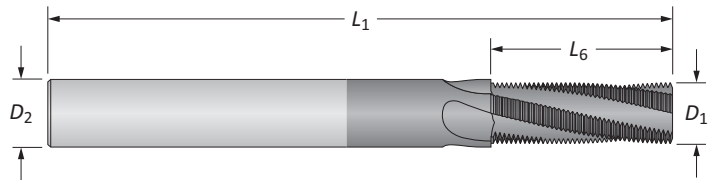


SAE AS5202



AccuPort 432® Port Contour Cutters

Dash	AccuPort 432			Super Cobalt (TiN)		C5 Carbide (TiAlN)		AM210®		Key
	Part No.	Port Thread Size	Qty	Part No.	Qty	Part No.	Qty	Part No.	Qty	
-4	AS5202-04Y-063F	7/16-20 UNJF-3B	1	15YT-390	2	AS5202-04-C5A	2	TMAU0438-20	1	ATKU04-5202
-5	AS5202-05Z-063F	1/2-20 UNJF-3B	1	15ZT-11.5	2	AS5202-05-C5A	2	TMAU0438-20	1	ATKU05-5202
-6	AS5202-06Z-075F	9/16-18 UNJF-3B	1	15ZT-510	2	AS5202-06-C5A	2	TMAU0563-18	1	ATKU06-5202
-8	AS5202-08O-075F	3/4-16 UNJF-3B	1	150T-17.5	2	AS5202-08-C5A	2	TMAU0750-16	1	ATKU08-5202
-10	AS5202-10I-100F	7/8-14 UNJF-3B	1	151T-20.5	2	AS5202-10-C5A	2	TMAU0875-14	1	ATKU10-5202
-12	AS5202-122-125F	1-1/16-12 UNJ-3B	1	152T-25	2	AS5202-12-C5A	2	TMAU1063-12	1	ATKU12-5202
-14	AS5202-142-125F	1-3/16-12 UNJ-3B	1	152T-1.109	2	AS5202-14-C5A	2	TMAU1063-12	1	ATKU14-5202
-16	AS5202-162-125F	1-5/16-12 UNJ-3B	1	152T-1.234	2	AS5202-16-C5A	2	TMAU1063-12	1	ATKU16-5202
-20	AS5202-203-150F	1-5/8-12 UNJ-3B	1	453T-1.547	1	AS5202-20-C5A	2	TMAU1063-12	1	ATKU20-5202
-24	AS5202-243-150F	1-7/8-12 UNJ-3B	1	453T-1.797	1	AS5202-24-C5A	2	TMAU1063-12	1	ATKU24-5202
-32	AS5202-324-150F	2-1/2-12 UNJ-3B	1	454T-61.5	1	AS5202-32-C5A	2	TMAU1063-12	1	ATKU32-5202



AccuThread™ Port Specific Solid Carbide Thread Mills

Port Size	Flutes	D ₁	L ₆	D ₂	L ₁	Flutes	Part No.
-4 to -5	20	0.335	0.600	0.375	3.5	4	TMAU0438-20
-6	18	0.370	0.666	0.375	3.5	4	TMAU0563-18
-8	16	0.495	0.750	0.500	3.5	4	TMAU0750-16
-10	14	0.495	0.857	0.500	3.5	4	TMAU0875-14
-12 to -32	12	0.495	0.917	0.500	3.5	4	TMAU1063-12

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

A92: 30 - 37

A92: 2 - 4

A92: 14 - 15

Key on A92.1

DRILLING

BORING

REAMING

BURNISHING

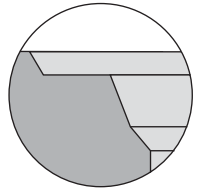
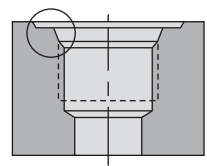
THREADING

SPECIALS

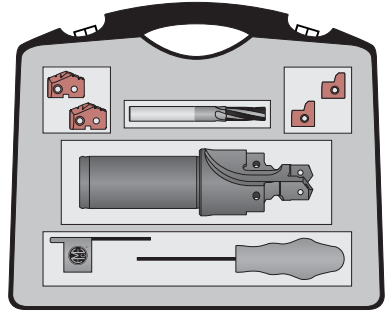
DRILLING

AccuPort 432® Port Contour Cutters

G1731 | Ferrous Materials



JDS-G173.1



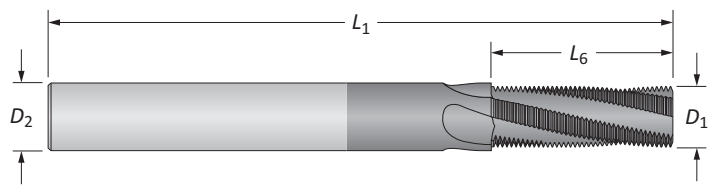
BORING

AccuPort 432® Port Contour Cutters

Dash	AccuPort 432			Super Cobalt (AM200®)		Port Form (AM200®)		AccuThread® Thread Mill (AM210®)		Key
	Part No.	Port Thread Size	Qty	Part No.	Qty	Part No.	Qty	Part No.	Qty	
-4	G1731-04Y-16FM	M12 X 1.5	1	45YH-10.5	2	G1731-01-C3H	2	TMMK1000-150M	1	ATKK04-G1731
-5	G1731-05Z-16FM	M14 X 1.5	1	45ZH-12.5	2	G1731-01-C3H	2	TMMK1400-150M	1	ATKK05-G1731
-6	G1731-060-20FM	M16 X 1.5	1	450H-14.5	2	G1731-02-C3H	2	TMMK1400-150M	1	ATKK06-G1731
-8	G1731-080-20FM	M18 X 1.5	1	450H-16.5	2	G1731-02-C3H	2	TMMK1800-150M	1	ATKK08-G1731
-10	G1731-101-25FM	M22 X 1.5	1	451H-20.5	2	G1731-02-C3H	2	TMMK1800-150M	1	ATKK10-G1731
-12	G1731-122-32FM	M27 X 2	1	452H-25	2	G1731-03-C3H	2	TMMK2000-200M	1	ATKK12-1731
-14	G1731-142-32FM	M30 X 2	1	452H-28	2	G1731-03-C3H	2	TMMK2000-200M	1	ATKK14-1731
-16	G1731-162-32FM	M33 X 2	1	452H-31	2	G1731-04-C3H	2	TMMK2000-200M	1	ATKK16-1731
-18	G1731-183-32FM	M38 X 2	1	453H-36	1	G1731-04-C3H	2	TMMK2000-200M	2	ATKK18-1731
-20	G1731-203-32FM	M42 X 2	1	453H-40	1	G1731-05-C3H	2	TMMK2000-200M	1	ATKK20-G1731
-24	G1731-243-32FM	M48 X 2	1	453H-46	1	G1731-05-C3H	2	TMMK2000-200M	1	ATKK24-1731
-32	G1731-324-32FM	M60 X 2	1	454H-58	1	G1731-06-C3H	2	TMMK2000-200M	1	ATKK32-1731

REAMING

BURNISHING



AccuThread™ Port Specific Solid Carbide Thread Mills

Port Size	Pitch	AccuThread				Flutes	Key
		D ₁	L ₂	D ₂	L ₁		
-4	1.50	7.40	19.50	8.00	64.00	4	TMMK1000-150M
-5 to -6	1.50	10.90	27.00	12.00	84.00	4	TMMK1400-150M
-8 to -10	1.50	11.90	31.50	12.00	84.00	4	TMMK1800-150M
-12 to -32	2.00	11.95	30.00	12.00	84.00	4	TMMK2000-200M

AccuPort 432 specific thread mills - International Unified Series (UN) manufactured specifically for use with AccuPort 432 hydraulic port forms. The length of cut allows full thread with one pass. Conforms with J1926 and SAE AS5202 port form specifications.

THREADING

SPECIALS

A92: 30 - 37 A92: 2 - 4 A92: 16 - 17



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DRILLING



BORING



REAMING



BURNISHING



THREADING



SPECIALS



Recommended Drilling Data | Imperial (inch)

HSS

ISO	Material	Rockwell C (HRC)	Rockwell B (HBS)	Speed (SFM)			Feed Rate (IPR) by Tube Size and T-A® Insert Series						
				1/2"	3/4"	1"	AM200®	4 - 5	10	12 - 18	20 - 24	32	
S	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	HSS	200	280	260	325	0.007	0.010	0.013	0.016	0.020	0.023
		150 - 200	HSS	180	260	235	300	0.007	0.010	0.013	0.016	0.020	0.023
		200 - 250	HSS	160	240	210	280	0.006	0.010	0.013	0.016	0.020	0.023
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	HSS	170	250	220	290	0.006 ❖	0.009	0.012	0.015	0.019	0.023
		125 - 175	HSS	160	240	210	275	0.006 ❖	0.009	0.012	0.015	0.019	0.023
		175 - 225	HSS	150	225	195	260	0.005 ❖	0.008	0.010	0.014	0.018	0.021
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	HSS	160	240	210	275	0.006	0.009	0.012	0.015	0.019	0.023
		175 - 225	HSS	150	225	195	260	0.005	0.008	0.010	0.014	0.018	0.021
		225 - 275	HSS	140	210	180	240	0.005 ❖	0.008	0.010	0.014	0.018	0.021
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	HSS	150	210	195	240	0.006	0.008	0.010	0.014	0.017	0.019
		175 - 225	HSS	140	195	180	225	0.005	0.008	0.010	0.014	0.017	0.019
		225 - 275	HSS	130	180	170	210	0.005	0.007	0.010	0.014	0.017	0.019
275 - 325		SC	120	170	155	195	0.004	0.006	0.009	0.012	0.015	0.017	
325 - 375		SC	110	155	145	180	0.003	0.006	0.009	0.012	0.015	0.017	
High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	SC	80	110	100	125	0.005 ❖	0.007	0.009	0.010	0.014	0.017	
	300 - 350	SC	60	85	80	100	0.004 ❖	0.007	0.009	0.010	0.014	0.017	
	350 - 400	SC	50	70	65	80	0.003 ❖	0.006	0.008	0.009	0.012	0.015	
Structural Steel A36, A285, A516, etc.	100 - 150	HSS	140	200	180	235	0.006 ❖	0.010	0.012	0.014	0.018	0.021	
	150 - 250	HSS	120	170	155	190	0.005 ❖	0.009	0.010	0.012	0.016	0.019	
	250 - 350	SC	100	140	130	160	0.004 ❖	0.009	0.009	0.010	0.014	0.017	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	SC	80	110	105	125	0.004 ❖	0.006	0.008	0.010	0.014	0.015	
	200 - 250	SC	60	90	85	105	0.004 ❖	0.006	0.008	0.010	0.012	0.015	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	SC	30	40	35	45	0.003 ❖	0.007	0.008	0.010	0.012	0.015
		220 - 310	SC	25	35	30	40	0.003 ❖	0.006	0.007	0.008	0.010	0.012
K	Stainless Steel 400 Series 416, 420, 303, etc.	185 - 275	SC	75	105	95	110	0.006 ❖	0.008	0.009	0.011	0.012	0.016
		275 - 350	SC	60	90	80	100	0.005 ❖	0.007	0.008	0.010	0.012	0.014
K	Nodular, Grey, Ductile Cast Iron	120 - 150	HSS	170	250	220	290	0.007	0.012	0.016	0.020	0.024	0.027
		150 - 200	HSS	150	225	195	260	0.006	0.011	0.014	0.018	0.022	0.025
		200 - 220	HSS	130	195	170	225	0.006	0.009	0.012	0.016	0.018	0.021
		220 - 260	SC	110	165	145	190	0.005	0.007	0.009	0.012	0.014	0.017
		260 - 320	SC	90	135	120	155	0.004	0.006	0.007	0.009	0.012	0.014
K	Titanium	30	HSS	600	850	750	-	0.008	0.013	0.016	0.020	0.022	0.025
		180	HSS	300	450	400	-	0.008	0.013	0.016	0.018	0.022	0.025

Formulas

<p>1. $RPM = (3.82 \cdot SFM) / DIA$</p> <p>where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = finish diameter of drill (inch)</p>	<p>2. $SFM = RPM \cdot 0.262 \cdot DIA$</p> <p>where: SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch)</p>	<p>3. $IPR = RPM \cdot IPR$</p> <p>where: IPM = Feed rate RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)</p>
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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 also available through our Application Engineering Team. Due to potential chip formation issues, contact our Application Engineering Team for assistance machining materials marked with a ❖.

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

Coolant Recommendations | Imperial (inch)

HSS

ISO	Material	Pressure / Flow Rate	Flow Rate	Flow Rate	Flow Rate	Flow Rate	Flow Rate	Flow Rate
			4 - 5	10	12	20 - 24	32	
			T-A Series	T-A Series	T-A Series	T-A Series	T-A Series	T-A Series
			0	1	2	3	4	
M	Free Machining Steel 1118, 1215, 12L14, etc.	PSI	175 - 185	100 - 120	105 - 140	80 - 115	75 - 100	40 - 50
		GPM	2.5 - 2.6	2.8 - 3.0	4.4 - 5.2	7 - 8	12 - 14	30 - 33
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	PSI	165 - 170	75 - 90	75 - 95	60 - 80	55 - 75	30 - 40
		GPM	2.4 - 2.5	2.4 - 2.6	3.7 - 4.2	6 - 7	11 - 12	26 - 30
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	PSI	160 - 165	70 - 85	70 - 90	55 - 75	50 - 70	30 - 40
		GPM	2.3 - 2.4	2.3 - 2.6	3.7 - 4.2	5 - 6	10 - 12	26 - 30
	Alloy Steel 4140, 5140, 8640, etc.	PSI	160 - 165	65 - 75	65 - 80	50 - 70	45 - 60	30 - 35
		GPM	2.3 - 2.4	2.2 - 2.4	3.5 - 3.9	5 - 6	10 - 11	26 - 28
	High Strength Alloy 4340, 4330V, 300M, etc.	PSI	150 - 155	55 - 60	45 - 50	25 - 30	25 - 30	20 - 25
		GPM	2.3 - 2.4	2.1 - 2.2	2.9 - 3.1	4 - 5	7 - 8	21 - 23
	Structural Steel A36, A285, A516, etc.	PSI	160 - 165	75 - 85	65 - 80	40 - 55	40 - 50	25 - 30
		GPM	2.3 - 2.4	2.4 - 2.6	3.5 - 3.9	5 - 6	9 - 10	23 - 26
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	PSI	150 - 155	55 - 60	45 - 50	25 - 30	25 - 30	20 - 25
		GPM	2.3 - 2.4	2.1 - 2.2	2.9 - 3.1	4 - 5	7 - 8	21 - 23
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	PSI	150 - 155	60 - 65	50 - 55	30 - 35	25 - 30	25 - 30
		GPM	2.3 - 2.4	2.2 - 2.3	3.1 - 3.2	4 - 5	7 - 8	23 - 26
N	Stainless Steel 400 Series 416, 420, 303, etc.	PSI	171	86	75	55	51	29
		GPM	3	3	4	6	10	26
K	Nodular, Grey, Ductile Cast Iron	PSI	160	65	61	41	35	29
		GPM	2	2	3	5	9	26
I	Aluminum	PSI	210	180	230	159	125	51
		GPM	3	4	6	9	16	33

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied's recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the AccuPort 432 Port Contour Cutter 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.

DRILLING
BORING
REAMING
BURNISHING
THREADING
SPECIALS



Recommended Drilling Data | Imperial (inch)

Carbide

ISO	Material	Rockwell (BHN)	Grade	Speed (SFM)			Feed Rate (IPR) by Tube Size and T-A® Insert Series				
				1/2"	3/4"	AM200®	4 - 5	10	12	15	20 - 24
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	C1, C5	320	420	480	0.008	0.012	0.015	0.018	0.021
		150 - 200	C1, C5	280	360	415	0.007	0.011	0.014	0.016	0.019
		200 - 250	C1, C5	260	340	390	0.006	0.010	0.013	0.015	0.017
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	C1, C5	300	390	450	0.008 ❖	0.010	0.013	0.017	0.019
		125 - 175	C1, C5	260	340	390	0.007 ❖	0.010	0.013	0.016	0.018
		175 - 225	C1, C5	240	310	355	0.006 ❖	0.009	0.012	0.015	0.017
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	C1, C5	260	340	390	0.007	0.010	0.013	0.016	0.018
		175 - 225	C1, C5	240	310	355	0.006	0.009	0.012	0.015	0.017
		225 - 275	C1, C5	210	270	310	0.006	0.009	0.012	0.015	0.017
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	C1, C5	250	325	375	0.007	0.010	0.013	0.016	0.018
		175 - 225	C1, C5	230	300	345	0.006	0.009	0.012	0.015	0.017
		225 - 275	C1, C5	210	270	310	0.006	0.009	0.012	0.015	0.017
275 - 325		C1, C5	200	250	285	0.005	0.008	0.011	0.014	0.016	
325 - 375		C1, C5	170	220	255	0.004	0.007	0.010	0.013	0.015	
High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	C1, C5	160	200	230	0.006 ❖	0.009	0.010	0.012	0.015	
	300 - 350	C1, C5	140	180	205	0.005 ❖	0.008	0.009	0.011	0.014	
	350 - 400	C1, C5	120	160	185	0.004 ❖	0.007	0.008	0.010	0.012	
Structural Steel A36, A285, A516, etc.	100 - 150	C1, C5	240	310	355	0.008 ❖	0.011	0.014	0.016	0.018	
	150 - 250	C1, C5	200	250	285	0.006 ❖	0.010	0.012	0.014	0.016	
	250 - 350	C1, C5	180	230	265	0.005 ❖	0.009	0.011	0.012	0.014	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	C1, C5	160	220	255	0.004 ❖	0.007	0.009	0.011	0.013	
	200 - 250	C1, C5	120	170	195	0.004 ❖	0.007	0.009	0.011	0.013	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	C2	80	105	120	0.004 ❖	0.007	0.009	0.011	0.013
		220 - 310	C2	60	85	95	0.004 ❖	0.006	0.008	0.010	0.012
P	Stainless Steel 400 Series 416, 420, 303, etc.	185 - 275	C2	160	210	240	0.007 ❖	0.009	0.012	0.014	0.016
		275 - 350	C2	120	160	185	0.006 ❖	0.008	0.011	0.012	0.014
K	Nodular, Grey, Ductile Cast Iron	120 - 150	C2, C3	320	460	500	0.008	0.012	0.015	0.019	0.023
		150 - 200	C2, C3	270	400	480	0.007	0.011	0.013	0.017	0.021
		200 - 220	C2, C3	240	360	430	0.006	0.009	0.012	0.015	0.018
		220 - 260	C2, C3	210	310	370	0.005	0.008	0.011	0.013	0.015
		260 - 320	C2, C3	180	270	335	0.005	0.007	0.010	0.011	0.013
P	Aluminum	30	C2	1200	1500	-	0.010	0.015	0.018	0.020	0.022
		180	C2	800	1000	-	0.009	0.013	0.016	0.018	0.020

Formulas

<p>1. $RPM = (3.82 \cdot SFM) / DIA$</p> <p>where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = finish diameter of drill (inch)</p>	<p>2. $SFM = RPM \cdot 0.262 \cdot DIA$</p> <p>where: SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (inch)</p>	<p>3. $IPR = RPM \cdot IPR$</p> <p>where: IPM = Feed rate RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)</p>
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DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

Coolant Recommendations | Imperial (inch)

Carbide

ISO	Material	Pressure / Flow Rate	4 - 5	7	10	12	20 - 24
			T-A Series 4	T-A Series 0	T-A Series 1	T-A Series 2	T-A Series 3
M	Free Machining Steel 1118, 1215, 12L14, etc.	PSI	195	140	160	140	155
		GPM	2.6	3.3	5.5	9	18
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	PSI	180	105	105	110	115
		GPM	2.5	2.9	4.4	8	15
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	PSI	175	100	90	100	75
		GPM	2.5	2.8	4.1	7	13
	Alloy Steel 4140, 5140, 8640, etc.	PSI	165	85	100	75	70
		GPM	2.4	2.6	4.3	6	12
	High Strength Alloy 4340, 4330V, 300M, etc.	PSI	160	65	55	40	35
		GPM	2.4	2.3	3.2	5	8
	Structural Steel A36, A285, A516, etc.	PSI	175	115	105	75	70
		GPM	2.5	3	4.4	6	12
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	PSI	155	60	55	40	35
		GPM	2.4	2.2	3.2	5	8
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	PSI	150 - 155	60 - 65	50 - 55	30 - 35	25 - 30
		GPM	2.3 - 2.4	2.2 - 2.3	3.1 - 3.2	4 - 5	7 - 8
N	Stainless Steel 400 Series 416, 420, 303, etc.	PSI	329	239	260	250	190
		GPM	3	4	7	12	20
K	Nodular, Grey, Ductile Cast Iron	PSI	225	104	90	90	80
		GPM	3	3	4	7	13
P	Aluminum	PSI	350	319	315	284	200
		GPM	4	5	8	12	20

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Recommended Drilling Data | Metric (mm)

HSS

ISO	Material	BHN	Grade	Speed (M/min)				Feed Rate (mm/rev) by Tube Size and T-A® Insert Series					
				1/2"	3/8"	1/4"	AM200®	4 - 5	0	1	2	3	4
HSS	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	HSS	61	85	79	92	0.18	0.25	0.33	0.41	0.51	0.58
		150 - 200	HSS	55	79	72	87	0.18	0.25	0.33	0.41	0.51	0.58
		200 - 250	HSS	49	73	64	81	0.15	0.25	0.33	0.41	0.51	0.58
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	HSS	52	76	67	84	0.15 ❖	0.23	0.30	0.38	0.48	0.58
		125 - 175	HSS	49	73	64	81	0.15 ❖	0.23	0.30	0.38	0.48	0.58
		175 - 225	HSS	46	69	59	76	0.13 ❖	0.20	0.25	0.36	0.46	0.53
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	HSS	49	73	64	79	0.15	0.23	0.30	0.38	0.48	0.58
		175 - 225	HSS	46	69	59	75	0.13	0.20	0.25	0.36	0.46	0.53
		225 - 275	HSS	43	64	55	70	0.13 ❖	0.20	0.25	0.36	0.46	0.53
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	HSS	46	64	59	69	0.15	0.20	0.25	0.36	0.43	0.48
		175 - 225	HSS	43	59	55	66	0.13	0.20	0.25	0.36	0.43	0.48
		225 - 275	HSS	40	55	52	60	0.13	0.18	0.25	0.36	0.43	0.48
275 - 325		SC	37	52	47	56	0.10	0.15	0.23	0.30	0.38	0.43	
325 - 375		SC	34	47	44	55	0.08	0.15	0.23	0.30	0.38	0.43	
High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	SC	24	34	30	37	0.13 ❖	0.18	0.23	0.25	0.36	0.43	
	300 - 350	SC	18	26	24	27	0.10 ❖	0.18	0.23	0.25	0.36	0.43	
	350 - 400	SC	15	21	20	23	0.08 ❖	0.15	0.20	0.23	0.30	0.38	
Structural Steel A36, A285, A516, etc.	100 - 150	HSS	43	61	55	67	0.15 ❖	0.25	0.30	0.36	0.46	0.53	
	150 - 250	HSS	37	52	47	56	0.13 ❖	0.23	0.25	0.30	0.41	0.48	
	250 - 350	SC	30	43	40	47	0.10 ❖	0.20	0.23	0.25	0.36	0.43	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	SC	24	34	32	37	0.10	0.15	0.20	0.25	0.30	0.38	
	200 - 250	SC	18	27	26	31	0.10	0.15	0.20	0.25	0.30	0.38	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	SC	30	40	35	45	0.08 ❖	0.18	0.20	0.25	0.30	0.38
		220 - 310	SC	25	35	30	40	0.08 ❖	0.15	0.18	0.20	0.25	0.30
K	Stainless Steel 400 Series 416, 420, 303, etc.	185 - 275	SC	23	32	29	33	0.15 ❖	0.20	0.23	0.28	0.36	0.41
		275 - 350	SC	18	27	24	29	0.13 ❖	0.18	0.20	0.25	0.30	0.36
K	Nodular, Grey, Ductile Cast Iron	120 - 150	HSS	52	76	67	82	0.18	0.30	0.41	0.51	0.61	0.69
		150 - 200	HSS	46	69	59	75	0.15	0.28	0.36	0.46	0.56	0.64
		200 - 220	HSS	40	59	52	66	0.15	0.23	0.30	0.41	0.46	0.53
		220 - 260	SC	34	50	44	55	0.13	0.18	0.23	0.30	0.36	0.43
		260 - 320	SC	27	41	37	44	0.10	0.15	0.18	0.23	0.30	0.36
K	Aluminum	30	HSS	183	259	229	-	0.20	0.33	0.41	0.51	0.56	0.64
		180	HSS	91	137	122	-	0.20	0.33	0.41	0.46	0.56	0.64

Formulas

<p>1. $RPM = (318.47 \cdot M/min) / DIA$</p> <p>where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = finish diameter of drill (mm)</p>	<p>2. $M/min = RPM \cdot 0.003 \cdot DIA$</p> <p>where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm)</p>	<p>3. $IPM = RPM \cdot mm/rev$</p> <p>where: IPM = feed rate RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev)</p>
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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*.

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 also available through our Application Engineering Team. Due to potential chip formation issues, contact our Application Engineering Team for assistance machining materials marked with a ❖.

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Coolant Recommendations | Metric (mm)

HSS

ISO	Material	Pressure / Flow Rate	4 - 5	7 - 8	10	12 - 14	20 - 24	32
			T-A Series 0	T-A Series 1	T-A Series 2	T-A Series 3	T-A Series 4	
P	Free Machining Steel 1118, 1215, 12L14, etc.	BAR	12 - 13	7 - 8	7 - 10	6 - 8	6 - 7	3 - 4
		LPM	9.5 - 9.8	10.6 - 11.4	16.7 - 19.7	26.5 - 30.3	45.4 - 53.0	114 - 125
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	BAR	11 - 12	5 - 6	5 - 7	4 - 6	4 - 5	2 - 3
		LPM	9.1 - 9.5	9.1 - 9.8	14.0 - 15.9	22.7 - 26.5	41.6 - 45.4	98 - 114
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	BAR	11	5 - 6	5 - 6	4 - 5	3 - 5	2 - 3
		LPM	8.7 - 9.1	8.7 - 9.8	13.6 - 15.5	18.9 - 22.7	37.9 - 45.4	98 - 114
	Alloy Steel 4140, 5140, 8640, etc.	BAR	11	5 - 6	5	3 - 5	3 - 4	2
		LPM	8.7 - 9.1	13.2 - 14.8	8.3 - 9.1	18.9 - 22.7	34.1 - 37.9	87 - 98
	High Strength Alloy 4340, 4330V, 300M, etc.	BAR	10 - 11	4 - 5	3 - 4	2	2	2
		LPM	8.7 - 9.1	7.9 - 8.3	11.0 - 11.7	15.1 - 18.9	26.5 - 30.3	79 - 87
	Structural Steel A36, A285, A516, etc.	BAR	11	5 - 6	5 - 6	3 - 4	3	2
		LPM	8.7 - 9.1	9.1 - 9.8	13.2 - 14.8	18.9 - 22.7	34.1 - 37.9	87 - 98
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	BAR	4	10 - 11	3	2	2	1 - 2
		LPM	7.9 - 8.3	8.7 - 9.1	11.0 - 11.7	15.1 - 18.9	26.5 - 30.3	79 - 87
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	BAR	10 - 11	4 - 5	3 - 4	2	2	2
		LPM	8.7 - 9.1	8.3 - 8.7	11.7 - 12.1	15.1 - 18.9	26.5 - 30.3	87 - 98
Q	Stainless Steel 400 Series 416, 420, 303, etc.	BAR	11.4 - 11.7	4.8 - 5.8	4.5 - 5.2	2.7 - 3.8	2.7 - 3.4	1.7 - 2
		LPM	9.1 - 9.5	8.7 - 9.8	13.2 - 14	18.9 - 22.7	34.1 - 37.9	87 - 98
K	Nodular, Grey, Ductile Cast Iron	BAR	10.7 - 11.0	4.1 - 4.5	3.4 - 4.1	2 - 2.7	2 - 2.4	1.7 - 2
		LPM	8.7 - 9.1	8.3 - 8.7	11.7 - 12.5	15.1 - 18.9	30.3 - 34.1	87 - 98
M	Aluminum	BAR	13.1 - 14.5	9.6 - 12.4	10.3 - 15.8	7.9 - 11	6.2 - 8.6	2.7 - 3.4
		LPM	9.8 - 10.2	12.5 - 14	20.1 - 23.1	30.3 - 34.1	53 - 60.6	114 - 125

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied's recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the AccuPort 432 Port Contour Cutter 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.

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Recommended Drilling Data | Metric (mm)

Carbide

ISO Material	Brinell (BHN)	Grade	Speed (M/min)			Feed Rate (mm/rev) by Tube Size and T-A® Insert Series				
			7/16"	1/2"	AM200®	4 - 5	0	10	12 1/16"	20 - 24
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	K35, P40	98	128	146	0.020	0.30	0.38	0.46	0.53
	150 - 200	K35, P40	85	110	126	0.18	0.28	0.36	0.41	0.48
	200 - 250	K35, P40	79	104	119	0.15	0.25	0.33	0.38	0.43
Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	K35, P40	91	119	137	0.20 ❖	0.25	0.33	0.43	0.48
	125 - 175	K35, P40	79	104	119	0.18 ❖	0.25	0.33	0.41	0.46
	175 - 225	K35, P40	73	94	108	0.15 ❖	0.23	0.30	0.38	0.43
Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	225 - 275	K35, P40	64	82	94	0.13 ❖	0.23	0.30	0.38	0.43
	125 - 175	K35, P40	79	104	119	0.18	0.25	0.33	0.41	0.46
	175 - 225	K35, P40	73	94	108	0.15	0.23	0.30	0.38	0.43
Alloy Steel 4140, 5140, 8640, etc.	225 - 275	K35, P40	64	82	94	0.15	0.23	0.30	0.38	0.43
	275 - 325	K35, P40	61	76	87	0.13	0.20	0.28	0.36	0.41
	325 - 375	K35, P40	52	67	78	0.10	0.18	0.25	0.33	0.38
High Strength Alloy 4340, 4330V, 300M, etc.	125 - 175	K35, P40	76	99	114	0.18	0.25	0.33	0.41	0.46
	175 - 225	K35, P40	70	91	105	0.15	0.23	0.30	0.38	0.43
	225 - 275	K35, P40	64	82	94	0.15	0.23	0.30	0.38	0.43
Structural Steel A36, A285, A516, etc.	275 - 325	K35, P40	61	76	87	0.13	0.20	0.28	0.36	0.41
	325 - 375	K35, P40	52	67	78	0.10	0.18	0.25	0.33	0.38
	225 - 300	K35, P40	49	61	73	0.15 ❖	0.23	0.25	0.30	0.38
Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	300 - 350	K35, P40	43	55	62	0.13 ❖	0.20	0.23	0.28	0.36
	350 - 400	K35, P40	37	49	56	0.10 ❖	0.18	0.20	0.25	0.30
	100 - 150	K35, P40	73	94	108	0.20 ❖	0.28	0.36	0.41	0.46
High Temp Alloy Hastelloy B, Inconel 600, etc.	150 - 250	K35, P40	61	76	87	0.15 ❖	0.25	0.30	0.36	0.41
	250 - 350	K35, P40	55	70	81	0.13 ❖	0.23	0.28	0.30	0.36
	350 - 400	K35, P40	55	70	81	0.13 ❖	0.23	0.28	0.30	0.36
Stainless Steel 400 Series 416, 420, 303, etc.	150 - 200	K35, P40	49	67	78	0.10 ❖	0.18	0.23	0.28	0.33
	200 - 250	K35, P40	37	52	59	0.10 ❖	0.18	0.23	0.28	0.33
Nodular, Grey, Ductile Cast Iron	140 - 220	K20	24	32	36	0.10 ❖	0.18	0.23	0.28	0.33
	220 - 310	K20	18	26	29	0.10 ❖	0.15	0.20	0.25	0.30
	185 - 275	K20	49	64	73	0.18 ❖	0.23	0.30	0.36	0.41
	275 - 350	K20	37	49	46	0.15 ❖	0.20	0.28	0.30	0.36
	120 - 150	K20, K10	98	140	152	0.20	0.30	0.38	0.48	0.58
150 - 200	K20, K10	82	122	146	0.18	0.28	0.33	0.43	0.53	
200 - 220	K20, K10	73	110	131	0.15	0.23	0.30	0.38	0.46	
220 - 260	K20, K10	64	94	113	0.13	0.20	0.28	0.33	0.38	
260 - 320	K20, K10	55	82	102	0.13	0.18	0.25	0.28	0.33	
Aluminum	30	K20	366	457	-	0.25	0.38	0.46	0.51	0.56
	180	K20	244	305	-	0.23	0.33	0.41	0.46	0.51

Formulas

<p>1. $RPM = (318.47 \cdot M/min) / DIA$</p> <p>where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = finish diameter of drill (mm)</p>	<p>2. $M/min = RPM \cdot 0.003 \cdot DIA$</p> <p>where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm)</p>	<p>3. $IPM = RPM \cdot mm/rev$</p> <p>where: IPM = feed rate RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev)</p>
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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 also available through our Application Engineering Team. Due to potential chip formation issues, contact our Application Engineering Team for assistance machining materials marked with a ❖.

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Coolant Recommendations | Metric (mm)

Carbide

ISO	Material	Pressure / Flow Rate	4 - 5	10	12	20 - 24	
			T-A Series 0	T-A Series 1	T-A Series 2	T-A Series 3	
P	Free Machining Steel 1118, 1215, 12L14, etc.	BAR	20	16	17	15	12
		LPM	12.2	16.3	25.3	41.5	71.9
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	BAR	11.4	13.3	20.6	36.5	62
		LPM	17	10	10	10	8
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	BAR	17	9	10	8	7
		LPM	11.1	12.3	19.3	30	55.8
	Alloy Steel 4140, 5140, 8640, etc.	BAR	10.4	9.1	12.6	18.8	33.6
		LPM	16	9	8	7	5
	High Strength Alloy 4340, 4330V, 300M, etc.	BAR	15	5	5	3	3
		LPM	10.4	9.1	13.6	19.7	36.5
	Structural Steel A36, A285, A516, etc.	BAR	16	9	8	7	5
		LPM	10.8	12	17.5	27.8	47.1
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	BAR	15	5	5	3	3
		LPM	10.4	9.1	13.6	19.7	36.5
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	BAR	17	11.4	12.4	11	9
		LPM	11.1	13.5	21.9	35.4	62
M	Stainless Steel 400 Series 416, 420, 303, etc.	BAR	22.7	16.5	17.9	17.2	13.1
		LPM	13	16.3	26.3	44.2	75
K	Nodular, Grey, Ductile Cast Iron	BAR	15.5	7.2	6.2	6.2	5.5
		LPM	10.7	10.8	15.4	26.5	48.7
N	Aluminum	BAR	24.1	22	21.7	19.6	13.8
		LPM	13.4	18.8	29	47.2	77

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied's recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the AccuPort 432 Port Contour Cutter 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.

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BTA (STS) Deep Hole Machining System

► **meier Rn** 0.5100" - 1.8820" (12.95mm - 47.80mm)



Material Ejection with Efficiency

The BT-A Drill (using the single tube system, or STS) conquers deep hole applications in ways other drills simply cannot. The internal ejection system flushes chips and debris from the hole with no interference to the cutting process.

By utilizing the countless advantages of the T-A® drill insert, the BT-A design significantly increases penetration rates over brazed heads and traditional gun drills. A specific BT geometry has also been developed to increase productivity in these types of drilling applications.

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.



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

WARNING 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.

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

meier.com for the most up-to-date information and procedures.

Excellent hole size and finish	Optimizes chip evacuation	Up to 2x the penetration rate of traditional BTA heads
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meier **able** **meier**



Aerospace

Agriculture

Automotive

Heavy Equipment

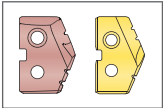
Hydraulics

Tool, Mold, and Die

Oil & Gas

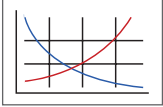
Reference Icons

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



Inserts

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



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling

Introduction Information

System Overview	2
Product Nomenclature	3

Series

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

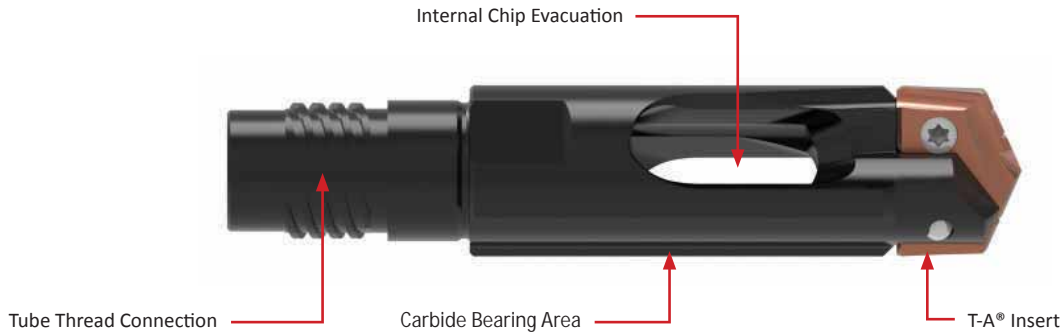
Series	Diameter Range	
	Inserts	Drill diam.
0	0.5100 - 0.6959	12.95 - 17.68
1	0.6960 - 0.9600	17.69 - 24.38
2	0.9601 - 1.3800	24.39 - 35.05
3	1.3801 - 1.8820	35.06 - 47.80



System Overview

Product Overview

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



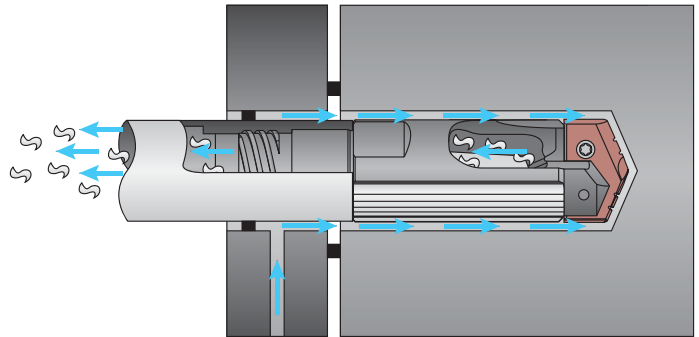
- ✓ **Improve hole straightness**
with the laser clad bearing area
- ✓ **Eliminate the need for re-sharpening**
with replaceable cutting edges
- ✓ **Reduce your inventory**
with the replaceable T-A® feature
- ✓ **Compatibility**
heads are compatible with standard BTA-STS systems
- ✓ **Balanced cutting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

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

- Low thrust web geometry reduces Z-axis requirements
- Tiny chip (-TC) lip geometry improves chip formation
- Polished cutting surface eliminates material build-up

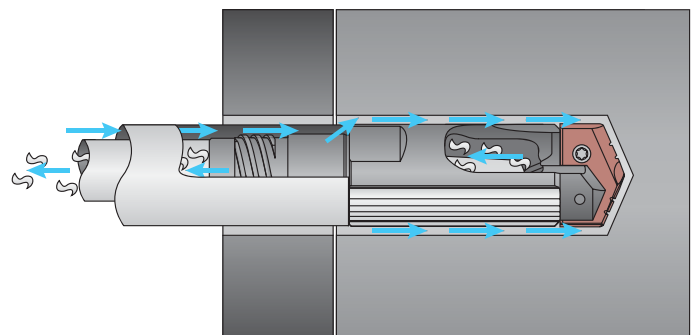


BT-A Single Tube System



BT-A Double Tube (Ejector) System

Patent Pending



2x INCREASE in penetration rates over traditional BTA heads

DRILLING

BORING

REAMING

BURNISHING

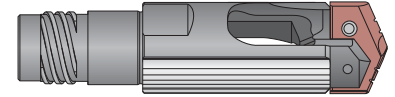
THREADING

SPECIALS

Product Nomenclature

BT-A Drill Holders

BTA2	-	804	-	1.1299
1		2		3



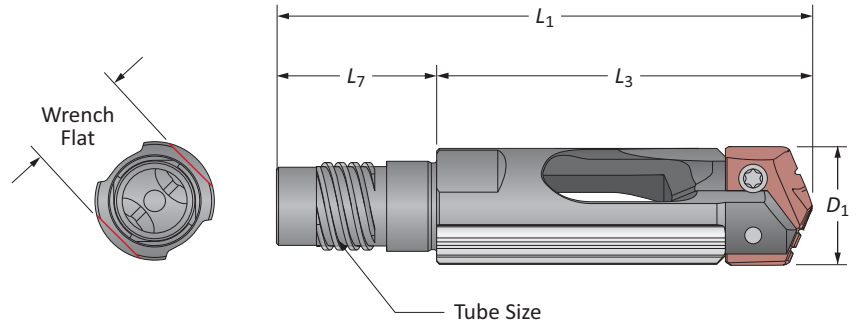
1. BT-A Drill T-A Insert Series
BTA0 = 0 series T-A insert
BTA1 = 1 series T-A insert
BTA2 = 2 series T-A insert
BTA3 = 3 series T-A insert

2. Tube Size		
794	800	806
795	801	807
796	802	808
797	803	809
798	804	810
799	805	811

3. Diameter
0.7344 = Inch
25.00 = Metric

Reference Key

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



BT-A Drill Tubes

BTAT	-	804	-	63
1		2		3

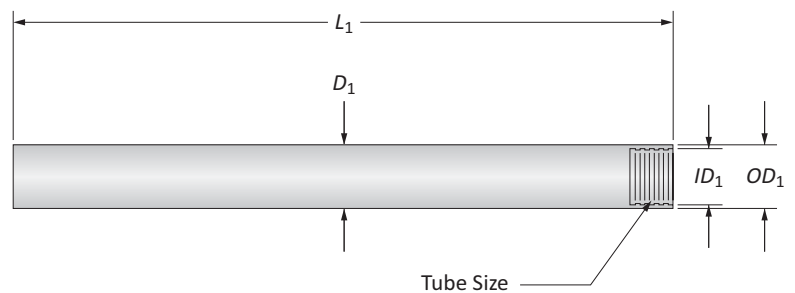
1. BT-A Drill T-A Insert Series
BTAT = BT-A Tube

2. Tube Size		
794	800	806
795	801	807
796	802	808
797	803	809
798	804	810
799	805	811

3. Length
63 = Standard
102 = Long

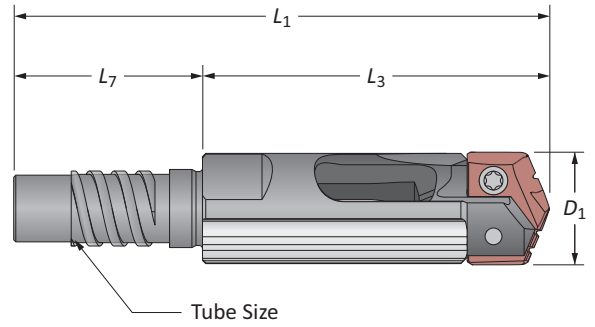
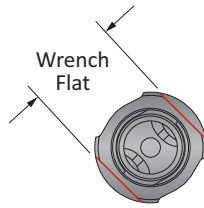
Reference Key

Symbol	Attribute
D_1	Body diameter
ID_1	Internal diameter
OD_1	Outer diameter
L_1	Overall length



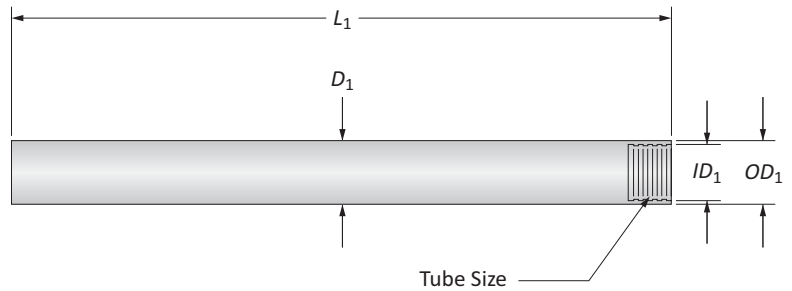
BT-A Drill Holders

0 Series | Diameter Range: 0.5100" - 0.6959" (12.95mm - 17.68mm)



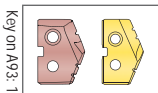
Tube Size	D_1	Holder			Part No.	T-A® Insert	Wrench Flat (mm)
		L_3	L_1	L_7			
794	0.5100 - 0.5359	1-45/64	2-39/64	29/32	BTA0-794-X.XXXX	1C10H-XXXX-BT	11
795	0.5360 - 0.5759	1-3/4	2-21/32	29/32	BTA0-795-X.XXXX	1C10H-XXXX-BT	12
796	0.5760 - 0.6149	1-13/16	2-3/4	61/64	BTA0-796-X.XXXX	1C10H-XXXX-BT	13
797	0.6150 - 0.6579	1-13/16	2-3/4	61/64	BTA0-797-X.XXXX	1C10H-XXXX-BT	14
798	0.6580 - 0.6959	1-25/32	2-47/64	61/64	BTA0-798-X.XXXX	1C10H-XXXX-BT	15

Tube Size	D_1	L_3	L_1	L_7	Part No.	T-A® Insert	Wrench Flat (mm)
795	13.62 - 14.63	44.6	67.6	23	BTA0-795-X.XXXX	1C10H-XXXX-BT	12
796	14.64 - 15.62	45.9	69.9	24	BTA0-796-X.XXXX	1C10H-XXXX-BT	13
797	15.63 - 16.71	45.9	69.9	24	BTA0-797-X.XXXX	1C10H-XXXX-BT	14
798	16.72 - 17.68	45.3	69.3	24	BTA0-798-X.XXXX	1C10H-XXXX-BT	15



Tube Size	Tube				Part No.
	D_1 Range	OD_1	ID_1	L_1	
794	0.510 - 0.535	0.433	0.276	63	BTAT794-63
794	0.510 - 0.535	0.433	0.276	102	BTAT794-102
795	0.536 - 0.575	0.472	0.315	63	BTAT795-63
795	0.536 - 0.575	0.472	0.315	102	BTAT795-102
796	0.576 - 0.614	0.512	0.335	63	BTAT796-63
796	0.576 - 0.614	0.512	0.335	102	BTAT796-102
797	0.615 - 0.657	0.551	0.354	63	BTAT797-63
797	0.615 - 0.657	0.551	0.354	102	BTAT797-102
798	0.658 - 0.696	0.591	0.394	63	BTAT798-63
798	0.658 - 0.696	0.591	0.394	102	BTAT798-102

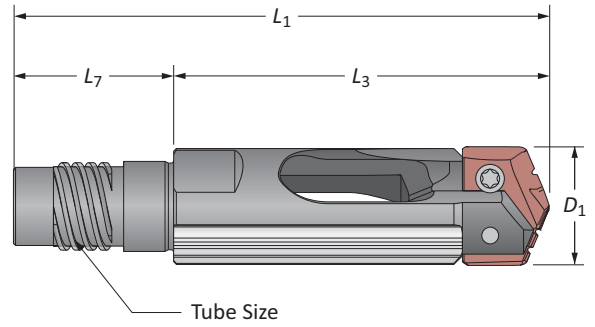
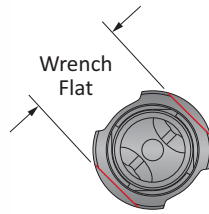
Section A30



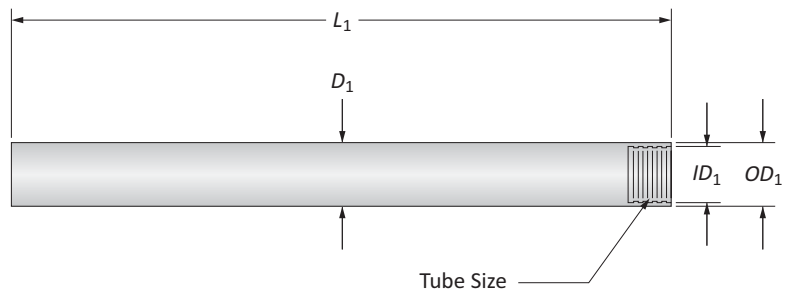
ⓘ = Imperial (in)
 ⓘ = Metric (mm)

BT-A Drill Holders

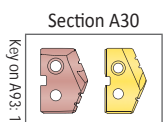
1 Series | Diameter Range: 0.6960" - 0.9600" (17.69mm - 24.38mm)



Tube Size	D_1	Holder			Part No.	T-A® Insert	Wrench Flat (mm)	
		L_3	L_1	L_7				
i	799	0.6960 - 0.7449	2-15/64	3-9/32	63/64	BTA1-799-X.XXXX	1C11H-XXXX-BT	16
	800	0.7450 - 0.7879	2-5/16	3-27/64	1-7/64	BTA1-800-X.XXXX	1C11H-XXXX-BT	17
	801	0.7880 - 0.8589	2-11/32	3-35/64	1-13/64	BTA1-801-X.XXXX	1C11H-XXXX-BT	18
	802	0.8590 - 0.9489	2-25/64	3-11/16	1-19/64	BTA1-802-X.XXXX	1C11H-XXXX-BT	19
	803	0.9490 - 0.9600	2-33/64	3-13/16	1-19/64	BTA1-803-X.XXXX	1C11H-XXXX-BT	21
m	799	17.69 - 18.92	58.2	83.2	25	BTA1-799-X.XXXX	1C11H-XXXX-BT	16
	800	18.93 - 20.01	58.8	86.8	28	BTA1-800-X.XXXX	1C11H-XXXX-BT	17
	801	20.02 - 21.81	59.4	89.9	30.5	BTA1-801-X.XXXX	1C11H-XXXX-BT	18
	802	21.82 - 24.10	60.7	93.7	33	BTA1-802-X.XXXX	1C11H-XXXX-BT	19
	803	24.11 - 24.38	63.9	96.9	33	BTA1-803-X.XXXX	1C11H-XXXX-BT	21



Tube Size	D_1 Range	Tube			Part No.	
		OD_1	ID_1	L_1		
i	799	17.69 - 18.90	16.0	10.5	1600	BTAT799-63
	799	17.69 - 18.90	16.0	10.5	2591	BTAT799-102
	800	18.91 - 20.00	17.0	11.5	1600	BTAT800-63
	800	18.91 - 20.00	17.0	11.5	2591	BTAT800-102
	801	20.01 - 21.79	18.0	12.0	1600	BTAT801-63
	801	20.01 - 21.79	18.0	12.0	2591	BTAT801-102
	802	21.80 - 24.08	20.0	13.0	1600	BTAT802-63
	802	21.80 - 24.08	20.0	13.0	2591	BTAT802-102
	803	24.09 - 26.39	22.0	14.0	1600	BTAT803-63
	803	24.09 - 26.39	22.0	14.0	2591	BTAT803-102



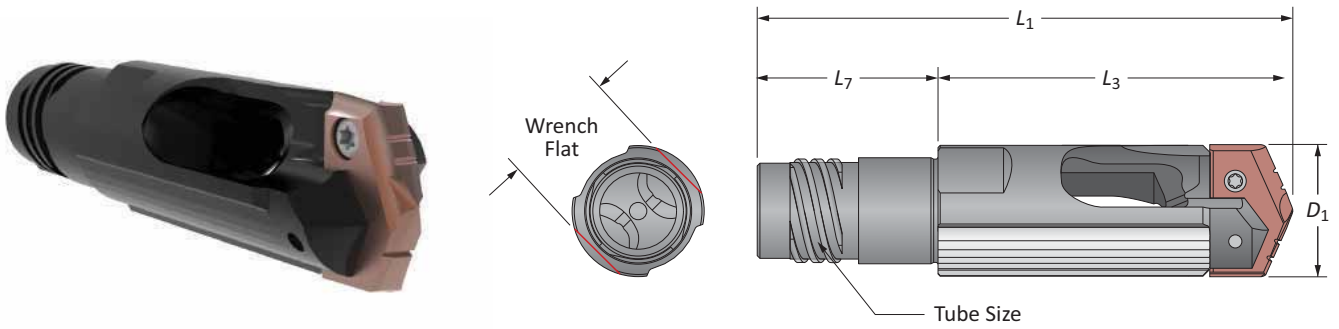
i = Imperial (in)
m = Metric (mm)

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

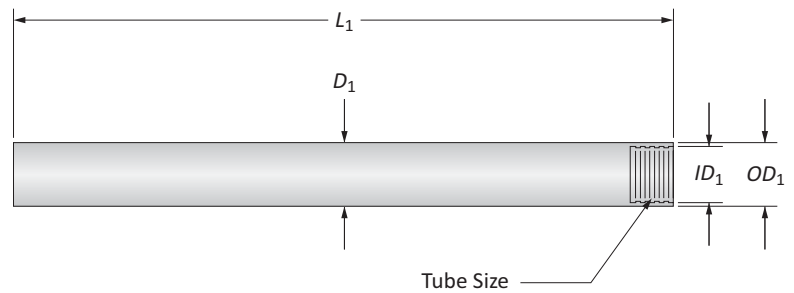


BT-A Drill Holders

2 Series | Diameter Range: 0.9601" - 1.3800" (24.39mm - 35.05mm)

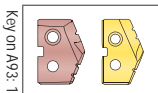


Tube Size	D_1	Holder			Part No.	T-A® Insert	Wrench Flat (mm)	
		L_3	L_1	L_7				
i	803	0.9601 - 1.0399	3-3/32	4-25/64	1-19/64	BTA2-803-X.XXXX	1C12H-XXXX-BT	21
	804	1.0400 - 1.1299	3	4-3/32	1-7/64	BTA2-804-X.XXXX	1C12H-XXXX-BT	22
	805	1.1300 - 1.2209	2-31/32	4-25/64	1-27/64	BTA2-805-X.XXXX	1C12H-XXXX-BT	25
	806	1.2210 - 1.3119	3-1/16	4-31/64	1-27/64	BTA2-806-X.XXXX	1C12H-XXXX-BT	27
	807	1.3120 - 1.3800	3-1/16	4-31/64	1-27/64	BTA2-807-X.XXXX	1C12H-XXXX-BT	30
m	803	24.39 - 26.41	78.5	111.5	33	BTA2-803-X.XXXX	1C12H-XXXX-BT	21
	804	26.42 - 28.70	75.9	103.9	28	BTA2-804-X.XXXX	1C12H-XXXX-BT	22
	805	28.71 - 31.01	75.4	111.4	36	BTA2-805-X.XXXX	1C12H-XXXX-BT	25
	806	31.02 - 33.32	77.9	113.8	36	BTA2-806-X.XXXX	1C12H-XXXX-BT	27
	807	33.33 - 35.05	77.9	113.8	36	BTA2-807-X.XXXX	1C12H-XXXX-BT	30



Tube Size	Tube				Part No.	
	D_1 Range	OD_1	ID_1	L_1		
i	803	0.949 - 1.039	0.866	0.551	63	BTAT803-63
	803	0.949 - 1.039	0.866	0.551	102	BTAT803-102
i	804	1.040 - 1.129	0.945	0.610	63	BTAT804-63
	804	1.040 - 1.129	0.945	0.610	102	BTAT804-102
i	805	1.130 - 1.220	1.024	0.669	63	BTAT805-63
	805	1.130 - 1.220	1.024	0.669	102	BTAT805-102
i	806	1.221 - 1.311	1.102	0.728	102	BTAT806-102
	807	1.312 - 1.425	1.181	0.787	102	BTAT807-102

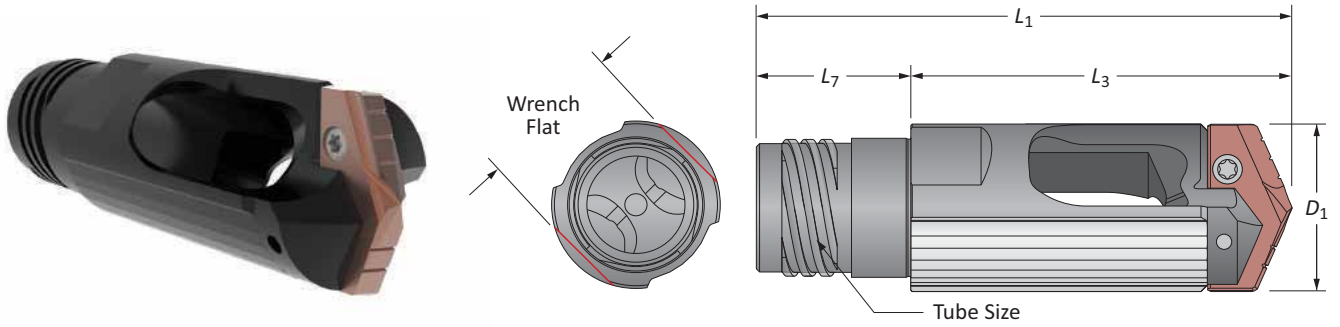
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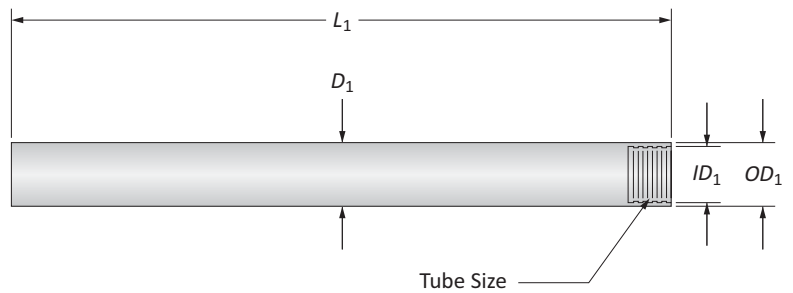
i = Imperial (in)
m = Metric (mm)

BT-A Drill Holders

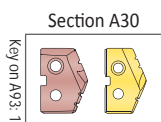
3 Series | Diameter Range: 1.3801" - 1.8820" (35.06mm - 47.80mm)



		Holder				Part No.	Wrench Flat (mm)
Tube Size	D_1	L_3	L_1	L_7			
i	807	1.3801 - 1.4259	3-13/16	5-15/64	1-27/64	BTA3-807-X.XXXX	30
	808	1.4260 - 1.5599	3-15/16	5-11/16	1-3/4	BTA3-808-X.XXXX	32
	809	1.5600 - 1.6929	4-1/16	5-3/4	1-11/16	BTA3-809-X.XXXX	36
	810	1.6930 - 1.8509	4-1/64	5-45/64	1-11/16	BTA3-810-X.XXXX	41
	811	1.8510 - 1.8820	4-1/16	5-3/4	1-11/16	BTA3-811-X.XXXX	41
m	807	35.06 - 36.22	96.8	132.8	36	BTA3-807-X.XXXX	30
	808	36.23 - 39.62	100.0	144.4	44.5	BTA3-808-X.XXXX	32
	809	39.63 - 43.00	103.1	146.2	43	BTA3-809-X.XXXX	36
	810	43.01 - 47.01	101.9	144.9	43	BTA3-810-X.XXXX	41
	811	47.02 - 47.80	103.2	146.2	43	BTA3-811-X.XXXX	41



		Tube				Part No.
Tube Size	D_1 Range	OD_1	ID_1	L_1		
i	807	1.312 - 1.425	1.181	0.787	102	BTAT807-102
	808	1.426 - 1.559	1.299	0.906	102	BTAT808-102
	809	1.560 - 1.692	1.417	0.984	102	BTAT809-102
	810	1.693 - 1.850	1.535	1.102	102	BTAT810-102
	811	1.851 - 1.882	1.693	1.220	102	BTAT811-102



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

Criterion™ Modular Boring Systems

Cri-Twin® | Cri-Bore® | Large Cri-Bore® | CB Style | CBER® | Cri-Bar | Competitor Connections



CRITERION™

Boring has never been more exciting.

Criterion modular boring systems have everything you need for your rough and/or finish boring applications.

The Cri-Twin system is designed for either single or double effective cutting so you can rapidly enlarge your bore or reduce the number of passes required.

The Cri-Bore boring system is designed for finish boring applications. For extremely close tolerance boring, the Cri-Bore micro adjusting boring heads are adjustable in 0.00005" (fifty-millionths).

The CBER boring heads are designed for use in live tooling spindles, right angle heads, or any standard ER collet holder.

This catalog contains important messages that pertain to proper use of the products shown in this catalog. Always read and follow all precautions that use these words.

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.



Aerospace



Agriculture



Automotive



Firearms

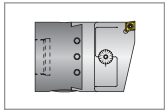


Renewable
Energy

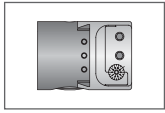
Criterion™ Modular Boring Systems Contents

Reference Icons

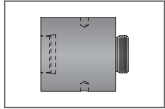
The following icons will appear throughout the catalog to help you navigate between products.



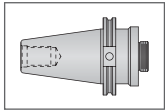
Boring Heads - Insert Holders
Standard and micro adjusting boring heads that use inserts for cutting



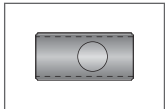
Boring Heads - Boring Bar Holders
Standard and micro adjusting boring heads that use boring bars for cutting



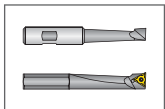
Head-to-Shank Adapters
Extensions and reducers that attach the boring head to the shank



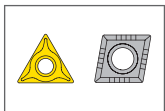
Shanks
A variety of shanks for different machines



Boring Bar Adapters
For use with boring bar holder boring heads and boring bars



Boring Bars
For use with boring bar holder boring heads or lathe and turning center applications



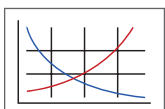
Inserts
For use with insert holder boring heads and boring bars using indexable inserts



Boring Kits
Complete boring kits including boring heads, shanks, bars, and adapters



Setup / Assembly Information
Detailed instructions and information regarding the corresponding part(s)



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

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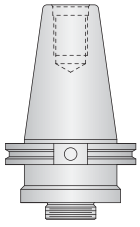
Set-up Instructions

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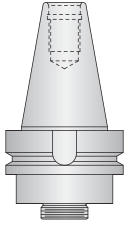
Criterion Modular Boring Systems

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

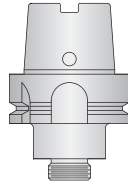
Shanks



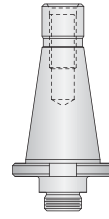
V Flange / DIN 69871



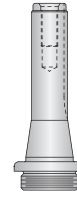
BT Flange



HSK



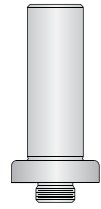
NMBT / DIN 2080



R8



Morse Taper



Straight

Adapters



Extension

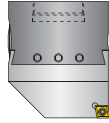


Reducer

Heads - Insert Holders

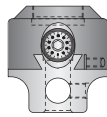


Cri-Twin®

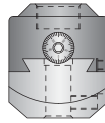


Cri-Bore®

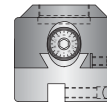
Heads - Bar Holders



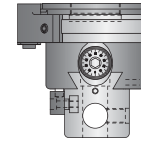
CB Style



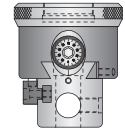
Square



Slotted



CNC
Boring & Facing



Manual
Boring & Facing

Inserts



80° Rhombic



80° Trigon



60° Triangle

TA Insert Boring Bars



Standard



Steel



Heavy Metal



Carbide Shank



Cross Hole



Boring and Facing

Carbide Boring Bars



Solid Carbide



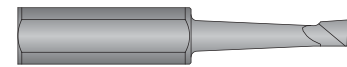
Qualified Length



Helical Rake



Round Shank



Square Shank

ER Collet Style



CBER®

Adjustable Bars



Cri-Bar

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

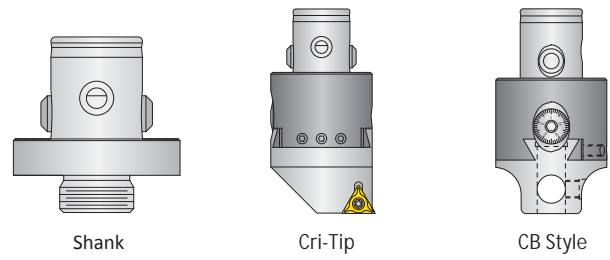
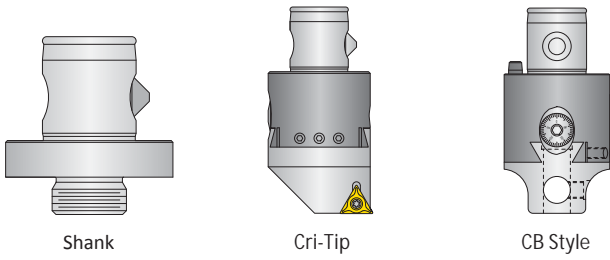
THREADING

X

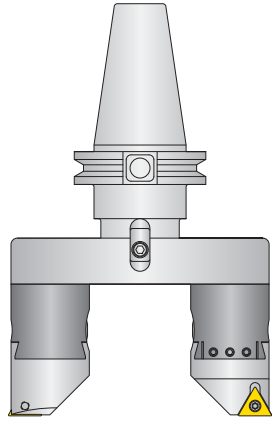
SPECIALS

Komet® ABS® Connections

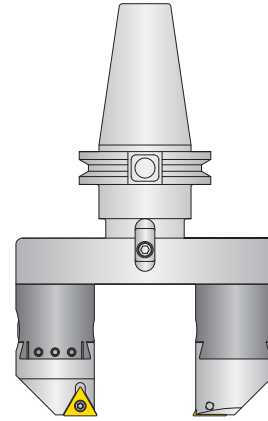
Big® Kaiser® Connections



Large Cri-Bore® System



Inner Diameter Bore



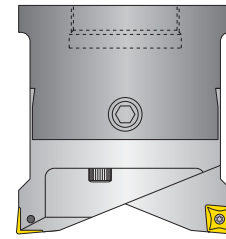
Outer Diameter Bore

Komet® and ABS® are registered trademarks of KOMET Präzisionswerkzeuge Robert Breuning GmbH, Besigheim, Germany, and are not affiliated with Allied Machine & Engineering. Big® and Kaiser® are registered trademarks of Big Daishowa Seiki Co. Ltd., Osaka, Japan, and are not affiliated with Allied Machine & Engineering.

Criterion Boring System Ranges

Cri-Twin® Modular Boring System

	D_1 Range	Item Description
i	1.100 - 1.500	CT1000
	1.400 - 1.900	CT1250
	1.600 - 2.500	CT1500
	2.100 - 3.100	CT2000
	3.100 - 5.000	CT3000
m	28 - 38	CT025M
	36 - 48	CT032M
	41 - 63	CT038M
	54 - 78	CT050M
	79 - 127	CT076M



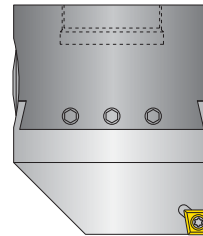
Standard Adjusting

Highlights:

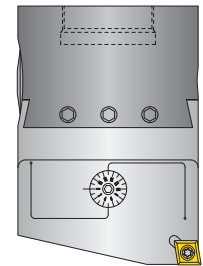
- Remove **2x the amount** of material with a standard and short insert holder
- Rough and finish in the **same operation** with a standard and short insert holder
- Remove material **2x as fast** with two insert holders of the same length

Cri-Bore® Modular Boring System

	D_1 Range	Item Description
i	1.050 - 1.320	CB1000
	1.300 - 1.600	CB1250
	1.585 - 2.700	CB1500
	2.060 - 3.320	CB2000
	3.065 - 5.065	CB3000
	4.180 - 7.380	CB4000
m	27 - 33	CB025M
	33 - 41	CB032M
	41 - 68	CB038M
	53 - 84	CB050M
	78 - 128	CB076M
	104 - 187	CB101M



Standard Adjusting



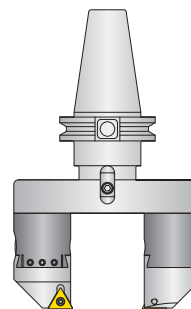
Micro Adjusting

Highlights:

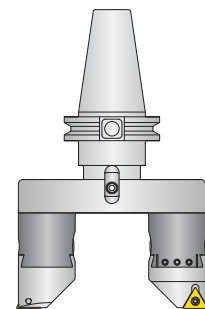
- Standard adjusting is excellent for finish boring
- Micro adjusting is excellent for close tolerance boring
- Total range of micro adjustment is 0.006" (0.150mm) on diameter

Large Cri-Bore® System

	D_1 Range	Item Description
i	0.710 - 7.830	Outer diameter boring
	5.000 - 12.125	Inner diameter boring
m	19 - 198	Outer diameter boring
	127 - 307	Inner diameter boring



Outer Bore Diameter



Inner Bore Diameter

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

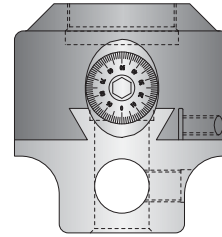
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Criterion Boring System Ranges

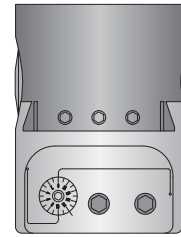
CB Style Boring Heads

	Center Hole	Outboard Hole	Cross Hole*	Item Description
i	0.050 - 1.625	-	-	CB-1500B
	0.050 - 1.625	1.000 - 2.500	-	CB-2375A
	0.050 - 1.750	1.312 - 3.000	2.875 - 6.687	CB-202
	0.050 - 3.250	2.000 - 5.125	4.937 - 11.000	CB-203
	0.050 - 3.250	3.000 - 7.000	5.625 - 13.437	CB-204
	1.750 - 5.750	5.500 - 9.500	9.093 - 21.500	CB-206
	0.050 - 1.625	1.000 - 2.500	-	CB-1500MA
	0.050 - 1.750	1.312 - 3.000	-	CB-2500MA
	0.050 - 3.250	2.375 - 5.125	-	CB-3000MA
m	3 - 40	-	-	CB-038MB
	3 - 40	25 - 62	-	CB-038MA
	3 - 40	25 - 62	-	CB-038MC
	3 - 44	35 - 76	73 - 169	CB-050M
	10 - 70	60 - 130	126 - 292	CB-076M
	10 - 113	76 - 178	143 - 341	CB-101M
	3 - 42	34 - 73	-	CB-064MBMA
	10 - 73	60 - 130	-	CB-076MDMA

*NOTICE: Cross hole maximum bore diameter is based upon cross hole bars being secured in the bar holder with at least 2 set screws



Standard Adjusting

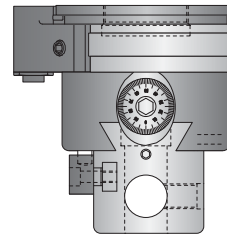


Micro Adjusting

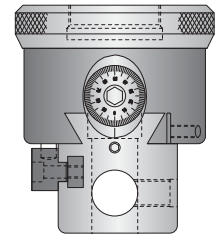
Boring and Facing Heads

	Center Hole	Outboard Hole	Cross Hole*	Item Description
i	0.050 - 2.875	2.375 - 4.750	4.937 - 10.625	BFM-300
m	10 - 76	60 - 120	126 - 288	BFM-076

*NOTICE: Cross hole maximum bore diameter is based upon cross hole bars being secured in the bar holder with at least 2 set screws



CNC Style



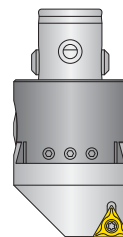
Manual Style

Highlights:

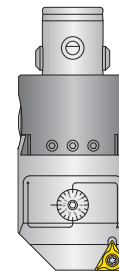
- Ideal for boring, facing, grooving, backfacing, and counterboring operations
- Available in 0.003" per revolution (or fine feed 0.0015" per revolution)
- Clutch automatically disengages the drive when preset stops are contacted
- Head feeds in both directions

Cri-Tip Competitor Connection Boring System

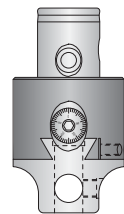
	Bore Diameter Range	Item Description
i	0.050 - 11.000	Big® Kaiser® connection
	0.050 - 11.000	Komet® ABS® connection
m	3 - 130	Big® Kaiser® connection
	3 - 130	Komet® ABS® connection



Standard Adjusting



Micro Adjusting



CB Style

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

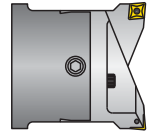
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS



Criterion Modular Boring Systems Nomenclature

Criterion Double Effective Boring Heads

CT	2000	–	1
1	2		3



1. Boring Head Style

CT = Cri-Twin®

2. Body Style

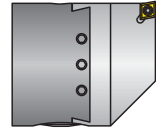
Imperial	Metric
1000 = 1.000"	025M = 25mm
1250 = 1.250"	032M = 32mm
1500 = 1.500"	038M = 38mm
2000 = 2.000"	050M = 50mm
3000 = 3.000"	076M = 76mm

3. Insert Holder Lead Type (Side 1 / Side 2)

0 = Zero / zero
 1 = Standard / standard
 2 = Standard / short

Criterion Single Effective Boring Heads

CB	2000	–	TP
1	2		3



1. Boring Head Style

CB = Cri-Bore®

2. Body Style

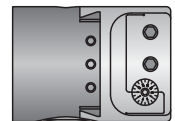
Imperial	Metric
1000 = 1.000"	025M = 25mm
1250 = 1.250"	032M = 32mm
1500 = 1.500"	038M = 38mm
2000 = 2.000"	050M = 50mm
3000 = 3.000"	076M = 76mm
4000 = 4.000"	101M = 101mm

3. Insert Style

TP = TP
 CP = CP / CC
 TPMA = TP (with micro adjustment)
 CPMA = CP / CC (with micro adjustment)

Criterion Boring Bar Holder Heads

CB	–	2000	A
1		2	3



1. Boring Head Style

CB = CB Style
 SQ = Square
 TMT = Tiny Mite
 CSL = Slotted

2. Body Size

Imperial	Metric
002 = 1.500"	025M = 25mm
152 = 1.500"	032M = 32mm
0750 = 0.750"	038M = 38mm
1000 = 1.000"	050M = 50mm
1500 = 1.500"	076M = 76mm
2000 = 2.000"	101M = 101mm
202 = 2.000"	
3000 = 3.000"	
203 = 3.000"	
204 = 4.000"	
206 = 6.000"	

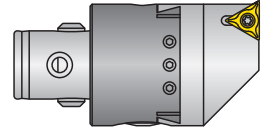
3. Tool Hole ID

Imperial	Metric
A = 0.375"	A = 10mm
B = 0.500"	B = 12mm
C = 0.625"	C = 16mm
D = 0.750"	D = 20mm
E = 1.000"	E = 25mm
F = 1.500"	
G = 0.125"	
H = 0.250"	

Criterion Modular Boring Systems Nomenclature

Criterion Competitor Connections

CTP	2000	–	A50	TP
1	2		3	4

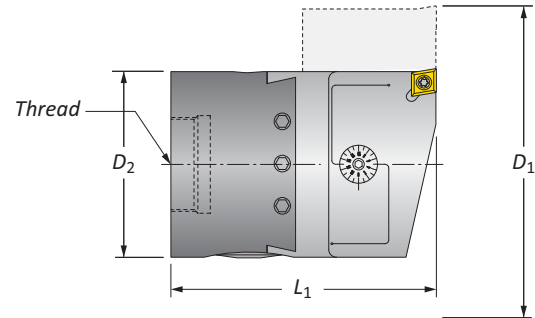


1. Boring Head Style	2. Body Size		3. Adapter Style	
CTP = Cri-Tip	Imperial	Metric	A40 = Komet® ABS40 connection	KA4 = Big® Kaiser® KA4 connection
	1500 = 1.500"	038M = 38mm	A50 = Komet® ABS50 connection	KA5 = Big® Kaiser® KA5 connection
	2000 = 2.000"	050M = 50mm	A80 = Komet® ABS80 connection	KA7 = Big® Kaiser® KA7 connection
	3000 = 3.000"	076M = 76mm		

4. Boring Head Style	
Imperial	Metric
TP = TP	202B = 0.500 tool hole ID
CP = CP / CC	203D = 0.750 tool hole ID
TPMA = TP (with micro adjustment)	300MA = 0.750 tool hole ID (micro adjusting)
CPMA = CP (with micro adjustment)	DMA = 0.750 tool hole ID (micro adjusting)
002 = 0.500 tool hole ID	B = 12mm tool hole ID
152 = 0.375 tool hole ID	D = 20mm tool hole ID
202A = 0.375 tool hole ID	MDMA = 20mm tool hole ID (micro adjusting)

Reference Key

Symbol	Attribute
D_1	Bore diameter range
D_2	Body diameter
D_3	Inner diameter
D_4	Shank diameter
L_1	Overall length
L_{10}	Square length
IC	Inscribed circle
T_1	Insert thickness



A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

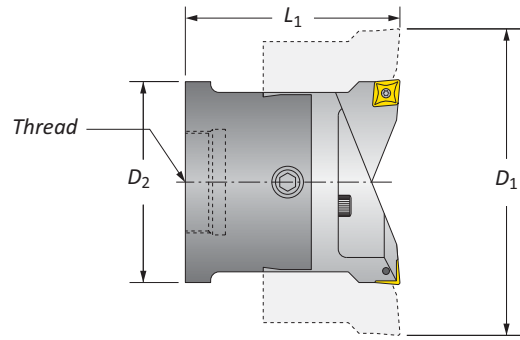
THREADING

X

SPECIALS

Cri-Twin® Boring Heads

Standard Adjusting | Diameter Range: 1.100" - 5.000" (28mm - 127mm)

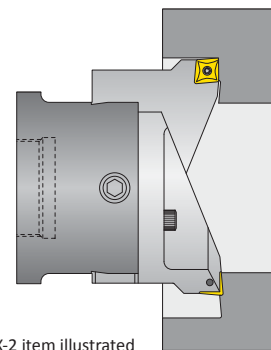


D ₁ Range	Boring Head			Part No.	Insert Holder Type		Inserts		
	L ₁	D ₂	Thread		Side 1	Side 2	IC	T ₁	Style
1.100 - 1.500	1.870	1.00	7/8-20	CT1000-0	Zero Lead	Zero Lead	0.250	0.094	◆ CP or CC
1.100 - 1.500	1.900	1.00	7/8-20	CT1000-1	Standard	Standard	0.250	0.094	◆ CP or CC
1.100 - 1.500	1.900	1.00	7/8-20	CT1000-2	Standard	Short	0.250	0.094	◆ CP or CC
1.400 - 1.900	1.870	1.25	7/8-20	CT1250-0	Zero Lead	Zero Lead	0.250	0.094	◆ CP or CC
1.400 - 1.900	1.900	1.25	7/8-20	CT1250-1	Standard	Standard	0.250	0.094	◆ CP or CC
1.400 - 1.900	1.900	1.25	7/8-20	CT1250-2	Standard	Short	0.250	0.094	◆ CP or CC
1.600 - 2.500	2.570	1.50	7/8-20	CT1500-0	Zero Lead	Zero Lead	0.375	0.156	◆ CP or CC
1.600 - 2.500	2.600	1.50	7/8-20	CT1500-1	Standard	Standard	0.375	0.156	◆ CP or CC
1.600 - 2.500	2.600	1.50	7/8-20	CT1500-2	Standard	Short	0.375	0.156	◆ CP or CC
2.100 - 3.100	2.470	2.00	7/8-20	CT2000-0	Zero Lead	Zero Lead	0.375	0.156	◆ CP or CC
2.100 - 3.100	2.500	2.00	7/8-20	CT2000-1	Standard	Standard	0.375	0.156	◆ CP or CC
2.100 - 3.100	2.500	2.00	7/8-20	CT2000-2	Standard	Short	0.375	0.156	◆ CP or CC
3.100 - 5.000	3.170	3.00	1-1/2-18	CT3000-0	Zero Lead	Zero Lead	0.375	0.156	◆ CP or CC
3.100 - 5.000	3.200	3.00	1-1/2-18	CT3000-1	Standard	Standard	0.375	0.156	◆ CP or CC
3.100 - 5.000	3.200	3.00	1-1/2-18	CT3000-2	Standard	Short	0.375	0.156	◆ CP or CC
Imperial (in)									
28 - 38	47	25	7/8-20	CT025M-0	Zero Lead	Zero Lead	6.35	2.38	◆ CP or CC
28 - 38	48	25	7/8-20	CT025M-1	Standard	Standard	6.35	2.38	◆ CP or CC
28 - 38	48	25	7/8-20	CT025M-2	Standard	Short	6.35	2.38	◆ CP or CC
36 - 48	47	32	7/8-20	CT032M-0	Zero Lead	Zero Lead	6.35	2.38	◆ CP or CC
36 - 48	48	32	7/8-20	CT032M-1	Standard	Standard	6.35	2.38	◆ CP or CC
36 - 48	48	32	7/8-20	CT032M-2	Standard	Short	6.35	2.38	◆ CP or CC
Metric (mm)									
41 - 63	65	38	7/8-20	CT038M-0	Zero Lead	Zero Lead	9.53	3.96	◆ CP or CC
41 - 63	66	38	7/8-20	CT038M-1	Standard	Standard	9.53	3.96	◆ CP or CC
41 - 63	66	38	7/8-20	CT038M-2	Standard	Short	9.53	3.96	◆ CP or CC
54 - 78	63	50	7/8-20	CT050M-0	Zero Lead	Zero Lead	9.53	3.96	◆ CP or CC
54 - 78	64	50	7/8-20	CT050M-1	Standard	Standard	9.53	3.96	◆ CP or CC
54 - 78	64	50	7/8-20	CT050M-2	Standard	Short	9.53	3.96	◆ CP or CC
79 - 127	80	76	1-1/2-18	CT076M-0	Zero Lead	Zero Lead	9.53	3.96	◆ CP or CC
79 - 127	81	76	1-1/2-18	CT076M-1	Standard	Standard	9.53	3.96	◆ CP or CC
79 - 127	81	76	1-1/2-18	CT076M-2	Standard	Short	9.53	3.96	◆ CP or CC

Imperial (in) = 0.001" adjustment on diameter
 Metric (mm) = 0.02mm adjustment on diameter

Notes:

- CTXXXX-0 units have a 0° lead angle = produce flat bottom
- CTXXXX-1 and -2 units have a 5° lead angle
- CTXXXX-2 units can be offset to remove twice the amount of material (as illustrated)



B20: 78 - 79

B20: 42 - 46

B20: 24

B20: 60 - 63

B20: 82

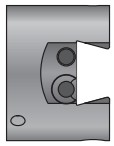
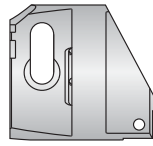
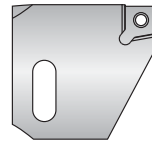
Key on B20: 1

CTXXXX-2 item illustrated

◆ = Imperial (in)
 ■ = Metric (mm)
 Inserts sold separately

Cri-Twin® Boring Head Replacement Parts

Standard Adjusting

**1** Body**2** Insert Holder 1**3** Insert Holder 2**4** Dial Screw

Head Part No.	Hardware Kit	Components				Torx Screw	Torx Wrench
		1	2	3	4		
CT1000-0	CT1000-HDW	CT1000-BD	CT1000ZRO-IH	CT1000ZRO-IH	DS-MDB0750	TXS-116-1	8T-7FL
CT1000-1	CT1000-HDW	CT1000-BD	CT1000STD-IH	CT1000STD-IH	DS-MDB0750	TXS-116-1	8T-7FL
CT1000-2	CT1000-HDW	CT1000-BD	CT1000STD-IH	CT1000SHT-IH	DS-MDB0750	TXS-116-1	8T-7FL
CT1250-0	CT1250-HDW	CT1250-BD	CT1250ZRO-IH	CT1250ZRO-IH	DS-CT1250	TXS-116-1	8T-7FL
CT1250-1	CT1250-HDW	CT1250-BD	CT1250STD-IH	CT1250STD-IH	DS-CT1250	TXS-116-1	8T-7FL
CT1250-2	CT1250-HDW	CT1250-BD	CT1250STD-IH	CT1250SHT-IH	DS-CT1250	TXS-116-1	8T-7FL
CT1500-0	CT1500-HDW	CT1500-BD	CT1500ZRO-IH	CT1500ZRO-IH	DS-CT1500	TXS-009-1	8T-15
CT1500-1	CT1500-HDW	CT1500-BD	CT1500STD-IH	CT1500STD-IH	DS-CT1500	TXS-009-1	8T-15
CT1500-2	CT1500-HDW	CT1500-BD	CT1500STD-IH	CT1500SHT-IH	DS-CT1500	TXS-009-1	8T-15
CT2000-0	CT2000-HDW	CT2000-BD	CT2000ZRO-IH	CT2000ZRO-IH	DS-CT2000	TXS-009-1	8T-15
CT2000-1	CT2000-HDW	CT2000-BD	CT2000STD-IH	CT2000STD-IH	DS-CT2000	TXS-009-1	8T-15
CT2000-2	CT2000-HDW	CT2000-BD	CT2000SHT-IH	CT2000STD-IH	DS-CT2000	TXS-009-1	8T-15
CT3000-0	CT3000-HDW	CT3000-BD	CT3000ZRO-IH	CT3000ZRO-IH	DS-CT3000	TXS-009-1	8T-15
CT3000-1	CT3000-HDW	CT3000-BD	CT3000STD-IH	CT3000STD-IH	DS-CT3000	TXS-009-1	8T-15
CT3000-2	CT3000-HDW	CT3000-BD	CT3000STD-IH	CT3000SHT-IH	DS-CT3000	TXS-009-1	8T-15
CT025M-0	CT025M-HDW	CT025M-BD	CT025MZRO-IH	CT025MZRO-IH	DS-MDB20M	TXS-116-1	8T-7FL
CT025M-1	CT025M-HDW	CT025M-BD	CT025MSTD-IH	CT025MSTD-IH	DS-MDB20M	TXS-116-1	8T-7FL
CT025M-2	CT025M-HDW	CT025M-BD	CT025MSTD-IH	CT025MSHT-IH	DS-MDB20M	TXS-116-1	8T-7FL
CT032M-0	CT032M-HDW	CT032M-BD	CT032MZRO-IH	CT032MZRO-IH	DS-CT032M	TXS-116-1	8T-7FL
CT032M-1	CT032M-HDW	CT032M-BD	CT032MSTD-IH	CT032MSTD-IH	DS-CT032M	TXS-116-1	8T-7FL
CT032M-2	CT032M-HDW	CT032M-BD	CT032MSTD-IH	CT032MSHT-IH	DS-CT032M	TXS-116-1	8T-7FL
CT038M-0	CT038M-HDW	CT038M-BD	CT038MZRO-IH	CT038MZRO-IH	DS-CT038M	TXS-009-1	8T-15
CT038M-1	CT038M-HDW	CT038M-BD	CT038MSTD-IH	CT038MSTD-IH	DS-CT038M	TXS-009-1	8T-15
CT038M-2	CT038M-HDW	CT038M-BD	CT038MSTD-IH	CT038MSHT-IH	DS-CT038M	TXS-009-1	8T-15
CT050M-0	CT050M-HDW	CT050M-BD	CT050MZRO-IH	CT050MZRO-IH	DS-CT050M	TXS-009-1	8T-15
CT050M-1	CT050M-HDW	CT050M-BD	CT050MSTD-IH	CT050MSTD-IH	DS-CT050M	TXS-009-1	8T-15
CT050M-2	CT050M-HDW	CT050M-BD	CT050MSTD-IH	CT050MSHT-IH	DS-CT050M	TXS-009-1	8T-15
CT076M-0	CT076M-HDW	CT076M-BD	CT076MZRO-IH	CT076MZRO-IH	DS-CT076M	TXS-009-1	8T-15
CT076M-1	CT076M-HDW	CT076M-BD	CT076MSTD-IH	CT076MSTD-IH	DS-CT076M	TXS-009-1	8T-15
CT076M-2	CT076M-HDW	CT076M-BD	CT076MSTD-IH	CT076MSHT-IH	DS-CT076M	TXS-009-1	8T-15

i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

Cri-Bore® Boring Heads

Standard Adjusting | Diameter Range: 1.050" - 7.380" (27mm - 187mm)

A
DRILLING

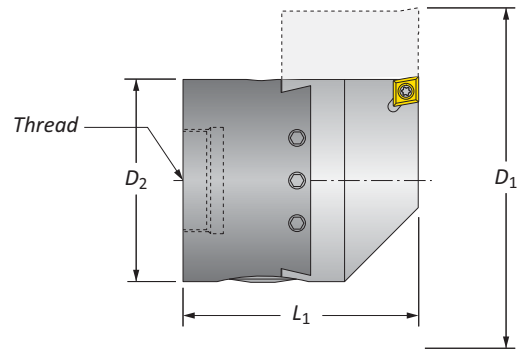
B
BORING

C
REAMING

D
BURNISHING

E
THREADING

X
SPECIALS



D_1 Range	Boring Head			Part No.	Pin Spanner Wrench	Insert		
	L_1	D_2	Thread			IC	T_1	Style
1.050 - 1.320	1.980	1.000	7/8-20	CB1000-TP	CB1000-PSW	0.250	0.094	▲ TP
1.050 - 1.320	1.980	1.000	7/8-20	CB1000-CP	CB1000-PSW	0.250	0.094	◆ CP or CC
1.300 - 1.600	2.210	1.250	7/8-20	CB1250-TP	CB1250-PSW	0.250	0.094	▲ TP
1.300 - 1.600	2.210	1.250	7/8-20	CB1250-CP	CB1250-PSW	0.250	0.094	◆ CP or CC
1.585 - 2.700	2.480	1.500	7/8-20	CB1500-TP	CB1500-PSW	0.375	0.125	▲ TP
1.585 - 2.700	2.480	1.500	7/8-20	CB1500-CP	CB1500-PSW	0.375	0.156	◆ CP or CC
2.060 - 3.320	2.735	2.000	7/8-20	CB2000-TP	CB2000-PSW	0.375	0.125	▲ TP
2.060 - 3.320	2.735	2.000	7/8-20	CB2000-CP	CB2000-PSW	0.375	0.156	◆ CP or CC
3.065 - 5.065	3.465	3.000	1-1/2-18	CB3000-TP	CB3000-PSW	0.375	0.125	▲ TP
3.065 - 5.065	3.465	3.000	1-1/2-18	CB3000-CP	CB3000-PSW	0.375	0.156	◆ CP or CC
4.100 - 7.300	3.970	4.000	1-1/2-18	CB4000-TP	CB4000-PSW	0.375	0.156	▲ TP
4.180 - 7.380	3.970	4.000	1-1/2-18	CB4000-CP	CB4000-PSW	0.500	0.188	◆ CP or CC
Imperial (in) = 0.001" adjustment on diameter								
Metric (mm) = 0.02mm adjustment on diameter								
27 - 33	50	25	7/8-20	CB025M-TP	CB1000-PSW	6.35	2.38	▲ TP
27 - 33	50	25	7/8-20	CB025M-CP	CB1000-PSW	6.35	2.38	◆ CP or CC
33 - 41	56	32	7/8-20	CB032M-TP	CB1250-PSW	6.35	2.38	▲ TP
33 - 41	56	32	7/8-20	CB032M-CP	CB1250-PSW	6.35	2.38	◆ CP or CC
41 - 68	63	38	7/8-20	CB038M-TP	CB1500-PSW	9.53	3.18	▲ TP
41 - 68	63	38	7/8-20	CB038M-CP	CB1500-PSW	9.53	3.96	◆ CP or CC
53 - 84	69	50	7/8-20	CB050M-TP	CB2000-PSW	9.53	3.18	▲ TP
53 - 84	69	50	7/8-20	CB050M-CP	CB2000-PSW	9.53	3.96	◆ CP or CC
78 - 128	88	76	1-1/2-18	CB076M-TP	CB3000-PSW	9.53	3.18	▲ TP
78 - 128	88	76	1-1/2-18	CB076M-CP	CB3000-PSW	9.53	3.96	◆ CP or CC
104 - 185	101	101	1-1/2-18	CB101M-TP	CB4000-PSW	9.53	3.18	▲ TP
106 - 187	101	101	1-1/2-18	CB101M-CP	CB4000-PSW	12.70	4.76	◆ CP or CC

Imperial (in) = 0.001" adjustment on diameter
Metric (mm) = 0.02mm adjustment on diameter

Key on B20: 1

B20: 80 - 81

B20: 42 - 46

B20: 24

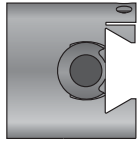
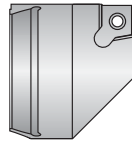
B20: 60 - 67

B20: 83

▲ = Imperial (in)
◆ = Metric (mm)
Inserts sold separately

Cri-Bore® Boring Head Replacement Parts

Standard Adjusting

**1** Body**2** Insert Holder**3** Dial Screw

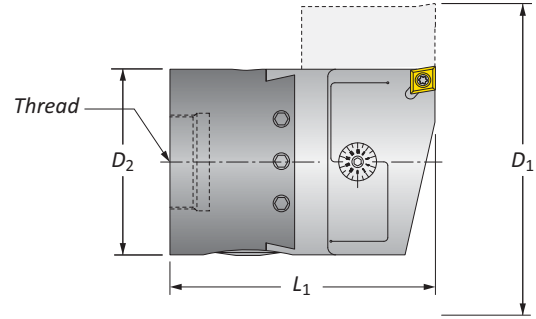
	Head Part No.	Hardware Kit	Components			Torx Screw	Torx Wrench
			1	2	3		
i	CB1000-TP	CB1000-HDW	CB1000-BD	CB1000TP-IH	DS-MDB1000	TXS-116-1	8T-7
	CB1000-CP	CB1000-HDW	CB1000-BD	CB1000CP-IH	DS-MDB1000	TXS-116-1	8T-7
	CB1250-TP	CB1250-HDW	CB1250-BD	CB1250TP-IH	DS-MDB1000	TXS-116-1	8T-7
	CB1250-CP	CB1250-HDW	CB1250-BD	CB1250CP-IH	DS-MDB1000	TXS-116-1	8T-7
	CB1500-TP	CB1500-HDW	CB1500-BD	CB1500TP-IH	DS-CB2	TXS-100-1	8T-20
	CB1500-CP	CB1500-HDW	CB1500-BD	CB1500CP-IH	DS-CB2	TXS-009-1	8T-15
	CB2000-TP	CB2000-HDW	CB2000-BD	CB2000TP-IH	DS-CB2	TXS-100-1	8T-20
	CB2000-CP	CB2000-HDW	CB2000-BD	CB2000CP-IH	DS-CB2	TXS-009-1	8T-15
	CB3000-TP	CB3000-HDW	CB3000-BD	CB3000TP-IH	DS-CB3	TXS-100-1	8T-20
	CB3000-CP	CB3000-HDW	CB3000-BD	CB3000CP-IH	DS-CB3	TXS-009-1	8T-15
	CB4000-TP	CB4000-HDW	CB4000-BD	CB4000TP-IH	DS-CB4	TXS-100-1	8T-15FL
	CB4000-CP	CB4000-HDW	CB4000-BD	CB4000CP-IH	DS-CB4	TXS-119-1	8T-20FL
iii	CB025M-TP	CB025M-HDW	CB025M-BD	CB025MTP-IH	DS-MDB25M	TXS-116-1	8T-7
	CB025M-CP	CB025M-HDW	CB025M-BD	CB025MCP-IH	DS-MDB25M	TXS-116-1	8T-7
	CB032M-TP	CB032M-HDW	CB032M-BD	CB032MTP-IH	DS-MDB32M	TXS-116-1	8T-7
	CB032M-CP	CB032M-HDW	CB032M-BD	CB032MCP-IH	DS-MDB32M	TXS-116-1	8T-7
	CB038M-TP	CB038M-HDW	CB038M-BD	CB038MTP-IH	DS-CB050M	TXS-100-1	8T-20
	CB038M-CP	CB038M-HDW	CB038M-BD	CB038MCP-IH	DS-CB050M	TXS-009-1	8T-15
	CB050M-TP	CB050M-HDW	CB050M-BD	CB050MTP-IH	DS-CB050M	TXS-100-1	8T-20
	CB050M-CP	CB050M-HDW	CB050M-BD	CB050MCP-IH	DS-CB050M	TXS-009-1	8T-15
	CB076M-TP	CB076M-HDW	CB076M-BD	CB076MTP-IH	DS-CB076M	TXS-100-1	8T-20
	CB076M-CP	CB076M-HDW	CB076M-BD	CB076MCP-IH	DS-CB076M	TXS-009-1	8T-15
	CB101M-TP	CB101M-HDW	CB101M-BD	CB101MTP-IH	DS-CB101M	TXS-100-1	8T-15FL
	CB101M-CP	CB101M-HDW	CB101M-BD	CB101MCP-IH	DS-CB101M	TXS-119-1	8T-20FL

i = Imperial (in)**iii** = Metric (mm)

Screws sold in multiples of 10

Cri-Bore® Boring Heads

Micro Adjusting | Diameter Range: 1.050" - 5.065" (27mm - 128mm)



D ₁ Range	Boring Head			Part No.	Pin Spanner Wrench	Insert		
	L ₁	D ₂	Thread			IC	T ₁	Style
1.050 - 1.320	2.580	1.000	7/8-20	CB1000-TPMA	CB1000-PSW	0.250	0.094	▲ TP
1.050 - 1.320	2.580	1.000	7/8-20	CB1000-CPMA	CB1000-PSW	0.250	0.094	◆ CP or CC
1.300 - 1.600	2.810	1.250	7/8-20	CB1250-TPMA	CB1250-PSW	0.250	0.094	▲ TP
1.300 - 1.600	2.810	1.250	7/8-20	CB1250-CPMA	CB1250-PSW	0.250	0.094	◆ CP or CC
i 1.585 - 2.700	3.180	1.500	7/8-20	CB1500-TPMA	CB1500-PSW	0.375	0.125	▲ TP
i 1.585 - 2.700	3.180	1.500	7/8-20	CB1500-CPMA	CB1500-PSW	0.375	0.156	◆ CP or CC
2.060 - 3.320	3.530	2.000	7/8-20	CB2000-TPMA	CB2000-PSW	0.375	0.125	▲ TP
2.060 - 3.320	3.530	2.000	7/8-20	CB2000-CPMA	CB2000-PSW	0.375	0.156	◆ CP or CC
3.065 - 5.065	4.090	3.000	1-1/2-18	CB3000-TPMA	CB3000-PSW	0.375	0.125	▲ TP
3.065 - 5.065	4.090	3.000	1-1/2-18	CB3000-CPMA	CB3000-PSW	0.375	0.156	◆ CP or CC
m 27 - 33	65	25	7/8-20	CB025M-TPMA	CB1000-PSW	6.35	2.38	▲ TP
m 27 - 33	65	25	7/8-20	CB025M-CPMA	CB1000-PSW	6.35	2.38	◆ CP or CC
33 - 41	71	32	7/8-20	CB032M-TPMA	CB1250-PSW	6.35	2.38	▲ TP
33 - 41	71	32	7/8-20	CB032M-CPMA	CB1250-PSW	6.35	2.38	◆ CP or CC
m 41 - 68	81	38	7/8-20	CB038M-TPMA	CB1500-PSW	9.53	3.18	▲ TP
m 41 - 68	81	38	7/8-20	CB038M-CPMA	CB1500-PSW	9.53	3.96	◆ CP or CC
53 - 84	90	50	7/8-20	CB050M-TPMA	CB2000-PSW	9.53	3.18	▲ TP
53 - 84	90	50	7/8-20	CB050M-CPMA	CB2000-PSW	9.53	3.96	◆ CP or CC
78 - 128	104	76	1-1/2-18	CB076M-TPMA	CB3000-PSW	9.53	3.18	▲ TP
78 - 128	104	76	1-1/2-18	CB076M-CPMA	CB3000-PSW	9.53	3.96	◆ CP or CC

Imperial (in) = 0.00005" adjustment on diameter
 Metric (mm) = 0.001mm adjustment on diameter

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

Key on B20: 1

B20: 80 - 81

B20: 42 - 46

B20: 24

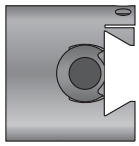
B20: 60 - 67

B20: 83

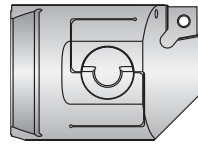
i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

Cri-Bore® Boring Head Replacement Parts

Micro Adjusting



1 Body



2 Insert Holder



3 Dial Screw



4 Micro Dial Screw

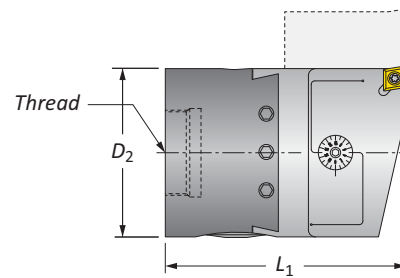
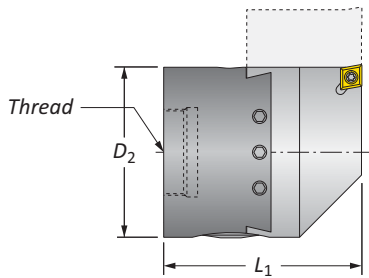
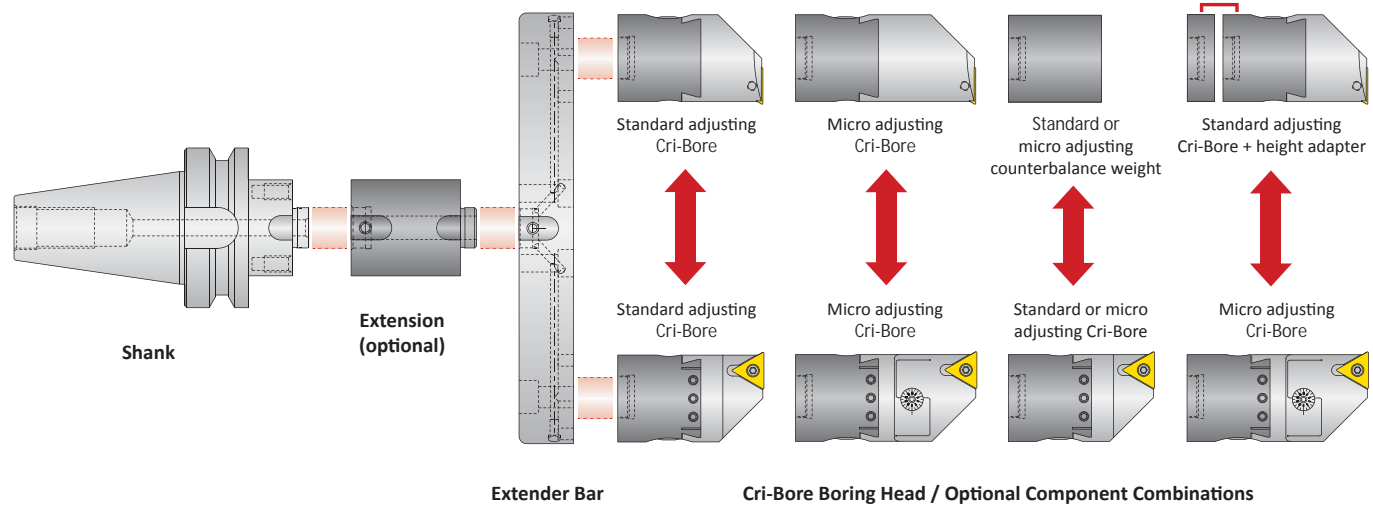
Head Part No.	Hardware Kit	Components				Wedge	Torx Screw	Torx Wrench
		1	2	3	4			
CB1000-TPMA	CB1000-HDW	CB1000-BD	CB1000TPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
CB1000-CPMA	CB1000-HDW	CB1000-BD	CB1000CPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
CB1250-TPMA	CB1250-HDW	CB1250-BD	CB1250TPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
CB1250-CPMA	CB1250-HDW	CB1250-BD	CB1250CPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-100-1	8T-20
i CB1500-TPMA	CB1500-HDW	CB1500-BD	CB1500TPMA-IH	DS-CB2	DS-MA2500	MAW-2000	TXS-100-1	8T-20
CB1500-CPMA	CB1500-HDW	CB1500-BD	CB1500CPMA-IH	DS-CB2	DS-MA2500	MAW-2000	TXS-009-1	8T-15
CB2000-TPMA	CB2000-HDW	CB2000-BD	CB2000TPMA-IH	DS-CB2	DS-MA2500	MAW-2000	TXS-100-1	8T-20
CB2000-CPMA	CB2000-HDW	CB2000-BD	CB2000CPMA-IH	DS-CB2	DS-MA2500	MAW-2000	TXS-009-1	8T-15
CB3000-TPMA	CB3000-HDW	CB3000-BD	CB3000TPMA-IH	DS-CB3	DS-MA2500	MAW-2000	TXS-100-1	8T-20
CB3000-CPMA	CB3000-HDW	CB3000-BD	CB3000CPMA-IH	DS-CB3	DS-MA2500	MAW-2000	TXS-009-1	8T-15
CB025M-TPMA	CB025M-HDW	CB025M-BD	CB025MTPMA-IH	DS-MDB25M	DS-MA038M	MAW-1000	TXS-116-1	8T-7
CB025M-CPMA	CB025M-HDW	CB025M-BD	CB025MCPMA-IH	DS-MDB25M	DS-MA038M	MAW-1000	TXS-116-1	8T-7
CB032M-TPMA	CB032M-HDW	CB032M-BD	CB032MTPMA-IH	DS-MDB32M	DS-MA038M	MAW-1000	TXS-116-1	8T-7
CB032M-CPMA	CB032M-HDW	CB032M-BD	CB032MCPMA-IH	DS-MDB32M	DS-MA038M	MAW-1000	TXS-116-1	8T-7
m CB038M-TPMA	CB038M-HDW	CB038M-BD	CB038MTPMA-IH	DS-CB050M	DS-MA064M	MAW-2000	TXS-100-1	8T-20
CB038M-CPMA	CB038M-HDW	CB038M-BD	CB038MCPMA-IH	DS-CB050M	DS-MA064M	MAW-2000	TXS-009-1	8T-15
CB050M-TPMA	CB050M-HDW	CB050M-BD	CB050MTPMA-IH	DS-CB050M	DS-MA064M	MAW-2000	TXS-100-1	8T-20
CB050M-CPMA	CB050M-HDW	CB050M-BD	CB050MCPMA-IH	DS-CB050M	DS-MA064M	MAW-2000	TXS-009-1	8T-15
CB076M-TPMA	CB076M-HDW	CB076M-BD	CB076MTPMA-IH	DS-CB076M	DS-MA064M	MAW-2000	TXS-100-1	8T-20
CB076M-CPMA	CB076M-HDW	CB076M-BD	CB076MCPMA-IH	DS-CB076M	DS-MA064M	MAW-2000	TXS-009-1	8T-15

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

Screws sold in multiples of 10

Large Cri-Bore® System

Bore ID Range: 5.000" - 12.125" (127.0mm - 307.9mm) | Bore OD Range: 0.710" - 7.830" (18.1mm - 198.8mm)



Cri-Bore Boring Heads

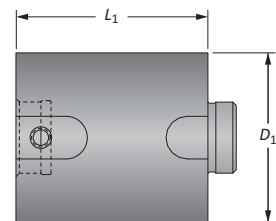
Adjustment	Boring Head			Part No.	Insert			
	L_1	D_2	Thread		IC	T_1	Style	
i	Standard	2.480	1.500	7/8-20	CB1500-TP	0.375	0.125	▲ TP
	Standard	2.480	1.500	7/8-20	CB1500-CP	0.375	0.156	◆ CP or CC
	Micro	3.180	1.500	7/8-20	CB1500-TPMA	0.375	0.125	▲ TP
	Micro	3.180	1.500	7/8-20	CB1500-CPMA	0.375	0.156	◆ CP or CC
m	Standard	63	38	7/8-20	CB038M-TP	0.375	0.125	▲ TP
	Standard	63	38	7/8-20	CB038M-CP	0.375	0.156	◆ CP or CC
	Micro	81	38	7/8-20	CB038M-TPMA	0.375	0.125	▲ TP
	Micro	81	38	7/8-20	CB038M-CPMA	0.375	0.156	◆ CP or CC

Imperial (in) Standard = 0.001" adjustment on diameter
 Imperial (in) Micro = 0.00005" adjustment on diameter

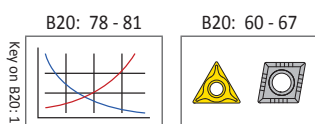
Metric (mm) Standard = 0.02mm adjustment on diameter
 Metric (mm) Micro = 0.001mm adjustment on diameter

Large Cri-Bore Extensions

Dimensions	Part No.		
		D_1	L_1
i	LCB1500-IA1500	1.50	1.50
	LCB1500-IA3000	1.50	3.00
	LCB1500-IA4500	1.50	4.50

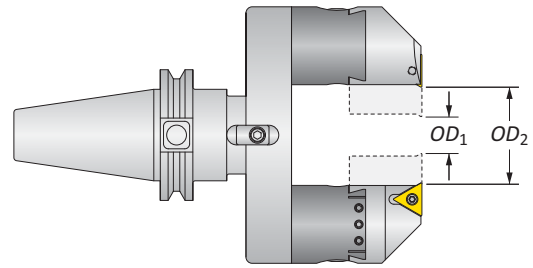
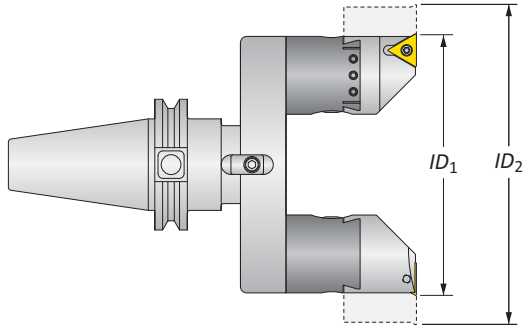


NOTICE: Only one extension can be used per boring head. Extensions cannot be combined.



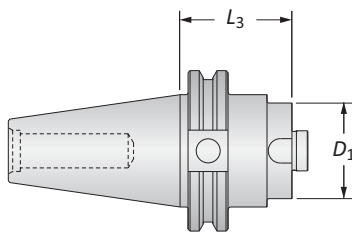
i = Imperial (in)
 m = Metric (mm)
 Inserts sold separately

Large Cri-Bore® System

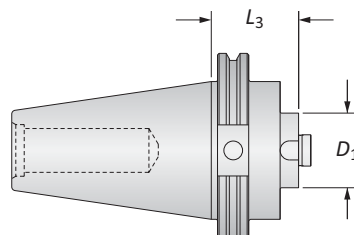


Large Cri-Bore Extender Bars

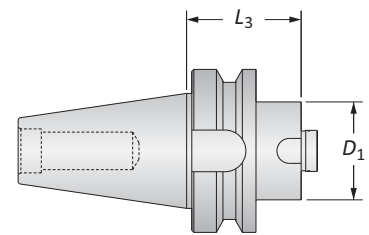
Imperial (in)				Metric (mm)				Part No.
ID_1	ID_2	OD_1	OD_2	ID_1	ID_2	OD_1	OD_2	
5.000	6.125	0.710	1.830	127.0	155.5	18.1	46.4	LCB1500-56EBK
6.000	7.125	1.710	2.830	152.4	180.9	43.5	71.8	LCB1500-67EBK
7.000	8.125	2.710	3.830	177.8	206.3	68.9	97.2	LCB1500-78EBK
8.000	9.125	3.710	4.830	203.2	231.7	94.3	122.6	LCB1500-89EBK
9.000	10.125	4.710	5.830	228.6	257.1	119.7	148.0	LCB1500-910EBK
10.000	11.125	5.710	6.830	254.0	282.5	145.1	173.4	LCB1500-1011EBK
11.000	12.125	6.710	7.830	279.4	307.9	170.5	198.8	LCB1500-1112EBK



CV40 Shank



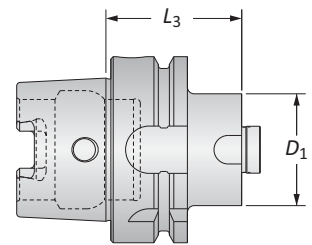
CV50 Shank



BT40 Shank

Large Cri-Bore Shanks

i	Shank		Part No.
	L_3	Taper	
	1.75	40 V-Flange	LCB1500-CV40
	1.75	50 V-Flange	LCB1500-CV50
	1.75	40 BT-Flange	LCB1500-BT40
	1.75	HSK63A	LCB1500-HSK63A



HSK63 Shank

Large Cri-Bore Optional Components

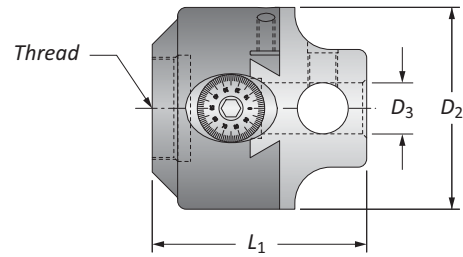
Part No.	Description	Notes
LCB1500-CBW	Counterbalance weight	Recommended when using a single CB1500 (standard adjusting) boring head
LCB1500-CBWTA	Counterbalance weight	Recommended when using a single CB1500-MA (micro-adjusting) boring head
LCB1500-HA	Height adapter	Required when using a CB1500 boring head in combination with a CB1500-MA boring head

NOTICE: The Large Cri-Bore (LCB) System can be used with a single Cri-Bore boring head. This configuration will result in increased imbalance and will affect the tool's performance and/or spindle damage. A counterbalance weight is recommended to balance the tool. Factory technical assistance is available through our Application Engineering department.

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

CB Style Boring Heads

Standard Adjusting | Micro Adjusting | Bore Diameter Range: 0.050" - 21.500" (3mm - 341mm)



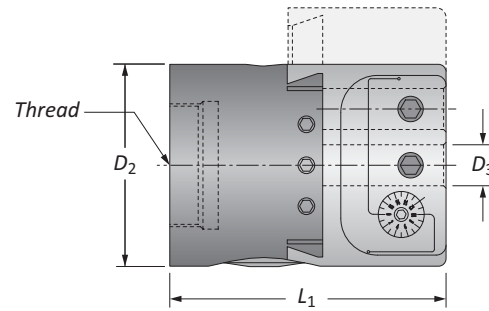
Standard Adjusting

	Bore Diameter Range			Boring Head					Part No.	Pin Spanner Wrench	Cross Hole Bar
	Center Hole	Outboard Hole	Cross Hole*	D_2	D_3	L_1	Thread	Offset			
	0.050 - 1.625	-	-	1.500	0.375	2.500	7/8-20	0.562	CB-2375A	CB1500-PSW	-
	0.050 - 1.625	-	-	1.500	0.500	2.500	7/8-20	0.562	CB-1500B	CB1500-PSW	-
i	0.050 - 1.750	1.312 - 3.000	2.875 - 6.687	2.000	0.375	2.406	7/8-20	0.625	CB-202A	CB2000-PSW	CHB-0500
	0.050 - 1.750	1.312 - 3.000	2.875 - 6.687	2.000	0.500	2.406	7/8-20	0.625	CB-202B	CB2000-PSW	CHB-0500
	0.050 - 3.250	2.375 - 5.125	4.937 - 11.000	3.000	0.750	3.156	1-1/2-18	1.000	CB-203D	CB3000-PSW	CHB-0750
	0.050 - 4.500	3.000 - 7.000	5.625 - 13.437	4.000	1.000	3.867	1-1/2-18	1.625	CB-204E	CB4000-PSW	CHB-1000
	1.750 - 5.750	5.500 - 9.500	9.093 - 21.500	6.000	1.500	5.500	2-1/4-10	2.000	CB-206F	-	CHB-1500
m	3.00 - 40.00	-	-	38.00	10.00	63.00	7/8-20	14.00	CB-038MA	CB1500-PSW	-
	3.00 - 40.00	-	-	38.00	12.00	63.00	7/8-20	14.00	CB-038MB	CB1500-PSW	-
	3.00 - 44.00	35.00 - 76.00	73.00 - 169.00	50.00	10.00	61.00	7/8-20	16.00	CB-050MA	CB2000-PSW	CHB-012M
	3.00 - 44.00	35.00 - 76.00	73.00 - 169.00	50.00	12.00	61.00	7/8-20	16.00	CB-050MB	CB2000-PSW	CHB-012M
	10.00 - 70.00	60.00 - 130.00	126.00 - 279.00	76.00	20.00	80.00	1-1/2-18	25.00	CB-076MD	CB3000-PSW	CHB-020M
	10.00 - 113.00	76.00 - 178.00	143.00 - 341.00	101.00	25.00	95.00	1-1/2-18	41.00	CB-101ME	CB4000-PSW	CHB-025M

*NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws

Imperial (in) = 0.001" adjustment on diameter

Metric (mm) = 0.02mm adjustment on diameter

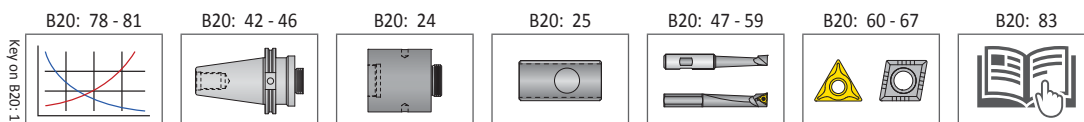


Micro Adjusting

	Bore Diameter Range			Boring Head					Part No.	Pin Spanner Wrench
	Center Hole	Outboard Hole	D_2	D_3	L_1	Thread	Offset			
i	0.050 - 1.625	1.000 - 2.500	1.500	0.375	3.000	7/8-20	0.562	CB-1500AMA	CB1000-PSW	
	0.050 - 1.875	1.500 - 3.250	2.500	0.500	3.375	1-1/2-18	0.687	CB-2500BMA	CB2000-PSW	
	0.050 - 2.375	2.375 - 5.125	3.000	0.750	3.375	1-1/2-18	1.000	CB-3000DMA	CB3000-PSW	
m	3.00 - 42.00	34.00 - 73.00	64.00	12.00	86.00	1-1/2-18	20.00	CB-064MBMA	CB2000-PSW	
	10.00 - 73.00	60.00 - 130.00	76.00	20.00	86.00	1-1/2-18	25.00	CB-076MDMA	CB3000-PSW	

Imperial (in) = 0.00005" adjustment on diameter

Metric (mm) = 0.001mm adjustment on diameter



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

A DRILLING

B BORING

C REAMING

D BURNISHING

E THREADING

X SPECIALS

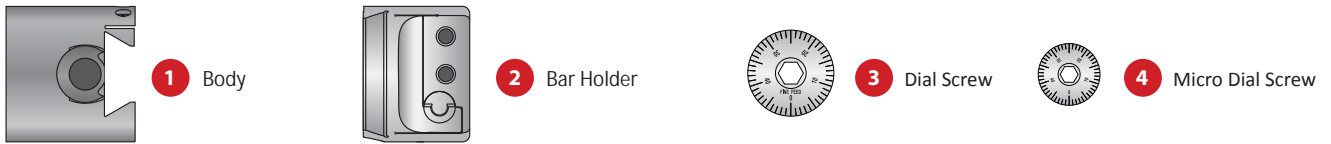
CB Style Boring Head Replacement Parts

Standard Adjusting | Micro Adjusting




Standard Adjusting

	Head Part No.	Hardware Kit	Components		
			1	2	3
i	CB-2375A	CB1500-HDW	CB1500-BD	MB152-BH	DS-CB2
	CB-1500B	CB1500-HDW	CB1500-BD	MB002-BH	DS-CB2
	CB-202A	CB2000-HDW	CB2000-BD	CB202A-BH	DS-CB2
	CB-202B	CB2000-HDW	CB2000-BD	CB202B-BH	DS-CB2
	CB-203D	CB3000-HDW	CB3000-BD	CB203D-BH	DS-CB3
	CB-204E	CB4000-HDW	CB4000-BD	CB204E-BH	DS-CB4
	CB-206F	CB6000-HDW	CB6000-BD	CB206F-BH	DS-CB206
m	CB-038MA	CB038M-HDW	CB038M-BD	CB038MA-BH	DS-CB050M
	CB-038MB	CB038M-HDW	CB038M-BD	CB038MB-BH	DS-CB050M
	CB-050MA	CB050M-HDW	CB050M-BD	CB050MA-BH	DS-CB050M
	CB-050MB	CB050M-HDW	CB050M-BD	CB050MB-BH	DS-CB050M
	CB-076MD	CB076M-HDW	CB076M-BD	CB076MD-BH	DS-CB076M
	CB-101ME	CB101M-HDW	CB101M-BD	CB101ME-BH	DS-CB101M



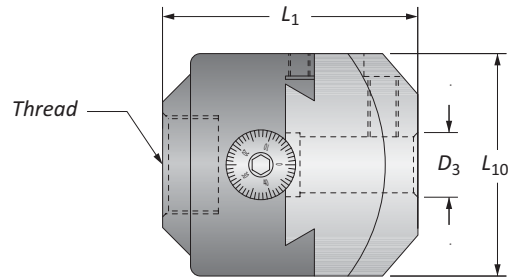
Micro Adjusting

	Head Part No.	Hardware Kit	Components				 Wedge
			1	2	3	4	
i	CB-1500AMA	CB1500-HDW	CB1500-BD	CB1500AMA-BH	DS-CB2	DS-MA1500	MAW-1500
	CB-2500BMA	CB2000-HDW	CB2500-BD	CB2500BMA-BH	DS-CB25	DS-MA2500	MAW-2500
	CB-3000DMA	CB3000-HDW	CB3000-BD	CB3000DMA-BH	DS-CB3	DS-MA2500	MAW-3000
m	CB-064MBMA	CB050M-HDW	CB064M-BD	CB064MBMA-BH	DS-CB064M	DS-MA064M	MAW-2000
	CB-076MDMA	CB076M-HDW	CB076M-BD	CB076MDMA-BH	DS-CB076M	DS-MA064M	MAW-2000

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

CB Style Boring Heads

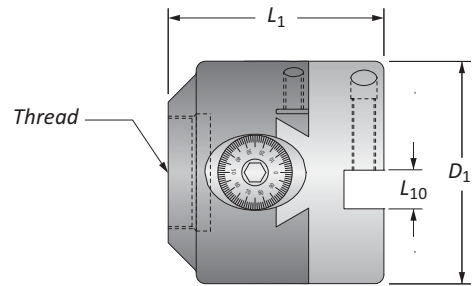
Square Style | Slotted Style | Bore Diameter Range: 0.050" - 4.250"



Square Style

		Boring Head					Part No.
<i>D</i> ₁ Range		<i>D</i> ₃	<i>L</i> ₁₀	<i>L</i> ₁	Thread	Offset	
i	0.050 - 1.625	0.500	1.50 SQ	2.250	7/8-20	0.526	SQ-1500B
	0.050 - 2.375	0.500	2.00 SQ	2.250	7/8-20	0.938	SQ-2000B
	0.500 - 4.250	0.750	3.00 SQ	2.937	1-1/2-18	1.500	SQ-3000D
	0.500 - 4.250	1.000	3.00 SQ	2.937	1-1/2-18	1.500	SQ-3000E

Imperial (in) = 0.001" adjustment on diameter



Slotted Style

		Boring Head					Part No.
<i>D</i> ₁		<i>L</i> ₁₀	<i>L</i> ₁	Thread	Offset		
i	2.00	0.375	2.406	7/8-20	0.625	CSL-202	
	3.00	0.500	2.875	1-1/2-18	1.000	CSL-203	
	4.00	0.750	3.375	1-1/2-18	1.625	CSL-204	

Imperial (in) = 0.001" adjustment on diameter

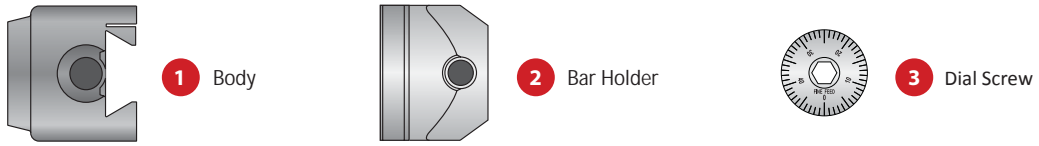
Key on B20: 1

B20: 80 - 81 	B20: 42 - 46 	B20: 24 - 25 	B20: 47 - 59 	B20: 60 - 67 	B20: 83
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i = Imperial (in)
m = Metric (mm)

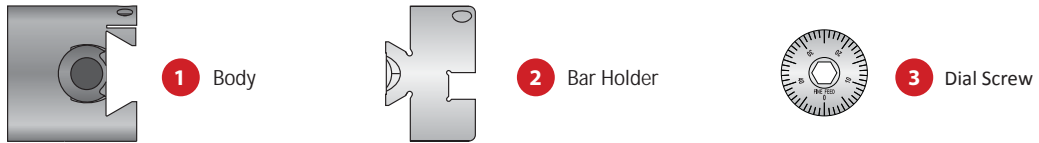
CB Style Boring Head Replacement Parts

Square Style | Slotted Style



Square Style

	Head Part No.	Hardware Kit	Components		
			1	2	3
i	SQ-1500B	S1500-HDW	S1500-BD	S1500B-BH	DS-CB2
	SQ-2000B	S2000-HDW	S2000-BD	S2000B-BH	DS-CT3000
	SQ-3000D	S3000-HDW	S3000-BD	S3000D-BH	DS-CB4
	SQ-3000E	S3000-HDW	S3000-BD	S3000E-BH	DS-CB4



Slotted Style

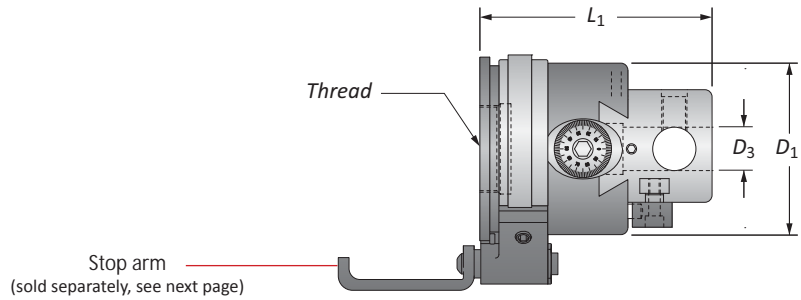
	Head Part No.	Hardware Kit	Components		
			1	2	3
i	CSL-202	CB2000-HDW	CB2000-BD	SL202-BH	DS-CB2
	CSL-203	CB3000-HDW	CB3000-BD	SL203-BH	DS-CB3
	CSL-204	CB4000-HDW	CB4000-BD	SL204-BH	DS-CB4

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

Boring and Facing Heads

CNC Style | Manual Style | Bore Diameter Range: 0.050" - 10.625" (10.0mm - 288.0mm)

Standard feed: 0.003" per revolution
Fine feed: 0.0015" per revolution



CNC Style

	Bore Diameter			Boring Head				Offset	Feed	Part No.
	Center Hole	Outboard Hole	Cross Hole*	D ₁	D ₃	L ₁	Thread			
i	0.050 - 2.875	2.375 - 4.750	4.937 - 10.625	3.000	0.750	3.875	1-1/2-18	0.812	Standard	BFC-300D
	0.050 - 2.875	2.375 - 4.750	4.937 - 10.625	3.000	0.750	3.875	1-1/2-18	0.812	Fine	BFC-300DFF
m	10.00 - 76.00	60.00 - 120.00	125.00 - 288.00	76.00	20.00	98.00	1-1/2-18	22.00	Standard	BFC-076MD
	10.00 - 76.00	60.00 - 120.00	125.00 - 288.00	76.00	20.00	98.00	1-1/2-18	22.00	Fine	BFC-076MDFF

***NOTICE:** Cross hole bars should always be secured in the bar holder with at least two set screws

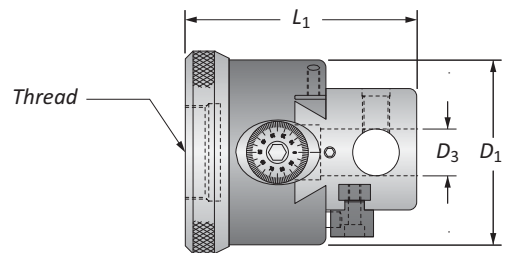
See stop arm options on following page

See Boring and Facing boring bar option on following page

Imperial (in) = 0.001" adjustment on diameter

Metric (mm) = 0.02mm adjustment on diameter

Standard feed: 0.08mm per revolution
Fine feed: 0.04mm per revolution



Manual Style

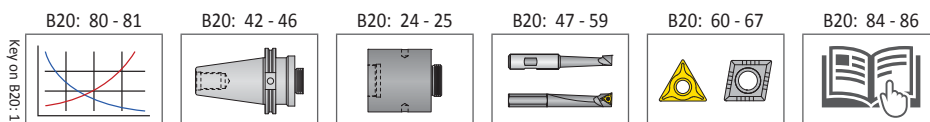
	Bore Diameter			Boring Head				Offset	Feed	Part No.
	Center Hole	Outboard Hole	Cross Hole*	D ₁	D ₃	L ₁	Thread			
i	0.050 - 2.875	2.375 - 4.750	4.937 - 10.625	3.000	0.750	3.875	1-1/2-18	0.812	Standard	BFM-300D
	0.050 - 2.875	2.375 - 4.750	4.937 - 10.625	3.000	0.750	3.875	1-1/2-18	0.812	Fine	BFM-300DFF
m	10.00 - 76.00	60.00 - 120.00	125.00 - 288.00	76.00	20.00	98.00	1-1/2-18	22.00	Standard	BFM-076MD
	10.00 - 76.00	60.00 - 120.00	125.00 - 288.00	76.00	20.00	98.00	1-1/2-18	22.00	Fine	BFM-076MDFF

***NOTICE:** Cross hole bars should always be secured in the bar holder with at least two set screws

See Boring and Facing boring bar option on following page

Imperial (in) = 0.001" adjustment on diameter

Metric (mm) = 0.02mm adjustment on diameter



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



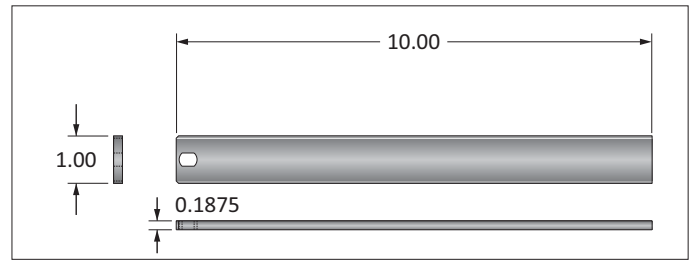
Boring and Facing Heads

CNC Style | Stop Arms

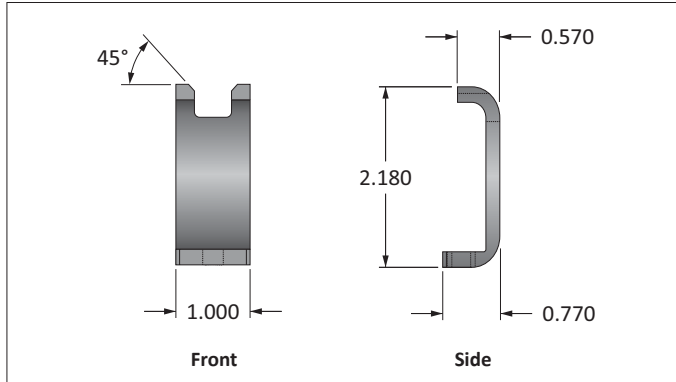
Stop Arms

Machine	Stop Arm Type	Part No.
-	Blank	BFC-300DSAB
Fadal	V-40	BFC-300DSAFV40
Fadal	BT-40	BFC-300DSAFBT40
HAAS	V-40	BFC-300DSAHV40
HAAS	BT-40	BFC-300DSAHBT40

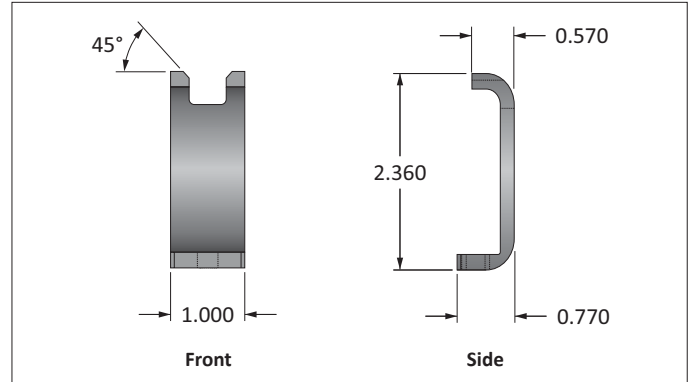
Blank



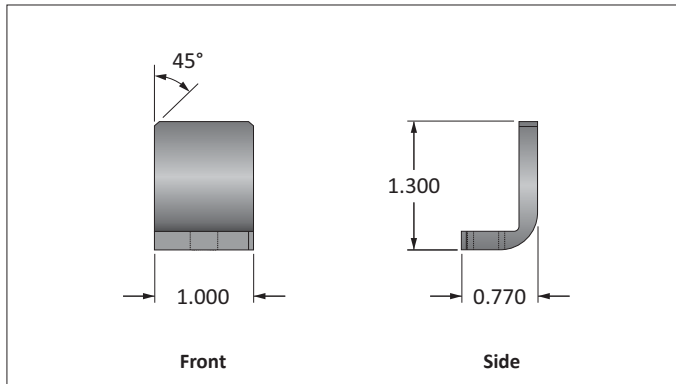
Fadal V-40



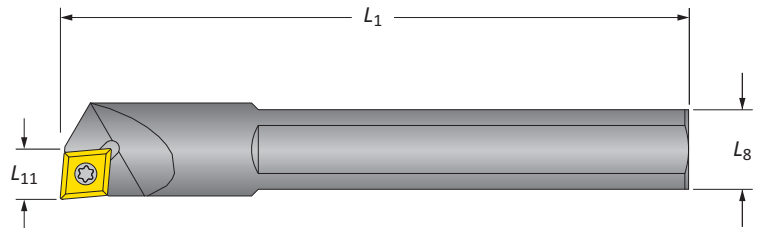
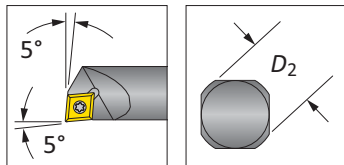
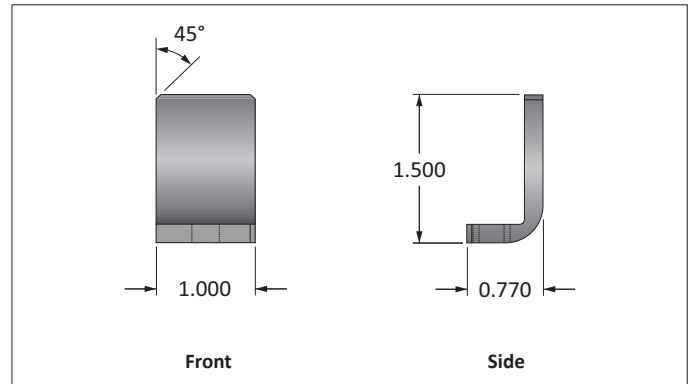
Fadal BT-40



HAAS V-40



HAAS BT-40



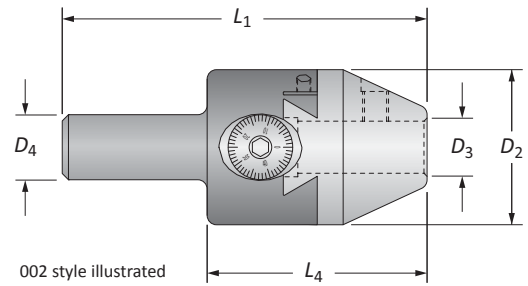
Boring and Facing Boring Bar

Boring Bar				Insert			
L_{11}	L_1	L_8	D_2	Part No.	IC	T_1	Style
0.406	5.00	0.640	0.750Ø	BFB-075D	0.375	0.156	CP or CC

= Imperial (in)
 = Metric (mm)
 Inserts sold separately

Tiny Mite Boring Heads

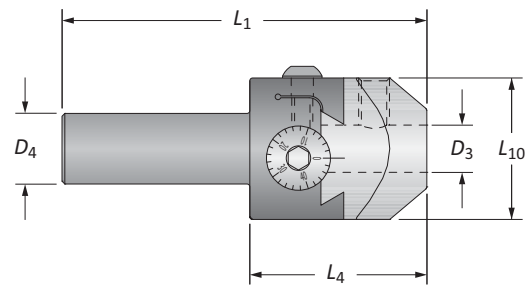
002 and 152 Style | TMT Style | Bore Diameter Range: 0.050" - 1.625"



002 and 152 Style

Bore Diameter Range		Boring Head							Part No.
Center Hole	Outboard Hole	D_2	D_3	D_4	L_4	L_1	Offset		
0.050 - 1.625	-	1.50	0.500	0.500	2.125	3.500	0.562	MB002-500	
0.050 - 1.625	-	1.50	0.500	0.625	2.125	3.500	0.562	MB002-625	
0.050 - 1.625	-	1.50	0.500	0.750	2.125	3.500	0.562	MB002-750	
0.050 - 1.625	1.000 - 2.500	1.50	0.375	0.500	2.125	3.500	0.562	MB152-500	
0.050 - 1.625	1.000 - 2.500	1.50	0.375	0.625	2.125	3.500	0.562	MB152-625	
0.050 - 1.625	1.000 - 2.500	1.50	0.375	0.750	2.125	3.500	0.562	MB152-750	

Imperial (in) = 0.001" adjustment on diameter



TMT Style

Bore Diameter Range		Boring Head					Part No.
Center Hole	Outboard Hole	D_3	L_{10}	L_4	L_1	D_4	
0.050 - 0.580	-	0.250 ϕ	0.750	1.00	2.00	0.375	TMT-0750H
0.050 - 1.100	0.670 - 1.730	0.250 ϕ	1.000	1.00	2.00	0.500	TMT-1000H

Imperial (in) = 0.001" adjustment on diameter

Key on B20: 1

B20: 80 - 81

B20: 47 - 59

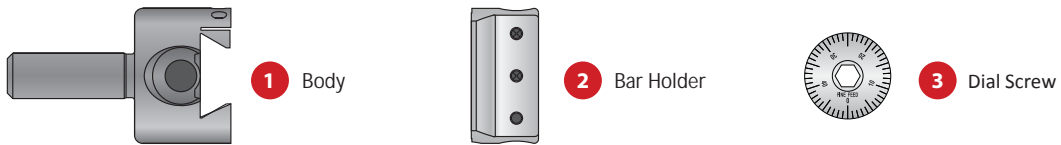
B20: 60 - 67

B20: 83

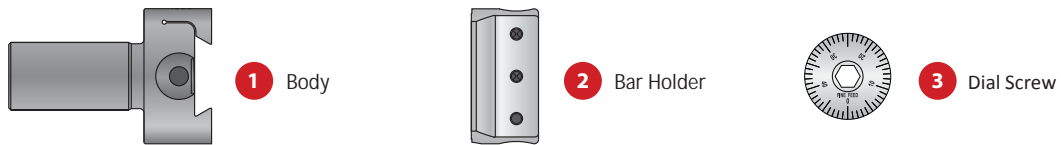
i = Imperial (in)
m = Metric (mm)

**Tiny Mite Boring Head Replacement Parts**

002 and 152 Style | TMT Style

**002 and 152 Style**

	Head Part No.	Hardware Kit	Components		
			1	2	3
i	MB002-500	CB1500-HDW	MB002-500-BD	MB002-BH	DS-CB2
	MB002-625	CB1500-HDW	MB002-625-BD	MB002-BH	DS-CB2
	MB002-750	CB1500-HDW	MB002-750-BD	MB002-BH	DS-CB2
	MB152-500	CB1500-HDW	MB002-500-BD	MB152-BH	DS-CB2
	MB152-625	CB1500-HDW	MB002-625-BD	MB152-BH	DS-CB2
	MN152-750	CB1500-HDW	MB002-750-BD	MB152-BH	DS-CB2

**TMT Style**

	Head Part No.	Hardware Kit	Components		
			1	2	3
i	TMT-0750H	TMT0750-HDW	TMT0750-BD	TMT0750H-BH	DS-MDB0750
	TMT-1000H	TMT0750-HDW	TMT1000-BD	TMT1000H-BH	DS-CT1250

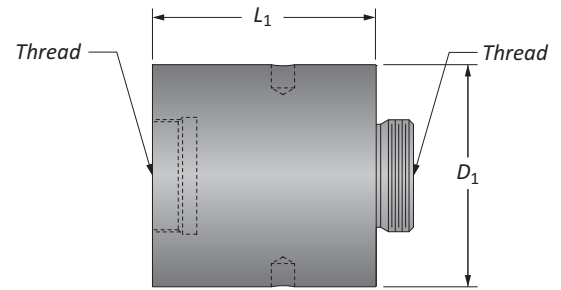
i = Imperial (in)
m = Metric (mm)

Criterion Boring Head Adapters

Extensions | Reducers

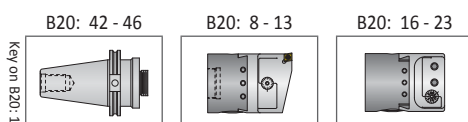
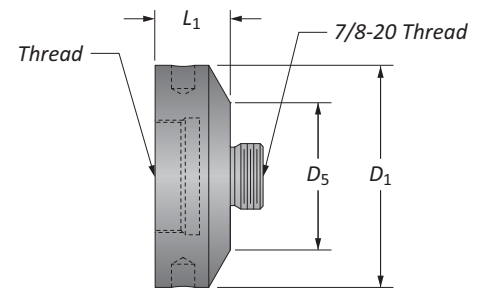
Extensions

Dimensions				Part No.	Pin Spanner Wrench
D_1	L_1	Thread			
1.00	1.00	7/8-20		CB1000-IA1000	CB1000-PSW
1.00	2.00	7/8-20		CB1000-IA2000	CB1000-PSW
1.25	1.25	7/8-20		CB1250-IA1250	CB1250-PSW
1.25	2.50	7/8-20		CB1250-IA2500	CB1250-PSW
i 1.50	1.50	7/8-20		CB1500-IA1500	CB1500-PSW
i 1.50	3.00	7/8-20		CB1500-IA3000	CB1500-PSW
2.00	2.00	7/8-20		CB2000-IA2000	CB2000-PSW
2.00	4.00	7/8-20		CB2000-IA4000	CB2000-PSW
3.00	3.00	1-1/2-18		CB3000-IA3000	CB3000-PSW
3.00	6.00	1-1/2-18		CB3000-IA6000	CB3000-PSW



Reducers

Dimensions				Part No.	Pin Spanner Wrench
D_1	D_5	L_1	Thread		
1.50	1.00	1.00	7/8-20	CB1500-IRCB1000	CB1500-PSW
1.50	1.25	1.00	7/8-20	CB1500-IRCB1250	CB1500-PSW
2.00	1.00	1.00	7/8-20	CB2000-IRCB1000	CB2000-PSW
2.00	1.25	1.00	7/8-20	CB2000-IRCB1250	CB2000-PSW
i 2.00	1.50	1.00	7/8-20	CB2000-IRCB1500	CB2000-PSW
3.00	1.00	1.25	1-1/2-18	CB3000-IRCB1000	CB3000-PSW
3.00	1.25	1.25	1-1/2-18	CB3000-IRCB1250	CB3000-PSW
3.00	1.50	1.25	1-1/2-18	CB3000-IRCB1500	CB3000-PSW
3.00	2.00	1.25	1-1/2-18	CB3000-IRCB2000	CB3000-PSW



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

A DRILLING

B BORING

C REAMING

D BURNISHING

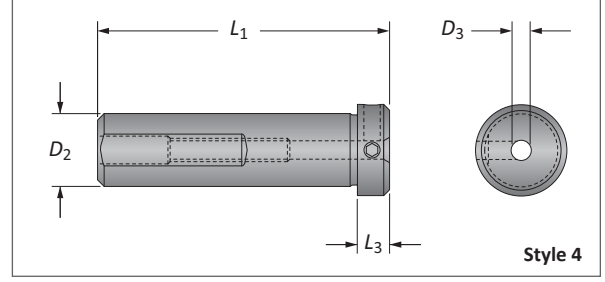
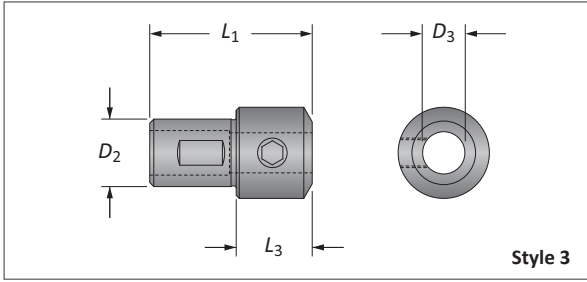
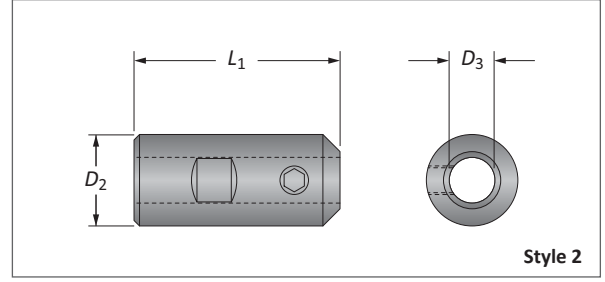
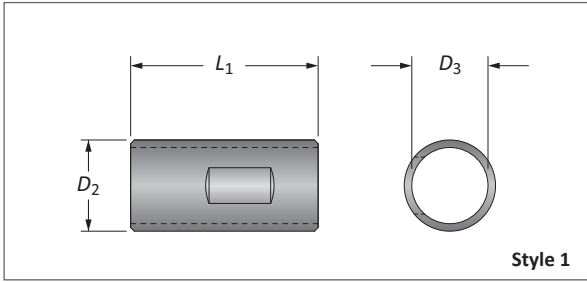
F THREADING

X SPECIALS

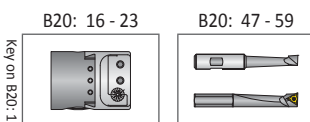


CB Style Boring Heads

Bar Holder Adapters



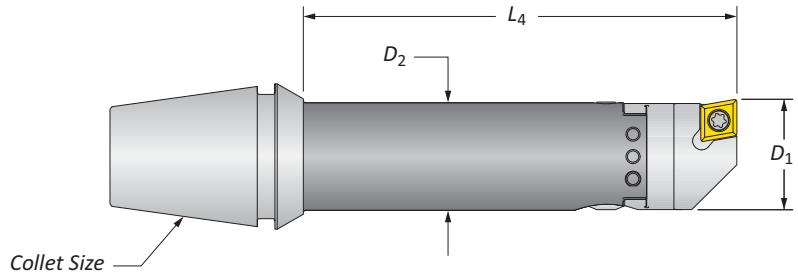
Adapter						
	D_3	D_2	L_1	L_3	Style	Part No.
	0.125	0.250	0.695	0.200	3	BTH-01250250
	0.125	0.375	2.000	0.220	4	BTH-01250375
	0.125	0.500	2.000	0.220	4	BTH-01250500
	0.125	0.625	2.000	0.220	4	BTH-01250625
	0.125	0.750	2.000	0.220	4	BTH-01250750
	0.187	0.375	1.312	-	1	BTH-01870375
	0.187	0.500	1.312	-	1	BTH-01870500
	0.250	0.375	1.312	-	1	BTH-02500375
	0.250	0.500	1.312	-	1	BTH-02500500
	0.250	0.625	2.000	0.220	4	BTH-02500625
i	0.250	0.750	2.000	0.220	4	BTH-02500750
	0.312	0.375	1.312	-	1	BTH-03120375
	0.312	0.500	1.312	-	1	BTH-03120500
	0.375	0.750	2.406	-	2	BTH-03750750
	0.375	1.000	2.250	-	2	BTH-03751000
	0.500	0.750	2.406	0.910	3	BTH-05000750
	0.500	1.000	2.250	-	2	BTH-05001000
	0.625	0.750	1.500	-	1	BTH-06250750
	0.625	1.000	2.406	1.120	3	BTH-06251000
	0.750	1.000	2.406	1.120	3	BTH-07501000
	1.000	1.500	3.000	1.000	3	BTH-10001500
	10	12	32	-	1	BTH-10M12M
	10	20	65	24	3	BTH-10M20M
	10	25	65	-	2	BTH-10M25M
m	12	20	65	24	3	BTH-12M20M
	12	25	65	-	2	BTH-12M25M
	20	25	70	28	3	BTH-20M25M



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

CBER® Boring Heads

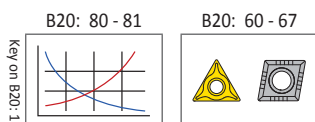
Standard Adjusting | Bore Diameter Range: 0.672" - 1.600"



D ₁ Range	Boring Head			Part No.	Collet Nut	Collet Nut Wrench	Insert		
	D ₂	L ₄	Collet Size				IC	T ₁	Style
0.672 - 0.944	0.625	1.500	ER16	CBER16S-CP*	-	CBER16-NUTW	0.250	0.094	◇ CP or CC
0.672 - 0.944	0.625	2.500	ER16	CBER16-CP*	-	CBER16-NUTW	0.250	0.094	◇ CP or CC
0.672 - 0.944	0.625	1.500	ER16	CBER16S-TP*	-	CBER16-NUTW	0.250	0.094	△ TP
0.672 - 0.944	0.625	2.500	ER16	CBER16-TP*	-	CBER16-NUTW	0.250	0.094	△ TP
0.672 - 0.944	0.625	1.500	ER20	CBER20S-CP	CBER20-NUT	CBER20-NUTW	0.250	0.094	◇ CP or CC
0.672 - 0.944	0.625	2.500	ER20	CBER20-CP	CBER20-NUT	CBER20-NUTW	0.250	0.094	◇ CP or CC
0.672 - 0.944	0.625	1.500	ER20	CBER20S-TP	CBER20-NUT	CBER20-NUTW	0.250	0.094	△ TP
0.672 - 0.944	0.625	2.500	ER20	CBER20-TP	CBER20-NUT	CBER20-NUTW	0.250	0.094	△ TP
0.825 - 1.087	0.750	1.500	ER25	CBER25S-CP	CBER25-NUT	CBER25-NUTW	0.250	0.094	◇ CP or CC
0.825 - 1.087	0.750	3.000	ER25	CBER25-CP	CBER25-NUT	CBER25-NUTW	0.250	0.094	◇ CP or CC
0.825 - 1.087	0.750	1.500	ER25	CBER25S-TP	CBER25-NUT	CBER25-NUTW	0.250	0.094	△ TP
0.825 - 1.087	0.750	3.000	ER25	CBER25-TP	CBER25-NUT	CBER25-NUTW	0.250	0.094	△ TP
1.050 - 1.320	1.000	2.000	ER32	CBER32S-CP	CBER32-NUT	CBER32-NUTW	0.250	0.094	◇ CP or CC
1.050 - 1.320	1.000	4.000	ER32	CBER32-CP	CBER32-NUT	CBER32-NUTW	0.250	0.094	◇ CP or CC
1.050 - 1.320	1.000	2.000	ER32	CBER32S-TP	CBER32-NUT	CBER32-NUTW	0.250	0.094	△ TP
1.050 - 1.320	1.000	4.000	ER32	CBER32-TP	CBER32-NUT	CBER32-NUTW	0.250	0.094	△ TP
1.300 - 1.600	1.250	2.500	ER40	CBER40S-CP	CBER40-NUT	CBER40-NUTW	0.250	0.094	◇ CP or CC
1.300 - 1.600	1.250	5.000	ER40	CBER40-CP	CBER40-NUT	CBER40-NUTW	0.250	0.094	◇ CP or CC
1.300 - 1.600	1.250	2.500	ER40	CBER40S-TP	CBER40-NUT	CBER40-NUTW	0.250	0.094	△ TP
1.300 - 1.600	1.250	5.000	ER40	CBER40-TP	CBER40-NUT	CBER40-NUTW	0.250	0.094	△ TP
i									
17.1 - 23.9	15.9	38.1	ER16	CBER16MS-CP*	-	CBER16-NUTW	6.35	2.38	◇ CP or CC
17.1 - 23.9	15.9	63.5	ER16	CBER16M-CP*	-	CBER16-NUTW	6.35	2.38	◇ CP or CC
17.1 - 23.9	15.9	38.1	ER16	CBER16MS-TP*	-	CBER16-NUTW	6.35	2.38	△ TP
17.1 - 23.9	15.9	63.5	ER16	CBER16M-TP*	-	CBER16-NUTW	6.35	2.38	△ TP
17.1 - 23.9	15.9	38.1	ER20	CBER20MS-CP	CBER20-NUT	CBER20-NUTW	6.35	2.38	◇ CP or CC
17.1 - 23.9	15.9	63.5	ER20	CBER20M-CP	CBER20-NUT	CBER20-NUTW	6.35	2.38	◇ CP or CC
17.1 - 23.9	15.9	38.1	ER20	CBER20MS-TP	CBER20-NUT	CBER20-NUTW	6.35	2.38	△ TP
17.1 - 23.9	15.9	63.5	ER20	CBER20M-TP	CBER20-NUT	CBER20-NUTW	6.35	2.38	△ TP
20.1 - 27.6	19.05	38.1	ER25	CBER25MS-CP	CBER25-NUT	CBER25-NUTW	6.35	2.38	◇ CP or CC
20.1 - 27.6	19.05	76.2	ER25	CBER25M-CP	CBER25-NUT	CBER25-NUTW	6.35	2.38	◇ CP or CC
20.1 - 27.6	19.05	38.1	ER25	CBER25MS-TP	CBER25-NUT	CBER25-NUTW	6.35	2.38	△ TP
20.1 - 27.6	19.05	76.2	ER25	CBER25M-TP	CBER25-NUT	CBER25-NUTW	6.35	2.38	△ TP
26.7 - 33.5	25.4	50.8	ER32	CBER32MS-CP	CBER32-NUT	CBER32-NUTW	6.35	2.38	◇ CP or CC
26.7 - 33.5	25.4	101.6	ER32	CBER32M-CP	CBER32-NUT	CBER32-NUTW	6.35	2.38	◇ CP or CC
26.7 - 33.5	25.4	50.8	ER32	CBER32MS-TP	CBER32-NUT	CBER32-NUTW	6.35	2.38	△ TP
26.7 - 33.5	25.4	101.6	ER32	CBER32M-TP	CBER32-NUT	CBER32-NUTW	6.35	2.38	△ TP
33.1 - 40.6	31.75	63.5	ER40	CBER40MS-CP	CBER40-NUT	CBER40-NUTW	6.35	2.38	◇ CP or CC
33.1 - 40.6	31.75	127	ER40	CBER40M-CP	CBER40-NUT	CBER40-NUTW	6.35	2.38	◇ CP or CC
33.1 - 40.6	31.75	63.5	ER40	CBER40MS-TP	CBER40-NUT	CBER40-NUTW	6.35	2.38	△ TP
33.1 - 40.6	31.75	127	ER40	CBER40M-TP	CBER40-NUT	CBER40-NUTW	6.35	2.38	△ TP

*NOTE: CBER16 style boring system includes the ER16 collet nut with M22x1.5 thread as part of the assembly

Imperial (in) = 0.001" adjustment on diameter
Metric (mm) = 0.02mm adjustment on diameter



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

Inserts sold separately

DRILLING

BORING

REAMING

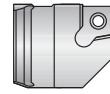
BURNISHING

THREADING

SPECIALS

CBER® Replacement Parts

Standard Adjusting

**1** Body**2** Insert Holder**3** Dial Screw

Head Part No.	Hardware Kit	Components				
		1	2	3		
CBER16S-CP	CB0625-HDW	CBER16S-BD	CB0625CP-IH	DS-MDB0625	TXS-116-1	8T-7
CBER16-CP	CB0625-HDW	CBER16BD	CB0625CP-IH	DS-MDB0625	TXS-116-1	8T-7
CBER16S-TP	CB0625-HDW	CBER16S-BD	CB0625TP-IH	DS-MDB0625	TXS-116-1	8T-7
CBER16-TP	CB0625-HDW	CBER16BD	CB0625TP-IH	DS-MDB0625	TXS-116-1	8T-7
CBER20S-CP	CB0625-HDW	CBER20S-BD	CB0625CP-IH	DS-MDB0625	TXS-116-1	8T-7
CBER20-CP	CB0625-HDW	CBER20BD	CB0625CP-IH	DS-MDB0625	TXS-116-1	8T-7
CBER20S-TP	CB0625-HDW	CBER20S-BD	CB0625TP-IH	DS-MDB0625	TXS-116-1	8T-7
CBER20-TP	CB0625-HDW	CBER20BD	CB0625TP-IH	DS-MDB0625	TXS-116-1	8T-7
CBER25S-CP	CB0750-HDW	CBER25S-BD	CB0750CP-IH	DS-MDB0750	TXS-116-1	8T-7
CBER25-CP	CB0750-HDW	CBER25BD	CB0750CP-IH	DS-MDB0750	TXS-116-1	8T-7
CBER25S-TP	CB0750-HDW	CBER25S-BD	CB0750TP-IH	DS-MDB0750	TXS-116-1	8T-7
CBER25-TP	CB0750-HDW	CBER25BD	CB0750TP-IH	DS-MDB0750	TXS-116-1	8T-7
CBER32S-CP	CB1000-HDW	CBER32S-BD	CB1000CP-IH	DS-MDB1000	TXS-116-1	8T-7
CBER32-CP	CB1000-HDW	CBER32BD	CB1000CP-IH	DS-MDB1000	TXS-116-1	8T-7
CBER32S-TP	CB1000-HDW	CBER32S-BD	CB1000TP-IH	DS-MDB1000	TXS-116-1	8T-7
CBER32-TP	CB1000-HDW	CBER32BD	CB1000TP-IH	DS-MDB1000	TXS-116-1	8T-7
CBER40S-CP	CB1250-HDW	CBER40S-BD	CB1250CP-IH	DS-MDB1000	TXS-116-1	8T-7
CBER40-CP	CB1250-HDW	CBER40BD	CB1250CP-IH	DS-MDB1000	TXS-116-1	8T-7
CBER40S-TP	CB1250-HDW	CBER40S-BD	CB1250TP-IH	DS-MDB1000	TXS-116-1	8T-7
CBER40-TP	CB1250-HDW	CBER40BD	CB1250TP-IH	DS-MDB1000	TXS-116-1	8T-7
CBER16MS-CP	CB0625-HDW	CBER16MS-BD	CB016MCP-IH	DS-MDB16M	TXS-116-1	8T-7
CBER16M-CP	CB0625-HDW	CBER16M-BD	CB016MCP-IH	DS-MDB16M	TXS-116-1	8T-7
CBER16MS-TP	CB0625-HDW	CBER16MS-BD	CB016MTP-IH	DS-MDB16M	TXS-116-1	8T-7
CBER16M-TP	CB0625-HDW	CBER16M-BD	CB016MTP-IH	DS-MDB16M	TXS-116-1	8T-7
CBER20MS-CP	CB0625-HDW	CBER20MS-BD	CB016MCP-IH	DS-MDB16M	TXS-116-1	8T-7
CBER20M-CP	CB0625-HDW	CBER20M-BD	CB016MCP-IH	DS-MDB16M	TXS-116-1	8T-7
CBER20MS-TP	CB0625-HDW	CBER20MS-BD	CB016MTP-IH	DS-MDB16M	TXS-116-1	8T-7
CBER20M-TP	CB0625-HDW	CBER20M-BD	CB016MTP-IH	DS-MDB16M	TXS-116-1	8T-7
CBER25MS-CP	CB0750-HDW	CBER25MS-BD	CB020MCP-IH	DS-MDB20M	TXS-116-1	8T-7
CBER25M-CP	CB0750-HDW	CBER25M-BD	CB020MCP-IH	DS-MDB20M	TXS-116-1	8T-7
CBER25MS-TP	CB0750-HDW	CBER25MS-BD	CB020MTP-IH	DS-MDB20M	TXS-116-1	8T-7
CBER25M-TP	CB0750-HDW	CBER25M-BD	CB020MTP-IH	DS-MDB20M	TXS-116-1	8T-7
CBER32MS-CP	CB1000-HDW	CBER32MS-BD	CB025MCP-IH	DS-MDB25M	TXS-116-1	8T-7
CBER32M-CP	CB1000-HDW	CBER32M-BD	CB025MCP-IH	DS-MDB25M	TXS-116-1	8T-7
CBER32MS-TP	CB1000-HDW	CBER32MS-BD	CB025MTP-IH	DS-MDB25M	TXS-116-1	8T-7
CBER32M-TP	CB1000-HDW	CBER32M-BD	CB025MTP-IH	DS-MDB25M	TXS-116-1	8T-7
CBER40MS-CP	CB1250-HDW	CBER40MS-BD	CB032MCP-IH	DS-MDB25M	TXS-116-1	8T-7
CBER40M-CP	CB1250-HDW	CBER40M-BD	CB032MCP-IH	DS-MDB25M	TXS-116-1	8T-7
CBER40MS-TP	CB1250-HDW	CBER40MS-BD	CB032MTP-IH	DS-MDB25M	TXS-116-1	8T-7
CBER40M-TP	CB1250-HDW	CBER40M-BD	CB032MTP-IH	DS-MDB25M	TXS-116-1	8T-7

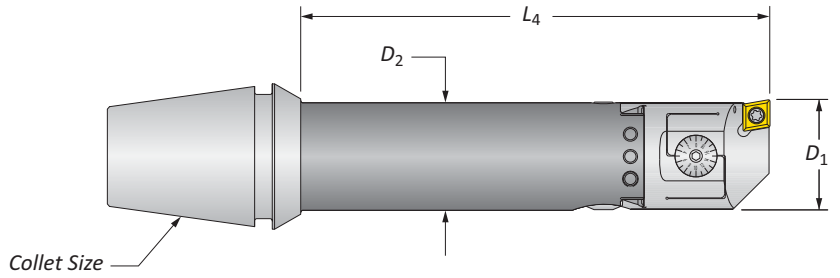
i = Imperial (in)**m** = Metric (mm)

Screws sold in multiples of 10

CBER® Boring Heads

Micro Adjusting | SGL Style

A DRILLING



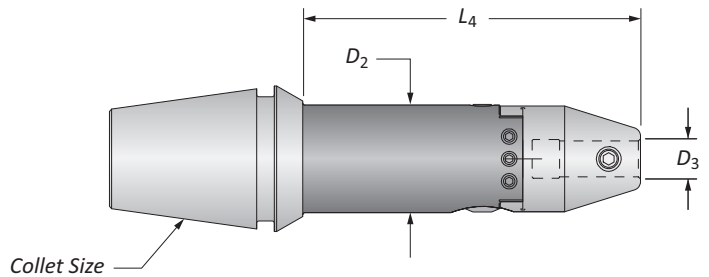
B BORING

Micro Adjusting

D_1 Range	Boring Head			Part No.	Collet Nut	Collet Nut Wrench	Insert		
	D_2	L_4	Collet Size				IC	T_1	Style
1.050 - 1.320	1.000	2.700	ER32	CBER32S-CPMA	CBER32-NUT	CBER32-NUTW	0.250	0.094	◇ CP or CC
1.050 - 1.320	1.000	4.700	ER32	CBER32-CPMA	CBER32-NUT	CBER32-NUTW	0.250	0.094	◇ CP or CC
1.050 - 1.320	1.000	2.700	ER32	CBER32S-TPMA	CBER32-NUT	CBER32-NUTW	0.250	0.094	▲ TP
1.050 - 1.320	1.000	4.700	ER32	CBER32-TPMA	CBER32-NUT	CBER32-NUTW	0.250	0.094	▲ TP
1.300 - 1.600	1.250	3.200	ER40	CBER40S-CPMA	CBER40-NUT	CBER40-NUTW	0.250	0.094	◇ CP or CC
1.300 - 1.600	1.250	5.700	ER40	CBER40-CPMA	CBER40-NUT	CBER40-NUTW	0.250	0.094	◇ CP or CC
1.300 - 1.600	1.250	3.200	ER40	CBER40S-TPMA	CBER40-NUT	CBER40-NUTW	0.250	0.094	▲ TP
1.300 - 1.600	1.250	5.700	ER40	CBER40-TPMA	CBER40-NUT	CBER40-NUTW	0.250	0.094	▲ TP
26.7 - 33.5	25.4	68.5	ER32	CBER32MS-CPMA	CBER32-NUT	CBER32-NUTW	6.35	2.38	◇ CP or CC
26.7 - 33.5	25.4	119.4	ER32	CBER32M-CPMA	CBER32-NUT	CBER32-NUTW	6.35	2.38	◇ CP or CC
26.7 - 33.5	25.4	68.5	ER32	CBER32MS-TPMA	CBER32-NUT	CBER32-NUTW	6.35	2.38	▲ TP
26.7 - 33.5	25.4	119.4	ER32	CBER32M-TPMA	CBER32-NUT	CBER32-NUTW	6.35	2.38	▲ TP
33.1 - 40.6	31.75	81.2	ER40	CBER40MS-CPMA	CBER40-NUT	CBER40-NUTW	6.35	2.38	◇ CP or CC
33.1 - 40.6	31.75	144.7	ER40	CBER40M-CPMA	CBER40-NUT	CBER40-NUTW	6.35	2.38	◇ CP or CC
33.1 - 40.6	31.75	81.2	ER40	CBER40MS-TPMA	CBER40-NUT	CBER40-NUTW	6.35	2.38	▲ TP
33.1 - 40.6	31.75	144.7	ER40	CBER40M-TPMA	CBER40-NUT	CBER40-NUTW	6.35	2.38	▲ TP

Imperial (in) = 0.001" adjustment on diameter
Metric (mm) = 0.02mm adjustment on diameter

C REAMING



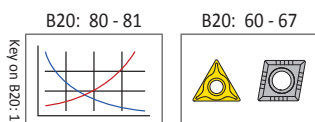
D BURNISHING

SGL Style

D_1 Range	Boring Head				Part No.	Collet Nut	Collet Nut Wrench
	D_3	D_2	L_4	Collet Size			
0.050 - 0.380	0.125	0.625	1.500	ER16	CBER16S-SG*	-	CBER16-NUTW
0.050 - 0.380	0.125	0.625	2.500	ER16	CBER16-SG*	-	CBER16-NUTW
0.050 - 0.380	0.125	0.625	1.500	ER20	CBER20S-SG	CBER20-NUT	CBER20-NUTW
0.050 - 0.380	0.125	0.625	2.500	ER20	CBER20-SG	CBER20-NUT	CBER20-NUTW
0.050 - 0.470	0.250	0.750	1.687	ER25	CBER25S-SH	CBER25-NUT	CBER25-NUTW
0.050 - 0.470	0.250	0.750	3.187	ER25	CBER25-SH	CBER25-NUT	CBER25-NUTW
0.120 - 0.645	0.375	1.000	2.437	ER32	CBER32S-SA	CBER32-NUT	CBER32-NUTW
0.120 - 0.645	0.375	1.000	4.437	ER32	CBER32-SA	CBER32-NUT	CBER32-NUTW
0.250 - 0.800	0.500	1.250	2.781	ER40	CBER40S-SB	CBER40-NUT	CBER40-NUTW
0.250 - 0.800	0.500	1.250	5.281	ER40	CBER40-SB	CBER40-NUT	CBER40-NUTW

*NOTE: CBER16 style boring system includes the ER16 collet nut with M22x1.5 thread as part of the assembly
Imperial (in) = 0.001" adjustment on diameter

E THREADING



X SPECIALS

ⓘ = Imperial (in)
Ⓜ = Metric (mm)
Inserts sold separately

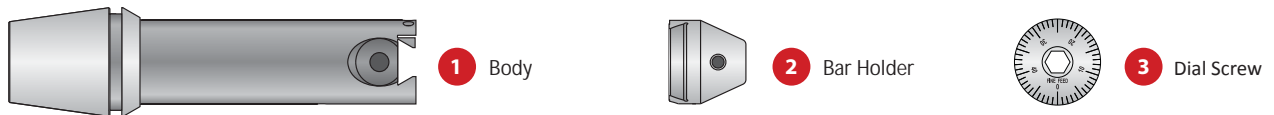
CBER® Replacement Parts

Micro Adjusting | SGL Style



Micro Adjusting

	Head Part No.	Hardware Kit	Components				Wedge	Torx Screw	Torx Wrench
			1	2	3	4			
i	CBER32S-CPMA	CB1000-HDW	CBER32S-BD	CB1000CPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER32-CPMA	CB1000-HDW	CBER32BD	CB1000CPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER32S-TPMA	CB1000-HDW	CBER32S-BD	CB1000TPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER32-TPMA	CB1000-HDW	CBER32BD	CB1000TPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER40S-CPMA	CB1250-HDW	CBER40S-BD	CB1250CPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER40-CPMA	CB1250-HDW	CBER40S-BD	CB1250CPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER40S-TPMA	CB1250-HDW	CBER40S-BD	CB1250TPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER40-TPMA	CB1250-HDW	CBER40BD	CB1250TPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
m	CBER32MS-CPMA	CB1000-HDW	CBER32MS-BD	CB025MCPMA-IH	DS-MDB25M	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER32M-CPMA	CB1000-HDW	CBER32M-BD	CB025MCPMA-IH	DS-MDB25M	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER32MS-TPMA	CB1000-HDW	CBER32MS-BD	CB025MTPMA-IH	DS-MDB25M	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER32M-TPMA	CB1000-HDW	CBER32M-BD	CB025MTPMA-IH	DS-MDB25M	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER40MS-CPMA	CB1250-HDW	CBER40MS-BD	CB032MCPMA-IH	DS-MDB25M	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER40M-CPMA	CB1250-HDW	CBER40M-BD	CB032MCPMA-IH	DS-MDB25M	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER40MS-TPMA	CB1250-HDW	CBER40MS-BD	CB032MTPMA-IH	DS-MDB25M	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBER40M-TPMA	CB1250-HDW	CBER40M-BD	CB032MTPMA-IH	DS-MDB25M	DS-MA1500	MAW-1000	TXS-116-1	8T-7



SGL Style

	Head Part No.	Hardware Kit	Components		
			1	2	3
i	CBER16S-SG	CB0625-HDW	CBER16S-BD	SGL0625G-BH	DS-MDB0625
	CBER16-SG	CB0625-HDW	CBER16BD	SGL0625G-BH	DS-MDB0625
	CBER20S-SG	CB0625-HDW	CBER20S-BD	SGL0625G-BH	DS-MDB0625
	CBER20-SG	CB0625-HDW	CBER20BD	SGL0625G-BH	DS-MDB0625
	CBER25S-SH	CB0750-HDW	CBER25S-BD	SGL0750H-BH	DS-MDB0750
	CBER25-SH	CB0750-HDW	CBER25BD	SGL0750H-BH	DS-MDB0750
	CBER32S-SA	CB1000-HDW	CBER32S-BD	SGL1000A-BH	DS-MDB1000
	CBER32-SA	CB1000-HDW	CBER32BD	SGL1000A-BH	DS-MDB1000
	CBER40S-SB	CB1250-HDW	CBER40S-BD	SGL1250B-BH	DS-MDB1000
	CBER40-SB	CB1250-HDW	CBER40BD	SGL1250B-BH	DS-MDB1000

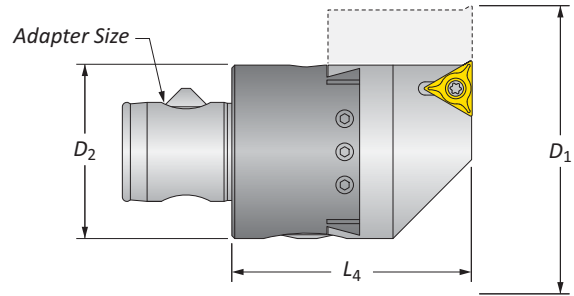
i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

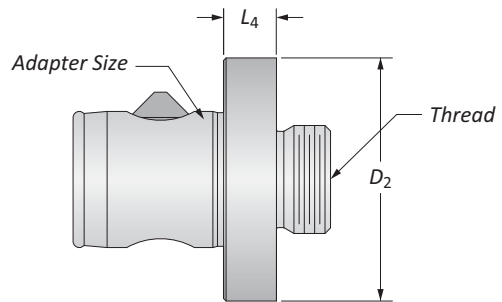
Cri-Tip Boring Heads - Komet® ABS® Connection

Standard Adjusting | Bore Diameter Range: 1.585" - 5.065" (38mm - 76mm)



	Boring Head				Insert			
	D_1 Range	D_2	L_4	Adapter Size	Part No.	IC	T_1	Style
i	1.585 - 2.700	1.500	2.550	A40	CTP1500-A40TP	0.375	0.125	▲ TP
	1.585 - 2.700	1.500	2.550	A40	CTP1500-A40CP	0.375	0.156	◆ CP or CC
	1.585 - 2.700	1.500	2.800*	A50	CTP1500-A50TP	0.375	0.125	▲ TP
	1.585 - 2.700	1.500	2.800*	A50	CTP1500-A50CP	0.375	0.156	◆ CP or CC
	2.060 - 3.320	2.000	2.925	A50	CTP2000-A50TP	0.375	0.125	▲ TP
	2.060 - 3.320	2.000	2.925	A50	CTP2000-A50CP	0.375	0.156	◆ CP or CC
	3.065 - 5.065	3.000	4.250	A80	CTP3000-A80TP	0.375	0.125	▲ TP
	3.065 - 5.065	3.000	4.250	A80	CTP3000-A80CP	0.375	0.156	◆ CP or CC
m	41.00 - 68.00	38.00	64.00	A40	CTP038M-A40TP	9.53	3.18	▲ TP
	41.00 - 68.00	38.00	64.00	A40	CTP038M-A40CP	9.53	3.96	◆ CP or CC
	41.00 - 68.00	38.00	71.00*	A50	CTP038M-A50TP	9.53	3.18	▲ TP
	41.00 - 68.00	38.00	71.00*	A50	CTP038M-A50CP	9.53	3.96	◆ CP or CC
	53.00 - 84.00	50.00	74.00	A50	CTP050M-A50TP	9.53	3.18	▲ TP
	53.00 - 84.00	50.00	74.00	A50	CTP050M-A50CP	9.53	3.96	◆ CP or CC
	78.00 - 128.00	76.00	100.00	A80	CTP076M-A80TP	9.53	3.18	▲ TP
	78.00 - 128.00	76.00	100.00	A80	CTP076M-A80CP	9.53	3.96	◆ CP or CC

*Max bore depth is 2.087" (53mm)
 Imperial (in) = 0.001" adjustment on diameter
 Metric (mm) = 0.02mm adjustment on diameter



Shanks

	Shank				
	D_2	L_4	Thread	Adapter Size	Part No.
i	1.500	0.430	7/8-20	A40	CTP1500-A400875
	2.000	0.430	7/8-20	A50	CTP2000-A500875
	3.000	1.050	1-1/2-18	A80	CTP3000-A801500

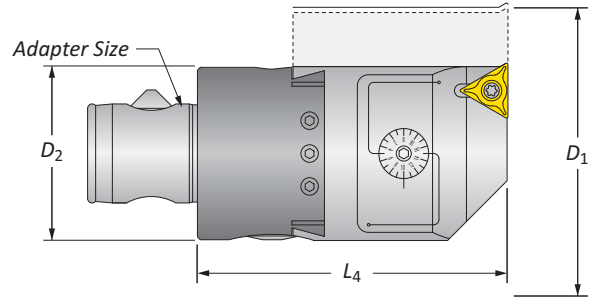
B20: 80 - 81 B20: 60 - 67 B20: 71

i = Imperial (in)
 m = Metric (mm)
 Inserts sold separately

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

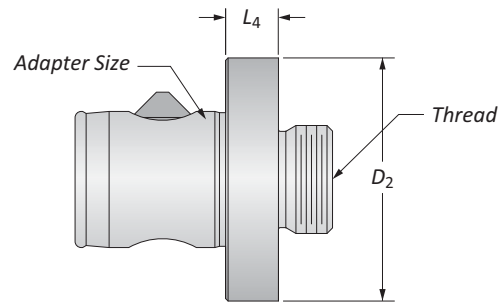
Cri-Tip Boring Heads - Komet® ABS® Connection

Micro Adjusting | Bore Diameter Range: 1.585" - 5.065" (38mm - 76mm)



	Boring Head				Part No.	Insert		
	D ₁ Range	D ₂	L ₄	Adapter Size		IC	T ₁	Style
i	1.585 - 2.700	1.500	3.250	A40	CTP1500-A40TPMA	0.375	0.125	▲ TP
	1.585 - 2.700	1.500	3.250	A40	CTP1500-A40CPMA	0.375	0.156	◆ CP or CC
	1.585 - 2.700	1.500	3.500*	A50	CTP1500-A50TPMA	0.375	0.125	▲ TP
	1.585 - 2.700	1.500	3.500*	A50	CTP1500-A50CPMA	0.375	0.156	◆ CP or CC
	2.060 - 3.320	2.000	3.750	A50	CTP2000-A50TPMA	0.375	0.125	▲ TP
	2.060 - 3.320	2.000	3.750	A50	CTP2000-A50CPMA	0.375	0.156	◆ CP or CC
	3.065 - 5.065	3.000	4.875	A80	CTP3000-A80TPMA	0.375	0.125	▲ TP
	3.065 - 5.065	3.000	4.875	A80	CTP3000-A80CPMA	0.375	0.156	◆ CP or CC
m	41.00 - 68.00	38.00	82.00	A40	CTP038M-A40TPMA	9.53	3.18	▲ TP
	41.00 - 68.00	38.00	82.00	A40	CTP038M-A40CPMA	9.53	3.96	◆ CP or CC
	41.00 - 68.00	38.00	88.00*	A50	CTP038M-A50TPMA	9.53	3.18	▲ TP
	41.00 - 68.00	38.00	88.00*	A50	CTP038M-A50CPMA	9.53	3.96	◆ CP or CC
	53.00 - 84.00	50.00	95.00	A50	CTP050M-A50TPMA	9.53	3.18	▲ TP
	53.00 - 84.00	50.00	95.00	A50	CTP050M-A50CPMA	9.53	3.96	◆ CP or CC
	78.00 - 128.00	76.00	123.00	A80	CTP076M-A80TPMA	9.53	3.18	▲ TP
	78.00 - 128.00	76.00	123.00	A80	CTP076M-A80CPMA	9.53	3.96	◆ CP or CC

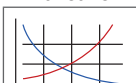
*Max bore depth is 2.087" (53mm)
 Imperial (in) = 0.00005" adjustment on diameter
 Metric (mm) = 0.001mm adjustment on diameter



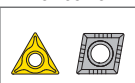
Shanks

	Shank				Part No.
	D ₂	L ₄	Thread	Adapter Size	
i	1.500	0.430	7/8-20	A40	CTP1500-A400875
	2.000	0.430	7/8-20	A50	CTP2000-A500875
	3.000	1.050	1-1/2-18	A80	CTP3000-A801500


B20: 80 - 81



B20: 60 - 67



B20: 71

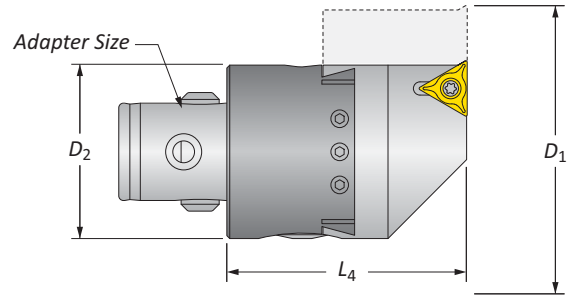


i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

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

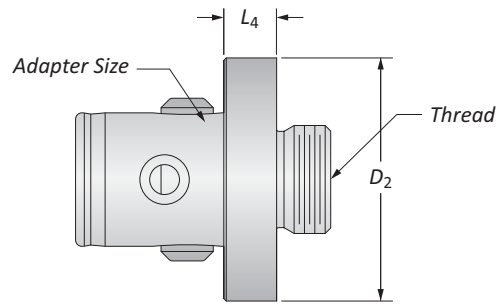
Cri-Tip Boring Heads - Big® Kaiser® Connection

Standard Adjusting | Bore Diameter Range: 1.585" - 5.065" (41mm - 128mm)



	Boring Heads				Part No.	Insert		
	D_1 Range	D_4	L_4	Adapter Size		IC	T_1	Style
i	1.585 - 2.700	1.500	2.305	KA4	CTP1500-K4TP	0.375	0.125	▲ TP
	1.585 - 2.700	1.500	2.305	KA4	CTP1500-K4CP	0.375	0.156	◆ CP or CC
	1.585 - 2.700	1.500	2.550*	KA5	CTP1500-K5TP	0.375	0.125	▲ TP
	1.585 - 2.700	1.500	2.550*	KA5	CTP1500-K5CP	0.375	0.156	◆ CP or CC
	2.060 - 3.320	2.000	2.740	KA5	CTP2000-K5TP	0.375	0.125	▲ TP
	2.060 - 3.320	2.000	2.740	KA5	CTP2000-K5CP	0.375	0.156	◆ CP or CC
	3.065 - 5.065	3.000	3.940	KA7	CTP3000-K7TP	0.375	0.125	▲ TP
	3.065 - 5.065	3.000	3.940	KA7	CTP3000-K7CP	0.375	0.156	◆ CP or CC
m	41.00 - 68.00	38.00	58.00	KA4	CTP038M-K4TP	9.53	3.18	▲ TP
	41.00 - 68.00	38.00	58.00	KA4	CTP038M-K4CP	9.53	3.96	◆ CP or CC
	41.00 - 68.00	38.00	64.00*	KA5	CTP038M-K5TP	9.53	3.18	▲ TP
	41.00 - 68.00	38.00	64.00*	KA5	CTP038M-K5CP	9.53	3.96	◆ CP or CC
	53.00 - 84.00	50.00	69.00	KA5	CTP050M-K5TP	9.53	3.18	▲ TP
	53.00 - 84.00	50.00	69.00	KA5	CTP050M-K5CP	9.53	3.96	◆ CP or CC
	78.00 - 128.00	76.00	100.00	KA7	CTP076M-K7TP	9.53	3.18	▲ TP
	78.00 - 128.00	76.00	100.00	KA7	CTP076M-K7CP	9.53	3.96	◆ CP or CC

*Max bore depth is 2.087" (53mm)
 Imperial (in) = 0.001" adjustment on diameter
 Metric (mm) = 0.02mm adjustment on diameter



Shanks

	Shank				Part No.
	D_2	L_4	Thread	Adapter Size	
i	1.500	0.500	7/8-20	KA4	CTP1500-K408752
	2.000	0.500	7/8-20	KA5	CTP2000-K508752
	3.000	0.750	1-1/2-18	KA7	CTP3000-K715001

B20: 80 - 81 B20: 60 - 67 B20: 71

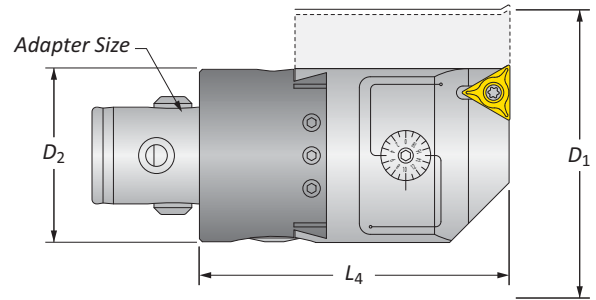
Key on B20: 1

i = Imperial (in)
 m = Metric (mm)
 Inserts sold separately

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

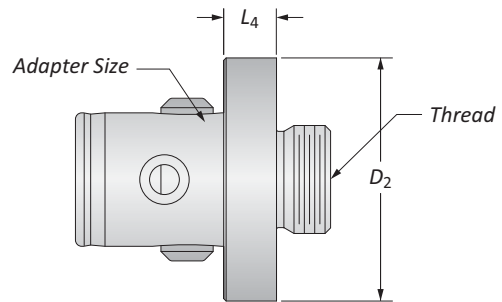
Cri-Tip Boring Heads - Big® Kaiser® Connection

Micro Adjusting | Bore Diameter Range: 1.585" - 5.065" (41mm - 128mm)



	Boring Head				Insert			
	D_1 Range	D_4	L_4	Adapter Size	Part No.	IC	T_1	Style
i	1.585 - 2.700	1.500	3.000	KA4	CTP1500-K4TPMA	0.375	0.125	▲ TP
	1.585 - 2.700	1.500	3.000	KA4	CTP1500-K4CPMA	0.375	0.156	◆ CP or CC
	1.585 - 2.700	1.500	3.250*	KA5	CTP1500-K5TPMA	0.375	0.125	▲ TP
	1.585 - 2.700	1.500	3.250*	KA5	CTP1500-K5CPMA	0.375	0.156	◆ CP or CC
	2.060 - 3.320	2.000	3.560	KA5	CTP2000-K5TPMA	0.375	0.125	▲ TP
	2.060 - 3.320	2.000	3.560	KA5	CTP2000-K5CPMA	0.375	0.156	◆ CP or CC
	3.065 - 5.065	3.000	4.560	KA7	CTP3000-K7TPMA	0.375	0.125	▲ TP
	3.065 - 5.065	3.000	4.560	KA7	CTP3000-K7CPMA	0.375	0.156	◆ CP or CC
m	41.00 - 68.00	38.00	76.00	KA4	CTP038M-K4TPMA	9.53	3.18	▲ TP
	41.00 - 68.00	38.00	76.00	KA4	CTP038M-K4CPMA	9.53	3.96	◆ CP or CC
	41.00 - 68.00	38.00	82.00*	KA5	CTP038M-K5TPMA	9.53	3.18	▲ TP
	41.00 - 68.00	38.00	82.00*	KA5	CTP038M-K5CPMA	9.53	3.96	◆ CP or CC
	53.00 - 84.00	50.00	90.00	KA5	CTP050M-K5TPMA	9.53	3.18	▲ TP
	53.00 - 84.00	50.00	90.00	KA5	CTP050M-K5CPMA	9.53	3.96	◆ CP or CC
	78.00 - 128.00	76.00	115.00	KA7	CTP076M-K7TPMA	9.53	3.18	▲ TP
	78.00 - 128.00	76.00	115.00	KA7	CTP076M-K7CPMA	9.53	3.96	◆ CP or CC

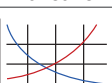
*Max bore depth is 2.087" (53mm)
 Imperial (in) = 0.00005" adjustment on diameter
 Metric (mm) = 0.001mm adjustment on diameter



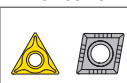
Shanks

	Shank				
	D_2	L_4	Thread	Adapter Size	Part No.
i	1.500	0.500	7/8-20	KA4	CTP1500-K408752
	2.000	0.500	7/8-20	KA5	CTP2000-K508752
	3.000	0.750	1-1/2-18	KA7	CTP3000-K715001


B20: 80 - 81



B20: 60 - 67



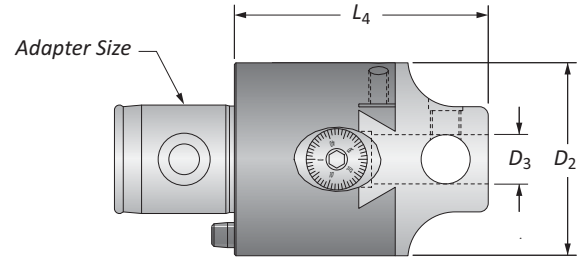
B20: 71



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

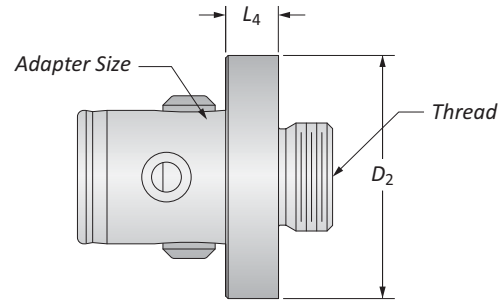
Cri-Tip Boring Heads - Komet® ABS® Connection

CB Style Standard Adjusting | Bore Diameter Range: 0.050" - 11.000" (3mm - 279mm)



	Bore Diameter			Boring Head				Adapter Size	Part No.
	Center Hole	Outboard Hole	Cross Hole*	D ₃	D ₂	L ₄	Offset		
i	0.050 - 1.625	-	-	0.500	1.500	2.530	0.562	A40	CTP1500-A40002
	0.050 - 1.625	1.000 - 2.500	-	0.375	1.500	2.530	0.562	A40	CTP1500-A40152
	0.050 - 1.625	-	-	0.500	1.500	2.780	0.562	A50	CTP1500-A50002
	0.050 - 1.625	1.000 - 2.500	-	0.375	1.500	2.780	0.562	A50	CTP1500-A50152
	0.050 - 1.750	1.312 - 3.000	2.875 - 6.687	0.375	2.000	2.600	0.625	A50	CTP2000-A50202A
	0.050 - 1.750	1.312 - 3.000	2.875 - 6.687	0.500	2.000	2.600	0.625	A50	CTP2000-A50202B
	0.050 - 3.250	2.375 - 5.125	4.937 - 11.000	0.750	3.000	3.945	1.000	A80	CTP3000-A80203D
	0.050 - 3.250	2.375 - 5.125	-	0.750	3.000	4.165	1.000	A80	CTP3000-A8030MA**
m	3.00 - 40.00	-	-	12.00	38.00	64.00	14	A40	CTP038M-A40B
	3.00 - 40.00	-	-	12.00	38.00	71.00	14	A50	CTP038M-A50B
	3.00 - 44.00	35.00 - 76.00	73.00 - 169.00	12.00	50.00	66.00	16	A50	CTP050M-A50B
	10.00 - 70.00	60.00 - 130.00	126.00 - 279.00	20.00	76.00	100.00	25	A80	CTP076M-A80B
	10.00 - 70.00	60.00 - 130.00	-	20.00	76.00	106.00	25	A80	CTP076M-A80DMA**

*NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws
 Imperial (in) = 0.001" adjustment on diameter | **Micro = 0.00005" adjustment on diameter
 Metric (mm) = 0.02mm adjustment on diameter | **Micro = 0.001mm adjustment on diameter



Shanks

	Shank			Adapter Size	Part No.
	D ₂	L ₄	Thread		
i	1.500	0.430	7/8-20	A40	CTP1500-A400875
	2.000	0.430	7/8-20	A50	CTP2000-A500875
	3.000	1.050	1-1/2-18	A80	CTP3000-A801500

B20: 80 - 81 | B20: 47 - 59 | B20: 60 - 67 | B20: 71

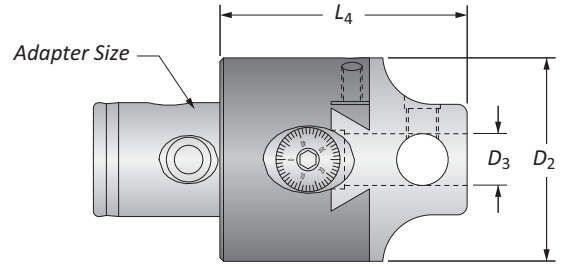
Key on B20: 1

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

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

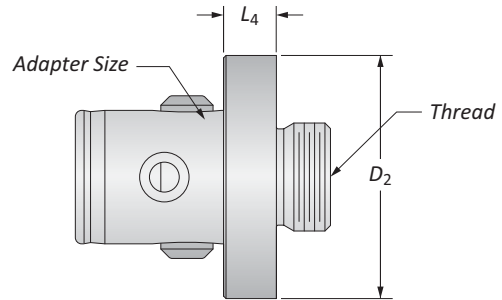
Cri-Tip Boring Heads - Big® Kaiser® Connection

CB Style Standard Adjusting | Bore Diameter Range: 0.050" - 11.000" (3mm - 279mm)



	Bore Diameter			Boring Head				Adapter Size	Part No.
	Center Hole	Outboard Hole	Cross Hole*	D ₃	D ₂	L ₄	Offset		
i	0.050 - 1.625	-	-	0.500	1.500	2.280	0.562	KA4	CTP1500-K4002
	0.050 - 1.625	1.000 - 2.500	-	0.375	1.500	2.280	0.562	KA4	CTP1500-K4152
	0.050 - 1.625	-	-	0.500	1.500	2.530	0.562	KA5	CTP1500-K5002
	0.050 - 1.625	1.000 - 2.500	-	0.375	1.500	2.530	0.562	KA5	CTP1500-K5152
	0.050 - 1.750	1.312 - 3.000	2.875 - 6.687	0.375	2.000	2.405	0.625	KA5	CTP2000-K5202A
	0.050 - 1.750	1.312 - 3.000	2.875 - 6.687	0.500	2.000	2.405	0.625	KA5	CTP2000-K5202B
	0.050 - 3.250	2.375 - 5.125	4.937 - 11.000	0.750	3.000	3.625	1.000	KA7	CTP3000-K7203D
	0.050 - 3.250	2.375 - 5.125	-	0.750	3.000	3.855	1.000	KA7	CTP3000-K7300MA**
ii	3.00 - 40.00	-	-	12.00	38.00	58.00	14	KA4	CTP038M-K4B
	3.00 - 40.00	-	-	12.00	38.00	64.00	14	KA5	CTP038M-K5B
	3.00 - 44.00	35.00 - 76.00	73.00 - 169.00	12.00	50.00	61.00	16	KA5	CTP050M-K5B
	10.00 - 70.00	60.00 - 130.00	126.00 - 279.00	20.00	76.00	92.00	25	KA7	CTP076M-K7D
	10.00 - 70.00	60.00 - 130.00	-	20.00	76.00	98.00	25	KA7	CTP076M-K7DMA**

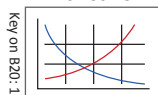
*NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws
 Imperial (in) = 0.001" adjustment on diameter | **Micro = 0.00005" adjustment on diameter
 Metric (mm) = 0.02mm adjustment on diameter | **Micro = 0.001mm adjustment on diameter



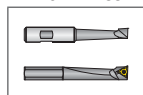
Shanks

	Shank				Part No.
	D ₂	L ₄	Thread	Adapter Size	
i	1.500	0.500	7/8-20	KA4	CTP1500-K408752
	2.000	0.500	7/8-20	KA5	CTP2000-K508752
	3.000	0.750	1-1/2-18	KA7	CTP3000-K715001

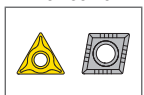
B20: 80 - 81




B20: 47 - 59



B20: 60 - 67



B20: 71

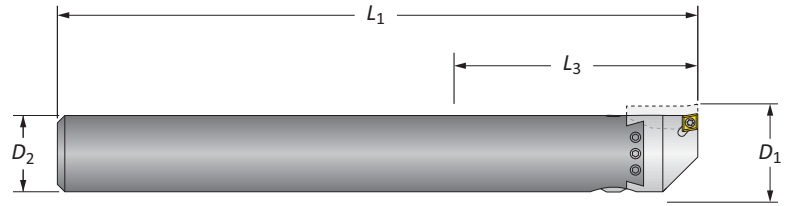


i = Imperial (in)
 ii = Metric (mm)

Cri-Bar Adjustable Boring Bars

Round Shank | Bore Diameter Range: 0.050" - 1.600"

A DRILLING

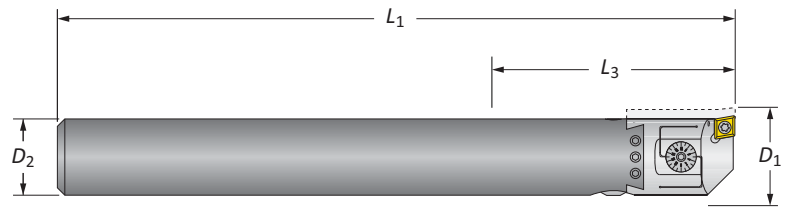


Standard Adjusting

D_1 Range	Boring Bar			Part No.	IC	T_1	Style
	L_1	L_3	D_2				
0.672 - 0.944	5.25	3.000	0.625	CBR-0625CP*	0.250	0.094	◇ CP or CC
0.672 - 0.944	5.25	3.000	0.625	CBR-0625TP	0.250	0.094	▲ TP
0.825 - 1.087	6.31	4.000	0.750	CBR-0750CP	0.250	0.094	◇ CP or CC
0.825 - 1.087	6.31	4.000	0.750	CBR-0750TP	0.250	0.094	▲ TP
1.050 - 1.320	8.25	5.000	1.000	CBR-1000CP	0.250	0.094	◇ CP or CC
1.050 - 1.320	8.25	5.000	1.000	CBR-1000TP	0.250	0.094	▲ TP
1.300 - 1.600	10.31	6.500	1.250	CBR-1250CP	0.250	0.094	◇ CP or CC
1.300 - 1.600	10.31	6.500	1.250	CBR-1250TP	0.250	0.094	▲ TP

*CBR-0625 style boring system has a minimum bore diameter of 0.750" when using a CC style insert
Imperial (in) = 0.001" adjustment on diameter

B BORING

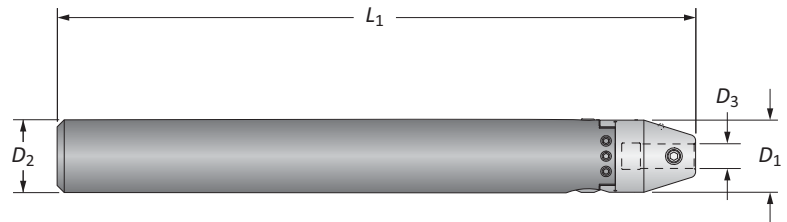


Micro Adjusting

D_1 Range	Boring Bar			Part No.	IC	T_1	Style
	L_1	L_3	D_2				
1.050 - 1.320	8.95	3.000	1.000	CBR-1000CPMA	0.250	0.094	◇ CP or CC
1.050 - 1.320	8.95	4.000	1.000	CBR-1000TPMA	0.250	0.094	▲ TP
1.300 - 1.600	11.00	5.000	1.250	CBR-1250CPMA	0.250	0.094	◇ CP or CC
1.300 - 1.600	11.00	6.500	1.250	CBR-1250TPMA	0.250	0.094	▲ TP

The total range of the micro adjustment is 0.006" (0.150mm) on diameter
Imperial (in) = 0.00005" adjustment on diameter

C REAMING



SGL Style

D_1 Range	Boring Bar			Part No.
	D_3	L_1	D_2	
0.050 - 0.380	0.125	5.25	0.625	CBR-0625SG
0.050 - 0.470	0.250	6.50	0.750	CBR-0750SH
0.120 - 0.640	0.375	8.69	1.000	CBR-1000SA
0.250 - 0.800	0.500	10.60	1.250	CBR-1250SB

D BURNISHING

E THREADING

X SPECIALS

B20: 80 - 81 B20: 47 - 59 B20: 60 - 67

Key on B20: 1

ⓘ = Imperial (in)
Ⓜ = Metric (mm)
Inserts sold separately

Cri-Bar Adjustable Boring Bar Replacement Parts

Round Shank



1 Body



2 Insert Holder



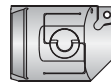
3 Dial Screw

Standard Adjusting

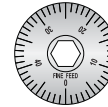
	Bar Part No.	Hardware Kit	Components			Torx Screw	Torx Wrench
			1	2	3		
i	CBR-0625CP	CB0625-HDW	CBR0625-BD	CB0750CP-IH	DS-MDB0750	TXS-116-1	8T-7
	CBR-0625TP	CB0625-HDW	CBR0625-BD	CB0750TP-IH	DS-MDB0750	TXS-116-1	8T-7
	CBR-0750CP	CB0750-HDW	CBR0750-BD	CB0750CP-IH	DS-MDB0750	TXS-116-1	8T-7
	CBR-0750TP	CB0750-HDW	CBR0750-BD	CB0750TP-IH	DS-MDB0750	TXS-116-1	8T-7
	CBR-1000CP	CB1000-HDW	CBR1000-BD	CB1000CP-IH	DS-MDB1000	TXS-116-1	8T-7
	CBR-1000TP	CB1000-HDW	CBR1000-BD	CB1000TP-IH	DS-MDB1000	TXS-116-1	8T-7
	CBR-1250CP	CB1250-HDW	CBR1250-BD	CB1250CP-IH	DS-MDB1000	TXS-116-1	8T-7
	CBR-1250TP	CB1250-HDW	CBR1250-BD	CB1250TP-IH	DS-MDB1000	TXS-116-1	8T-7



1 Body



2 Insert Holder



3 Dial Screw



4 Micro Dial Screw

Micro Adjusting

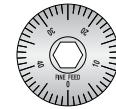
	Bar Part No.	Hardware Kit	Components				Wedge	Torx Screw	Torx Wrench
			1	2	3	4			
i	CBR-1000CPMA	CB1000-HDW	CBR1000-BD	CB1000CPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBR-1000TPMA	CB1000-HDW	CBR1000-BD	CB1000TPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBR-1250CPMA	CB1250-HDW	CBR1250-BD	CB1250CPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBR-1250TPMA	CB1250-HDW	CBR1250-BD	CB1250TPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7



1 Body



2 Bar Holder



3 Dial Screw

SGL Style

	Bar Part No.	Hardware Kit	Components		
			1	2	3
i	CBR-0625SG	CB0625-HDW	CBR0625-BD	SGL0625G-BH	DS-MDB0750
	CBR-0750SH	CB0750-HDW	CBR0750-BD	SGL0750H-BH	DS-MDB0750
	CBR-1000SA	CB1000-HDW	CBR1000-BD	SGL1000A-BH	DS-MDB1000
	CBR-1250SB	CB1250-HDW	CBR1250-BD	SGL1250B-BH	DS-MDB1000

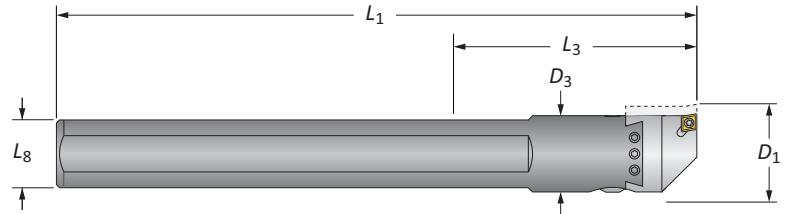
i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

Cri-Bar Adjustable Boring Bars

Square Shank | Bore Diameter Range: 0.050" - 1.600"

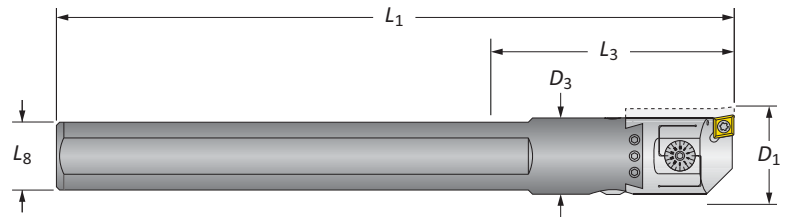


Standard Adjusting

<i>D</i> ₁ Range	Boring Bar					Part No.	IC	T ₁	Style
	<i>D</i> ₃	<i>L</i> ₁	<i>L</i> ₃	<i>L</i> ₈					
0.672 - 0.944	0.625	5.25	3.000	0.541	CBS-0625CP*	0.250	0.094	◇ CP or CC	
0.672 - 0.944	0.625	5.25	3.000	0.541	CBS-0625TP	0.250	0.094	△ TP	
0.825 - 1.087	0.750	6.31	4.000	0.660	CBS-0750CP	0.250	0.094	◇ CP or CC	
0.825 - 1.087	0.750	6.31	4.000	0.660	CBS-0750TP	0.250	0.094	△ TP	
1.050 - 1.320	1.000	8.25	5.000	0.883	CBS-1000CP	0.250	0.094	◇ CP or CC	
1.050 - 1.320	1.000	8.25	5.000	0.883	CBS-1000TP	0.250	0.094	△ TP	
1.300 - 1.600	1.250	10.31	6.500	1.100	CBS-1250CP	0.250	0.094	◇ CP or CC	
1.300 - 1.600	1.250	10.31	6.500	1.100	CBS-1250TP	0.250	0.094	△ TP	

*CBS-0625 style boring system has a minimum bore diameter of 0.750" when using a CC style insert

Imperial (in) = 0.001" adjustment on diameter

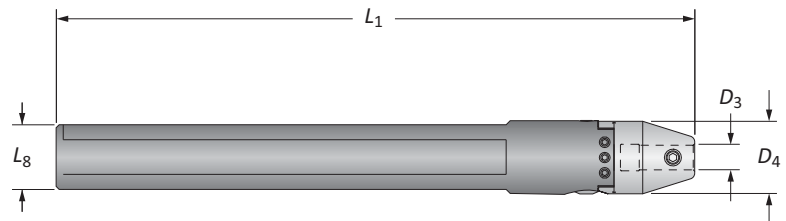


Micro Adjusting

<i>D</i> ₁ Range	Boring Bar					Part No.	IC	T ₁	Style
	<i>D</i> ₃	<i>L</i> ₁	<i>L</i> ₃	<i>L</i> ₈					
1.050 - 1.320	1.000	8.95	3.000	0.883	CBS-1000CPMA	0.250	0.094	◇ CP or CC	
1.050 - 1.320	1.000	8.95	4.000	0.883	CBS-1000TPMA	0.250	0.094	△ TP	
1.300 - 1.600	1.250	11.00	5.000	1.100	CBS-1250CPMA	0.250	0.094	◇ CP or CC	
1.300 - 1.600	1.250	11.00	6.500	1.100	CBS-1250TPMA	0.250	0.094	△ TP	

The total range of the micro adjustment is 0.006" (0.150mm) on diameter

Imperial (in) = 0.00005" adjustment on diameter



SGL Style

<i>D</i> ₁ Range	Boring Bar				Part No.
	<i>D</i> ₃	<i>D</i> ₄	<i>L</i> ₁	<i>L</i> ₈	
0.050 - 0.380	0.125	0.625	5.25	0.541	CBS-0625SG
0.050 - 0.470	0.250	0.750	6.50	0.660	CBS-0750SH
0.120 - 0.640	0.375	1.000	8.69	0.883	CBS-1000SA
0.250 - 0.800	0.500	1.250	10.60	1.100	CBS-1250SB

B20: 80 - 81 B20: 47 - 59 B20: 60 - 67

Key on B20: 1

ⓘ = Imperial (in)
 ⓘ = Metric (mm)
 Inserts sold separately

Cri-Bar Adjustable Boring Bar Replacement Parts

Square Shank



1 Body



2 Insert Holder



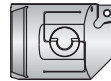
3 Dial Screw

Standard Adjusting

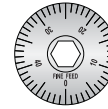
	Bar Part No.	Hardware Kit	Components			Torx Screw	Torx Wrench
			1	2	3		
i	CBS-0625CP	CB0625-HDW	CBS0625-BD	CB0750CP-IH	DS-MDB0750	TXS-116-1	8T-7
	CBS-0625TP	CB0625-HDW	CBS0625-BD	CB0750TP-IH	DS-MDB0750	TXS-116-1	8T-7
	CBS-0750CP	CB0750-HDW	CBS0750-BD	CB0750CP-IH	DS-MDB0750	TXS-116-1	8T-7
	CBS-0750TP	CB0750-HDW	CBS0750-BD	CB0750TP-IH	DS-MDB0750	TXS-116-1	8T-7
	CBS-1000CP	CB1000-HDW	CBS1000-BD	CB1000CP-IH	DS-MDB1000	TXS-116-1	8T-7
	CBS-1000TP	CB1000-HDW	CBS1000-BD	CB1000TP-IH	DS-MDB1000	TXS-116-1	8T-7
	CBS-1250CP	CB1250-HDW	CBS1250-BD	CB1250CP-IH	DS-MDB1000	TXS-116-1	8T-7
	CBS-1250TP	CB1250-HDW	CBS1250-BD	CB1250TP-IH	DS-MDB1000	TXS-116-1	8T-7



1 Body



2 Insert Holder



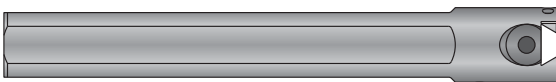
3 Dial Screw



4 Micro Dial Screw

Micro Adjusting

	Bar Part No.	Hardware Kit	Components				Wedge	Torx Screw	Torx Wrench
			1	2	3	4			
i	CBS-1000CPMA	CB1000-HDW	CBS1000-BD	CB1000CPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBS-1000TPMA	CB1000-HDW	CBS1000-BD	CB1000TPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBS-1250CPMA	CB1250-HDW	CBS1250-BD	CB1250CPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7
	CBS-1250TPMA	CB1250-HDW	CBS1250-BD	CB1250TPMA-IH	DS-MDB1000	DS-MA1500	MAW-1000	TXS-116-1	8T-7



1 Body



2 Bar Holder



3 Dial Screw

SGL Style

	Bar Part No.	Hardware Kit	Components		
			1	2	3
i	CBS-0625SG	CB0625-HDW	CBS0625-BD	SGL0625G-BH	DS-MDB0750
	CBS-0750SH	CB0750-HDW	CBS0750-BD	SGL0750H-BH	DS-MDB0750
	CBS-1000SA	CB1000-HDW	CBS1000-BD	SGL1000A-BH	DS-MDB1000
	CBS-1250SB	CB1250-HDW	CBS1250-BD	SGL1250B-BH	DS-MDB1000

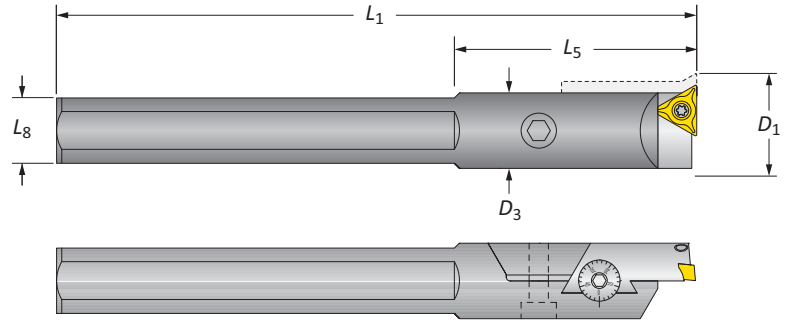
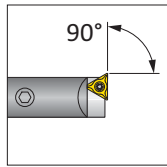
i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

MD Adjustable Boring Bars

Square Shank | Bore Diameter Range: 0.250" - 1.250"



D ₁ Range	Boring Bar				Part No.	Insert		
	D ₃	L ₁	L ₅	D ₂		IC	T ₁	Style
0.700 - 0.960	0.625	5.25	3.000	0.541	MDB-0625CP*	0.250	0.094	◇ CP or CC
0.710 - 0.960	0.625	5.25	3.000	0.541	MDB-0625TP	0.250	0.094	△ TP
0.850 - 1.200	0.750	6.31	4.000	0.660	MDB-0750CP	0.375	0.156	◇ CP or CC
0.890 - 1.280	0.750	6.31	4.000	0.660	MDB-0750TP	0.375	0.125	△ TP
1.100 - 1.670	1.000	8.25	5.000	0.883	MDB-1000CP	0.375	0.156	◇ CP or CC
1.130 - 1.650	1.000	8.25	5.000	0.883	MDB-1000TP	0.375	0.125	△ TP
1.370 - 2.330	1.250	10.31	6.500	1.100	MDB-1250CP	0.375	0.156	◇ CP or CC
1.400 - 2.370	1.250	10.31	6.500	1.100	MDB-1250TP	0.375	0.125	△ TP
18 - 27	16	133	3.000	14	MDB-16MT	6.35	2.38	△ TP
22 - 33	20	160	4.000	18	MDB-20MT	9.53	3.96	△ TP
27 - 42	25	210	5.000	23	MDB-25MT	9.53	3.96	△ TP
33 - 60	32	260	6.500	28	MDB-32MT	9.53	3.96	△ TP

*MDB-0625CP style boring system has a minimum bore diameter of 0.750" when using a CC style insert

Imperial (in) = 0.001" adjustment on diameter

Metric (mm) = 0.02mm adjustment on diameter

D

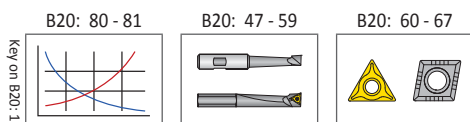
BURNISHING

F

THREADING

X

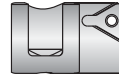
SPECIALS






i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

MD Adjustable Boring Bar Replacement Parts

Square Shank

**1** Body**2** Insert Holder**3** Dial Screw

Standard Adjusting

Bar Part No.	Components			 Wedge	 Torx Screw (10)	 Torx Wrench
	1	2	3			
MDB-0625CP	MDB0625-BD	MD0625CP-IH	DS-MDB0625	MDB0625-WEDGE	TXS-116-1	8T-7
MDB-0625TP	MDB0625-BD	MD0625TP-IH	DS-MDB0625	MDB0625-WEDGE	TXS-116-1	8T-7
MDB-0750CP	MDB0750-BD	MD0750CP-IH	DS-MDB0750	MDB0750-WEDGE	TXS-009-1	8T-15
MDB-0750TP	MDB0750-BD	MD0750TP-IH	DS-MDB0750	MDB0750-WEDGE	TXS-100-1	8T-20
MDB-1000CP	MDB1000-BD	MD1000CP-IH	DS-MDB1000	MDB1000-WEDGE	TXS-009-1	8T-15
MDB-1000TP	MDB-1000BD	MD1000TP-IH	DS-MDB1000	MDB1000-WEDGE	TXS-100-1	8T-20
MDB-1250CP	MDB1250-BD	MD1250CP-IH	DS-MDB1250	MDB1250-WEDGE	TXS-009-1	8T-15
MDB-1250TP	MDB1250-BD	MD1250TP-IH	DS-MDB1250	MDB1250-WEDGE	TXS-100-1	8T-20
MDB-16MT	MDB16M-BD	MD16MTP-IH	DS-MDB16M	MDB16M-WEDGE	TXS-116-1	8T-7
MDB-20MT	MDB20M-BD	MD20MTP-IH	DS-MDB20M	MDB20M-WEDGE	TXS-100-1	8T-20
MDB-25MT	MDB25M-BD	MD25MTP-IH	DS-MDB25M	MDB25M-WEDGE	TXS-100-1	8T-20
MDB-32MT	MDB32M-BD	MD32MTP-IH	DS-MDB32M	MDB32M-WEDGE	TXS-100-1	8T-20

i

m

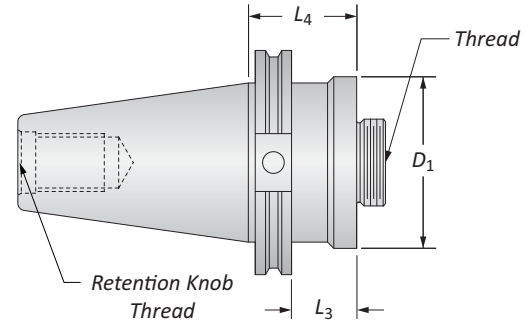
i = Imperial (in)

m = Metric (mm)

Screws sold in multiples of 10

Criterion Shanks

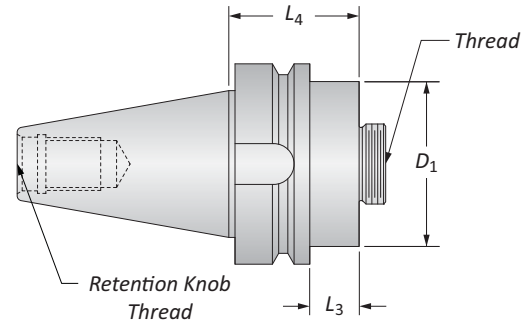
V Flange | BT Flange



V Flange Shank

Style	D_1	L_3	Shank			Retention Knob Thread	Part No.
			L_4	Thread	Retention Knob Thread		
CAT40	1.50	0.350	1.75	7/8"-20	5/8"-11	CB1500-CV40	
CAT40	2.00	1.000	1.88	7/8"-20	5/8"-11	CB2000-CV40	
CAT40	2.50	1.000	1.88	1-1/2"-18	5/8"-11	CB2500-CV40	
CAT40	3.00	1.750	1.88	1-1/2"-18	5/8"-11	CB3000-CV40	
i CAT50	1.50	0.350	1.75	7/8"-20	1"-8	CB1500-CV50	
i CAT50	2.00	1.000	1.88	7/8"-20	1"-8	CB2000-CV50	
i CAT50	2.50	1.000	1.88	1-1/2"-18	1"-8	CB2500-CV50	
i CAT50	3.00	1.750	1.88	1-1/2"-18	1"-8	CB3000-CV50	
i CAT50	3.38	1.250	2.13	2-1/4"-10	1"-8	CB6000-CV50	

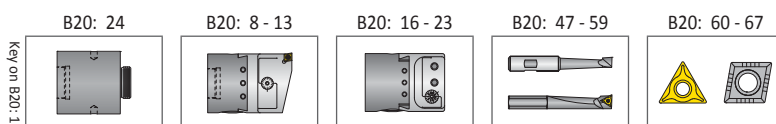
NOTE: Taper ground to AT3 tolerance



BT Flange Shank

Style	D_1	L_3	Shank			Retention Knob Thread	Part No.
			L_4	Thread	Retention Knob Thread		
BT30	1.50	0.859	1.75	7/8"-20	M12 x 1.75	CB1500-BT30	
BT40	1.50	0.422	1.75	7/8"-20	M16 x 2	CB1500-BT40	
BT40	2.00	1.900	1.56	7/8"-20	M16 x 2	CB2000-BT40	
BT40	2.50	1.900	2.06	1-1/2"-18	M16 x 2	CB2500-BT40	
i BT40	3.00	1.900	2.06	1-1/2"-18	M16 x 2	CB3000-BT40	
BT50	1.50	0.236	1.75	7/8"-20	M24 x 3	CB1500-BT50	
BT50	2.00	0.040	1.56	7/8"-20	M24 x 3	CB2000-BT50	
BT50	3.00	1.900	2.06	1-1/2"-18	M24 x 3	CB3000-BT50	
BT50	3.38	0.625	2.13	2-1/4"-10	M24 x 3	CB6000-BT50	

NOTE: Taper ground to AT3 tolerance

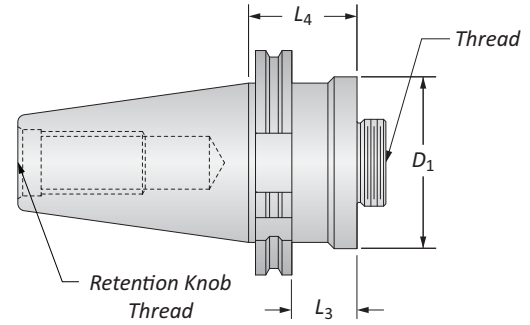


i = Imperial (in)
m = Metric (mm)



Criterion Shanks

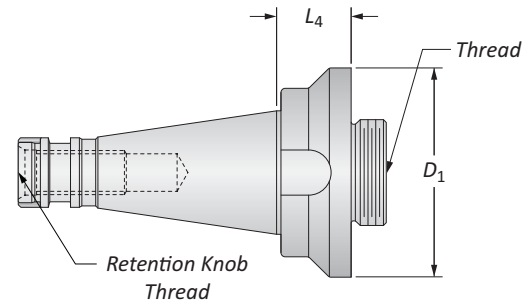
DIN 69871A | DIN 2080



DIN 69871A Shank

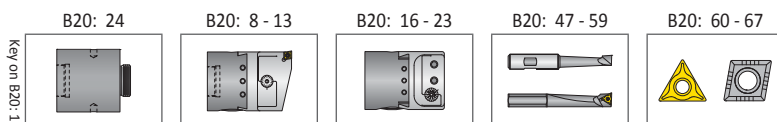
	Style	Shank					Part No.
		D_1	L_3	L_4	Thread	Retention Knob Thread	
Ⓜ	DIN 40	38.00	19.00	38.40	7/8"-20	M16 x 2.0	CB038M-DIN40
	DIN 40	50.00	22.00	41.50	7/8"-20	M16 x 2.0	CB050M-DIN40
	DIN 40	76.00	45.00	48.00	1-1/2"-18	M16 x 2.0	CB076M-DIN40
	DIN 50	38.00	19.00	38.40	7/8"-20	M24 x 3.0	CB038M-DIN50
	DIN 50	50.00	22.00	41.50	7/8"-20	M24 x 3.0	CB050M-DIN50
	DIN 50	76.00	22.00	48.00	1-1/2"-18	M24 x 3.0	CB076M-DIN50

NOTE: Taper ground to AT3 tolerance



DIN 2080 Shank

	Style	Shank					Part No.
		D_1	L_3	L_4	Thread	Retention Knob Thread	
Ⓜ	SK-30	38.00	11.00	19.60	7/8"-20	1/2"-13	CB038M-ISO30
	SK-30	50.00	17.00	25.70	7/8"-20	1/2"-13	CB050M-ISO30
	SK-40	38.00	11.00	21.10	7/8"-20	5/8"-11	CB038M-ISO40
	SK-40	50.00	11.00	27.70	7/8"-20	5/8"-11	CB050M-ISO40
	SK-40	76.00	22.00	27.70	1-1/2"-18	5/8"-11	CB076M-ISO40
	SK-50	38.00	11.00	39.40	7/8"-20	1"-8	CB038M-ISO50
	SK-50	50.00	11.00	39.40	7/8"-20	1"-8	CB050M-ISO50
	SK-50	76.00	36.00	39.40	1-1/2"-18	1"-8	CB076M-ISO50



Ⓜ = Imperial (in)
Ⓜ = Metric (mm)

Criterion Shanks

Morse Taper | NMTB Taper

A DRILLING

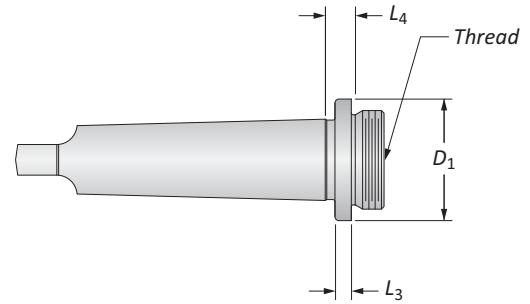
B BORING

C REAMING

D BURNISHING

E THREADING

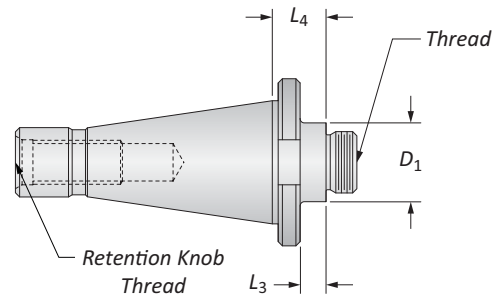
X SPECIALS



Morse Taper Shank

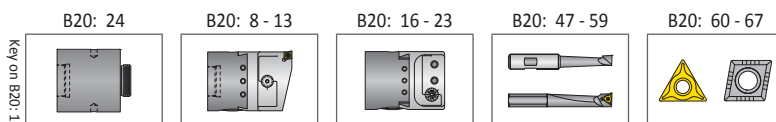
Style	D_1	Shank			Thread	Part No.
		L_3	L_4			
2 Taper	1.11	0.250	0.44		7/8"-20	MT2-375THD87520*
2 Taper	1.11	0.250	0.44		7/8"-20	MT2-087520
3 Taper	1.11	-	0.44		7/8"-20	MT3-087520
i 3 Taper	1.86	0.250	0.44		1-1/2"-18	MT3-150018
4 Taper	1.11	0.250	0.25		7/8"-20	MT4-087520
4 Taper	1.86	0.250	0.50		1-1/2"-18	MT4-150018
5 Taper	1.86	0.250	0.62		1-1/2"-18	MT5-150018

*Item features a 3/8-16 thread instead of tang



NMTB Taper Shank

Style	D_1	Shank			Retention Knob Thread	Part No.
		L_3	L_4	Thread		
NMTB 30	1.11	0.300	0.78	7/8"-20	1/2"-13	NMTB30-087520
NMTB 30	1.86	0.900	1.05	1-1/2"-18	1/2"-13	NMTB30-150018
NMTB 40	1.11	0.300	0.77	7/8"-20	5/8"-11	NMTB40-087520
i NMTB 40	1.86	0.625	1.04	1-1/2"-18	5/8"-11	NMTB40-150018
NMTB 50	1.11	0.500	1.25	7/8"-20	1"-8	NMTB50-087520
NMTB 50	1.86	0.500	1.25	1-1/2"-18	1"-8	NMTB50-150018
NMTB 50	3.38	0.500	1.25	2-1/4"-10	1"-8	NMTB50-225010

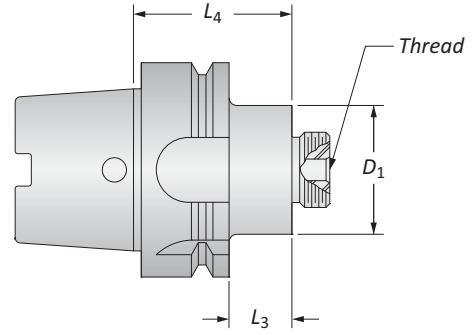


Key on B20: 1

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

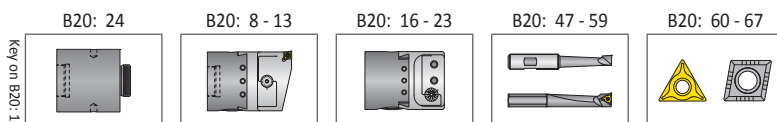
Criterion Shanks

HSK



HSK Shank

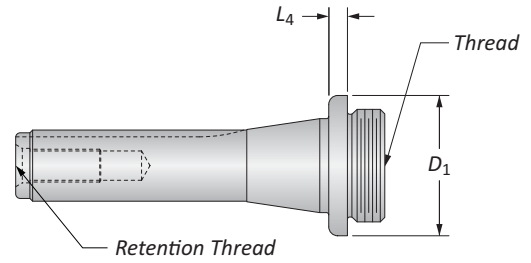
	Style	D_1	Shank			Part No.
			L_3	L_4	Thread	
i	HSK63	1.50	0.700	1.75	7/8"-20	CB1500-HSK63A
	HSK63	2.00	0.700	1.75	7/8"-20	CB2000-HSK63A
	HSK63	3.00	2.000	2.25	1-1/2"-18	CB3000-HSK63A
	HSK100	1.50	0.500	1.75	7/8"-20	CB1500-HSK100A
	HSK100	2.00	0.500	2.25	7/8"-20	CB2000-HSK100A
	HSK100	3.00	0.500	2.25	1-1/2"-18	CB3000-HSK100A



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

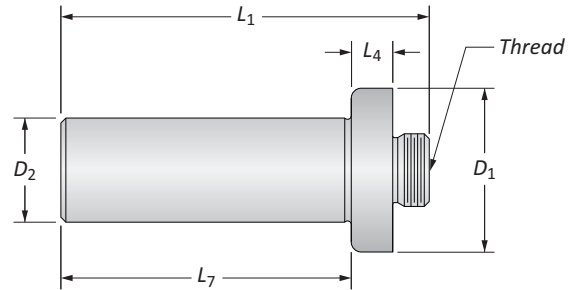
Criterion Shanks

R-8 | Straight



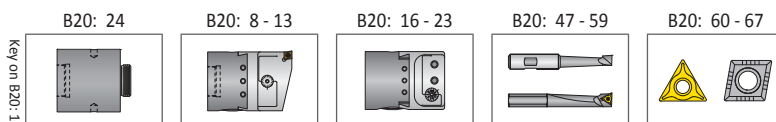
R-8 Shank

		Shank			Part No.	
		D_1	L_4	Thread	Retention Thread	
i	1.11	0.47	7/8"-20	7/16"-20	R8-087520	
	1.86	0.37	1-1/2"-18	7/16"-20	R8-150018	



Straight Shank

		Shank					Part No.	
		D_1	D_2	L_4	L_7	L_1	Thread	
i	1.11	0.500	0.250	2.000	2.250	7/8"-20	SS0500-087520	
	1.11	0.625	0.250	2.370	2.630	7/8"-20	SS0625-087520	
	1.11	0.750	0.250	2.750	3.000	7/8"-20	SS0750-087520	
	1.11	1.000	0.250	3.120	3.370	7/8"-20	SS1000-087520	
	1.86	0.750	0.250	3.120	3.370	1-1/2"-18	SS0750-150018	
	1.86	1.000	0.250	3.120	3.370	1-1/2"-18	SS1000-150018	
	1.86	1.250	0.250	3.870	4.130	1-1/2"-18	SS1250-150018	
	1.86	1.500	0.250	4.630	4.880	1-1/2"-18	SS1500-150018	
	1.86	2.000	-	6.380	6.380	1-1/2"-18	SS2000-150018	



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

DRILLING

BORING

REAMING

BURNISHING

THREADING

SPECIALS

Criterion Boring Bars Nomenclature

Criterion Boring Bars

CBT	00800500	G	QL
1	2	3	4

1. Boring Bar Style	2. Max Bore Depth	3. Shank Diameter	4. Type																		
<p>CBT = Solid carbide boring tool</p> <p>SBT = Steel shank brazed carbide boring tool</p> <p>TA = Triangle insert boring tool (standard bore depth)</p> <p>TAS = Triangle insert boring tool (short bore depth)</p>		<table border="1"> <thead> <tr> <th>Imperial</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>A = 0.375</td> <td>A = 10mm</td> </tr> <tr> <td>B = 0.500</td> <td>B = 12mm</td> </tr> <tr> <td>C = 0.625</td> <td>C = 16mm</td> </tr> <tr> <td>D = 0.750</td> <td>D = 20mm</td> </tr> <tr> <td>E = 1.000</td> <td>E = 25mm</td> </tr> <tr> <td>F = 1.500</td> <td></td> </tr> <tr> <td>G = 0.125</td> <td></td> </tr> <tr> <td>H = 0.250</td> <td></td> </tr> </tbody> </table>	Imperial	Metric	A = 0.375	A = 10mm	B = 0.500	B = 12mm	C = 0.625	C = 16mm	D = 0.750	D = 20mm	E = 1.000	E = 25mm	F = 1.500		G = 0.125		H = 0.250		<p>QL = Qualified length</p> <p>HB = Helical back rake</p> <p>S = Square shank</p>
Imperial	Metric																				
A = 0.375	A = 10mm																				
B = 0.500	B = 12mm																				
C = 0.625	C = 16mm																				
D = 0.750	D = 20mm																				
E = 1.000	E = 25mm																				
F = 1.500																					
G = 0.125																					
H = 0.250																					

Criterion Boring Bars

CFX	500	CS
1	2	3

1. Boring Bar Style	2. Shank Diameter	3. Material														
<p>CFX = 80° rhombic insert (long bore depth)</p> <p>TFX = Triangle insert (long bore depth)</p> <p>CHB = Cross hole boring bar</p> <p>BFB = Boring and facing bar</p>	<table border="1"> <thead> <tr> <th>Imperial</th> <th>Metric</th> </tr> </thead> <tbody> <tr> <td>0375 = 0.375</td> <td>012M = 12mm</td> </tr> <tr> <td>0500 = 0.500</td> <td>020M = 20mm</td> </tr> <tr> <td>0625 = 0.625</td> <td>025M = 25mm</td> </tr> <tr> <td>0750 = 0.750</td> <td></td> </tr> <tr> <td>1000 = 1.000</td> <td></td> </tr> <tr> <td>1500 = 1.500</td> <td></td> </tr> </tbody> </table>	Imperial	Metric	0375 = 0.375	012M = 12mm	0500 = 0.500	020M = 20mm	0625 = 0.625	025M = 25mm	0750 = 0.750		1000 = 1.000		1500 = 1.500		<p>CS = Carbide shank</p> <p>HM = Heavy metal</p>
Imperial	Metric															
0375 = 0.375	012M = 12mm															
0500 = 0.500	020M = 20mm															
0625 = 0.625	025M = 25mm															
0750 = 0.750																
1000 = 1.000																
1500 = 1.500																



Standard



Steel



Heavy Metal



Carbide Shank



Cross Hole



Boring and Facing



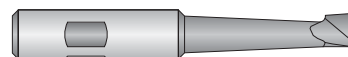
Solid Carbide



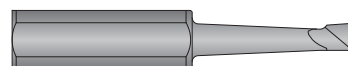
Qualified Length



Helical Rake



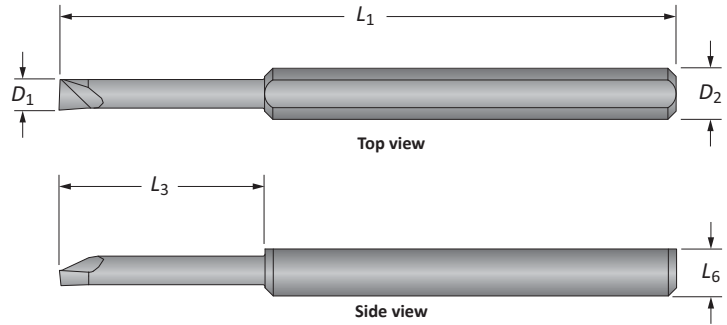
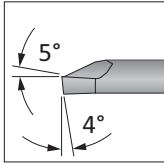
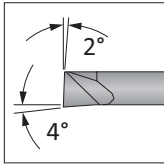
Round Shank



Square Shank

Criterion Boring Bars

Carbide | Solid Carbide

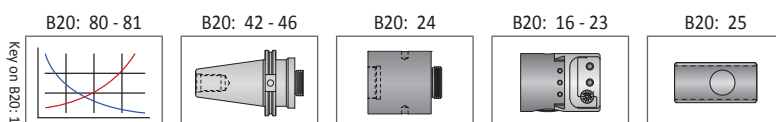


Boring Bar					
D_1	L_3	L_1	L_6	D_2	Part No.
0.050	0.150	1.500	0.115	0.125	CBT-00500150G
0.050	0.300	1.500	0.115	0.125	CBT-00500300G
0.050	0.400	1.500	0.115	0.125	CBT-00500400G
0.060	0.150	1.500	0.115	0.125	CBT-00600150G
0.060	0.300	1.500	0.115	0.125	CBT-00600300G
0.060	0.500	1.500	0.115	0.125	CBT-00600500G
0.080	0.150	1.500	0.115	0.125	CBT-00800150G
0.080	0.300	1.500	0.115	0.125	CBT-00800300G
i 0.080	0.500	1.500	0.115	0.125	CBT-00800500G
0.100	0.200	1.500	0.115	0.125	CBT-01000200G
0.100	0.400	1.500	0.115	0.125	CBT-01000400G
0.100	0.600	1.500	0.115	0.125	CBT-01000600G
0.100	0.700	1.500	0.115	0.125	CBT-01000700G
0.110	0.200	1.500	0.115	0.125	CBT-01100200G
0.110	0.400	1.500	0.115	0.125	CBT-01100400G
0.110	0.600	1.500	0.115	0.125	CBT-01100600G
0.110	0.700	1.500	0.115	0.125	CBT-01100700G

Adapters

D_1	Style 1	Style 2	Style 3	Style 4
0.125	-	-	BTH-01250250	BTH-01250375
0.125	-	-	-	BTH-01250500
0.125	-	-	-	BTH-01250625
0.125	-	-	-	BTH-01250750

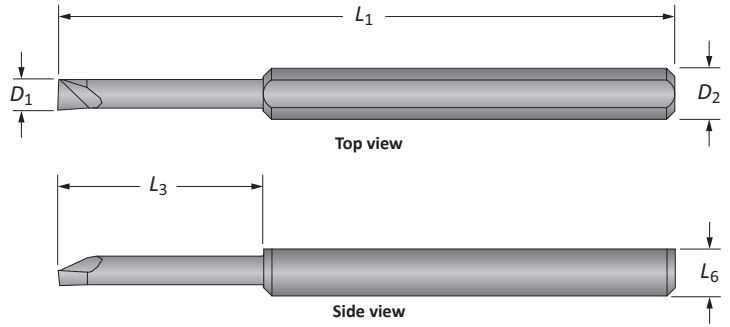
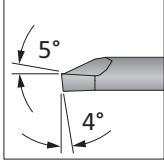
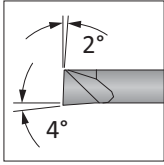
For complete adapter details, see page B20: 25



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





Criterion Boring Bars

Carbide | Solid Carbide

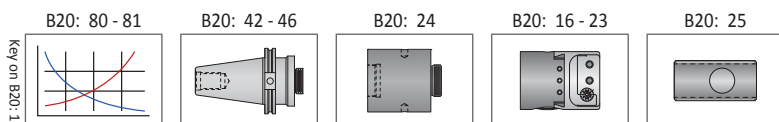


		Boring Bar				Part No.
	D_1	L_3	L_1	L_6	D_2	
	0.120	0.250	2.500	0.230	0.250	CBT-01200250H
	0.120	0.375	2.500	0.230	0.250	CBT-01200375H
	0.120	0.500	2.500	0.230	0.250	CBT-01200500H
	0.120	0.625	2.500	0.230	0.250	CBT-01200625H
	0.120	0.750	2.500	0.230	0.250	CBT-01200750H
	0.140	0.250	2.500	0.230	0.250	CBT-01400250H
	0.140	0.375	2.500	0.230	0.250	CBT-01400375H
	0.140	0.500	2.500	0.230	0.250	CBT-01400500H
	0.140	0.625	2.500	0.230	0.250	CBT-01400625H
	0.140	0.750	2.500	0.230	0.250	CBT-01400750H
	0.160	0.375	2.500	0.230	0.250	CBT-01600375H
	0.160	0.500	2.500	0.230	0.250	CBT-01600500H
	0.160	0.625	2.500	0.230	0.250	CBT-01600625H
	0.160	0.750	2.500	0.230	0.250	CBT-01600750H
	0.160	0.875	2.500	0.230	0.250	CBT-01600875H
	0.180	0.500	2.500	0.230	0.250	CBT-01800500H
	0.180	0.625	2.500	0.230	0.250	CBT-01800625H
	0.180	0.750	2.500	0.230	0.250	CBT-01800750H
	0.180	0.875	2.500	0.230	0.250	CBT-01800875H
	0.180	1.000	2.500	0.230	0.250	CBT-01801000H
	0.180	1.125	2.500	0.230	0.250	CBT-01801125H
	0.200	0.500	2.500	0.230	0.250	CBT-02000500H
	0.200	0.625	2.500	0.230	0.250	CBT-02000625H
	0.200	0.750	2.500	0.230	0.250	CBT-02000750H
	0.200	0.875	2.500	0.230	0.250	CBT-02000875H
	0.200	1.000	2.500	0.230	0.250	CBT-02001000H
	0.200	1.250	2.500	0.230	0.250	CBT-02001250H

Adapters

D_1	 Style 1	 Style 2	 Style 3	 Style 4
0.250	BTH-02500375	-	-	BTH-02500625
0.250	BTH-02500500	-	-	BTH-02500750

For complete adapter details, see page B20: 25

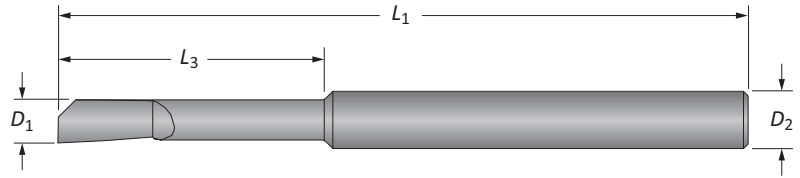


i = Imperial (in)
m = Metric (mm)

Criterion Boring Bars

Carbide | Helical Rake

A
DRILLING



B
BORING

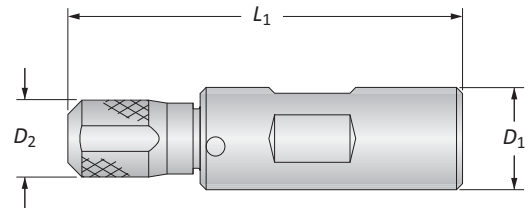
	Boring Bar				Part No.
	D_1	L_3	L_1	D_2	
	0.035	0.125	1.500	0.125 ϕ	CBT-00350125GHB
	0.035	0.187	1.500	0.125 ϕ	CBT-00350187GHB
	0.040	0.187	1.500	0.125 ϕ	CBT-00400187GHB
	0.040	0.250	1.500	0.125 ϕ	CBT-00400250GHB
	0.050	0.312	1.500	0.125 ϕ	CBT-00500312GHB
i	0.060	0.375	1.500	0.125 ϕ	CBT-00600375GHB
	0.070	0.437	1.500	0.125 ϕ	CBT-00700437GHB
	0.080	0.500	1.500	0.125 ϕ	CBT-00800500GHB
	0.090	0.500	1.500	0.125 ϕ	CBT-00900500GHB
	0.100	0.562	1.500	0.125 ϕ	CBT-01000562GHB
	0.120	0.625	1.500	0.125 ϕ	CBT-01200625GHB
	0.120	1.000	1.500	0.125 ϕ	CBT-01201000GHB

C
REAMING

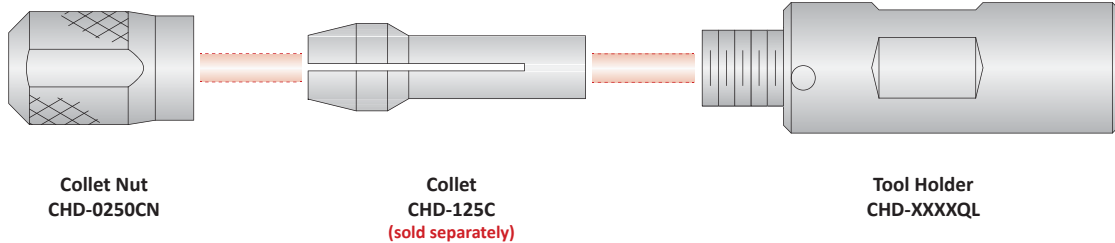
Tool Holders

	Holder			Part No.
	D_1	D_2	L_1	
	0.250	0.410 ϕ	1.275	CHD-0250QL
	0.375	0.410 ϕ	1.970	CHD-0375QL
i	0.500	0.410 ϕ	1.970	CHD-0500QL
	0.625	0.410 ϕ	2.300	CHD-0625QL
	0.750	0.410 ϕ	2.300	CHD-0750QL

Tool holder comes with collet nut (CHD-0250CN) and wrench (CHD-125CNW)
Collet sold separately



D
BURNISHING

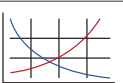


E
THREADING

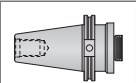
X
SPECIALS

Key on B20: 1

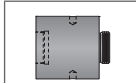
B20: 80 - 81



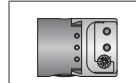
B20: 42 - 46



B20: 24



B20: 16 - 23

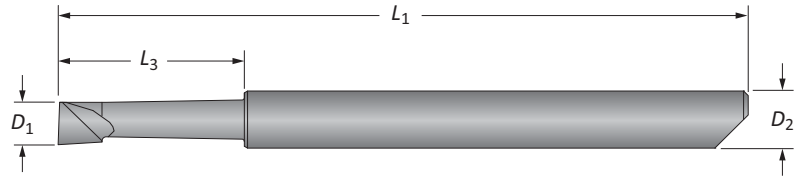
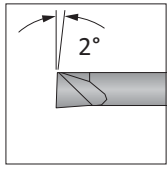


i = Imperial (in)
m = Metric (mm)



Criterion Boring Bars

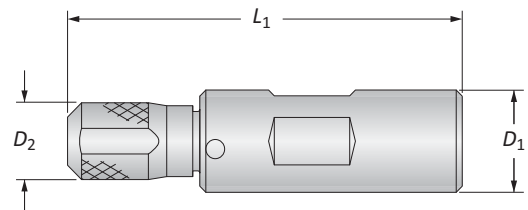
Carbide | Qualified Length



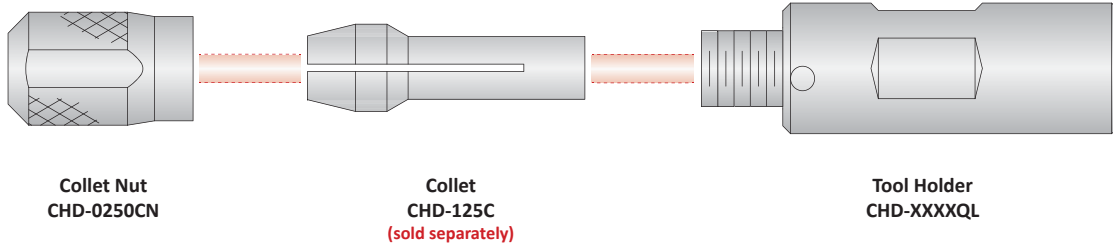
	Boring Bar				Part No.
	D_1	L_3	L_1	D_2	
i	0.050	0.150	1.500	0.125 ϕ	CBT-00500150GQL
	0.050	0.300	1.500	0.125 ϕ	CBT-00500300GQL
	0.050	0.400	1.500	0.125 ϕ	CBT-00500400GQL
	0.060	0.150	1.500	0.125 ϕ	CBT-00600150GQL
	0.060	0.300	1.500	0.125 ϕ	CBT-00600300GQL
	0.060	0.500	1.500	0.125 ϕ	CBT-00600500GQL
	0.080	0.150	1.500	0.125 ϕ	CBT-00800150GQL
	0.080	0.300	1.500	0.125 ϕ	CBT-00800300GQL
	0.080	0.500	1.500	0.125 ϕ	CBT-00800500GQL
	0.100	0.200	1.500	0.125 ϕ	CBT-01000200GQL
	0.100	0.400	1.500	0.125 ϕ	CBT-01000400GQL
	0.100	0.600	1.500	0.125 ϕ	CBT-01000600GQL
	0.100	0.700	1.500	0.125 ϕ	CBT-01000700GQL
	0.110	0.200	1.500	0.125 ϕ	CBT-01100200GQL
	0.110	0.400	1.500	0.125 ϕ	CBT-01100400GQL
	0.110	0.600	1.500	0.125 ϕ	CBT-01100600GQL
	0.110	0.700	1.500	0.125 ϕ	CBT-01100700GQL

Tool Holders

	Holder			Part No.
	D_1	D_2	L_1	
i	0.250	0.410 ϕ	1.275	CHD-0250QL
	0.375	0.410 ϕ	1.970	CHD-0375QL
	0.500	0.410 ϕ	1.970	CHD-0500QL
	0.625	0.410 ϕ	2.300	CHD-0625QL
	0.750	0.410 ϕ	2.300	CHD-0750QL



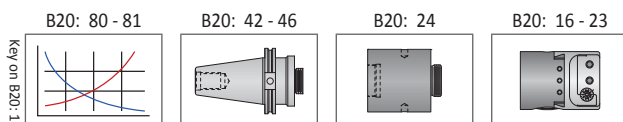
Tool holder comes with collet nut (CHD-0250CN) and wrench (CHD-125CNW)
Collet sold separately



Collet Nut
CHD-0250CN

Collet
CHD-125C
(sold separately)

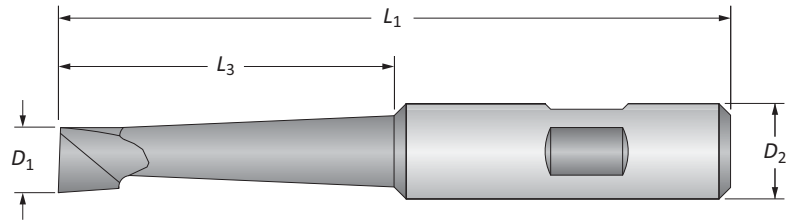
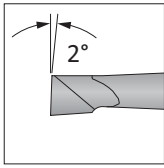
Tool Holder
CHD-XXXXQL



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

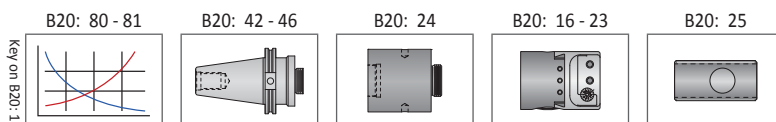
Criterion Boring Bars

Brazed Carbide | Round Shank



	Boring Bar				Part No.
	D_1	L_3	L_1	D_2	
	0.062	0.250	1.590	0.375	SBT-00620250A
	0.093	0.375	1.750	0.375	SBT-00930375A
	0.125	0.500	1.875	0.375	SBT-01250500A
	0.187	0.812	2.156	0.375	SBT-01870812A
	0.250	1.125	2.468	0.375	SBT-02501125A
	0.312	1.500	2.812	0.375	SBT-03121500A
	0.375	1.875	3.187	0.375	SBT-03751875A
	0.500	2.312	3.500	0.375	SBT-05002312A
	0.062	0.250	1.590	0.500	SBT-00620250B
	0.093	0.375	1.750	0.500	SBT-00930375B
	0.125	0.250	1.656	0.500	SBT-01250250B
	0.125	0.500	1.875	0.500	SBT-01250500B
	0.187	0.312	1.812	0.500	SBT-01870312B
	0.187	0.812	2.156	0.500	SBT-01870812B
	0.250	0.437	2.000	0.500	SBT-02500437B
	0.250	1.125	2.468	0.500	SBT-02501125B
	0.312	0.562	2.187	0.500	SBT-03120562B
	0.312	1.500	2.812	0.500	SBT-03121500B
	0.375	0.687	2.375	0.500	SBT-03750687B
	0.375	1.750	3.187	0.500	SBT-03751750B
	0.500	0.812	2.562	0.500	SBT-05000812B
i	0.500	2.187	3.500	0.500	SBT-05002187B
	0.125	0.500	2.250	0.625	SBT-01250500C
	0.187	0.812	2.562	0.625	SBT-01870812C
	0.250	1.125	2.875	0.625	SBT-02501125C
	0.375	1.750	3.500	0.625	SBT-03751750C
	0.500	2.125	3.812	0.625	SBT-05002125C
	0.625	2.500	4.125	0.625	SBT-06252500C
	0.500	1.312	2.937	0.750	SBT-05001312D
	0.500	2.187	3.945	0.750	SBT-05002187D
	0.625	2.750	4.468	0.750	SBT-06252750D
	0.750	1.531	3.156	0.750	SBT-07501531D
	0.750	3.000	4.687	0.750	SBT-07503000D
	1.000	1.750	3.375	0.750	SBT-10001750D
	1.000	3.500	5.125	0.750	SBT-10003500D
	1.250	4.000	5.562	0.750	SBT-12504000D
	0.500	2.375	4.250	1.000	SBT-05002375E
	0.625	2.625	4.468	1.000	SBT-06252625E
	0.750	2.875	4.687	1.000	SBT-07502875E
	1.000	1.750	3.375	1.000	SBT-10001750E
	1.000	3.500	5.125	1.000	SBT-10003500E
	1.250	1.968	3.593	1.000	SBT-12501968E
	1.250	3.875	5.562	1.000	SBT-12503875E

See adapter options on following page



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

A DRILLING

B BORING

C REAMING

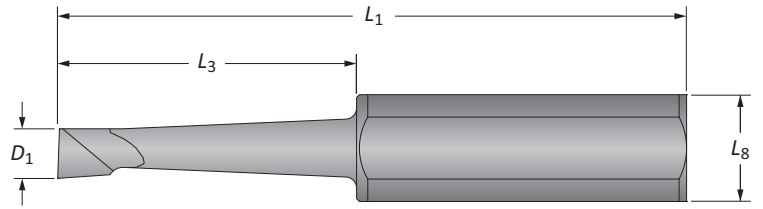
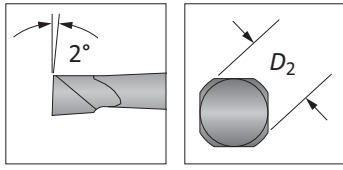
D BURNISHING

E THREADING

X SPECIALS

Criterion Boring Bars

Braze Carbide | Square Shank



	Boring Bar					Part No.
	D_1	L_3	L_1	L_8	D_2	
i	0.062	0.250	1.590	0.437	0.500	SBT-00620250BS
	0.093	0.375	1.750	0.437	0.500	SBT-00930375BS
	0.125	0.250	1.656	0.437	0.500	SBT-01250250BS
	0.125	0.500	1.875	0.437	0.500	SBT-01250500BS
	0.187	0.312	1.812	0.437	0.500	SBT-01870312BS
	0.187	0.812	2.156	0.437	0.500	SBT-01870812BS
	0.250	0.437	2.000	0.437	0.500	SBT-02500437BS
	0.250	1.125	2.468	0.437	0.500	SBT-02501125BS
	0.312	0.562	2.187	0.437	0.500	SBT-03120562BS
	0.312	1.500	2.812	0.437	0.500	SBT-03121500BS
	0.375	0.687	2.375	0.437	0.500	SBT-03750687BS
	0.375	1.750	3.187	0.437	0.500	SBT-03751750BS
	0.500	0.812	2.562	0.437	0.500	SBT-05000812BS
	0.500	2.187	3.500	0.437	0.500	SBT-05002187BS
m	3	12	48	8	10	SBT-03012MA
	4	20	55	8	10	SBT-04020MA
	6	28	62	8	10	SBT-06028MA
	8	37	71	8	10	SBT-08037MA
	10	48	81	8	10	SBT-10048MA
	12	55	90	8	10	SBT-12055MA
	3	12	48	10	12	SBT-03012MB
	4	20	55	10	12	SBT-04020MB
	6	28	62	10	12	SBT-06028MB
	8	37	71	10	12	SBT-08037MB
	10	48	81	10	12	SBT-10048MB
	12	55	90	10	12	SBT-12055MB
	12	63	107	18	20	SBT-12063MD
	16	71	113	18	20	SBT-16071MD
	19	78	119	18	20	SBT-19078MD
	25	90	130	18	20	SBT-25090MD
	32	100	141	18	20	SBT-32100MD
	12	60	107	22	25	SBT-12060ME
	16	67	113	22	25	SBT-16067ME
	19	74	119	22	25	SBT-19074ME
25	89	130	22	25	SBT-25089ME	
32	100	141	22	25	SBT-32100ME	

Adapters

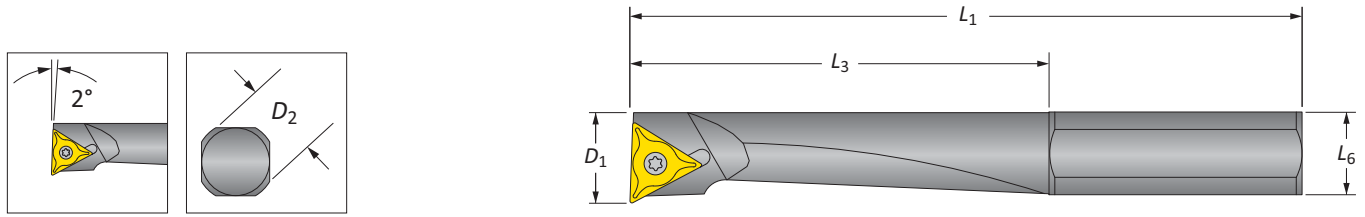
	D_1	Style 1	Style 2	Style 3	Style 4
i	0.500	-	BTH-05001000	BTH-05000750	-
m	10	BTH-10M12M	BTH-10M25M	BTH-10M20M	-
	12	-	BTH-12M25M	BTH-12M20M	-
	20	-	-	BTH-20M25M	-

For complete adapter details, see page B20: 25

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

Criterion Boring Bars

TA Insert | Imperial



	Boring Bars					Part No.	Insert		
	D_1	L_3	L_1	L_6	D_2		IC	T_1	Style
	0.250	1.062	2.437	0.310	0.375	TA-02501062A	0.156	0.063	▲ WCMT
	0.312	1.437	2.750	0.310	0.375	TA-03121437A	0.156	0.078	▲ TC
	0.375	1.750	3.062	0.310	0.375	TA-03751750A	0.156	0.078	▲ TC
	0.250	1.062	2.437	0.437	0.500	TA-02501062B	0.156	0.063	▲ WCMT
	0.312	1.437	2.750	0.437	0.500	TA-03121437B	0.156	0.078	▲ TC
	0.375	1.750	3.062	0.437	0.500	TA-03751750B	0.156	0.078	▲ TC
	0.437	2.062	3.375	0.437	0.500	TA-04372062B	0.250	0.094	▲ TP
	0.500	2.187	3.500	0.437	0.500	TA-05002187B	0.250	0.094	▲ TP
i	0.375	1.750	3.062	0.531	0.625	TA-03751750C	0.156	0.078	▲ TC
	0.500	2.187	3.500	0.531	0.625	TA-05002187C	0.250	0.094	▲ TP
	0.625	2.750	4.390	0.531	0.625	TA-06252750C	0.250	0.094	▲ TP
	0.500	2.500	4.250	0.641	0.750	TA-05002500D	0.250	0.094	▲ TP
	0.750	3.000	4.687	0.641	0.750	TA-07503000D	0.375	0.125	▲ TP
	1.000	3.500	5.125	0.641	0.750	TA-10003500D	0.375	0.125	▲ TP
	1.250	4.000	5.562	0.641	0.750	TA-12504000D	0.375	0.125	▲ TP
	0.500	2.375	4.250	0.859	1.000	TA-05002375E	0.250	0.094	▲ TP
	0.750	2.875	4.687	0.859	1.000	TA-07502875E	0.375	0.125	▲ TP
	1.000	3.500	5.125	0.859	1.000	TA-10003500E	0.375	0.125	▲ TP
	1.250	3.875	5.562	0.859	1.000	TA-12503875E	0.375	0.125	▲ TP

Adapters

D_1	Style 1	Style 2	Style 3	Style 4
0.375	BTH-03750500	BTH-03750750	-	-
0.375	-	BTH-03751000	-	-
0.500	-	BTH-05001000	BTH-05000750	-
0.750	-	-	BTH-07501000	-

For complete adapter details, see page B20: 25

Key on B20: 1

B20: 80 - 81

B20: 42 - 46

B20: 24

B20: 16 - 23

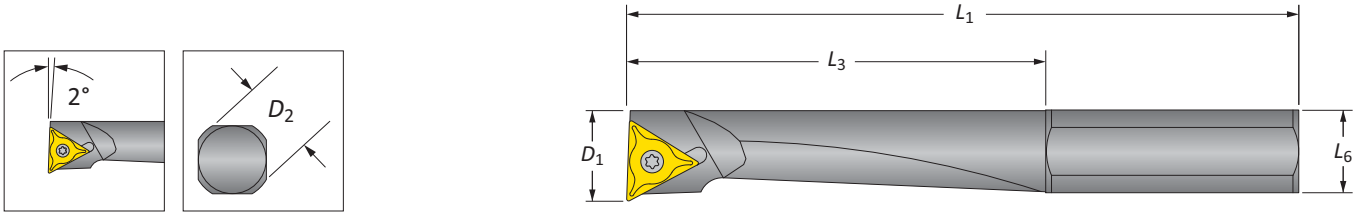
B20: 25

B20: 60 - 67

i = Imperial (in)
m = Metric (mm)
 Inserts sold separately





Criterion Boring Bars

TA Insert | Metric



D ₁	Boring Bars				D ₂	Part No.	IC	T ₁	Style
	L ₃	L ₁	L ₆						
6	12	47	8	10	TAS-06M012A	3.97	1.60	△ WCMT	
6	27	62	8	10	TA-06M027A	3.97	1.60	△ WCMT	
8	16	50	8	10	TAS-08M016A	3.97	1.98	△ TC	
8	36	70	8	10	TA-08M036A	3.97	1.98	△ TC	
10	20	54	8	10	TAS-10M020A	3.97	1.98	△ TC	
10	45	78	8	10	TA-10M045A	3.97	1.98	△ TC	
6	12	47	10	12	TAS-06M012B	3.97	1.60	△ WCMT	
6	27	63	10	12	TA-06M027B	3.97	1.60	△ WCMT	
8	16	50	10	12	TAS-08M016B	3.97	1.98	△ TC	
8	36	71	10	12	TA-08M036B	3.97	1.98	△ TC	
10	20	54	10	12	TAS-10M020B	3.97	1.98	△ TC	
10	45	80	10	12	TA-10M045B	3.97	1.98	△ TC	
12	24	57	10	12	TAS-12M024B	6.35	2.38	△ TC	
12	54	86	10	12	TA-12M054B	6.35	2.38	△ TC	
10	20	67	18	20	TAS-10M020D	3.97	1.98	△ TC	
10	45	92	18	20	TA-10M045D	3.97	1.98	△ TC	
12	24	70	18	20	TAS-12M024D	6.35	2.38	△ TC	
12	54	100	18	20	TA-12M054D	6.35	2.38	△ TC	
16	32	76	18	20	TAS-16M032D	9.53	3.96	△ TC	
16	72	116	18	20	TA-16M072D	6.35	2.38	△ TC	
20	40	82	18	20	TAS-20M040D	6.35	2.38	△ TC	
20	90	131	18	20	TA-20M090D	9.53	3.96	△ TC	
10	20	69	23	25	TAS-10M020E	3.97	1.98	△ TC	
10	45	94	23	25	TA-10M045E	3.97	1.98	△ TC	
12	24	73	23	25	TAS-12M024E	6.35	2.38	△ TC	
12	54	102	23	25	TA-12M054E	6.35	2.38	△ TC	
16	32	78	23	25	TAS-16M032E	9.53	3.96	△ TC	
16	72	118	23	25	TA-16M072E	9.53	3.96	△ TC	
20	40	85	23	25	TAS-20M040E	9.53	3.96	△ TC	
20	90	135	23	25	TA-20M090E	9.53	3.96	△ TC	
25	50	92	23	25	TAS-25M050E	9.53	3.96	△ TC	
25	113	155	23	25	TA-25M113E	9.53	3.96	△ TC	

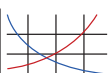
Adapters

D ₁	 Style 1	 Style 2	 Style 3	 Style 4
10	BTH-10M12M	BTH-10M25M	BTH-10M20M	-
12	-	BTH-12M25M	BTH-12M20M	-
20	-	-	BTH-20M25M	-

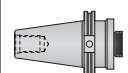
For complete adapter details, see page B20: 25

Key on B20: 1


B20: 80 - 81



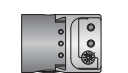
B20: 42 - 46



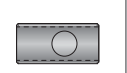
B20: 24



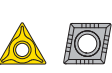
B20: 16 - 23





B20: 25



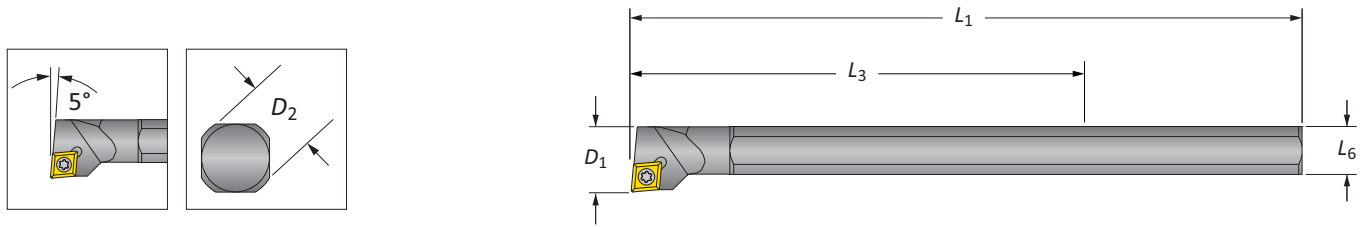
B20: 60 - 67



 = Imperial (in)
 = Metric (mm)
 Inserts sold separately

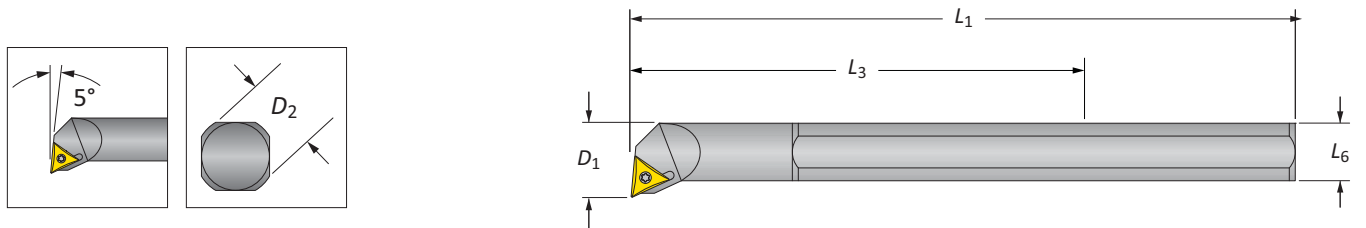
Criterion Boring Bars

Steel CFX / TFX



Steel CFX





i	Boring Bar					Insert			
	D_1	L_3	L_1	L_6	D_2	Part No.	IC	T_1	Style
	0.75	2.500	6.00	0.43	0.500	CFX-0500	0.250	0.094	◇ CP or CC
	1.00	4.000	8.00	0.66	0.750	CFX-0750	0.375	0.156	◇ CP or CC
	1.38	5.000	10.00	0.88	1.000	CFX-1000	0.375	0.156	◇ CP or CC
	1.76	6.750	10.60	1.31	1.500	CFX-1500	0.500	0.188	◇ CC



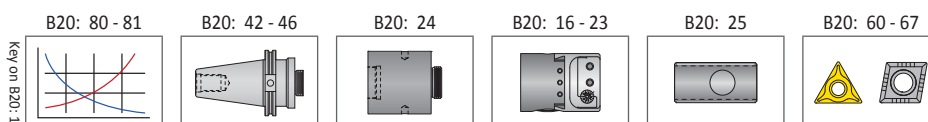
Steel TFX

i	Boring Bar					Insert			
	D_1	L_3	L_1	L_6	D_2	Part No.	IC	T_1	Style
	0.75	2.500	6.00	0.43	0.500	TFX-0500	0.250	0.094	△ TP
	1.00	4.000	8.00	0.66	0.750	TFX-0750	0.375	0.125	△ TP
	1.38	5.000	10.00	0.88	1.000	TFX-1000	0.375	0.125	△ TP

Adapters

i	D_1				
		Style 1	Style 2	Style 3	Style 4
	0.500	-	BTH-05001000	BTH-05000750	-
	0.750	-	-	BTH-07501000	-
	1.000	-	-	BTH-10001500	-

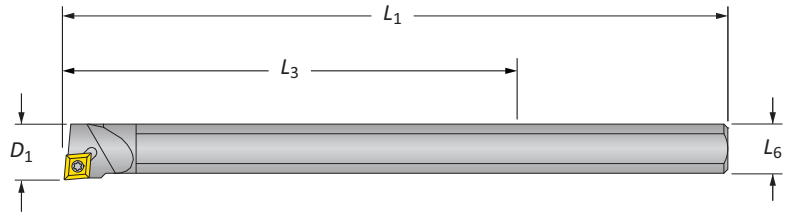
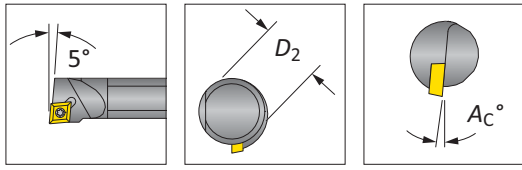
For complete adapter details, see page B20: 25



i = Imperial (in)
m = Metric (mm)
Inserts sold separately

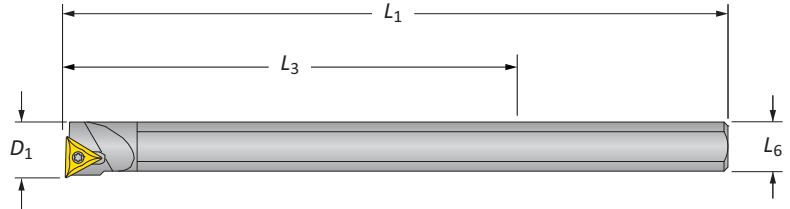
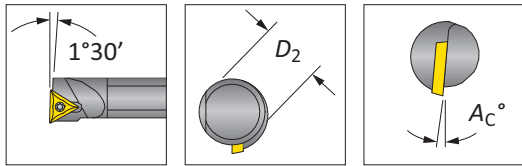
Criterion Boring Bars

Heavy Metal CFX / TFX



Heavy Metal CFX




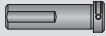
<i>i</i>	D_1 Range	Boring Bar					Insert			
		L_3	Angle	L_1	L_6	D_2	Part No.	IC	T_1	Style
	0.197 - 1.500	1.500	0°	3.00	0.180	0.187	CFX-0187HM	0.156	0.040	◇ CD
	0.260 - 1.500	1.500	0°	3.00	0.230	0.250	CFX-0250HM	0.156	0.040	◇ CD
	0.365 - 2.250	2.250	10°	4.00	0.290	0.312	CFX-0312HM	0.250	0.094	◇ CP or CC
	0.425 - 2.250	2.250	10°	4.00	0.340	0.375	CFX-0375HM	0.250	0.094	◇ CP or CC
	0.550 - 3.250	3.250	5°	6.00	0.455	0.500	CFX-0500HM	0.250	0.094	◇ CP or CC
	0.688 - 4.250	4.250	8°	8.00	0.565	0.625	CFX-0625HM	0.375	0.156	◇ CP or CC
	0.832 - 4.250	4.750	8°	10.00	0.680	0.750	CFX-0750HM	0.375	0.156	◇ CP or CC



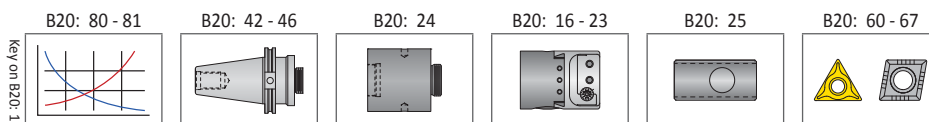
Heavy Metal TFX

<i>i</i>	D_1 Range	Boring Bar					Insert			
		L_3	Angle	L_1	L_6	D_2	Part No.	IC	T_1	Style
	0.425 - 2.250	2.250	8°	4.00	0.340	0.375	TFX-0375HM	0.219	0.094	△ TC
	0.550 - 3.250	3.250	5°	6.00	0.455	0.500	TFX-0500HM	0.250	0.094	△ TC

Adapters

D_1	 Style 1	 Style 2	 Style 3	 Style 4
0.187	BTH-01870375	-	-	-
0.187	BTH-01870500	-	-	-
0.250	BTH-02500375	-	-	BTH-02500625
0.250	BTH-02500500	-	-	BTH-02500750
0.250	BTH-02500625	-	-	-
0.312	BTH-03120375	-	-	-
0.312	BTH-03120500	-	-	-
0.375	BTH-03750500	BTH-03750750	-	-
0.375	-	BTH-03751000	-	-
0.500	-	BTH-05001000	BTH-05000750	-
0.625	BTH-06250750	-	BTH-06251000	-
0.750	-	-	BTH-07501000	-

For complete adapter details, see page B20: 25

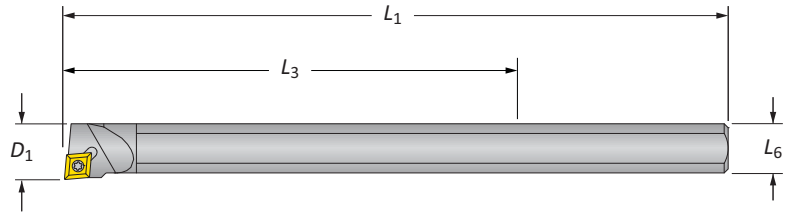
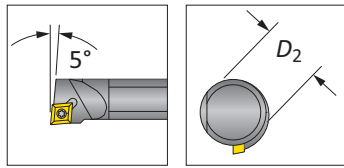


Key on B20: 1

i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

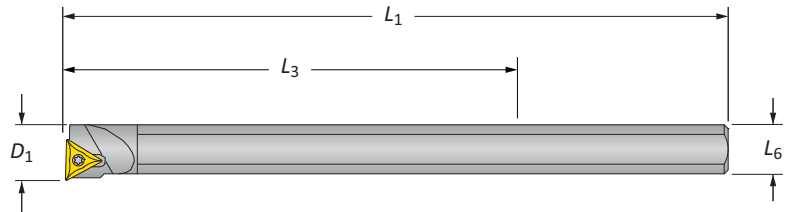
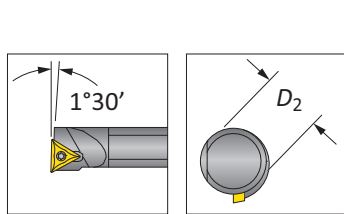
Criterion Boring Bars

Carbide Shank CFX / TFX



Carbide CFX

i	D_1		Boring Bar				Part No.	Insert		
	CP Insert	CC Insert	L_3	L_1	L_6	D_2		IC	T_1	Style
	0.500 - 3.000	0.750	3.000	6.00	0.34	0.375	CFX-0375CS	0.250	0.094	◇ CP or CC
	0.625 - 4.500	0.750	4.500	8.00	0.47	0.500	CFX-0500CS	0.250	0.094	◇ CP or CC
	0.750 - 5.500	0.750	5.500	10.00	0.59	0.625	CFX-0625CS	0.250	0.094	◇ CP or CC
	0.875 - 6.000	1.230	6.000	10.00	0.70	0.750	CFX-0750CS	0.375	0.156	◇ CP or CC



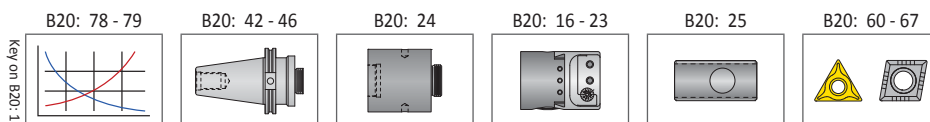
Carbide TFX

i	D_1	L_3	L_1	L_6	D_2	Part No.	IC	T_1	Style
		0.500 - 3.000	3.000	6.00	0.34				
	0.625 - 4.500	4.500	8.00	0.47	0.500	TFX-0500CS	0.250	0.094	△ TP
	0.750 - 5.500	5.500	10.00	0.59	0.625	TFX-0625CS	0.375	0.125	△ TP
	0.875 - 6.000	6.000	10.00	0.70	0.750	TFX-0750CS	0.375	0.125	△ TP

Adapters

D_1	Style 1	Style 2	Style 3	Style 4
0.375	BTH-03750500	BTH-03750750	-	-
0.375	-	BTH-03751000	-	-
0.500	-	BTH-05001000	BTH-05000750	-
0.625	BTH-06250750	-	BTH-06251000	-
0.750	-	-	BTH-07501000	-

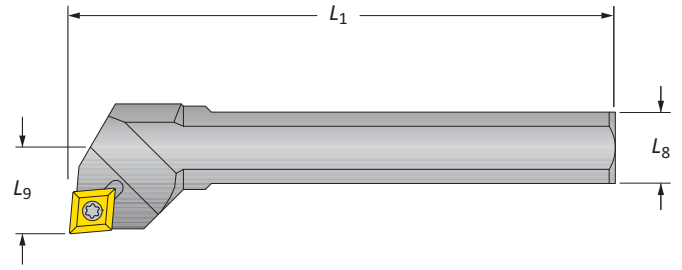
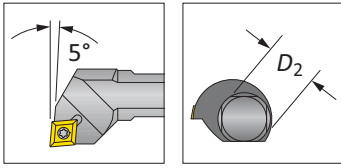
For complete adapter details, see page B20: 25



i = Imperial (in)
m = Metric (mm)
Inserts sold separately

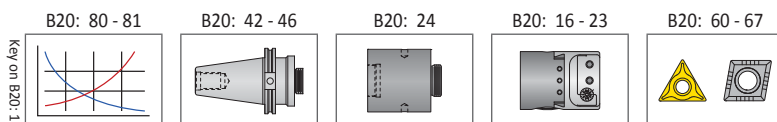
Criterion Boring Bars

Cross Hole



	Boring Bar					Part No.	Insert		
	D_1	L_9	L_1	L_8	D_2		IC	T_1	Style
i	2.875 - 6.687*	0.53	2.75	0.43	0.500	CHB-0500	0.250	0.094	◇ CP or CC
	4.937 - 11.000*	0.77	4.75	0.64	0.750	CHB-0750	0.375	0.156	◇ CP or CC
	5.625 - 13.437*	0.87	5.31	0.85	1.000	CHB-1000	0.375	0.156	◇ CP or CC
	9.093 - 21.500*	1.17	9.00	1.31	1.500	CHB-1500	0.500	0.188	◇ CC
m	73.00 - 169.00*	13	72	10	12	CHB-012M	6.35	2.39	◇ CP or CC
	126.00 - 279.00*	19	123	18	20	CHB-020M	9.53	3.97	◇ CP or CC
	143.00 - 341.00*	22	134	23	25	CHB-025M	9.53	3.97	◇ CP or CC

*NOTICE: Cross hole bars should always be secured in the bar holder with at least two set screws



i = Imperial (in)
 m = Metric (mm)
 Inserts sold separately

Criterion Boring Inserts Nomenclature

Criterion Boring Inserts

TCMT18150	T	MF	P02
1	2	3	4



80° Rhombic









80° Triangle








80° Trigon

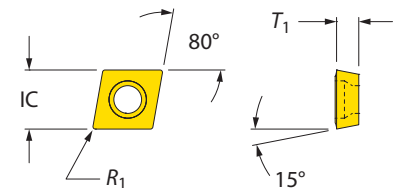
1. Standard ANSI / ISO Designation			2. Material	3. Chipbreaker	4. Coating
Rhombic	Triangle	Trigon	C = Carbide	FA	Blank = Uncoated
CDCD	TCMT	WCMT	T = Cermet	FB	T = TiN
CCET	TPGT		B = CBN	FC	C01 = CVD
CCGT	TPMT			FD	C02 = CVD
CCMT	TPGW			FE	C03 = CVD
CCGW				FG	C04 = CVD
CCMW					P01 = PVD
CPMT					P02 = PVD

80° Rhombic

Insert Geometry	Designed for / Notes
 FB	Finishing applications <ul style="list-style-type: none"> • Light to medium depths of cut • Low feed rates
 FC	Chip control in finishing applications <ul style="list-style-type: none"> • Varied depths of cut • Low feed rates • Low cutting forces
 FD	Finishing applications <ul style="list-style-type: none"> • Non-ferrous metals • Large rake angle provides smooth chip flow with less adhesion for a good surface finish
 MB	Medium to finishing applications <ul style="list-style-type: none"> • Wide breaker dot and pocket
 MD	Medium and finishing applications <ul style="list-style-type: none"> • Non-ferrous metals • Positive chip groove and polished surface reduces chip adhesion
 ME	Medium and finishing applications <ul style="list-style-type: none"> • Stainless steel and heat-resistant alloys • Large rake angle and circular edge give good chip control

80° Triangle



Insert Geometry	Designed for / Notes
 FA	Finishing applications <ul style="list-style-type: none"> • Light depths of cut • Low feed rates
 FE	Finishing applications <ul style="list-style-type: none"> • Low carbon materials • Sticky materials
 FG	Finishing applications <ul style="list-style-type: none"> • Ferrous materials with good chip control
 MC	Medium and finishing applications <ul style="list-style-type: none"> • Cast iron
 MF	Medium general purpose applications



ISO Application Areas

P Steel	N Non-ferrous
M Stainless steel	S Heat resistant
K Cast iron	H Hard materials

Recommendation Key

	Recommended
	Secondary

Reference Key

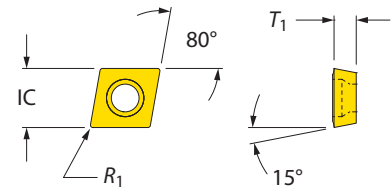
Symbol	Attribute
<i>IC</i>	Inscribed circle
<i>R₁</i>	Nose radius
<i>T₁</i>	Insert thickness

Criterion Inserts

80° Rhombic | CD•• | CP••

CD••

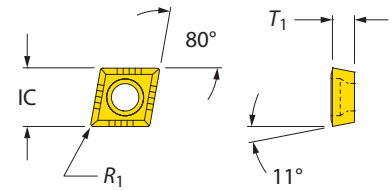
Imperial (in)			Metric (mm)			Part No.
IC	T ₁	R ₁	IC	T ₁	R ₁	
0.156	0.040	0.002	3.97	1.02	0.05	CDCD513002...
0.156	0.040	0.007	3.97	1.02	0.18	CDCD513007...



Part No.	ISO Description	Carbide		Cermet		CBN	P	M	K	N	S	H	Torx Screw	Torx Wrench
		Uncoated	Coated	Uncoated	Coated		Free Cutting	Carbon / Alloy	Stainless	Grey Cast Iron	Nodular Cast Iron	Non-ferrous		
CDCD	CDCD513002C2	-	•					◆	◆	◆			TXS-001-1	8T-6
	CDCD513002C2T	-		•				◆					TXS-001-1	8T-6
	CDCD513002C6	-	•				◆	◆					TXS-001-1	8T-6
	CDCD513007C2T	-		•				◆	◆	◆			TXS-001-1	8T-6
	CDCD513007C26T	-		•				◆	◆				TXS-001-1	8T-6

CP••

Imperial (in)			Metric (mm)			Part No.
IC	T ₁	R ₁	IC	T ₁	R ₁	
0.250	0.094	0.008	6.35	2.38	0.20	CP••2150...
0.250	0.094	0.016	6.35	2.38	0.40	CP••2151...
0.375	0.156	0.016	9.53	3.97	0.40	CP••3251...
0.375	0.156	0.031	9.53	3.97	0.80	CP••3252...



Part No.	ISO Description	Carbide		Cermet		CBN	P	M	K	N	S	H	Torx Screw	Torx Wrench
		Uncoated	Coated	Uncoated	Coated		Free Cutting	Carbon / Alloy	Stainless	Grey Cast Iron	Nodular Cast Iron	Non-ferrous		
CPMT	CPMT2150C2T		•						◆	◆			TXS-116-1	8T-7
	CPMT2150C6T		•				◆	◆					TXS-116-1	8T-7
	CPMT2151C2T		•						◆	◆			TXS-116-1	8T-7
	CPMT2151C6T		•				◆	◆					TXS-116-1	8T-7
	CPMT3251C2T		•						◆	◆			TXS-009-1	8T-15
	CPMT3251C6T		•				◆	◆					TXS-009-1	8T-15
	CPMT3252C6T		•						◆	◆			TXS-009-1	8T-15

B20: 78 - 81

B20: 8 - 33

B20: 47 - 59

Key on B20-1

◆ = Recommended
 ✦ = Secondary

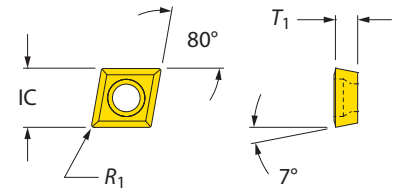
Inserts supplied in packs of 10
 Screws sold in multiples of 10

Criterion Inserts

80° Rhombic | CC••

CC••

Imperial (in)			Metric (mm)			Part No.
IC	T ₁	R ₁	IC	T ₁	R ₁	
0.250	0.094	0.004	6.35	2.38	0.10	CC••21502
0.250	0.094	0.008	6.35	2.38	0.20	CC••21505
0.250	0.094	0.016	6.35	2.38	0.40	CC••2151
0.250	0.094	0.031	6.35	2.38	0.80	CC••2152
0.375	0.156	0.008	9.53	3.97	0.20	CC••32505
0.375	0.156	0.016	9.53	3.97	0.40	CC••3251
0.375	0.156	0.031	9.53	3.97	0.80	CC••3252
0.500	0.188	0.016	12.70	4.76	0.40	CC••431
0.500	0.188	0.031	12.70	4.76	0.80	CC••432



Part No.	ISO Description	Carbide		Cermets		CBN	P	M	K	N	S	H	Torx Screw	Torx Wrench
		Uncoated	Coated	Uncoated	Coated		Free Cutting	Carbon / Alloy	Stainless	Grey Cast Iron	Nodular Cast Iron	Non-ferrous		
CCET21502CFBP01	060201		•				◆	◆	✦				TXS-116-1	8T-7
CCET21505CFCP01	060202		•				◆	◆	✦				TXS-116-1	8T-7
CCET21505TMB	060202			•			◆	◆					TXS-116-1	8T-7
CCET32505TFC	09T302			•			◆	◆					TXS-009-1	8T-15
CCGT32505CFD	09T302	•							✦	◆	◆		TXS-009-1	8T-15
CCGT3251CFD	09T304	•							✦	◆	◆		TXS-009-1	8T-15
CCGT3251CMD	09T304	•							✦	◆	◆		TXS-009-1	8T-15
CCGT3252CFD	09T308	•							✦	◆	◆		TXS-009-1	8T-15
CCGT3252CMD	09T308	•							✦	◆	◆		TXS-009-1	8T-15
CCGW21505CMC	060202	•							◆	◆	✦	✦	TXS-116-1	8T-7
CCGW3251CMC	09T304	•							◆	◆	✦	✦	TXS-009-1	8T-15
CCMW2151B1	060204				•			◆				◆	TXS-116-1	8T-7
CCMW2151B2	060204				•			◆	◆				TXS-116-1	8T-7
CCMW2152B1	060208				•			◆				◆	TXS-116-1	8T-7
CCMW2152B2	060208				•			◆	◆				TXS-116-1	8T-7
CCMW3251B1	09T304				•			◆				◆	TXS-009-1	8T-15
CCMW3251B2	09T304				•			◆	◆				TXS-009-1	8T-15
CCMW3252B1	09T308				•			◆				◆	TXS-009-1	8T-15
CCMW3252B2	09T308				•			◆	◆				TXS-009-1	8T-15

B20: 78 - 81 B20: 8 - 33 B20: 47 - 59

◆ = Recommended
✦ = Secondary

Inserts supplied in packs of 10
Screws sold in multiples of 10

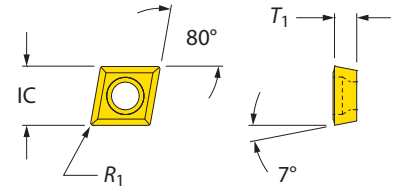
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS


Criterion Inserts

80° Rhombic | CC••

CC••

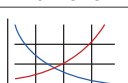
Imperial (in)			Metric (mm)			Part No.
IC	T ₁	R ₁	IC	T ₁	R ₁	
0.250	0.094	0.004	6.35	2.38	0.10	CC••21502
0.250	0.094	0.008	6.35	2.38	0.20	CC••21505
0.250	0.094	0.016	6.35	2.38	0.40	CC••2151
0.250	0.094	0.031	6.35	2.38	0.80	CC••2152
0.375	0.156	0.008	9.53	3.97	0.20	CC••32505
0.375	0.156	0.016	9.53	3.97	0.40	CC••3251
0.375	0.156	0.031	9.53	3.97	0.80	CC••3252
0.500	0.188	0.016	12.70	4.76	0.40	CC••431
0.500	0.188	0.031	12.70	4.76	0.80	CC••432



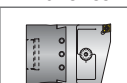
	Part No.	ISO Description	Carbide		Cermet		CBN	P	M	K	N	S	H	Torx Screw	Torx Wrench
			Uncoated	Coated	Uncoated	Coated		Free Cutting	Carbon / Alloy	Stainless	Grey Cast Iron	Nodular Cast Iron	Non-ferrous		
CCMT	CCMT21505CMBC01	060202		•			✧	✧		✧	✧			TXS-116-1	8T-7
	CCMT21505CMBP01	060202		•						✧	✧			TXS-116-1	8T-7
	CCMT21505TMB	060202			•			✧	✧					TXS-116-1	8T-7
	CCMT2150C2	060202		•						✧	✧	✧		TXS-116-1	8T-7
	CCMT2150C2T	060202		•						✧	✧	✧		TXS-116-1	8T-7
	CCMT2150C6	060202		•				✧	✧					TXS-116-1	8T-7
	CCMT2150C6T	060202		•				✧	✧					TXS-116-1	8T-7
	CCMT2151C2	060204		•						✧	✧	✧		TXS-116-1	8T-7
	CCMT2151C2T	060204		•						✧	✧	✧		TXS-116-1	8T-7
	CCMT2151C6	060204		•				✧	✧					TXS-116-1	8T-7
	CCMT2151C6T	060204		•				✧	✧					TXS-116-1	8T-7
	CCMT32505TMB	09T302				•		✧	✧					TXS-009-1	8T-15
	CCMT3250C2	09T302		•						✧	✧	✧		TXS-009-1	8T-15
	CCMT3250C2T	09T302		•						✧	✧	✧		TXS-009-1	8T-15
	CCMT3250C6	09T302		•				✧	✧					TXS-009-1	8T-15
	CCMT3250C6T	09T302		•				✧	✧					TXS-009-1	8T-15
	CCMT3251TMB	09T304				•		✧	✧					TXS-009-1	8T-15
	CCMT3251CMEC02	09T304		•						✧			✧	TXS-009-1	8T-15
	CCMT3251C2	09T304		•						✧	✧	✧		TXS-009-1	8T-15
	CCMT3251C2T	09T304		•						✧	✧	✧		TXS-009-1	8T-15
	CCMT3251C6	09T304		•				✧	✧					TXS-009-1	8T-15
	CCMT3251C6T	09T304		•				✧	✧					TXS-009-1	8T-15
	CCMT3252CMEC02	09T308		•						✧			✧	TXS-009-1	8T-15
	CCMT3252C2	09T308		•						✧	✧	✧		TXS-009-1	8T-15
	CCMT3252C2T	09T308		•						✧	✧	✧		TXS-009-1	8T-15
	CCMT3252C6	09T308		•				✧	✧					TXS-009-1	8T-15
	CCMT3252C6T	09T308		•				✧	✧					TXS-009-1	8T-15
	CCMT431CMBC01	120404				•		✧	✧		✧	✧		TXS-119-1	8T-15
	CCMT432C6T	120408				•		✧	✧		✧	✧		TXS-119-1	8T-15

Key on B20-1


B20: 78 - 81



B20: 8 - 33



B20: 47 - 59



✧ = Recommended
✧ = Secondary

Inserts supplied in packs of 10
Screws sold in multiples of 10

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

F

THREADING

X

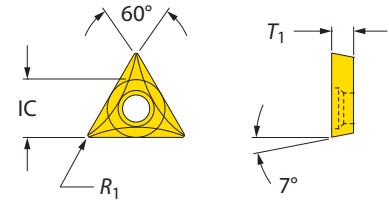
SPECIALS

Criterion Inserts

60° Triangle | TC••

TC••

Imperial (in)			Metric (mm)			Part No.
IC	T ₁	R ₁	IC	T ₁	R ₁	
0.156	0.078	0.016	3.97	1.98	0.40	TC••12121...
0.156	0.078	0.031	3.97	1.98	0.80	TC••12122...
0.219	0.094	0.008	5.56	2.38	0.20	TC••18150...
0.219	0.094	0.016	5.56	2.38	0.40	TC••18151...
0.250	0.094	0.008	6.35	2.38	0.20	TC••2150...
0.250	0.094	0.008	6.35	2.38	0.20	TC••21505...
0.250	0.094	0.016	6.35	2.38	0.40	TC••2151...
0.375	0.156	0.016	9.53	3.97	0.40	TC••3251...



Part No.	ISO Description	Carbide		Cermet		CBN	P	M	K	N	S	H	Torx Screw	Torx Wrench
		Uncoated	Coated	Uncoated	Coated		Free Cutting	Carbon / Alloy	Stainless	Grey Cast Iron	Nodular Cast Iron	Non-ferrous		
TCMT12121C2	06T104	•							◆	◆			TXS-028-1	8T-6
TCMT12121C2T	06T104		•						◆	◆	✦		TXS-028-1	8T-6
TCMT12121C6T	06T104		•				◆	◆					TXS-028-1	8T-6
TCMT12121CFGC04	06T104		•				◆	◆					TXS-028-1	8T-6
TCMT12122C2	06T108	•							◆	◆	✦		TXS-028-1	8T-6
TCMT12122C2T	06T108		•				◆	◆	◆	◆	✦		TXS-028-1	8T-6
TCMT12122C6T	06T108		•						◆	◆			TXS-028-1	8T-6
TCMT18150C2	090202	•							◆	◆	✦		TXS-116-1	8T-7
TCMT18150C2T	090202		•				◆	◆	◆	◆	✦		TXS-116-1	8T-7
TCMT18150C6	090202	•					◆	◆					TXS-116-1	8T-7
TCMT18150C6T	090202		•				◆	◆					TXS-116-1	8T-7
TCMT18150TMF	090202			•			◆	◆					TXS-116-1	8T-7
TCMT18150TMFP02	090202			•			✦	✦	◆				TXS-116-1	8T-7
TCMT18151TMF	090204		•				◆	◆					TXS-116-1	8T-7
TCMT18151TMFP02	090204			•			✦	✦	◆				TXS-116-1	8T-7
TCMT2150C2	110202	•							◆	◆	✦		TXS-116-1	8T-7
TCMT2150C2T	110202		•						◆	◆	✦		TXS-116-1	8T-7
TCMT2150C6	110202	•					◆	◆					TXS-116-1	8T-7
TCMT2150C6T	110202		•				◆	◆					TXS-116-1	8T-7
TCMT21505TMF	110202			•			◆	◆					TXS-116-1	8T-7
TCMT21505TMFP02	110202			•			✦	✦	◆				TXS-116-1	8T-7
TCMT2151TMF	110204		•				◆	◆					TXS-116-1	8T-7
TCMT2151TMFP02	110204			•			✦	✦	◆				TXS-116-1	8T-7
TCMT3251C6	16T304	•					◆	◆					TXS-100-1	8T-20
TCMT3251C6T	16T304		•				◆	◆					TXS-100-1	8T-20

Key on B20: 1

B20: 78 - 81

B20: 8 - 33

B20: 47 - 59

◆ = Recommended
✦ = Secondary

Inserts supplied in packs of 10
Screws sold in multiples of 10

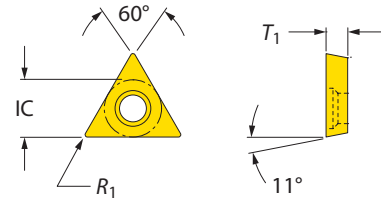
A DRILLING | B BORING | C REAMING | D BURNISHING | E THREADING | X SPECIALS



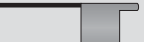
Criterion Inserts

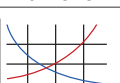
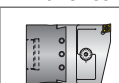

60° Triangle | TP●●

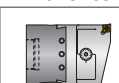
TP●●


Imperial (in)			Metric (mm)			Part No.
IC	T ₁	R ₁	IC	T ₁	R ₁	
0.250	0.094	0.002	6.35	2.38	0.05	TP●●2150...
0.250	0.094	0.016	6.35	2.38	0.40	TP●●2151...
0.250	0.094	0.031	6.35	2.38	0.80	TP●●2152...
0.375	0.125	0.008	9.53	3.18	0.40	TP●●3205
0.375	0.125	0.016	9.53	3.18	0.40	TP●●321...
0.375	0.125	0.031	9.53	3.18	0.80	TP●●322...
0.375	0.156	0.016	9.53	3.97	0.40	TP●●3251...
0.375	0.156	0.031	9.53	3.97	0.80	TP●●3252...



	Part No.	ISO Description	Carbide		Cermet		CBN	P	M	K	N	S	H		
			Uncoated	Coated	Uncoated	Coated		Free Cutting	Carbon / Alloy	Stainless	Grey Cast Iron	Nodular Cast Iron	Non-ferrous		
TPGT	TPGT2151C2	110204	•							◆	◆	✦		TXS-116-1	8T-7
	TPGT2151C2T	110204		•						◆	◆	✦		TXS-116-1	8T-7
	TPGT2151C6	110204	•					◆	◆					TXS-116-1	8T-7
	TPGT2151C6T	110204		•				◆	◆					TXS-116-1	8T-7
	TPGT2152C2	110208	•							◆	◆	✦		TXS-116-1	8T-7
	TPGT2152C2T	110208		•						◆	◆	✦		TXS-116-1	8T-7
	TPGT2152C6	110208	•					◆	◆					TXS-116-1	8T-7
	TPGT2152C6T	110208		•				◆	◆					TXS-116-1	8T-7
	TPGT321C2	160304	•							◆	◆	✦		TXS-100-1	8T-20
	TPGT321C2T	160304		•						◆	◆	✦		TXS-100-1	8T-20
	TPGT321C6	160304	•					◆	◆					TXS-100-1	8T-20
	TPGT321C6T	160304		•				◆	◆					TXS-100-1	8T-20
	TPGT322C2	160308	•							◆	◆	✦		TXS-100-1	8T-20
	TPGT322C2T	160308		•						◆	◆	✦		TXS-100-1	8T-20
	TPGT322C6	160308	•					◆	◆					TXS-100-1	8T-20
	TPGT322C6T	160308		•				◆	◆					TXS-100-1	8T-20
	TPGT3251C2	16T304	•							◆	◆	✦		TXS-100-1	8T-20
	TPGT3251C2T	16T304		•						◆	◆	✦		TXS-100-1	8T-20
TPGT3251C6	16T304	•					◆	◆					TXS-100-1	8T-20	
TPGT3251C6T	16T304		•				◆	◆					TXS-100-1	8T-20	
TPGT3252C2	16T308	•							◆	◆	✦		TXS-100-1	8T-20	
TPGT3252C2T	16T308		•						◆	◆	✦		TXS-100-1	8T-20	
TPGT3252C6	16T308	•					◆	◆					TXS-100-1	8T-20	
TPGT3252C6T	16T308		•				◆	◆					TXS-100-1	8T-20	
TPMT	TPMT3205CMFC03	160302		•					◆			✦	✦	TXS-100-1	8T-20
	TPMT321CMFC03	160304		•					◆			✦	✦	TXS-100-1	8T-20
	TPMT321CFEC03	160304		•				✦	✦	◆			✦	TXS-100-1	8T-20
	TPMT321CFEP01	160304		•				◆	◆	✦				TXS-100-1	8T-20
	TPMT322CFEC03	160308		•				✦	✦	◆			✦	TXS-100-1	8T-20
	TPMT322CFEP01	160308		•				◆	◆	✦				TXS-100-1	8T-20

B20: 78 - 81   

B20: 8 - 33 

B20: 47 - 59 

Key on B20-1

◆ = Recommended
✦ = Secondary

Inserts supplied in packs of 10
Screws sold in multiples of 10

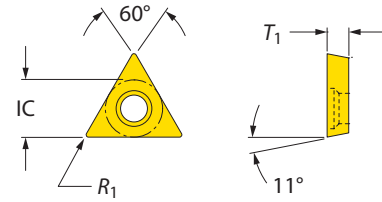
I
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Criterion Inserts

60° Triangle | TP••

TP••

Imperial (in)			Metric (mm)			Part No.
IC	T ₁	R ₁	IC	T ₁	R ₁	
0.250	0.094	0.002	6.35	2.38	0.05	TP••2150...
0.250	0.094	0.016	6.35	2.38	0.40	TP••2151...
0.250	0.094	0.031	6.35	2.38	0.80	TP••2152...
0.375	0.125	0.016	9.53	3.18	0.40	TP••321...
0.375	0.125	0.031	9.53	3.18	0.80	TP••322...
0.375	0.156	0.016	9.53	3.97	0.40	TP••3251...
0.375	0.156	0.031	9.53	3.97	0.80	TP••3252...



Part No.	ISO Description	Carbide		Cermet		CBN	P		M	K	N	S	H	Torx Screw	Torx Wrench
		Uncoated	Coated	Uncoated	Coated		Free Cutting	Carbon / Alloy							
TPGW2150C2	1102V5	•								◆	◆	◇		TXS-116-1	8T-7
TPGW2150C2T	1102V5		•							◆	◆	◇		TXS-116-1	8T-7
TPGW2150C6	1102V5	•					◆	◇						TXS-116-1	8T-7
TPGW2150C6T	1102V5		•				◆	◇						TXS-116-1	8T-7
TPGW2151C2	110204	•								◆	◆	◇		TXS-116-1	8T-7
TPGW2151C2T	110204		•							◆	◆	◇		TXS-116-1	8T-7
TPGW2151C6	110204	•					◆	◇						TXS-116-1	8T-7
TPGW2151C6T	110204		•				◆	◇						TXS-116-1	8T-7
TPGW2152C2	110208	•								◆	◆	◇		TXS-116-1	8T-7
TPGW2152C2T	110208		•							◆	◆	◇		TXS-116-1	8T-7
TPGW2152C6	110208	•					◆	◇						TXS-116-1	8T-7
TPGW2152C6T	110208		•				◆	◇						TXS-116-1	8T-7
TPGW320C2	1603V5	•								◆	◆	◇		TXS-100-1	8T-20
TPGW320C2T	1603V5		•							◆	◆	◇		TXS-100-1	8T-20
TPGW320C6	1603V5	•					◆	◇						TXS-100-1	8T-20
TPGW320C6T	1603V5		•				◆	◇						TXS-100-1	8T-20
TPGW321C2	160304	•								◆	◆	◇		TXS-100-1	8T-20
TPGW321C2T	160304		•							◆	◆	◇		TXS-100-1	8T-20
TPGW321C6	160304	•					◆	◇						TXS-100-1	8T-20
TPGW321C6T	160304		•				◆	◇						TXS-100-1	8T-20
TPGW322C2	160308	•								◆	◆	◇		TXS-100-1	8T-20
TPGW322C2T	160308		•							◆	◆	◇		TXS-100-1	8T-20
TPGW322C6	160308	•					◆	◇						TXS-100-1	8T-20
TPGW322C6T	160308		•				◆	◇						TXS-100-1	8T-20
TPGW3250C2	16T3V5	•								◆	◆	◇		TXS-100-1	8T-20
TPGW3250C2T	16T3V5		•							◆	◆	◇		TXS-100-1	8T-20
TPGW3250C6	16T3V5	•					◆	◇						TXS-100-1	8T-20
TPGW3250C6T	16T3V5		•				◆	◇						TXS-100-1	8T-20
TPGW3251C2	16T304	•								◆	◆	◇		TXS-100-1	8T-20
TPGW3251C2T	16T304		•							◆	◆	◇		TXS-100-1	8T-20
TPGW3251C6	16T304	•					◆	◇						TXS-100-1	8T-20
TPGW3251C6T	16T304		•				◆	◇						TXS-100-1	8T-20
TPGW3252C2	16T308	•								◆	◆	◇		TXS-100-1	8T-20
TPGW3252C2T	16T308		•							◆	◆	◇		TXS-100-1	8T-20
TPGW3252C6	16T308	•					◆	◇						TXS-100-1	8T-20
TPGW3252C6T	16T308		•				◆	◇						TXS-100-1	8T-20

Key on B20: 1

B20: 78 - 81

B20: 8 - 33

B20: 47 - 59

◆ = Recommended
◇ = Secondary

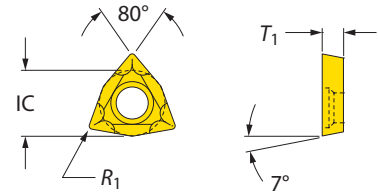
Inserts supplied in packs of 10
Screws sold in multiples of 10


Criterion Inserts

80° Trigon | WC••

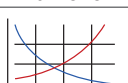
WC••

Imperial (in)			Metric (mm)			Part No.
IC	T ₁	R ₁	IC	T ₁	R ₁	
0.156	0.063	0.008	3.97	1.60	0.20	WC••020102...
0.156	0.063	0.016	3.97	1.60	0.40	WC••020104...



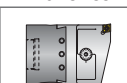
	Part No.	ISO Description	Carbide		Cermet		CBN	P		M	K	N	S	H	Torx Screw	Torx Wrench
			Uncoated	Coated	Uncoated	Coated		Free Cutting	Carbon / Alloy	Stainless	Grey Cast Iron	Nodular Cast Iron	Non-ferrous	Heat Resistant		
WCMT	WCMT020102C2	020102	•							❖	❖	❖	◆		TXS-028-1	8T-6
	WCMT020102C2T	020102		•						◆	◆	◆	❖		TXS-028-1	8T-6
	WCMT020102C6	020102	•					❖	❖						TXS-028-1	8T-6
	WCMT020102C6T	020102		•				◆	◆						TXS-028-1	8T-6
	WCMT020104C2	020104	•							❖	❖	❖	◆		TXS-028-1	8T-6
	WCMT020104C2T	020104		•						◆	◆	◆	❖		TXS-028-1	8T-6
	WCMT020104C6	020104	•					❖	❖						TXS-028-1	8T-6
	WCMT020104C6T	020104		•				◆	◆						TXS-028-1	8T-6

B20: 78 - 81




Key on B20-1

B20: 8 - 33



B20: 47 - 59



◆ = Recommended
❖ = Secondary

Inserts supplied in packs of 10
Screws sold in multiples of 10

Criterion Boring Kits

Micro Adjusting | CNC Kits

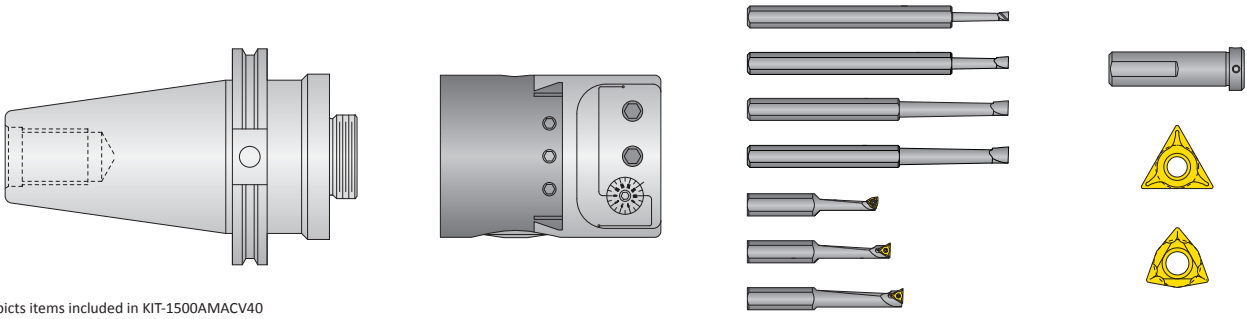


Image depicts items included in KIT-1500AMACV40

		Components Included in Kit					
D_1 Range	Boring Head	Shank	Boring Bars	Adapters	Inserts	Part No.	
0.060 - 2.500	CB-1500AMA	CB1500-CV40	CBT-00600300G CBT-00800300G CBT-01000600G CBT-01100600G TA-02501062A TA-03121437A TA-03751750A	BTH-01250375	WCMT020102C6T TCMT12121CFGC04	KIT-1500AMACV40	
0.060 - 2.500	CB-1500AMA	CB1500-CV50	CBT-00600300G CBT-00800300G CBT-01000600G CBT-01100600G TA-02501062A TA-03121437A TA-03751750A	BTH-01250375	WCMT020102C6T TCMT12121CFGC04	KIT-1500AMACV50	
0.060 - 3.250	CB-2500BMA	CB2500-CV40	CBT-00600300G CBT-00800300G CBT-01000600G CBT-01100600G TA-02501062B TA-03121437B TA-03751750B TA-04372062B TA-05002187B	BTH-01250500	WCMT020102C6T TCMT12121CFGC04 TPGT2151C6T	KIT-2500BMACV40	
0.060 - 3.250	CB-2500BMA	CB2500-CV50	CBT-00600300G CBT-00800300G CBT-01000600G CBT-01100600G TA-02501062B TA-03121437B TA-03751750B TA-04372062B TA-05002187B	BTH-01250500	WCMT020102C6T TCMT12121CFGC04 TPGT2151C6T	KIT-2500BMACV50	

i

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

A DRILLING

B BORING

C REAMING

D BURNISHING

E THREADING

X SPECIALS

Criterion Boring Kits

Micro Adjusting | CNC Kits

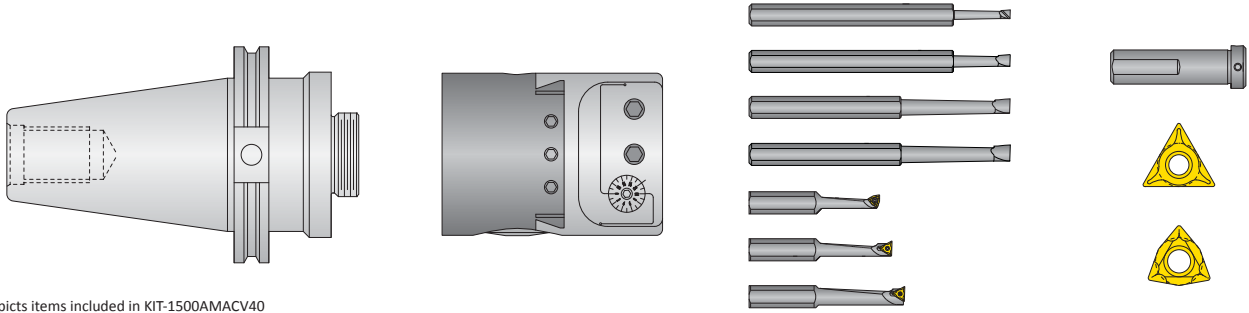


Image depicts items included in KIT-1500AMACV40

		Components Included in Kit					
D_1 Range	Boring Head	Shank	Boring Bars	Adapters	Inserts	Part No.	
i 0.120 - 5.125	CB-3000DMA	CB3000-CV40	CBT-01200500H	BTH-02500750	WCMT020102C6T	KIT-3000DMACV40	
			CBT-01400625H				BTH-05000750
			CBT-01600750H		TPGT2151C6T		
			CBT-01800875H		TPGT321C6T		
			TA-02501062B				
			TA-03121437B				
			TA-03751750B				
			TA-04372062B				
			TA-05002500D				
			TA-07503000D				
			TA-10003500D				
			TA-12504000D				
i 0.120 - 5.125	CB-3000DMA	CB3000-CV50	CBT-01200500H	BTH-02500750	WCMT020102C6T	KIT-3000DMACV50	
			CBT-01400625H				BTH-05000750
			CBT-01600750H		TPGT2151C6T		
			CBT-01800875H		TPGT321C6T		
			TA-02501062B				
			TA-03121437B				
			TA-03751750B				
			TA-04372062B				
			TA-05002500D				
			TA-07503000D				
			TA-10003500D				
			TA-12504000D				

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

Criterion Boring Kits

CB Style | Balance Kits

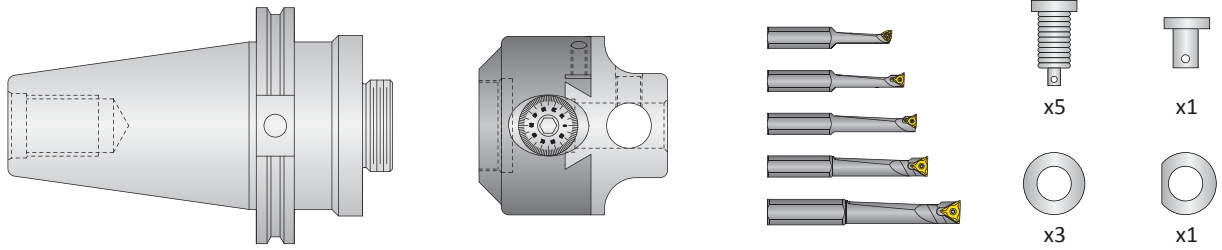


Image depicts items included in KIT-202BCV40BAL

	D_1 Range	Components Included in Kit		Shank	Part No.
		Boring Head	Boring Bars		
i	0.250 - 2.500	-	-	-	KIT-202BBAL
	0.250 - 2.500	Kits include: • CB-202B	Kits include: • TA-02501062B • TA-03121437B • TA-03751750B • TA-04372062B • TA-05002187B	-	KIT-202BTABAL
	R8-087520			KIT-202BR8BAL	
	NMBT40-087520			KIT-202BNT40BAL	
	CB2000-CV40			KIT-202BCV40BAL	
	CB2000-BT40			KIT-202BBT40BAL	
CB2000-HSK63A	KIT-202BHS63BAL				
m	6 - 76	-	-	-	KIT-050MBBAL
	6 - 76	Kits include: • CB-050MB	Kits include: • TA-06M027B • TA-08M036B • TA-10M045B • TA-12M054B	-	KIT-050MTABAL
	CB050M-DIN40			KIT-050MBD40BAL	
	CB050M-ISO40			KIT-050MBI40BAL	

NOTE: To obtain balance, all kits include 6 shafts and 4 weights

- Notes:**
- Bores up to 8x faster
 - Fits all 202B style boring heads
 - Improves bore finish, concentricity, and productivity
 - Simple and easy to use
 - U.S. Patent No.: 7,309,194

B20: 80 - 81 B20: 83

Key on B20: 1

i = Imperial (in)
m = Metric (mm)
Inserts sold separately

A DRILLING

B BORING

C REAMING

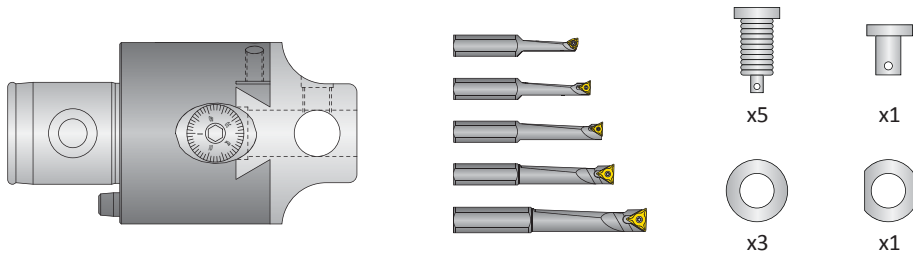
D BURINISHING

E THREADING

X SPECIALS

Cri-Tip Boring Heads - Competitor Connection Kits

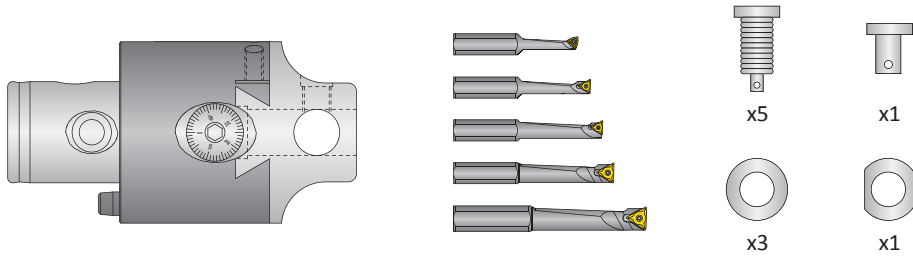
CB Style | Balance Kits



Big® Kaiser®

	Components Included in Kit			Part No.
	D_1 Range	Boring Head	Boring Bars	
i	0.250 - 2.500	CTP2000-K5202B	TA-02501062B TA-03121437B TA-03751750B TA-04372062B TA-05002187B	KIT-CTP202K5BAL

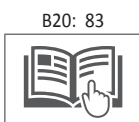
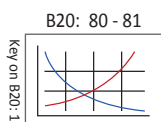
NOTE: To obtain balance, all kits include 6 shafts and 4 weights



Komet® ABS®

	Components Included in Kit			Part No.
	D_1 Range	Boring Head	Boring Bars	
i	0.250 - 2.500	CTP2000-A50202B	TA-02501062B TA-03121437B TA-03751750B TA-04372062B TA-05002187B	KIT-CTP202A5BAL

NOTE: To obtain balance, all kits include 6 shafts and 4 weights



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

Criterion Boring Kits

CB Style | Carbide Boring Bars

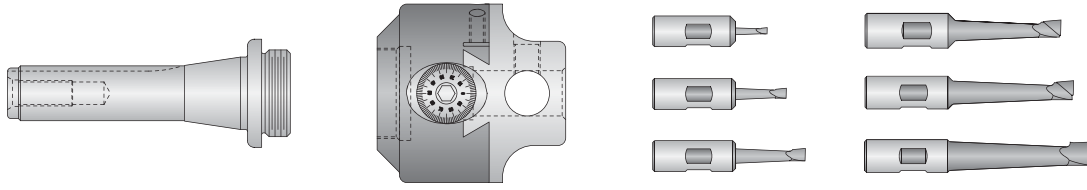
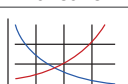



Image depicts items included in KIT-202BR8SBT

D_1 Range	Components Included in Kit				Part No.
	Boring Head	Shank	Boring Bars	Adapters	
0.125 - 2.500	CB-202B	R8-087520	SBT-01250500B SBT-01870812B SBT-02501125B SBT-03121500B SBT-03751750B SBT-05002187B	-	KIT-202BR8SBT
0.500 - 5.125	CB-203D	R8-150018	SBT-05002187D SBT-06252750D SBT-07503000D SBT-10003500D SBT-12504000D	-	KIT-203DR8SBT
ⁱ 0.125 - 5.125	CB-203D	R8-150018	SBT-01250500B SBT-01870812B SBT-02501125B SBT-03121500B SBT-03751750B SBT-05002187B SBT-06252750D SBT-07503000D SBT-10003500D SBT-12504000D	BTH-05000750	KIT-203DR8SBTBD
3 - 62	CB-038MA	-	SBT-03012MA SBT-04020MA SBT-06028MA SBT-08037MA SBT-10048MA SBT-12055MA	-	KIT-CB038MASBT
0.05 - 76	CB-050MB	-	SBT-03012MB SBT-04020MB SBT-06028MB SBT-08037MB SBT-10048MB SBT-12055MB	CHB-012M	KIT-CB050MBSBT
^m 12 - 130	CB-076MD	-	SBT-12063MD SBT-16071MD SBT-19078MD SBT-25090MD SBT-32100MD	CHB-020M	KIT-CB076MDSBT

B20: 80 - 81  Key on B20: 1

B20: 83 

ⁱ = Imperial (in)
^m = Metric (mm)

A DRILLING

B BORING

C REAMING

D BURNISHING

E THREADING

X SPECIALS

Criterion Boring Kits

CB Style | TA Insert Boring Bars

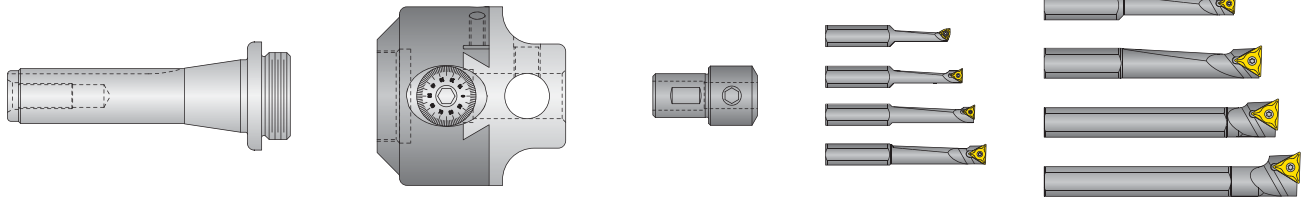
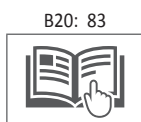
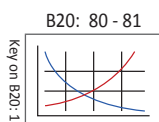


Image depicts items included in KIT-203DR8TABD

D_1 Range	Components Included in Kit				Part No.
	Boring Head	Shank	Boring Bars	Adapters	
0.250 - 2.500	CB-202B	R8-087520	TA-02501062B TA-03121437B TA-03751750B TA-04372062B TA-05002187B	-	KIT-202BR8TA
0.500 - 5.125	CB-203D	R8-150018	TA-05002500D TA-07503000D TA-10003500D TA-12504000D	-	KIT-203DR8TA
0.250 - 5.125	CB-203D	R8-150018	TA-02501062B TA-03121437B TA-03751750B TA-04372062B TA-05002500D TA-07503000D TA-10003500D TA-12504000D	BTH-05000750	KIT-203DR8TABD
0.250 - 5.125	CB-203D	CB3000-CV40	TA-02501062B TA-03121437B TA-03751750B TA-04372062B TA-05002500D TA-07503000D TA-10003500D TA-12504000D	BTH-05000750	KIT-203DC40TABD
6 - 62	CB-038MA	-	TA-06M027A TA-08M036A TA-10M045A	-	KIT-CB038MATA
6 - 62	CB-038MA	-	TAS-06M012A TAS-08M016A TAS-10M020A	-	KIT-CB038MATAS
6 - 76	CB-050MB	-	TA-06M027B TA-08M036B TA-10M045B TA-12M054B	CHB-012M	KIT-CB050MBTA
6 - 76	CB-050MB	-	TAS-06M012B TAS-08M016B TAS-10M020B TAS-12M024B	CHB-012M	KIT-CB050MBTAS
10 - 130	CB-076MD	-	TA-10M045D TA-12M054D TA-16M072D TA-20M090D	CHB-020M	KIT-CB076MDTA
10 - 130	CB-076MD	-	TAS-10M020D TAS-12M024D TAS-16M032D TAS-20M040D	CHB-020M	KIT-CB076MDTAS



i = Imperial (in)
m = Metric (mm)
 Inserts sold separately

Criterion Boring Bar Sets

Carbide | Round Shank | Imperial

A
DRILLING

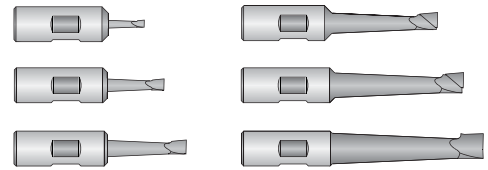


Image depicts items included in SET-SBTB

B
BORING

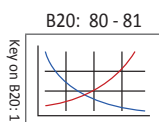
D_2	Boring Bars Included in Set	Part No.
0.375	SBT-01250500A SBT-01870812A SBT-02501125A SBT-03121500A SBT-03751875A SBT-05002312A	SET-SBTA
0.500	SBT-01250500B SBT-01870812B SBT-02501125B SBT-03121500B SBT-03751750B SBT-05002187B	SET-SBTB
0.750	SBT-05002187D SBT-06252750D SBT-07503000D SBT-10003500D SBT-12504000D	SET-SBTD
1.000	SBT-05002375E SBT-06252625E SBT-07502875E SBT-10003500E SBT-12503875E	SET-SBTE

C
REAMING

D
BURNISHING

F
THREADING

X
SPECIALS



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

Criterion Boring Bar Sets

Carbide | Round Shank | Stubby

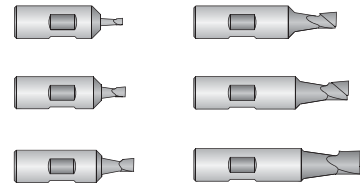
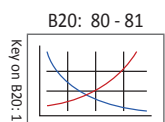


Image depicts items included in SET-SBTBSHT

	D_2	Boring Bars Included in Set	Part No.
i	0.500	SBT-01250250B SBT-01870312B SBT-02500437B SBT-03120562B SBT-03750687B SBT-05000812B	SET-SBTBSHT
	0.750	SBT-05001312D SBT-07501531D SBT-10001750D	SET-SBTDSHT



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

Criterion Boring Bar Sets

Carbide | Square Shank

A
DRILLING

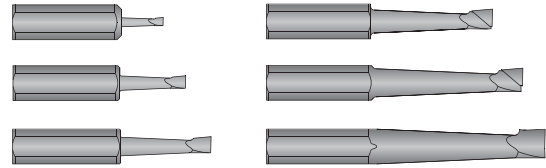


Image depicts items included in SET-SBTBS

B
BORING

D_2	Boring Bars Included in Set	Part No.
i 0.500	SBT-01250500BS	SET-SBTBS
	SBT-01870812BS	
	SBT-02501125BS	
	SBT-03121500BS	
	SBT-03751750BS	
10	SBT-03012MA	SET-SBTMA
	SBT-04020MA	
	SBT-06028MA	
	SBT-08037MA	
	SBT-10048MA	
E 12	SBT-12055MA	SET-SBTMB
	SBT-03012MB	
	SBT-04020MB	
	SBT-06028MB	
	SBT-08037MB	
20	SBT-10048MB	SET-SBTMD
	SBT-12055MB	
	SBT-12063MD	
	SBT-16071MD	
	SBT-19078MD	
25	SBT-25090MD	SET-SBTME
	SBT-32100MD	
	SBT-12060ME	
	SBT-16067ME	
	SBT-19047ME	
	SBT-25089ME	
	SBT-32100ME	

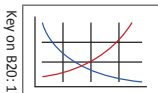
C
REAMING

D
BURNISHING

E
THREADING

X
SPECIALS

B20: 80 - 81



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

Criterion Boring Bar Sets

TA Insert

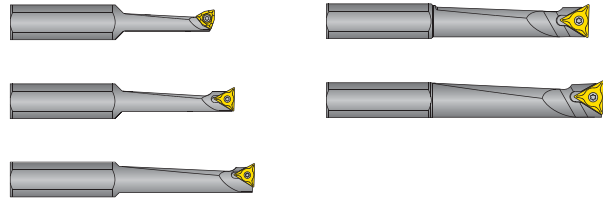
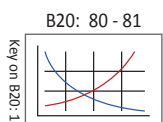


Image depicts items included in SET-TAB

D_2	Boring Bars Included in Set	Part No.
i	0.500 TA-02501062B TA-03121437B TA-03751750B TA-04372062B TA-05002187B	SET-TAB
	0.750 TA-05002500D TA-07503000D TA-10003500D TA-12504000D	SET-TAD
	1.000 TA-05002375E TA-07502875E TA-10003500E TA-12503875E	SET-TAE
m	10 TA-06M027A TA-08M036A TA-10M045A	SET-TAMA
	10 TAS-06M012A TAS-08M016A TAS-10M020A	SET-TASMA
	12 TA-06M027B TA-08M036B TA-10M045B TA-12M054B	SET-TAMB
	12 TAS-06M012B TAS-08M016B TAS-10M020B TAS-12M024B	SET-TASMB
	20 TA-10M045D TA-12M054D TA-16M072D TA-20M090D	SET-TAMD
	20 TAS-10M020D TAS-12M024D TAS-16M032D TAS-20M040D	SET-TASMD
	25 TA-10M045E TA-12M054E TA-16M072E TA-20M090E TA-25M113E	SET-TAME
	25 TAS-10M020E TAS-12M024E TAS-16M032E TAS-20M040E TAS-25M050E	SET-TASME



i = Imperial (in)
m = Metric (mm)
Inserts sold separately



Recommended Cutting Data | Imperial (inch)

Rough Boring

ISO	Material	Hardness (BHN)	Cri-Twin®		Feed (IPR)
			SFM		
			Uncoated Inserts	Coated Inserts	
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 250	450 - 800	450 - 1000	0.006 - 0.016
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	450 - 800	450 - 1000	0.006 - 0.016
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	450 - 800	450 - 1000	0.006 - 0.016
	Alloy Steel 4140, 5140, 8640, etc.	125 - 375	450 - 800	450 - 1000	0.006 - 0.016
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 400	400 - 700	450 - 800	0.006 - 0.016
	Tool Steel H-13, H-21, A-4, O-2, 5-3, etc.	150 - 250	400 - 700	400 - 700	0.006 - 0.010
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	100 - 250	150 - 300	0.006 - 0.010
M	Stainless Steel 400 Series 1010, 1020, 1025, 1522, 1144, etc.	185 - 350	400 - 600	400 - 700	0.006 - 0.012
	Stainless Steel 300 Series 1010, 1020, 1025, 1522, 1144, etc.	135 - 275	400 - 600	400 - 700	0.006 - 0.012
	Super Duplex Stainless Steel 1010, 1020, 1025, 1522, 1144, etc.	135 - 275	400 - 600	400 - 700	0.006 - 0.012
K	Nodular, Grey, Ductile Cast Iron	120 - 320	400 - 600	500 - 700	0.006 - 0.012
N	Cast Aluminum	30 - 180	750 - 1000	800 - 1100	0.006 - 0.016
	Wrought Aluminum	30 - 180	750 - 1000	750 - 1000	0.006 - 0.016
	Brass	100	700 - 950	750 - 1000	0.006 - 0.016

See page B20: 82 for instructions on applying the Cri-Twin boring head in different applications

NOTICE: The modular boring system's configuration, including the length of boring bar, boring head off set, and amount of extensions and/or reducers, may all affect performance of boring systems. All of these factors may increase imbalance of the modular boring system. Imbalance at excessive RPM will cause vibration in the machine tool, which can cause damage to the machine tool; in particular the spindle. This vibration may occur at spindle speeds above 1000 RPM. If vibration is present, reduce spindle speed.

Recommended Cutting Data | Metric (mm)

Rough Boring

ISO	Material	Hardness (BHN)	Cri-Twin®		Feed (mm/rev)
			M/min		
			Uncoated Inserts	Coated Inserts	
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 250	137 - 244	137 - 305	0.15 - 0.41
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	137 - 244	137 - 305	0.15 - 0.41
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	137 - 244	137 - 305	0.15 - 0.41
	Alloy Steel 4140, 5140, 8640, etc.	125 - 325	137 - 244	137 - 305	0.15 - 0.41
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 400	122 - 213	137 - 244	0.15 - 0.41
	Tool Steel H-13, H-21, A-4, O-2, 5-3, etc.	150 - 250	122 - 213	122 - 213	0.15 - 0.25
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	30 - 76	46 - 91	0.15 - 0.25
M	Stainless Steel 400 Series 1010, 1020, 1025, 1522, 1144, etc.	185 - 350	122 - 182	122 - 213	0.15 - 0.31
	Stainless Steel 300 Series 1010, 1020, 1025, 1522, 1144, etc.	135 - 275	122 - 182	122 - 213	0.15 - 0.31
	Super Duplex Stainless Steel 1010, 1020, 1025, 1522, 1144, etc.	135 - 275	122 - 182	122 - 213	0.15 - 0.31
K	Nodular, Grey, Ductile Cast Iron	120 - 320	122 - 182	152 - 213	0.15 - 0.31
N	Cast Aluminum	30 - 180	220 - 305	244 - 335	0.15 - 0.41
	Wrought Aluminum	30 - 180	220 - 305	229 - 305	0.15 - 0.41
	Brass	100	213 - 290	229 - 305	0.15 - 0.41

See page B20: 82 for instructions on applying the Cri-Twin boring head in different applications

NOTICE: The modular boring system's configuration, including the length of boring bar, boring head off set, and amount of extensions and/or reducers, may all affect performance of boring systems. All of these factors may increase imbalance of the modular boring system. Imbalance at excessive RPM will cause vibration in the machine tool, which can cause damage to the machine tool; in particular the spindle. This vibration may occur at spindle speeds above 1000 RPM. If vibration is present, reduce spindle speed.



Recommended Cutting Data | Imperial (inch)

Finish Boring

ISO	Material	Hardness (BHN)	Cri-Bore® CBER® CB Style		
			SFM		Feed (IPR)
			Uncoated Inserts	Coated Inserts	
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 250	350 - 700	450 - 800	0.003 - 0.005
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	350 - 700	450 - 800	0.002 - 0.004
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	400 - 700	500 - 800	0.002 - 0.004
	Alloy Steel 4140, 5140, 8640, etc.	125 - 375	300 - 600	400 - 700	0.002 - 0.004
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 400	300 - 600	350 - 650	0.002 - 0.004
	Tool Steel H-13, H-21, A-4, O-2, 5-3, etc.	150 - 250	300 - 600	300 - 700	0.002 - 0.004
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	100 - 250	150 - 300	0.002 - 0.004
M	Stainless Steel 400 Series 1010, 1020, 1025, 1522, 1144, etc.	185 - 350	350 - 600	400 - 650	0.002 - 0.004
	Stainless Steel 300 Series 1010, 1020, 1025, 1522, 1144, etc.	135 - 275	350 - 600	400 - 650	0.002 - 0.004
	Super Duplex Stainless Steel 1010, 1020, 1025, 1522, 1144, etc.	135 - 275	350 - 600	400 - 650	0.002 - 0.004
K	Nodular, Grey, Ductile Cast Iron	120 - 320	400 - 600	500 - 700	0.002 - 0.004
N	Cast Aluminum	30 - 180	750 - 1000	800 - 1100	0.002 - 0.004
	Wrought Aluminum	30 - 180	750 - 1000	750 - 1000	0.002 - 0.004
	Brass	100	700 - 950	750 - 1000	0.002 - 0.004

NOTICE: The modular boring system's configuration, including the length of boring bar, boring head off set, and amount of extensions and/or reducers, may all affect performance of boring systems. All of these factors may increase imbalance of the modular boring system. Imbalance at excessive RPM will cause vibration in the machine tool, which can cause damage to the machine tool; in particular the spindle. This vibration may occur at spindle speeds above 1000 RPM. If vibration is present, reduce spindle speed.

Recommended Cutting Data | Metric (mm)

Finish Boring

ISO	Material	Hardness (BHN)	Cri-Bore® CBER® CB Style		
			M/min		Feed (mm/rev)
			Uncoated Inserts	Coated Inserts	
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 250	107 - 213	137 - 244	0.08 - 0.13
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	107 - 213	137 - 244	0.05 - 0.10
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	122 - 213	152 - 244	0.05 - 0.10
	Alloy Steel 4140, 5140, 8640, etc.	125 - 325	91 - 182	122 - 213	0.05 - 0.10
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 400	91 - 182	107 - 198	0.05 - 0.10
	Tool Steel H-13, H-21, A-4, O-2, 5-3, etc.	150 - 250	91 - 182	107 - 213	0.05 - 0.10
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	30 - 76	46 - 91	0.05 - 0.10
M	Stainless Steel 400 Series 1010, 1020, 1025, 1522, 1144, etc.	185 - 350	107 - 182	122 - 198	0.05 - 0.10
	Stainless Steel 300 Series 1010, 1020, 1025, 1522, 1144, etc.	135 - 275	107 - 182	122 - 198	0.05 - 0.10
	Super Duplex Stainless Steel 1010, 1020, 1025, 1522, 1144, etc.	135 - 275	107 - 182	122 - 198	0.05 - 0.10
K	Nodular, Grey, Ductile Cast Iron	120 - 320	122 - 182	152 - 213	0.05 - 0.10
N	Cast Aluminum	30 - 180	229 - 305	244 - 335	0.05 - 0.10
	Wrought Aluminum	30 - 180	229 - 305	229 - 305	0.05 - 0.10
	Brass	100	213 - 290	229 - 305	0.05 - 0.10

NOTICE: The modular boring system's configuration, including the length of boring bar, boring head off set, and amount of extensions and/or reducers, may all affect performance of boring systems. All of these factors may increase imbalance of the modular boring system. Imbalance at excessive RPM will cause vibration in the machine tool, which can cause damage to the machine tool; in particular the spindle. This vibration may occur at spindle speeds above 1000 RPM. If vibration is present, reduce spindle speed.

Set-up Instructions | Cri-Twin® Modular Boring Heads

Adjusting Cri-Twin Modular Boring Heads (see figure B1)

1. Loosen the insert holder locking screw (4) on the insert holder (1) to be adjusted. Re-slug lightly using light finger pressure only. Only one insert holder should be adjusted at a time. The other insert holder should remain locked.
2. Loosen and re-slug the body clamp bolt (5) so a small amount of tension is felt when adjusting the dial screw.
3. Turn the dial screw (3) clockwise to increase the diameter and counterclockwise to decrease the diameter.
4. Tighten the insert holder locking screw (4).
5. Rotate the boring head 180°.
6. Repeat steps 1, 3, and 4.
7. Tighten the body clamp bolt (5).

NOTE: To machine a smaller bore diameter, turn the dial screw (3) counterclockwise one full turn minimum to remove any backlash, and then adjust to small size.

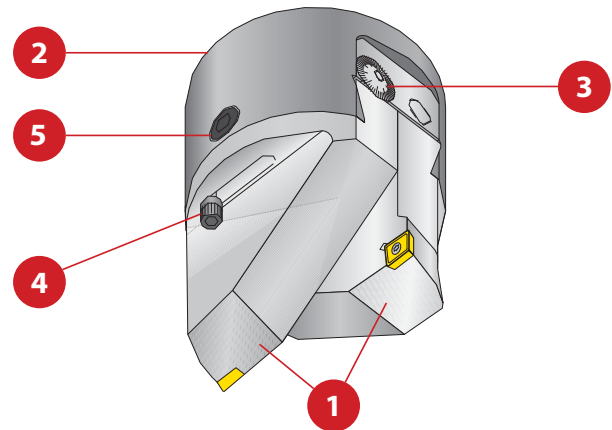


Figure B1

No.	Part
1	Insert holders
2	Boring head body
3	Dial screw
4	Insert holder locking screw
5	Body clamp bolt

Cri-Twin Modular Boring Heads

The Cri-Twin Modular Boring System is one of the most versatile boring systems available today. With a combination of insert holders, you can perform different types of boring operations. The Cri-Twin system can double your feed rate, double the material removed, or rough and finish in the same operation.

1. Double Feed Rate Operations:

This requires using two "standard length" or two "zero lead" insert holders and setting the cutting tips of both insert holders to bore the same diameter. The inserts will make equal cuts in the bore so you can double your feed rate and reduce the cycle time to bore your hole. Utilizing the Cri-Twin system in this manner may leave tool retraction marks in the finish bore. For best results, you should bore into and out of the hole.

NOTICE: Use rough boring feed recommendations from charts on pages B20: 78 - 79.

2. Double Material Removed:

This requires using a standard and a short length insert holder. The standard length insert holder enters the cut first so it needs to be set to remove one-half of the material to be bored from the hole. The short insert holder is then set to the finish bore diameter. Remember, when doubling the material removed, each cutting edge is working separately, and you should not double your feed rate.

NOTICE: Use finish boring feed recommendations from charts on pages B20: 80 - 81.

3. Roughing and Finishing:

This requires using a standard and a short length insert holder. The standard length insert holder will be set to the rough bore diameter and then the short length insert holder will be set to the finish bore diameter. Utilizing the Cri-Twin system in this manner may leave tool retraction marks in the finish bore. For best results, you should bore into and out of the hole.

NOTICE: Use finish boring feed recommendations from charts on pages B20: 80 - 81.

Set-up Instructions | Standard and Micro Adjusting Boring Heads**Adjusting Standard Adjusting Boring Heads (see figure B2)**

1. Loosen the locking screw (6).
2. Turn the dial screw (3) clockwise to increase the diameter, and turn it counterclockwise to decrease the diameter.
3. Tighten the locking screw (6).

IMPORTANT: Do not loosen the gib screws (5). It can cause poor performance when making diameter adjustments.

NOTE: To machine a smaller bore diameter, turn the dial screw (3) counterclockwise one full turn minimum to remove any backlash, and then adjust to small size.

No.	Part
1	Bar holder
2	Boring head body
3	Dial screw
4	Bar holder set screws
5	Gib screws
6	Locking screw

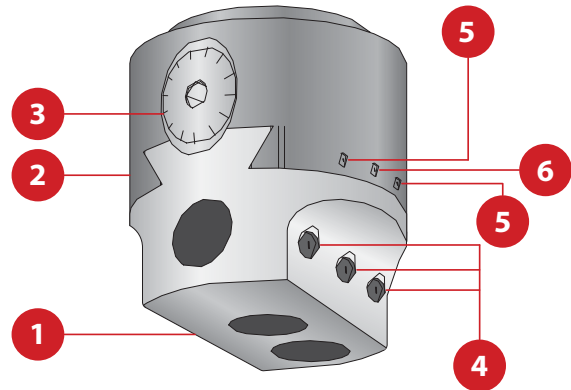


Figure B2

Adjusting Micro Adjusting Setting Boring Heads (see figure B3)

Before setting the micro adjusting boring head to the bore diameter, you need to set the micro adjusting dial (7) to the minimum bore diameter.

1. Turn the micro adjusting dial (7) clockwise until the dial screw bottoms out on the bottom of the dial screw bore.
2. Note the graduation line on the dial face closest to the reference line, then turn the micro adjusting dial (7) counterclockwise 3-1/4 turns.
3. Reverse direction and line the graduation line noted in Step 2 with the reference line.
4. The micro adjusting dial is now set so you have 0.006" on diameter of adjustment.

Adjusting micro adjusting setting boring heads is just as easy as adjusting standard boring heads. First, you adjust the boring head using the 0.001" adjustment (3), and then you make your final adjustment with the 0.00005" adjustment (7).

1. Loosen the locking screw (6).
2. Turn the dial screw (3) clockwise to increase the diameter and counterclockwise to decrease the diameter.
3. Tighten the locking screw (6).
4. Turn the 0.00005" dial screw (7) clockwise to increase the diameter and counterclockwise to decrease the diameter. Locking of the 0.00005" dial screw (7) is **not** required.

NOTE: The micro adjusting dial screws only have a total range of 0.006" (0.15mm) on diameter.

No.	Part
1	Insert holder
2	Boring head body
3	Dial screw
4	Gib screws
5	Locking screw
6	Micro adjusting dial screw

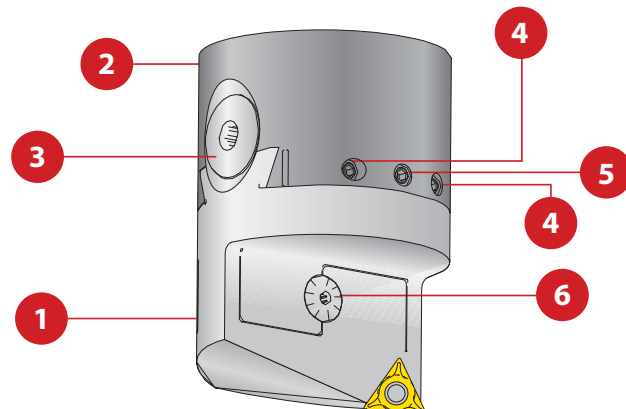


Figure B3



Set-up Instructions | Manual Boring and Facing Heads

For General Boring (see figure B4)

When no lateral movement is required, the Manual Boring and Facing head can be used for standard boring operations. Adjustments are made by placing a hex wrench in the end of the dial screw (6) and dialing off the required amount. Each graduation on the dial represents 0.001" on the bore diameter.

1. Loosen the locking screw (10).
2. Turn the dial screw (6) clockwise to increase the diameter and counterclockwise to decrease the diameter.
3. Tighten the locking screw (10).
4. To readjust for the next cut, repeat steps 1, 2, and 3.

NOTE: To machine a smaller bore diameter, turn dial screw (6) counterclockwise one full turn minimum to remove any backlash and then adjust to smaller size.

For Facing in the Reverse Direction

The Manual Boring & Facing Head is capable of reverse feed by running the spindle in reverse. To set the head for feeding in clockwise and counterclockwise direction, screw the head on the desired shank.

1. Align the "Rev. Lock" mark on the facing ring (7) with the "Rev. Lock" mark on the body (5) (see Figure B5).
2. Insert a 3/32" hex wrench through the hole in the facing ring (7) and tighten the reversing lock screw (15) (see Figure B6) in the top cap (14). This prevents the head from unscrewing during reverse (counterclockwise) operation.

NOTICE: To run the spindle in reverse, the head must be locked onto the shank. Please follow the directions above carefully.

For Facing, Grooving, and Undercutting

Set-up instructions:

1. Make sure the dial screw lock (12) is loose.
2. Insert a hex wrench in the dial screw (6) and position the tool at the start of the cut. To simplify a return to this position, set left* dog stop (2) against the stop pin (3).
3. Determine the length of cut required and with the aid of a gauge block, set the right* dog stop (4) against the stop pin (3).
4. Remove gauge block and lower the spindle to the proper depth.
5. Tighten the locking screw (12).
6. As the spindle turns, hold on to the facing ring (7). The tool will feed out at the rate of 0.003 per revolution (fine feed, 0.0015) until the right* dog stop (4) strikes the stop pin. At this point, the clutch will disengage. Although the facing ring (7) will continue to revolve, the tool will not advance.
7. For fine adjustments: after setting for facing mode with gauge block, the fine adjusting screws (13) may be utilized to aid in the adjustment of the dog stops (2) and (4).
8. To return the tool to the starting position, place a hex wrench in the dial screw (6) and turn counterclockwise until left* dog stop (2) contacts the stop pin (3) or (see note below) while holding onto the facing ring (7), reverse the spindle and the tool will go back to the starting position.

NOTICE: While machining either right or left hand, the bar holder (1) should never extend past the body (5) on the dial screw face side. This would result in tool damage due to the boring head rubbing inside of the bored hole.

* Instructions are based on right hand cutting. If the application requires left hand cutting, reverse the dog stop instructions listed above.

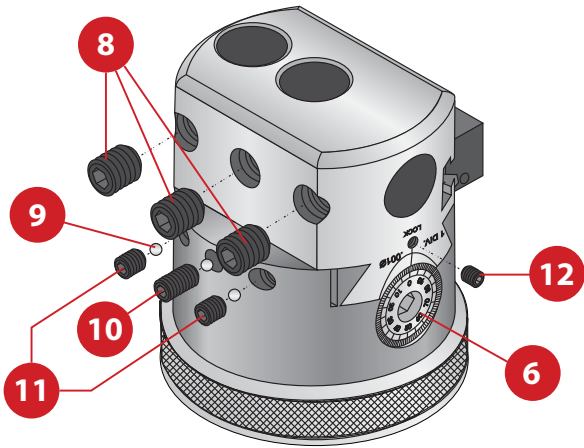


Figure B4

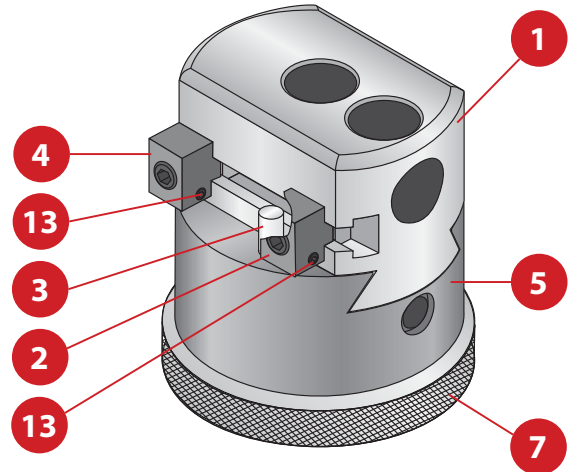


Figure B5

No.	Part	No.	Part
1	Bar holder	9	Steel balls
2	Left dog stop	10	Locking screw
3	Stop pin	11	Gib screws
4	Right dog stop	12	Dial screw lock
5	Body	13	Fine adjusting screws
6	Dial screw	14	Top cap
7	Facing ring	15	Reversing lock screw
8	Bar holder set screws		

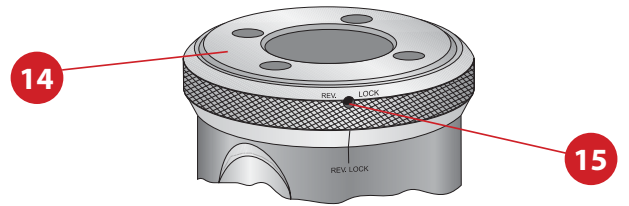


Figure B6

Set-up Instructions | CNC Boring and Facing Heads

For CNC Operations - Horizontal or Vertical

To set the head for CNC tool change operations, first refer to the "For Facing, Grooving, and Undercutting" and "For Facing in the Reverse Direction" instructions on page B20: 84 and set the gib, stop dogs, and thread lock as described.

1. Install the head in the machine spindle and ensure the spindle is in its "home" or "tool change" position. Take note of the position of the anti-rotation device on your machine in relation to the key slot in the taper shank. Then remove the head from the machine.
2. Using the two #10-32 cap screws supplied, attach the plunger housing (16) to the facing ring (7). Note that the lock ring (18) should be loose and turn freely.
3. Align the 1/8" dowel pin in the plunger (17) with the slot in the lock ring (18).
4. Attach the stop arm (19) to the plunger (17) using the #10-32 button head screw provided. At this time, the facing ring (7) should turn with slight resistance.
5. Rotate the facing ring (7) so that the stop arm (19) is in the approximate position relative to the key slot in the taper shank.
6. Install the head in the spindle, taking care to set the stop arm (19) in its proper position relative to the anti-rotation device on the machine.
7. With the head in the machine's spindle at its "home" or "tool change" position, clamp the lock ring clamps (20) in position using the two #4-40 set screws on the periphery of the lock ring (18). The head is now ready for use.

IMPORTANT: Stop arm is required.

Calculating Dwell Time: $T = (D / 0.0015) / (RPM / 60)$

Where:

- RPM = spindle speed
- 60 = seconds
- D = distance from the dog stop to the stop pin
- 0.0015 = radial feed per revolution (inches)
- T = dwell time (seconds)

Example:

The cut is 0.500" change in diameter. The radial distance (the distance the dog stop is away from the stop pin) is 0.250". This is your D. The spindle speed is determined to be 500 RPM. Therefore, the formula is now:

$$T = (0.250 / 0.0015) / (500 / 60)$$

$$T = 20 \text{ seconds}$$

NOTICE: Damage to the Boring & Facing head's clutch and gear mechanism may result if operated above 700 RPM. Because the head is not connected to, or controlled by, the machine's CNC control, allowances must be made in the machine's program to allow the head enough time to make its cut (and return). To accomplish this, a dwell must be inserted in the program. To calculate the dwell time, use the following formula.

As a matter of practice, the dwell time will almost always be a few seconds longer than "T" to allow the head to come firmly against the stop and force the clutch to slip. This will allow the tool to come to a constant size (spring cut). This may take some test cuts to determine the necessary additional time.

Use the information above to face a bottom bore and cut an internal relief groove. Call up the head in the CNC program. **DO NOT START THE SPINDLE.** Center the head over the bore to enter. Enter the holder in Z axis so that the groove tool is properly placed to begin cutting. In the program, set the RPM to be 500 as calculated from example. **NOW START THE SPINDLE** and set a dwell time of 22 seconds. At the end of this dwell, stop the spindle and set another dwell time of 22 seconds. At the end of this dwell, stop the spindle and retract the head. You now have a faced surface with an undercut.

If the tool is free of cutting on the return stroke, the head may be increased to the maximum of 700 RPM to speed the return as long as the dwell time is reduced accordingly so as not to slip the clutch unnecessarily. Excessive dwell time has the effect of "impact hammering" the feed mechanism against the dog stop and should be avoided.

No.	Part
7	Facing ring
16	Plunger housing
17	Plunger
18	Lock ring
19	Stop arm
20	Lock ring clamps

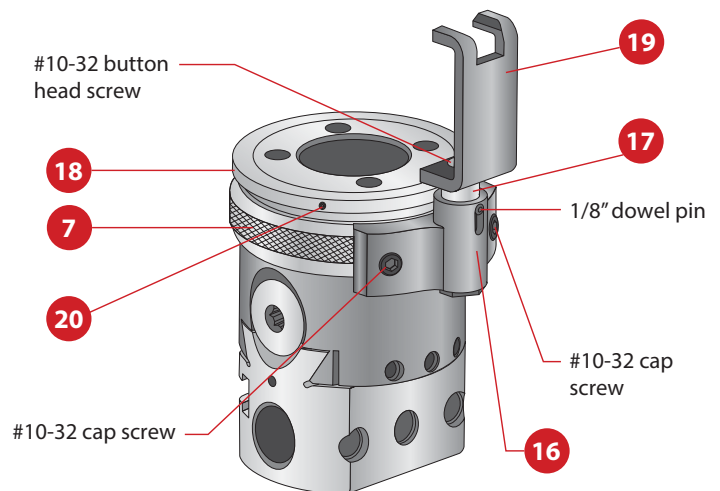


Figure B7

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A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

ALVAN® Reamers

Replaceable Head Style | Monobloc Style | Cutting Ring Style



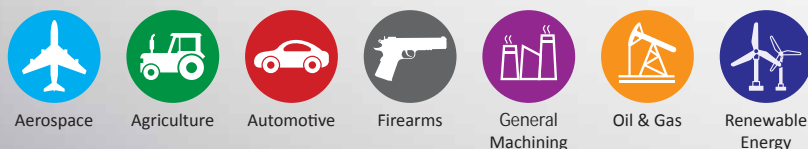
Every Option for Every Application

Allied Machine & Engineering is pleased to offer ALVAN® Reamers through an exclusive supply agreement with S.C.A.M.I.® s.n.c., an Italian manufacturer that provides high quality cutting tools.

In addition to producing close tolerances and dimensional accuracy of machined holes, these high performance reaming products provide lower costs per hole through high penetration rates, making them the ideal choice for finishing holes in a production environment. It can also prove to be an alternative to finish boring by providing more consistent hole sizes and lower cycle times.

Excellent hole tolerances	Improves hole quality and surface finish	Expandable design accommodates for wear
---------------------------	--	---

Applicable Industries



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.

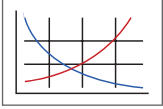
Visit www.alliedmachine.com for the most up-to-date information and procedures.

Reference Icons

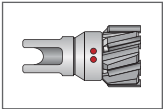
The following icons will appear throughout the catalog to help you navigate between products.



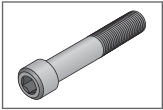
Setup / Assembly Information
Detailed instructions and information regarding the corresponding part(s)



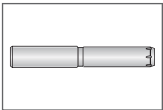
Recommended Cutting Data
Speed and feed recommendations for optimum and safe reaming



Replaceable Reamer Heads
Refers to the reamer head options that connect to the reamer mandrels



Replaceable Reamer Screws
Refers to the reamer head screw options that connect the head to the reamer mandrels



Replaceable Reamer Mandrels
Refers to the reamer mandrel options that connect with the head and screw



Cutting Rings
Refers to the available cutting ring options



Coolant Through Option
Indicates that the product is coolant through



Allied Machine & Engineering offers ALVAN® Reamers through an exclusive supply agreement with S.C.A.M.I.® s.n.c.

S.C.A.M.I. is an Italian manufacturer that has been producing high quality cutting tools for over 40 years. In addition to producing close tolerances and dimensional accuracy of machined holes, this high performance reaming product provides a lower cost-per-hole through its high penetration rates. This makes the ALVAN Reamer product line an ideal choice for finishing holes in a production environment. It can also prove to be an alternative to finish boring by providing more consistent hole sizes and lower cycle times.

Visit www.alliedmachine.com for additional information about all Allied Machine products, or contact our Application Engineering department for technical assistance.

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CASE STUDY

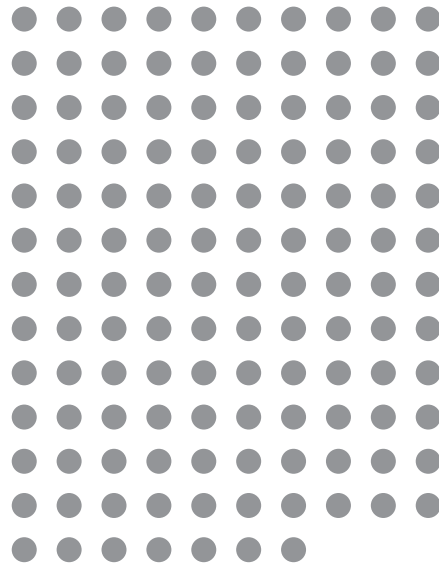


The PROOF is in the
NUMBERS

Tool Life: Competitor Boring
(number of parts = 75)



Tool Life: ALVAN® Monobloc Style Reamer
(number of parts = 3,176)



Project Profile: Grey Cast Iron Hydraulic Transmission Component
Tooling Solution: ALVAN® Reamer - Monobloc Style

The Problem:

Previously, the customer was using a competitor boring tool running at the following parameters:

- 3802 RPM
- 500 SFM
- 0.003 IPR
- 11.41 IPM

With 2 passes, the tool made a 0.5023" diameter hole to a 1.20" depth.

- Cycle time = 12.6 seconds
- Tool life = 75 parts

Seeking to streamline the production process, the customer needed to increase tool life and lower the cost of production.

The Solution:

Allied Machine recommended the ALVAN® monobloc style reamer.

- **Reamer** = 92440 series carbide, uncoated, V lead

The tool ran at the following parameters:

- 2200 RPM
- 289 SFM
- 0.019 IPR
- 41.80 IPM

The tool achieved the desired diameter and depth, and the results achieved the customer's goals.

- Cycle time = 1.7 seconds
- Tool life = 3,176 parts

The Advantages:

The customer was able to lower the cost of production and increase the tool life.

- Reduced cycle time *from 12.6 seconds to 1.7 seconds*
- Increased tool life *from 75 parts to an incredible 3,176 parts*
- Total cost savings = **\$2,407 (or 52%)**

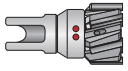


Overall **SAVINGS** of

52%



Reconditioning Service

All ALVAN Reamers can be reconditioned to help reduce your overall tooling costs. This service is provided through Allied Machine & Engineering by utilizing the expertise of S.C.A.M.I. We will process the tools with a 25-35 work day lead time, depending on the style, the date we receive the tools, and the purchase order.

Reamer Style	Lead Time (work days)	Part No.	Reconditioned Part No.
 Replaceable Head	25	I7405-SVG-10000	RI7405SVG10000
 Monobloc	35	AL3620I04853	AL3620I04853RP1
 Cutting Ring	35	AL2TIAI05820	AL2TIAI05820RP1



Parts to be Reconditioned
(packaged safely)



Purchase Order



Allied Machine & Engineering
Attn: Regrind Department
120 Deeds Drive
Dover, OH 44622
United States

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

Reaming Overview

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

REAMER STYLES



Replaceable Head
Pages C: 10 - 19

- Diameter range: 11.80mm - 60.60mm
- Heads are available as fixed or expanding for improved productivity
- Straight or left hand helical flutes provide solutions for both through and blind holes
- Cylindrical or modular shanks improve concentricity



Monobloc
Pages C: 20 - 29

- Diameter range: 5.80mm - 32.60mm
- Available with central or radial through coolant
- Can be used for through or blind holes
- Cylindrical shanks improve concentricity
- Expandable to accommodate for wear



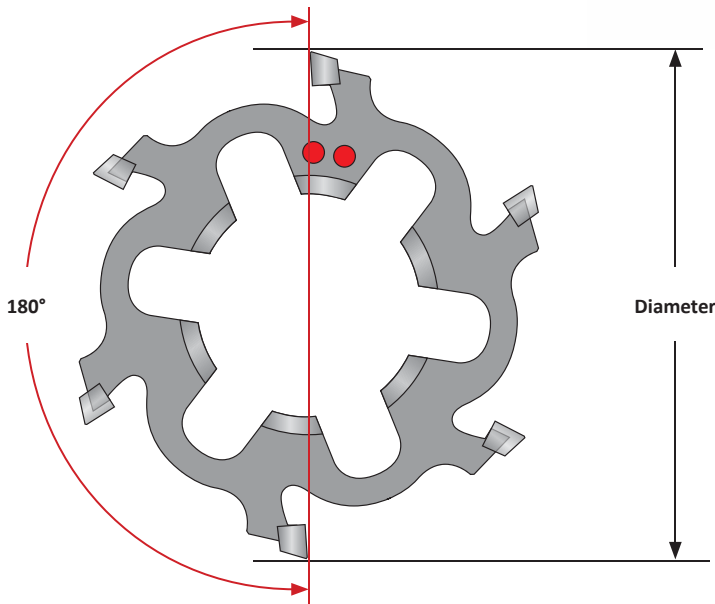
Cutting Ring
Pages C: 30 - 53

- Diameter range: 17.60mm - 200.60mm
- The cutting edges are positioned asymmetrically to assure the best roundness of the hole
- Holes with tight tolerances can be accommodated, and the expansion ensures a perfect holding of the reaming diameter

General Reaming Notes

- If the depth is over 9xD, use a short length reamer to pilot the hole. Then finish with the longer length ⚠.
- For blind hole applications, always use central coolant. If in doubt, contact Allied's Application Engineering department.
- More stock allowance can be taken in softer materials. Less stock allowance should be taken in harder materials.
- A common practice to rapid out of the cut on through holes and to breakout only 2mm past the reaming depth.

IMPORTANT: Always use molykote (anti-seize applicant) on the conical seat and the threads on the central screw for assembly.



NOTE: The position of the dimples indicates which 2 cutting teeth are 180° opposed. Diameter measurements should be taken from these 2 cutting teeth.

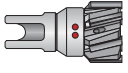
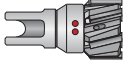
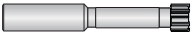

⚠. WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a shorter reamer to establish the initial hole diameter that is a minimum of 2 diameters deep.
- Do not rotate reamers more than 50 RPM unless it is engaged with the workpiece or fixture.

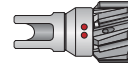
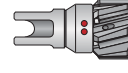


Factory technical assistance is available for your specific applications through our Application Engineering Team.

Quick Selection Guide

Breakdown by Diameter

Reamer Style	0.2283" 5.799mm	0.4656" 11.800mm	0.6929" 17.600mm	1.1024" 28.000mm	1.2638" 32.100mm	1.7717" 45.000mm	2.3858" 60.600mm	3.7402" 95.000mm	5.1181" 130.000mm	6.4961" 165.000mm	7.8975" 200.600mm
 Replaceable Head (Fixed)		[Red bar]									
 Replaceable Head (Expandable)		[Red bar]									
 Monobloc	[Red bar]										
 Cutting Ring		[Red bar]									

Breakdown by Features

Reamer Style	Capable Tolerance	Fastest Set-up	Replaceable Cutting Head	Expandable to Adjust for Wear	Recondition Available	Cylindrical Shanks	Modular Shanks	Through Coolant Options
 Replaceable Head (fixed)	H7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 Replaceable Head (expandable)	H6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 Monobloc	H6			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
 Cutting Ring	H6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

For more details on how to select a reamer, see the following pages.

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

How the Reamer Works

How the Reamer Works

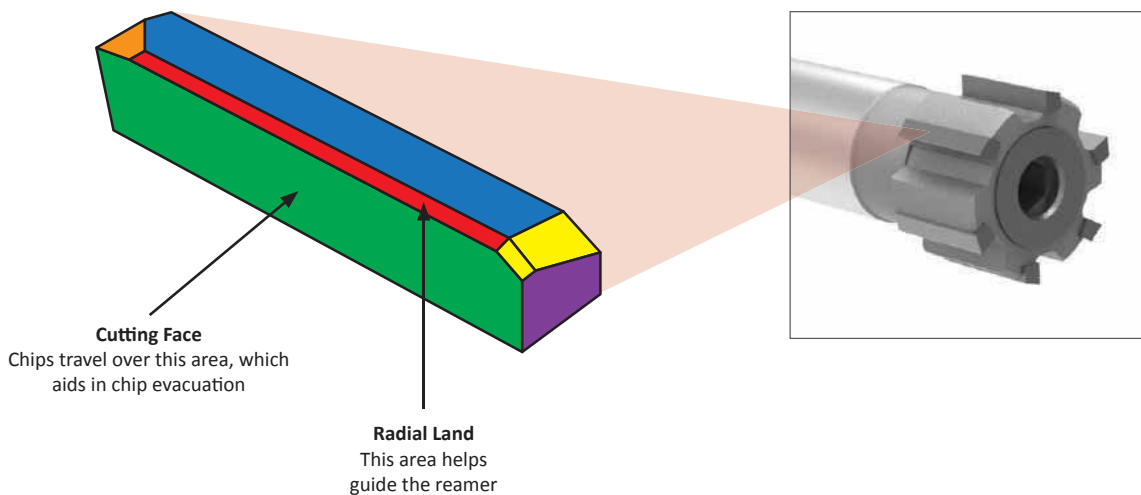
- The cut is made in the lead-in zone (3), and the chip is made on the cutting face (1). The chip is removed by coolant.
- The lead-in (3) is defined depending on the application, the workpiece material, and the stock allowance.
- The radial land (2) is important for holding a good alignment, improving the surface roughness, and giving an effect similar to burnishing. The dimension of the radial land depends on the diameter.
- The radial land (2) is manufactured to be tapered on the rear.
- Fixed reamers are manufactured at the exact tapered value. Expandable reamers must be adjusted to the exact diameter. Both are already supplied at the nominal diameter by the manufacturer.
- The undercut of the cutting edge (5) avoids retract marks on the piece when the reamer is retracted from the cut.
- The front of the cutting edge (6) does not cut; if this feature is needed, a frontal lead must be supplied.

When to Apply a Reamer

- When the requested tolerance on diameter is IT8 or less
- When the requested finish is 63 µin (1.6 µmm) Ra or greater
- When the critical geometry characteristics of the hole are the roundness and straightness
- When parts are being mass produced
- When the parts are large and expensive

Elements of the Cutting Tooth

- (1) Cutting Face
- (2) Radial Land
- (3) Lead-in / Primary Face / Secondary Face
- (4) Rear Face
- (5) Undercut of Cutting Edge
- (6) Front of Cutting Edge



Reamer Recommendation Guide

ISO	Material	Hardness (BHN)	Through Hole				Blind Hole			
			Uninterrupted		Interrupted		Uninterrupted		Interrupted	
			Lead	Substrate & Coating	Lead	Substrate & Coating	Lead	Substrate & Coating	Lead	Substrate & Coating
P	Free Machining Steel 1118, 1215, 12L14, etc.	Below 150	N or E	Cermet Uncoated	E	Cermet Uncoated	J	Cermet Uncoated	V	Cermet Uncoated
		150 Above								
	Low Carbon Steel 1010, 1020, 1522, 1144, etc.	Below 250	N or E	Cermet Uncoated	E	Cermet Uncoated	J	Cermet Uncoated	V	Cermet Uncoated
	Medium Carbon Steel 1030, 1040, 1050, 1140, 1151, etc.	Below 300	N or E	Cermet Uncoated	E	Cermet Uncoated	X	Cermet Uncoated	V	Cermet Uncoated
	Alloy Steel 4140, 5140, 8640, etc.	Below 350	G or M	Cermet Uncoated	M	Cermet Uncoated	X	Cermet Uncoated	G	Cermet Uncoated
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	G or M*	Carbide Alcrona	M	Carbide Alcrona	X*	Carbide Alcrona	G*	Carbide Alcrona
	Structural Steel	-	E	Cermet	M	Carbide TiAlN	X	Cermet	G	Carbide TiAlN
Tool Steel	-	M*	Carbide TiAlN	M*	Carbide TiAlN	X*	Carbide TiAlN	G*	Carbide TiAlN	
S	High Temp Alloy	-	G*	Carbide TiAlN	G*	Carbide TiAlN	X*	Carbide TiAlN	G*	Carbide TiAlN
	Titanium Alloys	-	T	Carbide TiAlN	T	Carbide TiAlN	T	Carbide TiAlN	T	Carbide TiAlN
M	Austenitic Stainless Steel 304, 316, etc.	-	E	Carbide Alcrona	E	Carbide Alcrona	X	Carbide Alcrona	G*	Carbide Alcrona
	Ferritic Martensitic Stainless Steel 416, 420, 17-4PH, 15-5PH, etc.	-	N or E	Cermet or Carbide Alcrona	E	Cermet or Carbide Alcrona	X	Cermet or Carbide Alcrona	G	Cermet or Carbide Alcrona
K	Ductile Cast Iron Spheroidal - GS500	Below 130	V	Carbide Alcrona	V	Carbide Alcrona	J	Carbide Alcrona	V	Carbide Alcrona
		130 Above		Cermet Alcrona		Cermet Alcrona		Cermet Alcrona		
	Grey Cast Iron GC15 - GC20 - GC25 - GC35	-	V	Carbide TiAlN	V	Carbide TiAlN	J	Carbide TiAlN	V	Carbide TiAlN
N	Bronze Brass Copper	Below 300	E	Carbide Uncoated	E	Carbide Uncoated	X	Carbide Uncoated	G	Carbide Uncoated
	Aluminum	Below 7% Si	V	Carbide Uncoated	V	Carbide Uncoated	V	Carbide Uncoated	G	Carbide Uncoated
Above 7% Si		G	PCD Uncoated	G	PCD Uncoated	G	PCD Uncoated	PCD Uncoated		

*Contact our Application Engineering department for special geometries to improve tool life.

Lead-in Angle Information

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



Straight Flute

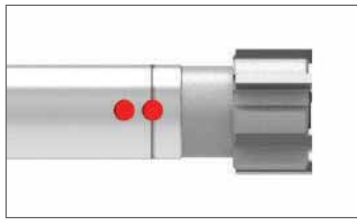
Lead-in	Angles	Chip Evacuation	Description
A	45° 8°		Lead-in can be used to improve finish.
F or Y	90°		Can be used for stock removal at the bottom of the hole. Reduce the feed by 40% of the values on the recommended cutting data pages. F lead = no chipbreaker Y lead = chipbreaker
G or X	45°		Standard and suitable for most materials. G lead = no chipbreaker X lead = chipbreaker
L or W	75°		May provide improved straightness. Reduce the feed by 40% of the values on the recommended cutting data pages. L lead = no chipbreaker W lead = chipbreaker
N	20°		Ideal for through holes. It is possible to increase the feed up to 100% of the values on the recommended cutting data pages.
T	30°		Suitable for titanium based alloys.
V or J	45°		Suitable for most materials and increases tool life V lead = no chipbreaker J lead = chipbreaker

Helical Flute (Left Hand) - Through Hole Applications Only

Lead-in	Angles	Chip Evacuation	Description
E	25°		Standard and suitable for most materials. NOTE: Through hole applications only.
M	45°		May provide better penetration rates in steels over 200 BHN. NOTE: Through hole applications only.

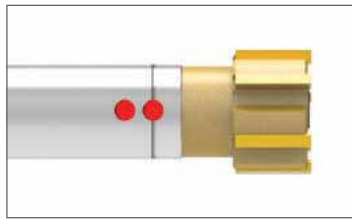
Coatings, Cutting Materials, and Dimple Indicators

Coating Information



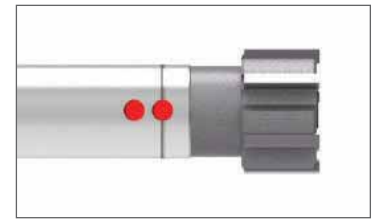
Uncoated

Ideal for non-ferrous applications



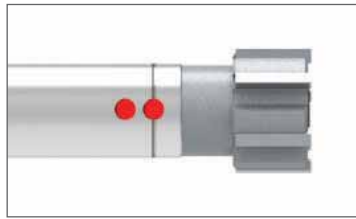
TiN (N)

Ideal for general purpose applications



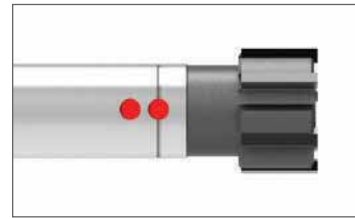
TiAlN (A)

Provides higher heat resistance to improve tool life



TiCN (C)

Provides improved surface finish









Alcrona (K)

Provides excellent wear resistance and can help increase cutting speeds

Cutting Material Information

Material	Indicator	Details
Carbide	K	A fine-grain carbide suitable for all conventional reaming applications. Recommended where rigidity is not excellent and speeds must be reduced.
Cermet	S	Cermet provides high wear resistance and is recommended for abrasive and increased speed applications. Not recommended for poor rigidity or interrupted cuts.

Dimple Indicators

Material	Indicator	Replaceable Head Style	Monobloc Style	Cutting Ring Style
Carbide	Two Dimples			
Cermet	Two Dimples with Line			

NOTE: The dimple location indicates which 2 cutting teeth are 180° opposed

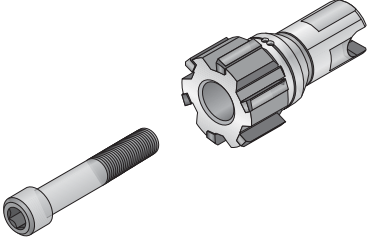
Replaceable Head Reamers

Product Overview

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

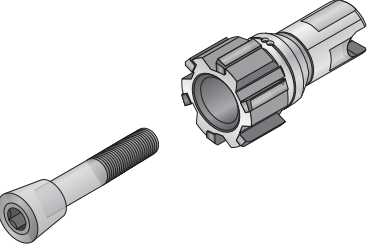
Fixed Heads

- Non-expanding diameter
- Locking screw is straight (no taper)
- Allows for on-machine replacement
- Capable of H7 tolerance on diameter
- Available in straight and left hand helical flutes
- Available for recondition



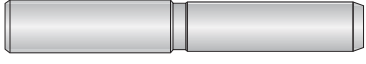
Expandable Heads

- Expandable diameter (1% of nominal diameter) to accommodate for wear
- Conical locking screw
- Requires set-up for diameter
- Capable of tight diameter tolerance ($\pm 0.0002''$ (0.005mm))
- Available in straight and left hand helical flutes
- Available for recondition



Mandrels

- Available in short, standard, and long lengths
- Reamer head design allows multiple diameters to be used within the same mandrel, *which reduces inventory requirements*
- The same mandrel can use both fixed and expandable heads
- Coolant options are offered for both through and blind hole scenarios




Uncoated



TiN Coated



TiAlN Coated



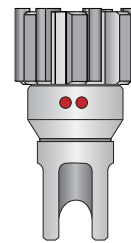
TiCN Coated



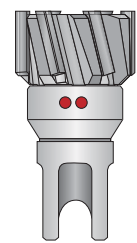
Alcrona Coated

Mandrel Shanks Available:

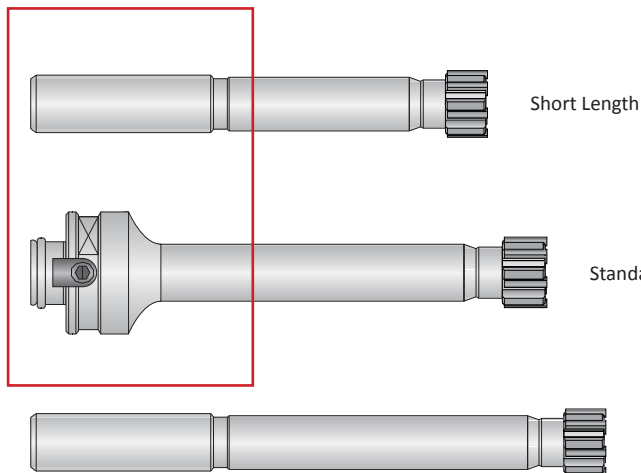
- Cylindrical
- Modular Connection



Straight Flute



Left Hand Helical Flute

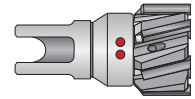


Type of Head	Coated/Uncoated	Lead Time in Work Days (based on number of pieces)		
		Up to 5	6 - 19	20+
Fixed	Coated	15	25	25
	Uncoated	10	20	20
Expandable	Coated	20	25	30
	Uncoated	15	20	25

Product Nomenclature

Replaceable Head Style Reamer Heads

I	77	00	-	K	N	G	-	18000
1	2	3		4	5	6		7

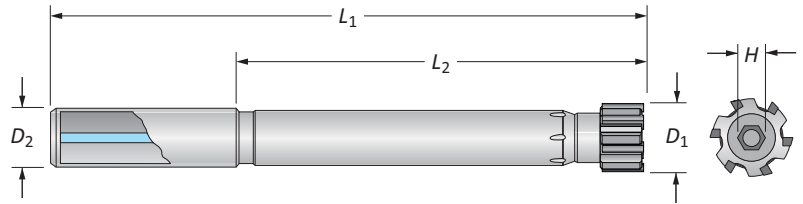


NOTE: If tool is reconditioned, put an "R" at the beginning of the item number

1. Shank Measure Blank = Metric I = Inch	2. Flute Style 74 = Straight 77 = Left hand helical	3. Head Style 00 = Fixed head 05 = Expandable head	4. Substrate K = Carbide S = Cermet	5. Coating L = Uncoated carbide V = Uncoated cermet N = TiN C = TiCN A = TiAlN K = Alcrona
6. Lead-in E, M = Left hand helical flute A, F, G, L, N, T, V = Straight flute J, W, X, Y = Straight flute with chipbreaker	7. Diameter XX.XXX = Metric X.XXXX = Inch			

Reference Key

Symbol	Attribute
D_1	Reamer head diameter
D_2	Shank diameter
L_1	Overall length
L_2	Length of cut
H	Hex key (listed with screws)




Building Your Complete Tool

You will need all three pieces to complete your replaceable head reamer assembly. The item numbers for the screws and the mandrels are listed on their respective pages. However, there is a guide on the pages where the heads are located. You must follow the guide to build the item number for the reamer head that you need.

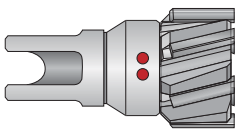
The complete mandrel item numbers are listed on their respective pages. You do not need to build the mandrel numbers.






1

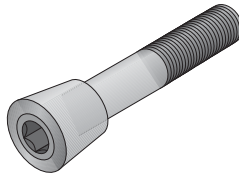
Select Your Head






2


Select Your Screw





3

Select Your Mandrel



Replaceable Heads

Fixed

Build Your Part No.

1

Series

7400 Series

7700 Series

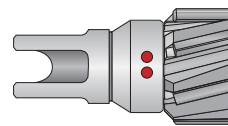
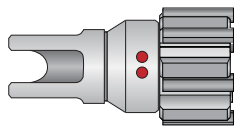
2

Flute Style

Straight Flute

Helical Flute (Left Hand)

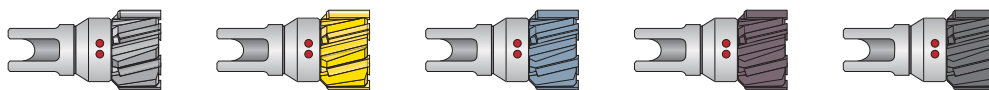
Your flute style is based on your series selection (above)



3

Carbide Grade and Coating Codes

These are the combinations of grades and coatings you can choose from



	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	KL	KN	KC	KA	KK
Cermet	SV	SN	SC	SA	SK

4

Lead-in Recommendations

	T	F	N	G	L	A	V
P			●	●		○	○
S	●			○			
M				●	○		
H			○	●			
K	○			●			○
N				●		●	○

	E	M
P	●	
S	●	○
M	●	
H	○	●
K	○	●
N	●	○

5

Diameter (H7 Tolerance)

For the diameter portion of the item number, refer to the following tables:

Imperial (in)		Metric (mm)	
D ₁ Range	Tolerance (min/max)	D ₁ Range	Tolerance (min/max)
0.4656 - 0.7086	+0 / +0.0007	11.800 - 18.000	+0 / +0.018
0.7087 - 1.1811	+0 / +0.0008	18.001 - 30.000	+0 / +0.021
1.1812 - 1.9685	+0 / +0.0010	30.001 - 50.000	+0 / +0.025
1.9686 - 2.3858	+0 / +0.0012	50.001 - 60.600	+0 / +0.030

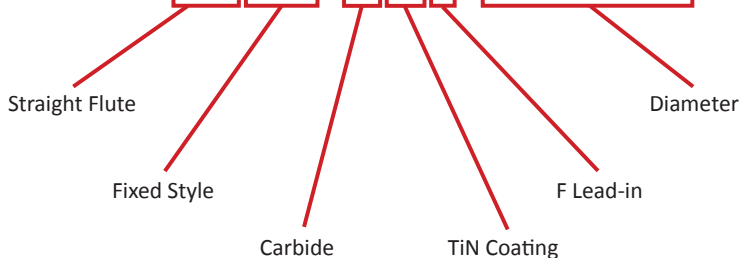
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Straight fluted reamer head
- Fixed style
- Carbide
- TiN coating
- F lead-in
- 1.9686" diameter

7400-KNF-1.9686



Key on C: 1

C: 62 - 73

C: 14 - 15

C: 16 - 18

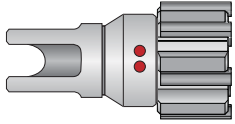
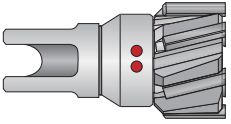
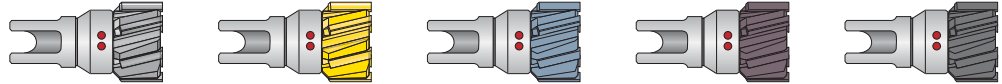
C: 54 - 61

C: 74

Replaceable Heads

Expandable

Build Your Part No.

1 Series	7405 Series	7705 Series																																																																													
2 Flute Style Your flute style is based on your series selection (above)	Straight Flute 	Helical Flute (Left Hand) 																																																																													
3 Carbide Grade and Coating Codes These are the combinations of grades and coatings you can choose from	 <table border="1"> <thead> <tr> <th></th> <th>Uncoated</th> <th>TiN</th> <th>TiCN</th> <th>TiAlN</th> <th>Alcrona</th> </tr> </thead> <tbody> <tr> <th>Carbide</th> <td>KL</td> <td>KN</td> <td>KC</td> <td>KA</td> <td>KK</td> </tr> <tr> <th>Cermet</th> <td>SV</td> <td>SN</td> <td>SC</td> <td>SA</td> <td>SK</td> </tr> </tbody> </table>			Uncoated	TiN	TiCN	TiAlN	Alcrona	Carbide	KL	KN	KC	KA	KK	Cermet	SV	SN	SC	SA	SK																																																											
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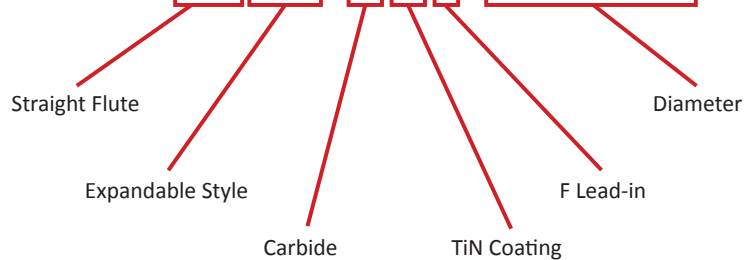
● Best ◐ Better ○ Good

Ordering Example:

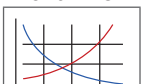
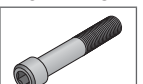
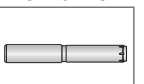
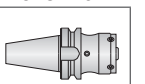

The customer needs the following:

- Straight fluted reamer head
- Expandable style
- Carbide
- TiN coating
- F lead-in
- 1.9686" diameter

7405-KNF-1.9686

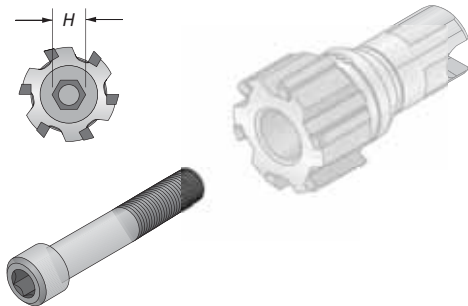


Key on C: 1

C: 62 - 73 	C: 14 - 15 	C: 16 - 18 	C: 54 - 61 	C: 74 
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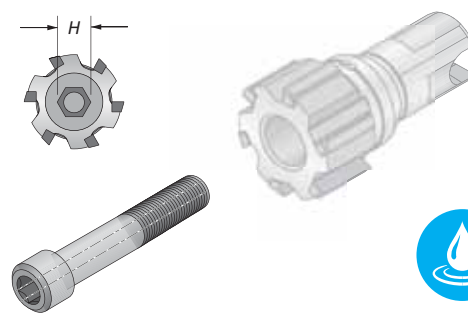
Replaceable Head Screws

Fixed



7000 Series

D_1 Range (inch)	D_1 Range (mm)	Part No.	H (mm)
0.4646 - 0.5751	11.800 - 14.609	7000-VI-001	2.5
0.5752 - 0.6932	14.610 - 17.609	7000-VI-002	3
0.6933 - 0.8507	17.610 - 21.609	7000-VI-003	4
0.8508 - 1.0475	21.610 - 26.609	7000-VI-004	5
1.0476 - 1.2838	26.610 - 32.609	7000-VI-005	6
1.2839 - 1.5987	32.610 - 40.609	7000-VI-006	6
1.5988 - 1.9924	40.610 - 50.609	7000-VI-007	8
1.9925 - 2.3858	50.610 - 60.600	7000-VI-008	10



7001 Series

D_1 Range (inch)	D_1 Range (mm)	Part No.	H (mm)
0.4646 - 0.5751	11.800 - 14.609	7001-VI-001	2.5
0.5752 - 0.6932	14.610 - 17.609	7001-VI-002	3
0.6933 - 0.8507	17.610 - 21.609	7001-VI-003	4
0.8508 - 1.0475	21.610 - 26.609	7001-VI-004	5
1.0476 - 1.2838	26.610 - 32.609	7001-VI-005	6
1.2839 - 1.5987	32.610 - 40.609	7001-VI-006	6
1.5988 - 1.9924	40.610 - 50.609	7001-VI-007	8
1.9925 - 2.3858	50.610 - 60.600	7001-VI-008	10

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

C: 62 - 73

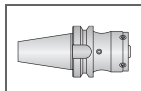
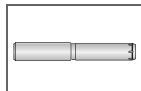
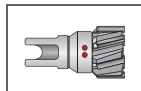
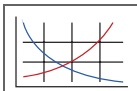
C: 12 - 13

C: 16 - 18

C: 54 - 61

C: 74

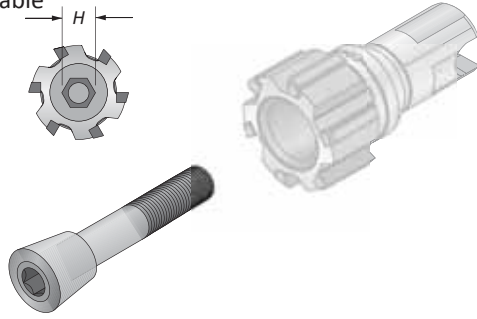
Key on C: 1



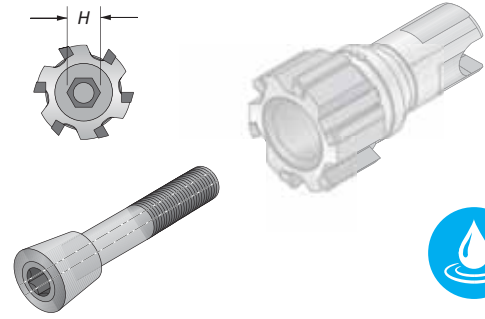


Replaceable Head Screws

Expandable



7000 Series



7001 Series

D ₁ Range (inch)	D ₁ Range (mm)	Part No.	H (mm)
0.4646 - 0.4964	11.800 - 12.609	7000-VI-012	3.5
0.4965 - 0.5357	12.610 - 13.609	7000-VI-013	3.5
0.5358 - 0.5751	13.610 - 14.609	7000-VI-014	3.5
0.5752 - 0.6145	14.610 - 15.609	7000-VI-015	4
0.6146 - 0.6538	15.610 - 16.609	7000-VI-016	4
0.6539 - 0.6932	16.610 - 17.609	7000-VI-017	4
0.6933 - 0.7326	17.610 - 18.609	7000-VI-018	5
0.7327 - 0.7719	18.610 - 19.609	7000-VI-019	5
0.7720 - 0.8113	19.610 - 20.609	7000-VI-020	5
0.8114 - 0.8507	20.610 - 21.609	7000-VI-021	5
0.8508 - 0.8901	21.610 - 22.609	7000-VI-022	6
0.8902 - 0.9294	22.610 - 23.609	7000-VI-023	6
0.9295 - 0.9688	23.610 - 24.609	7000-VI-024	6
0.9689 - 1.0082	24.610 - 25.609	7000-VI-025	6
1.0083 - 1.0475	25.610 - 26.609	7000-VI-026	6
1.0476 - 1.0869	26.610 - 27.609	7000-VI-027	8
1.0870 - 1.1263	27.610 - 28.609	7000-VI-028	8
1.1264 - 1.1656	28.610 - 29.609	7000-VI-029	8
1.1657 - 1.2050	29.610 - 30.609	7000-VI-030	8
1.2051 - 1.2444	30.610 - 31.609	7000-VI-031	8
1.2445 - 1.2838	31.610 - 32.609	7000-VI-032	8
1.2839 - 1.3231	32.610 - 33.609	7000-VI-033	8
1.3232 - 1.3625	33.610 - 34.609	7000-VI-034	10
1.3626 - 1.4019	34.610 - 35.609	7000-VI-035	10
1.4020 - 1.4412	35.610 - 36.609	7000-VI-036	10
1.4413 - 1.4806	36.610 - 37.609	7000-VI-037	10
1.4807 - 1.5200	37.610 - 38.609	7000-VI-038	10
1.5201 - 1.5593	38.610 - 39.609	7000-VI-039	10
1.5594 - 1.5987	39.610 - 40.609	7000-VI-040	10
1.5988 - 1.6381	40.610 - 41.609	7000-VI-041	12
1.6382 - 1.6775	41.610 - 42.609	7000-VI-042	12
1.6776 - 1.7168	42.610 - 43.609	7000-VI-043	12
1.7169 - 1.7562	43.610 - 44.609	7000-VI-044	12
1.7563 - 1.7956	44.610 - 45.609	7000-VI-045	12
1.7957 - 1.8349	45.610 - 46.609	7000-VI-046	12
1.8350 - 1.8743	46.610 - 47.609	7000-VI-047	12
1.8744 - 1.9137	47.610 - 48.609	7000-VI-048	12
1.9138 - 1.9530	48.610 - 49.609	7000-VI-049	12
1.9531 - 1.9924	49.610 - 50.609	7000-VI-050	12
1.9925 - 2.0318	50.610 - 51.609	7000-VI-051	12
2.0319 - 2.0712	51.610 - 52.609	7000-VI-052	12
2.0713 - 2.1105	52.610 - 53.609	7000-VI-053	12
2.1106 - 2.1499	53.610 - 54.609	7000-VI-054	12
2.1500 - 2.1893	54.610 - 55.609	7000-VI-055	12
2.1894 - 2.2286	55.610 - 56.609	7000-VI-056	12
2.2287 - 2.2680	56.610 - 57.609	7000-VI-057	12
2.2681 - 2.3074	57.610 - 58.609	7000-VI-058	12
2.3075 - 2.3468	58.610 - 59.609	7000-VI-059	12
2.3469 - 2.3858	59.610 - 60.609	7000-VI-060	12

D ₁ Range (inch)	D ₁ Range (mm)	Part No.	H (mm)
0.4646 - 0.4964	11.800 - 12.609	7001-VI-012	3.5
0.4965 - 0.5357	12.610 - 13.609	7001-VI-013	3.5
0.5358 - 0.5751	13.610 - 14.609	7001-VI-014	3.5
0.5752 - 0.6145	14.610 - 15.609	7001-VI-015	4
0.6146 - 0.6538	15.610 - 16.609	7001-VI-016	4
0.6539 - 0.6932	16.610 - 17.609	7001-VI-017	4
0.6933 - 0.7326	17.610 - 18.609	7001-VI-018	5
0.7327 - 0.7719	18.610 - 19.609	7001-VI-019	5
0.7720 - 0.8113	19.610 - 20.609	7001-VI-020	5
0.8114 - 0.8507	20.610 - 21.609	7001-VI-021	5
0.8508 - 0.8901	21.610 - 22.609	7001-VI-022	6
0.8902 - 0.9294	22.610 - 23.609	7001-VI-023	6
0.9295 - 0.9688	23.610 - 24.609	7001-VI-024	6
0.9689 - 1.0082	24.610 - 25.609	7001-VI-025	6
1.0083 - 1.0475	25.610 - 26.609	7001-VI-026	6
1.0476 - 1.0869	26.610 - 27.609	7001-VI-027	8
1.0870 - 1.1263	27.610 - 28.609	7001-VI-028	8
1.1264 - 1.1656	28.610 - 29.609	7001-VI-029	8
1.1657 - 1.2050	29.610 - 30.609	7001-VI-030	8
1.2051 - 1.2444	30.610 - 31.609	7001-VI-031	8
1.2445 - 1.2838	31.610 - 32.609	7001-VI-032	8
1.2839 - 1.3231	32.610 - 33.609	7001-VI-033	8
1.3232 - 1.3625	33.610 - 34.609	7001-VI-034	10
1.3626 - 1.4019	34.610 - 35.609	7001-VI-035	10
1.4020 - 1.4412	35.610 - 36.609	7001-VI-036	10
1.4413 - 1.4806	36.610 - 37.609	7001-VI-037	10
1.4807 - 1.5200	37.610 - 38.609	7001-VI-038	10
1.5201 - 1.5593	38.610 - 39.609	7001-VI-039	10
1.5594 - 1.5987	39.610 - 40.609	7001-VI-040	10
1.5988 - 1.6381	40.610 - 41.609	7001-VI-041	12
1.6382 - 1.6775	41.610 - 42.609	7001-VI-042	12
1.6776 - 1.7168	42.610 - 43.609	7001-VI-043	12
1.7169 - 1.7562	43.610 - 44.609	7001-VI-044	12
1.7563 - 1.7956	44.610 - 45.609	7001-VI-045	12
1.7957 - 1.8349	45.610 - 46.609	7001-VI-046	12
1.8350 - 1.8743	46.610 - 47.609	7001-VI-047	12
1.8744 - 1.9137	47.610 - 48.609	7001-VI-048	12
1.9138 - 1.9530	48.610 - 49.609	7001-VI-049	12
1.9531 - 1.9924	49.610 - 50.609	7001-VI-050	12
1.9925 - 2.0318	50.610 - 51.609	7001-VI-051	12
2.0319 - 2.0712	51.610 - 52.609	7001-VI-052	12
2.0713 - 2.1105	52.610 - 53.609	7001-VI-053	12
2.1106 - 2.1499	53.610 - 54.609	7001-VI-054	12
2.1500 - 2.1893	54.610 - 55.609	7001-VI-055	12
2.1894 - 2.2286	55.610 - 56.609	7001-VI-056	12
2.2287 - 2.2680	56.610 - 57.609	7001-VI-057	12
2.2681 - 2.3074	57.610 - 58.609	7001-VI-058	12
2.3075 - 2.3468	58.610 - 59.609	7001-VI-059	12
2.3469 - 2.3858	59.610 - 60.609	7001-VI-060	12

Key on C: 1

C: 62 - 73

C: 12 - 13

C: 16 - 18

C: 54 - 61

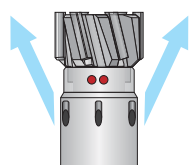
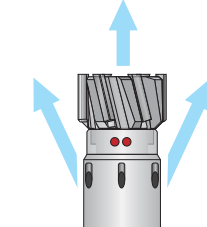
C: 74

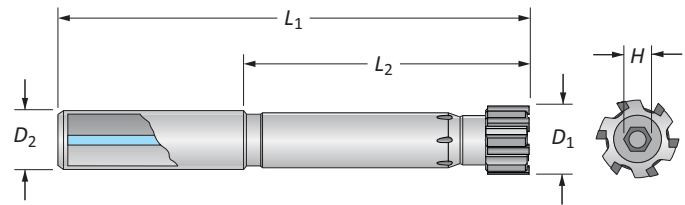
RH


 REAMING | ALVAN® Reaming Systems by S.C.A.M.I.®

Replaceable Head Mandrels

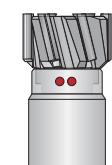
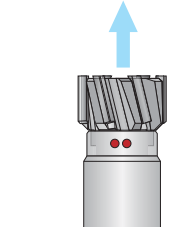
Short Length | Cylindrical Shank | Diameter Range: 0.4646" - 2.3858" (11.800mm - 60.600mm)

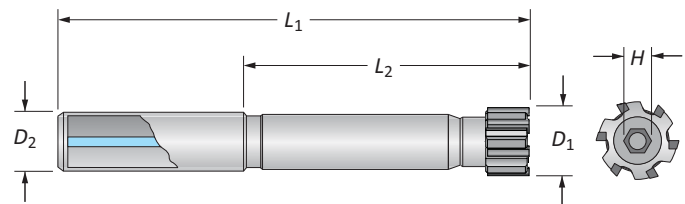
7000 Series	
Radial Coolant Only	Central and Radial Coolant
	
Series 7000 Locking Screw	Series 7001 Locking Screw



Technical drawing of a replaceable head mandrel. The drawing shows a side view and a cross-sectional view. The side view indicates the total length L_1 and the length of the cylindrical shank L_2 . The diameter of the shank is D_2 and the diameter of the head is D_1 . The height of the head is H . The cross-sectional view shows the internal structure of the head.

D_1 Range		Mandrel			No. of Teeth	Part No.
Imperial (in)	Metric (mm)	L_2	L_1	D_2		
0.4646 - 0.5751	11.800 - 14.609	50	95	12	6	7000-MC-001
0.5752 - 0.6932	14.610 - 17.609	65	113	16	6	7000-MC-002
0.6933 - 0.8507	17.610 - 21.609	75	125	20	6	7000-MC-003
0.8508 - 1.0475	21.610 - 26.609	85	135	20	6	7000-MC-004
1.0476 - 1.2838	26.610 - 32.609	105	161	25	6	7000-MC-005
1.2839 - 1.5987	32.610 - 40.609	120	180	32	6	7000-MC-006
1.5988 - 1.8170	40.610 - 45.609	120	180	32	6	7000-MC-007
1.8171 - 1.9924	45.610 - 50.600	120	180	32	8	7000-MC-075
1.9925 - 2.3858	50.610 - 60.600	120	190	40	8	7000-MC-008

7001 Series	
No Coolant	Central Coolant Only
	
Series 7000 Locking Screw	Series 7001 Locking Screw



Technical drawing of a replaceable head mandrel. The drawing shows a side view and a cross-sectional view. The side view indicates the total length L_1 and the length of the cylindrical shank L_2 . The diameter of the shank is D_2 and the diameter of the head is D_1 . The height of the head is H . The cross-sectional view shows the internal structure of the head.

D_1 Range		Mandrel			No. of Teeth	Part No.
Imperial (in)	Metric (mm)	L_2	L_1	D_2		
0.4646 - 0.5751	11.800 - 14.609	50	95	12	6	7001-MC-001
0.5752 - 0.6932	14.610 - 17.609	65	113	16	6	7001-MC-002
0.6933 - 0.8507	17.610 - 21.609	75	125	20	6	7001-MC-003
0.8508 - 1.0475	21.610 - 26.609	85	135	20	6	7001-MC-004
1.0476 - 1.2838	26.610 - 32.609	105	161	25	6	7001-MC-005
1.2839 - 1.5987	32.610 - 40.609	120	180	32	6	7001-MC-006
1.5988 - 1.8170	40.610 - 45.609	120	180	32	6	7001-MC-007
1.8171 - 1.9924	45.610 - 50.600	120	180	32	8	7001-MC-075
1.9925 - 2.3858	50.610 - 60.600	120	190	40	8	7001-MC-008

C: 62 - 73

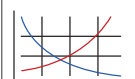
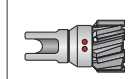

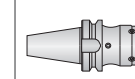
C: 12 - 13

C: 14 - 15

C: 54 - 61

C: 74

Key on C: 1

Application recommendation:

- Through hole application = radial coolant
- Blind hole application = central coolant

C: 16

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A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

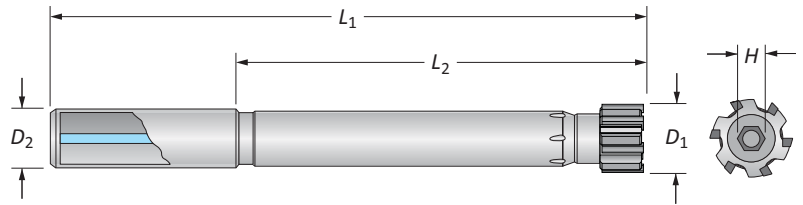
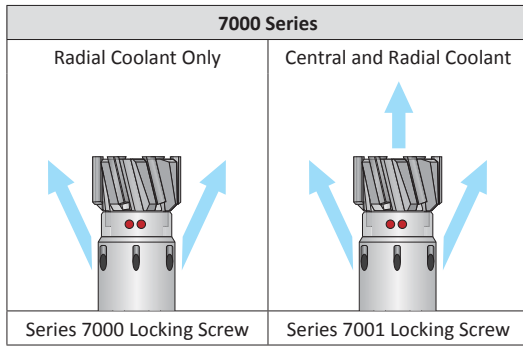
THREADING

X

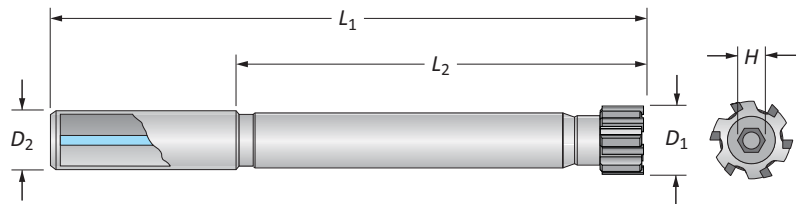
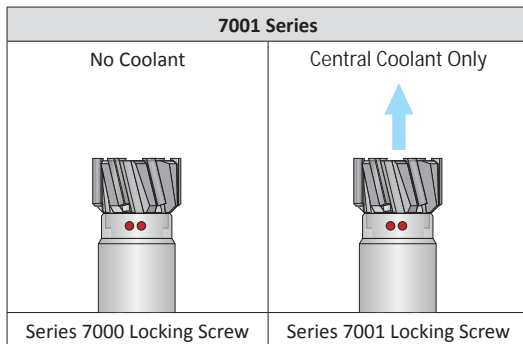
SPECIALS

Replaceable Head Mandrels

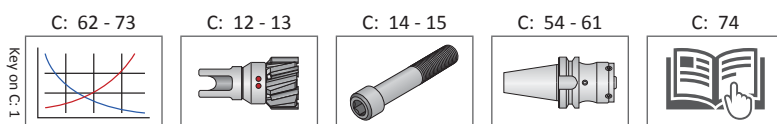
Long Length | Cylindrical Shank | Diameter Range: 0.4646" - 2.3858" (11.800mm - 60.600mm)



D_1 Range		Mandrel			No. of Teeth	Part No.
Imperial (in)	Metric (mm)	L_2	L_1	D_2		
0.4646 - 0.5751	11.800 - 14.609	95	140	12	6	7000-ML-001
0.5752 - 0.6932	14.610 - 17.609	105	153	16	6	7000-ML-002
0.6933 - 0.8507	17.610 - 21.609	125	175	20	6	7000-ML-003
0.8508 - 1.0475	21.610 - 26.609	145	195	20	6	7000-ML-004
1.0476 - 1.2838	26.610 - 32.609	165	221	25	6	7000-ML-005
1.2839 - 1.5987	32.610 - 40.609	185	245	32	6	7000-ML-006
1.5988 - 1.8170	40.610 - 45.609	185	245	32	6	7000-ML-007
1.8171 - 1.9924	45.610 - 50.600	185	245	32	8	7000-ML-075
1.9925 - 2.3858	50.610 - 60.600	185	255	40	8	7000-ML-008



D_1 Range		Mandrel			No. of Teeth	Part No.
Imperial (in)	Metric (mm)	L_2	L_1	D_2		
0.4646 - 0.5751	11.800 - 14.609	95	140	12	6	7001-ML-001
0.5752 - 0.6932	14.610 - 17.609	105	153	16	6	7001-ML-002
0.6933 - 0.8507	17.610 - 21.609	125	175	20	6	7001-ML-003
0.8508 - 1.0475	21.610 - 26.609	145	195	20	6	7001-ML-004
1.0476 - 1.2838	26.610 - 32.609	165	221	25	6	7001-ML-005
1.2839 - 1.5987	32.610 - 40.609	185	245	32	6	7001-ML-006
1.5988 - 1.8170	40.610 - 45.609	185	245	32	6	7001-ML-007
1.8171 - 1.9924	45.610 - 50.600	185	245	32	8	7001-ML-075
1.9925 - 2.3858	50.610 - 60.600	185	255	40	8	7001-ML-008



Application recommendation:

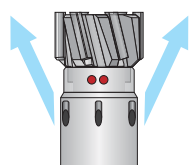
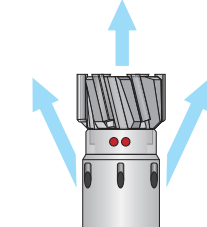
- Through hole application = radial coolant
- Blind hole application = central coolant

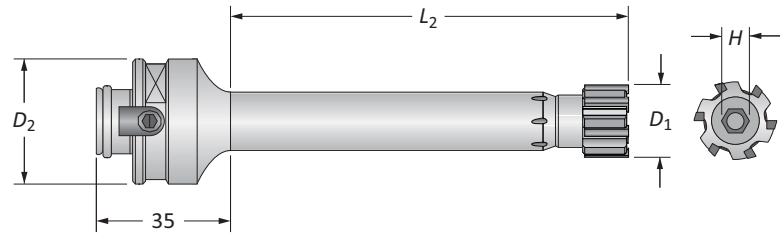
RH


 REAMING | ALVAN® Reaming Systems by S.C.A.M.I.®

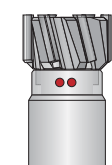
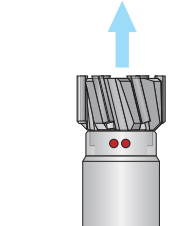
Replaceable Head Mandrels

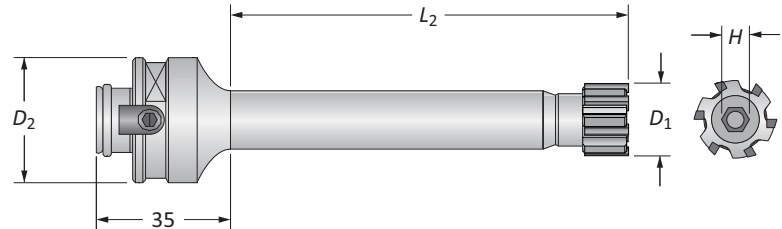
Standard Length | Modular Shank | Diameter Range: 0.4646" - 2.3858" (11.800mm - 60.600mm)

7000 Series	
Radial Coolant Only	Central and Radial Coolant
	
Series 7000 Locking Screw	Series 7001 Locking Screw



D_1 Range		Mandrel		No. of Teeth	Part No.
Imperial (in)	Metric (mm)	L_2	D_2		
0.4646 - 0.5751	11.800 - 14.609	65	50	6	7000-MM-001
0.5752 - 0.6932	14.610 - 17.609	80	50	6	7000-MM-002
0.6933 - 0.8507	17.610 - 21.609	90	50	6	7000-MM-003
0.8508 - 1.0475	21.610 - 26.609	100	50	6	7000-MM-004
1.0476 - 1.2838	26.610 - 32.609	110	50	6	7000-MM-005
1.2839 - 1.5987	32.610 - 40.609	120	50	6	7000-MM-006
1.5988 - 1.8170	40.610 - 45.609	120	50	6	7000-MM-007
1.8171 - 1.9924	45.610 - 50.600	120	50	8	7000-MM-075
1.9925 - 2.3858	50.610 - 60.600	120	50	8	7000-MM-008

7001 Series	
No Coolant	Central Coolant Only
	
Series 7000 Locking Screw	Series 7001 Locking Screw



D_1 Range		Mandrel		No. of Teeth	Part No.
Imperial (in)	Metric (mm)	L_2	D_2		
0.4646 - 0.5751	11.800 - 14.609	65	50	6	7001-MM-001
0.5752 - 0.6932	14.610 - 17.609	80	50	6	7001-MM-002
0.6933 - 0.8507	17.610 - 21.609	90	50	6	7001-MM-003
0.8508 - 1.0475	21.610 - 26.609	100	50	6	7001-MM-004
1.0476 - 1.2838	26.610 - 32.609	110	50	6	7001-MM-005
1.2839 - 1.5987	32.610 - 40.609	120	50	6	7001-MM-006
1.5988 - 1.8170	40.610 - 45.609	120	50	6	7001-MM-007
1.8171 - 1.9924	45.610 - 50.600	120	50	8	7001-MM-075
1.9925 - 2.3858	50.610 - 60.600	120	50	8	7001-MM-008

C: 62 - 73

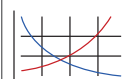
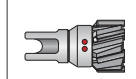

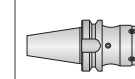
C: 12 - 13

C: 14 - 15

C: 54 - 61

C: 74

Key on C: 1

Application recommendation:

- Through hole application = radial coolant
- Blind hole application = central coolant

C: 18

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A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS



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A

DRILLING

B

BORING

C

REAMING

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BURNISHING

E

THREADING

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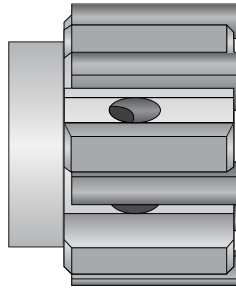
SPECIALS

Monobloc Style Reamers

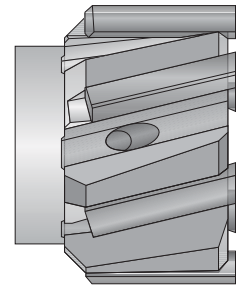
Product Overview

Monobloc Reamer Features

- Diameter range: 0.2283" - 1.2638" (5.80mm - 32.10mm)
- Available with straight or left hand helical flutes
- Expandable up to 1% of nominal diameter
- Available with cylindrical shanks only
- Work day lead time 20 - 25 days
- Available for recondition



Straight Flute



Left Hand Helical Flute



Uncoated



TiN Coated



TiAlN Coated

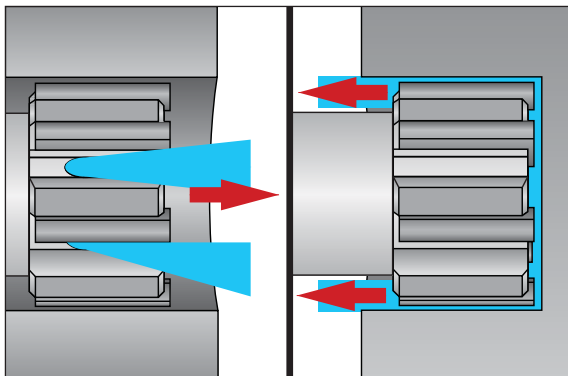


TiCN Coated



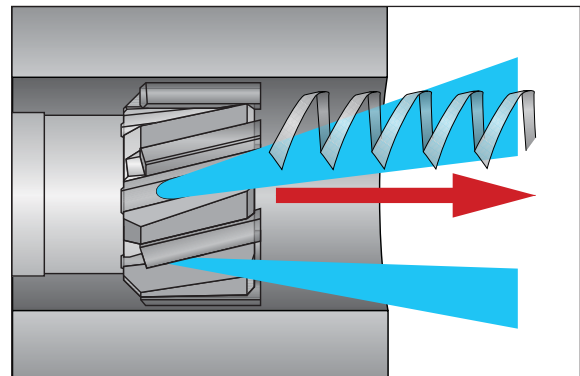
Alcrona Coated

Straight Flute - Through or Blind Holes



Use for either through hole or blind hole applications. The coolant flow determines the direction of the chip evacuation.

Left Hand Helical Flute - Through Holes Only



Use when reaming through hole applications. The cutting action of the helical flutes forces the chips forward for evacuation.

Product Nomenclature

Monobloc Style Reamers

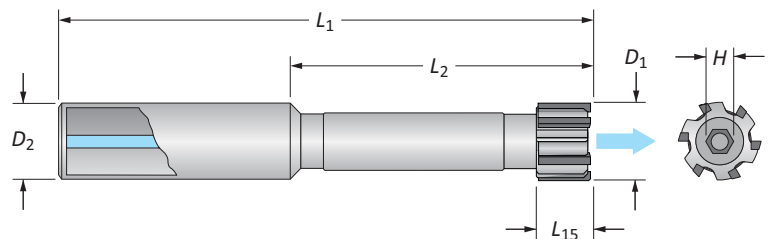
I	9	2440	-	KL	E	-	006250	+	0000	-	0005
1	2	3		4	5		6		7		

NOTE: If diameter and tolerance are specified in inch units, put an "I" at the beginning of the item number

<p>1. Units of Measure</p> <p>Blank = Metric diameter I = Inch diameter</p>	<p>2. Shank Measure</p> <p>Blank = Metric 9 = Inch</p>	<p>3. Series</p> <p>2440 = Short length, straight flute - no coolant 2441 = Short length, straight flute - central coolant (blind holes) 3620 = Short length, straight flute - radial coolant (through holes) 3627 = Short length, helical flute - radial coolant (through holes)</p> <p>2430 = Long length, straight flute - no coolant 2431 = Long length, straight flute - central coolant (blind holes) 3610 = Long length, straight flute - radial coolant (through holes) 3617 = Long length, helical flute - radial coolant (through holes)</p>
<p>4. Coating and Substrate</p> <p>KL = Uncoated carbide SV = Uncoated cermet KN = TiN coated carbide SN = TiN coated cermet KC = TiCN coated carbide SC = TiCN coated cermet KA = TiAlN coated carbide SA = TiAlN coated cermet KK = Alcrona coated carbide SK = Alcrona coated cermet</p>	<p>5. Lead-in</p> <p>E, M = Left hand helical flute A, F, G, L, N, T, V = Straight flute J, W, X, Y = Straight flute with chipbreaker</p>	
<p>6. Diameter</p> <p>XX.XXXX = Imperial (inch) XXX.XXX = Metric (mm)</p>	<p>7. Tolerance*</p> <p>4 decimal places = inch tolerance 3 decimal places = mm tolerance</p> <p>*The total tolerance capable is 0.0002" (0.005mm)</p>	

Reference Key

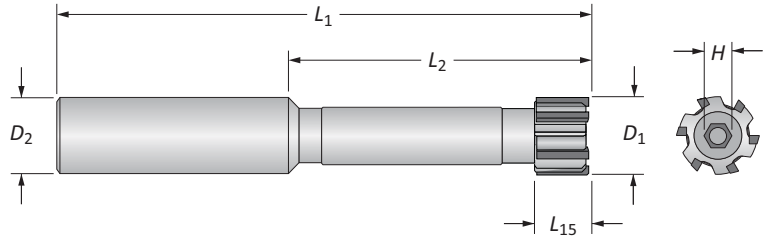
Symbol	Attribute
D_1	Reamer diameter
D_2	Shank diameter
L_1	Overall length
L_2	Body length
L_{15}	Cutting edge length
H	Hex key



Monobloc Reamers

2440 Series | Short Length | Diameter Range: 0.2283" - 1.2638" (5.80mm - 32.10mm)

Series	2440
Flute	Straight
Type	Blind or Through Holes
Coolant	None



Inch Shank Part No. 92440-CGL-D ₁					Metric Shank Part No. 2440-CGL-D ₁					No. of Teeth	H (mm)
D ₁ Range	L ₁₅	L ₂	L ₁	D ₂	D ₁ Range	L ₁₅	L ₂	L ₁	D ₂		
0.2283 - 0.2598	0.315	1.575	3.150	0.500	5.80 - 6.60	8	40	80	12	4	2
0.2599 - 0.2992	0.315	1.575	3.150	0.500	6.61 - 7.60	8	40	80	12	4	2
0.2993 - 0.3386	0.394	1.575	3.150	0.500	7.61 - 8.60	10	40	80	12	4	2.5
0.3387 - 0.3780	0.394	1.969	3.543	0.500	8.61 - 9.60	10	50	90	12	4	2.5
0.3781 - 0.4173	0.394	1.969	3.740	0.500	9.61 - 10.60	10	50	95	12	6	3
0.4174 - 0.4567	0.394	2.362	4.134	0.500	10.61 - 11.60	10	60	105	12	6	3
0.4568 - 0.4961	0.394	2.362	4.134	0.500	11.61 - 12.60	10	60	105	12	6	3
0.4962 - 0.5354	0.394	2.362	4.134	0.500	12.61 - 13.60	10	60	105	12	6	4
0.5355 - 0.5748	0.394	2.362	4.528	0.500	13.61 - 14.60	10	70	115	12	6	4
0.5749 - 0.6142	0.394	2.362	4.528	0.500	14.61 - 15.60	10	70	115	12	6	4
0.6143 - 0.6535	0.394	3.150	5.118	0.625	15.61 - 16.60	10	80	130	16	6	4
0.6536 - 0.6929	0.394	3.150	5.118	0.625	16.61 - 17.60	10	80	130	16	6	5
0.6930 - 0.7323	0.472	3.543	5.512	0.625	17.61 - 18.60	12	90	140	16	6	5
0.7324 - 0.7520	0.472	3.543	5.906	0.750	18.61 - 19.10	12	90	150	20	6	5
0.7521 - 0.7913	0.472	3.937	6.229	0.750	19.11 - 20.10	12	100	160	20	6	5
0.7914 - 0.8307	0.472	3.937	6.229	0.750	20.11 - 21.10	12	100	160	20	6	5
0.8308 - 0.8701	0.472	3.937	6.229	0.750	21.11 - 22.10	12	100	160	20	6	6
0.8702 - 0.9094	0.472	3.937	6.229	0.750	22.11 - 23.10	12	100	160	20	6	6
0.9095 - 0.9488	0.472	3.937	6.229	0.750	23.11 - 24.10	12	100	160	20	6	6
0.9489 - 0.9882	0.472	3.937	6.229	0.750	24.11 - 25.10	12	100	160	20	6	6
0.9883 - 1.0276	0.472	4.331	6.693	1.000	25.11 - 26.10	16	110	170	25	6	6
1.0277 - 1.0669	0.551	4.331	6.693	1.000	26.11 - 27.10	16	110	170	25	6	6
1.0670 - 1.1063	0.551	4.331	6.693	1.000	27.11 - 28.10	16	110	170	25	6	8
1.1064 - 1.1457	0.551	4.331	6.693	1.000	28.11 - 29.10	16	110	170	25	6	8
1.1458 - 1.1850	0.551	4.331	6.693	1.000	29.11 - 30.10	16	110	170	25	6	8
1.1851 - 1.2244	0.551	4.331	6.693	1.000	31.11 - 32.10	16	110	170	25	6	8
1.2245 - 1.2638	0.551	4.331	6.693	1.000	-	-	-	-	-	6	8

"CG" Portion of Item No.

Grade	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	KL	KN	KC	KA	KK
Cermet	SV	SN	SC	SA	SK

"L" Portion of Item No.

ISO Material	T	F	N	G	L	A	V
P			●	●		○	○
S	●			○			
M				●	○		
H			○	●			
K	○			●			○
N				●		●	○

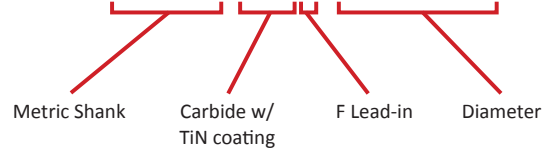
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60mm diameter
- Blind hole
- Flood coolant

2440-KNF-030600



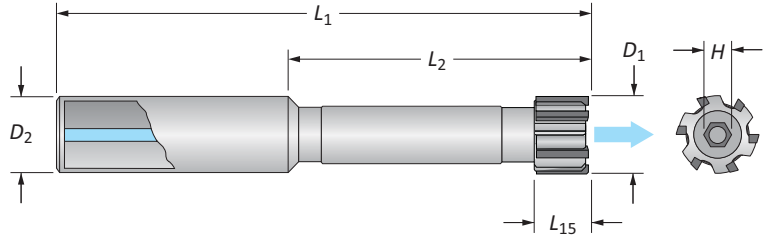
C: 62 - 73 C: 54 - 61 C: 75



Monobloc Reamers

2441 Series | Short Length | Diameter Range: 0.2283" - 1.2638" (5.80mm - 32.10mm)

Series	2441
Flute	Straight
Type	Blind Holes
Coolant	Central



Inch Shank Part No. 92441-CGL-D ₁					Metric Shank Part No. 2441-CGL-D ₁					No. of Teeth	H (mm)
D ₁ Range	L ₁₅	L ₂	L ₁	D ₂	D ₁ Range	L ₁₅	L ₂	L ₁	D ₂		
0.2283 - 0.2598	0.315	1.575	3.071	0.500	5.80 - 6.60	8	40	80	12	4	2
0.2599 - 0.2992	0.315	1.575	3.071	0.500	6.61 - 7.60	8	40	80	12	4	2
0.2993 - 0.3386	0.394	1.575	3.071	0.500	7.61 - 8.60	10	40	80	12	4	2.5
0.3387 - 0.3780	0.394	1.969	3.465	0.500	8.61 - 9.60	10	50	90	12	4	2.5
0.3781 - 0.4173	0.394	1.969	3.740	0.500	9.61 - 10.60	10	50	95	12	6	3
0.4174 - 0.4567	0.394	1.969	3.740	0.500	10.61 - 11.60	10	60	105	12	6	3
0.4568 - 0.4961	0.394	1.969	3.740	0.500	11.61 - 12.60	10	60	105	12	6	3
0.4962 - 0.5354	0.394	1.969	3.740	0.500	12.61 - 13.60	10	60	105	12	6	4
0.5355 - 0.5748	0.394	1.969	3.740	0.500	13.61 - 14.60	10	70	115	12	6	4
0.5749 - 0.6142	0.394	1.969	3.740	0.500	14.61 - 15.60	10	70	115	12	6	4
0.6143 - 0.6535	0.394	1.969	3.937	0.625	15.61 - 16.60	10	80	130	16	6	4
0.6536 - 0.6929	0.394	1.969	3.937	0.625	16.61 - 17.60	10	80	130	16	6	5
0.6930 - 0.7323	0.472	1.969	3.937	0.625	17.61 - 18.60	12	90	140	16	6	5
0.7324 - 0.7520	0.472	2.362	4.724	0.750	18.61 - 19.10	12	90	150	20	6	5
0.7521 - 0.7913	0.472	2.362	4.724	0.750	19.11 - 20.10	12	100	160	20	6	5
0.7914 - 0.8307	0.472	2.362	4.724	0.750	20.11 - 21.10	12	100	160	20	6	5
0.8308 - 0.8701	0.472	2.362	4.724	0.750	21.11 - 22.10	12	100	160	20	6	6
0.8702 - 0.9094	0.472	2.362	4.724	0.750	22.11 - 23.10	12	100	160	20	6	6
0.9095 - 0.9488	0.472	2.362	4.724	0.750	23.11 - 24.10	12	100	160	20	6	6
0.9489 - 0.9882	0.472	2.362	4.724	0.750	24.11 - 25.10	12	100	160	20	6	6
0.9883 - 1.0276	0.472	2.953	5.315	1.000	25.11 - 26.10	16	110	170	25	6	6
1.0277 - 1.0669	0.551	2.953	5.315	1.000	26.11 - 27.10	16	110	170	25	6	6
1.0670 - 1.1063	0.551	2.953	5.315	1.000	27.11 - 28.10	16	110	170	25	6	8
1.1064 - 1.1457	0.551	2.953	5.315	1.000	28.11 - 29.10	16	110	170	25	6	8
1.1458 - 1.1850	0.551	2.953	5.315	1.000	29.11 - 30.10	16	110	170	25	6	8
1.1851 - 1.2244	0.551	2.953	5.315	1.000	31.11 - 32.10	16	110	170	25	6	8
1.2245 - 1.2638	0.551	2.953	5.315	1.000	-	-	-	-	-	6	8

"CG" Portion of Item No.

Grade	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	KL	KN	KC	KA	KK
Cermet	SV	SN	SC	SA	SK

"L" Portion of Item No.

ISO Material	T	F	N	G	L	A	V
P			●	●		○	○
S	●			○			
M				●	○		
H			○	●			
K	○			●			○
N				●		●	○

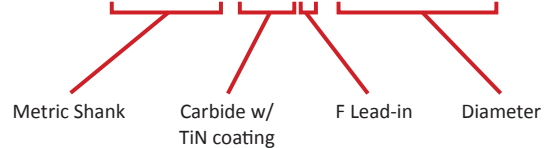
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60mm diameter
- Blind hole

2441-KNF-030600



Key on C: 1

C: 62 - 73

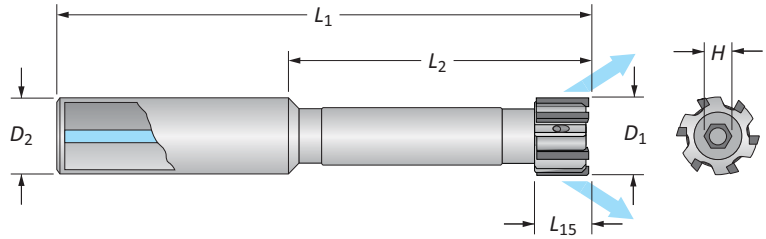
C: 54 - 61

C: 75

Monobloc Reamers

3620 Series | Short Length | Diameter Range: 0.2283" - 1.2638" (5.80mm - 32.10mm)

Series	3620
Flute	Straight
Type	Through Holes
Coolant	Radial



Inch Shank Part No. 93620-CGL-D ₁					Metric Shank Part No. 3620-CGL-D ₁					No. of Teeth	H (mm)
D ₁ Range	L ₁₅	L ₂	L ₁	D ₂	D ₁ Range	L ₁₅	L ₂	L ₁	D ₂		
0.2283 - 0.2598	0.315	1.575	3.071	0.500	5.80 - 6.60	8	40	78	12	4	2
0.2599 - 0.2992	0.315	1.575	3.071	0.500	6.61 - 7.60	8	40	78	12	4	2
0.2993 - 0.3386	0.394	1.575	3.071	0.500	7.61 - 8.60	10	40	78	12	4	2.5
0.3387 - 0.3780	0.394	1.969	3.465	0.500	8.61 - 9.60	10	50	88	12	4	2.5
0.3781 - 0.4173	0.394	1.969	3.740	0.500	9.61 - 10.60	10	50	95	12	6	3
0.4174 - 0.4567	0.394	1.969	3.740	0.500	10.61 - 11.60	10	50	95	12	6	3
0.4568 - 0.4961	0.394	1.969	3.740	0.500	11.61 - 12.60	10	50	95	12	6	3
0.4962 - 0.5354	0.394	1.969	3.740	0.500	12.61 - 13.60	10	50	95	12	6	4
0.5355 - 0.5748	0.394	1.969	3.740	0.500	13.61 - 14.60	10	50	95	12	6	4
0.5749 - 0.6142	0.394	1.969	3.740	0.500	14.61 - 15.60	10	50	95	12	6	4
0.6143 - 0.6535	0.394	1.969	3.937	0.625	15.61 - 16.60	10	50	100	16	6	4
0.6536 - 0.6929	0.394	1.969	3.937	0.625	16.61 - 17.60	10	50	100	16	6	5
0.6930 - 0.7323	0.472	1.969	3.937	0.625	17.61 - 18.60	12	50	100	16	6	5
0.7324 - 0.7520	0.472	2.362	4.724	0.750	18.61 - 19.10	12	60	120	20	6	5
0.7521 - 0.7913	0.472	2.362	4.724	0.750	19.11 - 20.10	12	60	120	20	6	5
0.7914 - 0.8307	0.472	2.362	4.724	0.750	20.11 - 21.10	12	60	120	20	6	5
0.8308 - 0.8701	0.472	2.362	4.724	0.750	21.11 - 22.10	12	60	120	20	6	6
0.8702 - 0.9094	0.472	2.362	4.724	0.750	22.11 - 23.10	12	60	120	20	6	6
0.9095 - 0.9488	0.472	2.362	4.724	0.750	23.11 - 24.10	12	60	120	20	6	6
0.9489 - 0.9882	0.472	2.362	4.724	0.750	24.11 - 25.10	12	60	120	20	6	6
0.9883 - 1.0276	0.472	2.953	5.315	1.000	25.11 - 26.10	16	70	135	25	6	6
1.0277 - 1.0669	0.551	2.953	5.315	1.000	26.11 - 27.10	16	70	135	25	6	6
1.0670 - 1.1063	0.551	2.953	5.315	1.000	27.11 - 28.10	16	70	135	25	6	8
1.1064 - 1.1457	0.551	2.953	5.315	1.000	28.11 - 29.10	16	70	135	25	6	8
1.1458 - 1.1850	0.551	2.953	5.315	1.000	29.11 - 30.10	16	70	135	25	6	8
1.1851 - 1.2244	0.551	2.953	5.315	1.000	31.11 - 32.10	16	70	135	25	6	8
1.2245 - 1.2638	0.551	2.953	5.315	1.000	-	-	-	-	-	6	8

"CG" Portion of Item No.

Grade	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	KL	KN	KC	KA	KK
Cermet	SV	SN	SC	SA	SK

"L" Portion of Item No.

ISO Material	T	F	N	G	L	A	V
P			●	●		○	○
S	●			○			
M				●	○		
H			○	●			
K	○			●			○
N				●		●	○

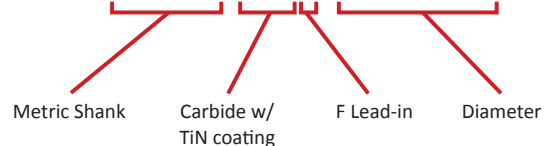
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60mm diameter
- Through hole

3620-KNF-030600



C: 62 - 73

C: 54 - 61

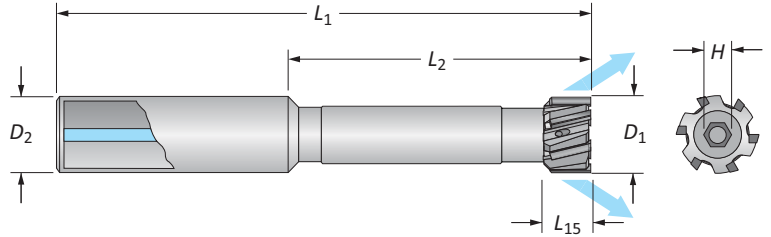
C: 75

Key on C: 1

Monobloc Reamers

3627 Series | Short Length | Diameter Range: 0.2283" - 1.2638" (5.80mm - 32.10mm)

Series	3627
Flute	Helical
Type	Through Holes
Coolant	Radial



Inch Shank Part No. 93627-CGL-D ₁					Metric Shank Part No. 3627-CGL-D ₁					No. of Teeth	H (mm)
D ₁ Range	L ₁₅	L ₂	L ₁	D ₂	D ₁ Range	L ₁₅	L ₂	L ₁	D ₂		
0.2283 - 0.2598	0.315	1.575	3.150	0.500	5.80 - 6.60	8	40	80	12	4	2
0.2599 - 0.2992	0.315	1.575	3.150	0.500	6.61 - 7.60	8	40	80	12	4	2
0.2993 - 0.3386	0.394	1.575	3.150	0.500	7.61 - 8.60	10	40	80	12	4	2.5
0.3387 - 0.3780	0.394	1.969	3.543	0.500	8.61 - 9.60	10	50	90	12	4	2.5
0.3781 - 0.4173	0.394	1.969	3.740	0.500	9.61 - 10.60	10	50	95	12	6	3
0.4174 - 0.4567	0.394	2.362	4.134	0.500	10.61 - 11.60	10	60	105	12	6	3
0.4568 - 0.4961	0.394	2.362	4.134	0.500	11.61 - 12.60	10	60	105	12	6	3
0.4962 - 0.5354	0.394	2.362	4.134	0.500	12.61 - 13.60	10	60	105	12	6	4
0.5355 - 0.5748	0.394	2.756	4.528	0.500	13.61 - 14.60	10	70	115	12	6	4
0.5749 - 0.6142	0.394	2.756	4.528	0.500	14.61 - 15.60	10	70	115	12	6	4
0.6143 - 0.6535	0.394	3.150	5.118	0.625	15.61 - 16.60	10	80	130	16	6	4
0.6536 - 0.6929	0.394	3.150	5.118	0.625	16.61 - 17.60	10	80	130	16	6	5
0.6930 - 0.7323	0.472	3.543	5.512	0.625	17.61 - 18.60	12	90	140	16	6	5
0.7324 - 0.7520	0.472	3.543	5.906	0.750	18.61 - 19.10	12	90	150	20	6	5
0.7521 - 0.7913	0.472	3.937	6.299	0.750	19.11 - 20.10	12	100	160	20	6	5
0.7914 - 0.8307	0.472	3.937	6.299	0.750	20.11 - 21.10	12	100	160	20	6	5
0.8308 - 0.8701	0.472	3.937	6.299	0.750	21.11 - 22.10	12	100	160	20	6	6
0.8702 - 0.9094	0.472	3.937	6.299	0.750	22.11 - 23.10	12	100	160	20	6	6
0.9095 - 0.9488	0.472	3.937	6.299	0.750	23.11 - 24.10	12	100	160	20	6	6
0.9489 - 0.9882	0.472	3.937	6.299	0.750	24.11 - 25.10	12	100	160	20	6	6
0.9883 - 1.0276	0.472	4.331	6.693	1.000	25.11 - 26.10	16	110	170	25	6	6
1.0277 - 1.0669	0.551	4.331	6.693	1.000	26.11 - 27.10	16	110	170	25	6	6
1.0670 - 1.1063	0.551	4.331	6.693	1.000	27.11 - 28.10	16	110	170	25	6	8
1.1064 - 1.1457	0.551	4.331	6.693	1.000	28.11 - 29.10	16	110	170	25	6	8
1.1458 - 1.1850	0.551	4.331	6.693	1.000	29.11 - 30.10	16	110	170	25	6	8
1.1851 - 1.2244	0.551	4.331	6.693	1.000	31.11 - 32.10	16	110	170	25	6	8
1.2245 - 1.2638	0.551	4.331	6.693	1.000	-	-	-	-	-	6	8

"CG" Portion of Item No.

Grade	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	KL	KN	KC	KA	KK
Cermet	SV	SN	SC	SA	SK

"L" Portion of Item No.

ISO Material	T	F	N	G	L	A	V
P			●	●		○	○
S	●			○			
M				●	○		
H			○	●			
K	○			●			○
N				●		●	○

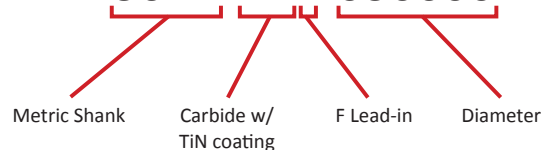
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60mm diameter
- Through hole

3627-KNF-030600



Key on C: 1

C: 62 - 73

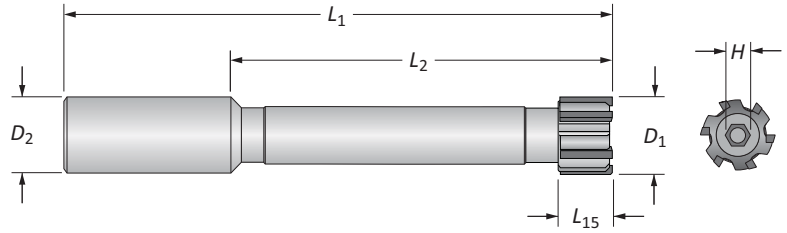
C: 54 - 61

C: 75

Monobloc Reamers

2430 Series | Long length | Diameter range: 0.2283" - 1.2638" (5.80mm - 32.10mm)

Series	2430
Flute	Straight
Type	Blind or Through Holes
Coolant	None



Inch Shank Part No. 92430-CGL-D ₁					Metric Shank Part No. 2430-CGL-D ₁					No. of Teeth	H (mm)
D ₁ Range	L ₁₅	L ₂	L ₁	D ₂	D ₁ Range	L ₁₅	L ₂	L ₁	D ₂		
0.2283 - 0.2598	0.315	3.346	4.843	0.500	5.80 - 6.60	8	85	123	12	4	2
0.2599 - 0.2992	0.315	3.346	4.843	0.500	6.61 - 7.60	8	85	123	12	4	2
0.2993 - 0.3386	0.394	3.346	4.843	0.500	7.61 - 8.60	10	85	123	12	4	2.5
0.3387 - 0.3780	0.394	3.346	4.843	0.500	8.61 - 9.60	10	85	123	12	4	2.5
0.3781 - 0.4173	0.394	4.528	6.299	0.500	9.61 - 10.60	10	115	160	12	6	3
0.4174 - 0.4567	0.394	4.528	6.299	0.500	10.61 - 11.60	10	115	160	12	6	3
0.4568 - 0.4961	0.394	4.528	6.299	0.500	11.61 - 12.60	10	115	160	12	6	3
0.4962 - 0.5354	0.394	4.528	6.299	0.500	12.61 - 13.60	10	115	160	12	6	4
0.5355 - 0.5748	0.394	4.528	6.299	0.500	13.61 - 14.60	10	115	160	12	6	4
0.5749 - 0.6142	0.394	4.528	6.299	0.500	14.61 - 15.60	10	115	160	12	6	4
0.6143 - 0.6535	0.394	5.118	7.087	0.625	15.61 - 16.60	10	130	180	16	6	4
0.6536 - 0.6929	0.394	5.118	7.087	0.625	16.61 - 17.60	10	130	180	16	6	5
0.6930 - 0.7323	0.472	5.118	7.087	0.625	17.61 - 18.60	12	130	180	16	6	5
0.7324 - 0.7520	0.472	5.512	7.874	0.750	18.61 - 19.10	12	140	200	20	6	5
0.7521 - 0.7913	0.472	5.512	7.874	0.750	19.11 - 20.10	12	140	200	20	6	5
0.7914 - 0.8307	0.472	5.512	7.874	0.750	20.11 - 21.10	12	140	200	20	6	5
0.8308 - 0.8701	0.472	5.512	7.874	0.750	21.11 - 22.10	12	140	200	20	6	6
0.8702 - 0.9094	0.472	5.512	7.874	0.750	22.11 - 23.10	12	140	200	20	6	6
0.9095 - 0.9488	0.472	5.512	7.874	0.750	23.11 - 24.10	12	140	200	20	6	6
0.9489 - 0.9882	0.472	5.512	7.874	0.750	24.11 - 25.10	12	140	200	20	6	6
0.9883 - 1.0276	0.472	5.906	8.268	1.000	25.11 - 26.10	16	150	210	25	6	6
1.0277 - 1.0669	0.551	5.906	8.268	1.000	26.11 - 27.10	16	150	210	25	6	6
1.0670 - 1.1063	0.551	5.906	8.268	1.000	27.11 - 28.10	16	150	210	25	6	8
1.1064 - 1.1457	0.551	5.906	8.268	1.000	28.11 - 29.10	16	150	210	25	6	8
1.1458 - 1.1850	0.551	5.906	8.268	1.000	29.11 - 30.10	16	150	210	25	6	8
1.1851 - 1.2244	0.551	5.906	8.268	1.000	31.11 - 32.10	16	150	210	25	6	8
1.2245 - 1.2638	0.551	5.906	8.268	1.000	-	-	-	-	-	6	8

"CG" Portion of Item No.

Grade	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	KL	KN	KC	KA	KK
Cermet	SV	SN	SC	SA	SK

"L" Portion of Item No.

ISO Material	T	F	N	G	L	A	V
P			●	●		○	○
S	●			○			
M				●	○		
H			○	●			
K	○			●			○
N				●		●	○

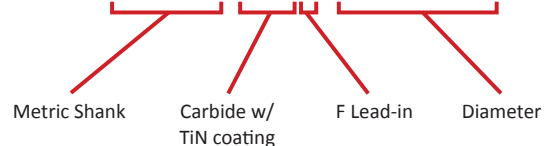
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60mm diameter
- Blind hole
- Flood coolant

2430-KNF-030600

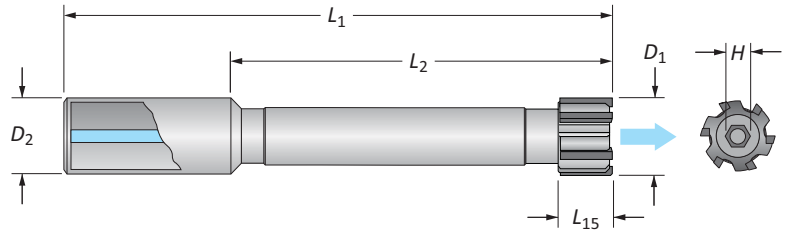


C: 62 - 73 C: 54 - 61 C: 75

Monobloc Reamers

2431 Series | Long Length | Diameter Range: 0.2283" - 1.2638" (5.80mm - 32.10mm)

Series	2431
Flute	Straight
Type	Blind Holes
Coolant	Central



Inch Shank Part No. 92431-CGL-D ₁					Metric Shank Part No. 2431-CGL-D ₁					No. of Teeth	H (mm)
D ₁ Range	L ₁₅	L ₂	L ₁	D ₂	D ₁ Range	L ₁₅	L ₂	L ₁	D ₂		
0.2283 - 0.2598	0.315	3.346	4.843	0.500	5.80 - 6.60	8	85	123	12	4	2
0.2599 - 0.2992	0.315	3.346	4.843	0.500	6.61 - 7.60	8	85	123	12	4	2
0.2993 - 0.3386	0.394	3.346	4.843	0.500	7.61 - 8.60	10	85	123	12	4	2.5
0.3387 - 0.3780	0.394	3.346	4.843	0.500	8.61 - 9.60	10	85	123	12	4	2.5
0.3781 - 0.4173	0.394	4.528	6.299	0.500	9.61 - 10.60	10	115	160	12	6	3
0.4174 - 0.4567	0.394	4.528	6.299	0.500	10.61 - 11.60	10	115	160	12	6	3
0.4568 - 0.4961	0.394	4.528	6.299	0.500	11.61 - 12.60	10	115	160	12	6	3
0.4962 - 0.5354	0.394	4.528	6.299	0.500	12.61 - 13.60	10	115	160	12	6	4
0.5355 - 0.5748	0.394	4.528	6.299	0.500	13.61 - 14.60	10	115	160	12	6	4
0.5749 - 0.6142	0.394	4.528	6.299	0.500	14.61 - 15.60	10	115	160	12	6	4
0.6143 - 0.6535	0.394	5.118	7.087	0.625	15.61 - 16.60	10	130	180	16	6	4
0.6536 - 0.6929	0.394	5.118	7.087	0.625	16.61 - 17.60	10	130	180	16	6	5
0.6930 - 0.7323	0.472	5.118	7.087	0.625	17.61 - 18.60	12	130	180	16	6	5
0.7324 - 0.7520	0.472	5.512	7.874	0.750	18.61 - 19.10	12	140	200	20	6	5
0.7521 - 0.7913	0.472	5.512	7.874	0.750	19.11 - 20.10	12	140	200	20	6	5
0.7914 - 0.8307	0.472	5.512	7.874	0.750	20.11 - 21.10	12	140	200	20	6	5
0.8308 - 0.8701	0.472	5.512	7.874	0.750	21.11 - 22.10	12	140	200	20	6	6
0.8702 - 0.9094	0.472	5.512	7.874	0.750	22.11 - 23.10	12	140	200	20	6	6
0.9095 - 0.9488	0.472	5.512	7.874	0.750	23.11 - 24.10	12	140	200	20	6	6
0.9489 - 0.9882	0.472	5.512	7.874	0.750	24.11 - 25.10	12	140	200	20	6	6
0.9883 - 1.0276	0.472	5.906	8.268	1.000	25.11 - 26.10	16	150	210	25	6	6
1.0277 - 1.0669	0.551	5.906	8.268	1.000	26.11 - 27.10	16	150	210	25	6	6
1.0670 - 1.1063	0.551	5.906	8.268	1.000	27.11 - 28.10	16	150	210	25	6	8
1.1064 - 1.1457	0.551	5.906	8.268	1.000	28.11 - 29.10	16	150	210	25	6	8
1.1458 - 1.1850	0.551	5.906	8.268	1.000	29.11 - 30.10	16	150	210	25	6	8
1.1851 - 1.2244	0.551	5.906	8.268	1.000	31.11 - 32.10	16	150	210	25	6	8
1.2245 - 1.2638	0.551	5.906	8.268	1.000	-	-	-	-	-	6	8

"CG" Portion of Item No.

Grade	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	KL	KN	KC	KA	KK
Cermet	SV	SN	SC	SA	SK

"L" Portion of Item No.

ISO Material	T	F	N	G	L	A	V
P			●	●		○	○
S	●			○			
M				●	○		
H			○	●			
K	○			●			○
N				●		●	○

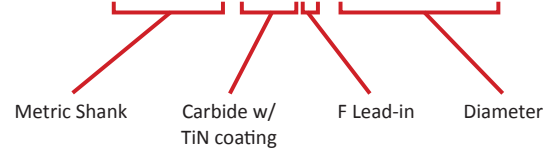
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60mm diameter
- Blind hole

2431-KNF-030600



Key on C: 1

C: 62 - 73

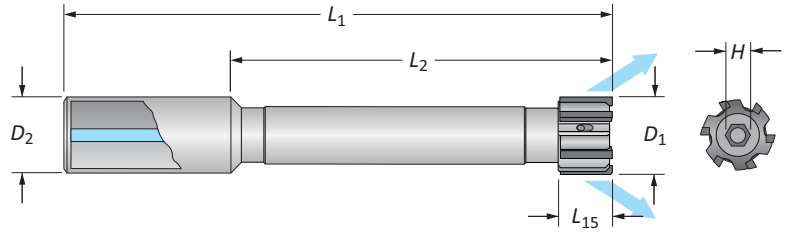
C: 54 - 61

C: 75

Monobloc Reamers

3610 Series | Long Length | Diameter Range: 0.2283" - 1.2638" (5.80mm - 32.10mm)

Series	3610
Flute	Straight
Type	Through Holes
Coolant	Radial



Inch Shank Part No. 93610-CGL-D ₁					Metric Shank Part No. 3610-CGL-D ₁					No. of Teeth	H (mm)
D ₁ Range	L ₁₅	L ₂	L ₁	D ₂	D ₁ Range	L ₁₅	L ₂	L ₁	D ₂		
0.2283 - 0.2598	0.315	3.346	4.843	0.500	5.80 - 6.60	8	85	123	12	4	2
0.2599 - 0.2992	0.315	3.346	4.843	0.500	6.61 - 7.60	8	85	123	12	4	2
0.2993 - 0.3386	0.394	3.346	4.843	0.500	7.61 - 8.60	10	85	123	12	4	2.5
0.3387 - 0.3780	0.394	3.346	4.843	0.500	8.61 - 9.60	10	85	123	12	4	2.5
0.3781 - 0.4173	0.394	4.528	6.299	0.500	9.61 - 10.60	10	115	160	12	6	3
0.4174 - 0.4567	0.394	4.528	6.299	0.500	10.61 - 11.60	10	115	160	12	6	3
0.4568 - 0.4961	0.394	4.528	6.299	0.500	11.61 - 12.60	10	115	160	12	6	3
0.4962 - 0.5354	0.394	4.528	6.299	0.500	12.61 - 13.60	10	115	160	12	6	4
0.5355 - 0.5748	0.394	4.528	6.299	0.500	13.61 - 14.60	10	115	160	12	6	4
0.5749 - 0.6142	0.394	4.528	6.299	0.500	14.61 - 15.60	10	115	160	12	6	4
0.6143 - 0.6535	0.394	5.118	7.087	0.625	15.61 - 16.60	10	130	180	16	6	4
0.6536 - 0.6929	0.394	5.118	7.087	0.625	16.61 - 17.60	10	130	180	16	6	5
0.6930 - 0.7323	0.472	5.118	7.087	0.625	17.61 - 18.60	12	130	180	16	6	5
0.7324 - 0.7520	0.472	5.512	7.874	0.750	18.61 - 19.10	12	140	200	20	6	5
0.7521 - 0.7913	0.472	5.512	7.874	0.750	19.11 - 20.10	12	140	200	20	6	5
0.7914 - 0.8307	0.472	5.512	7.874	0.750	20.11 - 21.10	12	140	200	20	6	5
0.8308 - 0.8701	0.472	5.512	7.874	0.750	21.11 - 22.10	12	140	200	20	6	6
0.8702 - 0.9094	0.472	5.512	7.874	0.750	22.11 - 23.10	12	140	200	20	6	6
0.9095 - 0.9488	0.472	5.512	7.874	0.750	23.11 - 24.10	12	140	200	20	6	6
0.9489 - 0.9882	0.472	5.512	7.874	0.750	24.11 - 25.10	12	140	200	20	6	6
0.9883 - 1.0276	0.472	5.906	8.268	1.000	25.11 - 26.10	16	150	210	25	6	6
1.0277 - 1.0669	0.551	5.906	8.268	1.000	26.11 - 27.10	16	150	210	25	6	6
1.0670 - 1.1063	0.551	5.906	8.268	1.000	27.11 - 28.10	16	150	210	25	6	8
1.1064 - 1.1457	0.551	5.906	8.268	1.000	28.11 - 29.10	16	150	210	25	6	8
1.1458 - 1.1850	0.551	5.906	8.268	1.000	29.11 - 30.10	16	150	210	25	6	8
1.1851 - 1.2244	0.551	5.906	8.268	1.000	31.11 - 32.10	16	150	210	25	6	8
1.2245 - 1.2638	0.551	5.906	8.268	1.000	-	-	-	-	-	6	8

"CG" Portion of Item No.

Grade	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	KL	KN	KC	KA	KK
Cermet	SV	SN	SC	SA	SK

"L" Portion of Item No.

ISO Material	T	F	N	G	L	A	V
P			●	●		○	○
S	●			○			
M				●	○		
H			○	●			
K	○			●			○
N				●		●	○

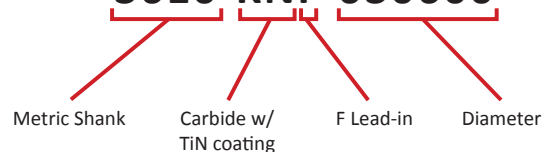
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60mm diameter
- Through hole

3610-KNF-030600



C: 62 - 73

C: 54 - 61

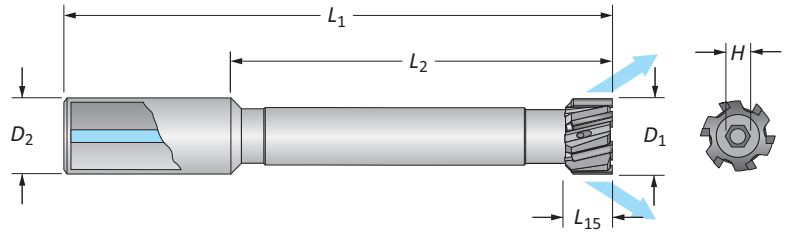
C: 75

Key on C: 1

Monobloc Reamers

3617 Series | Long Length | Diameter Range: 0.2283" - 1.2638" (5.80mm - 32.10mm)

Series	3617
Flute	Helical
Type	Through Holes
Coolant	Radial



Inch Shank Part No. 93617-CGL-D ₁					Metric Shank Part No. 3617-CGL-D ₁					No. of Teeth	H (mm)
D ₁ Range	L ₁₅	L ₂	L ₁	D ₂	D ₁ Range	L ₁₅	L ₂	L ₁	D ₂		
0.2283 - 0.2598	0.315	3.346	4.843	0.500	5.80 - 6.60	8	85	123	12	4	2
0.2599 - 0.2992	0.315	3.346	4.843	0.500	6.61 - 7.60	8	85	123	12	4	2
0.2993 - 0.3386	0.394	3.346	4.843	0.500	7.61 - 8.60	10	85	123	12	4	2.5
0.3387 - 0.3780	0.394	3.346	4.843	0.500	8.61 - 9.60	10	85	123	12	4	2.5
0.3781 - 0.4173	0.394	4.528	6.299	0.500	9.61 - 10.60	10	115	160	12	6	3
0.4174 - 0.4567	0.394	4.528	6.299	0.500	10.61 - 11.60	10	115	160	12	6	3
0.4568 - 0.4961	0.394	4.528	6.299	0.500	11.61 - 12.60	10	115	160	12	6	3
0.4962 - 0.5354	0.394	4.528	6.299	0.500	12.61 - 13.60	10	115	160	12	6	4
0.5355 - 0.5748	0.394	4.528	6.299	0.500	13.61 - 14.60	10	115	160	12	6	4
0.5749 - 0.6142	0.394	4.528	6.299	0.500	14.61 - 15.60	10	115	160	12	6	4
0.6143 - 0.6535	0.394	5.118	7.087	0.625	15.61 - 16.60	10	130	180	16	6	4
0.6536 - 0.6929	0.394	5.118	7.087	0.625	16.61 - 17.60	10	130	180	16	6	5
0.6930 - 0.7323	0.472	5.118	7.087	0.625	17.61 - 18.60	12	130	180	16	6	5
0.7324 - 0.7520	0.472	5.512	7.874	0.750	18.61 - 19.10	12	140	200	20	6	5
0.7521 - 0.7913	0.472	5.512	7.874	0.750	19.11 - 20.10	12	140	200	20	6	5
0.7914 - 0.8307	0.472	5.512	7.874	0.750	20.11 - 21.10	12	140	200	20	6	5
0.8308 - 0.8701	0.472	5.512	7.874	0.750	21.11 - 22.10	12	140	200	20	6	6
0.8702 - 0.9094	0.472	5.512	7.874	0.750	22.11 - 23.10	12	140	200	20	6	6
0.9095 - 0.9488	0.472	5.512	7.874	0.750	23.11 - 24.10	12	140	200	20	6	6
0.9489 - 0.9882	0.472	5.512	7.874	0.750	24.11 - 25.10	12	140	200	20	6	6
0.9883 - 1.0276	0.472	5.906	8.268	1.000	25.11 - 26.10	16	150	210	25	6	6
1.0277 - 1.0669	0.551	5.906	8.268	1.000	26.11 - 27.10	16	150	210	25	6	6
1.0670 - 1.1063	0.551	5.906	8.268	1.000	27.11 - 28.10	16	150	210	25	6	8
1.1064 - 1.1457	0.551	5.906	8.268	1.000	28.11 - 29.10	16	150	210	25	6	8
1.1458 - 1.1850	0.551	5.906	8.268	1.000	29.11 - 30.10	16	150	210	25	6	8
1.1851 - 1.2244	0.551	5.906	8.268	1.000	31.11 - 32.10	16	150	210	25	6	8
1.2245 - 1.2638	0.551	5.906	8.268	1.000	-	-	-	-	-	6	8

"CG" Portion of Item No.

Grade	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	KL	KN	KC	KA	KK
Cermet	SV	SN	SC	SA	SK

"L" Portion of Item No.

ISO Material	T	F	N	G	L	A	V
P			●	●		○	○
S	●			○			
M				●	○		
H			○	●			
K	○			●			○
N				●		●	○

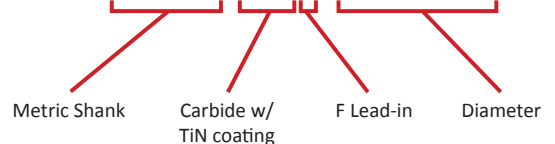
● Best ○ Better ○ Good

Ordering Example:

The customer needs the following:

- Metric shank
- Carbide
- TiN coating
- F lead-in
- 30.60mm diameter
- Through hole

3617-KNF-030600



Key on C: 1

C: 62 - 73

C: 54 - 61

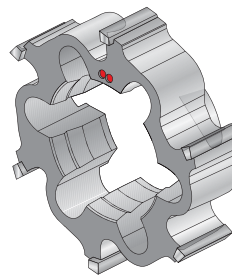
C: 75

Cutting Ring Style Reamers

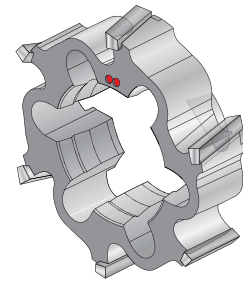
Product Overview

Cutting Ring Reamer Features

- Diameter range: 0.6929" - 7.8972" (17.60mm - 200.59mm)
- Available with straight or left hand helical flutes
- Expandable up to 4% of nominal diameter
- Mandrels are available for both through holes or blind holes
- Work day lead time 20 - 25 days
- Available for recondition



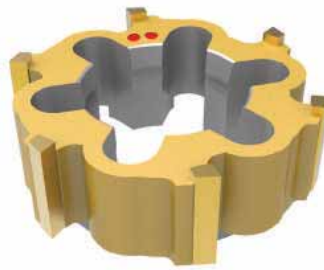
Straight Flute



Left Hand Helical Flute



Uncoated



TiN Coated



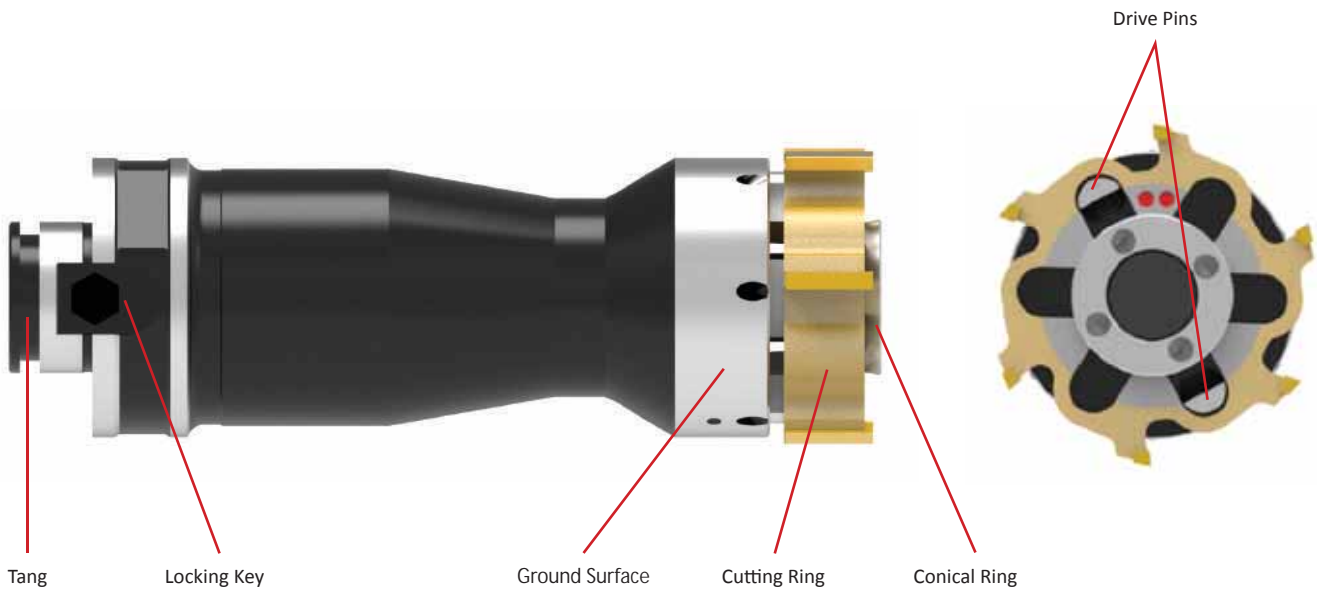
TiAlN Coated



TiCN Coated



Alcrona Coated



Product Nomenclature

Cutting Rings

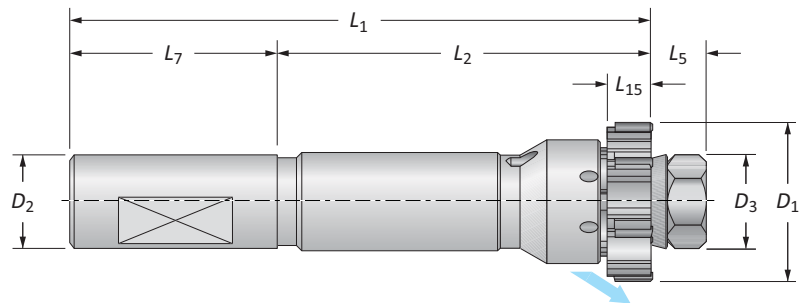
I	-	2ANC-KT		F	-	019686	+	0000	-	0005
1		2		3		4		5		

NOTE: If diameter and tolerance are specified in inch units, put an "I" at the beginning of the item number

1. Cutting Ring Blank = Metric diameter I = Inch diameter	2. Coating and Substrate <table border="0"> <tr> <td>2000-KT = Uncoated carbide</td> <td>2AVC-ST = Uncoated cermet</td> </tr> <tr> <td>2TIN-KT = TiN coated carbide</td> <td>2ANC-ST = TiN coated cermet</td> </tr> <tr> <td>2TIC-KT = TiCN coated carbide</td> <td>2ACC-ST = TiCN coated cermet</td> </tr> <tr> <td>2TIA-KT = TiAlN coated carbide</td> <td>2AAC-ST = TiAlN coated cermet</td> </tr> <tr> <td>2TLK-KT = Alcrona coated carbide</td> <td>2ALK-ST = Alcrona coated cermet</td> </tr> </table>	2000-KT = Uncoated carbide	2AVC-ST = Uncoated cermet	2TIN-KT = TiN coated carbide	2ANC-ST = TiN coated cermet	2TIC-KT = TiCN coated carbide	2ACC-ST = TiCN coated cermet	2TIA-KT = TiAlN coated carbide	2AAC-ST = TiAlN coated cermet	2TLK-KT = Alcrona coated carbide	2ALK-ST = Alcrona coated cermet
2000-KT = Uncoated carbide	2AVC-ST = Uncoated cermet										
2TIN-KT = TiN coated carbide	2ANC-ST = TiN coated cermet										
2TIC-KT = TiCN coated carbide	2ACC-ST = TiCN coated cermet										
2TIA-KT = TiAlN coated carbide	2AAC-ST = TiAlN coated cermet										
2TLK-KT = Alcrona coated carbide	2ALK-ST = Alcrona coated cermet										
3. Lead-in E, M = Left hand helical flute A, F, G, L, N, T, V = Straight flute J, W, X, Y = Straight Flute with chipbreaker	4. Diameter XX.XXXX = Inch XXX.XXX = Metric	5. Tolerance 4 decimal places = inch tolerance 3 decimal places = mm tolerance *The total tolerance capable is 0.0002" (0.005mm)									

Reference Key

Symbol	Attribute
D_1	Reamer diameter
D_2	Shank diameter
D_3	Maximum conical ring diameter
L_1	Overall length
L_2	Length of cut
L_5	Maximum overhang
L_7	Shank length
L_{15}	Flute length




Building Your Complete Tool

You will need both pieces to complete your ring style reamer assembly. There is a guide on the page where the rings are located. You must follow the guide to build the item number for the reamer ring that you need.

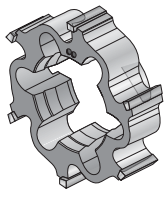
However, the complete mandrel item numbers are listed on their respective pages. You do not need to build the mandrel numbers.






1


Select Your Ring





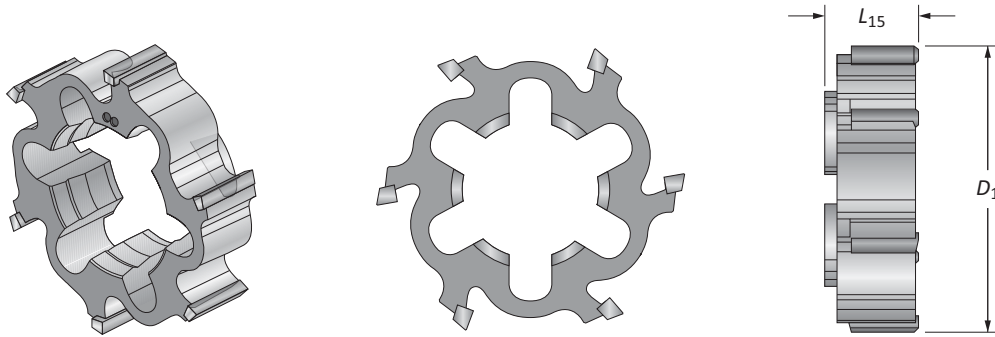
2

Select Your Mandrel



Cutting Rings

Imperial (inch) | Diameter Range: 0.6929" - 7.8976"



D_1 Range	L_{15}		Number of Teeth
	Imperial (inch)	Straight Flute	
0.6929 - 0.8503	0.433	-	6
0.8504 - 1.0078	0.472	-	6
1.0079 - 1.2834	0.551	-	6
1.2835 - 1.7952	0.630	0.630	6
1.7953 - 3.1338	0.728	0.728	6
3.1339 - 3.9605	0.728	0.728	8
3.9606 - 4.3542	0.728	0.728	10
4.3543 - 7.8976	0.728	0.728	12

I 2ANC-STF-019686

Imperial Item

Cermet w/
TiN Coating

F Lead-in

Diameter (D_1)

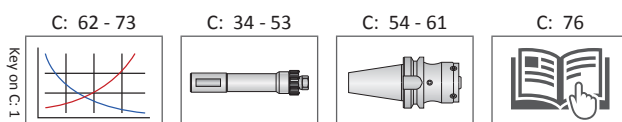
Coating and Substrate Codes

Grade	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	2000-KT	2TIN-KT	2TIC-KT	2TIA-KT	2TLK-KK
Cermet	2AVC-ST	2ANC-ST	2ACC-ST	2AAC-ST	2ALK-SK

Lead-in Recommendations

ISO Material	T	F	N	G	L	A	V
P			●	●		○	○
S	●			○			
M				●	○		
H			○	●			
K	○			●			○
N				●		●	○

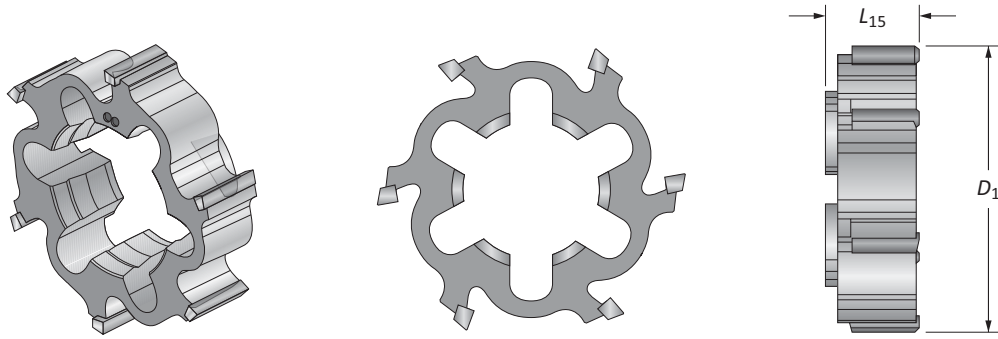
● Best ○ Better ○ Good





Cutting Rings

Metric (mm) | Diameter Range: 17.600mm - 200.600mm



D_1 Range	L_{15}		Number of Teeth
	Straight Flute	Helical Flute	
Metric (mm)			
17.600 - 21.599	11.00	-	6
21.600 - 25.599	12.00	-	6
25.600 - 32.599	14.00	-	6
32.600 - 45.599	16.00	16.00	6
45.600 - 79.599	18.50	18.50	6
79.600 - 100.599	18.50	18.50	8
100.600 - 110.599	18.50	18.50	10
110.600 - 200.600	18.50	18.50	12

2ANC-STF-019686

Cermet w/
TiN Coating

F Lead-in

Diameter (D_1)

Coating and Substrate Codes

Grade	Uncoated	TiN	TiCN	TiAlN	Alcrona
Carbide	2000-KT	2TIN-KT	2TIC-KT	2TIA-KT	2TLK-KK
Cermet	2AVC-ST	2ANC-ST	2ACC-ST	2AAC-ST	2ALK-SK

Lead-in Recommendations

ISO Material	T	F	N	G	L	A	V
P			●	●		◐	○
S	●			◐			
M				●	◐		
H			◐	●			
K	○			●			◐
N				●		●	◐

● Best ◐ Better ○ Good

Key on C: 1

C: 62 - 73

C: 34 - 53

C: 54 - 61

C: 76

R

A

Ring Style Mandrels

4550 Series | Short Length | Diameter Range: 0.6929" - 3.9602" (17.60mm - 100.59mm)

Series	4550
Shank Type	Cylindrical
Application	Through Holes
Coolant	Radial

B

D ₁ Range	Mandrel					Shank		Teeth	Part No. (Complete Mandrel*)	
	D ₃	L ₅	L ₁₅	L ₂	L ₁	L ₇	D ₂		With Flat	Without Flat
0.6929 - 0.8503	0.472	0.433	0.433	3.189	5.591	1.969	0.750	6	94550-MC-010	94550A-MC-010
0.8504 - 1.0078	0.472	0.433	0.472	3.189	5.591	1.969	0.750	6	94550-MC-020	94550A-MC-020
1.0079 - 1.2834	0.614	0.433	0.551	4.016	6.417	1.969	0.750	6	94550-MC-030	94550A-MC-030
1.2835 - 1.5983	0.866	0.551	0.630	4.016	6.772	2.205	1.000	6	94550-MC-040	94550A-MC-040
1.5984 - 1.7952	1.000	0.591	0.630	4.016	6.811	2.205	1.000	6	94550-MC-050	94550A-MC-050
1.7953 - 1.9527	1.181	0.807	0.728	4.134	7.303	2.362	1.250	6	94550-MC-060	94550A-MC-060
1.9528 - 2.3857	1.181	0.807	0.728	4.134	7.303	2.362	1.250	6	94550-MC-070	94550A-MC-070
2.3858 - 2.7794	1.575	0.965	0.728	4.134	7.461	2.362	1.250	6	94550-MC-080	94550A-MC-080
2.7795 - 3.1338	1.575	0.965	0.728	4.134	7.461	2.362	1.250	6	94550-MC-090	94550A-MC-090
3.1339 - 3.5668	2.205	1.122	0.728	4.134	8.012	2.756	1.500	8	94550-MC-100	94550A-MC-100
3.5669 - 3.9602	2.205	1.122	0.728	4.134	8.012	2.756	1.500	8	94550-MC-110	94550A-MC-110
17.60 - 21.59	12	11	11	81	142	50	20	6	4550-MC-010	4550A-MC-010
21.60 - 25.59	12	11	12	81	142	50	20	6	4550-MC-020	4550A-MC-020
25.60 - 32.59	15.6	11	14	102	163	50	20	6	4550-MC-030	4550A-MC-030
32.60 - 40.59	22	14	16	102	172	56	25	6	4550-MC-040	4550A-MC-040
40.60 - 45.59	25.4	15	16	102	173	56	25	6	4550-MC-050	4550A-MC-050
45.60 - 49.59	30	20.5	18.5	105	185.5	60	32	6	4550-MC-060	4550A-MC-060
49.60 - 60.59	30	20.5	18.5	105	185.5	60	32	6	4550-MC-070	4550A-MC-070
60.60 - 70.59	40	24.5	18.5	105	189.5	60	32	6	4550-MC-080	4550A-MC-080
70.60 - 79.59	40	24.5	18.5	105	189.5	60	32	6	4550-MC-090	4550A-MC-090
79.60 - 90.59	56	28.5	18.5	105	203.5	70	40	8	4550-MC-100	4550A-MC-100
90.60 - 100.59	56	28.5	18.5	105	203.5	70	40	8	4550-MC-110	4550A-MC-110

*Complete mandrel does not include cutting ring.

F

E

D

C

B

A

X

SPECIALS

C: 62 - 73	C: 32 - 33	C: 54 - 61	C: 76

ⓘ = Imperial (in)
Ⓜ = Metric (mm)

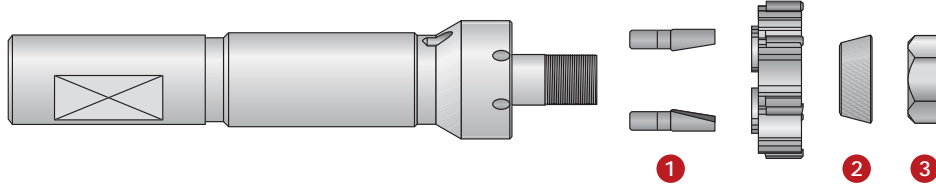
C: 34

www.alliedmachine.com | 1.330.343.4283



Ring Style Mandrels

4550 Series | Short Length | Spare Parts



	Part No. (Complete Mandrel*)		Spare Parts				
	With Flat	Without Flat	1 Drive Pins	Number of Drive Pins	2 Conical Ring	3 Nut	Wrench Size (mm)
i	94550-MC-010	94550A-MC-010	2000-CO-010	3	2010-AC-010	2000-DA-010	10
	94550-MC-020	94550A-MC-020	2000-CO-020	3	2010-AC-010	2000-DA-010	10
	94550-MC-030	94550A-MC-030	2000-CO-030	3	2010-AC-020	2000-DA-020	13
	94550-MC-040	94550A-MC-040	2000-CO-040	2	2010-AC-030	2000-DA-060	19
	94550-MC-050	94550A-MC-050	2000-CO-060	2	2010-AC-040	2000-DA-090	22
	94550-MC-060	94550A-MC-060	2000-CO-060	2	2010-AC-050	2000-GH-880	30 ♦
	94550-MC-070	94550A-MC-070	2000-CO-070	2	2010-AC-050	2000-GH-880	30 ♦
	94550-MC-080	94550A-MC-080	2000-CO-080	2	2010-AC-060	2000-GH-900	40 ♦
	94550-MC-090	94550A-MC-090	2000-CO-090	2	2010-AC-060	2000-GH-900	40 ♦
	94550-MC-100	94550A-MC-100	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦
	94550-MC-110	94550A-MC-110	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦
ii	4550-MC-010	4550A-MC-010	2000-CO-010	3	2010-AC-010	2000-DA-010	10
	4550-MC-020	4550A-MC-020	2000-CO-020	3	2010-AC-010	2000-DA-010	10
	4550-MC-030	4550A-MC-030	2000-CO-030	3	2010-AC-020	2000-DA-020	13
	4550-MC-040	4550A-MC-040	2000-CO-040	2	2010-AC-030	2000-DA-060	19
	4550-MC-050	4550A-MC-050	2000-CO-060	2	2010-AC-040	2000-DA-090	22
	4550-MC-060	4550A-MC-060	2000-CO-060	2	2010-AC-050	2000-GH-880	30 ♦
	4550-MC-070	4550A-MC-070	2000-CO-070	2	2010-AC-050	2000-GH-880	30 ♦
	4550-MC-080	4550A-MC-080	2000-CO-080	2	2010-AC-060	2000-GH-900	40 ♦
	4550-MC-090	4550A-MC-090	2000-CO-090	2	2010-AC-060	2000-GH-900	40 ♦
	4550-MC-100	4550A-MC-100	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦
	4550-MC-110	4550A-MC-110	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦

*Complete mandrel does not include cutting ring.

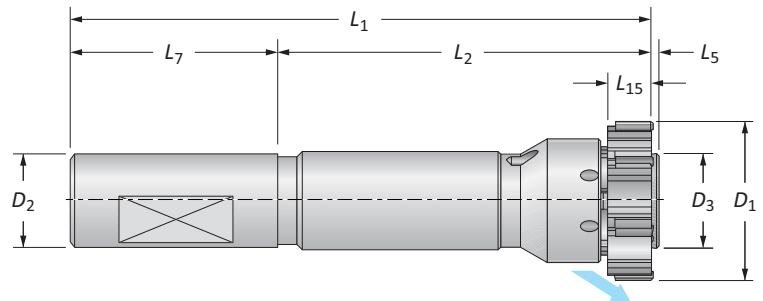
♦ Spanner wrench

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

Ring Style Mandrels

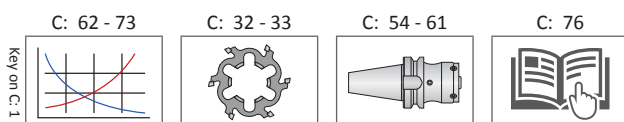
4555 Series | Short Length | Diameter Range: 0.6929" - 3.9602" (17.60mm - 100.59mm)

Series	4555
Shank Type	Cylindrical
Application	Blind Holes
Coolant	Radial



D_1 Range	Mandrel					Shank		Teeth	Part No. (Complete Mandrel*)	
	D_3	L_5	L_{15}	L_2	L_1	L_7	D_2		With Flat	Without Flat
0.6929 - 0.8503	0.441	0.039	0.433	3.189	5.197	1.969	0.750	6	94555-MC-010	94555A-MC-010
0.8504 - 1.0078	0.441	0.039	0.472	3.189	5.197	1.969	0.750	6	94555-MC-020	94555A-MC-020
1.0079 - 1.1653	0.594	0.039	0.551	4.016	6.024	1.969	0.750	6	94555-MC-030	94555A-MC-030
1.1654 - 1.2834	0.594	0.039	0.551	4.016	6.024	1.969	0.750	6	94555-MC-035	94555A-MC-035
1.2835 - 1.4408	0.799	0.039	0.630	4.016	6.260	2.205	1.000	6	94555-MC-040	94555A-MC-040
1.4409 - 1.5983	0.799	0.039	0.630	4.016	6.260	2.205	1.000	6	94555-MC-045	94555A-MC-045
1.5984 - 1.7952	0.949	0.039	0.630	4.016	6.260	2.205	1.000	6	94555-MC-050	94555A-MC-050
1.7953 - 1.9527	1.098	0.059	0.728	4.134	6.555	2.362	1.250	6	94555-MC-060	94555A-MC-060
1.9528 - 2.1889	1.098	0.059	0.728	4.134	6.555	2.362	1.250	6	94555-MC-070	94555A-MC-070
2.1890 - 2.3857	1.098	0.059	0.728	4.134	6.555	2.362	1.250	6	94555-MC-075	94555A-MC-075
2.3858 - 2.5826	1.461	0.059	0.728	4.134	6.555	2.362	1.250	6	94555-MC-080	94555A-MC-080
2.5827 - 2.7794	1.461	0.059	0.728	4.134	6.555	2.362	1.250	6	94555-MC-085	94555A-MC-085
2.7795 - 3.1338	1.461	0.059	0.728	4.134	6.555	2.362	1.250	6	94555-MC-090	94555A-MC-090
3.1339 - 3.5668	2.091	0.059	0.728	4.134	6.949	2.756	1.500	8	94555-MC-100	94555A-MC-100
3.5669 - 3.9602	2.091	0.059	0.728	4.134	6.949	2.756	1.500	8	94555-MC-110	94555A-MC-110
17.60 - 21.59	11.2	1	11	81	132	50	20	6	4555-MC-010	4555A-MC-010
21.60 - 25.59	11.2	1	12	81	132	50	20	6	4555-MC-020	4555A-MC-020
25.60 - 29.59	15.1	1	14	102	153	50	20	6	4555-MC-030	4555A-MC-030
29.60 - 32.59	15.1	1	14	102	153	50	20	6	4555-MC-035	4555A-MC-035
32.60 - 36.59	20.3	1	16	102	159	56	25	6	4555-MC-040	4555A-MC-040
36.60 - 40.59	20.3	1	16	102	159	56	25	6	4555-MC-045	4555A-MC-045
40.60 - 45.59	24.1	1	16	102	159	56	25	6	4555-MC-050	4555A-MC-050
45.60 - 49.59	27.9	1.5	18.5	105	166.5	60	32	6	4555-MC-060	4555A-MC-060
49.60 - 55.59	27.9	1.5	18.5	105	166.5	60	32	6	4555-MC-070	4555A-MC-070
55.60 - 60.59	27.9	1.5	18.5	105	166.5	60	32	6	4555-MC-075	4555A-MC-075
60.60 - 65.59	37.1	1.5	18.5	105	166.5	60	32	6	4555-MC-080	4555A-MC-080
65.60 - 70.59	37.1	1.5	18.5	105	166.5	60	32	6	4555-MC-085	4555A-MC-085
70.60 - 79.59	37.1	1.5	18.5	105	166.5	60	32	6	4555-MC-090	4555A-MC-090
79.60 - 90.59	53.1	1.5	18.5	105	176.5	70	40	8	4555-MC-100	4555A-MC-100
90.60 - 100.59	53.1	1.5	18.5	105	176.5	70	40	8	4555-MC-110	4555A-MC-110

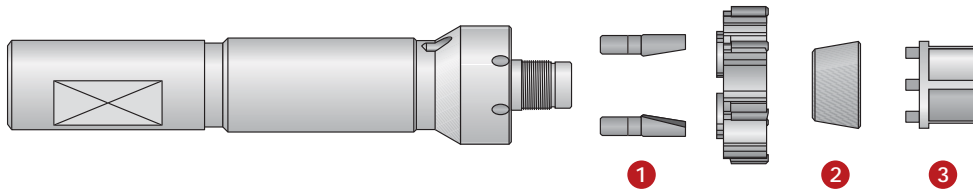
*Complete mandrel does not include cutting ring.



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

Ring Style Mandrels

4555 Series | Short Length | Spare Parts




Part No. (Complete Mandrel*)		Spare Parts							Wrench Size (mm)
With Flat	Without Flat	1 Drive Pins	Number of Drive Pins	2 Conical Ring	Conical Ring (2nd Expansion)	Conical Ring (3rd Expansion)	3 Adjusting Key		
94555-MC-010	94555A-MC-010	2000-CO-010	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
94555-MC-020	94555A-MC-020	2000-CO-020	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
94555-MC-030	94555A-MC-030	2000-CO-030	3	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
94555-MC-035	94555A-MC-035	2000-CO-040	2	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
94555-MC-040	94555A-MC-040	2000-CO-040	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
94555-MC-045	94555A-MC-045	2000-CO-050	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
i 94555-MC-050	94555A-MC-050	2000-CO-060	2	4001-AC-145	4001-AC-245	4001-AC-345	4001-CH-045	22	
94555-MC-060	94555A-MC-060	2000-CO-060	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
94555-MC-070	94555A-MC-070	2000-CO-070	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
94555-MC-075	94555A-MC-075	2000-CO-080	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
94555-MC-080	94555A-MC-080	2000-CO-080	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
94555-MC-085	94555A-MC-085	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
94555-MC-090	94555A-MC-090	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
94555-MC-100	94555A-MC-100	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	
94555-MC-110	94555A-MC-110	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	
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m 4555-MC-010	4555A-MC-010	2000-CO-010	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
4555-MC-020	4555A-MC-020	2000-CO-020	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
4555-MC-030	4555A-MC-030	2000-CO-030	3	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
4555-MC-035	4555A-MC-035	2000-CO-040	2	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
4555-MC-040	4555A-MC-040	2000-CO-040	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
4555-MC-045	4555A-MC-045	2000-CO-050	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
4555-MC-050	4555A-MC-050	2000-CO-060	2	4001-AC-145	4001-AC-245	4001-AC-345	4001-CH-045	22	
4555-MC-060	4555A-MC-060	2000-CO-060	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4555-MC-070	4555A-MC-070	2000-CO-070	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4555-MC-075	4555A-MC-075	2000-CO-080	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4555-MC-080	4555A-MC-080	2000-CO-080	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4555-MC-085	4555A-MC-085	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4555-MC-090	4555A-MC-090	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4555-MC-100	4555A-MC-100	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	
4555-MC-110	4555A-MC-110	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	

*Complete mandrel does not include cutting ring.

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

R

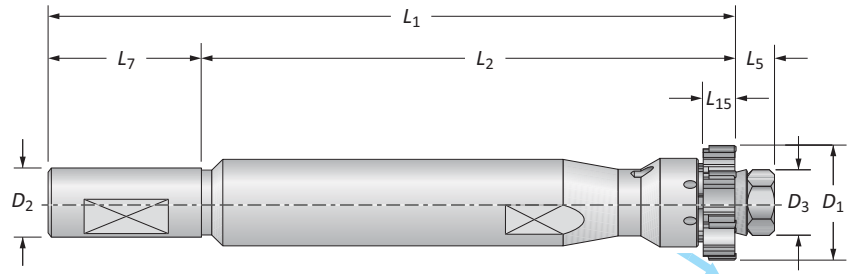
 REAMING | ALVAN® Reaming Systems by S.C.A.M.I.®

A

Ring Style Mandrels

4500 Series | Long Length | Diameter Range: 0.6929" - 3.9602" (17.60mm - 100.59mm)

Series	4500
Shank Type	Cylindrical
Application	Through Holes
Coolant	Radial



Technical drawing of a Ring Style Mandrel showing dimensions: L_1 , L_2 , L_5 , L_7 , L_{15} , D_1 , D_2 , and D_3 .

B

D_1 Range	Mandrel					Shank			Teeth	Part No. (Complete Mandrel*)	
	D_3	L_5	L_{15}	L_2	L_1	L_7	D_2	With Flat		Without Flat	
0.6929 - 0.8503	0.472	0.433	0.433	4.764	7.165	1.969	0.750	6	94500-MC-010	94500A-MC-010	
0.8504 - 1.0078	0.472	0.433	0.472	4.764	7.165	1.969	0.750	6	94500-MC-020	94500A-MC-020	
1.0079 - 1.2834	0.614	0.433	0.551	6.024	8.425	1.969	0.750	6	94500-MC-030	94500A-MC-030	
1.2835 - 1.5983	0.866	0.551	0.630	7.047	9.803	2.205	1.000	6	94500-MC-040	94500A-MC-040	
1.5984 - 1.7952	0.866	0.551	0.630	7.047	9.803	2.205	1.000	6	94500-MC-050	94500A-MC-050	
1.7953 - 1.9527	1.000	0.591	0.630	7.913	10.709	2.205	1.000	6	94500-MC-060	94500A-MC-060	
1.9528 - 2.3857	1.181	0.807	0.728	8.425	11.594	2.362	1.250	6	94500-MC-070	94500A-MC-070	
2.3858 - 2.7794	1.575	0.965	0.728	9.331	12.657	2.362	1.250	6	94500-MC-080	94500A-MC-080	
2.7795 - 3.1338	1.575	0.965	0.728	9.331	12.657	2.362	1.250	6	94500-MC-090	94500A-MC-090	
3.1339 - 3.5668	2.205	1.122	0.728	9.646	13.524	2.756	1.500	6	94500-MC-100	94500A-MC-100	
3.5669 - 3.9602	2.205	1.122	0.728	9.646	13.524	2.756	1.500	8	94500-MC-110	94500A-MC-110	
17.60 - 21.59	12	11	11	121	182	50	20	6	4500-MC-010	4500A-MC-010	
21.60 - 25.59	12	11	12	121	182	50	20	6	4500-MC-020	4500A-MC-020	
25.60 - 32.59	15.6	11	14	153	214	50	20	6	4500-MC-030	4500A-MC-030	
32.60 - 40.59	22	14	16	179	249	56	25	6	4500-MC-040	4500A-MC-040	
40.60 - 45.59	25.4	15	16	201	272	56	25	6	4500-MC-050	4500A-MC-050	
45.60 - 49.59	30	20.5	18.5	214	294.5	60	32	6	4500-MC-060	4500A-MC-060	
49.60 - 60.59	30	20.5	18.5	214	294.5	60	32	6	4500-MC-070	4500A-MC-070	
60.60 - 70.59	40	24.5	18.5	237	321.5	60	32	6	4500-MC-080	4500A-MC-080	
70.60 - 79.59	40	24.5	18.5	237	321.5	60	32	6	4500-MC-090	4500A-MC-090	
79.60 - 90.59	56	28.5	18.5	245	343.5	70	40	6	4500-MC-100	4500A-MC-100	
90.60 - 100.59	56	28.5	18.5	245	343.5	70	40	8	4500-MC-110	4500A-MC-110	

*Complete mandrel does not include cutting ring.

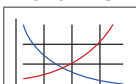
F

X


SPECIALS

Key on C: 1

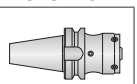
C: 62 - 73




C: 32 - 33



C: 54 - 61



C: 76



ⓘ = Imperial (in)
Ⓜ = Metric (mm)

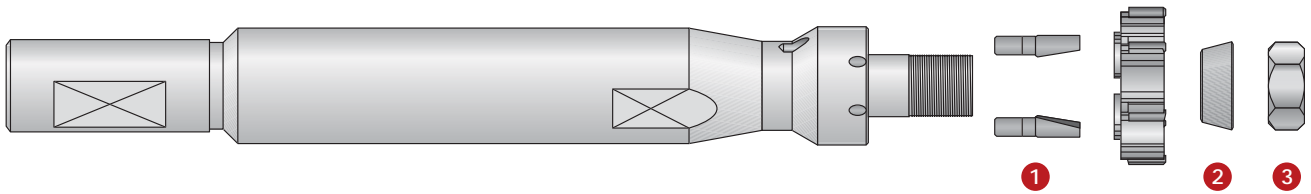
C: 38

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Ring Style Mandrels

4500 Series | Long Length | Spare Parts



Part No. (Complete Mandrel*)		Spare Parts				
With Flat	Without Flat	1 Drive Pins	2 Number of Drive Pins	3 Conical Ring	Nut	Wrench Size (mm)
i 94500-MC-010	94500A-MC-010	2000-CO-010	3	2010-AC-010	2000-DA-010	10
94500-MC-020	94500A-MC-020	2000-CO-020	3	2010-AC-010	2000-DA-010	10
94500-MC-030	94500A-MC-030	2000-CO-030	3	2010-AC-020	2000-DA-020	13
94500-MC-040	94500A-MC-040	2000-CO-040	2	2010-AC-030	2000-DA-060	19
94500-MC-050	94500A-MC-050	2000-CO-060	2	2010-AC-040	2000-DA-090	22
94500-MC-060	94500A-MC-060	2000-CO-060	2	2010-AC-050	2000-GH-880	30 ♦
94500-MC-070	94500A-MC-070	2000-CO-070	2	2010-AC-050	2000-GH-880	30 ♦
94500-MC-080	94500A-MC-080	2000-CO-080	2	2010-AC-060	2000-GH-900	40 ♦
94500-MC-090	94500A-MC-090	2000-CO-090	2	2010-AC-060	2000-GH-900	40 ♦
94500-MC-100	94500A-MC-100	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦
94500-MC-110	94500A-MC-110	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦
ii 4500-MC-010	4500A-MC-010	2000-CO-010	3	2010-AC-010	2000-DA-010	10
4500-MC-020	4500A-MC-020	2000-CO-020	3	2010-AC-010	2000-DA-010	10
4500-MC-030	4500A-MC-030	2000-CO-030	3	2010-AC-020	2000-DA-020	13
4500-MC-040	4500A-MC-040	2000-CO-040	2	2010-AC-030	2000-DA-060	19
4500-MC-050	4500A-MC-050	2000-CO-060	2	2010-AC-040	2000-DA-090	22
4500-MC-060	4500A-MC-060	2000-CO-060	2	2010-AC-050	2000-GH-880	30 ♦
4500-MC-070	4500A-MC-070	2000-CO-070	2	2010-AC-050	2000-GH-880	30 ♦
4500-MC-080	4500A-MC-080	2000-CO-080	2	2010-AC-060	2000-GH-900	40 ♦
4500-MC-090	4500A-MC-090	2000-CO-090	2	2010-AC-060	2000-GH-900	40 ♦
4500-MC-100	4500A-MC-100	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦
4500-MC-110	4500A-MC-110	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦

*Complete mandrel does not include cutting ring.

♦ Spanner wrench

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

R

 REAMING | ALVAN® Reaming Systems by S.C.A.M.I.®

A

Ring Style Mandrels

4505 Series | Long Length | Diameter Range: 0.6929" - 3.9602" (17.60mm - 100.59mm)

Series	4505
Shank Type	Cylindrical
Application	Blind Holes
Coolant	Radial

Technical drawing of a Ring Style Mandrel showing dimensions: L_1 , L_2 , L_5 , L_7 , L_{15} , D_1 , D_2 , D_3 .

B

D_1 Range	Mandrel					Shank		Teeth	Part No. (Complete Mandrel*)	
	D_3	L_5	L_{15}	L_2	L_1	L_7	D_2		With Flat	Without Flat
0.6929 - 0.8503	0.441	0.039	0.433	4.764	6.772	1.969	0.750	6	94505-MC-010	94505A-MC-010
0.8504 - 1.0078	0.441	0.039	0.472	4.764	6.772	1.969	0.750	6	94505-MC-020	94505A-MC-020
1.0079 - 1.1653	0.594	0.039	0.551	6.024	8.031	1.969	0.750	6	94505-MC-030	94505A-MC-030
1.1654 - 1.2834	0.594	0.039	0.551	6.024	8.031	1.969	0.750	6	94505-MC-035	94505A-MC-035
1.2835 - 1.4408	0.799	0.039	0.630	7.047	9.291	2.205	1.000	6	94505-MC-040	94505A-MC-040
1.4409 - 1.5983	0.799	0.039	0.630	7.047	9.291	2.205	1.000	6	94505-MC-045	94505A-MC-045
1.5984 - 1.7952	0.949	0.039	0.630	7.913	10.157	2.205	1.000	6	94505-MC-050	94505A-MC-050
1.7953 - 1.9527	1.098	0.059	0.728	8.425	10.846	2.362	1.250	6	94505-MC-060	94505A-MC-060
1.9528 - 2.1889	1.098	0.059	0.728	8.425	10.846	2.362	1.250	6	94505-MC-070	94505A-MC-070
2.1890 - 2.3857	1.098	0.059	0.728	8.425	10.846	2.362	1.250	6	94505-MC-075	94505A-MC-075
2.3858 - 2.5826	1.461	0.059	0.728	9.331	11.752	2.362	1.250	6	94505-MC-080	94505A-MC-080
2.5827 - 2.7794	1.461	0.059	0.728	9.331	11.752	2.362	1.250	6	94505-MC-085	94505A-MC-085
2.7795 - 3.1338	1.461	0.059	0.728	9.331	11.752	2.362	1.250	6	94505-MC-090	94505A-MC-090
3.1339 - 3.5668	2.091	0.059	0.728	9.646	12.461	2.756	1.500	8	94505-MC-100	94505A-MC-100
3.5669 - 3.9602	2.091	0.059	0.728	9.646	12.461	2.756	1.500	8	94505-MC-110	94505A-MC-110
17.60 - 21.59	11.2	1	11	121	172	50	20	6	4505-MC-010	4505A-MC-010
21.60 - 25.59	11.2	1	12	121	172	50	20	6	4505-MC-020	4505A-MC-020
25.60 - 29.59	15.1	1	14	153	204	50	20	6	4505-MC-030	4505A-MC-030
29.60 - 32.59	15.1	1	14	153	204	50	20	6	4505-MC-035	4505A-MC-035
32.60 - 36.59	20.3	1	16	179	236	56	25	6	4505-MC-040	4505A-MC-040
36.60 - 40.59	20.3	1	16	179	236	56	25	6	4505-MC-045	4505A-MC-045
40.60 - 45.59	24.1	1	16	201	258	56	25	6	4505-MC-050	4505A-MC-050
45.60 - 49.59	27.9	1.5	18.5	214	275.5	60	32	6	4505-MC-060	4505A-MC-060
49.60 - 55.59	27.9	1.5	18.5	214	275.5	60	32	6	4505-MC-070	4505A-MC-070
55.60 - 60.59	27.9	1.5	18.5	214	275.5	60	32	6	4505-MC-075	4505A-MC-075
60.60 - 65.59	37.1	1.5	18.5	237	298.5	60	32	6	4505-MC-080	4505A-MC-080
65.60 - 70.59	37.1	1.5	18.5	237	298.5	60	32	6	4505-MC-085	4505A-MC-085
70.60 - 79.59	37.1	1.5	18.5	237	298.5	60	32	6	4505-MC-090	4505A-MC-090
79.60 - 90.59	53.1	1.5	18.5	245	316.5	70	40	8	4505-MC-100	4505A-MC-100
90.60 - 100.59	53.1	1.5	18.5	245	316.5	70	40	8	4505-MC-110	4505A-MC-110

*Complete mandrel does not include cutting ring.

C

REAMING

D

BURNISHING

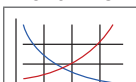

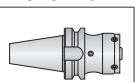

E

THREADING

X

SPECIALS

Key on C: 1

C: 62 - 73  C: 32 - 33  C: 54 - 61  C: 76 

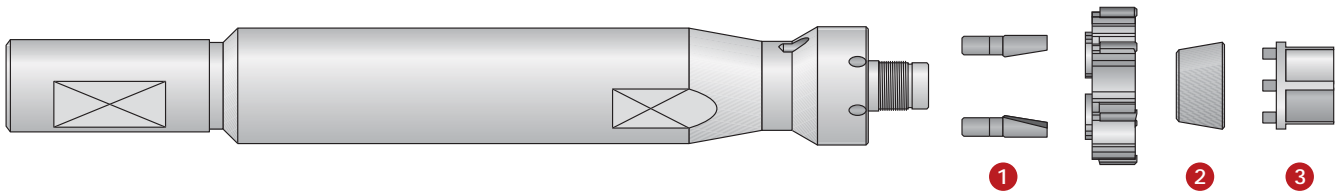
i = Imperial (in)
m = Metric (mm)

C: 40

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Ring Style Mandrels

4505 Series | Long Length | Spare Parts



Part No. (Complete Mandrel*)		Spare Parts							Wrench Size (mm)
With Flat	Without Flat	1		2		3			
		Drive Pins	Number of Drive Pins	Conical Ring	Conical Ring (2nd Expansion)	Conical Ring (3rd Expansion)	Adjusting Key		
i 94505-MC-010	94505A-MC-010	2000-CO-010	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
94505-MC-020	94505A-MC-020	2000-CO-020	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
94505-MC-030	94505A-MC-030	2000-CO-030	3	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
94505-MC-035	94505A-MC-035	2000-CO-040	2	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
94505-MC-040	94505A-MC-040	2000-CO-040	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
94505-MC-045	94505A-MC-045	2000-CO-050	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
94505-MC-050	94505A-MC-050	2000-CO-060	2	4001-AC-145	4001-AC-245	4001-AC-345	4001-CH-045	22	
94505-MC-060	94505A-MC-060	2000-CO-060	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
94505-MC-070	94505A-MC-070	2000-CO-070	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
94505-MC-075	94505A-MC-075	2000-CO-080	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
94505-MC-080	94505A-MC-080	2000-CO-080	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
94505-MC-085	94505A-MC-085	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
94505-MC-090	94505A-MC-090	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
94505-MC-100	94505A-MC-100	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	
94505-MC-110	94505A-MC-110	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	
m 4505-MC-010	4505A-MC-010	2000-CO-010	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
4505-MC-020	4505A-MC-020	2000-CO-020	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
4505-MC-030	4505A-MC-030	2000-CO-030	3	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
4505-MC-035	4505A-MC-035	2000-CO-040	2	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
4505-MC-040	4505A-MC-040	2000-CO-040	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
4505-MC-045	4505A-MC-045	2000-CO-050	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
4505-MC-050	4505A-MC-050	2000-CO-060	2	4001-AC-145	4001-AC-245	4001-AC-345	4001-CH-045	22	
4505-MC-060	4505A-MC-060	2000-CO-060	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4505-MC-070	4505A-MC-070	2000-CO-070	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4505-MC-075	4505A-MC-075	2000-CO-080	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4505-MC-080	4505A-MC-080	2000-CO-080	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4505-MC-085	4505A-MC-085	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4505-MC-090	4505A-MC-090	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4505-MC-100	4505A-MC-100	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	
4505-MC-110	4505A-MC-110	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	

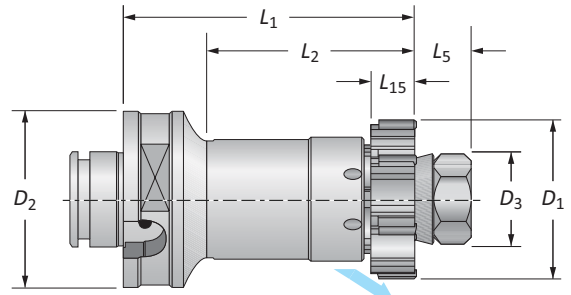
*Complete mandrel does not include cutting ring.

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

**Ring Style Mandrels**

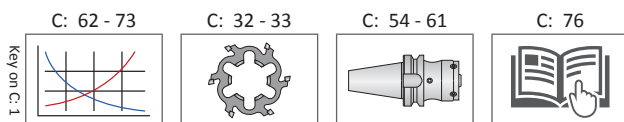
4330 Series | Short Length | Diameter Range: 0.6929" - 3.9602 (17.60mm - 100.59mm)

Series	4330
Shank Type	Modular
Application	Through Holes
Coolant	Radial



D_1 Range		Mandrel					Shank		Teeth	Part No. (Complete Mandrel*)
Imperial (inch)	Metric (mm)	D_3	L_5	L_{15}	L_2	L_1	D_2			
0.6929 - 0.8503	17.60 - 21.59	12	11	11	55	75	50	6	4330-MC-010	
0.8504 - 1.0078	21.60 - 25.59	12	11	12	55	75	50	6	4330-MC-020	
1.0079 - 1.2834	25.60 - 32.59	15.6	11	14	60	80	50	6	4330-MC-030	
1.2835 - 1.5983	32.60 - 40.59	22	14	16	60	80	50	6	4330-MC-040	
1.5984 - 1.7952	40.60 - 45.59	25.4	15	16	60	80	50	6	4330-MC-050	
m 1.7953 - 1.9527	45.60 - 49.59	30	20.5	18.5	60	80	50	6	4330-MC-060	
1.9528 - 2.3857	49.60 - 60.59	30	20.5	18.5	60	80	50	6	4330-MC-070	
2.3858 - 2.7794	60.60 - 70.59	40	24.5	18.5	65	90	63	6	4330-MC-080	
2.7795 - 3.1338	70.60 - 79.59	40	24.5	18.5	65	90	63	6	4330-MC-090	
3.1339 - 3.5668	79.60 - 90.59	56	28.5	18.5	65	90	63	8	4330-MC-100	
3.5669 - 3.9602	90.60 - 100.59	56	28.5	18.5	65	90	63	8	4330-MC-110	

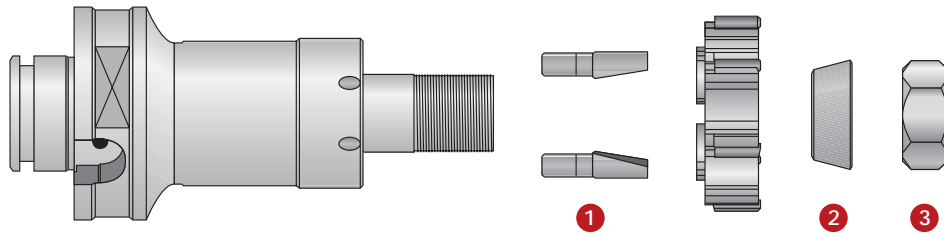
*Complete mandrel does not include cutting ring.



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

Ring Style Mandrels

4330 Series | Short Length | Spare Parts



Part No. (Complete Mandrel*)	Spare Parts					Wrench Size (mm)
	1 Drive Pins	Number of Drive Pins	2 Conical Ring	3 Nut		
4330-MC-010	2000-CO-010	3	2010-AC-010	2000-DA-010	10	
4330-MC-020	2000-CO-020	3	2010-AC-010	2000-DA-010	10	
4330-MC-030	2000-CO-030	3	2010-AC-020	2000-DA-020	13	
4330-MC-040	2000-CO-040	2	2010-AC-030	2000-DA-060	19	
4330-MC-050	2000-CO-060	2	2010-AC-040	2000-DA-090	22	
4330-MC-060	2000-CO-060	2	2010-AC-050	2000-GH-880	30 ♦	
4330-MC-070	2000-CO-070	2	2010-AC-050	2000-GH-880	30 ♦	
4330-MC-080	2000-CO-080	2	2010-AC-060	2000-GH-900	40 ♦	
4330-MC-090	2000-CO-090	2	2010-AC-060	2000-GH-900	40 ♦	
4330-MC-100	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦	
4330-MC-110	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦	

*Complete mandrel does not include cutting ring.
♦ Spanner wrench

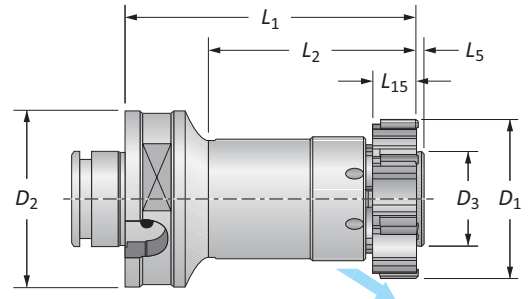
m

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

**Ring Style Mandrels**

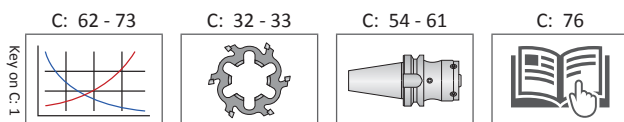
4335 Series | Short Length | Diameter Range: 0.6929" - 3.9602 (17.60mm - 100.59mm)

Series	4335
Shank Type	Modular
Application	Blind Holes
Coolant	Radial



D_1 Range		Mandrel					Shank		Teeth	Part No. (Complete Mandrel*)
Imperial (inch)	Metric (mm)	D_3	L_5	L_{15}	L_2	L_1	D_2			
0.6929 - 0.8503	17.60 - 21.59	11.2	1	11	55	75	50	6	4335-MC-010	
0.8504 - 1.0078	21.60 - 25.59	11.2	1	12	55	75	50	6	4335-MC-020	
1.0079 - 1.1653	25.60 - 29.59	15.1	1	14	60	80	50	6	4335-MC-030	
1.1654 - 1.2834	29.60 - 32.59	15.1	1	14	60	80	50	6	4335-MC-035	
1.2835 - 1.4408	32.60 - 36.59	20.3	1	16	60	80	50	6	4335-MC-040	
1.4409 - 1.5983	36.60 - 40.59	20.3	1	16	60	80	50	6	4335-MC-045	
1.5984 - 1.7952	40.60 - 45.59	24.1	1	16	60	80	50	6	4335-MC-050	
m 1.7953 - 1.9527	45.60 - 49.59	27.9	1.5	18.5	60	80	50	6	4335-MC-060	
1.9528 - 2.1889	49.60 - 55.59	27.9	1.5	18.5	60	80	50	6	4335-MC-070	
2.1890 - 2.3857	55.60 - 60.59	27.9	1.5	18.5	60	80	50	6	4335-MC-075	
2.3858 - 2.5826	60.60 - 65.59	37.1	1.5	18.5	65	90	63	6	4335-MC-080	
2.5827 - 2.7794	65.60 - 70.59	37.1	1.5	18.5	65	90	63	6	4335-MC-085	
2.7795 - 3.1338	70.60 - 79.59	37.1	1.5	18.5	65	90	63	6	4335-MC-090	
3.1339 - 3.5668	79.60 - 90.59	53.1	1.5	18.5	65	90	63	8	4335-MC-100	
3.5669 - 3.9602	90.60 - 100.59	53.1	1.5	18.5	65	90	63	8	4335-MC-110	

*Complete mandrel does not include cutting ring.

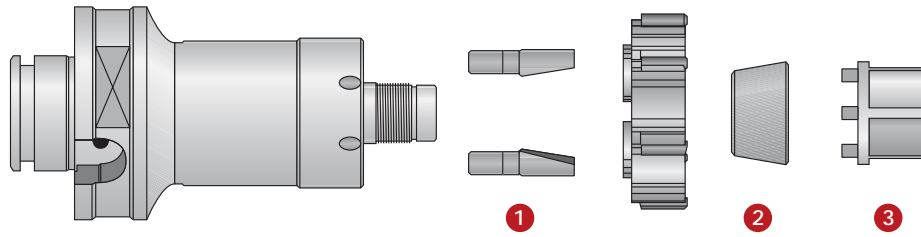


i = Imperial (in)
m = Metric (mm)



Ring Style Mandrels

4335 Series | Short Length | Spare Parts



Part No. (Complete Mandrel*)	Spare Parts							Wrench Size (mm)
	1 Drive Pins	Number of Drive Pins	2 Conical Ring	Conical Ring (2nd Expansion)	Conical Ring (3rd Expansion)	3 Adjusting Key		
4335-MC-010	2000-CO-010	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
4335-MC-020	2000-CO-020	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
4335-MC-030	2000-CO-030	3	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
4335-MC-035	2000-CO-040	2	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
4335-MC-040	2000-CO-040	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
4335-MC-045	2000-CO-050	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
4335-MC-050	2000-CO-060	2	4001-AC-145	4001-AC-245	4001-AC-345	4001-CH-045	22	
4335-MC-060	2000-CO-060	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4335-MC-070	2000-CO-070	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4335-MC-075	2000-CO-080	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4335-MC-080	2000-CO-080	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4335-MC-085	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4335-MC-090	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4335-MC-100	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	
4335-MC-110	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	

*Complete mandrel does not include cutting ring.

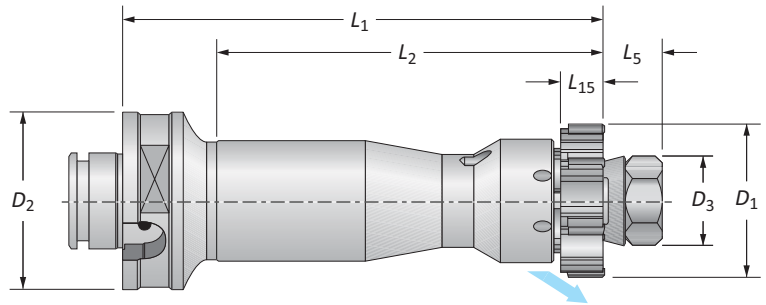
Ⓜ

Ⓜ = Imperial (in)
Ⓜ = Metric (mm)

Ring Style Mandrels

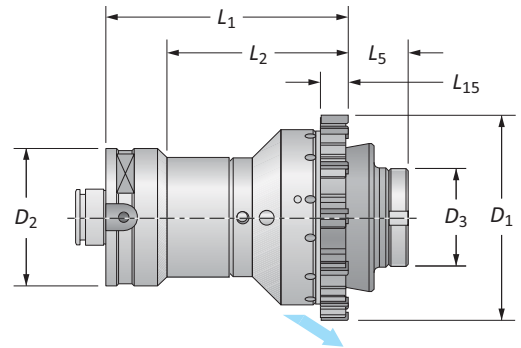
4350 Series | Standard Length | Diameter Range: 0.6929" - 7.8972 (17.60mm - 200.59mm)

Series	4350
Shank Type	Modular
Application	Through Holes
Coolant	Radial



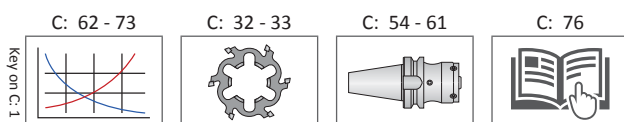
D_1 Range		Mandrel					Shank	Teeth	Part No. (Complete Mandrel*)
Imperial (inch)	Metric (mm)	D_3	L_5	L_{15}	L_2	L_1	D_2		
0.6929 - 0.8503	17.60 - 21.59	12	11	11	81	116	50	6	4350-MC-010
0.8504 - 1.0078	21.60 - 25.59	12	11	12	81	116	50	6	4350-MC-020
1.0079 - 1.2834	25.60 - 32.59	15.6	11	14	102	137	50	6	4350-MC-030
1.2835 - 1.5983	32.60 - 40.59	22	14	16	102	137	50	6	4350-MC-040
1.5984 - 1.7952	40.60 - 45.59	25.4	15	16	102	137	50	6	4350-MC-050
m 1.7953 - 1.9527	45.60 - 49.59	30	20.5	18.5	105	140	50	6	4350-MC-060
1.9528 - 2.3857	49.60 - 60.59	30	20.5	18.5	105	140	50	6	4350-MC-070
2.3858 - 2.7794	60.60 - 70.59	40	24.5	18.5	105	140	63	6	4350-MC-080
2.7795 - 3.1338	70.60 - 79.59	40	24.5	18.5	105	140	63	6	4350-MC-090
3.1339 - 3.5668	79.60 - 90.59	56	28.5	18.5	105	140	63	8	4350-MC-100
3.5669 - 3.9602	90.60 - 100.59	56	28.5	18.5	105	140	63	8	4350-MC-110

*Complete mandrel does not include cutting ring.



D_1 Range		Mandrel					Shank	Teeth	Part No. (Complete Mandrel*)
Imperial (inch)	Metric (mm)	D_3	L_5	L_{15}	L_2	L_1	D_2		
3.9603 - 4.3539	100.60 - 110.59	73.8	35.5	18.5	-	140	80	10	4350-MC-120
4.3540 - 4.5508	110.60 - 115.59	80.8	35.5	18.5	-	140	80	12	4350-MC-130
4.5509 - 4.7476	115.60 - 120.59	86.8	35.5	18.5	-	140	80	12	4350-MC-140
4.7477 - 4.9445	120.60 - 125.59	86.8	35.5	18.5	-	140	80	12	4350-MC-150
4.9446 - 5.2201	125.60 - 132.59	90.8	35.5	18.5	-	140	80	12	4350-MC-160
5.2202 - 5.4957	132.60 - 139.59	90.8	35.5	18.5	-	140	80	12	4350-MC-170
m 5.4958 - 5.7319	139.60 - 145.59	102.8	35.5	18.5	-	140	80	12	4350-MC-180
5.7320 - 6.1256	145.60 - 155.59	107.8	35.5	18.5	-	140	80	12	4350-MC-190
6.1257 - 6.5193	155.60 - 165.59	107.8	48.5	18.5	-	140	80	12	4350-MC-200
6.5194 - 6.9130	165.60 - 175.59	117.8	48.5	18.5	-	140	80	12	4350-MC-210
6.9131 - 7.3067	175.60 - 185.59	127.8	48.5	18.5	-	140	80	12	4350-MC-220
7.3068 - 7.7004	185.60 - 195.59	137.8	48.5	18.5	-	140	80	12	4350-MC-230
7.7005 - 7.8972	195.60 - 200.59	145.8	48.5	18.5	-	140	80	12	4350-MC-240

*Complete mandrel does not include cutting ring.

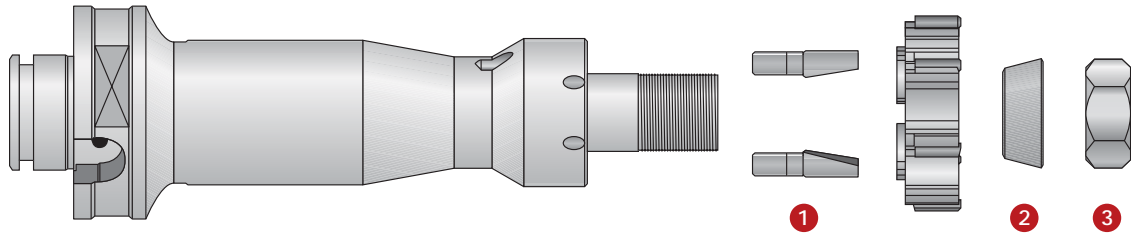


i = Imperial (in)
m = Metric (mm)



Ring Style Mandrels

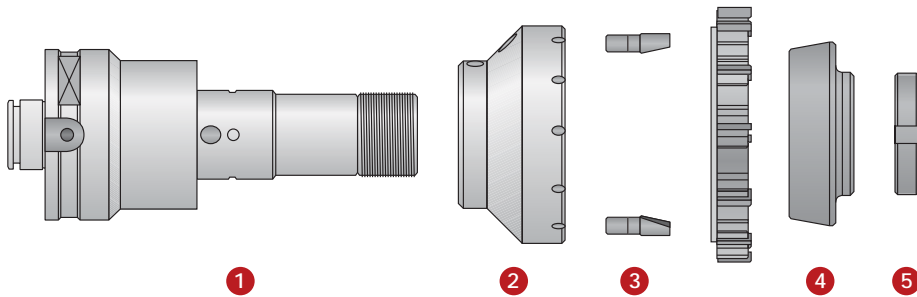
4350 Series | Standard Length | Spare Parts



Part No. (Complete Mandrel*)	Spare Parts					Wrench Size (mm)
	Drive Pins	Number of Drive Pins	Conical Ring	Nut		
4350-MC-010	2000-CO-010	3	2010-AC-010	2000-DA-010	10	
4350-MC-020	2000-CO-020	3	2010-AC-010	2000-DA-010	10	
4350-MC-030	2000-CO-030	3	2010-AC-020	2000-DA-020	13	
4350-MC-040	2000-CO-040	2	2010-AC-030	2000-DA-060	19	
4350-MC-050	2000-CO-060	2	2010-AC-040	2000-DA-090	22	
4350-MC-060	2000-CO-060	2	2010-AC-050	2000-GH-880	30 ♦	
4350-MC-070	2000-CO-070	2	2010-AC-050	2000-GH-880	30 ♦	
4350-MC-080	2000-CO-080	2	2010-AC-060	2000-GH-900	40 ♦	
4350-MC-090	2000-CO-090	2	2010-AC-060	2000-GH-900	40 ♦	
4350-MC-100	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦	
4350-MC-110	2000-CO-090	2	2010-AC-070	2000-GH-920	56 ♦	

*Complete mandrel does not include cutting ring.

♦ Spanner wrench



Part No. (Complete Mandrel*)	Spare Parts						Wrench Size (mm)
	Mandrel	Flange	Drive Pins	Number of Drive Pins	Conical Ring	Nut	
4350-MC-120	4350-MA-120	4355-FL-035	2000-CO-090	2	2060-BU-010	2000-GH-095	58 ♦
4350-MC-130	4350-MA-120	4355-FL-045	2000-CO-090	2	2060-BU-020	2000-GH-095	58 ♦
4350-MC-140	4350-MA-120	4355-FL-055	2000-CO-090	2	2060-BU-030	2000-GH-095	58 ♦
4350-MC-150	4350-MA-120	4355-FL-065	2000-CO-090	2	2060-BU-030	2000-GH-095	58 ♦
4350-MC-160	4350-MA-120	4355-FL-075	2000-CO-100	2	2060-BU-040	2000-GH-095	58 ♦
4350-MC-170	4350-MA-120	4355-FL-085	2000-CO-100	2	2060-BU-040	2000-GH-095	58 ♦
4350-MC-180	4350-MA-120	4355-FL-095	2000-CO-100	2	2060-BU-050	2000-GH-095	58 ♦
4350-MC-190	4350-MA-120	4355-FL-105	2000-CO-110	2	2060-BU-060	2000-GH-095	58 ♦
4350-MC-200	4350-MA-200	4355-FL-115	2000-CO-110	2	2060-BU-070	2000-GH-120	90 ♦
4350-MC-210	4350-MA-200	4355-FL-125	2000-CO-110	2	2060-BU-080	2000-GH-120	90 ♦
4350-MC-220	4350-MA-200	4355-FL-135	2000-CO-120	2	2060-BU-090	2000-GH-120	90 ♦
4350-MC-230	4350-MA-200	4355-FL-145	2000-CO-120	2	2060-BU-100	2000-GH-120	90 ♦
4350-MC-240	4350-MA-200	4355-FL-155	2000-CO-120	2	2060-BU-110	2000-GH-120	90 ♦

*Complete mandrel does not include cutting ring.

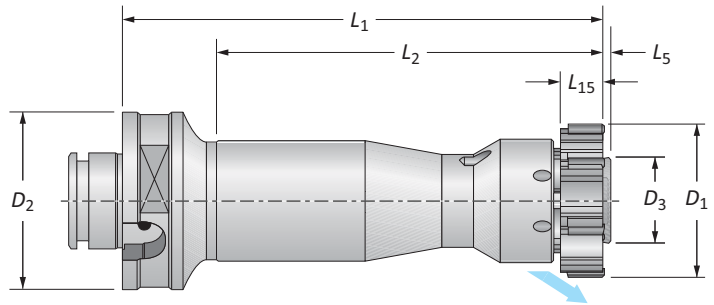
♦ Spanner wrench

ⓘ = Imperial (in)
Ⓜ = Metric (mm)

Ring Style Mandrels

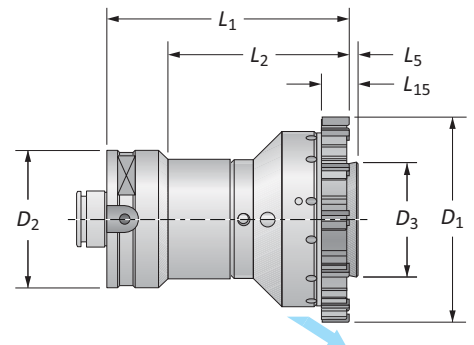
4355 Series | Standard Length | Diameter Range: 0.6929" - 7.8972 (17.60mm - 200.59mm)

Series	4355
Shank Type	Modular
Application	Blind Holes
Coolant	Radial



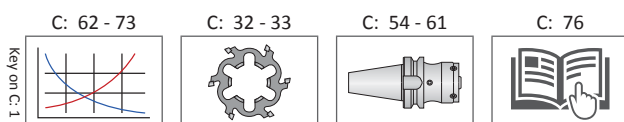
D_1 Range		Mandrel					Shank		Teeth	Part No. (Complete Mandrel*)
Imperial (inch)	Metric (mm)	D_3	L_5	L_{15}	L_2	L_1	D_2			
0.6929 - 0.8503	17.60 - 21.59	11.2	1	11	81	116	50	6	4355-MC-010	
0.8504 - 1.0078	21.60 - 25.59	11.2	1	12	81	116	50	6	4355-MC-020	
1.0079 - 1.1653	25.60 - 29.59	15.1	1	14	102	137	50	6	4355-MC-030	
1.1654 - 1.2834	29.60 - 32.59	15.1	1	14	102	137	50	6	4355-MC-035	
1.2835 - 1.4408	32.60 - 36.59	203	1	16	102	137	50	6	4355-MC-040	
1.4409 - 1.5983	36.60 - 40.59	20.3	1	16	102	137	50	6	4355-MC-045	
1.5984 - 1.7952	40.60 - 45.59	24.1	1	16	102	137	50	6	4355-MC-050	
m 1.7953 - 1.9527	45.60 - 49.59	27.9	1.5	18.5	105	140	50	6	4355-MC-060	
1.9528 - 2.1889	49.60 - 55.59	27.9	1.5	18.5	105	140	50	6	4355-MC-070	
2.1890 - 2.3857	55.60 - 60.59	27.9	1.5	18.5	105	140	50	6	4355-MC-075	
2.3858 - 2.5826	60.60 - 65.59	37.1	1.5	18.5	105	140	63	6	4355-MC-080	
2.5827 - 2.7794	65.60 - 70.59	37.1	1.5	18.5	105	140	63	6	4355-MC-085	
2.7795 - 3.1338	70.60 - 79.59	37.1	1.5	18.5	105	140	63	6	4355-MC-090	
3.1339 - 3.5668	79.60 - 90.59	53.1	1.5	18.5	105	140	63	8	4355-MC-100	
3.5669 - 3.9602	90.60 - 100.59	53.1	1.5	18.5	105	140	63	8	4355-MC-110	

*Complete mandrel does not include cutting ring.



D_1 Range		Mandrel					Shank		Teeth	Part No. (Complete Mandrel*)
Imperial (inch)	Metric (mm)	D_3	L_5	L_{15}	L_2	L_1	D_2			
3.9603 - 4.3539	100.60 - 110.59	70.3	1.5	18.5	-	140	80	10	4355-MC-120	
4.3540 - 4.5508	110.60 - 115.59	76.3	1.5	18.5	-	140	80	12	4355-MC-130	
4.5509 - 4.7476	115.60 - 120.59	83.3	1.5	18.5	-	140	80	12	4355-MC-140	
4.7477 - 4.9445	120.60 - 125.59	87.3	1.5	18.5	-	140	80	12	4355-MC-150	
4.9446 - 5.2201	125.60 - 132.59	87.3	1.5	18.5	-	140	80	12	4355-MC-160	
5.2202 - 5.4957	132.60 - 139.59	87.3	1.5	18.5	-	140	80	12	4355-MC-170	
5.4958 - 5.7319	139.60 - 145.59	99.3	1.5	18.5	-	140	80	12	4355-MC-180	
5.7320 - 6.1256	145.60 - 155.59	104.3	1.5	18.5	-	140	80	12	4355-MC-190	
6.1257 - 6.5193	155.60 - 165.59	104.3	1.5	18.5	-	140	80	12	4355-MC-200	
6.5194 - 6.9130	165.60 - 175.59	114.3	1.5	18.5	-	140	80	12	4355-MC-210	
6.9131 - 7.3067	175.60 - 185.59	124.3	1.5	18.5	-	140	80	12	4355-MC-220	
7.3068 - 7.7004	185.60 - 195.59	134.3	1.5	18.5	-	140	80	12	4355-MC-230	
7.7005 - 7.8972	195.60 - 200.59	142.3	1.5	18.5	-	140	80	12	4355-MC-240	

*Complete mandrel does not include cutting ring.

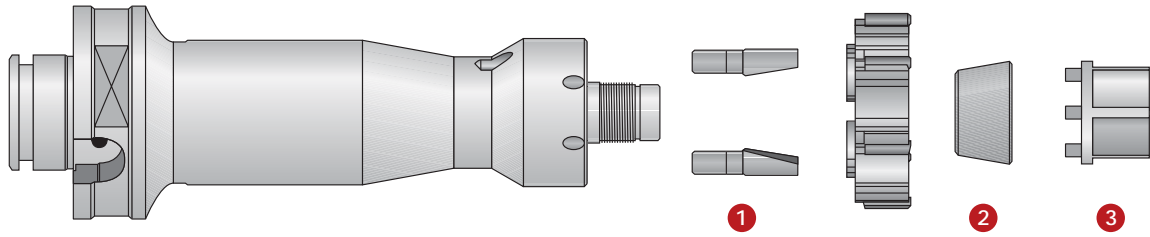


i = Imperial (in)
m = Metric (mm)



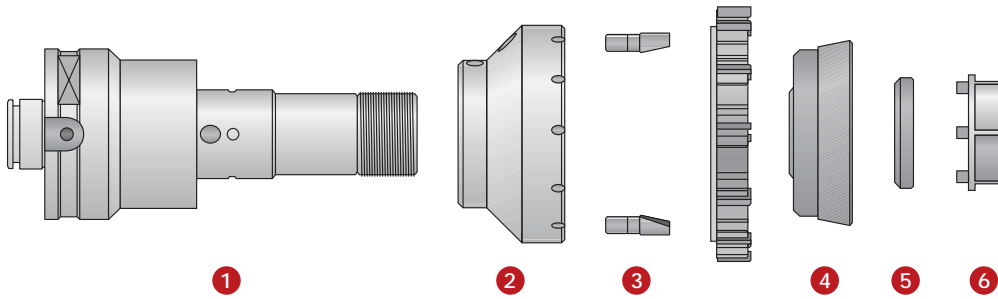
Ring Style Mandrels

4355 Series | Standard Length | Spare Parts



Part No. (Complete Mandrel*)	Spare Parts						Wrench Size (mm)
	1 Drive Pins	Number of Drive Pins	Conical Ring	2 Conical Ring (2nd Expansion)	3 Conical Ring (3rd Expansion)	Adjusting Key	
4355-MC-010	2000-CO-010	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10
4355-MC-020	2000-CO-020	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10
4355-MC-030	2000-CO-030	3	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13
4355-MC-035	2000-CO-040	2	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13
4355-MC-040	2000-CO-040	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18
4355-MC-045	2000-CO-050	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18
4355-MC-050	2000-CO-060	2	4001-AC-145	4001-AC-245	4001-AC-345	4001-CH-045	22
4355-MC-060	2000-CO-060	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26
4355-MC-070	2000-CO-070	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26
4355-MC-075	2000-CO-080	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26
4355-MC-080	2000-CO-080	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34
4355-MC-085	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34
4355-MC-090	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34
4355-MC-100	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46
4355-MC-110	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46

*Complete mandrel does not include cutting ring.



Part No. (Complete Mandrel*)	Spare Parts						Wrench Size (mm)	
	1 Mandrel	2 Flange	3 Drive Pins	Number of Drive Pins	4 Conical Ring	5 Nut		6 Adjusting Key
4355-MC-120	4355-MA-120	4355-FL-035	2000-CO-090	2	4001-AC-116	4001-GH-035	4001-CH-135	46
4355-MC-130	4355-MA-120	4355-FL-045	2000-CO-090	2	4001-AC-126	4001-GH-035	4001-CH-135	46
4355-MC-140	4355-MA-120	4355-FL-055	2000-CO-090	2	4001-AC-136	4001-GH-035	4001-CH-135	46
4355-MC-150	4355-MA-120	4355-FL-065	2000-CO-090	2	4001-AC-136	4001-GH-035	4001-CH-135	46
4355-MC-160	4355-MA-120	4355-FL-075	2000-CO-100	2	4001-AC-146	4001-GH-035	4001-CH-135	46
4355-MC-170	4355-MA-120	4355-FL-085	2000-CO-100	2	4001-AC-146	4001-GH-035	4001-CH-135	46
4355-MC-180	4355-MA-120	4355-FL-095	2000-CO-100	2	4001-AC-156	4001-GH-035	4001-CH-135	46
4355-MC-190	4355-MA-120	4355-FL-105	2000-CO-110	2	4001-AC-166	4001-GH-035	4001-CH-135	46
4355-MC-200	4355-MA-200	4355-FL-115	2000-CO-110	2	4001-AC-176	4001-GH-115	4001-CH-115	46
4355-MC-210	4355-MA-200	4355-FL-125	2000-CO-110	2	4001-AC-186	4001-GH-115	4001-CH-115	46
4355-MC-220	4355-MA-200	4355-FL-135	2000-CO-120	2	4001-AC-196	4001-GH-115	4001-CH-115	46
4355-MC-230	4355-MA-200	4355-FL-145	2000-CO-120	2	4001-AC-117	4001-GH-115	4001-CH-115	46
4355-MC-240	4355-MA-200	4355-FL-155	2000-CO-120	2	4001-AC-127	4001-GH-115	4001-CH-115	46

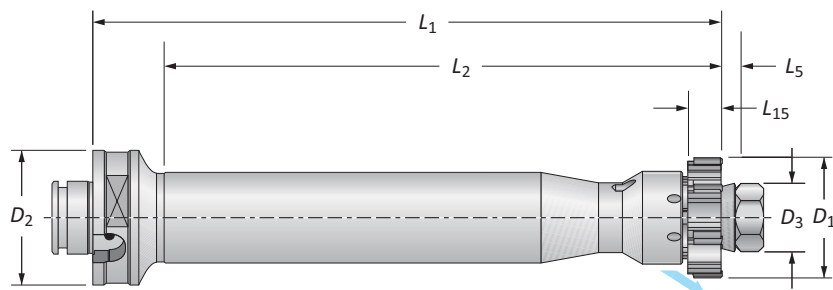
*Complete mandrel does not include cutting ring.

Ⓜ = Imperial (in)
Ⓜ = Metric (mm)

Ring Style Mandrels

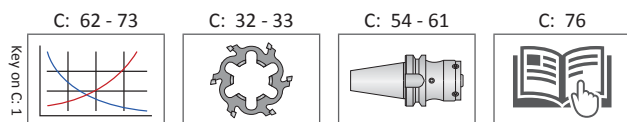
4300 Series | Long Length | Diameter Range: 0.6929" - 3.9602 (17.60mm - 100.59mm)

Series	4300
Shank Type	Modular
Application	Through Holes
Coolant	Radial



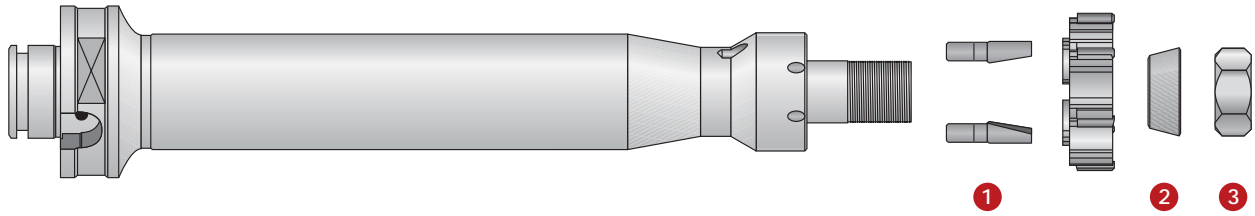
D_1 Range		Mandrel							Teeth	Part No. (Complete Mandrel*)
Imperial (inch)	Metric (mm)	D_3	L_5	L_{15}	L_2	L_1	D_2			
0.6929 - 0.8503	17.60 - 21.59	12	11	11	121	156	50	6	4300-MC-010	
0.8504 - 1.0078	21.60 - 25.59	12	11	12	121	156	50	6	4300-MC-020	
1.0079 - 1.2834	25.60 - 32.59	15.6	11	14	153	188	50	6	4300-MC-030	
1.2835 - 1.5983	32.60 - 40.59	22	14	16	179	214	50	6	4300-MC-040	
1.5984 - 1.7952	40.60 - 45.59	25.4	15	16	201	236	50	6	4300-MC-050	
m 1.7953 - 1.9527	45.60 - 49.59	30	20.5	18.5	214	249	50	6	4300-MC-060	
1.9528 - 2.3857	49.60 - 60.59	30	20.5	18.5	214	249	50	6	4300-MC-070	
2.3858 - 2.7794	60.60 - 70.59	40	24.5	18.5	237	272	63	6	4300-MC-080	
2.7795 - 3.1338	70.60 - 79.59	40	24.5	18.5	237	272	63	6	4300-MC-090	
3.1339 - 3.5668	79.60 - 90.59	56	28.5	18.5	245	280	63	8	4300-MC-100	
3.5669 - 3.9602	90.60 - 100.59	56	28.5	18.5	245	280	63	8	4300-MC-110	

*Complete mandrel does not include cutting ring.



Ring Style Mandrels

4300 Series | Long Length | Spare Parts



Part No. (Complete Mandrel*)	Spare Parts				
	Drive Pins	1 Number of Drive Pins	2 Conical Ring	3 Nut	Wrench Size (mm)
4300-MC-010	2000-CO-010	3	2010-AC-010	2000-DA-010	10
4300-MC-020	2000-CO-020	3	2010-AC-010	2000-DA-010	10
4300-MC-030	2000-CO-030	3	2010-AC-020	2000-DA-020	13
4300-MC-040	2000-CO-040	2	2010-AC-030	2000-DA-060	19
4300-MC-050	2000-CO-060	2	2010-AC-040	2000-DA-090	22
m 4300-MC-060	2000-CO-060	2	2010-AC-050	2000-GH-880	30
4300-MC-070	2000-CO-070	2	2010-AC-050	2000-GH-880	30
4300-MC-080	2000-CO-080	2	2010-AC-060	2000-GH-900	40
4300-MC-090	2000-CO-090	2	2010-AC-060	2000-GH-900	40
4300-MC-100	2000-CO-090	2	2010-AC-070	2000-GH-920	56
4300-MC-110	2000-CO-090	2	2010-AC-070	2000-GH-920	56

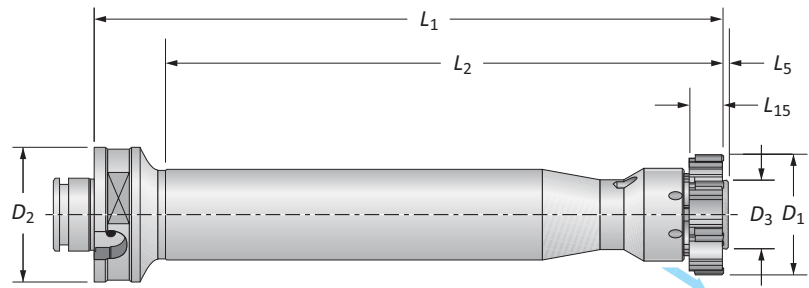
*Complete mandrel does not include cutting ring.

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

Ring Style Mandrels

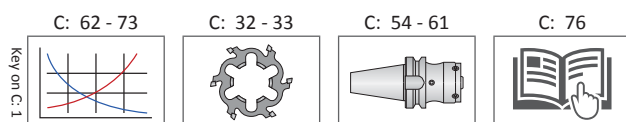
4305 Series | Long Length | Diameter Range: 0.6929" - 3.9602 (17.60mm - 100.59mm)

Series	4305
Shank Type	Modular
Application	Blind Holes
Coolant	Radial



D_1 Range		Mandrel					Teeth	Part No. (Complete Mandrel*)
Imperial (inch)	Metric (mm)	L_5	L_{15}	L_2	L_1	D_2		
0.6929 - 0.8503	17.60 - 21.59	1	11	121	156	50	6	4305-MC-010
0.8504 - 1.0078	21.60 - 25.59	1	12	121	156	50	6	4305-MC-020
1.0079 - 1.1653	25.60 - 29.59	1	14	153	188	50	6	4305-MC-030
1.1654 - 1.2834	29.60 - 32.59	1	14	153	188	50	6	4305-MC-035
1.2835 - 1.4408	32.60 - 36.59	1	16	179	214	50	6	4305-MC-040
1.4409 - 1.5983	36.60 - 40.59	1	16	179	214	50	6	4305-MC-045
1.5984 - 1.7952	40.60 - 45.59	1	16	201	236	50	6	4305-MC-050
m 1.7953 - 1.9527	45.60 - 49.59	1.5	18.5	214	249	50	6	4305-MC-060
1.9528 - 2.1889	49.60 - 55.59	1.5	18.5	214	249	50	6	4305-MC-070
2.1890 - 2.3857	55.60 - 60.59	1.5	18.5	214	249	50	6	4305-MC-075
2.3858 - 2.5826	60.60 - 65.59	1	18.5	237	272	63	6	4305-MC-080
2.5827 - 2.7794	65.60 - 70.59	1	18.5	237	272	63	6	4305-MC-085
2.7795 - 3.1338	70.60 - 79.59	1	18.5	237	272	63	6	4305-MC-090
3.1339 - 3.5668	79.60 - 90.59	1.5	18.5	245	280	63	8	4305-MC-100
3.5669 - 3.9602	90.60 - 100.59	1.5	18.5	245	280	63	8	4305-MC-110

*Complete mandrel does not include cutting ring.

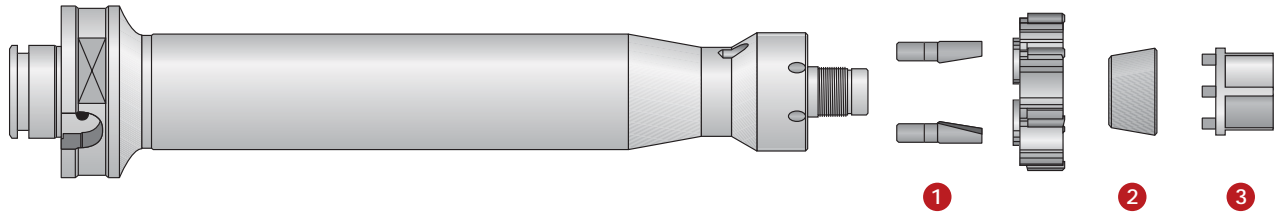


i = Imperial (in)
m = Metric (mm)



Ring Style Mandrels

4305 Series | Long Length | Spare Parts



Part No. (Complete Mandrel*)	Spare Parts							Wrench Size (mm)
	1		2			3		
	Drive Pins	Number of Drive Pins	Conical Ring	Conical Ring (2nd Expansion)	Conical Ring (3rd Expansion)	Adjusting Key		
4305-MC-010	2000-CO-010	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
4305-MC-020	2000-CO-020	3	4001-AC-115	4001-AC-215	-	4001-CH-015	10	
4305-MC-030	2000-CO-030	3	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
4305-MC-035	2000-CO-040	2	4001-AC-125	4001-AC-225	4001-AC-325	4001-CH-025	13	
4305-MC-040	2000-CO-040	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
4305-MC-045	2000-CO-050	2	4001-AC-135	4001-AC-235	4001-AC-335	4001-CH-035	18	
4305-MC-050	2000-CO-060	2	4001-AC-145	4001-AC-245	4001-AC-345	4001-CH-045	22	
4305-MC-060	2000-CO-060	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4305-MC-070	2000-CO-070	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4305-MC-075	2000-CO-080	2	4001-AC-155	4001-AC-255	4001-AC-355	4001-CH-055	26	
4305-MC-080	2000-CO-080	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4305-MC-085	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4305-MC-090	2000-CO-090	2	4001-AC-165	4001-AC-265	4001-AC-365	4001-CH-065	34	
4305-MC-100	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	
4305-MC-110	2000-CO-090	2	4001-AC-185	4001-AC-285	4001-AC-385	4001-CH-085	46	

*Complete mandrel does not include cutting ring.

Ⓜ

Ⓜ = Imperial (in)
Ⓜ = Metric (mm)

Radial Adjusting Shanks

Set-up Information

Radial Adjusting Shanks and Ring Style Arbors

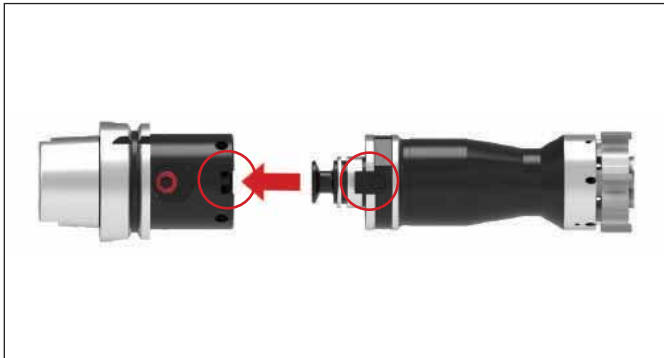
The following is a quick guide for setting up a radial adjusting shank and a ring style reamer. The ring reamer arbor does not contain the tang needed to connect to the shank. The tang must first be removed from the shank and then installed into the reamer arbor (demonstrated below).



Step 1:
The tang comes installed with the shank. Loosen the clamping screw on each side and remove the tang from the shank.



Step 2:
Thread the tang into the back end of the ring arbor. Use a bench vise and wrench to tighten.



Step 3:
Assemble the ring arbor to the shank. With the clamping screws still loosened, align the key on the arbor to the keyway on the shank.



Step 4:
Once the ring arbor is connected with the shank, tighten the clamping screws to secure the tang back into place.

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

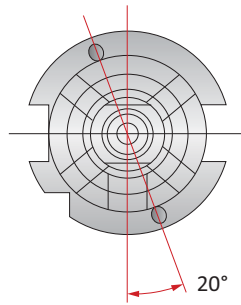
THREADING

X

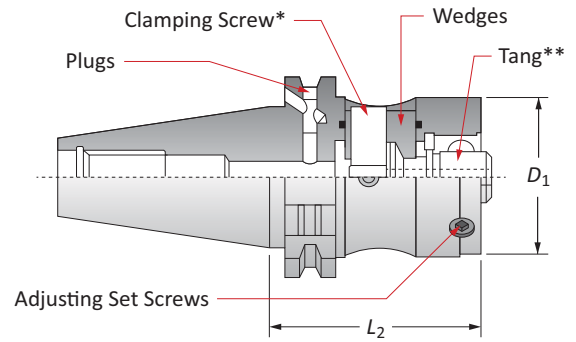
SPECIALS

Radial Adjusting Shanks

DIN 69871/1 B and A



Maximum radial adjustment is $\pm 0.008''$ (0.20mm) on diameter



Shank				Spare Parts							
ISO Taper	D_1	L_2	Retention Knob Thread Size	Part No.	Wedges + O-Ring	Clamping Screw*	Adjusting Set Screws	Plugs	Replacement Tang**	Clamping Screw Key	
40	50	65	M16 x 2	02B.40.50L.65	ATR14102.2.3	ATR14102.1	M8x1x10G	M5x5TG	ATT14103	6mm	
40	63	85	M16 x 2	02B.40.63L.85	ATR14108.2.3	ATR14108.1	M8x1x14G	M5x5TG	ATT14104	6mm	
45	50	70	M20 x 2.5	02B.45.50L.70	ATR14102.2.3	ATR14102.1	M8x1x10G	M5x5TG	ATT14103	6mm	
45	63	70	M20 x 2.5	02B.45.63L.70	ATR14108.2.3	ATR14108.1	M8x1x14G	M5x5TG	ATT14104	6mm	
50	50	70	M24 x 3	02B.50.50L.70	ATR14102.2.3	ATR14102.1	M8x1x10G	M5x5TG	ATT14103	6mm	
50	63	70	M24 x 3	02B.50.63L.70	ATR14108.2.3	ATR14108.1	M8x1x14G	M5x5TG	ATT14104	6mm	
50	80	70	M24 x 3	❖ 02B.50.80L.70	ATR18775.2.3	ATR18775.1	M8x1x20G	M5x5TG	ATT14104	6mm	

* Light torque exerted on the clamping screw transmits high axial forces, which provide stiffness and extreme accuracy to the assembly.

** Tang must be fitted to all reamer arbors and adapters prior to assembly.

❖ Could cause interference with tool changer mechanism.

NOTE: Shanks can be converted into DIN 69871/1A coolant by screwing the two plugs clockwise to the end of their stroke.

A DRILLING

B BORING

C REAMING


D BURNISHING

E THREADING

X SPECIALS

C: 55



Modular System courtesy of 

Reference Key

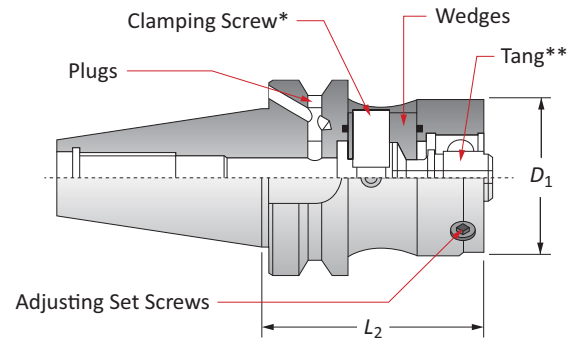
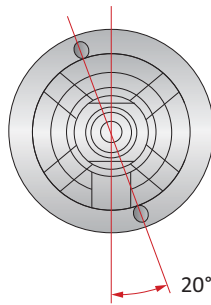
Symbol	Attribute
D_1	Modular shank size
L_2	Gage length

Radial Adjusting Shanks

JMTBA MAS-403 BT B and BT



Maximum radial adjustment is $\pm 0.008''$ (0.20mm) on diameter.

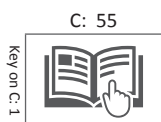



Shank				Spare Parts							
BT Taper	D_1	L_2	Retention Knob Thread Size	Part No.	Wedges + O-ring	Clamping Screw*	Adjusting Set Screws	Plugs	Replacement Tang**	Clamping Screw Key	
40	50	70	M16 x 2	BTB.40.50L.70	ATR14102.2.3	ATR14102.1	M8x1x10G	M5x5TG	ATT14103	6mm	
40	63	80	M16 x 2	BTB.40.63L.80	ATR14108.2.3	ATR14108.1	M8x1x14G	M5x5TG	ATT14104	6mm	
50	50	90	M24 x 3	BTB.50.50L.90	ATR14102.2.3	ATR14102.1	M8x1x10G	M5x5TG	ATT14103	6mm	
50	63	90	M24 x 3	BTB.50.63L.90	ATR14108.2.3	ATR14108.1	M8x1x14G	M5x5TG	ATT14104	6mm	
50	80	90	M24 x 3	BTB.50.80L.90	ATR18775.2.3	ATR18775.1	M8x1x20G	M5x5TG	ATT14104	6mm	

* Light torque exerted on the clamping screw transmits high axial forces, which provide stiffness and extreme accuracy to the assembly.

** Tang must be fitted to all ring arbors and adapters prior to assembly.

NOTE: Shanks can be converted into MAS-403 BT coolant by screwing the two plugs clockwise to the end of their stroke.

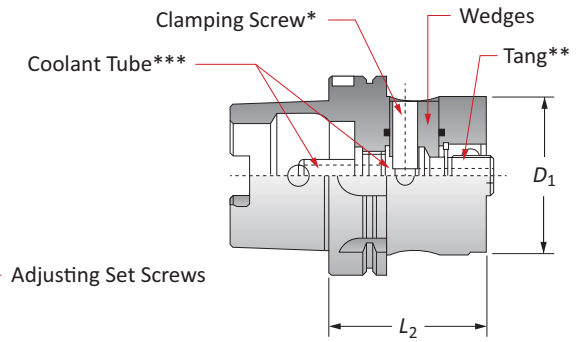
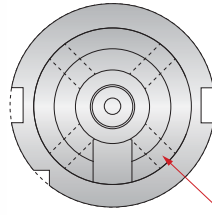


Modular System courtesy of 

Reference Key	
Symbol	Attribute
D_1	Modular shank size
L_2	Gage length

Radial Adjusting Shanks

HSK-A DIN 69893/1



Shank			Part No.	Spare Parts						
HSK	D_1	L_2		Wedges + O-Ring	Clamping Screw*	Adjusting Set Screws	Replacement Tang**	Clamping Screw Key	Coolant Tube Key	Coolant Tube***
63	50	70	HSKA.63.50L.70	ATR14102.2.3	ATR14102.1	M8x1x10G	ATT14103	6mm	ATR23856	ATT23728
63	63	75	HSKA.63.63L.75	ATR.41613.4	ATR14108.1	M8x1x14G	ATT14104	6mm	ATR23856	ATT23728
100	50	80	HSKA.100.50L.80	ATR14102.2.3	ATR14102.1	M8x1x10G	ATT14103	6mm	ATR23856	ATT23656
100	63	80	HSKA.100.63L.80	ATR14108.2.3	ATR14108.1	M8x1x14G	ATT14104	6mm	ATR23856	ATT23656
100	80	80	HSKA.100.80L.80	ATR18775.2.3	ATR18775.1	M8x1x10G	ATT14104	6mm	ATR23856	ATT23656


* Light torque exerted on the clamping screw transmits high axial forces, which provide stiffness and extreme accuracy to the assembly.

** Tang must be fitted to all ring arbors and adapters prior to assembly.

*** Coolant tube sold separately.

C: 55



Modular System courtesy of 

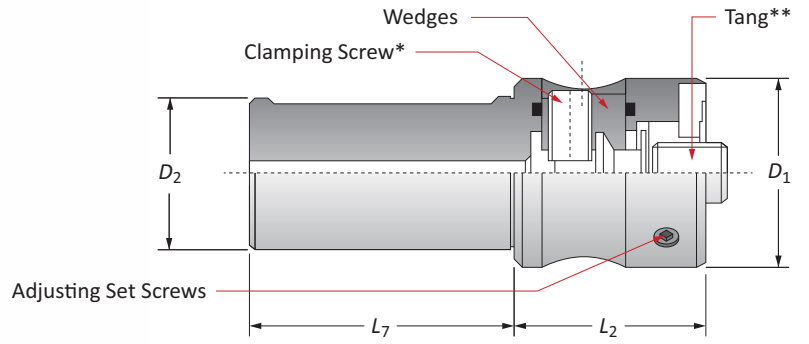
Reference Key

Symbol	Attribute
D_1	Modular shank size
L_2	Gage length

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

Radial Adjusting Shanks

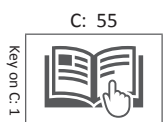
HSK-A DIN 69893/1 | Straight




Shank				Part No.	Spare Parts				
D_1	D_2	L_2	L_7		Wedges + O-Ring	Clamping Screw*	Adjusting Set Screws	Replacement Tang**	Clamping Screw Key
50	25	50	70	CIL.25.50.50	ATR14102.2.3	ATR14102.1	M8x1x10G	ATT14103	6mm
50	32	50	70	CIL.32.50.50	ATR14102.2.3	ATR14102.1	M8x1x10G	ATT14103	6mm
50	40	50	70	CIL.40.50.50	ATR14102.2.3	ATR14102.1	M8x1x10G	ATT14103	6mm

* Light torque exerted on the clamping screw transmits high axial forces, which provide stiffness and extreme accuracy to the assembly.

** Tang must be fitted to all ring arbors and adapters prior to assembly.



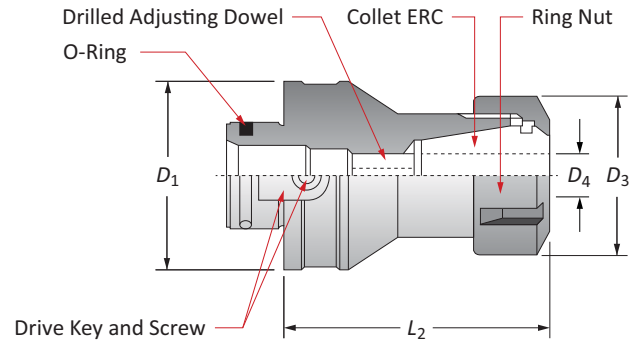
Modular System courtesy of 

Reference Key

Symbol	Attribute
D_1	Modular shank size
D_2	Shank diameter
L_2	Gage length
L_7	Shank length

Radial Adjusting Adapters

Collet Chuck Adapters | Cylindrical Shank Adapters



Collet Sleeve Size*	Adapter				Part No.	Clamping Screw	Ring Nut	Spare Parts				
	D_1	D_3	D_4	L_2				Adjusting Dowel	Drive Key	Ring Nut Wrench	Adjusting Dowel Key	
ERC25	42	50	0.5 - 16mm	70	30.50R.25.70	M4x8V	G25S	M12x16GF	TAB3924	CH25S	6mm	
ERC32	50	50	1 - 20mm	70	30.50R.32.70	M4x8V	G32S	M16x15x18GF	TAB3924	CH32S	8mm	
ERC32	50	63	1 - 20mm	90	30.63R.32.90	M6x12V	G32S	M12x16GF	TAB3923.1	CH32S	6mm	
ERC40	63	63	2 - 30mm	90	30.63R.40.90	M6x12V	G40S	M20x2x20GF	TAB3923.1	CH40S	10mm	
ERC32	50	80	1 - 20mm	90	30.80R.32.90	M6x16V	G32S	M12x16GF	TAB3923.2	CH32S	6mm	
ERC40	63	80	2 - 30mm	90	30.80R.40.90	M6x16V	G40S	M20x2x20GF	TAB3923.2	CH40S	10mm	


*Collet sleeve not included

Reference Key

Symbol	Attribute
D_1	Modular shank size
D_3	Body diameter
D_4	Shank diameter
L_2	Gage length

C: 55



Modular System courtesy of 

A DRILLING

B BORING

C REAMING

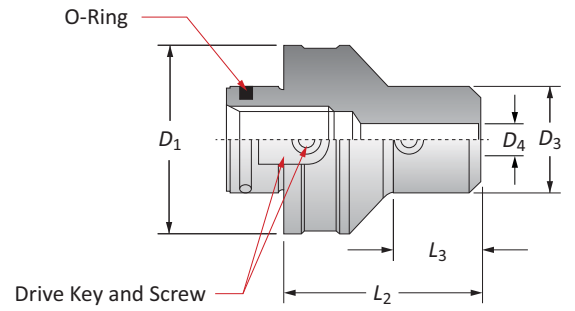
D BURNISHING

E THREADING

X SPECIALS

Radial Adjusting Adapters

Collet Chuck Adapters | Cylindrical Shank Adapters




Adapter					Spare Parts				
D_1	D_4	D_3	L_2	L_3	Part No.	Drive Key	Screw	Set Screw	Set Screw Key
50	6	25	50	22.5	35.50R.06.50	TAB3924	M4x8V	M6x8G	3mm
50	8	28	50	24.5	35.50R.08.50	TAB3924	M4x8V	M6x8G	4mm
50	10	35	50	26.5	35.50R.10.50	TAB3924	M4x8V	M10x10G	5mm
50	12	42	60	38.5	35.50R.12.60	TAB3924	M4x8V	M12x12G	6mm
50	14	44	60	42	35.50R.14.60	TAB3924	M4x8V	M12x12G	6mm
50	16	48	60	40	35.50R.16.60	TAB3924	M4x8V	M14x14G	6mm
50	18	50	60	-	35.50R.18.60	TAB3924	M4x8V	M14x14G	6mm
50	20	52	60	41	35.50R.20.60	TAB3924	M4x8V	M16x2x14G	8mm
63	8	28	60	28	35.63R.08.60	TAB3923.1	M6x12V	M8x8G	4mm
63	10	35	70	40	35.63R.10.70	TAB3923.1	M6x12V	M10x10G	5mm
63	12	42	70	42	35.63R.12.70	TAB3923.1	M6x12V	M12x12G	6mm
63	14	44	60	32	35.63R.14.60	TAB3923.1	M6x12V	M12x12G	6mm
63	16	48	70	44	35.63R.16.70	TAB3923.1	M6x12V	M14x14G	6mm
63	18	50	70	40	35.63R.18.70	TAB3923.1	M6x12V	M14x14G	6mm
63	20	52	70	45	35.63R.20.70	TAB3923.1	M6x12V	M16x2x14G	8mm
50	25	65	80	61	40.50R.25.80	TAB3924	M4x8V	M18x2x18G	8mm
50	32	72	80	65	40.50R.32.80	TAB3924	M4x8V	M20x2x18G	10mm
63	25	65	80	58	40.63R.25.80	TAB3923.1	M6x12V	M18x2x18G	8mm
63	32	72	80	-	40.63R.32.80	TAB3923.1	M6x12V	M20x2x18G	10mm
80	25	65	80	50.5	40.80R.25.80	TAB3923.2	M6x12V	M18x2x18G	8mm
80	32	72	80	54	40.80R.32.80	TAB3923.2	M6x12V	M20x2x18G	10mm

Reference Key

Symbol	Attribute
D_1	Modular shank size
D_3	Body diameter
D_4	Shank diameter
L_2	Gage length
L_3	Reference length

C: 55



Modular System courtesy of 

Recommended Cutting Data | Imperial (inch)

Replaceable Head Style

ISO	Material	Hardness (BHN)	Speed (SFM)			Recommended Feed (IPR) by Reamer Diameter					
			Uncoated Carbide	Coated Carbide	Cermet	.4646 - .8504		.8505 - 1.5590		1.5591 - 2.3858	
						Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180 180 - 250	35 - 65 25 - 50	200 - 260 130 - 230	300 - 980 260 - 600	.010 - .024 .012 - .024	.020 - .024 .016 - .031	.012 - .031 .016 - .031	.024 - .047 .020 - .039	.024 - .039 .020 - .035	.028 - .059 .024 - .047
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180 180 - 275	35 - 65 25 - 50	200 - 260 130 - 230	300 - 980 260 - 600	.010 - .024 .012 - .024	.020 - .024 .016 - .031	.012 - .031 .016 - .031	.024 - .047 .020 - .039	.024 - .039 .020 - .035	.028 - .059 .024 - .047
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180 180 - 325	35 - 65 25 - 50	200 - 260 130 - 230	300 - 980 260 - 600	.010 - .024 .012 - .024	.020 - .024 .016 - .031	.012 - .031 .016 - .031	.024 - .047 .020 - .039	.024 - .039 .020 - .035	.028 - .059 .024 - .047
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180 180 - 375	25 - 50 15 - 35	130 - 230 50 - 100	260 - 600 200 - 390	.010 - .024 .012 - .024	.020 - .024 .016 - .031	.012 - .031 .016 - .031	.024 - .047 .020 - .039	.024 - .039 .020 - .035	.028 - .059 .024 - .047
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	15 - 35	50 - 100	200 - 390	.010 - .020	.012 - .024	.012 - .024	.016 - .031	.016 - .028	.020 - .039
	Structural Steel A36, A285, A516	125 - 180 180 - 350	35 - 65 25 - 50	200 - 260 130 - 230	300 - 980 260 - 600	.010 - .024 .012 - .024	.020 - .024 .016 - .031	.012 - .031 .016 - .031	.024 - .047 .020 - .039	.024 - .039 .020 - .035	.028 - .059 .024 - .047
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200 200 - 250	35 - 65 25 - 50	200 - 260 130 - 230	300 - 980 260 - 600	.010 - .024 .012 - .024	.020 - .024 .016 - .031	.012 - .031 .016 - .031	.024 - .047 .020 - .039	.024 - .039 .020 - .035	.028 - .059 .024 - .047
	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	20 - 50	60 - 200	-	.008 - .016	-	.012 - .020	-	.016 - .024	-
	Titanium Alloy	140 - 310	20 - 50	60 - 200	-	.008 - .016	-	.012 - .020	-	.016 - .024	-
	M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	20 - 35	100 - 160	200 - 490	.012 - .024	.016 - .031	.016 - .031	.020 - .039	.020 - .035
Stainless Steel 300 Series 304, 316, 17-4PH, etc.		135 - 275	20 - 35	100 - 160	200 - 490	.012 - .024	.016 - .031	.016 - .031	.020 - .039	.020 - .035	.024 - .047
K	Grey Cast Iron, Ductile Cast Iron, Spheroidal Cast Iron (Pearlitic)	< 200	65 - 130	160 - 230	-	.008 - .024	.020 - .039	.012 - .028	.024 - .047	.024 - .051	.031 - .063
	Spheroidal Cast Iron (Pearlitic)	> 200	50 - 100	160 - 230	-	.008 - .024	.020 - .039	.012 - .028	.024 - .047	.024 - .051	.031 - .063
	Spheroidal Cast Iron (Ferritic)	260 - 320	30 - 50	100 - 160	200 - 400	.008 - .024	.020 - .024	.012 - .028	.024 - .047	.016 - .031	.031 - .063
N	Copper and Alloys	< 500	200 - 660	330 - 660	-	.008 - .024	-	.012 - .028	-	.016 - .031	-
	Brass	< 500	200 - 660	330 - 660	-	.008 - .024	-	.012 - .028	-	.016 - .031	-
	Bronze	< 180	65 - 130	260 - 520	330 - 980	.012 - .024	.016 - .039	.012 - .024	.020 - .047	.012 - .024	.024 - .059
	Bronze Phosphorous	< 180	65 - 130	260 - 520	330 - 980	.012 - .024	.016 - .039	.012 - .024	.020 - .047	.012 - .024	.024 - .059
	Aluminum and Alloys	< 150	65 - 660	-	-	.012 - .024	-	.016 - .039	-	.016 - .039	-

Formulas

<p>1. RPM = (SFM • 3.82) / DIA</p> <p>where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of reamer (inch)</p>	<p>2. IPM = RPM • IPR</p> <p>where: IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)</p>	<p>3. SFM = RPM • 0.262 • DIA</p> <p>where: SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of reamer (inch)</p>
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IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is available through our Application Engineering department.

Stock Allowance and Coolant | Imperial (inch)

Replaceable Head Style

ISO	Material	Hardness (BHN)	Coolant	Recommended Stock (inch) by Reamer Diameter*		
				.4646 - .8504	.8505 - 1.5590	1.5591 - 2.3858
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	Water Soluble Cutting Oil	.006 - .010	.008 - .016	.012 - .016
		180 - 250				
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180				
		180 - 275				
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180				
		180 - 325				
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180				
		180 - 375				
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450				
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	Water Soluble Cutting Oil	.006 - .010	.008 - .016	.012 - .016
	Titanium Alloy	140 - 310				
M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	Water Soluble Cutting Oil	.006 - .010	.008 - .016	.012 - .016
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275				
K	Grey Cast Iron, Ductile Cast Iron,	< 200	Water Soluble Cutting Oil	.006 - .010	.008 - .016	.012 - .016
	Spheroidal Cast Iron (Pearlitic)	> 200				
	Spheroidal Cast Iron (Ferritic)	260 - 320				
N	Copper and Alloys	< 500	Water Soluble	.006 - .010	.008 - .016	.012 - .016
	Brass					
	Bronze	< 180	Water Soluble Cutting Oil			
	Bronze Phosphorous					
	Aluminum and Alloys	< 150	Water Soluble Cutting Oil			

*Stock value is on diameter.

A
DRILLING
B
BORING
C
REAMING
D
URNISHING
E
HREADING
X
PECIALS

Recommended Cutting Data | Imperial (inch)

Monobloc Style

ISO	Material	Hardness (BHN)	Speed (SFM)			Recommended Feed (IPR) by Reamer Diameter					
			Uncoated Carbide	Coated Carbide	Cermet	.2283 - .3940		.3941 - .7090		.7091 - 1.2638	
						Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180 180 - 250	25 - 50 20 - 35	200 - 260 130 - 230	300 - 980 260 - 660	.008 - .016 .008 - .016	.012 - .024 .012 - .020	.016 - .024 .012 - .024	.016 - .047 .012 - .031	.020 - .031 .016 - .028	.024 - .047 .016 - .047
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180 180 - 275	25 - 50 20 - 35	200 - 260 130 - 230	300 - 980 260 - 660	.008 - .016 .008 - .016	.012 - .024 .012 - .020	.016 - .024 .012 - .024	.016 - .047 .012 - .031	.020 - .031 .016 - .028	.024 - .047 .016 - .047
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180 180 - 325	25 - 50 20 - 35	200 - 260 130 - 230	300 - 980 260 - 660	.008 - .016 .008 - .016	.012 - .024 .012 - .020	.016 - .024 .012 - .024	.016 - .047 .012 - .031	.020 - .031 .016 - .028	.024 - .047 .016 - .047
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180 180 - 375	20 - 35 15 - 25	130 - 230 100 - 160	260 - 660 200 - 490	.008 - .016 .008 - .016	.012 - .024 .012 - .020	.016 - .024 .012 - .024	.016 - .047 .012 - .031	.020 - .031 .016 - .028	.024 - .047 .016 - .047
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	10 - 20	50 - 100	200 - 390	.006 - .012	.008 - .016	.008 - .020	.012 - .024	.012 - .024	.016 - .031
	Structural Steel A36, A285, A516	125 - 180 180 - 350	25 - 50 20 - 35	200 - 260 130 - 230	300 - 980 260 - 660	.008 - .016 .008 - .016	.012 - .024 .012 - .020	.016 - .024 .012 - .024	.016 - .047 .012 - .031	.020 - .031 .016 - .028	.024 - .047 .016 - .047
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200 200 - 250	25 - 50 20 - 35	200 - 260 130 - 230	300 - 980 260 - 660	.008 - .016 .008 - .016	.012 - .024 .012 - .020	.016 - .024 .012 - .024	.016 - .047 .012 - .031	.020 - .031 .016 - .028	.024 - .047 .016 - .047
	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	15 - 25	60 - 200	-	.006 - .012	-	.008 - .016	-	.012 - .020	-
	Titanium Alloy	140 - 310	15 - 25	60 - 200	-	.006 - .012	-	.008 - .016	-	.012 - .020	-
	M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	15 - 25	100 - 160	200 - 490	.008 - .016	.012 - .020	.012 - .024	.012 - .031	.016 - .028
Stainless Steel 300 Series 304, 316, 17-4PH, etc.		135 - 275	15 - 25	100 - 160	200 - 490	.008 - .016	.012 - .020	.012 - .024	.012 - .031	.016 - .028	.016 - .047
K	Grey Cast Iron, Ductile Cast Iron, Spheroidal Cast Iron (Pearlitic)	< 200	50 - 100	160 - 230	-	.008 - .016	.012 - .024	.014 - .024	.020 - .031	.016 - .047	.024 - .059
	Spheroidal Cast Iron (Pearlitic)	> 200	35 - 65	160 - 230	-	.008 - .016	.012 - .024	.014 - .024	.020 - .031	.016 - .047	.024 - .059
	Spheroidal Cast Iron (Ferritic)	260 - 320	25 - 40	100 - 160	200 - 400	.008 - .016	.012 - .024	.014 - .024	.020 - .031	.016 - .047	.024 - .059
N	Copper and Alloys	< 500	35 - 60	330 - 660	-	.008 - .016	-	.016 - .028	-	.020 - .031	-
	Brass	< 500	35 - 60	330 - 660	-	.008 - .016	-	.016 - .028	-	.020 - .031	-
	Bronze	< 180	35 - 65	260 - 520	330 - 980	.006 - .012	-	.008 - .016	-	.012 - .024	-
	Bronze Phosphorous	< 180	35 - 65	260 - 520	330 - 980	.006 - .012	-	.008 - .016	-	.012 - .024	-
	Aluminum and Alloys	< 150	50 - 100	330 - 660	-	.008 - .016	-	.016 - .028	-	.020 - .031	-

Formulas

<p>1. RPM = (SFM • 3.82) / DIA</p> <p>where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of reamer (inch)</p>	<p>2. IPM = RPM • IPR</p> <p>where: IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)</p>	<p>3. SFM = RPM • 0.262 • DIA</p> <p>where: SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of reamer (inch)</p>
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IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is available through our Application Engineering department.

Stock Allowance and Coolant | Imperial (inch)

Monobloc Style

ISO	Material	Hardness (BHN)	Coolant	Recommended Stock (inch) by Reamer Diameter*		
				.2283 - .3940	.3941 - .7090	.7091 - 1.2638
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	Water Soluble Cutting Oil			
		180 - 250				
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180				
		180 - 275				
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180				
		180 - 325				
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180				
		180 - 375				
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450				
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	Water Soluble Cutting Oil			
	Titanium Alloy	140 - 310				
M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	Water Soluble Cutting Oil			
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275				
K	Grey Cast Iron, Ductile Cast Iron,	< 200	Water Soluble Cutting Oil			
	Spheroidal Cast Iron (Pearlitic)	> 200				
	Spheroidal Cast Iron (Ferritic)	260 - 320				
N	Copper and Alloys	< 500	Water Soluble			
	Brass					
	Bronze	< 180	Water Soluble Cutting Oil			
	Bronze Phosphorous					
	Aluminum and Alloys	< 150	Water Soluble Cutting Oil			

*Stock value is on diameter.

A
DRILLING
B
BORING
C
REAMING
D
URNISHING
E
HREADING
X
PECIALS

Recommended Cutting Data | Imperial (inch)

Cutting Ring Style

ISO	Material	Hardness (BHN)	Speed (SFM)			Recommended Feed (IPR) by Reamer Diameter						
			Uncoated Carbide	Coated Carbide	Cermet	.6929 - 1.5750		1.5751 - 3.1500		3.1501 - 7.8972		
						Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M	
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180 180 - 250	25 - 50 20 - 35	200 - 260 130 - 230	300 - 980 260 - 660	.020 - .031 .016 - .028	.024 - .047 .016 - .039	.020 - .039 .020 - .031	.031 - .063 .024 - .055	.031 - .059 .031 - .047	.039 - .087 .039 - .079	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180 180 - 275	25 - 50 20 - 35	200 - 260 130 - 230	300 - 980 260 - 660	.020 - .031 .016 - .028	.024 - .047 .016 - .039	.020 - .039 .020 - .031	.031 - .063 .024 - .055	.031 - .059 .031 - .047	.039 - .087 .039 - .079	
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180 180 - 325	25 - 50 20 - 35	200 - 260 130 - 230	300 - 980 260 - 660	.020 - .031 .016 - .028	.024 - .047 .016 - .039	.020 - .039 .020 - .031	.031 - .063 .024 - .055	.031 - .059 .031 - .047	.039 - .087 .039 - .079	
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180 180 - 375	20 - 35 15 - 25	130 - 230 100 - 160	260 - 660 200 - 490	.020 - .031 .016 - .028	.024 - .047 .016 - .039	.020 - .039 .020 - .031	.031 - .063 .024 - .055	.031 - .059 .031 - .047	.039 - .087 .039 - .079	
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	10 - 20	50 - 100	200 - 390	.012 - .024	.016 - .031	.016 - .031	.020 - .039	.024 - .039	.028 - .055	
	Structural Steel A36, A285, A516	125 - 180 180 - 350	25 - 50 20 - 35	200 - 260 130 - 230	300 - 980 260 - 660	.020 - .031 .016 - .028	.024 - .047 .016 - .039	.020 - .039 .020 - .031	.031 - .063 .024 - .055	.031 - .059 .031 - .047	.039 - .087 .039 - .079	
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200 200 - 250	25 - 50 20 - 35	200 - 260 130 - 230	300 - 980 260 - 660	.020 - .031 .016 - .028	.024 - .047 .016 - .039	.020 - .039 .020 - .031	.031 - .063 .024 - .055	.031 - .059 .031 - .047	.039 - .087 .039 - .079	
	S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	15 - 25	60 - 200	-	.012 - .020	-	.016 - .024	-	.020 - .028	-
		Titanium Alloy	140 - 310	15 - 25	60 - 200	-	.012 - .020	-	.016 - .024	-	.020 - .028	-
	M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	15 - 25	100 - 160	200 - 490	.016 - .028	.016 - .039	.020 - .031	.024 - .055	.031 - .047	.039 - .079
Stainless Steel 300 Series 304, 316, 17-4PH, etc.		135 - 275	15 - 25	100 - 160	200 - 490	.016 - .028	.016 - .039	.020 - .031	.024 - .055	.031 - .047	.039 - .079	
K	Grey Cast Iron, Ductile Cast Iron, Spheroidal Cast Iron (Pearlitic)	< 200 > 200	50 - 100 35 - 65	160 - 230 160 - 230	-	.016 - .039 .016 - .039	.024 - .059 .024 - .059	.024 - .051 .024 - .051	.031 - .063 .031 - .063	.031 - .067 .031 - .067	.039 - .088 .039 - .088	
	Spheroidal Cast Iron (Ferritic)	260 - 320	25 - 40	100 - 160	200 - 400	.016 - .039	.024 - .059	.024 - .051	.031 - .063	.031 - .067	.039 - .088	
	Copper and Alloys Brass	< 500	35 - 60	330 - 660	-	.020 - .031	-	.024 - .039	-	.031 - .055	-	
N	Bronze Bronze Phosphorous	< 180	35 - 65	260 - 520	330 - 980	.012 - .024	-	.016 - .031	-	.024 - .039	-	
	Aluminum and Alloys	< 150	50 - 100	330 - 660	-	.020 - .031	-	.024 - .039	-	.031 - .055	-	

Formulas

<p>1. RPM = (SFM • 3.82) / DIA</p> <p>where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of reamer (inch)</p>	<p>2. IPM = RPM • IPR</p> <p>where: IPM = inches per minute (in/min) RPM = revolutions per minute (rev/min) IPR = feed rate (in/rev)</p>	<p>3. SFM = RPM • 0.262 • DIA</p> <p>where: SFM = speed (ft/min) RPM = revolutions per minute (rev/min) DIA = diameter of reamer (inch)</p>
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IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is available through our Application Engineering department.

Stock Allowance and Coolant | Imperial (inch)

Cutting Ring Style

ISO	Material	Hardness (BHN)	Coolant	Recommended Stock (inch) by Reamer Diameter*		
				.6929 - 1.5750	1.5751 - 3.1500	3.1501 - 7.8972
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	Water Soluble Cutting Oil	.006 - .012	.008 - .016	.010 - .020
		180 - 250				
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180				
		180 - 275				
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180				
		180 - 325				
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180				
		180 - 375				
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450				
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	Water Soluble Cutting Oil	.008 - .016	.012 - .016	.012 - .020
	Titanium Alloy	140 - 310				
M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	Water Soluble Cutting Oil	.006 - .012	.008 - .016	.010 - .020
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275				
K	Grey Cast Iron, Ductile Cast Iron,	< 200	Water Soluble Cutting Oil	.006 - .012	.008 - .016	.010 - .020
	Spheroidal Cast Iron (Pearlitic)	> 200				
	Spheroidal Cast Iron (Ferritic)	260 - 320				
N	Copper and Alloys	< 500	Water Soluble	.006 - .012	.008 - .016	.010 - .020
	Brass					
	Bronze	< 180	Water Soluble Cutting Oil			
	Bronze Phosphorous					
	Aluminum and Alloys	< 150	Water Soluble Cutting Oil			

*Stock value is on diameter.

A
DRILLING
B
BORING
C
REAMING
D
URNISHING
E
HREADING
X
PECIALS

Recommended Cutting Data | Metric (mm)

Replaceable Head Style

ISO	Material	Hardness (BHN)	Speed (M/min)			Recommended Feed (mm/rev) by Reamer Diameter					
			Uncoated Carbide	Coated Carbide	Cermet	11.80 - 21.60		21.61 - 39.60		39.61 - 60.60	
						Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	10 - 20	60 - 80	90 - 300	.25 - .60	.50 - .60	.30 - .80	.60 - 1.20	.60 - 1.00	.70 - 1.50
		180 - 250	7 - 15	40 - 70	80 - 200	.30 - .60	.40 - .80	.40 - .80	.50 - 1.00	.50 - .90	.60 - 1.20
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180	10 - 20	60 - 80	90 - 300	.25 - .60	.50 - .60	.30 - .80	.60 - 1.20	.60 - 1.00	.70 - 1.50
		180 - 275	7 - 15	40 - 70	80 - 200	.30 - .60	.40 - .80	.40 - .80	.50 - 1.00	.50 - .90	.60 - 1.20
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180	10 - 20	60 - 80	90 - 300	.25 - .60	.50 - .60	.30 - .80	.60 - 1.20	.60 - 1.00	.70 - 1.50
		180 - 325	7 - 15	40 - 70	80 - 200	.30 - .60	.40 - .80	.40 - .80	.50 - 1.00	.50 - .90	.60 - 1.20
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180	6 - 10	40 - 70	80 - 200	.25 - .60	.50 - .60	.30 - .80	.60 - 1.20	.60 - 1.00	.70 - 1.50
		180 - 375	4 - 8	30 - 50	60 - 150	.30 - .60	.40 - .80	.40 - .80	.50 - 1.00	.50 - .90	.60 - 1.20
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	3 - 6	15 - 30	60 - 120	.25 - .50	.30 - .60	.30 - .60	.40 - .80	.40 - .70	.50 - 1.00
		125 - 180	10 - 20	60 - 80	90 - 300	.25 - .60	.50 - .60	.30 - .80	.60 - 1.20	.60 - 1.00	.70 - 1.50
S	Structural Steel A36, A285, A516	180 - 350	7 - 15	40 - 70	80 - 200	.30 - .60	.40 - .80	.40 - .80	.50 - 1.00	.50 - .90	.60 - 1.20
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	10 - 20	60 - 80	90 - 300	.25 - .60	.50 - .60	.30 - .80	.60 - 1.20	.60 - 1.00	.70 - 1.50
		200 - 250	7 - 15	40 - 70	80 - 200	.30 - .60	.40 - .80	.40 - .80	.50 - 1.00	.50 - .90	.60 - 1.20
M	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	4 - 10	30 - 50	-	.20 - .40	-	.30 - .50	-	.40 - .60	-
	Titanium Alloy	140 - 310	4 - 15	30 - 50	-	.20 - .40	-	.30 - .50	-	.40 - .60	-
K	Stainless Steel 400 Series 416, 420, etc.	135 - 350	4 - 10	30 - 50	60 - 150	.30 - .60	.40 - .80	.40 - .80	.50 - 1.00	.50 - .90	.60 - 1.20
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	4 - 10	30 - 50	60 - 150	.30 - .60	.40 - .80	.40 - .80	.50 - 1.00	.50 - .90	.60 - 1.20
N	Grey Cast Iron, Ductile Cast Iron, Spheroidal Cast Iron (Pearlitic)	< 200	20 - 40	50 - 70	-	.20 - .60	.50 - 1.00	.30 - .70	.60 - 1.20	.60 - 1.30	.80 - 1.60
	Spheroidal Cast Iron (Ferritic)	> 200	15 - 30	50 - 70	-	.20 - .60	.50 - 1.00	.30 - .70	.60 - 1.20	.60 - 1.30	.80 - 1.60
	Spheroidal Cast Iron (Ferritic)	260 - 320	10 - 15	30 - 50	60 - 120	.20 - .60	.50 - .60	.30 - .70	.60 - 1.20	.40 - .80	.80 - 1.60
X	Copper and Alloys	< 500	60 - 200	100 - 200	-	.20 - .60	-	.30 - .70	-	.40 - .80	-
	Brass										
	Bronze	< 180	20 - 40	80 - 160	100 - 300	.30 - .60	.40 - 1.00	.30 - .60	.50 - 1.20	.30 - .60	.60 - 1.50
	Bronze Phosphorous										
	Aluminum and Alloys	< 150	20 - 200	-	-	.30 - .60	-	.40 - 1.00	-	.40 - 1.00	-

Formulas

<p>1. RPM = M/min • 3.82 • DIA</p> <p>where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of reamer (mm)</p>	<p>2. mm/min = RPM • mm/rev</p> <p>where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev)</p>	<p>3. M/min = RPM • 0.003 • DIA</p> <p>where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of reamer (mm)</p>
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IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is available through our Application Engineering department.

Stock Allowance and Coolant | Metric (mm)

Replaceable Head Style

ISO	Material	Hardness (BHN)	Coolant	Recommended Stock (mm) by Reamer Diameter*		
				11.80 - 21.60	21.61 - 39.60	39.61 - 60.60
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	Water Soluble Cutting Oil	0.15 - 0.25	0.20 - 0.40	0.30 - 0.40
		180 - 250				
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180				
		180 - 275				
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180				
		180 - 325				
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180				
		180 - 375				
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450				
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	Water Soluble Cutting Oil	0.15 - 0.25	0.20 - 0.40	0.30 - 0.40
	Titanium Alloy	140 - 310				
M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	Water Soluble Cutting Oil	0.15 - 0.25	0.20 - 0.40	0.30 - 0.40
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275				
K	Grey Cast Iron, Ductile Cast Iron,	< 200	Water Soluble Cutting Oil	0.15 - 0.25	0.20 - 0.40	0.30 - 0.40
	Spheroidal Cast Iron (Pearlitic)	> 200				
	Spheroidal Cast Iron (Ferritic)	260 - 320				
N	Copper and Alloys	< 500	Water Soluble	0.15 - 0.25	0.20 - 0.40	0.30 - 0.40
	Brass					
	Bronze	< 180	Water Soluble Cutting Oil			
	Bronze Phosphorous					
	Aluminum and Alloys	< 150	Water Soluble Cutting Oil			

*Stock value is on diameter.

A
DRILLING
B
BORING
C
REAMING
D
URNISHING
E
HREADING
X
PECIALS

Recommended Cutting Data | Metric (mm)

Monobloc Style

ISO	Material	Hardness (BHN)	Speed (M/min)			Recommended Feed (mm/rev) by Reamer Diameter						
			Uncoated Carbide	Coated Carbide	Cermet	5.80 - 10.00		10.01 - 22.00		22.01 - 32.10		
						Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M	
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180 180 - 250	7 - 15 6 - 10	60 - 80 40 - 70	90 - 300 80 - 200	.20 - .40 .20 - .40	.30 - .60 .30 - .50	.40 - .60 .30 - .60	.40 - 1.00 .30 - .80	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180 180 - 275	7 - 15 6 - 10	60 - 80 40 - 70	90 - 300 80 - 200	.20 - .40 .20 - .40	.30 - .60 .30 - .50	.40 - .60 .30 - .60	.40 - 1.00 .30 - .80	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180 180 - 325	7 - 15 6 - 10	60 - 80 40 - 70	90 - 300 80 - 200	.20 - .40 .20 - .40	.30 - .60 .30 - .50	.40 - .60 .30 - .60	.40 - 1.00 .30 - .80	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180 180 - 375	6 - 10 4 - 8	40 - 70 30 - 50	80 - 200 60 - 150	.20 - .40 .20 - .40	.30 - .60 .30 - .50	.40 - .60 .30 - .60	.40 - 1.00 .30 - .80	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	3 - 6	15 - 30	60 - 120	.15 - .30	.20 - .40	.20 - .50	.30 - .60	.30 - .60	.40 - .80	
	Structural Steel A36, A285, A516	125 - 180 180 - 350	7 - 15 6 - 10	60 - 80 40 - 70	90 - 300 80 - 200	.20 - .40 .20 - .40	.30 - .60 .30 - .50	.40 - .60 .30 - .60	.40 - 1.00 .30 - .80	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200 200 - 250	7 - 15 6 - 10	60 - 80 40 - 70	90 - 300 80 - 200	.20 - .40 .20 - .40	.30 - .60 .30 - .50	.40 - .60 .30 - .60	.40 - 1.00 .30 - .80	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	
	S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	4 - 10	30 - 50	-	.15 - .30	-	.20 - .40	-	.30 - .50	-
		Titanium Alloy	140 - 310	4 - 15	30 - 50	-	.15 - .30	-	.20 - .40	-	.30 - .50	-
	M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	4 - 10	30 - 50	60 - 150	.20 - .40	.30 - .50	.30 - .60	.30 - .80	.40 - .70	.40 - 1.00
Stainless Steel 300 Series 304, 316, 17-4PH, etc.		135 - 275	4 - 10	30 - 50	60 - 150	.20 - .40	.30 - .50	.30 - .60	.30 - .80	.40 - .70	.40 - 1.00	
K	Grey Cast Iron, Ductile Cast Iron, Spheroidal Cast Iron (Pearlitic)	< 200	15 - 30	50 - 70	-	.20 - .40	.30 - .60	.35 - .60	.50 - .80	.40 - 1.00	.60 - 1.50	
	Spheroidal Cast Iron (Pearlitic)	> 200	10 - 20	50 - 70	-	.20 - .40	.30 - .60	.35 - .60	.50 - .80	.40 - 1.00	.60 - 1.50	
	Spheroidal Cast Iron (Ferritic)	260 - 320	8 - 12	30 - 50	60 - 120	.20 - .40	.30 - .60	.35 - .60	.50 - .80	.40 - 1.00	.60 - 1.50	
N	Copper and Alloys	< 500	10 - 18	100 - 200	-	.20 - .40	-	.40 - .70	-	.50 - .80	-	
	Brass											
	Bronze	< 180	10 - 20	80 - 160	100 - 300	.15 - .30	-	.20 - .40	-	.30 - .60	-	
	Bronze Phosphorous											
	Aluminum and Alloys	< 150	15 - 30	100 - 200	-	.20 - .40	-	.40 - .70	-	.50 - .80	-	

Formulas

<p>1. RPM = M/min • 3.82 • DIA</p> <p>where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of reamer (mm)</p>	<p>2. mm/min = RPM • mm/rev</p> <p>where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev)</p>	<p>3. M/min = RPM • 0.003 • DIA</p> <p>where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of reamer (mm)</p>
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IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is available through our Application Engineering department.

Stock Allowance and Coolant | Metric (mm)

Monobloc Style

ISO	Material	Hardness (BHN)	Coolant	Recommended Stock (mm) by Reamer Diameter*		
				5.80 - 10.00	10.01 - 22.00	22.01 - 32.10
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	Water Soluble Cutting Oil	0.08 - 0.15	0.15 - 0.25	0.15 - 0.30
		180 - 250				
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180				
		180 - 275				
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180				
		180 - 325				
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180				
		180 - 375				
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450				
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	Water Soluble Cutting Oil	0.10 - 0.20	0.15 - 0.25	0.20 - 0.40
	Titanium Alloy	140 - 310				
M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	Water Soluble Cutting Oil	0.08 - 0.15	0.15 - 0.25	0.15 - 0.30
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275				
K	Grey Cast Iron, Ductile Cast Iron,	< 200	Water Soluble Cutting Oil	0.08 - 0.15	0.15 - 0.25	0.15 - 0.30
	Spheroidal Cast Iron (Pearlitic)	> 200				
	Spheroidal Cast Iron (Ferritic)	260 - 320				
N	Copper and Alloys	< 500	Water Soluble	0.08 - 0.15	0.15 - 0.25	0.15 - 0.30
	Brass					
	Bronze	< 180	Water Soluble Cutting Oil			
	Bronze Phosphorous					
	Aluminum and Alloys	< 150	Water Soluble Cutting Oil			

*Stock value is on diameter.

A
DRILLING
B
BORING
C
REAMING
D
URNISHING
E
HREADING
X
PECIALS

Recommended Cutting Data | Metric (mm)

Cutting Ring Style

ISO	Material	Hardness (BHN)	Speed (M/min)			Recommended Feed (mm/rev) by Reamer Diameter						
			Uncoated Carbide	Coated Carbide	Cermet	17.60 - 40.00		40.01 - 80.00		80.01 - 200.00		
						Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M	Lead A, G	Lead E, N, M	
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180 180 - 250	7 - 15 6 - 10	60 - 80 40 - 70	90 - 300 80 - 200	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	.50 - 1.00 .50 - .80	.80 - 1.60 .60 - 1.40	.80 - 1.50 .80 - 1.20	1.00 - 2.20 1.00 - 2.00	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180 180 - 275	7 - 15 6 - 10	60 - 80 40 - 70	90 - 300 80 - 200	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	.50 - 1.00 .50 - .80	.80 - 1.60 .60 - 1.40	.80 - 1.50 .80 - 1.20	1.00 - 2.20 1.00 - 2.00	
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180 180 - 325	7 - 15 6 - 10	60 - 80 40 - 70	90 - 300 80 - 200	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	.50 - 1.00 .50 - .80	.80 - 1.60 .60 - 1.40	.80 - 1.50 .80 - 1.20	1.00 - 2.20 1.00 - 2.00	
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180 180 - 375	6 - 10 4 - 8	40 - 70 30 - 50	80 - 200 60 - 150	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	.50 - 1.00 .50 - .80	.80 - 1.60 .60 - 1.40	.80 - 1.50 .80 - 1.20	1.00 - 2.20 1.00 - 2.00	
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	3 - 6	15 - 30	60 - 120	.30 - .60	.40 - .80	.40 - .80	.50 - 1.00	.60 - 1.00	.70 - 1.40	
	Structural Steel A36, A285, A516	125 - 180 180 - 350	7 - 15 6 - 10	60 - 80 40 - 70	90 - 300 80 - 200	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	.50 - 1.00 .50 - .80	.80 - 1.60 .60 - 1.40	.80 - 1.50 .80 - 1.20	1.00 - 2.20 1.00 - 2.00	
	Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200 200 - 250	7 - 15 6 - 10	60 - 80 40 - 70	90 - 300 80 - 200	.50 - .80 .40 - .70	.60 - 1.20 .40 - 1.00	.50 - 1.00 .50 - .80	.80 - 1.60 .60 - 1.40	.80 - 1.50 .80 - 1.20	1.00 - 2.20 1.00 - 2.00	
	S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	4 - 8	30 - 50	-	.30 - .50	-	.40 - .60	-	.50 - .70	-
		Titanium Alloy	140 - 310	4 - 8	30 - 50	-	.30 - .50	-	.40 - .60	-	.50 - .70	-
	M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	4 - 8	30 - 50	60 - 150	.40 - .70	.40 - 1.00	.50 - .80	.60 - 1.40	.80 - 1.20	1.00 - 2.00
Stainless Steel 300 Series 304, 316, 17-4PH, etc.		135 - 275	4 - 8	30 - 50	60 - 150	.40 - .70	.40 - 1.00	.50 - .80	.60 - 1.40	.80 - 1.20	1.00 - 2.00	
K	Grey Cast Iron, Ductile Cast Iron, Spheroidal Cast Iron (Pearlitic)	< 200 > 200	15 - 30 10 - 20	50 - 70 50 - 70	-	.40 - 1.00 .40 - 1.00	.60 - 1.50 .60 - 1.50	.60 - 1.30 .60 - 1.30	.80 - 1.60 .80 - 1.60	.80 - 1.70 .80 - 1.70	1.00 - 2.25 1.00 - 2.25	
	Spheroidal Cast Iron (Ferritic)	260 - 320	8 - 12	30 - 50	60 - 120	.40 - 1.00	.60 - 1.50	.60 - 1.30	.80 - 1.60	.80 - 1.70	1.00 - 2.25	
	Copper and Alloys Brass	< 500	10 - 18	100 - 200	-	.50 - .80	-	.60 - 1.00	-	.80 - 1.40	-	
N	Bronze Bronze Phosphorous	< 180	10 - 20	80 - 160	100 - 300	.30 - .60	-	.40 - .80	-	.60 - 1.00	-	
	Aluminum and Alloys	< 150	15 - 30	100 - 200	-	.50 - .80	-	.60 - 1.00	-	.80 - 1.40	-	

Formulas

<p>1. RPM = M/min • 3.82 • DIA</p> <p>where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = diameter of reamer (mm)</p>	<p>2. mm/min = RPM • mm/rev</p> <p>where: mm/min = mm per minute (mm/min) RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev)</p>	<p>3. M/min = RPM • 0.003 • DIA</p> <p>where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of reamer (mm)</p>
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IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is available through our Application Engineering department.

Stock Allowance and Coolant | Metric (mm)

Cutting Ring Style

ISO	Material	Hardness (BHN)	Coolant	Recommended Stock (mm) by Reamer Diameter*		
				17.60 - 40.00	40.01 - 80.00	80.01 - 200.00
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	Water Soluble Cutting Oil	0.15 - 0.30	0.20 - 0.40	0.25 - 0.50
		180 - 250				
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180				
		180 - 275				
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180				
		180 - 325				
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180				
		180 - 375				
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450				
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	Water Soluble Cutting Oil	0.20 - 0.40	0.30 - 0.40	0.30 - 0.50
	Titanium Alloy	140 - 310				
M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	Water Soluble Cutting Oil	0.15 - 0.30	0.20 - 0.40	0.25 - 0.50
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275				
K	Grey Cast Iron, Ductile Cast Iron,	< 200	Water Soluble Cutting Oil	0.15 - 0.30	0.20 - 0.40	0.25 - 0.50
	Spheroidal Cast Iron (Pearlitic)	> 200				
	Spheroidal Cast Iron (Ferritic)	260 - 320				
N	Copper and Alloys	< 500	Water Soluble	0.15 - 0.30	0.20 - 0.40	0.25 - 0.50
	Brass					
	Bronze	< 180	Water Soluble Cutting Oil			
	Bronze Phosphorous					
	Aluminum and Alloys	< 150	Water Soluble Cutting Oil			

*Stock value is on diameter.

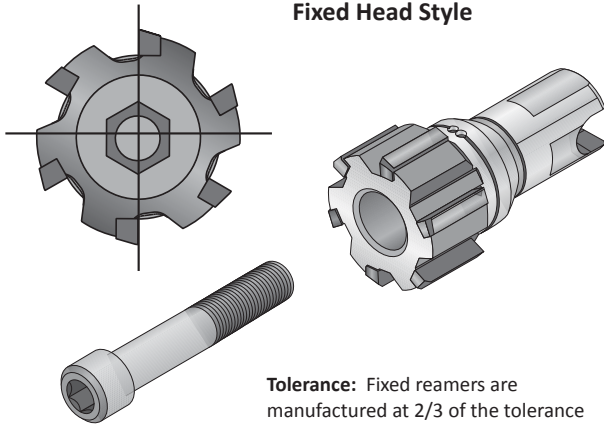
A DRILLING
B BORING
C REAMING
D BURNISHING
E THREADING
X SPECIALS

Set-up Information

Replaceable Head Style

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

Fixed Head Style

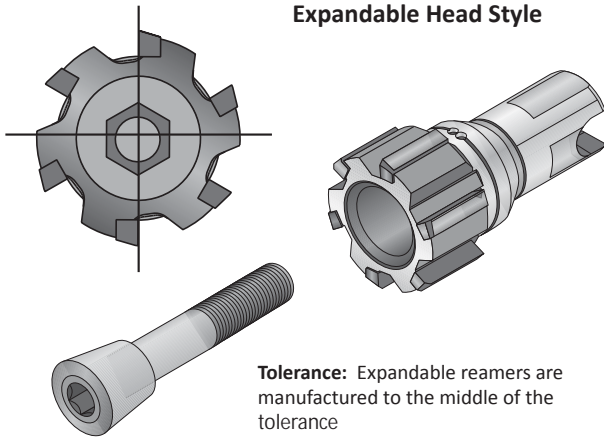


Tolerance: Fixed reamers are manufactured at 2/3 of the tolerance

Recommended Tightening Torque for Fixed Head Reamer (7400 / 7700)

Imperial		Metric	
D_1 Range (inch)	Torque (in-lbs)	D_1 Range (mm)	Torque (N-m)
0.465 - 0.575	22.1	11.80 - 14.60	2.5
0.575 - 0.693	33.6	14.61 - 17.60	3.5
0.693 - 0.850	44.3	17.61 - 21.60	5.0
0.851 - 1.047	62.0	21.61 - 26.60	7.0
1.048 - 1.283	88.5	26.61 - 32.60	10.0
1.284 - 1.598	106.2	32.61 - 40.60	12.0
1.599 - 1.992	141.6	40.61 - 50.60	16.0
1.993 - 2.386	177.0	50.61 - 60.60	20.0

Expandable Head Style



Tolerance: Expandable reamers are manufactured to the middle of the tolerance

Expanding Heads Adjustment

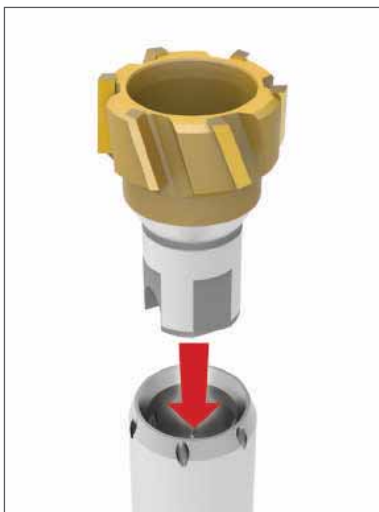
When the size reaches its lower tolerance, the head can be adjusted to compensate for wear to the cutting edges. This operation can be repeated several times until the surface finish of the hole deteriorates to an unacceptable level.

Adjustment Procedure

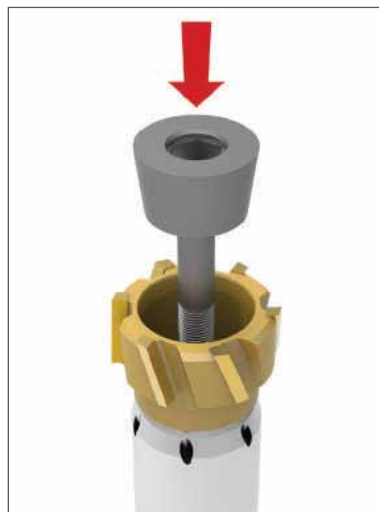
Slowly turn the right hand threaded screw clockwise while checking the diameter setting of the reamer with a micrometer. When the required diameter is achieved, the tool is ready for use.

Replaceable Head Reamer Assembly

Fixed and Expandable Styles



Step 1:
Insert the replaceable reamer head into the mandrel.



Step 2:
Insert the screw into the reamer head opening to secure it to the mandrel.

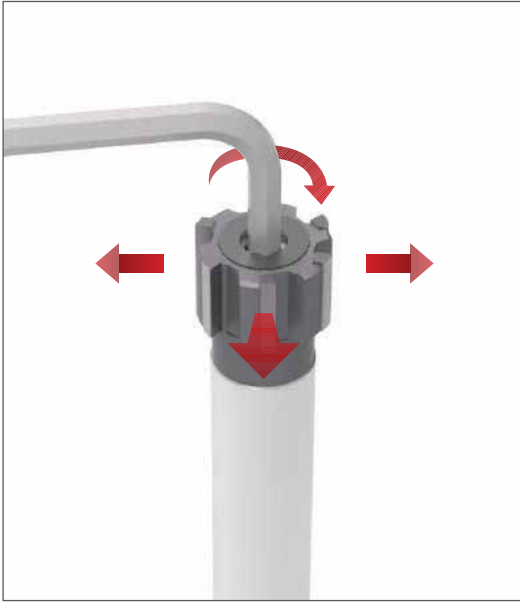
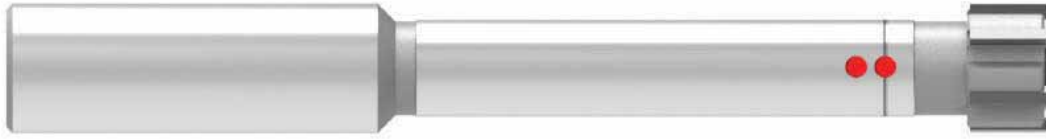


Step 3:
Tighten the screw.

NOTE: We recommend lubricating the thread and the conical surface of contact between the reamer head and the screw with antifriction Molycote grease.

Set-up Information

Monobloc Style



Tolerance

All monobloc reamers are ground to the requested diameter and set in the middle of the hole tolerance, ready for use.

Adjustment

The adjustment must be made to compensate for wear to the cutting edges when the size reaches its lower tolerance. This operation can be repeated several times until the surface finish of the hole deteriorates to an unacceptable level. Then the reamer must be reground. The maximum expansion is about 1% of the diameter.

A

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REAMING

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BURNISHING

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THREADING

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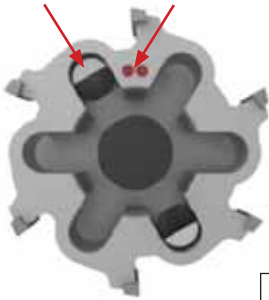
SPECIALS

Set-up Information

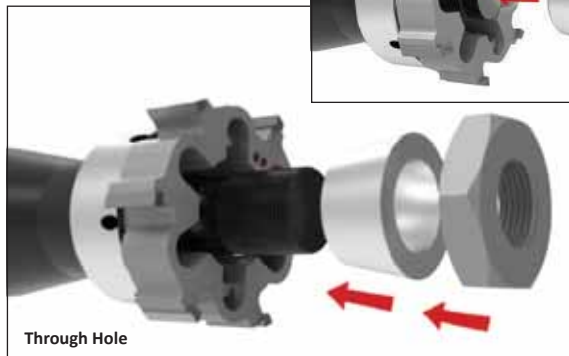
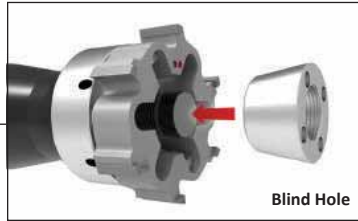
Cutting Ring Style

Drive Pin
(11:00 position)

Dimples
(12:00 position)



Step 1:
With the drive pins assembled, insert the cutting ring onto the mandrel. Make sure the dimples are at the 12:00 position with the drive pin at the 11:00 position.

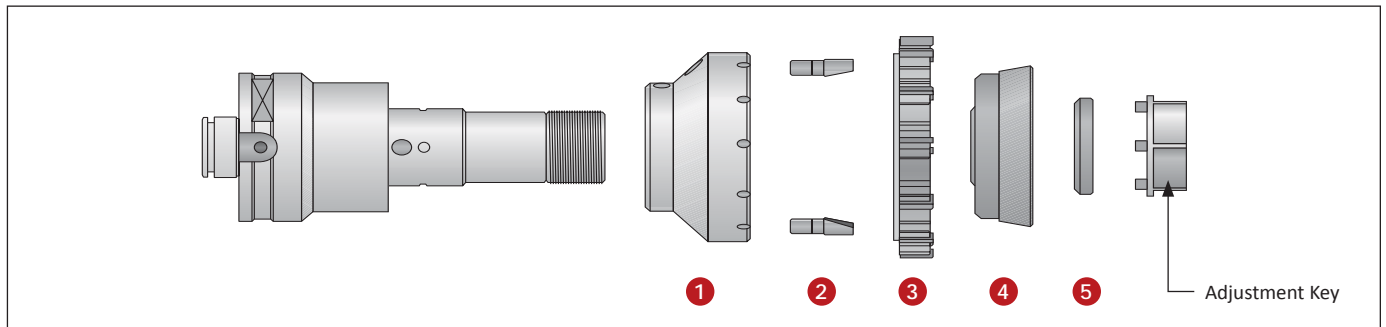


Step 2:

Insert the conical ring. Tighten the lock nut to set the desired reamer size (left hand thread). Then loosen the lock nut slightly until it "clicks" against the drive wall.

NOTE: We recommend lubricating the thread and the conical surface of contact between the cutting ring and the conical ring with antifriction Molycote grease.

For Diameter Range: 100.60mm - 200.59mm



Assembly

- With the drive pins (2) assembled, mount the flange (1) onto the mandrel. Assemble the cutting ring (3) so the slot on the left side of the dimple is mounted onto the drive pins (2). Insert the conical ring (4).
- Screw the ring nut (5) onto the mandrel and tighten manually so the conical ring (4) makes contact with the cutting ring (3). The thread is left handed.

NOTE: We recommend lubricating the thread and the conical surface of contact between the cutting ring and the conical ring with antifriction Molycote grease.

Adjustment Procedure

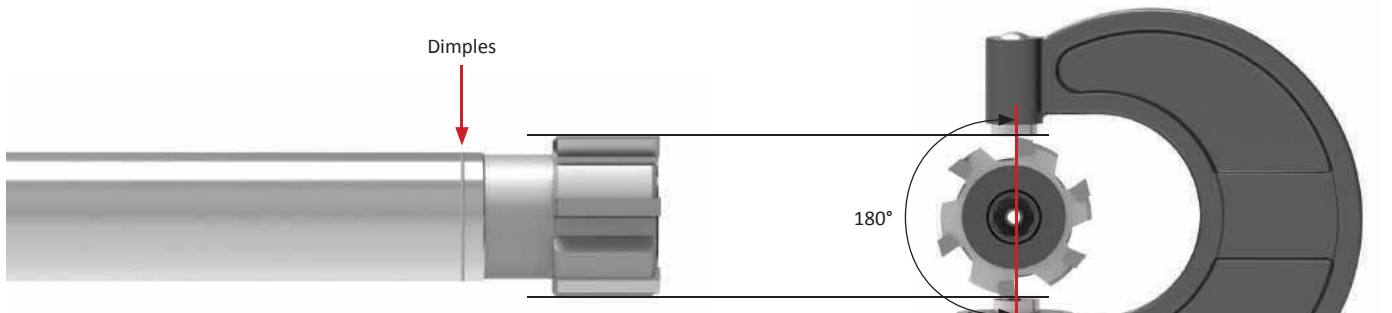
- Turn the ring nut (5) slowly using a pin spanner.
- Check the diameter setting of the cutting ring with a micrometer. Make sure the drive pins (2) are in traction and in the opposite direction of the cutting action of the reamer.
- When the required diameter is achieved, the tool is ready to use.



Adjustment Procedure

- Turn the conical ring slowly using an adjustment key (left hand thread). Adjustment keys are supplied with reamers from diameter 17.60mm to 40.59mm.
- Check the diameter setting of the cutting ring with a micrometer.
- When the required diameter is achieved, unscrew the conical ring until there is a click and the drive pins are in traction in the opposite direction to the cutting action of the reamer. The reamer is ready for use.

Diameter Measurement

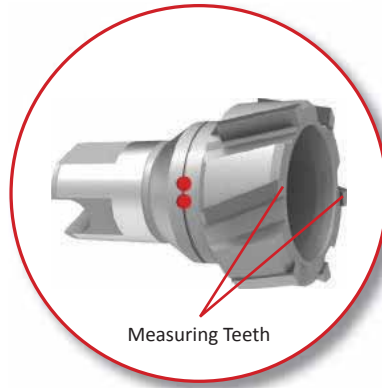
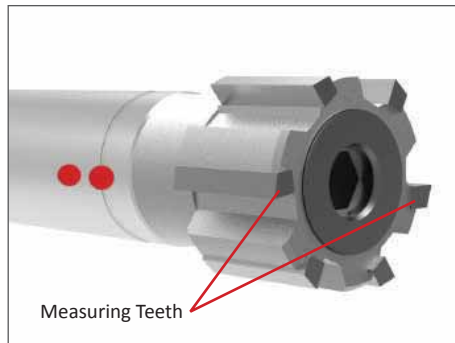


Using the Measuring Teeth

With the reamer assembled, use a presetter or micrometers to measure the reamer diameter using the opposing 180° teeth. A presetter (with at least 2 µm resolution) is preferred to avoid chipping the cutting edges.

NOTE: Only two cutting teeth are 180° opposed. The asymmetric spacing of the other cutting teeth will not induce harmonics, which prevents the tool from creating chatter.

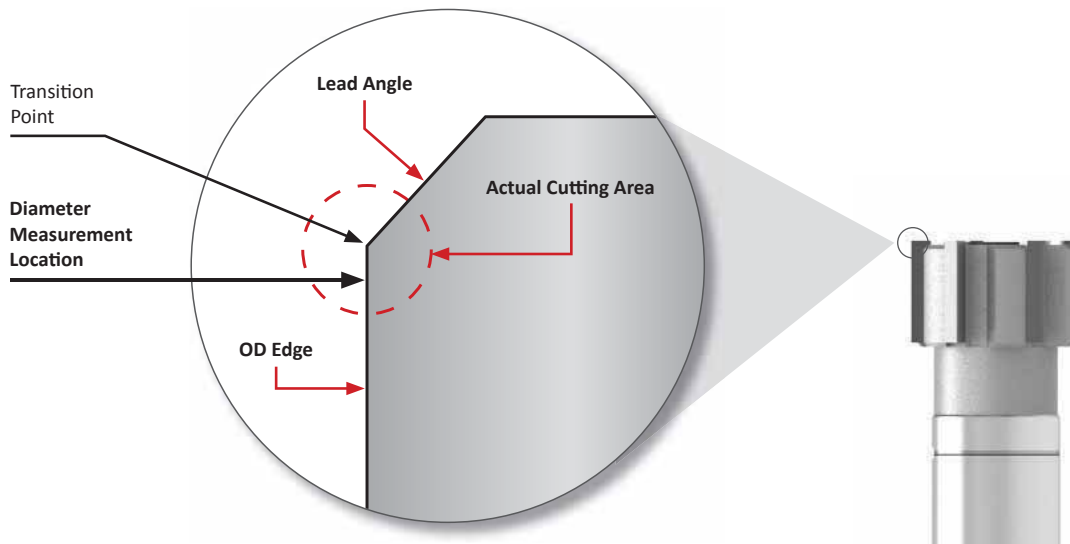
The red dimples indicate which two opposing teeth are the measuring teeth. All S.C.A.M.I. Reamers have a dimple to indicate the 180° opposing teeth.



Where to Take the Measurement

When measuring the diameter, take the measurement from the area of the cutting tooth just below the transition from the lead angle to the OD edge. See the illustration below.

The back side of the OD edge has a back taper. This is why measuring from the location just below the lead angle/OD edge transition point results in the most accurate measurement (before the taper begins).



TIR Measurement

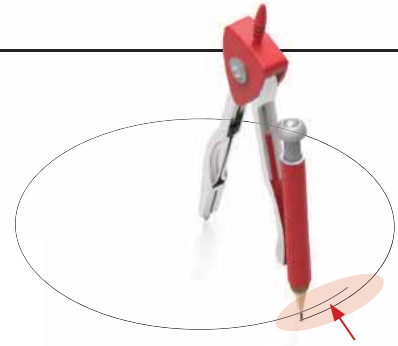
What is TIR?

Total indicator runout (TIR) refers to the distance to which the reamer is cutting off-center. In an ideal situation, the tool would begin in the exact center of the hole, and it would then rotate and cut in a perfect circle. This would result in a TIR of 0.

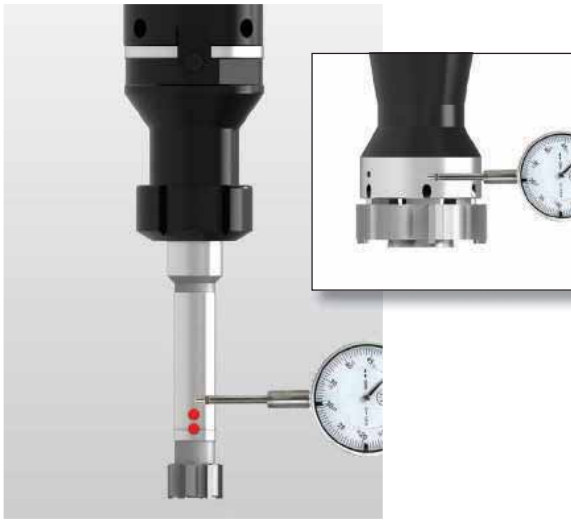
Because a perfect TIR of 0 is not practical, the goal is to maintain a TIR as close to 0 as possible. The closer the TIR is to 0, the better the reamer will perform.

Allied Machine recommends a TIR of $< 0.0005''$ (0.013mm).

Think of attempting to draw a perfect circle with a drafting compass, but the pencil runs slightly outside the point where the circle began because the center point shifted during the pencil's path. This slight area of overlap would be the TIR.



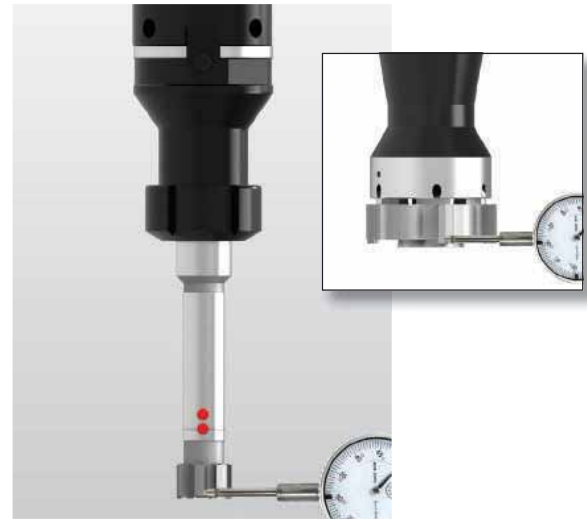
TIR: How far from center the tool will move during its path



Step 1:

Check the TIR first on the mandrel (or ground) area of the reamer. Center the indicator in line with the dimple.

Measure the TIR by rotating the tool until the indicator reaches the highest value.



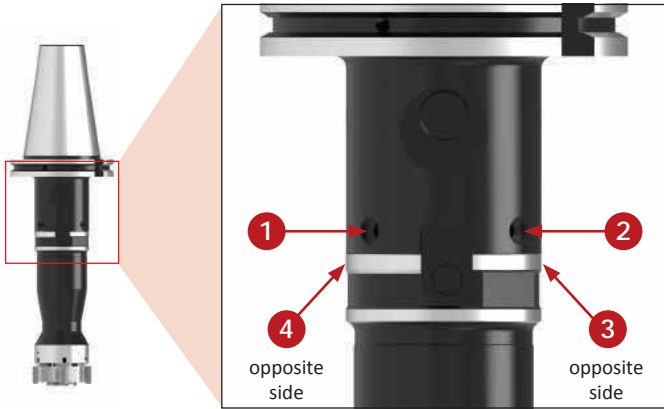
Step 2:

Next, check the TIR on the cutting teeth of the reamer.

NOTE: Rotate the tool counterclockwise to avoid chipping the cutting teeth with the indicator.

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TIR Adjustment



Step 1:

Place the tool into the machine spindle. Make contact with the 4 radial adjustment screws in a concentric fashion (this results in equal pressure surrounding the tool).

Tighten #1, then #3, followed by #2 and #4.



Step 2:

Swipe the dial indicator around the ground portion of the arbor near the coolant outlet holes to verify the TIR.

The TIR should be within 0.0005" (as close to 0 as possible). This will ensure the TIR check on the cutting teeth will be more true. It also means the arbor is running true to the shank.

Step 3:

Once the TIR is checked on the arbor, check the TIR on the cutting teeth. Rotate the tool counterclockwise to avoid chipping the cutting teeth.



Clamping Screw

Step 4:

Tighten down the central clamping screws. During the tightening, the tool body will shift slightly. Repeat the TIR check on the cutting teeth, and adjust as necessary.

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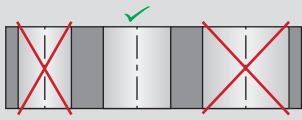
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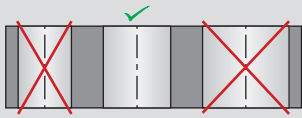
Troubleshooting Guide

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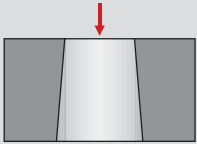
Oversized Hole

- Reamer is running eccentric to the center of the machine spindle ▶ Use modular system with radial adjustment
- Excessive misalignment causing reamer to cut on back taper ▶ Fix the misalignment
- Material build up on cutting edges ▶ Replace the coolant or change the cutting speed
- Reamer diameter is too large ▶ Use smaller reamer or regrind existing reamer



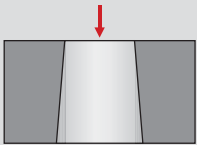
Undersized Hole

- The reamer diameter is too small ▶ Use larger reamer
- The reamer diameter is worn ▶ Expand, regrind, or replace the reamer
- The coolant is not suitable ▶ Replace the coolant
- Stock allowance is too small ▶ Increase the stock allowance
- The cutting speed is too low ▶ Increase the cutting speed



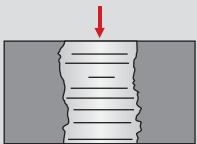
Tapered Hole

- Excessive misalignment ▶ Correct the misalignment



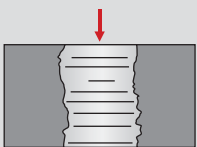
Burr at Hole Entry

- Excessive misalignment ▶ Correct the misalignment



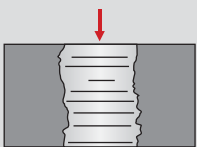
Hole is Not Straight

- Concentricity and alignment error between the workpiece and the tool ▶ Correct the misalignment and use the modular system with radial adjustment
- Asymmetrical cutting or angled surfaces ▶ Create a chamfer on the lead-in



Poor Hole Finish

- One cutting edge is chipped ▶ Regrind the reamer
- The lead-in is irregular ▶ Regrind the reamer
- Back taper on the cutting edge is too great ▶ Regrind the reamer
- Excessive misalignment ▶ Correct the misalignment or use the modular system
- Cutting data is not correct ▶ Verify the cutting data
- Poor chip evacuation ▶ Verify the coolant volume and pressure or use through tool coolant



Reamer Creates Excessive Torque Loading

- Back taper on the cutting edge is too small ▶ Regrind the reamer
- The radially ground land is too wide ▶ Regrind the reamer
- The coolant is not suitable ▶ Replace the coolant



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Roller Burnishing Systems

Through Hole Style | Blind Hole Style



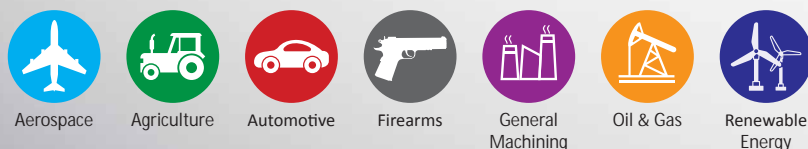
Get the Finish You Need

Allied Machine is proud to offer roller burnishing tools from S.C.A.M.I.®. These hole finishing tools provide extremely high-quality surface finish on both through hole and blind hole applications. With roller burnishing, you can eliminate the need for slower and more costly finishing processes and secondary operations such as grinding, honing, and lapping.

Not only will the roller burnishing tools create a smooth surface finish, but they will also harden the material and increase the wear resistance of the part. The benefits of this single operation result in the hole quality you should expect from Allied Machine.

Creates fine surface finishes	Increases wear and corrosion resistance	Eliminates other processes and saves you money
-------------------------------	---	--

Applicable Industries



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.

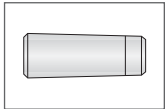
Visit www.alliedmachine.com for the most up-to-date information and procedures.

Reference Icons

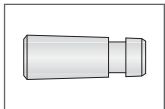
The following icons will appear throughout the catalog to help you navigate between products.



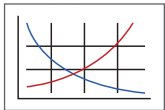
Technical Information
Detailed instructions and information regarding the corresponding part(s)



Through Hole Rolls
Refers to the rolls available for through hole burnishing tools



Blind Hole Rolls
Refers to the rolls available for blind hole burnishing tools



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

Series	Diameter Range	
	Imperial (inch)	Metric (mm)
H	0.1555 - 0.5028	3.95 - 12.77
I	0.4976 - 0.6634	12.64 - 16.85
K	0.6535 - 0.9740	16.60 - 24.74
L	0.9661 - 1.2268	24.54 - 31.16
F	0.9661 - 1.2268	24.54 - 31.16
M	1.2146 - 1.4118	30.85 - 35.86
N	1.4020 - 1.8492	35.61 - 46.97
O	1.8390 - 2.2240	46.71 - 56.49
P	2.2138 - 2.7240	56.23 - 69.19
Q	2.7138 - 3.3492	68.93 - 85.07
R	3.3390 - 4.0992	84.81 - 104.12
S	4.0890 - 5.0370	103.86 - 127.94
T	5.0354 - 5.9016	127.90 - 149.90
U	5.9016 - 6.5315	149.90 - 165.90



Allied Machine & Engineering offers Roller Burnishing tools through an exclusive supply agreement with S.C.A.M.I. s.n.c.

S.C.A.M.I. is an Italian manufacturer that has been producing high quality cutting tools for over 40 years.

Visit www.alliedmachine.com for additional information about all Allied Machine products, or contact our Application Engineering department for technical assistance.

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Burnishing Series

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 K Series 14 - 15
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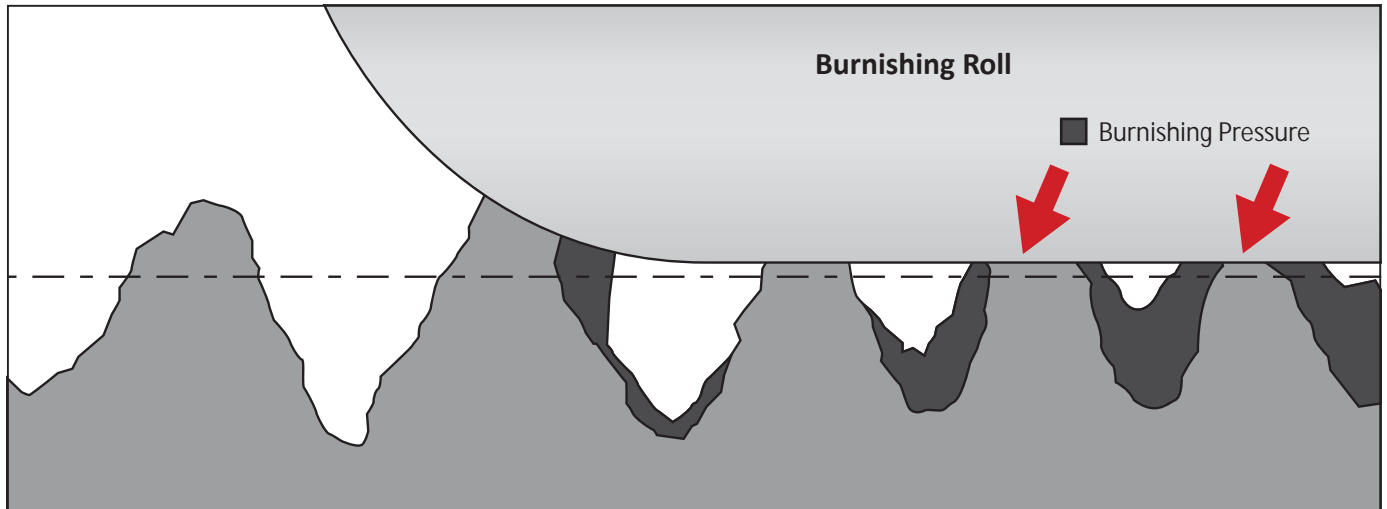
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Roller Burnishing Overview

The Principle of Roller Burnishing

Roller burnishing is a cold-working process that produces a fine surface finish. The planetary rotation of the hardened rolls creates pressure over a metal surface. Unlike cold rolling, which produces large sectional changes, roller burnishing involves cold-working on the surface of the workpiece to improve the surface structure.

All machined surfaces consist of a series of peaks and valleys, all having irregular height and spacing. The plastic deformation created by roller burnishing is a displacement of the material in the peaks. When under pressure, the material in the peaks flows into the valleys. During the process, tool marks and irregularities are rolled out, resulting in a mirror-like finish with a tough, work-hardened surface that is also wear and corrosion resistant.



Advantages of Roller Burnishing: Metallurgical Properties

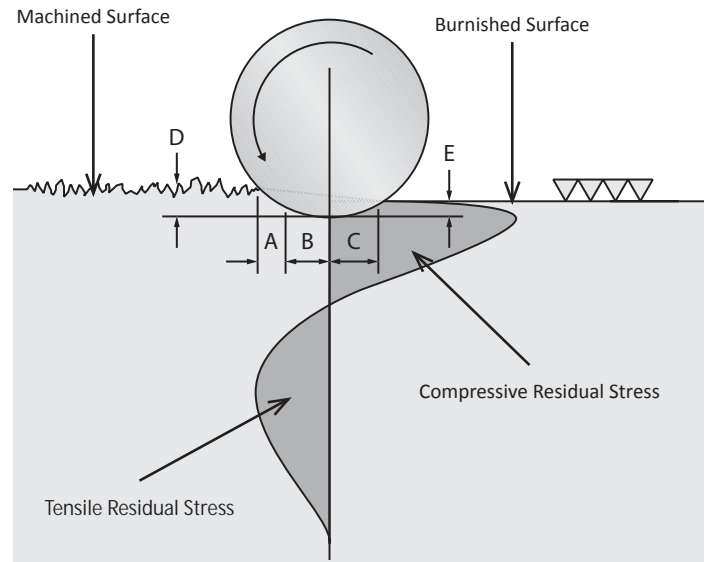
- Grain structure is condensed and refined.
- The compacted surface is *smoother, harder, and more wear resistant* than ground or honed surfaces.
- The process reduces surface porosity and also removes scratches that could hold reactive substances or contaminants. *This increases the corrosion resistance.*
- Depending on the material, the surface hardness can be *increased by as much as 10 points Rockwell C*. This may eliminate the need for heat treatment.
- The plastic deformation induces residual compressive stresses in the surface of the part. This increases the strength properties and fatigue life of the part because any forces on the part must overcome these residual stresses, as well as the tensile strength of the materials, before fatigue conditions occur.

Advantages of Roller Burnishing: Surface Finish

- Creates a high finish to any machinable metal.
- Surfaces that are bored, reamed, or turned to 125 micro inches or more can be finished to 4 micro inch CLA or less in one pass (at feed rates of 125 to 300 mm/min).
- Roller burnishing replaces grinding, honing, lapping, and other expensive secondary operations.
- Tool marks are rolled out.

The Process

- The first contact with the machined surface occurs in Section A.
- Plastic deformation occurs in Section B as the yield point of the surface is exceeded.
- Section D is the pressurized depth.
- Once the material endures the maximum compressive strain (Section C), it starts relieving elastically (Section E) through the finishing zone.
- This leaves a smooth surface and a compressive residual stress of significant peak value.
- The stresses formed on the material during the compression decrease toward the center. These stresses reach approximately 1mm below the surface. This increases the surface hardness.



Roller Burnishing Overview

When to Roller Burnish

Conditions for Roller Burnishing

Roller burnishing is a cold working process used to achieve fine hole finishes. In order to achieve the most optimal results, adhere to the benchmarks below:

- **Finishing:** The ductility and hardness of the workpiece material along with the surface preparation dictates the quality of the burnished finish.
- **Workability:** Any ductile and malleable material up to RC40 can be roller burnished.
- **Worked Surface Properties:** Workpieces with an interrupted surface within 10% of the circumference can be successfully burnished with a standard tool (see Figures 1 and 2).

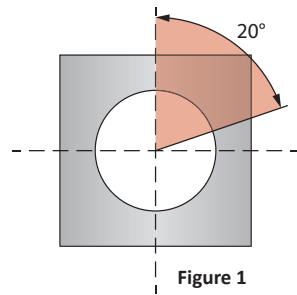


Figure 1

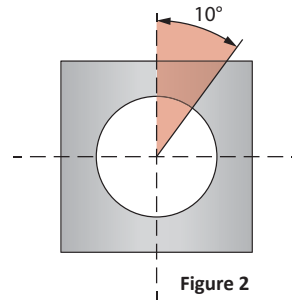


Figure 2

- **Tolerance of the Burnished Piece:** The tolerance range achieved from the burnishing will be equal to that achieved from the pre-machining since no material will be removed.

The ideal surface for burnishing consists of a succession of peaks. These peaks correspond on regular feed of the preparation tool (see Figure 3). We suggest the ALVAN® expandable reamer for pre-burnishing because it creates a uniform roughness and a tolerance range of H6 - H7.

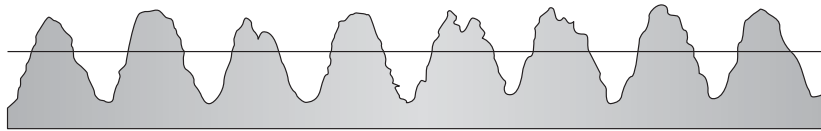


Figure 3

Pre-machining tapers and surface irregularities caused by cutting tool failure must be noted because these conditions cannot be corrected by the roller burnishing process (see Figures 4 and 5).

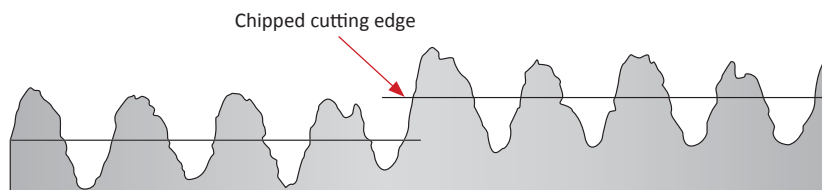


Figure 4

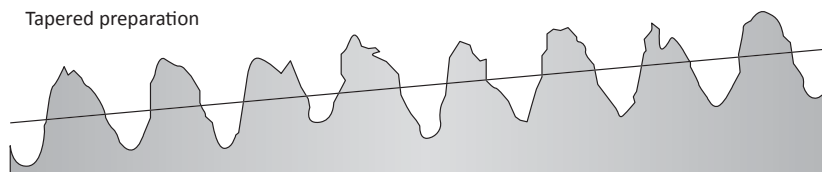


Figure 5

Product Offering



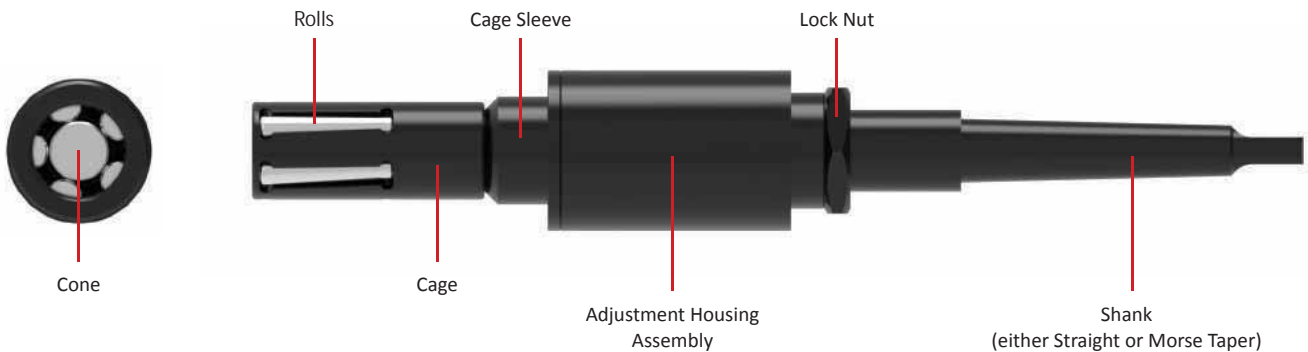
Through Hole Style
0.1555" - 6.5313" (3.95mm - 165.90mm)



Blind Hole Style
0.1850" - 6.5313" (4.70mm - 165.90mm)

Advantages of the Roller Burnishing Tool

- ✓ **Provides accurate size control**
tolerances within 0.0005" or better (depending on variables such as material)
- ✓ **Produces fine surface finishes**
between 1 - 10 microinches Ra
- ✓ **Increases surface hardness**
by 5 - 10% or more
- ✓ **Performs a much cleaner operation**
than honing or other abrasive finishing methods
- ✓ **Provides versatility**
because the operation can be performed on any rotating spindle
- ✓ **Eliminates the need for slower and costly finishing processes and secondary operations**
such as grinding, honing, lapping, etc.



The Tool Components

All roller burnishing tools (both through hole and blind hole) are composed of the basic burnisher assembly, including:

- Cage
- Cone
- Rolls
- Shank (either straight or Morse Taper)

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

Product Selection Guide

Series	Diameter Range (inch / mm)							Length			
	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	Short	Standard	Long	Unlimited
	0 - 25.4	25.4 - 50.8	50.8 - 76.2	76.2 - 101.6	101.6 - 127	127 - 152.4	152.4 - 177.8				
H*	█							✓	✓	✓	
I	█							✓	✓	✓	
K		█						✓	✓	✓	
L		█						✓	✓	✓	
F		█									✓
M		█									✓
N			█								✓
O			█								✓
P			█								✓
Q				█							✓
R				█							✓
S					█						✓
T						█					✓
U							█				✓

*For H series: through hole tools start at 0.1555" (3.95mm) and blind hole tools start at 0.1850" (4.70mm)

When to **ORDER UP** 

In some cases, there will be a diameter overlap between a series and the series after it. If the diameter you need falls into this overlap, choose the higher of the two series.

Example:

You need a 24.64mm diameter tool. This diameter falls into both the K series and the L series.

- K series diameter range = 16.60mm - 24.74mm
- L series diameter range = 24.54mm - 31.16mm

In this scenario, you would choose the L series tool that covers the 24.64 diameter.

Product Nomenclature

Roller Burnishing Tools

RDK	H	-	2	1	0	-	004,70
1	2		3	4	5		6

1. Type of Burnisher RDK = Through holes RSK = Blind holes	2. Series H = H series F = F series P = P series T = T series I = I series M = M series Q = Q series U = U series K = K series N = N series R = R series L = L series O = O series S = S series	3. Shank Type 1 = Straight 2 = Morse Taper
4. Length 0 = Unlimited 1 = Short 2 = Standard 3 = Long	5. Cage Style 0 = Standard	6. Diameter Through Hole Tools = Minimum diameter of burnishing range Blind Hole Tools = Diameter to burnish

Cone Reduction Factor (Blind Holes)

When burnishing blind holes, the cone must not extend past the end of the rolls. If it does, the cone will collide with the bottom of the hole. Each burnishing tool has an adjustment range of:

- Approximately 0.5mm on diameter for tools below 12.7mm
- Approximately 1.0mm on diameter for tools above 12.7mm

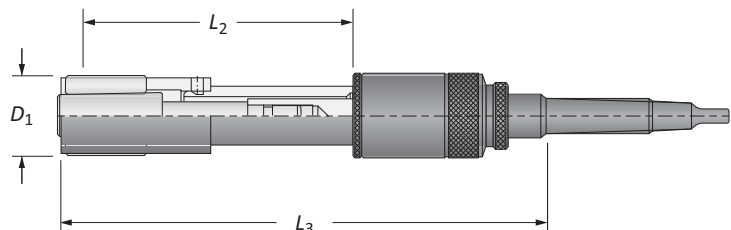
For through hole burnishing tools, the standard cone value "x" is 1. If the standard cone is used for blind hole burnishing, the only way it will not extend past the end of the rolls is to reduce the length of the cone. The required length reduction is dependent on the set diameter versus the minimum capable diameter of the tool. The factor of reduction (x) can be calculated using the formulas below and will be a whole integer number ranging from 2 - 8.

The "x" value could result in a decimal figure. If so, round down for answers below 0.6, and round up for answers 0.6 and above.

Diameter (5.89mm - 12.77mm) $x = 1 + \frac{Z - Y}{0.05}$ Z = diameter of the hole Y = minimum diameter setting of tool Example: Z = 11.05 Y = 10.71mm $x = 1 + \frac{11.05 - 10.71}{0.05} = 7.8$ which is approximated at "x" = 8 Correct Cone: RSTH-038-11025	Diameter (12.64mm - 127.94mm) $x = 1 + \frac{Z - Y}{0.10}$ Z = diameter of the hole Y = minimum diameter setting of tool Example: Z = 17.76 Y = 17.40mm $x = 1 + \frac{17.76 - 17.40}{0.10} = 4.6$ which is approximated at "x" = 4 Correct Cone: RSTK-034-00044	Diameter (127.90mm - 165.90mm) $x = 1 + \frac{Z - Y}{0.10}$ Z = diameter of the hole Y = minimum diameter setting of tool Example: Z = 148.20 Y = 147.90mm $xx = 31 + \frac{148.20 - 147.90}{0.10} = 34$ Correct Cone: RSTT-034-01480
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Reference Key

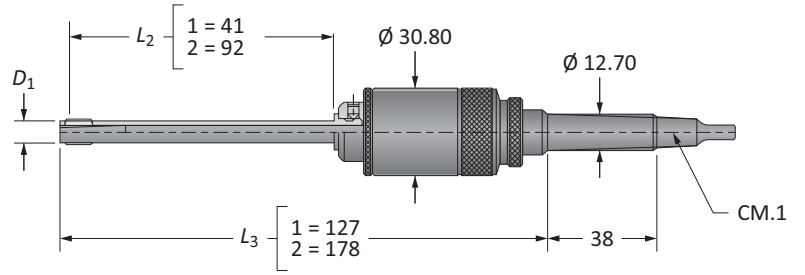
Symbol	Attribute
D ₁	Diameter range
L ₂	Burnishing length
L ₃	Reference length





Roller Burnishing Tools | Through Holes

H Series (mini) | Diameter Range: 0.1555" - 0.1870" (3.95mm - 4.75mm)



D_1		L	Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
0.1555 - 0.1634	3.95 - 4.15	1	RDKH-212-00395	RDKH-112-00395	RDCH-012-10005	RDTH-031-10012	RDRY-704-00047	3
0.1555 - 0.1634	3.95 - 4.15	2	RDKH-222-00395	RDKH-122-00395	RDCH-012-20005	RDTH-031-20012	RDRY-704-00047	3
0.1638 - 0.1713	4.16 - 4.35	1	RDKH-212-00416	RDKH-112-00416	RDCH-012-10006	RSTH-035-10012	RDRY-704-00047	3
0.1638 - 0.1713	4.16 - 4.35	2	RDKH-222-00416	RDKH-122-00416	RDCH-012-20006	RSTH-035-20012	RDRY-704-00047	3
0.1717 - 0.1791	4.36 - 4.55	1	RDKH-212-00436	RDKH-112-00436	RDCH-012-10007	RDTH-031-10013	RDRY-704-00047	3
0.1717 - 0.1791	4.36 - 4.55	2	RDKH-222-00436	RDKH-122-00436	RDCH-012-20007	RDTH-031-20013	RDRY-704-00047	3
0.1795 - 0.1870	4.56 - 4.75	1	RDKH-212-00456	RDKH-112-00456	RDCH-012-10008	RSTH-035-10013	RDRY-704-00047	3
0.1795 - 0.1870	4.56 - 4.75	2	RDKH-222-00456	RDKH-122-00456	RDCH-012-20008	RSTH-035-20013	RDRY-704-00047	3

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

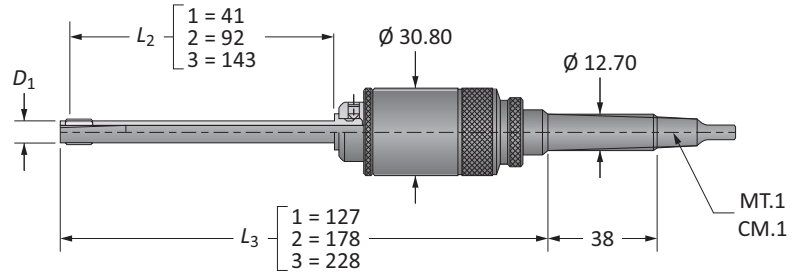
D: 42 - 45

D: 40 - 41

D: 38

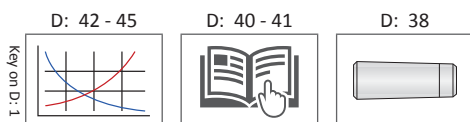
Roller Burnishing Tools | Through Holes

H Series | Diameter Range: 0.1850" - 0.5028" (4.70mm - 12.77mm)



D_1		L	Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
0.1850 - 0.1929	4.70 - 4.90	1	RDKH-210-00470	RDKH-110-00470	RDCH-011-10012	RDTH-031-10012	RDRY-704-00062	3
0.1850 - 0.1929	4.70 - 4.90	2	RDKH-220-00470	RDKH-120-00470	RDCH-011-20012	RDTH-031-20012	RDRY-704-00062	3
0.1850 - 0.1929	4.70 - 4.90	3	RDKH-230-00470	RDKH-130-00470	RDCH-011-30012	RDTH-031-30012	RDRY-704-00062	3
0.1917 - 0.2035	4.87 - 5.17	1	RDKH-210-00487	RDKH-110-00487	RDCH-011-10011	RSTH-033-10012	RDRY-704-00062	3
0.1917 - 0.2035	4.87 - 5.17	2	RDKH-220-00487	RDKH-120-00487	RDCH-011-20011	RSTH-033-20012	RDRY-704-00062	3
0.1917 - 0.2035	4.87 - 5.17	3	RDKH-230-00487	RDKH-130-00487	RDCH-011-30011	RSTH-033-30012	RDRY-704-00062	3
0.1996 - 0.2200	5.07 - 5.59	1	RDKH-210-00507	RDKH-110-00507	RDCH-011-10013	RDTH-031-10013	RDRY-704-00062	5
0.1996 - 0.2200	5.07 - 5.59	2	RDKH-220-00507	RDKH-120-00507	RDCH-011-20013	RDTH-031-20013	RDRY-704-00062	5
0.1996 - 0.2200	5.07 - 5.59	3	RDKH-230-00507	RDKH-130-00507	RDCH-011-30013	RDTH-031-30013	RDRY-704-00062	5
0.2161 - 0.2358	5.49 - 5.99	1	RDKH-210-00549	RDKH-110-00549	RDCH-011-10014	RDTH-031-10013	RDRY-704-00070	5
0.2161 - 0.2358	5.49 - 5.99	2	RDKH-220-00549	RDKH-120-00549	RDCH-011-20014	RDTH-031-20013	RDRY-704-00070	5
0.2161 - 0.2358	5.49 - 5.99	3	RDKH-230-00549	RDKH-130-00549	RDCH-011-30014	RDTH-031-30013	RDRY-704-00070	5
0.2319 - 0.2524	5.89 - 6.41	1	RDKH-210-00589	RDKH-110-00589	RDCH-011-10015	RDTH-031-10015	RDRY-704-00070	5
0.2319 - 0.2524	5.89 - 6.41	2	RDKH-220-00589	RDKH-120-00589	RDCH-011-20015	RDTH-031-20015	RDRY-704-00070	5
0.2319 - 0.2524	5.89 - 6.41	3	RDKH-230-00589	RDKH-130-00589	RDCH-011-30015	RDTH-031-30015	RDRY-704-00070	5
0.2484 - 0.2681	6.31 - 6.81	1	RDKH-210-00631	RDKH-110-00631	RDCH-011-10016	RDTH-031-10015	RDRY-704-00078	5
0.2484 - 0.2681	6.31 - 6.81	2	RDKH-220-00631	RDKH-120-00631	RDCH-011-20016	RDTH-031-20015	RDRY-704-00078	5
0.2484 - 0.2681	6.31 - 6.81	3	RDKH-230-00631	RDKH-130-00631	RDCH-011-30016	RDTH-031-30015	RDRY-704-00078	5
0.2642 - 0.2839	6.71 - 7.21	1	RDKH-210-00671	RDKH-110-00671	RDCH-011-10017	RDTH-031-10017	RDRY-704-00078	5
0.2642 - 0.2839	6.71 - 7.21	2	RDKH-220-00671	RDKH-120-00671	RDCH-011-20017	RDTH-031-20017	RDRY-704-00078	5
0.2642 - 0.2839	6.71 - 7.21	3	RDKH-230-00671	RDKH-130-00671	RDCH-011-30017	RDTH-031-30017	RDRY-704-00078	5
0.2803 - 0.3000	7.12 - 7.62	1	RDKH-210-00712	RDKH-110-00712	RDCH-011-10018	RDTH-031-10017	RDRY-704-00086	5
0.2803 - 0.3000	7.12 - 7.62	2	RDKH-220-00712	RDKH-120-00712	RDCH-011-20018	RDTH-031-20017	RDRY-704-00086	5
0.2803 - 0.3000	7.12 - 7.62	3	RDKH-230-00712	RDKH-130-00712	RDCH-011-30018	RDTH-031-30017	RDRY-704-00086	5
0.2945 - 0.3142	7.48 - 7.98	1	RDKH-210-00748	RDKH-110-00748	RDCH-011-10019	RDTH-031-10019	RDRY-704-00086	5
0.2945 - 0.3142	7.48 - 7.98	2	RDKH-220-00748	RDKH-120-00748	RDCH-011-20019	RDTH-031-20019	RDRY-704-00086	5
0.2945 - 0.3142	7.48 - 7.98	3	RDKH-230-00748	RDKH-130-00748	RDCH-011-30019	RDTH-031-30019	RDRY-704-00086	5
0.3102 - 0.3299	7.88 - 8.38	1	RDKH-210-00788	RDKH-110-00788	RDCH-011-10020	RDTH-031-10019	RDRY-704-00093	5
0.3102 - 0.3299	7.88 - 8.38	2	RDKH-220-00788	RDKH-120-00788	RDCH-011-20020	RDTH-031-20019	RDRY-704-00093	5
0.3102 - 0.3299	7.88 - 8.38	3	RDKH-230-00788	RDKH-130-00788	RDCH-011-30020	RDTH-031-30019	RDRY-704-00093	5
0.3260 - 0.3461	8.28 - 8.79	1	RDKH-210-00828	RDKH-110-00828	RDCH-011-10021	RDTH-031-10021	RDRY-704-00093	5
0.3260 - 0.3461	8.28 - 8.79	2	RDKH-220-00828	RDKH-120-00828	RDCH-011-20021	RDTH-031-20021	RDRY-704-00093	5
0.3260 - 0.3461	8.28 - 8.79	3	RDKH-230-00828	RDKH-130-00828	RDCH-011-30021	RDTH-031-30021	RDRY-704-00093	5

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



DRILLING

B

BORING

C REAMING

D BURNISHING

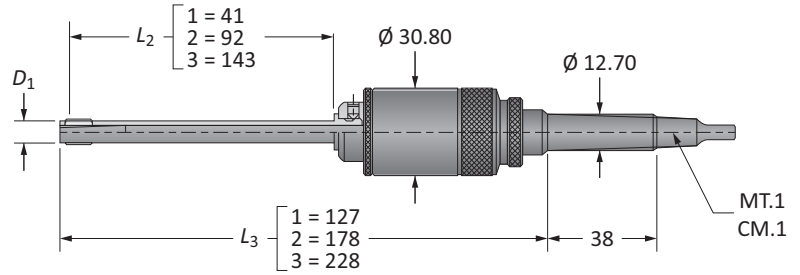
E THREADING

X SPECIALS



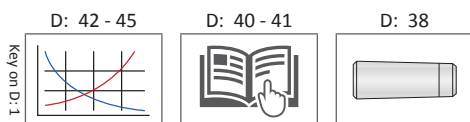
Roller Burnishing Tools | Through Holes (continued)

H Series | Diameter Range: 0.1850" - 0.5028" (4.70mm - 12.77mm)



D_1		L	Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
0.3410 - 0.3606	8.66 - 9.16	1	RDKH-210-00866	RDKH-110-00866	RDCH-011-10022	RDTH-031-10019	RDRY-704-00109	5
0.3410 - 0.3606	8.66 - 9.16	2	RDKH-220-00866	RDKH-120-00866	RDCH-011-20022	RDTH-031-20019	RDRY-704-00109	5
0.3410 - 0.3606	8.66 - 9.16	3	RDKH-230-00866	RDKH-130-00866	RDCH-011-30022	RDTH-031-30019	RDRY-704-00109	5
0.3567 - 0.3768	9.06 - 9.57	1	RDKH-210-00906	RDKH-110-00906	RDCH-011-10023	RDTH-031-10021	RDRY-704-00109	5
0.3567 - 0.3768	9.06 - 9.57	2	RDKH-220-00906	RDKH-120-00906	RDCH-011-20023	RDTH-031-20021	RDRY-704-00109	5
0.3567 - 0.3768	9.06 - 9.57	3	RDKH-230-00906	RDKH-130-00906	RDCH-011-30023	RDTH-031-30021	RDRY-704-00109	5
0.3732 - 0.3933	9.48 - 9.99	1	RDKH-210-00948	RDKH-110-00948	RDCH-011-10024	RDTH-031-10024	RDRY-704-00109	5
0.3732 - 0.3933	9.48 - 9.99	2	RDKH-220-00948	RDKH-120-00948	RDCH-011-20024	RDTH-031-20024	RDRY-704-00109	5
0.3732 - 0.3933	9.48 - 9.99	3	RDKH-230-00948	RDKH-130-00948	RDCH-011-30024	RDTH-031-30024	RDRY-704-00109	5
0.3902 - 0.4102	9.91 - 10.42	1	RDKH-210-00991	RDKH-110-00991	RDCH-011-10025	RDTH-031-10025	RDRY-704-00109	5
0.3902 - 0.4102	9.91 - 10.42	2	RDKH-220-00991	RDKH-120-00991	RDCH-011-20025	RDTH-031-20025	RDRY-704-00109	5
0.3902 - 0.4102	9.91 - 10.42	3	RDKH-230-00991	RDKH-130-00991	RDCH-011-30025	RDTH-031-30025	RDRY-704-00109	5
0.4051 - 0.4252	10.29 - 10.80	1	RDKH-210-01029	RDKH-110-01029	RDCH-011-10026	RDTH-031-10024	RDRY-704-00125	5
0.4051 - 0.4252	10.29 - 10.80	2	RDKH-220-01029	RDKH-120-01029	RDCH-011-20026	RDTH-031-20024	RDRY-704-00125	5
0.4051 - 0.4252	10.29 - 10.80	3	RDKH-230-01029	RDKH-130-01029	RDCH-011-30026	RDTH-031-30024	RDRY-704-00125	5
0.4217 - 0.4413	10.71 - 11.21	1	RDKH-210-01071	RDKH-110-01071	RDCH-011-10027	RDTH-031-10025	RDRY-704-00125	5
0.4217 - 0.4413	10.71 - 11.21	2	RDKH-220-01071	RDKH-120-01071	RDCH-011-20027	RDTH-031-20025	RDRY-704-00125	5
0.4217 - 0.4413	10.71 - 11.21	3	RDKH-230-01071	RDKH-130-01071	RDCH-011-30027	RDTH-031-30025	RDRY-704-00125	5
0.4374 - 0.4571	11.11 - 11.61	1	RDKH-210-01111	RDKH-110-01111	RDCH-011-10028	RDTH-031-10028	RDRY-704-00125	5
0.4374 - 0.4571	11.11 - 11.61	2	RDKH-220-01111	RDKH-120-01111	RDCH-011-20028	RDTH-031-20028	RDRY-704-00125	5
0.4374 - 0.4571	11.11 - 11.61	3	RDKH-230-01111	RDKH-130-01111	RDCH-011-30028	RDTH-031-30028	RDRY-704-00125	5
0.4512 - 0.4709	11.46 - 11.96	1	RDKH-210-01146	RDKH-110-01146	RDCH-011-10029	RDTH-031-10024	RDRY-704-00148	5
0.4512 - 0.4709	11.46 - 11.96	2	RDKH-220-01146	RDKH-120-01146	RDCH-011-20029	RDTH-031-20024	RDRY-704-00148	5
0.4512 - 0.4709	11.46 - 11.96	3	RDKH-230-01146	RDKH-130-01146	RDCH-011-30029	RDTH-031-30024	RDRY-704-00148	5
0.4681 - 0.4878	11.89 - 12.39	1	RDKH-210-01189	RDKH-110-01189	RDCH-011-10030	RDTH-031-10025	RDRY-704-00148	5
0.4681 - 0.4878	11.89 - 12.39	2	RDKH-220-01189	RDKH-120-01189	RDCH-011-20030	RDTH-031-20025	RDRY-704-00148	5
0.4681 - 0.4878	11.89 - 12.39	3	RDKH-230-01189	RDKH-130-01189	RDCH-011-30030	RDTH-031-30025	RDRY-704-00148	5
0.4831 - 0.5028	12.27 - 12.77	1	RDKH-210-01227	RDKH-110-01227	RDCH-011-10031	RDTH-031-10028	RDRY-704-00148	5
0.4831 - 0.5028	12.27 - 12.77	2	RDKH-220-01227	RDKH-120-01227	RDCH-011-20031	RDTH-031-20028	RDRY-704-00148	5
0.4831 - 0.5028	12.27 - 12.77	3	RDKH-230-01227	RDKH-130-01227	RDCH-011-30031	RDTH-031-30028	RDRY-704-00148	5

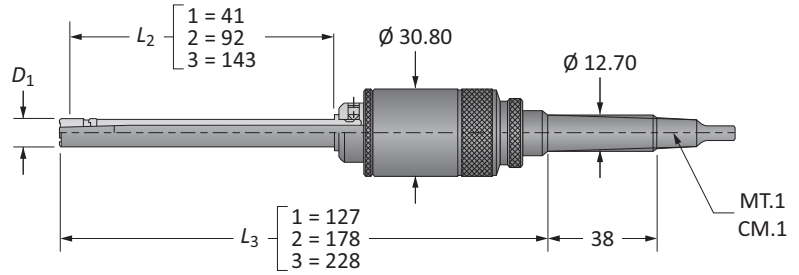
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



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

Roller Burnishing Tools | Blind Holes

H Series | Diameter Range: 0.2319" - 0.5028" (5.89mm - 12.77mm)



D ₁		L	Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
0.2319 - 0.2524	5.89 - 6.41	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10015	RSTH-03x-10012	RSRY-708-00086	3
0.2319 - 0.2524	5.89 - 6.41	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20015	RSTH-03x-20012	RSRY-708-00086	3
0.2319 - 0.2524	5.89 - 6.41	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30015	RSTH-03x-30012	RSRY-708-00086	3
0.2484 - 0.2681	6.31 - 6.81	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10016	RSTH-03x-10013	RSRY-708-00086	3
0.2484 - 0.2681	6.31 - 6.81	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20016	RSTH-03x-20013	RSRY-708-00086	3
0.2484 - 0.2681	6.31 - 6.81	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30016	RSTH-03x-30013	RSRY-708-00086	3
0.2642 - 0.2839	6.71 - 7.21	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10017	RSTH-03x-10015	RSRY-708-00086	3
0.2642 - 0.2839	6.71 - 7.21	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20017	RSTH-03x-20015	RSRY-708-00086	3
0.2642 - 0.2839	6.71 - 7.21	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30017	RSTH-03x-30015	RSRY-708-00086	3
0.2803 - 0.3000	7.12 - 7.62	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10018	RSTH-03x-10017	RSRY-708-00086	3
0.2803 - 0.3000	7.12 - 7.62	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20018	RSTH-03x-20017	RSRY-708-00086	3
0.2803 - 0.3000	7.12 - 7.62	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30018	RSTH-03x-30017	RSRY-708-00086	3
0.2945 - 0.3142	7.48 - 7.98	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10019	RSTH-03x-10019	RSRY-708-00086	3
0.2945 - 0.3142	7.48 - 7.98	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20019	RSTH-03x-20019	RSRY-708-00086	3
0.2945 - 0.3142	7.48 - 7.98	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30019	RSTH-03x-30019	RSRY-708-00086	3
0.3102 - 0.3299	7.88 - 8.38	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10020	RSTH-03x-10021	RSRY-708-00086	3
0.3102 - 0.3299	7.88 - 8.38	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20020	RSTH-03x-20021	RSRY-708-00086	3
0.3102 - 0.3299	7.88 - 8.38	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30020	RSTH-03x-30021	RSRY-708-00086	3
0.3260 - 0.3461	8.28 - 8.79	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10021	RSTH-03x-10024	RSRY-708-00086	3
0.3260 - 0.3461	8.28 - 8.79	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20021	RSTH-03x-20024	RSRY-708-00086	3
0.3260 - 0.3461	8.28 - 8.79	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30021	RSTH-03x-30024	RSRY-708-00086	3
0.3410 - 0.3606	8.66 - 9.16	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10022	RSTH-03x-10015	RSRY-708-00125	3
0.3410 - 0.3606	8.66 - 9.16	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20022	RSTH-03x-20015	RSRY-708-00125	3
0.3410 - 0.3606	8.66 - 9.16	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30022	RSTH-03x-30015	RSRY-708-00125	3
0.3567 - 0.3768	9.06 - 9.57	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10023	RSTH-03x-10017	RSRY-708-00125	3
0.3567 - 0.3768	9.06 - 9.57	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20023	RSTH-03x-20017	RSRY-708-00125	3
0.3567 - 0.3768	9.06 - 9.57	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30023	RSTH-03x-30017	RSRY-708-00125	3

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. short series roller burnisher Ø 10.25mm with MT.1 shank: RSKH-210-01025).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

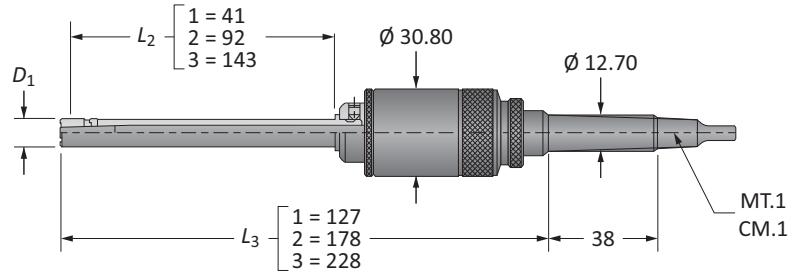
D: 42 - 45 D: 40 - 41 D: 39

Key on D: 1



Roller Burnishing Tools | Blind Holes (continued)

H Series | Diameter Range: 0.2319" - 0.5028" (5.89mm - 12.77mm)



D ₁		L	Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
0.3732 - 0.3933	9.48 - 9.99	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10024	RSTH-03x-10019	RSRY-708-00125	3
0.3732 - 0.3933	9.48 - 9.99	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20024	RSTH-03x-20019	RSRY-708-00125	3
0.3732 - 0.3933	9.48 - 9.99	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30024	RSTH-03x-30019	RSRY-708-00125	3
0.3902 - 0.4102	9.91 - 10.42	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10025	RSTH-03x-10021	RSRY-708-00125	3
0.3902 - 0.4102	9.91 - 10.42	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20025	RSTH-03x-20021	RSRY-708-00125	3
0.3902 - 0.4102	9.91 - 10.42	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30025	RSTH-03x-30021	RSRY-708-00125	3
0.4051 - 0.4252	10.29 - 10.80	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10026	RSTH-03x-10024	RSRY-708-00125	3
0.4051 - 0.4252	10.29 - 10.80	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20026	RSTH-03x-20024	RSRY-708-00125	3
0.4051 - 0.4252	10.29 - 10.80	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30026	RSTH-03x-30024	RSRY-708-00125	3
0.4217 - 0.4413	10.71 - 11.21	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10027	RSTH-03x-10025	RSRY-708-00125	3
0.4217 - 0.4413	10.71 - 11.21	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20027	RSTH-03x-20025	RSRY-708-00125	3
0.4217 - 0.4413	10.71 - 11.21	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30027	RSTH-03x-30025	RSRY-708-00125	3
0.4374 - 0.4571	11.11 - 11.61	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10028	RSTH-03x-10028	RSRY-708-00125	3
0.4374 - 0.4571	11.11 - 11.61	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20028	RSTH-03x-20028	RSRY-708-00125	3
0.4374 - 0.4571	11.11 - 11.61	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30028	RSTH-03x-30028	RSRY-708-00125	3
0.4512 - 0.4709	11.46 - 11.96	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10029	RSTH-03x-10021	RSRY-708-00156	3
0.4512 - 0.4709	11.46 - 11.96	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20029	RSTH-03x-20021	RSRY-708-00156	3
0.4512 - 0.4709	11.46 - 11.96	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30029	RSTH-03x-30021	RSRY-708-00156	3
0.4681 - 0.4878	11.89 - 12.39	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10030	RSTH-03x-10024	RSRY-708-00156	3
0.4681 - 0.4878	11.89 - 12.39	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20030	RSTH-03x-20024	RSRY-708-00156	3
0.4681 - 0.4878	11.89 - 12.39	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30030	RSTH-03x-30024	RSRY-708-00156	3
0.4831 - 0.5028	12.27 - 12.77	1	RSKH-210-xxxxx	RSKH-110-xxxxx	RSCH-015-10031	RSTH-03x-10025	RSRY-708-00156	3
0.4831 - 0.5028	12.27 - 12.77	2	RSKH-220-xxxxx	RSKH-120-xxxxx	RSCH-015-20031	RSTH-03x-20025	RSRY-708-00156	3
0.4831 - 0.5028	12.27 - 12.77	3	RSKH-230-xxxxx	RSKH-130-xxxxx	RSCH-015-30031	RSTH-03x-30025	RSRY-708-00156	3

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. short series roller burnisher Ø 10.25mm with MT.1 shank: RSKH-210-01025).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

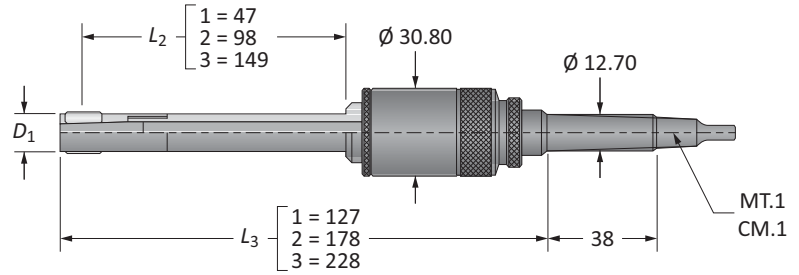
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D: 42 - 45 D: 40 - 41 D: 39

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

Roller Burnishing Tools | Through Holes

I Series | Diameter Range: 0.4976" - 0.6634" (12.64mm - 16.85mm)



D_1		L	Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
0.4976 - 0.5315	12.64 - 13.50	1	RDKI-210-01264	RDKI-110-01264	RDCI-400-00500	RDTI-031-10032	RDRY-704-00156	5
0.4976 - 0.5315	12.64 - 13.50	2	RDKI-220-01264	RDKI-120-01264	RDCI-400-00500	RDTI-031-20032	RDRY-704-00156	5
0.4976 - 0.5315	12.64 - 13.50	3	RDKI-230-01264	RDKI-130-01264	RDCI-400-00500	RDTI-031-30032	RDRY-704-00156	5
0.5295 - 0.5689	13.45 - 14.45	1	RDKI-210-01345	RDKI-110-01345	RDCI-400-00531	RDTI-031-10034	RDRY-704-00156	5
0.5295 - 0.5689	13.45 - 14.45	2	RDKI-220-01345	RDKI-120-01345	RDCI-400-00531	RDTI-031-20034	RDRY-704-00156	5
0.5295 - 0.5689	13.45 - 14.45	3	RDKI-230-01345	RDKI-130-01345	RDCI-400-00531	RDTI-031-30034	RDRY-704-00156	5
0.5610 - 0.6004	14.25 - 15.25	1	RDKI-210-01425	RDKI-110-01425	RDCI-400-00562	RDTI-031-10034	RDRY-704-00172	5
0.5610 - 0.6004	14.25 - 15.25	2	RDKI-220-01425	RDKI-120-01425	RDCI-400-00562	RDTI-031-20034	RDRY-704-00172	5
0.5610 - 0.6004	14.25 - 15.25	3	RDKI-230-01425	RDKI-130-01425	RDCI-400-00562	RDTI-031-30034	RDRY-704-00172	5
0.5925 - 0.6319	15.05 - 16.05	1	RDKI-210-01505	RDKI-110-01505	RDCI-400-00593	RDTI-031-10038	RDRY-704-00172	5
0.5925 - 0.6319	15.05 - 16.05	2	RDKI-220-01505	RDKI-120-01505	RDCI-400-00593	RDTI-031-20038	RDRY-704-00172	5
0.5925 - 0.6319	15.05 - 16.05	3	RDKI-230-01505	RDKI-130-01505	RDCI-400-00593	RDTI-031-30038	RDRY-704-00172	5
0.6240 - 0.6634	15.85 - 16.85	1	RDKI-210-01585	RDKI-110-01585	RDCI-400-00625	RDTI-031-10038	RDRY-701-00187	5
0.6240 - 0.6634	15.85 - 16.85	2	RDKI-220-01585	RDKI-120-01585	RDCI-400-00625	RDTI-031-20038	RDRY-701-00187	5
0.6240 - 0.6634	15.85 - 16.85	3	RDKI-230-01585	RDKI-130-01585	RDCI-400-00625	RDTI-031-30038	RDRY-701-00187	5

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

D: 42 - 45

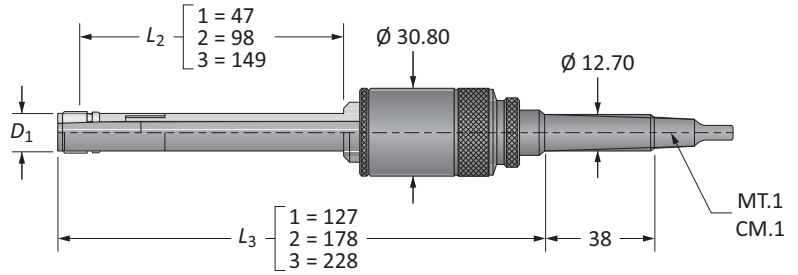
D: 40 - 41

D: 38



Roller Burnishing Tools | Blind Holes

I Series | Diameter Range: 0.4976" - 0.6634" (12.64mm - 16.85mm)



D ₁		L	Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
0.4976 - 0.5315	12.64 - 13.50	1	RSKI-210-xxxxx	RSKI-110-xxxxx	RSCI-400-00500	RSTI-03X-10032	RSRY-708-00156	5
0.4976 - 0.5315	12.64 - 13.50	2	RSKI-220-xxxxx	RSKI-120-xxxxx	RSCI-400-00500	RSTI-03X-20032	RSRY-708-00156	5
0.4976 - 0.5315	12.64 - 13.50	3	RSKI-230-xxxxx	RSKI-130-xxxxx	RSCI-400-00500	RSTI-03X-30032	RSRY-708-00156	5
0.5295 - 0.5689	13.45 - 14.45	1	RSKI-210-xxxxx	RSKI-110-xxxxx	RSCI-400-00531	RSTI-03X-10034	RSRY-708-00156	5
0.5295 - 0.5689	13.45 - 14.45	2	RSKI-220-xxxxx	RSKI-120-xxxxx	RSCI-400-00531	RSTI-03X-20034	RSRY-708-00156	5
0.5295 - 0.5689	13.45 - 14.45	3	RSKI-230-xxxxx	RSKI-130-xxxxx	RSCI-400-00531	RSTI-03X-30034	RSRY-708-00156	5
0.5610 - 0.6004	14.25 - 15.25	1	RSKI-210-xxxxx	RSKI-110-xxxxx	RSCI-400-00562	RSTI-03X-10034	RSRY-708-00172	5
0.5610 - 0.6004	14.25 - 15.25	2	RSKI-220-xxxxx	RSKI-120-xxxxx	RSCI-400-00562	RSTI-03X-20034	RSRY-708-00172	5
0.5610 - 0.6004	14.25 - 15.25	3	RSKI-230-xxxxx	RSKI-130-xxxxx	RSCI-400-00562	RSTI-03X-30034	RSRY-708-00172	5
0.5925 - 0.6319	15.05 - 16.05	1	RSKI-210-xxxxx	RSKI-110-xxxxx	RSCI-400-00593	RSTI-03X-10038	RSRY-708-00172	5
0.5925 - 0.6319	15.05 - 16.05	2	RSKI-220-xxxxx	RSKI-120-xxxxx	RSCI-400-00593	RSTI-03X-20038	RSRY-708-00172	5
0.5925 - 0.6319	15.05 - 16.05	3	RSKI-230-xxxxx	RSKI-130-xxxxx	RSCI-400-00593	RSTI-03X-30038	RSRY-708-00172	5
0.6240 - 0.6634	15.85 - 16.85	1	RSKI-210-xxxxx	RSKI-110-xxxxx	RSCI-400-00625	RSTI-03X-10038	RSRY-708-00187	5
0.6240 - 0.6634	15.85 - 16.85	2	RSKI-220-xxxxx	RSKI-120-xxxxx	RSCI-400-00625	RSTI-03X-20038	RSRY-708-00187	5
0.6240 - 0.6634	15.85 - 16.85	3	RSKI-230-xxxxx	RSKI-130-xxxxx	RSCI-400-00625	RSTI-03X-30038	RSRY-708-00187	5

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. long series roller burnisher Ø 14.00mm with MT.1 shank: RSKI-230-01400).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

D: 42 - 45

D: 40 - 41

D: 39

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

K

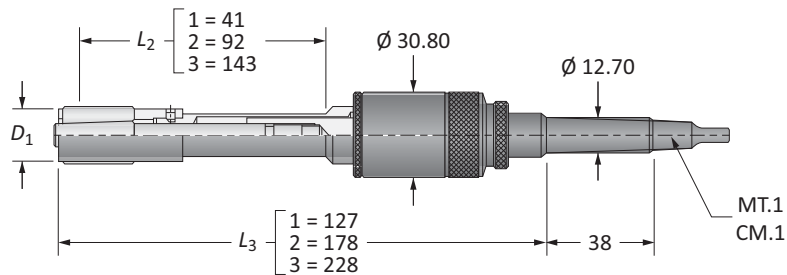

 BURNISHING | S.C.A.M.I.® Roller Burnishing Systems

A

Roller Burnishing Tools | Through Holes

K Series | Diameter Range: 0.6535" - 0.9740" (16.60mm - 24.74mm)

DRILLING

Technical drawing showing dimensions for the roller burnishing tool:

- Shank diameter: D_1
- Lengths: L_2 (1 = 41, 2 = 92, 3 = 143) and L_3 (1 = 127, 2 = 178, 3 = 228)
- Roll diameter: $\varnothing 30.80$
- Roll length: 38
- Roll diameter: $\varnothing 12.70$
- Roll material: MT.1 CM.1

B

BORING

D_1		L	Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
0.6535 - 0.6933	16.60 - 17.61	1	RDKK-210-01660	RDKK-110-01660	RDCK-011-00042	RDTK-031-00042	RDRY-701-00187	5
0.6535 - 0.6933	16.60 - 17.61	2	RDKK-220-01660	RDKK-120-01660	RDCK-011-00042	RDTK-031-00042	RDRY-701-00187	5
0.6535 - 0.6933	16.60 - 17.61	3	RDKK-230-01660	RDKK-130-01660	RDCK-011-00042	RDTK-031-00042	RDRY-701-00187	5
0.6850 - 0.7240	17.40 - 18.39	1	RDKK-210-01740	RDKK-110-01740	RDCK-011-00044	RDTK-031-00044	RDRY-701-00187	5
0.6850 - 0.7240	17.40 - 18.39	2	RDKK-220-01740	RDKK-120-01740	RDCK-011-00044	RDTK-031-00044	RDRY-701-00187	5
0.6850 - 0.7240	17.40 - 18.39	3	RDKK-230-01740	RDKK-130-01740	RDCK-011-00044	RDTK-031-00044	RDRY-701-00187	5
0.7161 - 0.7551	18.19 - 19.18	1	RDKK-210-01819	RDKK-110-01819	RDCK-011-00046	RDTK-031-00042	RDRY-701-00218	5
0.7161 - 0.7551	18.19 - 19.18	2	RDKK-220-01819	RDKK-120-01819	RDCK-011-00046	RDTK-031-00042	RDRY-701-00218	5
0.7161 - 0.7551	18.19 - 19.18	3	RDKK-230-01819	RDKK-130-01819	RDCK-011-00046	RDTK-031-00042	RDRY-701-00218	5
0.7465 - 0.7870	18.96 - 19.99	1	RDKK-210-01896	RDKK-110-01896	RDCK-011-00048	RDTK-031-00044	RDRY-701-00218	5
0.7465 - 0.7870	18.96 - 19.99	2	RDKK-220-01896	RDKK-120-01896	RDCK-011-00048	RDTK-031-00044	RDRY-701-00218	5
0.7465 - 0.7870	18.96 - 19.99	3	RDKK-230-01896	RDKK-130-01896	RDCK-011-00048	RDTK-031-00044	RDRY-701-00218	5
0.7772 - 0.8177	19.74 - 20.77	1	RDKK-210-01974	RDKK-110-01974	RDCK-011-00050	RDTK-031-00050	RDRY-701-00218	5
0.7772 - 0.8177	19.74 - 20.77	2	RDKK-220-01974	RDKK-120-01974	RDCK-011-00050	RDTK-031-00050	RDRY-701-00218	5
0.7772 - 0.8177	19.74 - 20.77	3	RDKK-230-01974	RDKK-130-01974	RDCK-011-00050	RDTK-031-00050	RDRY-701-00218	5
0.8079 - 0.8492	20.52 - 21.57	1	RDKK-210-02052	RDKK-110-02052	RDCK-011-00052	RDTK-031-00052	RDRY-701-00218	5
0.8079 - 0.8492	20.52 - 21.57	2	RDKK-220-02052	RDKK-120-02052	RDCK-011-00052	RDTK-031-00052	RDRY-701-00218	5
0.8079 - 0.8492	20.52 - 21.57	3	RDKK-230-02052	RDKK-130-02052	RDCK-011-00052	RDTK-031-00052	RDRY-701-00218	5
0.8390 - 0.8799	21.31 - 22.35	1	RDKK-210-02131	RDKK-110-02131	RDCK-011-00054	RDTK-031-00054	RDRY-701-00218	5
0.8390 - 0.8799	21.31 - 22.35	2	RDKK-220-02131	RDKK-120-02131	RDCK-011-00054	RDTK-031-00054	RDRY-701-00218	5
0.8390 - 0.8799	21.31 - 22.35	3	RDKK-230-02131	RDKK-130-02131	RDCK-011-00054	RDTK-031-00054	RDRY-701-00218	5
0.8713 - 0.9118	22.13 - 23.16	1	RDKK-210-02213	RDKK-110-02213	RDCK-011-00056	RDTK-031-00050	RDRY-701-00265	5
0.8713 - 0.9118	22.13 - 23.16	2	RDKK-220-02213	RDKK-120-02213	RDCK-011-00056	RDTK-031-00050	RDRY-701-00265	5
0.8713 - 0.9118	22.13 - 23.16	3	RDKK-230-02213	RDKK-130-02213	RDCK-011-00056	RDTK-031-00050	RDRY-701-00265	5
0.9020 - 0.9433	22.91 - 23.96	1	RDKK-210-02291	RDKK-110-02291	RDCK-011-00058	RDTK-031-00052	RDRY-701-00265	5
0.9020 - 0.9433	22.91 - 23.96	2	RDKK-220-02291	RDKK-120-02291	RDCK-011-00058	RDTK-031-00052	RDRY-701-00265	5
0.9020 - 0.9433	22.91 - 23.96	3	RDKK-230-02291	RDKK-130-02291	RDCK-011-00058	RDTK-031-00052	RDRY-701-00265	5
0.9331 - 0.9740	23.70 - 24.74	1	RDKK-210-02370	RDKK-110-02370	RDCK-011-00060	RDTK-031-00054	RDRY-701-00265	5
0.9331 - 0.9740	23.70 - 24.74	2	RDKK-220-02370	RDKK-120-02370	RDCK-011-00060	RDTK-031-00054	RDRY-701-00265	5
0.9331 - 0.9740	23.70 - 24.74	3	RDKK-230-02370	RDKK-130-02370	RDCK-011-00060	RDTK-031-00054	RDRY-701-00265	5

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

C

REAMING

D

BURNISHING

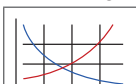

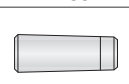
E

THREADING

X

SPECIALS

Key on D: 1

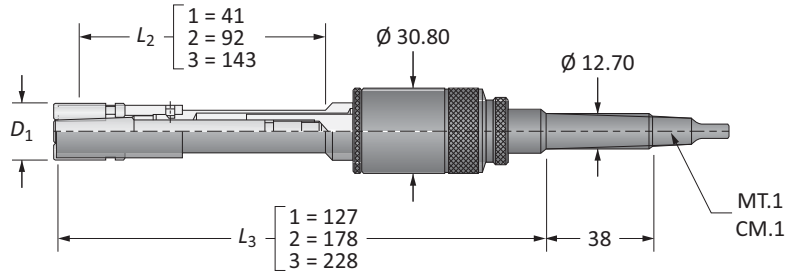
D: 14

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Roller Burnishing Tools | Blind Holes

K Series | Diameter Range: 0.6535" - 0.9740" (16.60mm - 24.74mm)

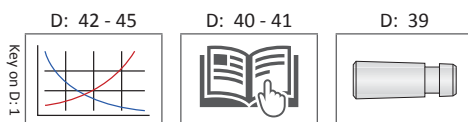


D ₁		L	Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
0.6535 - 0.6933	16.60 - 17.61	1	RSKK-210-xxxxx	RSKK-110-xxxxx	RSCK-015-00042	RSTK-03x-00042	RSRY-708-00187	5
0.6535 - 0.6933	16.60 - 17.61	2	RSKK-220-xxxxx	RSKK-120-xxxxx	RSCK-015-00042	RSTK-03x-00042	RSRY-708-00187	5
0.6535 - 0.6933	16.60 - 17.61	3	RSKK-230-xxxxx	RSKK-130-xxxxx	RSCK-015-00042	RSTK-03x-00042	RSRY-708-00187	5
0.6850 - 0.7240	17.40 - 18.39	1	RSKK-210-xxxxx	RSKK-110-xxxxx	RSCK-015-00044	RSTK-03x-00044	RSRY-708-00187	5
0.6850 - 0.7240	17.40 - 18.39	2	RSKK-220-xxxxx	RSKK-120-xxxxx	RSCK-015-00044	RSTK-03x-00044	RSRY-708-00187	5
0.6850 - 0.7240	17.40 - 18.39	3	RSKK-230-xxxxx	RSKK-130-xxxxx	RSCK-015-00044	RSTK-03x-00044	RSRY-708-00187	5
0.7161 - 0.7551	18.19 - 19.18	1	RSKK-210-xxxxx	RSKK-110-xxxxx	RSCK-015-00046	RSTK-03x-00042	RSRY-708-00218	5
0.7161 - 0.7551	18.19 - 19.18	2	RSKK-220-xxxxx	RSKK-120-xxxxx	RSCK-015-00046	RSTK-03x-00042	RSRY-708-00218	5
0.7161 - 0.7551	18.19 - 19.18	3	RSKK-230-xxxxx	RSKK-130-xxxxx	RSCK-015-00046	RSTK-03x-00042	RSRY-708-00218	5
0.7465 - 0.7870	18.96 - 19.99	1	RSKK-210-xxxxx	RSKK-110-xxxxx	RSCK-015-00048	RSTK-03x-00044	RSRY-708-00218	5
0.7465 - 0.7870	18.96 - 19.99	2	RSKK-220-xxxxx	RSKK-120-xxxxx	RSCK-015-00048	RSTK-03x-00044	RSRY-708-00218	5
0.7465 - 0.7870	18.96 - 19.99	3	RSKK-230-xxxxx	RSKK-130-xxxxx	RSCK-015-00048	RSTK-03x-00044	RSRY-708-00218	5
0.7772 - 0.8177	19.74 - 20.77	1	RSKK-210-xxxxx	RSKK-110-xxxxx	RSCK-015-00050	RSTK-03x-00050	RSRY-708-00218	5
0.7772 - 0.8177	19.74 - 20.77	2	RSKK-220-xxxxx	RSKK-120-xxxxx	RSCK-015-00050	RSTK-03x-00050	RSRY-708-00218	5
0.7772 - 0.8177	19.74 - 20.77	3	RSKK-230-xxxxx	RSKK-130-xxxxx	RSCK-015-00050	RSTK-03x-00050	RSRY-708-00218	5
0.8079 - 0.8492	20.52 - 21.57	1	RSKK-210-xxxxx	RSKK-110-xxxxx	RSCK-015-00052	RSTK-03x-00052	RSRY-708-00218	5
0.8079 - 0.8492	20.52 - 21.57	2	RSKK-220-xxxxx	RSKK-120-xxxxx	RSCK-015-00052	RSTK-03x-00052	RSRY-708-00218	5
0.8079 - 0.8492	20.52 - 21.57	3	RSKK-230-xxxxx	RSKK-130-xxxxx	RSCK-015-00052	RSTK-03x-00052	RSRY-708-00218	5
0.8390 - 0.8799	21.31 - 22.35	1	RSKK-210-xxxxx	RSKK-110-xxxxx	RSCK-015-00054	RSTK-03x-00054	RSRY-708-00218	5
0.8390 - 0.8799	21.31 - 22.35	2	RSKK-220-xxxxx	RSKK-120-xxxxx	RSCK-015-00054	RSTK-03x-00054	RSRY-708-00218	5
0.8390 - 0.8799	21.31 - 22.35	3	RSKK-230-xxxxx	RSKK-130-xxxxx	RSCK-015-00054	RSTK-03x-00054	RSRY-708-00218	5
0.8713 - 0.9118	22.13 - 23.16	1	RSKK-210-xxxxx	RSKK-110-xxxxx	RSCK-015-00056	RSTK-03x-00050	RSRY-708-00265	5
0.8713 - 0.9118	22.13 - 23.16	2	RSKK-220-xxxxx	RSKK-120-xxxxx	RSCK-015-00056	RSTK-03x-00050	RSRY-708-00265	5
0.8713 - 0.9118	22.13 - 23.16	3	RSKK-230-xxxxx	RSKK-130-xxxxx	RSCK-015-00056	RSTK-03x-00050	RSRY-708-00265	5
0.9020 - 0.9433	22.91 - 23.96	1	RSKK-210-xxxxx	RSKK-110-xxxxx	RSCK-015-00058	RSTK-03x-00052	RSRY-708-00265	5
0.9020 - 0.9433	22.91 - 23.96	2	RSKK-220-xxxxx	RSKK-120-xxxxx	RSCK-015-00058	RSTK-03x-00052	RSRY-708-00265	5
0.9020 - 0.9433	22.91 - 23.96	3	RSKK-230-xxxxx	RSKK-130-xxxxx	RSCK-015-00058	RSTK-03x-00052	RSRY-708-00265	5
0.9331 - 0.9740	23.70 - 24.74	1	RSKK-210-xxxxx	RSKK-110-xxxxx	RSCK-015-00060	RSTK-03x-00054	RSRY-708-00265	5
0.9331 - 0.9740	23.70 - 24.74	2	RSKK-220-xxxxx	RSKK-120-xxxxx	RSCK-015-00060	RSTK-03x-00054	RSRY-708-00265	5
0.9331 - 0.9740	23.70 - 24.74	3	RSKK-230-xxxxx	RSKK-130-xxxxx	RSCK-015-00060	RSTK-03x-00054	RSRY-708-00265	5

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. standard series roller burnisher Ø 20.00mm with MT.1 shank: RSCK-120-02000).

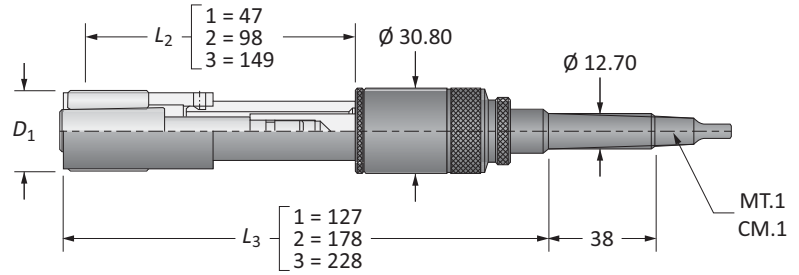
**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



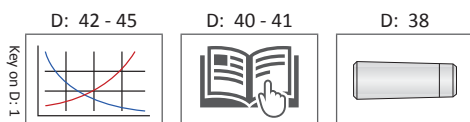
Roller Burnishing Tools | Through Holes

L Series | Diameter Range: 0.9661" - 1.2268" (24.54mm - 31.16mm)



D ₁		L	Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
0.9661 - 1.0075	24.54 - 25.59	1	RDKL-210-02454	RDKL-110-02454	RDCL-011-00062	RDTL-031-00062	RDRY-701-00265	5
0.9661 - 1.0075	24.54 - 25.59	2	RDKL-220-02454	RDKL-120-02454	RDCL-011-00062	RDTL-031-00062	RDRY-701-00265	5
0.9661 - 1.0075	24.54 - 25.59	3	RDKL-230-02454	RDKL-130-02454	RDCL-011-00062	RDTL-031-00062	RDRY-701-00265	5
0.9992 - 1.0402	25.38 - 26.42	1	RDKL-210-02538	RDKL-110-02538	RDCL-011-00064	RDTL-031-00064	RDRY-701-00265	7
0.9992 - 1.0402	25.38 - 26.42	2	RDKL-220-02538	RDKL-120-02538	RDCL-011-00064	RDTL-031-00064	RDRY-701-00265	7
0.9992 - 1.0402	25.38 - 26.42	3	RDKL-230-02538	RDKL-130-02538	RDCL-011-00064	RDTL-031-00064	RDRY-701-00265	7
1.0299 - 1.0709	26.16 - 27.20	1	RDKL-210-02616	RDKL-110-02616	RDCL-011-00066	RDTL-031-00066	RDRY-701-00265	7
1.0299 - 1.0709	26.16 - 27.20	2	RDKL-220-02616	RDKL-120-02616	RDCL-011-00066	RDTL-031-00066	RDRY-701-00265	7
1.0299 - 1.0709	26.16 - 27.20	3	RDKL-230-02616	RDKL-130-02616	RDCL-011-00066	RDTL-031-00066	RDRY-701-00265	7
1.0610 - 1.1024	26.95 - 28.00	1	RDKL-210-02695	RDKL-110-02695	RDCL-011-00068	RDTL-031-00068	RDRY-701-00265	7
1.0610 - 1.1024	26.95 - 28.00	2	RDKL-220-02695	RDKL-120-02695	RDCL-011-00068	RDTL-031-00068	RDRY-701-00265	7
1.0610 - 1.1024	26.95 - 28.00	3	RDKL-230-02695	RDKL-130-02695	RDCL-011-00068	RDTL-031-00068	RDRY-701-00265	7
1.0917 - 1.1327	27.73 - 28.77	1	RDKL-210-02773	RDKL-110-02773	RDCL-011-00070	RDTL-031-00070	RDRY-701-00265	7
1.0917 - 1.1327	27.73 - 28.77	2	RDKL-220-02773	RDKL-120-02773	RDCL-011-00070	RDTL-031-00070	RDRY-701-00265	7
1.0917 - 1.1327	27.73 - 28.77	3	RDKL-230-02773	RDKL-130-02773	RDCL-011-00070	RDTL-031-00070	RDRY-701-00265	7
1.1240 - 1.1650	28.55 - 29.59	1	RDKL-210-02855	RDKL-110-02855	RDCL-011-00072	RDTL-031-00066	RDRY-701-00312	7
1.1240 - 1.1650	28.55 - 29.59	2	RDKL-220-02855	RDKL-120-02855	RDCL-011-00072	RDTL-031-00066	RDRY-701-00312	7
1.1240 - 1.1650	28.55 - 29.59	3	RDKL-230-02855	RDKL-130-02855	RDCL-011-00072	RDTL-031-00066	RDRY-701-00312	7
1.1551 - 1.1965	29.34 - 30.39	1	RDKL-210-02934	RDKL-110-02934	RDCL-011-00074	RDTL-031-00068	RDRY-701-00312	7
1.1551 - 1.1965	29.34 - 30.39	2	RDKL-220-02934	RDKL-120-02934	RDCL-011-00074	RDTL-031-00068	RDRY-701-00312	7
1.1551 - 1.1965	29.34 - 30.39	3	RDKL-230-02934	RDKL-130-02934	RDCL-011-00074	RDTL-031-00068	RDRY-701-00312	7
1.1858 - 1.2268	30.12 - 31.16	1	RDKL-210-03012	RDKL-110-03012	RDCL-011-00076	RDTL-031-00070	RDRY-701-00312	7
1.1858 - 1.2268	30.12 - 31.16	2	RDKL-220-03012	RDKL-120-03012	RDCL-011-00076	RDTL-031-00070	RDRY-701-00312	7
1.1858 - 1.2268	30.12 - 31.16	3	RDKL-230-03012	RDKL-130-03012	RDCL-011-00076	RDTL-031-00070	RDRY-701-00312	7

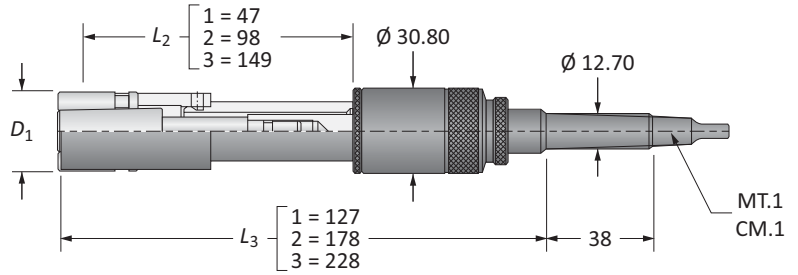
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

L Series | Diameter Range: 0.9661" - 1.2268" (24.54mm - 31.16mm)

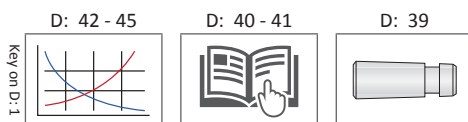


D_1		L	Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
0.9661 - 1.0075	24.54 - 25.59	1	RSKL-210-xxxxx	RSKL-110-xxxxx	RSCL-015-00062	RSTL-03x-00062	RSRY-708-00265	5
0.9661 - 1.0075	24.54 - 25.59	2	RSKL-220-xxxxx	RSKL-120-xxxxx	RSCL-015-00062	RSTL-03x-00062	RSRY-708-00265	5
0.9661 - 1.0075	24.54 - 25.59	3	RSKL-230-xxxxx	RSKL-130-xxxxx	RSCL-015-00062	RSTL-03x-00062	RSRY-708-00265	5
0.9992 - 1.0402	25.38 - 26.42	1	RSKL-210-xxxxx	RSKL-110-xxxxx	RSCL-015-00064	RSTL-03x-00064	RSRY-708-00265	5
0.9992 - 1.0402	25.38 - 26.42	2	RSKL-220-xxxxx	RSKL-120-xxxxx	RSCL-015-00064	RSTL-03x-00064	RSRY-708-00265	5
0.9992 - 1.0402	25.38 - 26.42	3	RSKL-230-xxxxx	RSKL-130-xxxxx	RSCL-015-00064	RSTL-03x-00064	RSRY-708-00265	5
1.0299 - 1.0709	26.16 - 27.20	1	RSKL-210-xxxxx	RSKL-110-xxxxx	RSCL-015-00066	RSTL-03x-00066	RSRY-708-00265	5
1.0299 - 1.0709	26.16 - 27.20	2	RSKL-220-xxxxx	RSKL-120-xxxxx	RSCL-015-00066	RSTL-03x-00066	RSRY-708-00265	5
1.0299 - 1.0709	26.16 - 27.20	3	RSKL-230-xxxxx	RSKL-130-xxxxx	RSCL-015-00066	RSTL-03x-00066	RSRY-708-00265	5
1.0610 - 1.1024	26.95 - 28.00	1	RSKL-210-xxxxx	RSKL-110-xxxxx	RSCL-015-00068	RSTL-03x-00068	RSRY-708-00265	5
1.0610 - 1.1024	26.95 - 28.00	2	RSKL-220-xxxxx	RSKL-120-xxxxx	RSCL-015-00068	RSTL-03x-00068	RSRY-708-00265	5
1.0610 - 1.1024	26.95 - 28.00	3	RSKL-230-xxxxx	RSKL-130-xxxxx	RSCL-015-00068	RSTL-03x-00068	RSRY-708-00265	5
1.0917 - 1.1327	27.73 - 28.77	1	RSKL-210-xxxxx	RSKL-110-xxxxx	RSCL-015-00070	RSTL-03x-00070	RSRY-708-00265	5
1.0917 - 1.1327	27.73 - 28.77	2	RSKL-220-xxxxx	RSKL-120-xxxxx	RSCL-015-00070	RSTL-03x-00070	RSRY-708-00265	5
1.0917 - 1.1327	27.73 - 28.77	3	RSKL-230-xxxxx	RSKL-130-xxxxx	RSCL-015-00070	RSTL-03x-00070	RSRY-708-00265	5
1.1240 - 1.1650	28.55 - 29.59	1	RSKL-210-xxxxx	RSKL-110-xxxxx	RSCL-015-00072	RSTL-03x-00066	RSRY-708-00312	5
1.1240 - 1.1650	28.55 - 29.59	2	RSKL-220-xxxxx	RSKL-120-xxxxx	RSCL-015-00072	RSTL-03x-00066	RSRY-708-00312	5
1.1240 - 1.1650	28.55 - 29.59	3	RSKL-230-xxxxx	RSKL-130-xxxxx	RSCL-015-00072	RSTL-03x-00066	RSRY-708-00312	5
1.1551 - 1.1965	29.34 - 30.39	1	RSKL-210-xxxxx	RSKL-110-xxxxx	RSCL-015-00074	RSTL-03x-00068	RSRY-708-00312	5
1.1551 - 1.1965	29.34 - 30.39	2	RSKL-220-xxxxx	RSKL-120-xxxxx	RSCL-015-00074	RSTL-03x-00068	RSRY-708-00312	5
1.1551 - 1.1965	29.34 - 30.39	3	RSKL-230-xxxxx	RSKL-130-xxxxx	RSCL-015-00074	RSTL-03x-00068	RSRY-708-00312	5
1.1858 - 1.2268	30.12 - 31.16	1	RSKL-210-xxxxx	RSKL-110-xxxxx	RSCL-015-00076	RSTL-03x-00070	RSRY-708-00312	5
1.1858 - 1.2268	30.12 - 31.16	2	RSKL-220-xxxxx	RSKL-120-xxxxx	RSCL-015-00076	RSTL-03x-00070	RSRY-708-00312	5
1.1858 - 1.2268	30.12 - 31.16	3	RSKL-230-xxxxx	RSKL-130-xxxxx	RSCL-015-00076	RSTL-03x-00070	RSRY-708-00312	5

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. short series roller burnisher $\phi 27.50$ mm with MT.1 shank: RSKL-210-02750).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

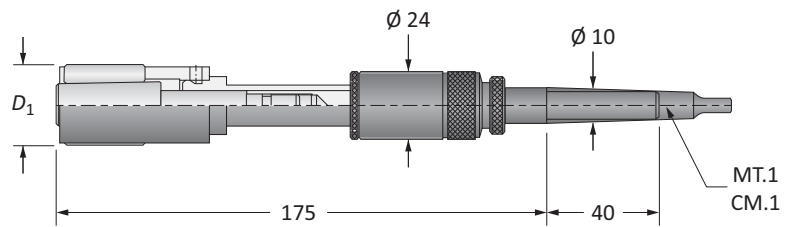
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



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

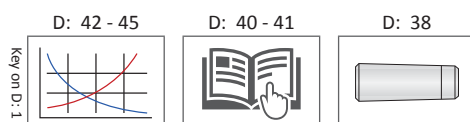
Roller Burnishing Tools | Through Holes

F Series | Diameter Range: 0.9661" - 1.2268" (24.54mm - 31.16mm)



D_1		Part No.		Spare Parts			
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	Qty Rolls
0.9661 - 1.0075	24.54 - 25.59	RDKF-200-02454	RDKF-100-02454	RDCL-011-00062	RDTF-031-00062	RDRY-701-00265	5
0.9992 - 1.0402	25.38 - 26.42	RDKF-200-02538	RDKF-100-02538	RDCL-011-00064	RDTF-031-00064	RDRY-701-00265	7
1.0299 - 1.0709	26.16 - 27.20	RDKF-200-02616	RDKF-100-02616	RDCL-011-00066	RDTF-031-00066	RDRY-701-00265	7
1.0610 - 1.1024	26.95 - 28.00	RDKF-200-02695	RDKF-100-02695	RDCL-011-00068	RDTF-031-00068	RDRY-701-00265	7
1.0917 - 1.1327	27.73 - 28.77	RDKF-200-02773	RDKF-100-02773	RDCL-011-00070	RDTF-031-00070	RDRY-701-00265	7
1.1240 - 1.1650	28.55 - 29.59	RDKF-200-02855	RDKF-100-02855	RDCL-011-00072	RDTF-031-00066	RDRY-701-00312	7
1.1551 - 1.1965	29.34 - 30.39	RDKF-200-02934	RDKF-100-02934	RDCL-011-00074	RDTF-031-00068	RDRY-701-00312	7
1.1858 - 1.2268	30.12 - 31.16	RDKF-200-03012	RDKF-100-03012	RDCL-011-00076	RDTF-031-00070	RDRY-701-00312	7

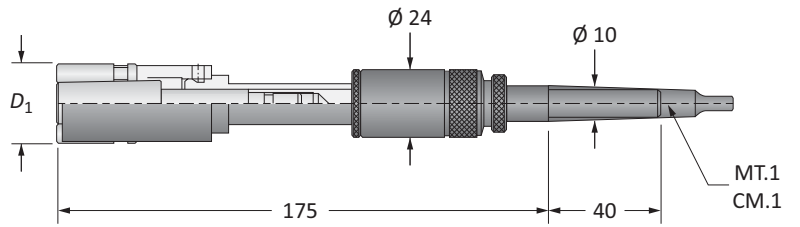
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

F Series | Diameter Range: 0.9661" - 1.2268" (24.54mm - 31.16mm)



D_1		Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
0.9661 - 1.0075	24.54 - 25.59	RSKF-200-xxxxx	RSKF-100-xxxxx	RSCL-015-00062	RSTF-03x-00062	RSRY-708-00265	5
0.9992 - 1.0402	25.38 - 26.42	RSKF-200-xxxxx	RSKF-100-xxxxx	RSCL-015-00064	RSTF-03x-00064	RSRY-708-00265	5
1.0299 - 1.0709	26.16 - 27.20	RSKF-200-xxxxx	RSKF-100-xxxxx	RSCL-015-00066	RSTF-03x-00066	RSRY-708-00265	5
1.0610 - 1.1024	26.95 - 28.00	RSKF-200-xxxxx	RSKF-100-xxxxx	RSCL-015-00068	RSTF-03x-00068	RSRY-708-00265	5
1.0917 - 1.1327	27.73 - 28.77	RSKF-200-xxxxx	RSKF-100-xxxxx	RSCL-015-00070	RSTF-03x-00070	RSRY-708-00265	5
1.1240 - 1.1650	28.55 - 29.59	RSKF-200-xxxxx	RSKF-100-xxxxx	RSCL-015-00072	RSTF-03x-00066	RSRY-708-00312	5
1.1551 - 1.1965	29.34 - 30.39	RSKF-200-xxxxx	RSKF-100-xxxxx	RSCL-015-00074	RSTF-03x-00068	RSRY-708-00312	5
1.1858 - 1.2268	30.12 - 31.16	RSKF-200-xxxxx	RSKF-100-xxxxx	RSCL-015-00076	RSTF-03x-00070	RSRY-708-00312	5

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher \varnothing 27.00mm with MT.1 shank: RSKF-200-02700).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

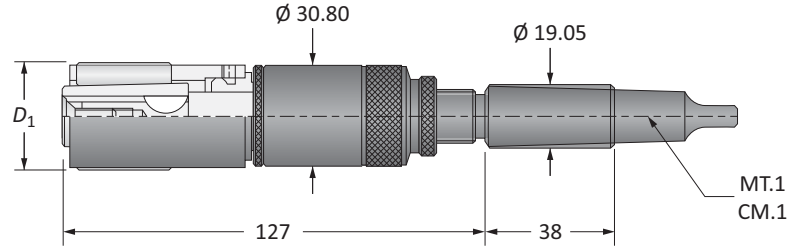
D: 42 - 45

D: 40 - 41

D: 39

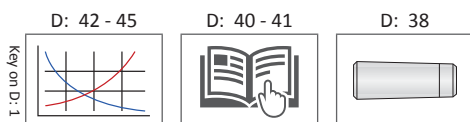
Roller Burnishing Tools | Through Holes

M Series | Diameter Range: 1.2146" - 1.4118" (30.85mm - 35.86mm)



D_1		Part No.		Spare Parts			
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	Qty Rolls
1.2146 - 1.2559	30.85 - 31.90	RDKM-200-03085	RDKM-100-03085	RDCM-011-00078	RDTM-031-00078	RDRY-701-00265	7
1.2469 - 1.2878	31.67 - 32.71	RDKM-200-03167	RDKM-100-03167	RDCM-011-00080	RDTM-031-00080	RDRY-701-00265	7
1.2772 - 1.3177	32.44 - 33.47	RDKM-200-03244	RDKM-100-03244	RDCM-011-00082	RDTM-031-00082	RDRY-701-00265	7
1.3087 - 1.3500	33.24 - 34.29	RDKM-200-03324	RDKM-100-03324	RDCM-011-00084	RDTM-031-00078	RDRY-701-00312	7
1.3406 - 1.3815	34.05 - 35.09	RDKM-200-03405	RDKM-100-03405	RDCM-011-00086	RDTM-031-00080	RDRY-701-00312	7
1.3713 - 1.4118	34.83 - 35.86	RDKM-200-03483	RDKM-100-03483	RDCM-011-00088	RDTM-031-00082	RDRY-701-00312	7

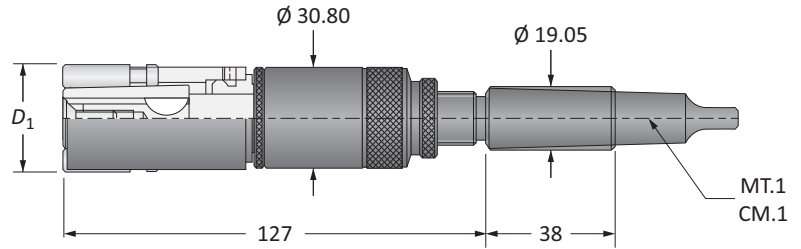
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

M Series | Diameter Range: 1.2146" - 1.4118" (30.85mm - 35.86mm)



D_1		Part No.*		Spare Parts			
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	Qty Rolls
1.2146 - 1.2559	30.85 - 31.90	RSKM-200-xxxxx	RSKM-100-xxxxx	RSCM-015-00078	RSTM-03x-00078	RSRY-708-00265	5
1.2469 - 1.2878	31.67 - 32.71	RSKM-200-xxxxx	RSKM-100-xxxxx	RSCM-015-00080	RSTM-03x-00080	RSRY-708-00265	5
1.2772 - 1.3177	32.44 - 33.47	RSKM-200-xxxxx	RSKM-100-xxxxx	RSCM-015-00082	RSTM-03x-00082	RSRY-708-00265	5
1.3087 - 1.3500	33.24 - 34.29	RSKM-200-xxxxx	RSKM-100-xxxxx	RSCM-015-00084	RSTM-03x-00078	RSRY-708-00312	5
1.3406 - 1.3815	34.05 - 35.09	RSKM-200-xxxxx	RSKM-100-xxxxx	RSCM-015-00086	RSTM-03x-00080	RSRY-708-00312	5
1.3713 - 1.4118	34.83 - 35.86	RSKM-200-xxxxx	RSKM-100-xxxxx	RSCM-015-00088	RSTM-03x-00082	RSRY-708-00312	5

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher \varnothing 35.00mm with MT.2 shank: RSKM-200-03500).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D: 42 - 45

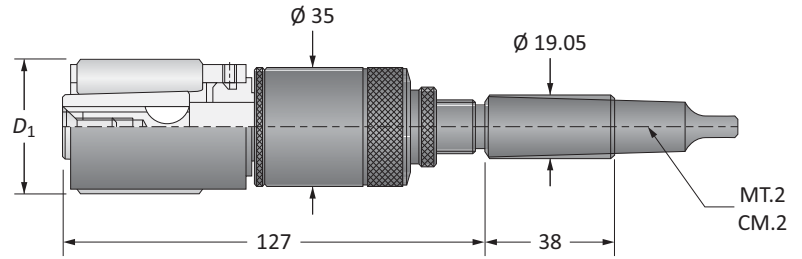
D: 40 - 41

D: 39

Key on D: 1

Roller Burnishing Tools | Through Holes

N Series | Diameter Range: 1.4020" - 1.8492" (35.61mm - 46.97mm)



D_1		Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
1.4020 - 1.4433	35.61 - 36.66	RDKN-200-03561	RDKN-100-03561	RDCN-011-00090	RDTN-031-00090	RDRY-701-00312	7
1.4331 - 1.4740	36.40 - 37.44	RDKN-200-03640	RDKN-100-03640	RDCN-011-00092	RDTN-031-00092	RDRY-701-00312	7
1.4638 - 1.5051	37.18 - 38.23	RDKN-200-03718	RDKN-100-03718	RDCN-011-00094	RDTN-031-00094	RDRY-701-00312	7
1.4961 - 1.5370	38.00 - 39.04	RDKN-200-03800	RDKN-100-03800	RDCN-011-00096	RDTN-031-00096	RDRY-701-00312	7
1.5272 - 1.5677	38.79 - 39.82	RDKN-200-03879	RDKN-100-03879	RDCN-011-00098	RDTM-031-00080	RDRY-701-00406	7
1.5579 - 1.5992	39.57 - 40.62	RDKN-200-03957	RDKN-100-03957	RDCN-011-00100	RDTM-031-00082	RDRY-701-00406	7
1.5890 - 1.6299	40.36 - 41.40	RDKN-200-04036	RDKN-100-04036	RDCN-011-00102	RDTN-031-00090	RDRY-701-00406	7
1.6213 - 1.6618	41.18 - 42.21	RDKN-200-04118	RDKN-100-04118	RDCN-011-00104	RDTN-031-00092	RDRY-701-00406	7
1.6520 - 1.6933	41.96 - 43.01	RDKN-200-04196	RDKN-100-04196	RDCN-011-00106	RDTN-031-00094	RDRY-701-00406	7
1.6831 - 1.7240	42.75 - 43.79	RDKN-200-04275	RDKN-100-04275	RDCN-011-00108	RDTM-031-00082	RDRY-701-00468	7
1.7138 - 1.7551	43.53 - 44.58	RDKN-200-04353	RDKN-100-04353	RDCN-011-00110	RDTN-031-00090	RDRY-701-00468	7
1.7461 - 1.7870	44.35 - 45.39	RDKN-200-04435	RDKN-100-04435	RDCN-011-00112	RDTN-031-00092	RDRY-701-00468	7
1.7772 - 1.8177	45.14 - 46.17	RDKN-200-04514	RDKN-100-04514	RDCN-011-00114	RDTN-031-00094	RDRY-701-00468	7
1.8079 - 1.8492	45.92 - 46.97	RDKN-200-04592	RDKN-100-04592	RDCN-011-00116	RDTN-031-00096	RDRY-701-00468	7

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

D: 42 - 45

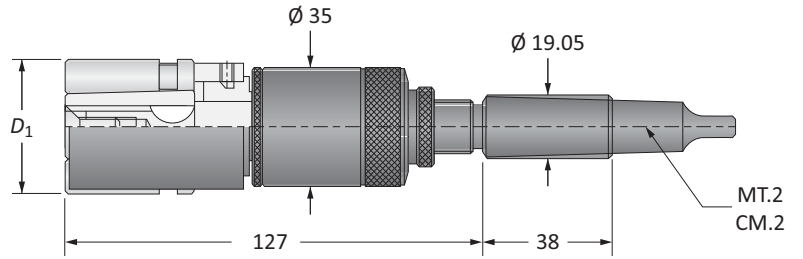
D: 40 - 41

D: 38



Roller Burnishing Tools | Blind Holes

N Series | Diameter Range: 1.4020" - 1.8492" (35.61mm - 46.97mm)



D ₁		Part No.*		Spare Parts			
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	Qty Rolls
1.4020 - 1.4433	35.61 - 36.66	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00090	RSTN-03x-00090	RSRY-708-00312	5
1.4331 - 1.4740	36.40 - 37.44	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00092	RSTN-03x-00092	RSRY-708-00312	5
1.4638 - 1.5051	37.18 - 38.23	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00094	RSTN-03x-00094	RSRY-708-00312	5
1.4961 - 1.5370	38.00 - 39.04	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00096	RSTN-03x-00096	RSRY-708-00312	5
1.5272 - 1.5677	38.79 - 39.82	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00098	RSTM-03x-00080	RSRY-708-00406	5
1.5579 - 1.5992	39.57 - 40.62	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00100	RSTM-03x-00082	RSRY-708-00406	5
1.5890 - 1.6299	40.36 - 41.40	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00102	RSTN-03x-00090	RSRY-708-00406	5
1.6213 - 1.6618	41.18 - 42.21	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00104	RSTN-03x-00092	RSRY-708-00406	5
1.6520 - 1.6933	41.96 - 43.01	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00106	RSTN-03x-00094	RSRY-708-00406	5
1.6831 - 1.7240	42.75 - 43.79	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00108	RSTM-03x-00082	RSRY-708-00468	5
1.7138 - 1.7551	43.53 - 44.58	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00110	RSTN-03x-00090	RSRY-708-00468	5
1.7461 - 1.7870	44.35 - 45.39	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00112	RSTN-03x-00092	RSRY-708-00468	5
1.7772 - 1.8177	45.14 - 46.17	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00114	RSTN-03x-00094	RSRY-708-00468	5
1.8079 - 1.8492	45.92 - 46.97	RSKN-200-xxxxx	RSKN-100-xxxxx	RSCN-015-00116	RSTN-03x-00096	RSRY-708-00468	5

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 40.00mm with straight shank: RSKN-100-04000).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D: 42 - 45

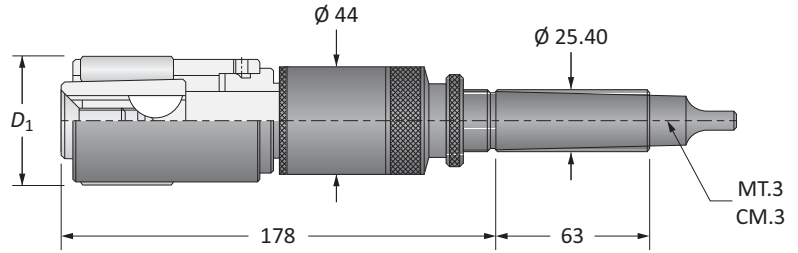
D: 40 - 41

D: 39

Key on D: 1

Roller Burnishing Tools | Through Holes

O Series | Diameter Range: 1.8390" - 2.2240" (46.71mm - 56.49mm)



Through Holes

D_1		Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
1.8390 - 1.8799	46.71 - 47.75	RDKO-200-04671	RDKO-100-04671	RDCO-011-00118	RDTO-031-00118	RDRY-701-00312	9
1.8713 - 1.9118	47.53 - 48.56	RDKO-200-04753	RDKO-100-04753	RDCO-011-00120	RDTO-031-00120	RDRY-701-00312	9
1.9020 - 1.9433	48.31 - 49.36	RDKO-200-04831	RDKO-100-04831	RDCO-011-00122	RDTO-031-00122	RDRY-701-00312	9
1.9331 - 1.9740	49.10 - 50.14	RDKO-200-04910	RDKO-100-04910	RDCO-011-00124	RDTO-031-00124	RDRY-701-00312	9
1.9638 - 2.0051	49.88 - 50.93	RDKO-200-04988	RDKO-100-04988	RDCO-011-00126	RDTO-031-00126	RDRY-701-00312	9
1.9961 - 2.0370	50.70 - 51.74	RDKO-200-05070	RDKO-100-05070	RDCO-011-00128	RDTO-031-00128	RDRY-701-00312	9
2.0272 - 2.0681	51.49 - 52.53	RDKO-200-05149	RDKO-100-05149	RDCO-011-00130	RDTO-031-00118	RDRY-701-00406	9
2.0579 - 2.0992	52.27 - 53.32	RDKO-200-05227	RDKO-100-05227	RDCO-011-00132	RDTO-031-00120	RDRY-701-00406	9
2.0890 - 2.1299	53.06 - 54.10	RDKO-200-05306	RDKO-100-05306	RDCO-011-00134	RDTO-031-00122	RDRY-701-00406	9
2.1209 - 2.1618	53.87 - 54.91	RDKO-200-05387	RDKO-100-05387	RDCO-011-00136	RDTO-031-00124	RDRY-701-00406	9
2.1520 - 2.1933	54.66 - 55.71	RDKO-200-05466	RDKO-100-05466	RDCO-011-00138	RDTO-031-00126	RDRY-701-00406	9
2.1831 - 2.2240	55.45 - 56.49	RDKO-200-05545	RDKO-100-05545	RDCO-011-00140	RDTO-031-00128	RDRY-701-00406	9

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

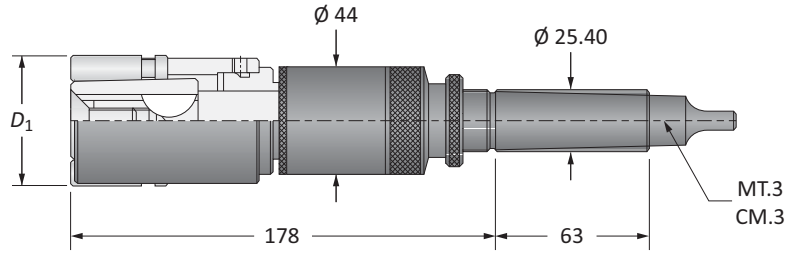
D: 42 - 45

D: 40 - 41

D: 38

Roller Burnishing Tools | Blind Holes

O Series | Diameter Range: 1.8390" - 2.2240" (46.71mm - 56.49mm)



Blind Holes

Imperial (in)	Metric (mm)	Part No.*		Spare Parts			Qty Rolls
		Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
1.8390 - 1.8799	46.71 - 47.75	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00118	RSTO-03x-00118	RSRY-708-00312	7
1.8713 - 1.9118	47.53 - 48.56	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00120	RSTO-03x-00120	RSRY-708-00312	7
1.9020 - 1.9433	48.31 - 49.36	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00122	RSTO-03x-00122	RSRY-708-00312	7
1.9331 - 1.9740	49.10 - 50.14	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00124	RSTO-03x-00124	RSRY-708-00312	7
1.9638 - 2.0051	49.88 - 50.93	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00126	RSTO-03x-00126	RSRY-708-00312	7
1.9961 - 2.0370	50.70 - 51.74	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00128	RSTO-03x-00128	RSRY-708-00312	7
2.0272 - 2.0681	51.49 - 52.53	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00130	RSTO-03x-00118	RSRY-708-00406	7
2.0579 - 2.0992	52.27 - 53.32	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00132	RSTO-03x-00120	RSRY-708-00406	7
2.0890 - 2.1299	53.06 - 54.10	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00134	RSTO-03x-00122	RSRY-708-00406	7
2.1209 - 2.1618	53.87 - 54.91	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00136	RSTO-03x-00124	RSRY-708-00406	7
2.1520 - 2.1933	54.66 - 55.71	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00138	RSTO-03x-00126	RSRY-708-00406	7
2.1831 - 2.2240	55.45 - 56.49	RSKO-200-xxxxx	RSKO-100-xxxxx	RSCO-015-00140	RSTO-03x-00128	RSRY-708-00406	7

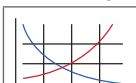
*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 50.25mm with MT.3 shank: RSKO-200-05025).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.


NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

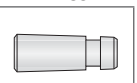
D: 42 - 45



D: 40 - 41

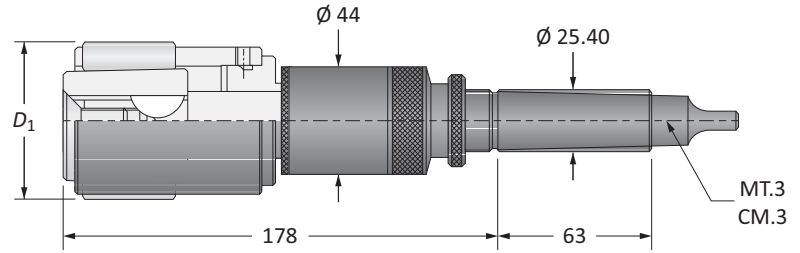


D: 39



Roller Burnishing Tools | Through Holes

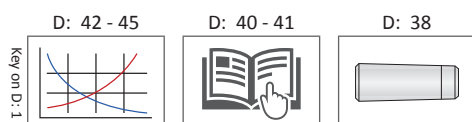
P Series | Diameter Range: 2.2138" - 2.7240" (56.23mm - 69.19mm)



Through Holes

D_1		Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
2.2138 - 2.2551	56.23 - 57.28	RDKP-200-05623	RDKP-100-05623	RDCP-011-00142	RDTP-031-00142	RDRY-701-00406	9
2.2461 - 2.2870	57.05 - 58.09	RDKP-200-05705	RDKP-100-05705	RDCP-011-00144	RDTP-031-00144	RDRY-701-00406	9
2.2772 - 2.3177	57.84 - 58.87	RDKP-200-05784	RDKP-100-05784	RDCP-011-00146	RDTP-031-00146	RDRY-701-00406	9
2.3079 - 2.3492	58.62 - 59.67	RDKP-200-05862	RDKP-100-05862	RDCP-011-00148	RDTP-031-00148	RDRY-701-00406	9
2.3390 - 2.3799	59.41 - 60.45	RDKP-200-05941	RDKP-100-05941	RDCP-011-00150	RDTP-031-00142	RDRY-701-00468	9
2.3713 - 2.4118	60.23 - 61.26	RDKP-200-06023	RDKP-100-06023	RDCP-011-00152	RDTP-031-00144	RDRY-701-00468	9
2.4020 - 2.4433	61.01 - 62.06	RDKP-200-06101	RDKP-100-06101	RDCP-011-00154	RDTP-031-00146	RDRY-701-00468	9
2.4330 - 2.4740	61.80 - 62.84	RDKP-200-06180	RDKP-100-06180	RDCP-011-00156	RDTP-031-00148	RDRY-701-00468	9
2.4638 - 2.5051	62.58 - 63.63	RDKP-200-06258	RDKP-100-06258	RDCP-011-00158	RDTP-031-00158	RDRY-701-00468	9
2.4961 - 2.5370	63.40 - 64.44	RDKP-200-06340	RDKP-100-06340	RDCP-011-00160	RDTP-031-00160	RDRY-701-00468	9
2.5272 - 2.5677	64.19 - 65.22	RDKP-200-06419	RDKP-100-06419	RDCP-011-00162	RDTP-031-00162	RDRY-701-00468	9
2.5579 - 2.5992	64.97 - 66.02	RDKP-200-06497	RDKP-100-06497	RDCP-011-00164	RDTP-031-00164	RDRY-701-00468	9
2.5890 - 2.6299	65.76 - 66.80	RDKP-200-06576	RDKP-100-06576	RDCP-011-00166	RDTP-031-00158	RDRY-701-00531	9
2.6213 - 2.6618	66.58 - 67.61	RDKP-200-06658	RDKP-100-06658	RDCP-011-00168	RDTP-031-00160	RDRY-701-00531	9
2.6520 - 2.6933	67.36 - 68.41	RDKP-200-06736	RDKP-100-06736	RDCP-011-00170	RDTP-031-00162	RDRY-701-00531	9
2.6830 - 2.7240	68.15 - 69.19	RDKP-200-06815	RDKP-100-06815	RDCP-011-00172	RDTP-031-00164	RDRY-701-00531	9

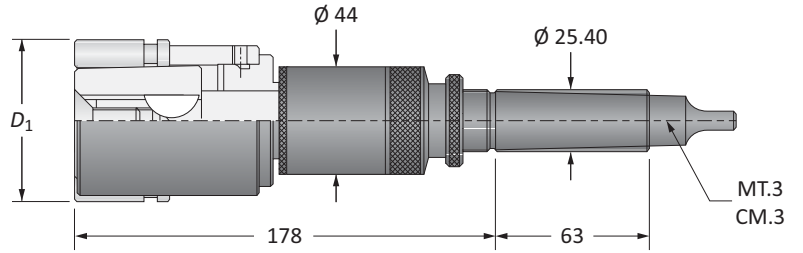
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

P Series | Diameter Range: 2.2138" - 2.7240" (56.23mm - 69.19mm)



Blind Holes

D ₁		Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
2.2138 - 2.2551	56.23 - 57.28	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00142	RSTP-03x-00142	RSRY-708-00406	7
2.2461 - 2.2870	57.05 - 58.09	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00144	RSTP-03x-00144	RSRY-708-00406	7
2.2772 - 2.3177	57.84 - 58.87	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00146	RSTP-03x-00146	RSRY-708-00406	7
2.3079 - 2.3492	58.62 - 59.67	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00148	RSTP-03x-00148	RSRY-708-00406	7
2.3390 - 2.3799	59.41 - 60.45	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00150	RSTP-03x-00142	RSRY-708-00468	7
2.3713 - 2.4118	60.23 - 61.26	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00152	RSTP-03x-00144	RSRY-708-00468	7
2.4020 - 2.4433	61.01 - 62.06	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00154	RSTP-03x-00146	RSRY-708-00468	7
2.4330 - 2.4740	61.80 - 62.84	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00156	RSTP-03x-00148	RSRY-708-00468	7
2.4638 - 2.5051	62.58 - 63.63	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00158	RSTP-03x-00158	RSRY-708-00468	7
2.4961 - 2.5370	63.40 - 64.44	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00160	RSTP-03x-00160	RSRY-708-00468	7
2.5272 - 2.5677	64.19 - 65.22	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00162	RSTP-03x-00162	RSRY-708-00468	7
2.5579 - 2.5992	64.97 - 66.02	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00164	RSTP-03x-00164	RSRY-708-00468	7
2.5890 - 2.6299	65.76 - 66.80	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00166	RSTP-03x-00158	RSRY-708-00531	7
2.6213 - 2.6618	66.58 - 67.61	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00168	RSTP-03x-00160	RSRY-708-00531	7
2.6520 - 2.6933	67.36 - 68.41	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00170	RSTP-03x-00162	RSRY-708-00531	7
2.6830 - 2.7240	68.15 - 69.19	RSKP-200-xxxxx	RSKP-100-xxxxx	RSCP-015-00172	RSTP-03x-00164	RSRY-708-00531	7

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 60.05mm with straight shank: RSKP-100-06005).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

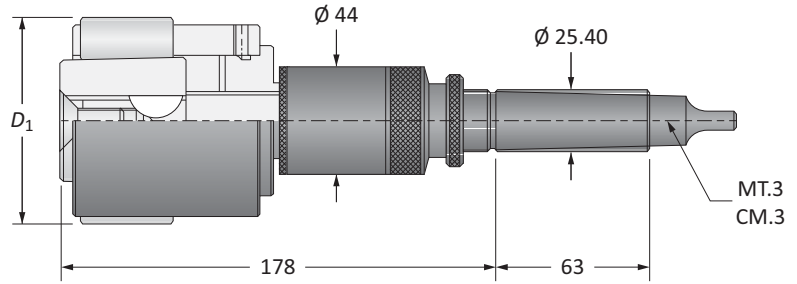
D: 42 - 45

D: 40 - 41

D: 39

Roller Burnishing Tools | Through Holes

Q Series | Diameter Range: 2.7138" - 3.3492" (68.93mm - 85.07mm)



Through Holes

D ₁		Part No.		Spare Parts			
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	Qty Rolls
2.7138 - 2.7551	68.93 - 69.98	RDKQ-200-06893	RDKQ-100-06893	RDCQ-011-00174	RDTQ-031-00174	RDRY-701-00531	9
2.7461 - 2.7870	69.75 - 70.79	RDKQ-200-06975	RDKQ-100-06975	RDCQ-011-00176	RDTQ-031-00176	RDRY-701-00531	9
2.7772 - 2.8177	70.54 - 71.57	RDKQ-200-07054	RDKQ-100-07054	RDCQ-011-00178	RDTQ-031-00178	RDRY-701-00531	9
2.8079 - 2.8504	71.32 - 72.40	RDKQ-200-07132	RDKQ-100-07132	RDCQ-011-00180	RDTQ-031-00180	RDRY-701-00531	9
2.8390 - 2.8799	72.11 - 73.15	RDKQ-200-07211	RDKQ-100-07211	RDCQ-011-00182	RDTQ-031-00182	RDRY-701-00531	9
2.8713 - 2.9118	72.93 - 73.96	RDKQ-200-07293	RDKQ-100-07293	RDCQ-011-00184	RDTQ-031-00184	RDRY-701-00531	9
2.9020 - 2.9429	73.71 - 74.75	RDKQ-200-07371	RDKQ-100-07371	RDCQ-011-00186	RDTQ-031-00174	RDRY-701-00625	9
2.9331 - 2.9740	74.50 - 75.54	RDKQ-200-07450	RDKQ-100-07450	RDCQ-011-00188	RDTQ-031-00176	RDRY-701-00625	9
2.9638 - 3.0051	75.28 - 76.33	RDKQ-200-07528	RDKQ-100-07528	RDCQ-011-00190	RDTQ-031-00178	RDRY-701-00625	9
2.9961 - 3.0370	76.10 - 77.14	RDKQ-200-07610	RDKQ-100-07610	RDCQ-011-00192	RDTQ-031-00180	RDRY-701-00625	9
3.0272 - 3.0681	76.89 - 77.93	RDKQ-200-07689	RDKQ-100-07689	RDCQ-011-00194	RDTQ-031-00182	RDRY-701-00625	9
3.0579 - 3.0992	77.67 - 78.72	RDKQ-200-07767	RDKQ-100-07767	RDCQ-011-00196	RDTQ-031-00184	RDRY-701-00625	9
3.0890 - 3.1299	78.46 - 79.50	RDKQ-200-07846	RDKQ-100-07846	RDCQ-011-00198	RDTQ-031-00198	RDRY-701-00625	9
3.1209 - 3.1618	79.27 - 80.31	RDKQ-200-07927	RDKQ-100-07927	RDCQ-011-00200	RDTQ-031-00200	RDRY-701-00625	9
3.1520 - 3.1933	80.06 - 81.11	RDKQ-200-08006	RDKQ-100-08006	RDCQ-011-00202	RDTQ-031-00202	RDRY-701-00625	9
3.1831 - 3.2240	80.85 - 81.89	RDKQ-200-08085	RDKQ-100-08085	RDCQ-011-00204	RDTQ-031-00204	RDRY-701-00625	9
3.2138 - 3.2551	81.63 - 82.68	RDKQ-200-08163	RDKQ-100-08163	RDCQ-011-00206	RDTQ-031-00198	RDRY-701-00687	9
3.2461 - 3.2870	82.45 - 83.49	RDKQ-200-08245	RDKQ-100-08245	RDCQ-011-00208	RDTQ-031-00200	RDRY-701-00687	9
3.2772 - 3.3177	83.24 - 84.27	RDKQ-200-08324	RDKQ-100-08324	RDCQ-011-00210	RDTQ-031-00202	RDRY-701-00687	9
3.3079 - 3.3492	84.02 - 85.07	RDKQ-200-08402	RDKQ-100-08402	RDCQ-011-00212	RDTQ-031-00204	RDRY-701-00687	9

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

D: 42 - 45

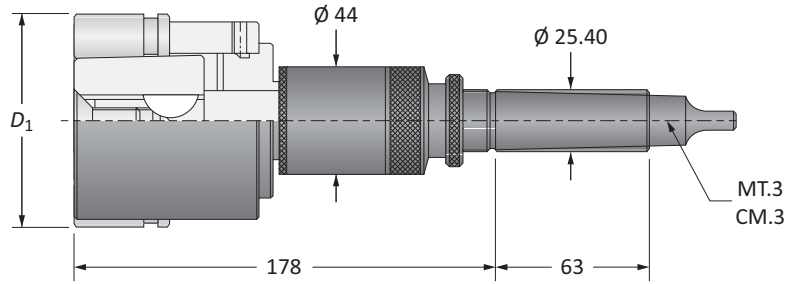
D: 40 - 41

D: 38



Roller Burnishing Tools | Blind Holes

Q Series | Diameter Range: 2.7138" - 3.3492" (68.93mm - 85.07mm)



Blind Holes

D_1		Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
2.7138 - 2.7551	68.93 - 69.98	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00174	RSTQ-03x-00174	RSRY-708-00531	7
2.7461 - 2.7870	69.75 - 70.79	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00176	RSTQ-03x-00176	RSRY-708-00531	7
2.7772 - 2.8177	70.54 - 71.57	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00178	RSTQ-03x-00178	RSRY-708-00531	7
2.8079 - 2.8504	71.32 - 72.40	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00180	RSTQ-03x-00180	RSRY-708-00531	7
2.8390 - 2.8799	72.11 - 73.15	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00182	RSTQ-03x-00182	RSRY-708-00531	7
2.8713 - 2.9118	72.93 - 73.96	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00184	RSTQ-03x-00184	RSRY-708-00531	7
2.9020 - 2.9429	73.71 - 74.75	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00186	RSTQ-03x-00174	RSRY-708-00625	7
2.9331 - 2.9740	74.50 - 75.54	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00188	RSTQ-03x-00176	RSRY-708-00625	7
2.9638 - 3.0051	75.28 - 76.33	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00190	RSTQ-03x-00178	RSRY-708-00625	7
2.9961 - 3.0370	76.10 - 77.14	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00192	RSTQ-03x-00180	RSRY-708-00625	7
3.0272 - 3.0681	76.89 - 77.93	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00194	RSTQ-03x-00182	RSRY-708-00625	7
3.0579 - 3.0992	77.67 - 78.72	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00196	RSTQ-03x-00184	RSRY-708-00625	7
3.0890 - 3.1299	78.46 - 79.50	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00198	RSTQ-03x-00198	RSRY-708-00625	7
3.1209 - 3.1618	79.27 - 80.31	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00200	RSTQ-03x-00200	RSRY-708-00625	7
3.1520 - 3.1933	80.06 - 81.11	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00202	RSTQ-03x-00202	RSRY-708-00625	7
3.1831 - 3.2240	80.85 - 81.89	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00204	RSTQ-03x-00204	RSRY-708-00625	7
3.2138 - 3.2551	81.63 - 82.68	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00206	RSTQ-03x-00198	RSRY-708-00687	7
3.2461 - 3.2870	82.45 - 83.49	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00208	RSTQ-03x-00200	RSRY-708-00687	7
3.2772 - 3.3177	83.24 - 84.27	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00210	RSTQ-03x-00202	RSRY-708-00687	7
3.3079 - 3.3492	84.02 - 85.07	RSKQ-200-xxxxx	RSKQ-100-xxxxx	RSCQ-015-00212	RSTQ-03x-00204	RSRY-708-00687	7

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher \varnothing 75.00mm with MT.3 shank: RSKQ-200-07500).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

D: 42 - 45

D: 40 - 41

D: 39

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

R

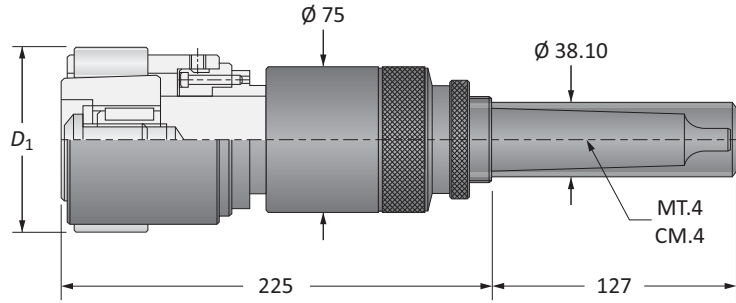

 BURNISHING | S.C.A.M.I.® Roller Burnishing Systems

A

Roller Burnishing Tools | Through Holes

R Series | Diameter Range: 3.3390 - 4.0992" (84.81mm - 104.12mm)

DRILLING

Technical drawing showing dimensions: $\phi 75$, $\phi 38.10$, D_1 , 225, 127, MT.4, CM.4.

B

Through Holes

BORING

D_1		Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
3.3390 - 3.3799	84.81 - 85.85	RDKR-200-08481	RDKR-100-08481	RDCR-011-00214	RDTR-073-00001	RDRY-701-00468	9
3.3713 - 3.4118	85.63 - 86.66	RDKR-200-08563	RDKR-100-08563	RDCR-011-00216	RDTR-074-00001	RDRY-701-00468	9
3.4020 - 3.4429	86.41 - 87.45	RDKR-200-08641	RDKR-100-08641	RDCR-011-00218	RDTR-071-00001	RDRY-701-00531	9
3.4331 - 3.4740	87.20 - 88.24	RDKR-200-08720	RDKR-100-08720	RDCR-011-00220	RDTR-072-00001	RDRY-701-00531	9
3.4642 - 3.5051	87.99 - 89.03	RDKR-200-08799	RDKR-100-08799	RDCR-011-00222	RDTR-073-00001	RDRY-701-00531	9
3.4957 - 3.5370	88.79 - 89.84	RDKR-200-08879	RDKR-100-08879	RDCR-011-00224	RDTR-074-00001	RDRY-701-00531	9
3.5272 - 3.5681	89.59 - 90.63	RDKR-200-08959	RDKR-100-08959	RDCR-011-00226	RDTR-075-00001	RDRY-701-00531	9
3.5579 - 3.5992	90.37 - 91.42	RDKR-200-09037	RDKR-100-09037	RDCR-011-00228	RDTR-076-00001	RDRY-701-00531	9
3.5890 - 3.6299	91.16 - 92.20	RDKR-200-09116	RDKR-100-09116	RDCR-011-00230	RDTR-071-00001	RDRY-701-00625	9
3.6209 - 3.6622	91.97 - 93.02	RDKR-200-09197	RDKR-100-09197	RDCR-011-00232	RDTR-072-00001	RDRY-701-00625	9
3.6520 - 3.6929	92.76 - 93.80	RDKR-200-09276	RDKR-100-09276	RDCR-011-00234	RDTR-073-00001	RDRY-701-00625	9
3.6831 - 3.7240	93.55 - 94.59	RDKR-200-09355	RDKR-100-09355	RDCR-011-00236	RDTR-074-00001	RDRY-701-00625	9
3.7142 - 3.7551	94.34 - 95.38	RDKR-200-09434	RDKR-100-09434	RDCR-011-00238	RDTR-075-00001	RDRY-701-00625	9
3.7461 - 3.7870	95.15 - 96.19	RDKR-200-09515	RDKR-100-09515	RDCR-011-00240	RDTR-076-00001	RDRY-701-00625	9
3.7772 - 3.8181	95.94 - 96.98	RDKR-200-09594	RDKR-100-09594	RDCR-011-00242	RDTR-077-00001	RDRY-701-00625	9
3.8079 - 3.8492	96.72 - 97.77	RDKR-200-09672	RDKR-100-09672	RDCR-011-00244	RDTR-078-00001	RDRY-701-00625	9
3.8390 - 3.8799	97.51 - 98.55	RDKR-200-09751	RDKR-100-09751	RDCR-011-00246	RDTR-075-00001	RDRY-701-00687	9
3.8709 - 3.9122	98.32 - 99.37	RDKR-200-09832	RDKR-100-09832	RDCR-011-00248	RDTR-076-00001	RDRY-701-00687	9
3.9020 - 3.9429	99.11 - 100.15	RDKR-200-09911	RDKR-100-09911	RDCR-011-00250	RDTR-077-00001	RDRY-701-00687	9
3.9331 - 3.9740	99.90 - 100.94	RDKR-200-09990	RDKR-100-09990	RDCR-011-00252	RDTR-078-00001	RDRY-701-00687	9
3.9642 - 4.0051	100.69 - 101.73	RDKR-200-10069	RDKR-100-10069	RDCR-011-00254	RDTR-079-00001	RDRY-701-00687	9
3.9961 - 4.0370	101.50 - 102.54	RDKR-200-10150	RDKR-100-10150	RDCR-011-00256	RDTR-080-00001	RDRY-701-00687	9
4.0272 - 1.0681	102.29 - 103.33	RDKR-200-10229	RDKR-100-10229	RDCR-011-00258	RDTR-081-00001	RDRY-701-00687	9
4.0579 - 4.0992	103.07 - 104.12	RDKR-200-10307	RDKR-100-10307	RDCR-011-00260	RDTR-082-00001	RDRY-701-00687	9

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

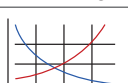


F

THREADING

X

SPECIALS

Key on D: 1

D: 42 - 45  D: 40 - 41  D: 38 

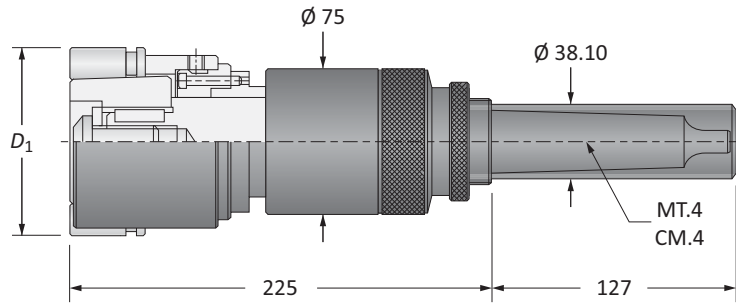
D: 30

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Roller Burnishing Tools | Blind Holes

R Series | Diameter Range: 3.3390 - 4.0992" (84.81mm - 104.12mm)



Blind Holes

D ₁		Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
3.3390 - 3.3799	84.81 - 85.85	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00214	RSTR-073-0000x	RSRY-708-00468	9
3.3713 - 3.4118	85.63 - 86.66	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00216	RSTR-074-0000x	RSRY-708-00468	9
3.4020 - 3.4429	86.41 - 87.45	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00218	RSTR-071-0000x	RSRY-708-00531	9
3.4331 - 3.4740	87.20 - 88.24	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00220	RSTR-072-0000x	RSRY-708-00531	9
3.4642 - 3.5051	87.99 - 89.03	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00222	RSTR-073-0000x	RSRY-708-00531	9
3.4957 - 3.5370	88.79 - 89.84	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00224	RSTR-074-0000x	RSRY-708-00531	9
3.5272 - 3.5681	89.59 - 90.63	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00226	RSTR-075-0000x	RSRY-708-00531	9
3.5579 - 3.5992	90.37 - 91.42	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00228	RSTR-076-0000x	RSRY-708-00531	9
3.5890 - 3.6299	91.16 - 92.20	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00230	RSTR-071-0000x	RSRY-708-00625	9
3.6209 - 3.6622	91.97 - 93.02	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00232	RSTR-072-0000x	RSRY-708-00625	9
3.6520 - 3.6929	92.76 - 93.80	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00234	RSTR-073-0000x	RSRY-708-00625	9
3.6831 - 3.7240	93.55 - 94.59	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00236	RSTR-074-0000x	RSRY-708-00625	9
3.7142 - 3.7551	94.34 - 95.38	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00238	RSTR-075-0000x	RSRY-708-00625	9
3.7461 - 3.7870	95.15 - 96.19	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00240	RSTR-076-0000x	RSRY-708-00625	9
3.7772 - 3.8181	95.94 - 96.98	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00242	RSTR-077-0000x	RSRY-708-00625	9
3.8079 - 3.8492	96.72 - 97.77	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00244	RSTR-078-0000x	RSRY-708-00625	9
3.8390 - 3.8799	97.51 - 98.55	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00246	RSTR-075-0000x	RSRY-708-00687	9
3.8709 - 3.9122	98.32 - 99.37	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00248	RSTR-076-0000x	RSRY-708-00687	9
3.9020 - 3.9429	99.11 - 100.15	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00250	RSTR-077-0000x	RSRY-708-00687	9
3.9331 - 3.9740	99.90 - 100.94	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00252	RSTR-078-0000x	RSRY-708-00687	9
3.9642 - 4.0051	100.69 - 101.73	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00254	RSTR-079-0000x	RSRY-708-00687	9
3.9961 - 4.0370	101.50 - 102.54	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00256	RSTR-080-0000x	RSRY-708-00687	9
4.0272 - 1.0681	102.29 - 103.33	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00258	RSTR-081-0000x	RSRY-708-00687	9
4.0579 - 4.0992	103.07 - 104.12	RSKR-200-xxxxx	RSKR-100-xxxxx	RSCR-015-00260	RSTR-082-0000x	RSRY-708-00687	9

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 100.00mm with straight shank: RSKR-100-10000).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

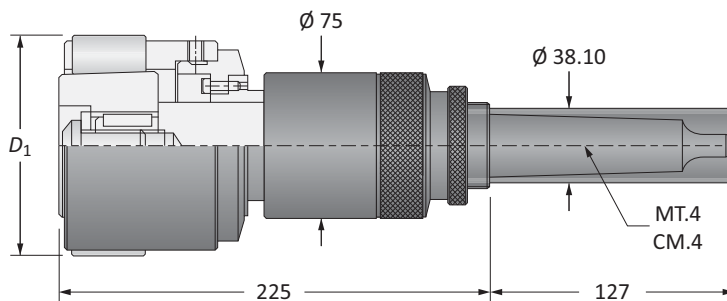
D: 42 - 45

D: 40 - 41

D: 39

Roller Burnishing Tools | Through Holes

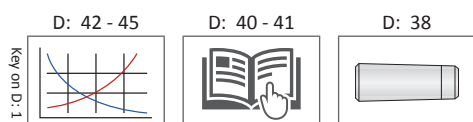
S Series | Diameter Range: 4.0890 - 5.0370" (103.86mm - 127.94mm)



Through Holes

D_1		Part No.		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	
4.0890 - 4.1299	103.86 - 104.90	RDKS-200-10386	RDKS-100-10386	RDCS-011-00262	RDTS-083-00001	RDRY-701-00687	9
4.1209 - 4.1634	104.67 - 105.75	RDKS-200-10467	RDKS-100-10467	RDCS-011-00264	RDTS-084-00001	RDRY-701-00687	9
4.1520 - 4.1929	105.46 - 106.50	RDKS-200-10546	RDKS-100-10546	RDCS-011-00266	RDTS-085-00001	RDRY-701-00687	9
4.1831 - 4.2240	106.25 - 107.29	RDKS-200-10625	RDKS-100-10625	RDCS-011-00268	RDTS-086-00001	RDRY-701-00687	9
4.2142 - 4.2551	107.04 - 108.08	RDKS-200-10704	RDKS-100-10704	RDCS-011-00270	RDTS-087-00001	RDRY-701-00687	9
4.2461 - 4.2870	107.85 - 108.89	RDKS-200-10785	RDKS-100-10785	RDCS-011-00272	RDTS-088-00001	RDRY-701-00687	9
4.2772 - 4.3181	108.64 - 109.68	RDKS-200-10864	RDKS-100-10864	RDCS-011-00274	RDTS-089-00001	RDRY-701-00687	9
4.3079 - 4.3492	109.42 - 110.47	RDKS-200-10942	RDKS-100-10942	RDCS-011-00276	RDTS-090-00001	RDRY-701-00687	9
4.3390 - 4.3799	110.21 - 111.25	RDKS-200-11021	RDKS-100-11021	RDCS-011-00278	RDTS-083-00001	RDRY-701-00812	9
4.3709 - 4.4122	111.02 - 112.07	RDKS-200-11102	RDKS-100-11102	RDCS-011-00280	RDTS-084-00001	RDRY-701-00812	9
4.4020 - 4.4429	111.81 - 112.85	RDKS-200-11181	RDKS-100-11181	RDCS-011-00282	RDTS-085-00001	RDRY-701-00812	9
4.4331 - 4.4740	112.60 - 113.64	RDKS-200-11260	RDKS-100-11260	RDCS-011-00284	RDTS-086-00001	RDRY-701-00812	9
4.4622 - 4.5051	113.34 - 114.43	RDKS-200-11334	RDKS-100-11334	RDCS-011-00286	RDTS-087-00001	RDRY-701-00812	9
4.4961 - 4.5370	114.20 - 115.24	RDKS-200-11420	RDKS-100-11420	RDCS-011-00288	RDTS-088-00001	RDRY-701-00812	9
4.5272 - 4.5681	114.99 - 116.03	RDKS-200-11499	RDKS-100-11499	RDCS-011-00290	RDTS-089-00001	RDRY-701-00812	9
4.5579 - 4.5992	115.77 - 116.82	RDKS-200-11577	RDKS-100-11577	RDCS-011-00292	RDTS-090-00001	RDRY-701-00812	9
4.5890 - 4.6299	116.56 - 117.60	RDKS-200-11656	RDKS-100-11656	RDCS-011-00294	RDTS-091-00001	RDRY-701-00812	9
4.6209 - 4.6622	117.37 - 118.42	RDKS-200-11737	RDKS-100-11737	RDCS-011-00296	RDTS-092-00001	RDRY-701-00812	9
4.6520 - 4.6929	118.16 - 119.20	RDKS-200-11816	RDKS-100-11816	RDCS-011-00298	RDTS-093-00001	RDRY-701-00812	9
4.6831 - 4.7240	118.95 - 119.99	RDKS-200-11895	RDKS-100-11895	RDCS-011-00300	RDTS-094-00001	RDRY-701-00812	9
4.7142 - 4.7551	119.74 - 120.78	RDKS-200-11974	RDKS-100-11974	RDCS-011-00302	RDTS-095-00001	RDRY-701-00812	9
4.7461 - 4.7870	120.55 - 121.59	RDKS-200-12055	RDKS-100-12055	RDCS-011-00304	RDTS-096-00001	RDRY-701-00812	9
4.7772 - 4.8181	121.34 - 122.38	RDKS-200-12134	RDKS-100-12134	RDCS-011-00306	RDTS-097-00001	RDRY-701-00812	9
4.8079 - 4.8492	122.12 - 123.17	RDKS-200-12212	RDKS-100-12212	RDCS-011-00308	RDTS-098-00001	RDRY-701-00812	9
4.8390 - 4.8799	122.91 - 123.95	RDKS-200-12291	RDKS-100-12291	RDCS-011-00310	RDTS-099-00001	RDRY-701-00812	9
4.8709 - 4.9122	123.72 - 124.77	RDKS-200-12372	RDKS-100-12372	RDCS-011-00312	RDTS-100-00001	RDRY-701-00812	9
4.9020 - 4.9429	124.51 - 125.55	RDKS-200-12451	RDKS-100-12451	RDCS-011-01245	RDTS-031-01245	RDRY-701-00812	9
4.9331 - 4.9740	125.30 - 126.34	RDKS-200-12530	RDKS-100-12530	RDCS-011-01255	RDTS-031-01255	RDRY-701-00812	9
4.9642 - 5.0051	126.09 - 127.13	RDKS-200-12609	RDKS-100-12609	RDCS-011-01265	RDTS-031-01265	RDRY-701-00812	9
4.9961 - 5.0370	126.90 - 127.94	RDKS-200-12690	RDKS-100-12690	RDCS-011-01275	RDTS-031-01275	RDRY-701-00812	9

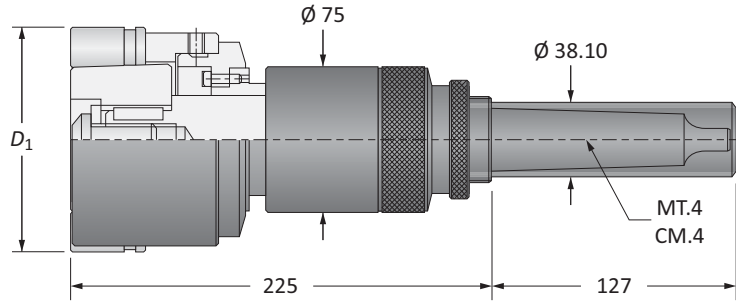
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

S Series | Diameter Range: 4.0890 - 5.0370" (103.86mm - 127.94mm)



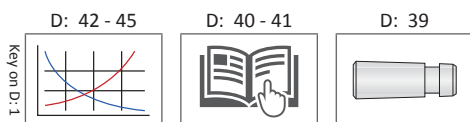
Blind Holes

D ₁		Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
4.0890 - 4.1299	103.86 - 104.90	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00262	RSTS-083-0000x	RSRY-708-00687	9
4.1209 - 4.1634	104.67 - 105.75	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00264	RSTS-084-0000x	RSRY-708-00687	9
4.1520 - 4.1929	105.46 - 106.50	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00266	RSTS-085-0000x	RSRY-708-00687	9
4.1831 - 4.2240	106.25 - 107.29	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00268	RSTS-086-0000x	RSRY-708-00687	9
4.2142 - 4.2551	107.04 - 108.08	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00270	RSTS-087-0000x	RSRY-708-00687	9
4.2461 - 4.2870	107.85 - 108.89	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00272	RSTS-088-0000x	RSRY-708-00687	9
4.2772 - 4.3181	108.64 - 109.68	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00274	RSTS-089-0000x	RSRY-708-00687	9
4.3079 - 4.3492	109.42 - 110.47	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00276	RSTS-090-0000x	RSRY-708-00687	9
4.3390 - 4.3799	110.21 - 111.25	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00278	RSTS-083-0000x	RSRY-708-00812	9
4.3709 - 4.4122	111.02 - 112.07	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00280	RSTS-084-0000x	RSRY-708-00812	9
4.4020 - 4.4429	111.81 - 112.85	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00282	RSTS-085-0000x	RSRY-708-00812	9
4.4331 - 4.4740	112.60 - 113.64	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00284	RSTS-086-0000x	RSRY-708-00812	9
4.4622 - 4.5051	113.34 - 114.43	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00286	RSTS-087-0000x	RSRY-708-00812	9
4.4961 - 4.5370	114.20 - 115.24	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00288	RSTS-088-0000x	RSRY-708-00812	9
4.5272 - 4.5681	114.99 - 116.03	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00290	RSTS-089-0000x	RSRY-708-00812	9
4.5579 - 4.5992	115.77 - 116.82	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00292	RSTS-090-0000x	RSRY-708-00812	9
4.5890 - 4.6299	116.56 - 117.60	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00294	RSTS-091-0000x	RSRY-708-00812	9
4.6209 - 4.6622	117.37 - 118.42	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00296	RSTS-092-0000x	RSRY-708-00812	9
4.6520 - 4.6929	118.16 - 119.20	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00298	RSTS-093-0000x	RSRY-708-00812	9
4.6831 - 4.7240	118.95 - 119.99	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00300	RSTS-094-0000x	RSRY-708-00812	9
4.7142 - 4.7551	119.74 - 120.78	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00302	RSTS-095-0000x	RSRY-708-00812	9
4.7461 - 4.7870	120.55 - 121.59	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00304	RSTS-096-0000x	RSRY-708-00812	9
4.7772 - 4.8181	121.34 - 122.38	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00306	RSTS-097-0000x	RSRY-708-00812	9
4.8079 - 4.8492	122.12 - 123.17	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00308	RSTS-098-0000x	RSRY-708-00812	9
4.8390 - 4.8799	122.91 - 123.95	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00310	RSTS-099-0000x	RSRY-708-00812	9
4.8709 - 4.9122	123.72 - 124.77	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-00312	RSTS-100-0000x	RSRY-708-00812	9
4.9020 - 4.9429	124.51 - 125.55	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-01245	RSTS-03x-01245	RSRY-708-00812	9
4.9331 - 4.9740	125.30 - 126.34	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-01255	RSTS-03x-01255	RSRY-708-00812	9
4.9642 - 5.0051	126.09 - 127.13	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-01265	RSTS-03x-01265	RSRY-708-00812	9
4.9961 - 5.0370	126.90 - 127.94	RSKS-200-xxxxx	RSKS-100-xxxxx	RSCS-015-01275	RSTS-03x-01275	RSRY-708-00812	9

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 120.05mm with MT.4 shank: RSKS-200-12005).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.



T

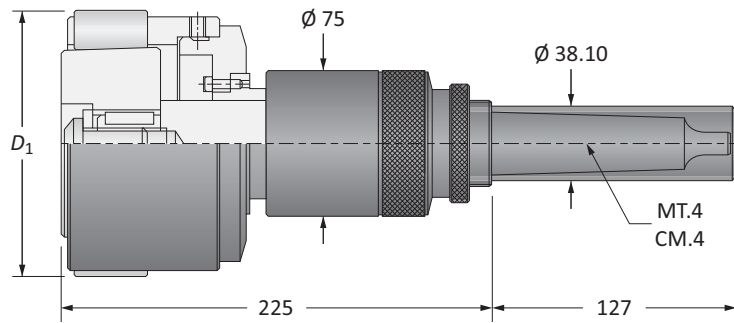

 BURNISHING | S.C.A.M.I.® Roller Burnishing Systems

A

Roller Burnishing Tools | Through Holes

T Series | Diameter Range: 5.0354 - 5.9016" (127.90mm - 149.90mm)

DRILLING

B

BORING

Through Holes

D_1		Part No.		Spare Parts			
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	Qty Rolls
5.0354 - 5.0748	127.90 - 128.90	RDKT-200-12790	RDKT-100-12790	RDCT-011-01280	RDTT-031-01280	RDRY-701-00812	11
5.0748 - 5.1142	128.90 - 129.90	RDKT-200-12890	RDKT-100-12890	RDCT-011-01290	RDTT-031-01290	RDRY-701-00812	11
5.1142 - 5.1535	129.90 - 130.90	RDKT-200-12990	RDKT-100-12990	RDCT-011-01300	RDTT-031-01300	RDRY-701-00812	11
5.1535 - 5.1929	130.90 - 131.90	RDKT-200-13090	RDKT-100-13090	RDCT-011-01310	RDTT-031-01310	RDRY-701-00812	11
5.1929 - 5.2323	131.90 - 132.90	RDKT-200-13190	RDKT-100-13190	RDCT-011-01320	RDTT-031-01320	RDRY-701-00812	11
5.2323 - 5.2717	132.90 - 133.90	RDKT-200-13290	RDKT-100-13290	RDCT-011-01330	RDTT-031-01330	RDRY-701-00812	11
5.2717 - 5.3110	133.90 - 134.90	RDKT-200-13390	RDKT-100-13390	RDCT-011-01340	RDTT-031-01340	RDRY-701-00812	11
5.3110 - 5.3504	134.90 - 135.90	RDKT-200-13490	RDKT-100-13490	RDCT-011-01350	RDTT-031-01350	RDRY-701-00812	11
5.3504 - 5.3898	135.90 - 136.90	RDKT-200-13590	RDKT-100-13590	RDCT-011-01360	RDTT-031-01360	RDRY-701-00812	11
5.3898 - 5.4291	136.90 - 137.90	RDKT-200-13690	RDKT-100-13690	RDCT-011-01370	RDTT-031-01370	RDRY-701-00812	11
5.4291 - 5.4685	137.90 - 138.90	RDKT-200-13790	RDKT-100-13790	RDCT-011-01380	RDTT-031-01380	RDRY-701-00812	11
5.4685 - 5.5079	138.90 - 139.90	RDKT-200-13890	RDKT-100-13890	RDCT-011-01390	RDTT-031-01390	RDRY-701-00812	11
5.5079 - 5.5472	139.90 - 140.90	RDKT-200-13990	RDKT-100-13990	RDCT-011-01400	RDTT-031-01400	RDRY-701-00812	11
5.5472 - 5.5866	140.90 - 141.90	RDKT-200-14090	RDKT-100-14090	RDCT-011-01410	RDTT-031-01410	RDRY-701-00812	11
5.5866 - 5.6260	141.60 - 142.90	RDKT-200-14190	RDKT-100-14190	RDCT-011-01420	RDTT-031-01420	RDRY-701-00812	11
5.6260 - 5.6654	142.90 - 143.90	RDKT-200-14290	RDKT-100-14290	RDCT-011-01430	RDTT-031-01430	RDRY-701-00812	11
5.6654 - 5.7047	143.90 - 144.90	RDKT-200-14390	RDKT-100-14390	RDCT-011-01440	RDTT-031-01440	RDRY-701-00812	11
5.7047 - 5.7441	144.90 - 145.90	RDKT-200-14490	RDKT-100-14490	RDCT-011-01450	RDTT-031-01450	RDRY-701-00812	11
5.7441 - 5.7835	145.90 - 146.90	RDKT-200-14590	RDKT-100-14590	RDCT-011-01460	RDTT-031-01460	RDRY-701-00812	11
5.7835 - 5.8228	146.90 - 147.90	RDKT-200-14690	RDKT-100-14690	RDCT-011-01470	RDTT-031-01470	RDRY-701-00812	11
5.8228 - 5.8622	147.90 - 148.90	RDKT-200-14790	RDKT-100-14790	RDCT-011-01480	RDTT-031-01480	RDRY-701-00812	11
5.8622 - 5.9016	148.90 - 149.90	RDKT-200-14890	RDKT-100-14890	RDCT-011-01490	RDTT-031-01490	RDRY-701-00812	11

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

F

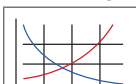
THREADING

X


SPECIALS

Key on D: 1

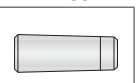
D: 42 - 45



D: 40 - 41



D: 38



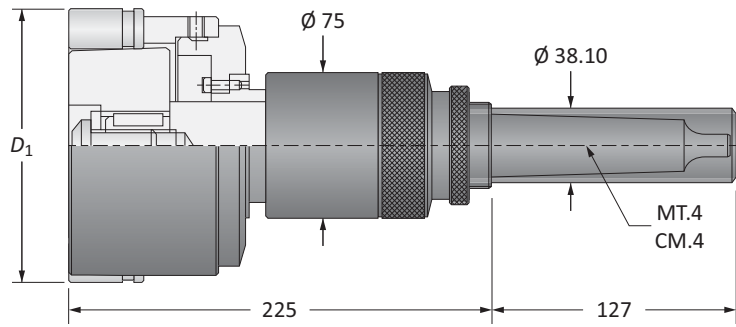
D: 34

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Roller Burnishing Tools | Blind Holes

T Series | Diameter Range: 5.0354 - 5.9016" (127.90mm - 149.90mm)



Blind Holes

D ₁		Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
5.0354 - 5.0748	127.90 - 128.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01280	RSTT-0xx-01280	RSRY-708-00812	11
5.0748 - 5.1142	128.90 - 129.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01290	RSTT-0xx-01290	RSRY-708-00812	11
5.1142 - 5.1535	129.90 - 130.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01300	RSTT-0xx-01300	RSRY-708-00812	11
5.1535 - 5.1929	130.90 - 131.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01310	RSTT-0xx-01310	RSRY-708-00812	11
5.1929 - 5.2323	131.90 - 132.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01320	RSTT-0xx-01320	RSRY-708-00812	11
5.2323 - 5.2717	132.90 - 133.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01330	RSTT-0xx-01330	RSRY-708-00812	11
5.2717 - 5.3110	133.90 - 134.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01340	RSTT-0xx-01340	RSRY-708-00812	11
5.3110 - 5.3504	134.90 - 135.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01350	RSTT-0xx-01350	RSRY-708-00812	11
5.3504 - 5.3898	135.90 - 136.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01360	RSTT-0xx-01360	RSRY-708-00812	11
5.3898 - 5.4291	136.90 - 137.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01370	RSTT-0xx-01370	RSRY-708-00812	11
5.4291 - 5.4685	137.90 - 138.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01380	RSTT-0xx-01380	RSRY-708-00812	11
5.4685 - 5.5079	138.90 - 139.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01390	RSTT-0xx-01390	RSRY-708-00812	11
5.5079 - 5.5472	139.90 - 140.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01400	RSTT-0xx-01400	RSRY-708-00812	11
5.5472 - 5.5866	140.90 - 141.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01410	RSTT-0xx-01410	RSRY-708-00812	11
5.5866 - 5.6260	141.60 - 142.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01420	RSTT-0xx-01420	RSRY-708-00812	11
5.6260 - 5.6654	142.90 - 143.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01430	RSTT-0xx-01430	RSRY-708-00812	11
5.6654 - 5.7047	143.90 - 144.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01440	RSTT-0xx-01440	RSRY-708-00812	11
5.7047 - 5.7441	144.90 - 145.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01450	RSTT-0xx-01450	RSRY-708-00812	11
5.7441 - 5.7835	145.90 - 146.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01460	RSTT-0xx-01460	RSRY-708-00812	11
5.7835 - 5.8228	146.90 - 147.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01470	RSTT-0xx-01470	RSRY-708-00812	11
5.8228 - 5.8622	147.90 - 148.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01480	RSTT-0xx-01480	RSRY-708-00812	11
5.8622 - 5.9016	148.90 - 149.90	RSKT-200-xxxxx	RSKT-100-xxxxx	RSCT-015-01490	RSTT-0xx-01490	RSRY-708-00812	11

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 140.00mm with straight shank: RSKT-100-14000).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

D: 42 - 45

D: 40 - 41

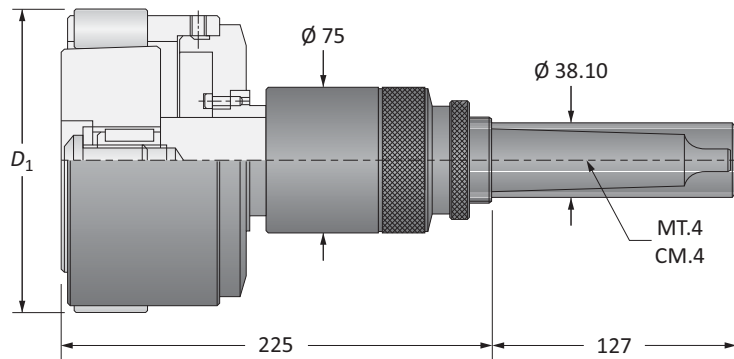
D: 39

Key on D: 1

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

Roller Burnishing Tools | Through Holes

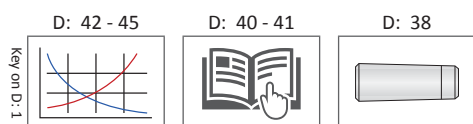
U Series | Diameter Range: 5.9016" - 6.5315" (149.90mm - 165.90mm)



Through Holes

D_1		Part No.		Spare Parts			
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone	Rolls	Qty Rolls
5.9016 - 5.9409	149.90 - 150.90	RDKU-200-14990	RDKU-100-14990	RDCU-011-01500	RDTU-031-01500	RDRY-701-00812	13
5.9409 - 5.9803	150.90 - 151.90	RDKU-200-15090	RDKU-100-15090	RDCU-011-01510	RDTU-031-01510	RDRY-701-00812	13
5.9803 - 6.0197	151.90 - 152.90	RDKU-200-15190	RDKU-100-15190	RDCU-011-01520	RDTU-031-01520	RDRY-701-00812	13
6.0197 - 6.0591	152.90 - 153.90	RDKU-200-15290	RDKU-100-15290	RDCU-011-01530	RDTU-031-01530	RDRY-701-00812	13
6.0591 - 6.0984	153.90 - 154.90	RDKU-200-15390	RDKU-100-15390	RDCU-011-01540	RDTU-031-01540	RDRY-701-00812	13
6.0984 - 6.1378	154.90 - 155.90	RDKU-200-15490	RDKU-100-15490	RDCU-011-01550	RDTU-031-01550	RDRY-701-00812	13
6.1378 - 6.1772	155.90 - 156.90	RDKU-200-15590	RDKU-100-15590	RDCU-011-01560	RDTU-031-01560	RDRY-701-00812	13
6.1772 - 6.2165	156.90 - 157.90	RDKU-200-15690	RDKU-100-15690	RDCU-011-01570	RDTU-031-01570	RDRY-701-00812	13
6.2165 - 6.2559	157.90 - 158.90	RDKU-200-15790	RDKU-100-15790	RDCU-011-01580	RDTU-031-01580	RDRY-701-00812	13
6.2559 - 6.2953	158.90 - 159.90	RDKU-200-15890	RDKU-100-15890	RDCU-011-01590	RDTU-031-01590	RDRY-701-00812	13
6.2953 - 6.3346	159.90 - 160.90	RDKU-200-15990	RDKU-100-15990	RDCU-011-01600	RDTU-031-01600	RDRY-701-00812	13
6.3346 - 6.3740	160.90 - 161.90	RDKU-200-16090	RDKU-100-16090	RDCU-011-01610	RDTU-031-01610	RDRY-701-00812	13
6.3740 - 6.4134	161.90 - 162.90	RDKU-200-16190	RDKU-100-16190	RDCU-011-01620	RDTU-031-01620	RDRY-701-00812	13
6.4134 - 6.4528	162.90 - 163.90	RDKU-200-16290	RDKU-100-16290	RDCU-011-01630	RDTU-031-01630	RDRY-701-00812	13
6.4528 - 6.4921	163.90 - 164.90	RDKU-200-16390	RDKU-100-16390	RDCU-011-01640	RDTU-031-01640	RDRY-701-00812	13
6.4921 - 6.5315	164.90 - 165.90	RDKU-200-16490	RDKU-100-16490	RDCU-011-01650	RDTU-031-01650	RDRY-701-00812	13

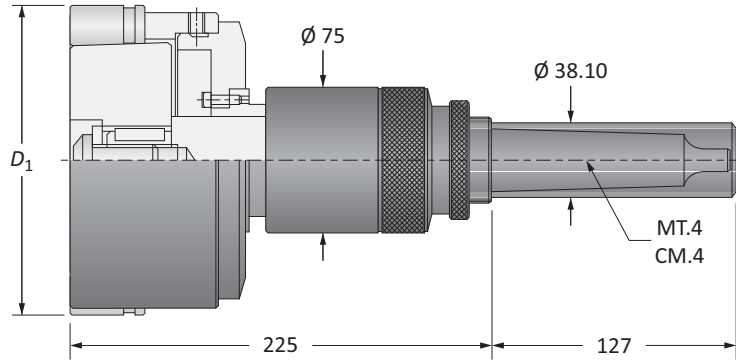
NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.





Roller Burnishing Tools | Blind Holes

U Series | Diameter Range: 5.9016" - 6.5315" (149.90mm - 165.90mm)



Blind Holes

D_1		Part No.*		Spare Parts			Qty Rolls
Imperial (in)	Metric (mm)	Assembly with Morse Taper Shank	Assembly with Straight Shank	Cage	Cone**	Rolls	
5.9016 - 5.9409	149.90 - 150.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01500	RSTU-0xx-01500	RSRY-708-00812	13
5.9409 - 5.9803	150.90 - 151.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01510	RSTU-0xx-01510	RSRY-708-00812	13
5.9803 - 6.0197	151.90 - 152.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01520	RSTU-0xx-01520	RSRY-708-00812	13
6.0197 - 6.0591	152.90 - 153.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01530	RSTU-0xx-01530	RSRY-708-00812	13
6.0591 - 6.0984	153.90 - 154.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01540	RSTU-0xx-01540	RSRY-708-00812	13
6.0984 - 6.1378	154.90 - 155.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01550	RSTU-0xx-01550	RSRY-708-00812	13
6.1378 - 6.1772	155.90 - 156.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01560	RSTU-0xx-01560	RSRY-708-00812	13
6.1772 - 6.2165	156.90 - 157.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01570	RSTU-0xx-01570	RSRY-708-00812	13
6.2165 - 6.2559	157.90 - 158.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01580	RSTU-0xx-01580	RSRY-708-00812	13
6.2559 - 6.2953	158.90 - 159.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01590	RSTU-0xx-01590	RSRY-708-00812	13
6.2953 - 6.3346	159.90 - 160.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01600	RSTU-0xx-01600	RSRY-708-00812	13
6.3346 - 6.3740	160.90 - 161.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01610	RSTU-0xx-01610	RSRY-708-00812	13
6.3740 - 6.4134	161.90 - 162.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01620	RSTU-0xx-01620	RSRY-708-00812	13
6.4134 - 6.4528	162.90 - 163.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01630	RSTU-0xx-01630	RSRY-708-00812	13
6.4528 - 6.4921	163.90 - 164.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01640	RSTU-0xx-01640	RSRY-708-00812	13
6.4921 - 6.5315	164.90 - 165.90	RSKU-200-xxxxx	RSKU-100-xxxxx	RSCU-015-01650	RSTU-0xx-01650	RSRY-708-00812	13

*xxxxx = Indicate to 2 metric decimal places the size to be burnished (e.g. roller burnisher Ø 160.00mm with MT.4 shank: RSKU-200-16000).

**x = A number that will vary from 2 to 8 depending upon the exact diameter to be burnished. See page D: 6 for the correct identification of the "x" value.

NOTE: Each roller burnishing tool comes assembled complete with cage, cone, and rolls.

Key on D: 1

D: 42 - 45

D: 40 - 41

D: 39

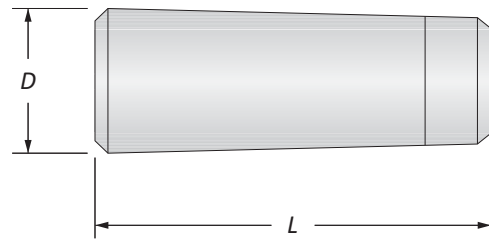
U
A
DRILLING
B
BORING
C
REAMING
D
BURNISHING
E
THREADING
X
SPECIALS

Rolls

Through Holes

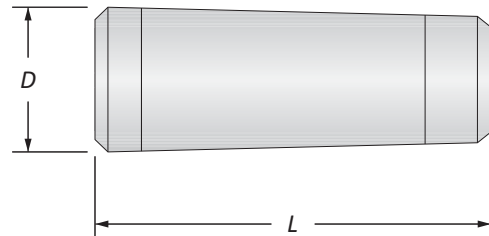
Rolls 704 and 707

Part No.	Imperial (in)		Metric (mm)	
	D	L	D	L
RDRY-704-00047	0.0465	0.2500	1.18	6.35
RDRY-704-00062	0.0618	0.2500	1.57	6.35
RDRY-704-00070	0.0697	0.3126	1.77	7.94
RDRY-704-00078	0.0776	0.3752	1.97	9.53
RDRY-704-00086	0.0854	0.3752	2.17	9.53
RDRY-704-00093	0.0929	0.3752	2.36	9.53
RDRY-704-00109	0.1083	0.5000	2.75	12.70
RDRY-704-00125	0.1244	0.5000	3.16	12.70
RDRY-704-00148	0.1472	0.5000	3.74	12.70
RDRY-704-00156	0.1555	0.5000	3.95	12.70
RDRY-704-00172	0.1709	0.6252	4.34	15.88
RDRY-704-00187	0.1858	0.8772	4.72	22.28
RDRY-707-00187	0.1870	0.5000	4.75	12.70
RDRY-704-00218	0.2173	0.5000	5.52	12.70
RDRY-707-00218	0.2173	1.0000	5.52	25.40
RDRY-704-00265	0.2638	1.1252	6.70	28.58
RDRY-704-00312	0.3110	1.5000	7.90	38.10
RDRY-707-00312	0.3118	1.1252	7.92	28.58
RDRY-704-00406	0.4047	1.5000	10.28	38.10
RDRY-704-00468	0.4669	1.5000	11.86	38.10
RDRY-704-00531	0.5299	1.5000	13.46	38.10
RDRY-704-00625	0.6240	1.5000	15.85	38.10
RDRY-704-00687	0.6858	1.5000	17.42	38.10
RDRY-704-00812	0.8110	1.5000	20.60	38.10



Rolls 701

Part No.	Imperial (in)		Metric (mm)	
	D	L	D	L
RDRY-701-00187	0.1831	0.8772	4.65	22.28
RDRY-701-00218	0.2138	1.0000	5.43	25.40
RDRY-701-00265	0.2610	1.1252	6.63	28.58
RDRY-701-00312	0.3039	1.5000	7.72	38.10
RDRY-701-00406	0.3980	1.5000	10.11	38.10
RDRY-701-00468	0.4598	1.5000	11.68	38.10
RDRY-701-00531	0.5228	1.5000	13.28	38.10
RDRY-701-00625	0.6169	1.5000	15.67	38.10
RDRY-701-00687	0.6799	1.5000	17.27	38.10
RDRY-701-00812	0.8039	1.5000	20.42	38.10

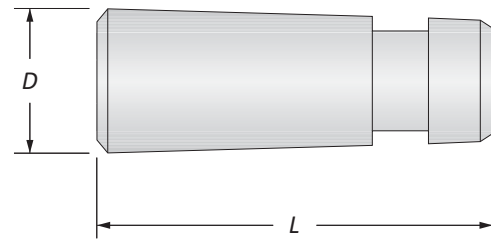


Rolls

Blind Holes

Rolls 708

Part No.	Imperial (in)		Metric (mm)	
	<i>D</i>	<i>L</i>	<i>D</i>	<i>L</i>
RSRY-708-00086	0.0854	0.3752	2.17	9.53
RSRY-708-00125	0.1244	0.5000	3.16	12.70
RSRY-708-00156	0.1555	0.5000	3.95	12.70
RSRY-708-00172	0.1709	0.6252	4.35	15.88
RSRY-708-00187	0.1858	0.8772	4.72	22.28
RSRY-708-00218	0.2173	0.5000	5.52	25.40
RSRY-708-00265	0.2638	1.1252	6.70	28.58
RSRY-708-00312	0.3110	1.5000	7.90	38.10
RSRY-708-00406	0.4047	1.5000	10.29	38.10
RSRY-708-00468	0.4669	1.5000	11.86	38.10
RSRY-708-00531	0.5299	1.5000	13.46	38.10
RSRY-708-00625	0.6240	1.5000	15.85	38.10
RSRY-708-00687	0.6858	1.5000	17.42	38.10
RSRY-708-00812	0.8110	1.5000	20.60	38.10



A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

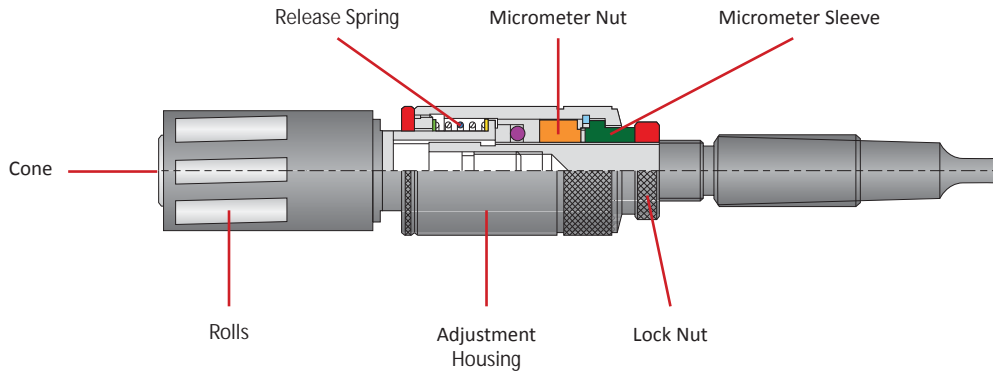
E

THREADING

X

SPECIALS

Diameter Adjustment



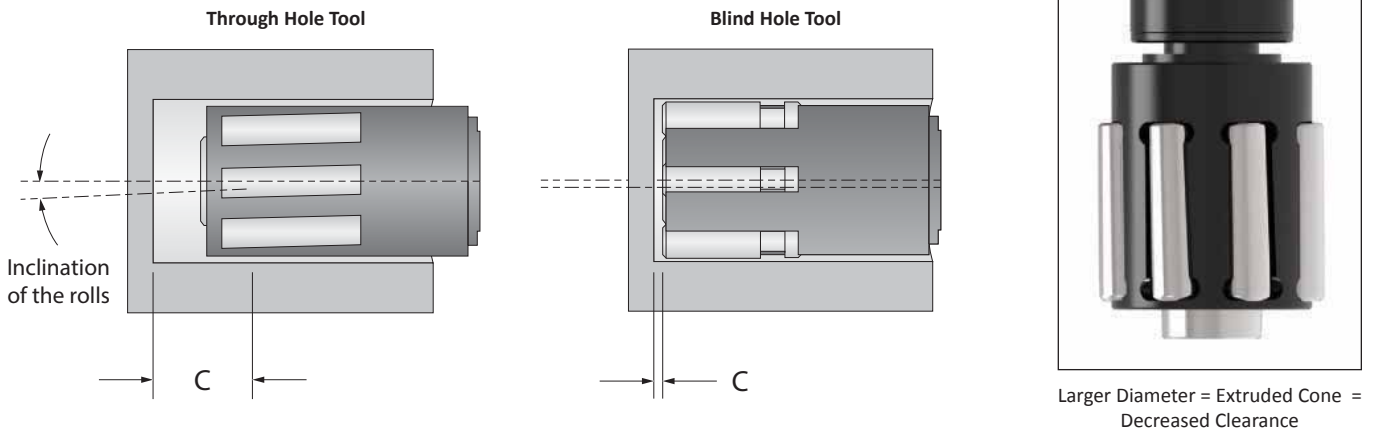
Adjustment

The roller burnishing tool incorporates a shank, a body, and a planetary system of conical rolls that are evenly spaced by a retaining cage.

1. Unscrew the lock nut.
2. Pull the housing toward the lock nut and rotate to increase or decrease the diameter.
3. Tighten the lock nut.

IMPORTANT: As you increase the diameter, the cone moves forward, pushing the rolls outward. Because of this, the cone will protrude from the end of the cage, decreasing the clearance available in blind holes (see Figures 1 and 2).

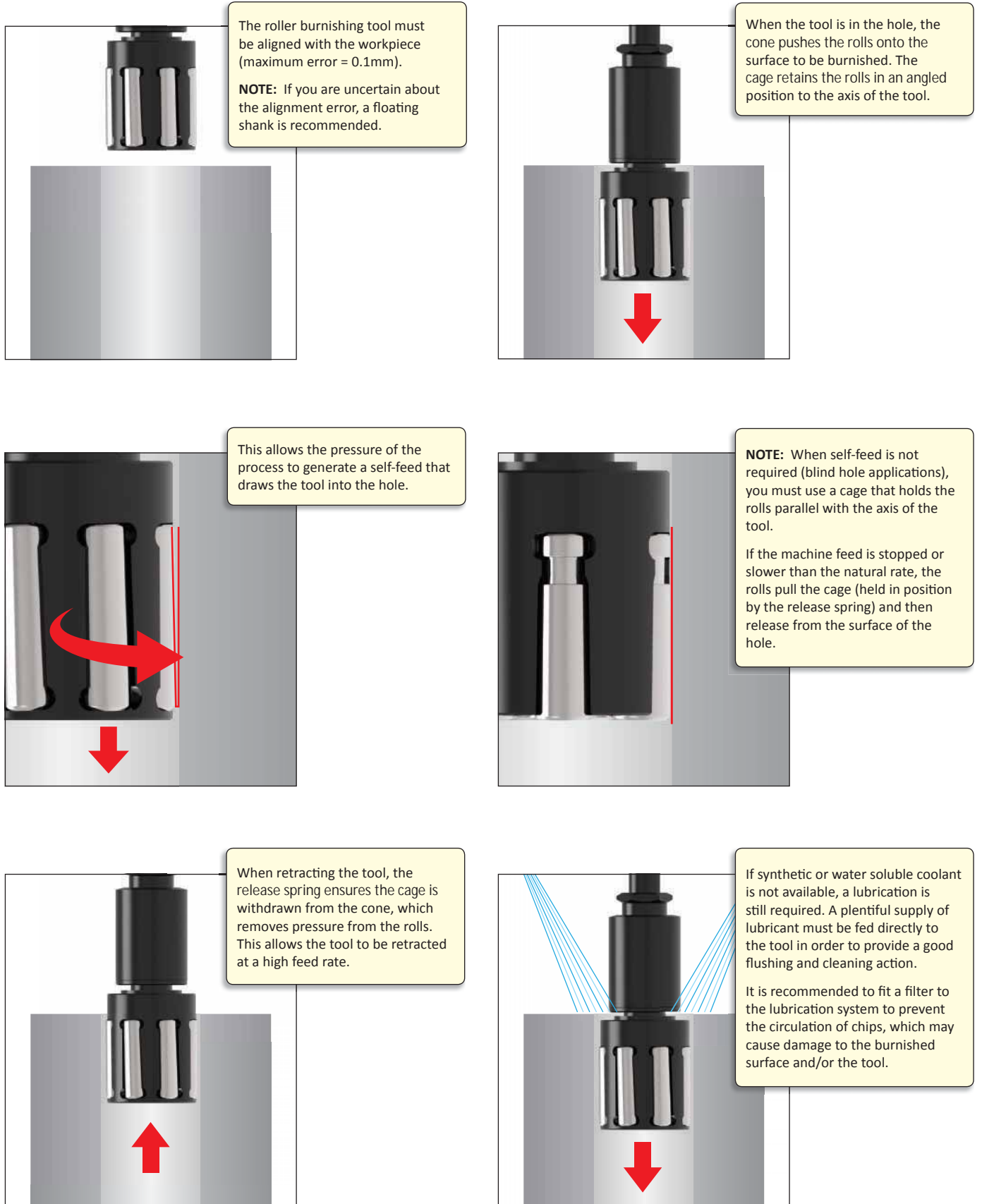
Refer to chart below for clearance values.



Adjustment Range		Clearance (C)		
		Through Holes		Blind Holes
Imperial (inch)	Metric (mm)	Rolls 701	Rolls 704 / 707	Rolls 708
0.1850 - 0.2315	4.70 - 5.88	-	2.40	-
0.2319 - 0.3728	5.89 - 9.47	-	2.40	0.60
0.3732 - 0.6236	9.48 - 15.84	-	2.40	0.60
0.6240 - 1.1236	15.85 - 28.54	5.40	3.20	1.00
1.1240 - 1.8385	28.55 - 46.70	9.50	3.20	1.00
1.8390 - 3.3386	46.71 - 84.80	9.50	4.00	1.00
3.3390 - 6.5315	84.81 - 165.90	10.30	4.70	1.00

How it Works

Roller Burnishing Tools



A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

Recommended Cutting Data | Imperial (inch)

Roller Burnishing

ISO	Material	Hardness (BHN)	Speed (SFM)	Recommended Feed (IPR) by Burnisher Diameter			
				0.1850 - 0.4724	0.4725 - 0.9843	0.9844 - 1.9685	1.9686 - 6.5315
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
		180 - 250	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
		180 - 275	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
		180 - 325	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
		180 - 375	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	Structural Steel A36, A285, A516, etc.	125 - 180	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	180 - 350	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121	
	200 - 250	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	50 - 150	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	Titanium Alloy	140 - 310	50 - 150	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	75 - 200	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	75 - 200	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
K	Grey Cast Iron, Ductile Iron,	< 200	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	Spheroidal Cast Iron (Pearlitic)	> 200	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	Spheroidal Cast Iron (Ferritic)	260 - 320	75 - 300	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
N	Copper and Alloys	< 500	150 - 350	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	Brass						
	Bronze	< 180	150 - 350	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121
	Bronze Phosphorous						
	Aluminum and Alloys	< 150	150 - 350	0.005 - 0.020	0.014 - 0.037	0.032 - 0.086	0.070 - 0.121

Max RPM

Series	Max RPM
H	2000
I	1500
K	1200
L	1000
F	1000
M	900
N	900
O	700
P	600
Q	500
R	300
S	300
T	250
U	200

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is available through our Application Engineering department.

Stock Allowance | Imperial (inch)

Roller Burnishing

ISO	Material	Hardness (BHN)	Recommended Stock (inch) by Burnisher Diameter*			
			0.1850 - 0.4724	0.4725 - 0.9843	0.9844 - 1.9685	1.9686 - 6.5315
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
		180 - 250	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
		180 - 275	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
		180 - 325	0.0004 - 0.0007	0.0005 - 0.0007	0.0005 - 0.0010	0.0008 - 0.0014
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
		180 - 375	0.0004 - 0.0007	0.0005 - 0.0007	0.0005 - 0.0010	0.0008 - 0.0014
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	0.0004 - 0.0007	0.0005 - 0.0007	0.0005 - 0.0010	0.0008 - 0.0014
	Structural Steel A36, A285, A516, etc.	125 - 180	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
	180 - 350	0.0004 - 0.0007	0.0005 - 0.0007	0.0005 - 0.0010	0.0008 - 0.0014	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020	
	200 - 250	0.0004 - 0.0007	0.0005 - 0.0007	0.0005 - 0.0010	0.0008 - 0.0014	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	0.0004 - 0.0007	0.0005 - 0.0007	0.0005 - 0.0010	0.0008 - 0.0014
	Titanium Alloy	140 - 310	0.0004 - 0.0007	0.0005 - 0.0007	0.0005 - 0.0010	0.0008 - 0.0014
M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
K	Grey Cast Iron, Ductile Iron,	< 200	0.0004 - 0.0007	0.0005 - 0.0007	0.0005 - 0.0010	0.0008 - 0.0014
	Spheroidal Cast Iron (Pearlitic)	> 200	0.0004 - 0.0007	0.0005 - 0.0007	0.0005 - 0.0010	0.0008 - 0.0014
	Spheroidal Cast Iron (Ferritic)	260 - 320	0.0004 - 0.0007	0.0005 - 0.0007	0.0005 - 0.0010	0.0008 - 0.0014
N	Copper and Alloys	< 500	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
	Brass					
	Bronze	< 180	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020
	Bronze Phosphorous					
	Aluminum and Alloys	< 150	0.0004 - 0.0007	0.0007 - 0.0016	0.0010 - 0.0018	0.0012 - 0.0020

*Stock value is on diameter.

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

Recommended Cutting Data | Metric (mm)

Roller Burnishing

ISO	Material	Hardness (BHN)	Speed (M/min)	Recommended Feed (mm/rev) by Burnisher Diameter			
				4.70 - 12.00	12.01 - 25.00	25.01 - 50.00	50.01 - 165.90
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
		180 - 250	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
		180 - 275	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
		180 - 325	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
		180 - 375	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	Structural Steel A36, A285, A516, etc.	125 - 180	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	180 - 350	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07	
	200 - 250	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	15 - 45	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	Titanium Alloy	140 - 310	15 - 45	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	22 - 60	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	22 - 60	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
K	Grey Cast Iron, Ductile Iron,	< 200	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	Spheroidal Cast Iron (Pearlitic)	> 200	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	Spheroidal Cast Iron (Ferritic)	260 - 320	22 - 90	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
N	Copper and Alloys	< 500	45 - 105	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	Brass						
	Bronze	< 180	45 - 105	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07
	Bronze Phosphorous						
	Aluminum and Alloys	< 150	45 - 105	0.13 - 0.51	0.36 - 0.94	0.81 - 2.18	1.78 - 3.07

Max RPM

Series	Max RPM
H	2000
I	1500
K	1200
L	1000
F	1000
M	900
N	900
O	700
P	600
Q	500
R	300
S	300
T	250
U	200

IMPORTANT: The speeds and feeds listed on these pages are a general starting point for all applications. Factory technical assistance is available through our Application Engineering department.

Stock Allowance | Metric (mm)

Roller Burnishing

ISO	Material	Hardness (BHN)	Recommended Stock (mm) by Burnisher Diameter*			
			4.70 - 12.00	12.01 - 25.00	25.01 - 50.00	50.01 - 165.90
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 180	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
		180 - 250	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 180	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
		180 - 275	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 180	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
		180 - 325	0.010 - 0.018	0.012 - 0.018	0.012 - 0.025	0.020 - 0.036
	Alloy Steel 4140, 5140, 8640, etc.	125 - 180	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
		180 - 375	0.010 - 0.018	0.012 - 0.018	0.012 - 0.025	0.020 - 0.036
	High Strength Alloy 4340, 4330V, 300M, etc.	240 - 450	0.010 - 0.018	0.012 - 0.018	0.012 - 0.025	0.020 - 0.036
	Structural Steel A36, A285, A516, etc.	125 - 180	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
	180 - 350	0.010 - 0.018	0.012 - 0.018	0.012 - 0.025	0.020 - 0.036	
Tool Steel H-13, H-21, A-4, O-2, S-3, etc.	150 - 200	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051	
	200 - 250	0.010 - 0.018	0.012 - 0.018	0.012 - 0.025	0.020 - 0.036	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	0.010 - 0.018	0.012 - 0.018	0.012 - 0.025	0.020 - 0.036
	Titanium Alloy	140 - 310	0.010 - 0.018	0.012 - 0.018	0.012 - 0.025	0.020 - 0.036
M	Stainless Steel 400 Series 416, 420, etc.	135 - 350	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
K	Grey Cast Iron, Ductile Iron,	< 200	0.010 - 0.018	0.012 - 0.018	0.012 - 0.025	0.020 - 0.036
	Spheroidal Cast Iron (Pearlitic)	> 200	0.010 - 0.018	0.012 - 0.018	0.012 - 0.025	0.020 - 0.036
	Spheroidal Cast Iron (Ferritic)	260 - 320	0.010 - 0.018	0.012 - 0.018	0.012 - 0.025	0.020 - 0.036
N	Copper and Alloys	< 500	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
	Brass					
	Bronze	< 180	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051
	Bronze Phosphorous					
	Aluminum and Alloys	< 150	0.010 - 0.018	0.018 - 0.041	0.025 - 0.046	0.030 - 0.051

*Stock value is on diameter.

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

Threading Solutions

Solid Carbide and Indexable Thread Mills | AccuThread™ 856 | ThreadMills USA



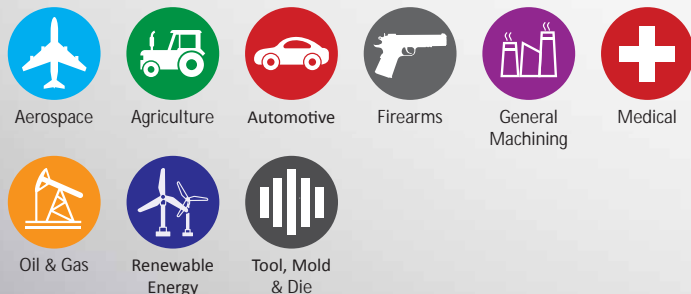
Any Thread, Any Time

Allied Machine's thread milling product line has developed into a comprehensive range of high precision tooling that offers outstanding productivity with exceptional levels of tool life and thread accuracy. The thread mill range covers both solid carbide and indexable replaceable insert tools with an extensive range of thread forms.

Our thread milling product line has been specifically designed to provide customers with a wide range of options. This is achieved by offering two thread mill ranges within our product lineup: the low cost, general production ThreadMills USA range, and the high performance, high productivity AccuThread™ range.

Online programmer available 24/7	Solid carbide and indexable insert styles	Large range of thread form options
----------------------------------	---	------------------------------------

Applicable Industries



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.

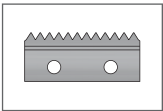
NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

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

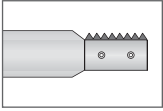
Visit www.alliedmachine.com for the most up-to-date information and procedures.

Reference Icons

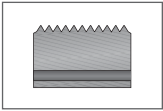
The following icons will appear throughout the catalog to help you navigate between products.



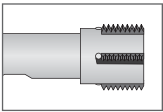
Bolt-in Style Inserts
Refers to the available bolt-in style thread mill insert options



Bolt-in Style Insert Holders
Refers to the range of holder options available for bolt-in style inserts



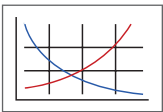
Pin Style Inserts
Refers to the available pin style thread mill insert options.



Pin Style Insert Holders
Refers to the range of holder options available for pin style inserts



Setup / Assembly Information
Detailed instructions and information regarding the corresponding part(s)



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



Coolant Through Option
Indicates that the product is coolant through

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Solid Carbide Thread Mills

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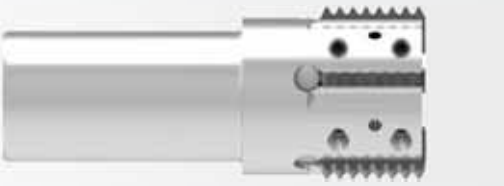


High Performance Threading Solutions

THREAD MILLING DONE *RIGHT*



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

Solid Carbide Thread Mills		Notes
AccuThread™ 856		<ul style="list-style-type: none"> Allied Machine's proprietary AM210® coating yields a 25-50% increase in tool life over competitor products Standard cutting lengths allow for multiple applications without the need for special thread mills Helical flute offers increased strength and rigidity when cutting forces are applied
ThreadMills USA		<ul style="list-style-type: none"> Helical flute offers increased strength and rigidity when cutting forces are applied High quality for consistent, predictable production Coolant through options available TiAlN coating improves tool life versus uncoated tools 

Indexable Insert Thread Mills		Notes
AccuThread™ 856 Bolt-in Style		<ul style="list-style-type: none"> Thread mill holders are manufactured from stainless steel that is engineered to dampen vibration during operation Extensive range of thread forms with two thread lengths Can produce left or right handed threads
AccuThread™ 856 Pin Style		<ul style="list-style-type: none"> Patented pin style locking system ensures unsurpassed repeatability Thread mill holders are manufactured from stainless steel that is engineered to dampen vibration during operation Extensive range of thread forms with two thread lengths
AccuThread™ 856 Indexable Inserts	  <p>Bolt-in Style Pin Style</p>	<ul style="list-style-type: none"> Full profiles present on all inserts allow 100% thread form against 65-75% for tapping Allied Machine's premium carbide allows for extended tool life while providing high quality thread forms Allied Machine's proprietary AM210® coating yields a 25-50% increase in tool life over competitor products

Online Tools

Insta-Code™

Find your thread mill. Create your program.

 **iOS DEVICES**
 **ANDROID DEVICES**
 **PC DOWNLOAD**
 **ONLINE WEB APP**

The user-friendly software lets you choose the best thread mill product for your application and create the program code for your machine. Insta-Code is available across multiple platforms, including the mobile device app, the PC download app (that can be used offline), and the online web app available 24/7 at www.alliedmachine.com.



Eliminate the wait. Get your program now.



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

Insta-Quote™

Design, create, and quote tools in minutes. *Available online 24/7*

 **ONLINE WEB APP**

Solid Carbide Thread Mills (both AccuThread™ 856 and ThreadMills USA)



Insta-Quote is the online system that lets you design special tooling for your specific application. Receive your drawing and quote within seconds after you complete your design.

Now, you can quickly find the exact thread mill you need with Insta-Quote. Go online today and let Insta-Quote help solve your applications. After all, why should you do all the work?

A
DRILLING
B
BORING
C
REAMING
D
URNISHING
E
HREADING
X
PECIALS

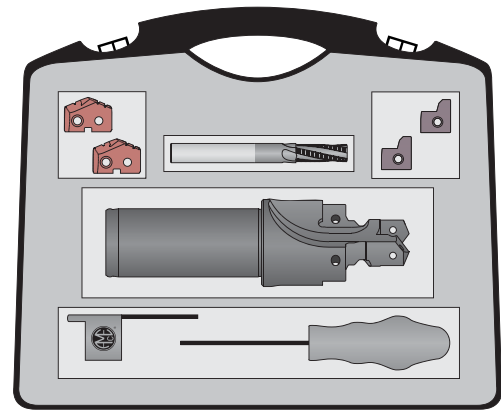
Solid Carbide Styles and Thread Forms

Thread Forms	AccuThread™ 856 - Non-Coolant	ThreadMills USA - Non-Coolant	ThreadMills USA - Coolant Through
Straight BSW			
Helical BSPP, NPS, NPSF, UN, ISO			
Taper Helical BSPT, NPT, NPTF			

The Complete Package

Producing fully finished threaded hydraulic ports has never been easier. The Port and Thread Finishing Kit includes the AccuPort 432® port contour cutter with a dedicated AccuThread 856 solid carbide thread mill in a single kit. You also receive the T-A® inserts and port form inserts needed to complete the assembly.

Port kits incorporate the AccuThread 856 solid carbide thread mills to increase the manufacturing flexibility by allowing hydraulic ports to be produced in just two operations. In addition, where a unique port profile is required, Allied Machine provides a dedicated special tooling solution using our extensive tool design and manufacturing experience to meet precise specifications.



NOTE: See Section A9 of our product catalog for the complete list of Port and Thread Finishing Kits.



One Tool, FOUR Operations

- Spot Face
- Port Contour
- Tap Drill
- Spot Drill



NOTE: See Section A92 of our product catalog for full AccuPort 432 product line information.



Product Nomenclature

AccuThread™ 856 Solid Carbide Thread Mills

T?	U	?	????	?	??	?
1	2	3	4	5	6	



1. T??e?? ? ?	2. Thread Class	3. Coating	4. Min Thread Diameter	5. Thread Pitch	6. Shank
<p>T? = Standard</p> <p>HDTM = Heavy duty</p>	<p>U = UN</p> <p>N = NPT, NPTF</p> <p>B = BSPP, BSPT, BSW</p> <p>? = ISO</p> <p>A = AccuPort® specific</p>	<p>? = AM210®</p> <p>U = Uncoated</p>	<p>???? = 1/4 (English)</p> <p>???? = #8 (Number Drill)</p> <p>???? = M4.5 (ISO)</p>	<p>?? = UN 20 TPI</p> <p>?? = ISO 0.75</p> <p>N?T = All pipe threads will show thread form</p>	<p>Blank = Imperial</p> <p>? = Metric</p>

ThreadMills USA Solid Carbide Thread Mills

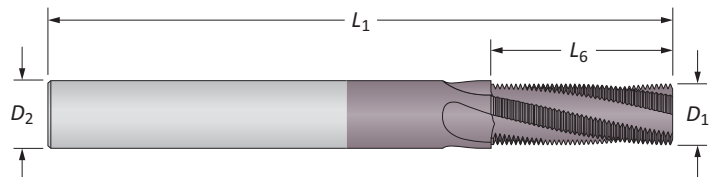
T?	???	??	CH	?
1	2	3	4	5



1. T??e?? ? ?	2. Min Thread Diameter	3. Thread Pitch	4. Optional	5. Shank
<p>T? = TiAlN</p> <p>T? ?T = Uncoated</p> <p>HDTM = Heavy duty</p> <p>HDTMFT = Heavy duty uncoated</p>	<p>???? = 1/4 (English)</p> <p>?? = #8 (Number Drill)</p> <p>?? = M4.5 (ISO)</p>	<p>?? = UN 20 TPI</p> <p>?? = ISO 0.75</p> <p>N?T = All pipe threads will show thread form</p>	<p>CH = Coolant hole</p> <p>DE = Double end</p> <p>N?T = All pipe threads will show thread form</p>	<p>Blank = Imperial</p> <p>? = Metric</p>

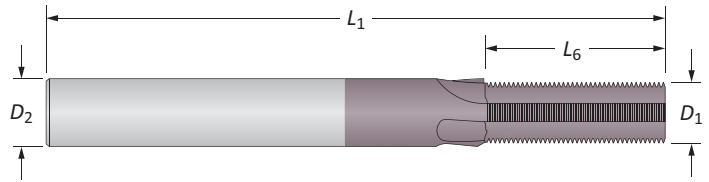
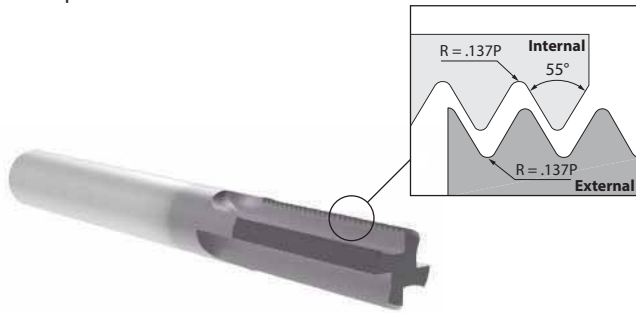
Reference Key

?? ?ol	Attribute
D_2	Maximum cutter diameter
D_2	Shank diameter
L_2	Overall length
L_2	Length of cut



Solid Carbide Thread Mills

BSW | Non-Coolant



BSW | Non-Coolant

Pitch	Pitch	Flutes	Thread Mill				Part No.	
			D_2	D_1	L_1	L_6	ThreadMills USA	Alternative Part No.
20	1/4	3	0.177	0.250	0.400	2.500	TM 00B00	00
18	5/16	3	0.197	0.250	0.445	2.500	TM 00B00	00
16	3/8	5	0.276	0.312	0.563	3.000	TM 00B00	00
14	7/16	5	0.311	0.312	0.715	3.000	TM 00B00	00
12	1/2	5	0.354	0.375	0.750	3.500	TM 00B00	00
11	5/8	5	0.468	0.500	0.910	3.500	TM 00B00	00
10	3/4	5	0.468	0.500	1.100	3.500	TM 00B00	00
9	7/8	6	0.620	0.625	1.112	4.000	TM 00B00	00
8	1	6	0.620	0.625	1.375	4.000	TM 00B00	00
20	1/4	3	4.50	6.00	10.16	58.00	TM 00B00 0	TM B000000000
18	5/16	3	5.00	6.00	11.29	58.00	TM 00B00 0	TM B000000000
16	3/8	5	7.00	8.00	14.29	64.00	TM 00B00 0	TM B000000000
14	7/16	5	7.90	8.00	18.15	64.00	TM 00B00 0	TM B000000000
12	1/2	5	9.00	10.00	19.10	73.00	TM 00B00 0	TM B000000000
11	5/8	5	11.90	12.00	23.10	84.00	TM 00B00 0	TM B000000000
10	3/4	5	11.90	12.00	27.94	84.00	TM 00B00 0	TM B000000000
9	7/8	6	15.90	16.00	28.23	93.00	TM 00B00 0	TM B000000000
8	1	6	15.90	16.00	34.94	93.00	TM 00B00 0	TM B000000000

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

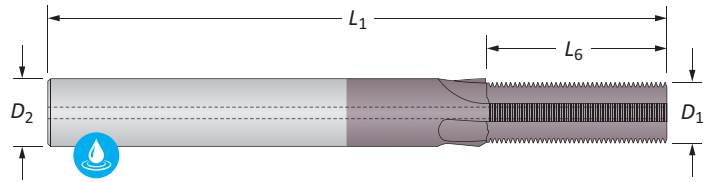
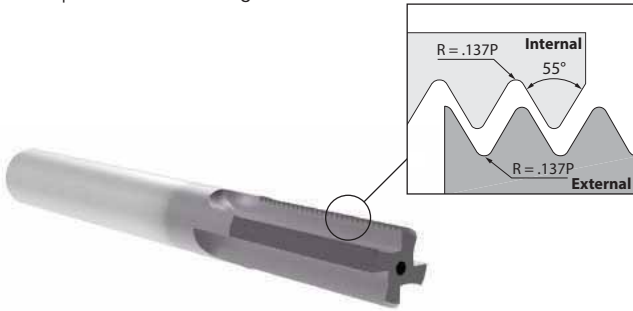
E: 46 - 49 E: 4 **Weldon Flat**

To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = TM NK0500-NPT | Weldon shank flat = TW NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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

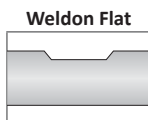
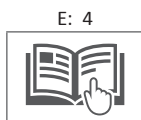
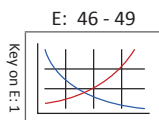
Solid Carbide Thread Mills

BSW | Coolant Through



BSW | Coolant Through

T ₂ (Pitch)	P ₂ (Pitch)	Flutes	T ₂ P ₂ L ₁ L ₆				Part No.	
			D ₂	D ₁	L ₁	L ₆		
i	20	1/4	3	0.177	0.250	0.400	2.375	TM20BSWCH
	18	5/16	3	0.197	0.250	0.445	2.375	TM18BSWCH
	16	3/8	5	0.276	0.312	0.563	3.000	TM16BSWCH
	14	7/16	5	0.311	0.312	0.715	3.000	TM14BSWCH
	12	1/2	5	0.354	0.375	0.750	3.000	TM12BSWCH
	11	5/8	5	0.468	0.500	0.910	3.500	TM11BSWCH
	10	3/4	5	0.468	0.500	1.100	3.500	TM10BSWCH
	9	7/8	6	0.620	0.625	1.112	4.000	TM9BSWCH
8	1	6	0.620	0.625	1.375	4.000	TM8BSWCH	
m	20	1/4	3	4.50	6.00	10.16	58.00	TM20BSWCHM
	18	5/16	3	5.00	6.00	11.29	58.00	TM18BSWCHM
	16	3/8	5	7.00	8.00	14.29	64.00	TM16BSWCHM
	14	7/16	5	7.90	8.00	18.15	64.00	TM14BSWCHM
	12	1/2	5	9.00	10.00	19.10	84.00	TM12BSWCHM
	11	5/8	5	11.90	12.00	23.10	84.00	TM11BSWCHM
	10	3/4	5	11.90	12.00	27.94	84.00	TM10BSWCHM
	9	7/8	6	15.90	16.00	28.23	93.00	TM9BSWCHM
8	1	6	15.90	16.00	34.94	93.00	TM8BSWCHM	



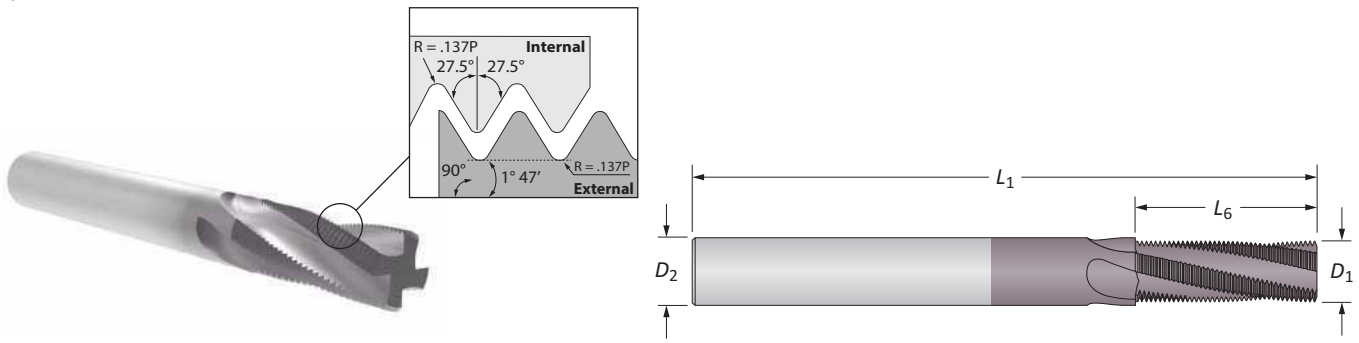
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = TW NK0500-NPT | Weldon shank flat = TW NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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

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

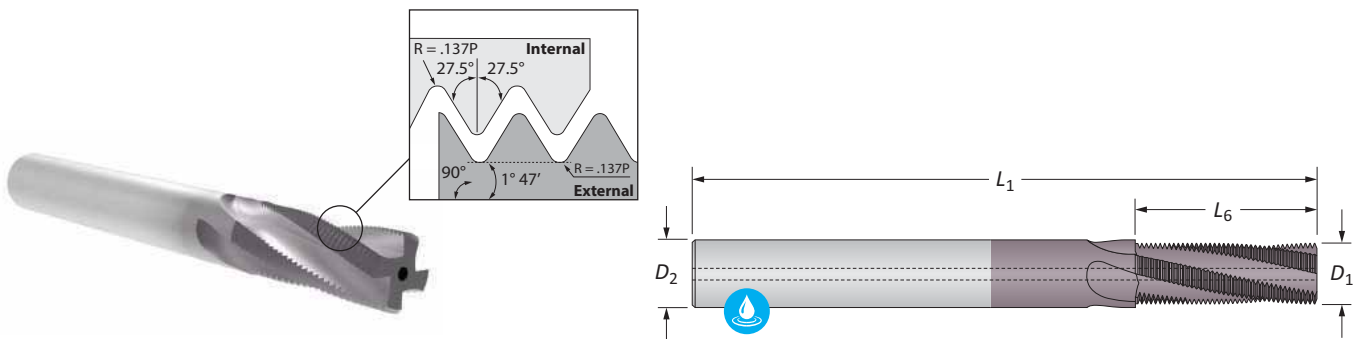
Solid Carbide Thread Mills

BSPT



BSPT | Non-Coolant

Pitch	Pitch	Flutes	Thread				Part No.	
			D_2	D_1	L_1	L_6	ThreadMills USA	Part No.
i	28	1/16 and 1/8	0.240	0.250	0.393	2.500	TM 28BSPT	
	19	1/4 and 3/8	0.310	0.312	0.580	3.000	TM 19BSPT	
	14	1/2 and 3/4	0.470	0.500	0.787	3.500	TM 14BSPT	
	11	1	0.620	0.625	1.546	4.000	TM 11BSPT	
m	28	1/16 and 1/8	5.97	6.00	9.98	58.00	TM 28BSPTM	TM 28BSPTM
	19	1/4 and 3/8	9.91	10.00	14.73	73.00	TM 19BSPTM	TM 19BSPTM
	14	1/2 and 3/4	11.94	12.00	20.00	84.00	TM 14BSPTM	TM 14BSPTM
	11	1	15.75	16.00	32.31	93.00	TM 11BSPTM	TM 11BSPTM



BSPT | Coolant Through

Pitch	Pitch	Flutes	Thread				Part No.
			D_2	D_1	L_1	L_6	ThreadMills USA
i	28	1/16 and 1/8	0.240	0.250	0.393	2.375	TM28BSPTCH
	19	1/4 and 3/8	0.310	0.312	0.580	3.000	TM19BSPTCH
	14	1/2 and 3/4	0.470	0.500	0.787	3.500	TM14BSPTCH
	11	1	0.620	0.625	1.546	4.000	TM11BSPTCH
m	28	1/16 and 1/8	5.97	6.00	9.98	58.00	TM28BSPTCHM
	19	1/4 and 3/8	9.91	10.00	14.73	84.00	TM19BSPTCHM
	14	1/2 and 3/4	11.94	12.00	20.00	84.00	TM14BSPTCHM
	11	1	15.75	16.00	32.31	93.00	TM11BSPTCHM

E: 46 - 49 E: 4 Weldon Flat

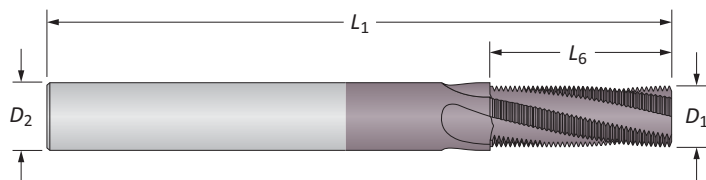
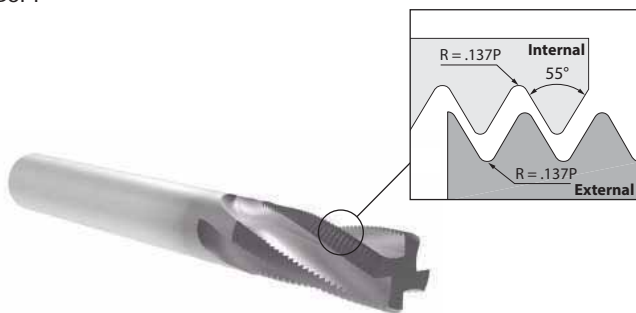
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = TM NK0500-NPT | Weldon shank flat = TW NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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



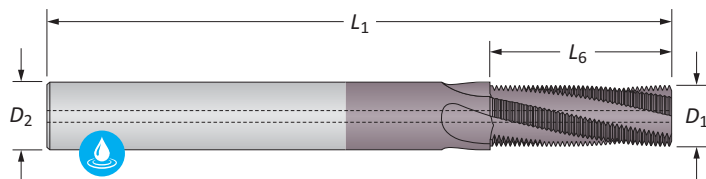
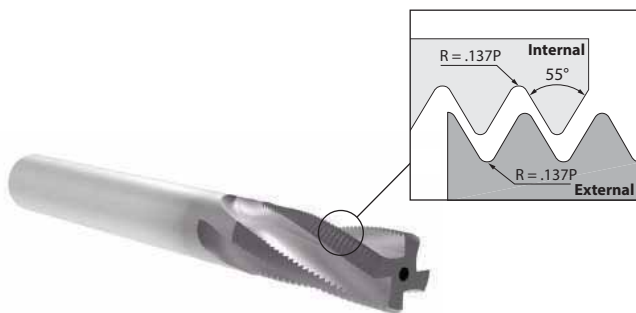
Solid Carbide Thread Mills

BSPP



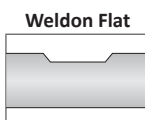
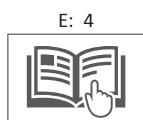
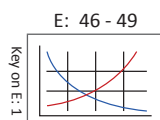
BSPP | Non-Coolant

	T ₂ (Pitch)	P _h T ₂ P _h	Flutes	T ₂ P _h P _h P _h				Part No.	
				D ₂	D ₁	L ₁	L ₆	ThreadMills USA	A ₂ T ₂ P _h P _h P _h
i	28	1/16 and 1/8	3	0.240	0.250	0.572	2.500	T ₂ P _h P _h P _h	A ₂ T ₂ P _h P _h P _h
	19	1/4 and 3/8	4	0.310	0.312	0.737	3.000	T ₂ P _h P _h P _h	A ₂ T ₂ P _h P _h P _h
	14	1/2 and 3/4	4	0.470	0.500	1.143	3.500	T ₂ P _h P _h P _h	A ₂ T ₂ P _h P _h P _h
	11	1	4	0.620	0.625	1.365	4.000	T ₂ P _h P _h P _h	A ₂ T ₂ P _h P _h P _h
m	28	1/16 and 1/8	3	5.97	6.00	14.53	58.00	T ₂ P _h P _h P _h	T ₂ B ₂ P _h P _h P _h
	19	1/4 and 3/8	4	9.91	10.00	18.72	73.00	T ₂ P _h P _h P _h	T ₂ B ₂ P _h P _h P _h
	19	3/8	4	11.94	12.00	28.41	84.00	HDTM19BSPPM	A ₂ T ₂ P _h P _h P _h
	14	1/2 and 3/4	4	11.94	12.00	29.03	84.00	T ₂ P _h P _h P _h	T ₂ B ₂ P _h P _h P _h
	14	3/4	5	15.75	16.00	34.47	93.00	HDTM14BSPPM	A ₂ T ₂ P _h P _h P _h
	11	1	4	15.75	16.00	34.67	93.00	T ₂ P _h P _h P _h	T ₂ B ₂ P _h P _h P _h



BSPP | Coolant Through

	T ₂ (Pitch)	P _h T ₂ P _h	Flutes	T ₂ P _h P _h P _h				Part No.
				D ₂	D ₁	L ₁	L ₆	ThreadMills USA
i	28	1/16 and 1/8	3	0.240	0.250	0.572	2.375	TM28BSPPCH
	19	1/4 and 3/8	4	0.310	0.312	0.737	3.000	TM19BSPPCH
	14	1/2 and 3/4	4	0.470	0.500	1.143	3.500	TM14BSPPCH
	11	1	4	0.620	0.625	1.365	4.000	TM11BSPPCH
m	28	1/16 and 1/8	3	5.97	6.00	14.53	58.00	TM28BSPPCHM
	19	1/4 and 3/8	4	9.91	10.00	18.72	84.00	TM19BSPPCHM
	14	1/2 and 3/4	4	11.94	12.00	29.03	84.00	TM14BSPPCHM
	11	1	4	15.75	16.00	34.67	93.00	TM11BSPPCHM



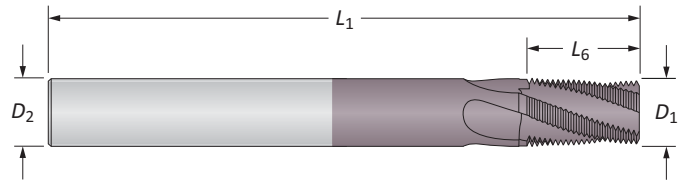
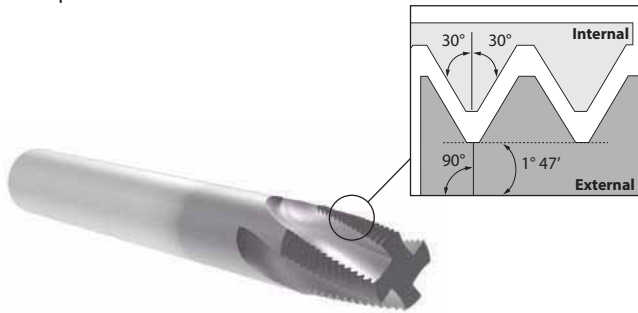
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = T₂ NK0500-NPT | Weldon shank flat = T₂ NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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

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

Solid Carbide Thread Mills

NPT | Non-Coolant



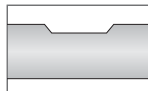
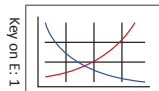
NPT | Non-Coolant

T ₂ (Pitch)	Pitch T ₂	Flutes	T ₂				Part No.	
			D ₂	D ₂	L ₂	L ₂	ThreadMills USA	A ₂ T ₂
27	1/16 and 1/8	3	0.245	0.250	0.437	2.500	T ₂ NPT	T ₂ NPT
27	1/8	4	0.300	0.312	0.482	3.000	HDTM27NPT	HDTMNK0125-NPT
18	1/4 and 3/8	4	0.305	0.312	0.625	3.000	T ₂ NPT	T ₂ NPT
18	1/4 and 3/8	4	0.363	0.375	0.680	3.500	HDTM18NPT	HDTMNK0250-NPT
i 14	1/2 and 3/4	4	0.495	0.500	0.875	3.500	T ₂ NPT	T ₂ NPT
14	3/4	4	0.620	0.625	1.000	4.000	HDTM14NPT	HDTMNK0750-NPT
11.5	1	4	0.620	0.625	1.125	4.000	T ₂ NPT	T ₂ NPT
11.5	1	5	0.745	0.750	1.219	4.000	HDTM11NPT	HDTMNK1000-NPT
8	2-1/2	4	0.745	0.750	1.500	5.000	T ₂ NPT	T ₂ NPT
27	1/16 and 1/8	3	5.95	6.00	11.30	58.00	T ₂ NPT	T ₂ NPT
27	1/8	4	7.62	8.00	12.25	64.00	HDTM27NPTM	
18	1/4 and 3/8	4	7.75	8.00	15.70	64.00	T ₂ NPT	T ₂ NPT
18	1/4 and 3/8	4	9.22	10.00	17.25	84.00	HDTM18NPTM	
m 14	1/2 and 3/4	4	11.95	12.00	23.70	84.00	T ₂ NPT	T ₂ NPT
14	3/4	4	15.75	16.00	25.40	93.00	HDTM14NPTM	
11.5	1	4	15.75	16.00	28.75	93.00	T ₂ NPT	T ₂ NPT
11.5	1	5	18.92	20.00	30.95	105.00	HDTM11NPTM	
8	2-1/2	5	19.75	20.00	38.10	115.00	T ₂ NPT	T ₂ NPT

E: 46 - 49

E: 4

Weldon Flat



To order a thread mill with a Weldon flat, replace the leading TM designer with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)

Example: Cylindrical shank = TW NK0500-NPT | Weldon shank flat = TW NK0500-NPT

NOTE: Weldon flats have a minimum order quantity of 2 pieces

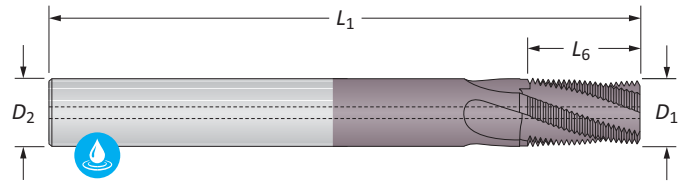
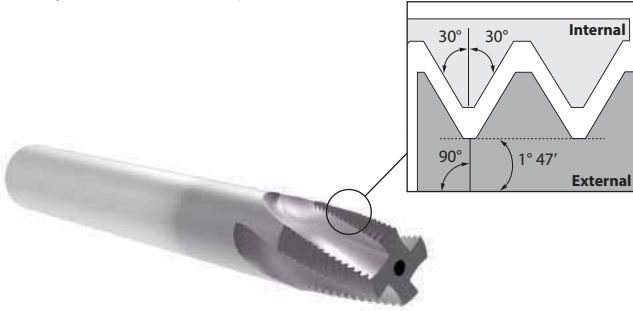
i = Imperial (in)

m = Metric (mm)



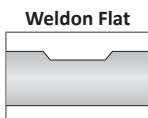
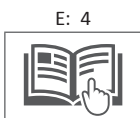
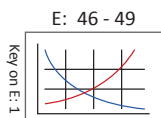
Solid Carbide Thread Mills

NPT | Coolant Through



NPT | Coolant Through

T ₂ (Pitch)	Pitch	Flutes	Type 1				Part No.	
			D ₂	D ₁	L ₁	L ₆		
i	27	1/16 and 1/8	3	0.245	0.250	0.437	2.375	TM27NPTCH
	27	1/8	4	0.300	0.312	0.482	3.000	HDTM27NPTCH
	18	1/4 and 3/8	4	0.305	0.312	0.625	3.000	TM18NPTCH
	18	1/4 and 3/8	4	0.363	0.375	0.680	3.000	HDTM18NPTCH
	14	1/2 and 3/4	4	0.495	0.500	0.875	3.500	TM14NPTCH
	14	3/4	4	0.620	0.625	1.000	4.000	HDTM14NPTCH
	11.5	1	4	0.620	0.625	1.125	4.000	TM11NPTCH
	11	1	5	0.745	0.750	1.219	4.000	HDTM11NPTCH
m	8	2-1/2	4	0.745	0.750	1.500	5.000	TM8NPTCH
	27	1/16 and 1/8	3	5.95	6.00	11.30	58.00	TM27NPTCHM
	27	1/8	4	7.62	8.00	12.25	64.00	HDTM27NPTCHM
	18	1/4 and 3/8	4	7.75	8.00	15.70	64.00	TM18NPTCHM
	18	1/4 and 3/8	4	9.22	10.00	17.25	84.00	HDTM18NPTCHM
	14	1/2 and 3/4	4	11.95	12.00	23.70	84.00	TM14NPTCHM
	14	3/4	4	15.75	16.00	25.40	93.00	HDTM14NPTCHM
	11.5	1	4	15.75	16.00	28.75	93.00	TM11NPTCHM
11.5	1	5	18.92	20.00	30.95	105.00	HDTM11NPTCHM	
8	2-1/2	5	19.75	20.00	38.10	115.00	TM8NPTCHM	

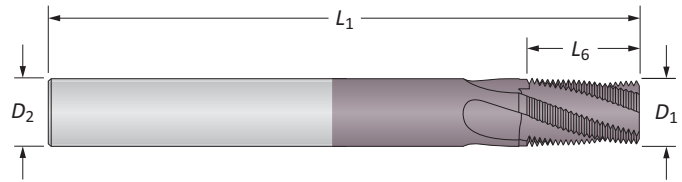
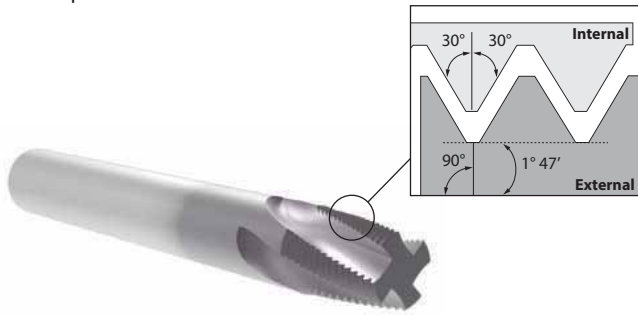


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = **TM** NK0500-NPT | Weldon shank flat = **TW** NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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

Solid Carbide Thread Mills

NPTF | Non-Coolant



NPTF | Non-Coolant

Pitch	Pitch	Flutes	Thread Mill				Part No.		
			D_2	D_1	L_1	L_6	ThreadMills USA	Part No.	
i	27	1/16 and 1/8	3	0.245	0.250	0.437	2.500	TM 00000000	TM 0000000000
	18	1/4 and 3/8	4	0.305	0.312	0.625	3.000	TM 00000000	TM 0000000000
	14	1/2 and 3/4	4	0.495	0.500	0.875	3.500	TM 00000000	TM 0000000000
	11.5	1	4	0.620	0.625	1.125	4.000	TM 00000000	TM 0000000000
	8	2-1/2	4	0.745	0.750	1.500	5.000	TM 00000000	TM 0000000000
m	27	1/16 and 1/8	3	5.95	6.00	11.30	58.00	TM 00000000	TM 0000000000
	18	1/4 and 3/8	4	7.75	8.00	15.70	64.00	TM 00000000	TM 0000000000
	14	1/2 and 3/4	4	11.95	12.00	23.70	84.00	TM 00000000	TM 0000000000
	11.5	1	4	15.75	16.00	28.75	93.00	TM 00000000	TM 0000000000
	8	2-1/2	5	19.75	20.00	38.10	115.00	TM 00000000	TM 0000000000

A DRILLING

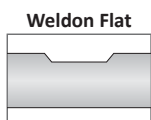
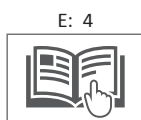
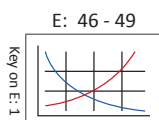
B BORING

C REAMING

D BURNISHING

E THREADING

X SPECIALS



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)

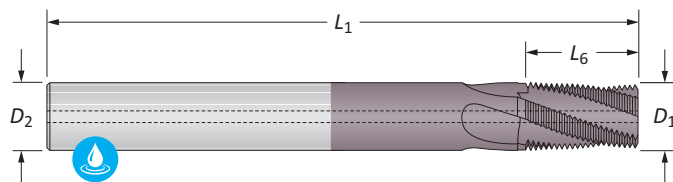
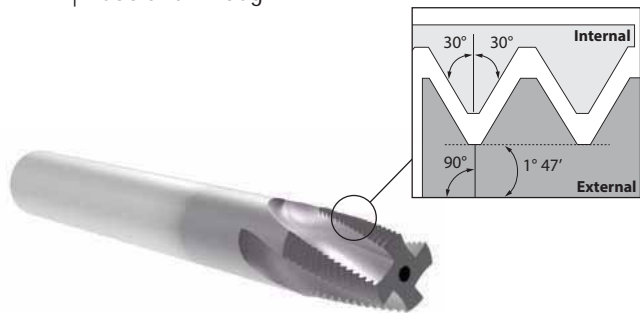
Example: Cylindrical shank = TM NK0500-NPT | Weldon shank flat = TW NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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




Solid Carbide Thread Mills

NPTF | Coolant Through



NPTF | Coolant Through

	T ₂ (Pitch)	T ₂	Flutes	T ₂				Part No. 
				D ₂	D ₂	L ₂	L ₂	
i	27	1/16 and 1/8	3	0.245	0.250	0.437	2.375	TM27NPTFCH
	18	1/4 and 3/8	4	0.305	0.312	0.625	3.000	TM18NPTFCH
	14	1/2 and 3/4	4	0.495	0.500	0.875	3.500	TM14NPTFCH
	11.5	1	4	0.620	0.625	1.125	4.000	TM11NPTFCH
	8	2-1/2	4	0.745	0.750	1.500	5.000	TM8NPTFCH
m	27	1/16 and 1/8	3	5.95	6.00	11.30	58.00	TM27NPTFCHM
	18	1/4 and 3/8	4	7.75	8.00	15.70	64.00	TM18NPTFCHM
	14	1/2 and 3/4	4	11.95	12.00	23.70	84.00	TM14NPTFCHM
	11.5	1	4	15.75	16.00	28.75	93.00	TM11NPTFCHM
	8	2-1/2	5	19.75	20.00	38.10	115.00	TM8NPTFCHM

A

DRILLING

B

BORING

C

REAMING

D

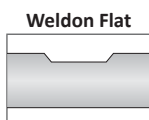
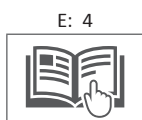
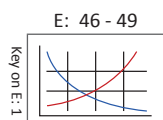
BURNISHING

E

THREADING

X

SPECIALS

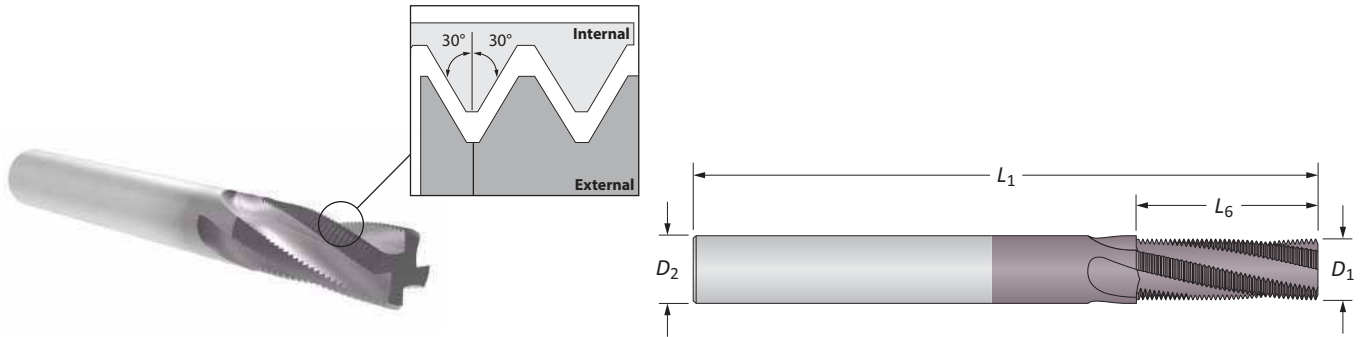


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = **TW** NK0500-NPT | Weldon shank flat = **TW** NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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

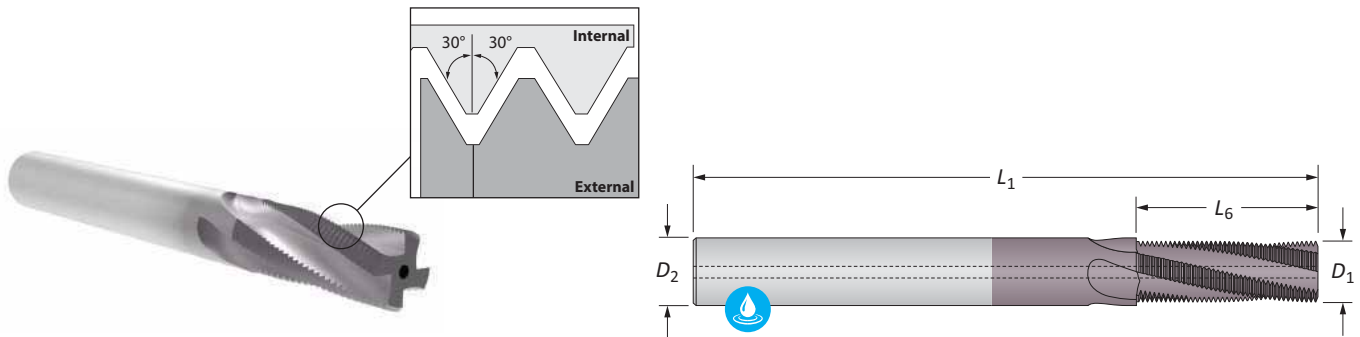
Solid Carbide Thread Mills

NPS



NPS | Non-Coolant

Pitch	Pitch	Flutes	Thread				Part No.
			D_2	D_1	L_1	L_6	
i	27	1/8	0.245	0.250	0.630	2.500	TM 27NPS
	18	1/4 and 3/8	0.370	0.375	0.889	3.500	TM 18NPS
	14	1/2 and 3/4	0.490	0.500	1.288	3.500	TM 14NPS
	11.5	1	0.620	0.625	1.392	4.000	TM 11NPS
m	27	1/8	5.95	6.00	16.00	58.00	TM 27NPSM
	18	1/4 and 3/8	9.40	10.00	22.60	84.00	TM 18NPSM
	14	1/2 and 3/4	11.94	12.00	32.70	84.00	TM 14NPSM
	11.5	1	15.75	16.00	35.35	93.00	TM 11NPSM



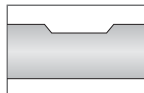
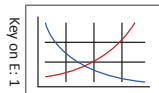
NPS | Coolant Through

Pitch	Pitch	Flutes	Thread				Part No.
			D_2	D_1	L_1	L_6	
i	27	1/8	0.245	0.250	0.630	2.375	TM27NPSCH
	18	1/4 and 3/8	0.370	0.375	0.889	3.000	TM18NPSCH
	14	1/2 and 3/4	0.490	0.500	1.288	3.500	TM14NPSCH
	11.5	1	0.620	0.625	1.392	4.000	TM11NPSCH
m	27	1/8	5.95	6.00	16.00	58.00	TM27NPSCHM
	18	1/4 and 3/8	9.40	10.00	22.60	84.00	TM18NPSCHM
	14	1/2 and 3/4	11.94	12.00	32.70	84.00	TM14NPSCHM
	11.5	1	15.75	16.00	35.35	93.00	TM11NPSCHM

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E: 4

Weldon Flat

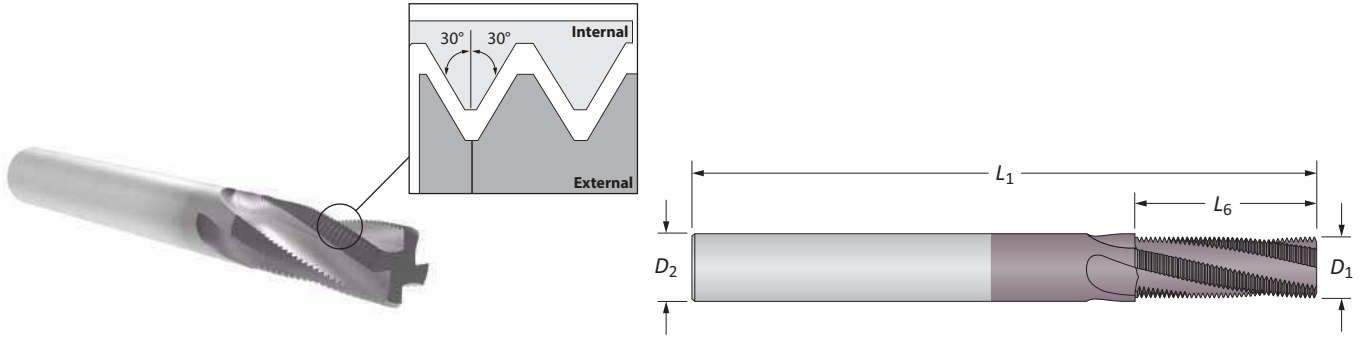


To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = TW NK0500-NPT | Weldon shank flat = TW NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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

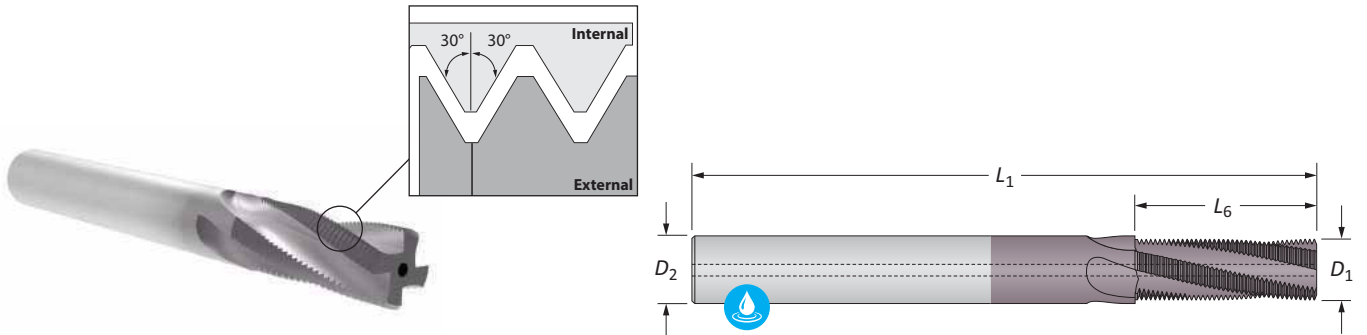
Solid Carbide Thread Mills

NPSF



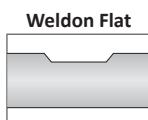
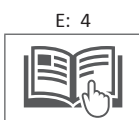
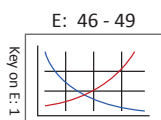
NPSF | Non-Coolant

	T ₂ (Pitch)	Pitch	Flutes	T ₂ (Pitch)				Part No. ThreadMills USA
				D ₂	D ₁	L ₁	L ₆	
i	27	1/8	3	0.245	0.250	0.630	2.500	TM27NPSF
	18	1/4 and 3/8	4	0.370	0.375	0.889	3.500	TM18NPSF
	14	1/2 and 3/4	4	0.490	0.500	1.288	3.500	TM14NPSF
	11.5	1	4	0.620	0.625	1.392	4.000	TM11NPSF
m	27	1/8	3	5.95	6.00	16.00	58.00	TM27NPSFM
	18	1/4 and 3/8	4	9.40	10.00	22.60	84.00	TM18NPSFM
	14	1/2 and 3/4	4	11.94	12.00	32.70	84.00	TM14NPSFM
	11.5	1	4	15.75	16.00	35.35	93.00	TM11NPSFM



NPSF | Coolant Through

	T ₂ (Pitch)	Pitch	Flutes	T ₂ (Pitch)				Part No. ThreadMills USA
				D ₂	D ₁	L ₁	L ₆	
i	27	1/8	3	0.245	0.250	0.630	2.375	TM27NPSFCH
	18	1/4 and 3/8	4	0.370	0.375	0.889	3.000	TM18NPSFCH
	14	1/2 and 3/4	4	0.490	0.500	1.288	3.500	TM14NPSFCH
	11.5	1	4	0.620	0.625	1.392	4.000	TM11NPSFCH
m	27	1/8	3	5.95	6.00	16.00	58.00	TM27NPSFCHM
	18	1/4 and 3/8	4	9.40	10.00	22.60	84.00	TM18NPSFCHM
	14	1/2 and 3/4	4	11.94	12.00	32.70	84.00	TM14NPSFCHM
	11.5	1	4	15.75	16.00	35.35	93.00	TM11NPSFCHM



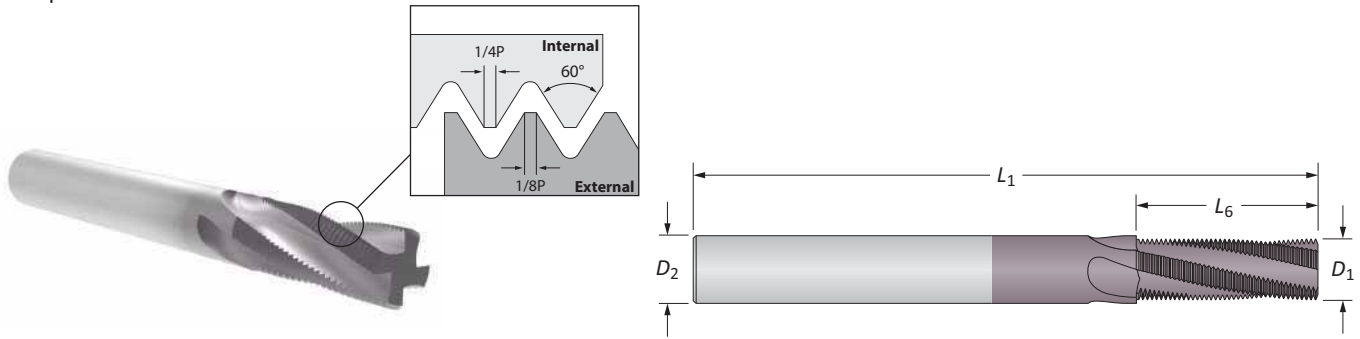
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = TW NK0500-NPT | Weldon shank flat = TW NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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

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

Solid Carbide Thread Mills

UN | Non-Coolant



UN | Non-Coolant

Pitch (T)	Pitch (P)	Flutes	Dimensions (in)				Part No.	
			D ₂	D ₁	L ₁	L ₆	ThreadMills USA	Part No.
64	#2	3*	0.065	0.125	0.125	2.000	TMUK0002-64	TMUK0002-64
56	#2	3*	0.065	0.125	0.125	2.000	TMUK0002-56	TMUK0002-56
48	#3	3*	0.075	0.125	0.167	2.000	TMUK0003-48	TMUK0003-48
44	#5	3	0.095	0.125	0.228	2.000	TMUK0005-44	TMUK0005-44
40	#4	3*	0.085	0.125	0.175	2.000	TMUK0004-40	TMUK0004-40
36	#8	3	0.115	0.125	0.250	2.000	TMUK0008-36	TMUK0008-36
32	#6	3	0.100	0.125	0.218	2.000	TMUK0006-32	TMUK0006-32
32	#8	3	0.115	0.125	0.250	2.000	TMUK0008-32	TMUK0008-32
32	#10	3	0.120	0.125	0.312	2.000	TMUK0010-32	TMUK0010-32
32	#10	3	0.150	0.187	0.312	2.500	HDTM19032	TMUK0010-32
32	1/2	6	0.370	0.375	1.000	3.500	TMUK0025-32	TMUK0025-32
28	#10	3	0.120	0.125	0.312	2.000	TMUK0010-28	TMUK0010-28
28	1/4	3	0.180	0.187	0.500	2.500	TMUK0250-28	TMUK0250-28
28	1/2	6	0.370	0.375	1.000	3.500	TMUK0025-28	TMUK0025-28
24	#10	3	0.120	0.125	0.312	2.000	TMUK0010-24	TMUK0010-24
24	#10	3	0.145	0.187	0.312	2.500	HDTM19024	TMUK0010-24
24	5/16	3	0.235	0.250	0.625	2.500	TMUK0313-24	TMUK0313-24
24	3/8	4	0.285	0.312	0.750	3.000	TMUK0375-24	TMUK0375-24
24	1/2	6	0.370	0.375	1.000	3.500	TMUK0025-24	TMUK0025-24
20	1/4	3	0.180	0.187	0.500	2.500	TMUK0250-20	TMUK0250-20
20	1/4	3	0.195	0.250	0.500	2.500	HDTM25020	TMUK0250-20
20	7/16	4	0.335	0.375	0.875	3.500	TMUK0438-20	TMUK0438-20
20	1/2	6	0.370	0.375	1.000	3.500	TMUK0025-20	TMUK0025-20

*Straight fluted

E THREADING

X SPECIALS

E: 46 - 49

E: 4

Weldon Flat

To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)

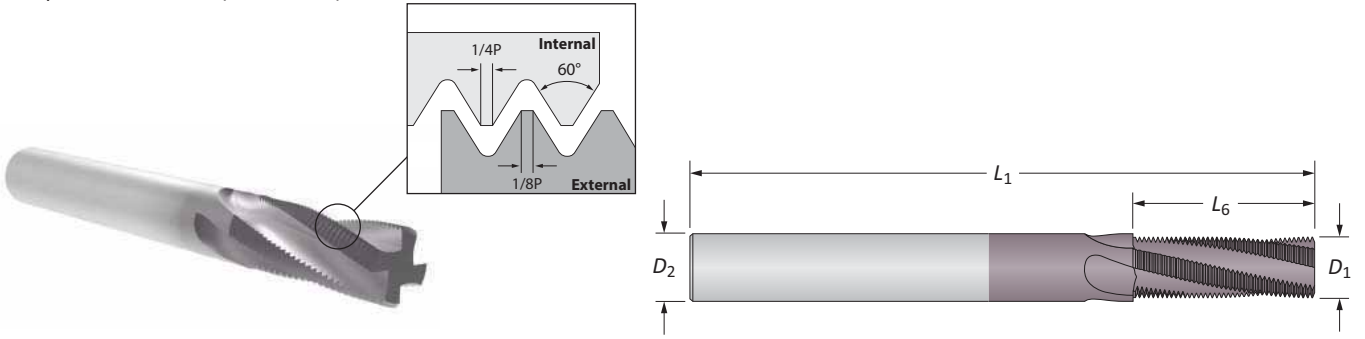
Example: Cylindrical shank = TW NK0500-NPT | Weldon shank flat = TW NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

Ⓜ = Imperial (in)
 Ⓜ = Metric (mm)



Solid Carbide Thread Mills

UN | Non-Coolant (continued)



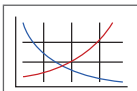
UN | Non-Coolant

Pitch (Pitch)	Pitch (Pitch)	Flutes	Thread Mill				Part No.	
			D_2	D_1	L_1	L_6	ThreadMills USA	Part No.
18	5/16	3	0.235	0.250	0.625	2.500	TM 00000	TMUK0313-18
18	5/16	3	0.245	0.312	0.625	3.000	HDTM31218	
18	9/16	4	0.370	0.375	0.875	3.500	TM 00000	TMUK0563-18
16	3/8	4	0.285	0.312	0.750	3.000	TM 00000	TMUK0375-16
16	3/8	4	0.300	0.375	0.750	3.500	HDTM37516	
16	3/4	4	0.490	0.500	1.250	3.500	TM 00000	TMUK0750-16
14	7/16	4	0.305	0.312	0.750	3.000	TM 00000	TMUK0438-14
14	7/8	4	0.490	0.500	1.250	3.500	TM 00000	TMUK0875-14
13	1/2	4	0.350	0.375	0.875	3.500	TM 00000	TMUK0500-13
13	1/2	4	0.400	0.500	0.875	3.500	HDTM50013	
12	9/16	4	0.370	0.375	0.875	3.500	TM 00000	TMUK0563-12
12	3/4	4	0.495	0.500	1.250	3.500	TM 00000	TMUK0750-12
12	1	6	0.745	0.750	1.500	4.000	TM 00000	
11	5/8	4	0.470	0.500	1.250	3.500	TM 00000	TMUK0625-11
11	5/8	4	0.470	0.500	1.455	3.500	TM 00000XL	TMUK0625-11XL
10	3/4	4	0.495	0.500	1.250	3.500	TM 00000	TMUK0750-10
10	3/4	4	0.495	0.500	1.600	4.000	TM 00000XL	TMUK0750-10XL
9	7/8	4	0.620	0.625	1.375	4.000	TM 00000	TMUK0875-9
9	7/8	4	0.620	0.625	1.778	4.000	TM 00000XL	TMUK0875-9XL
8	1	4	0.620	0.625	1.375	4.000	TM 00000	TMUK1000-8
8	1	6	0.745	0.750	2.000	4.500	TM 00000XL	TMUK1000-8XL
7	1-1/8	5	0.745	0.750	1.572	4.500	TM 00000	
6	1-3/8	5	0.745	0.750	1.500	4.500	TM 00000	

i

Key on E: 1

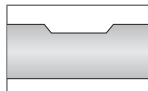
E: 46 - 49



E: 4



Weldon Flat



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)

Example: Cylindrical shank = TM NK0500-NPT | Weldon shank flat = TW NK0500-NPT

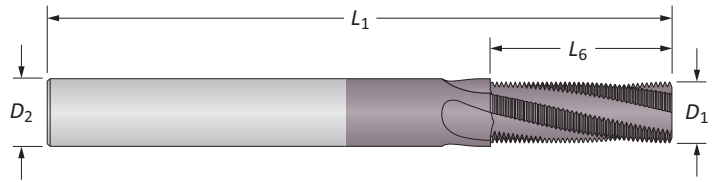
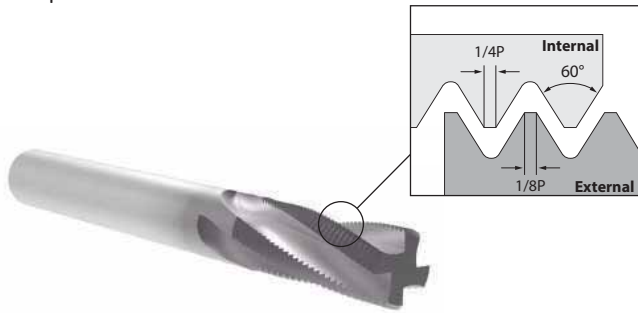
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)

m = Metric (mm)

Solid Carbide Thread Mills

UN | Non-Coolant



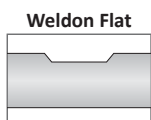
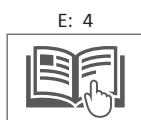
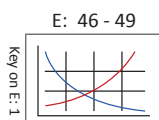
UN | Non-Coolant

T ₂ (Pitch)	P T ₂	Flutes	T ₂				Part No.	
			D ₂	D ₁	L ₁	L ₂	ThreadMills USA	A ₂ T ₂
64	#2	3*	1.65	3.00	3.20	39.00	T ₂	TMUK0002-64M
56	#2	3*	1.65	3.00	3.20	39.00	T ₂	TMUK0002-56M
48	#3	3*	1.80	3.00	3.75	39.00	T ₂	TMUK0003-48M
44	#5	3	2.40	3.00	4.65	39.00	T ₂	TMUK0005-44M
40	#4	3*	2.20	3.00	4.45	39.00	T ₂	TMUK0004-40M
36	#8	3	3.00	4.00	6.35	51.00	T ₂	TMUK0008-36M
32	#6	3	2.50	3.00	5.55	39.00	T ₂	TMUK0006-32M
32	#8	3	3.20	4.00	6.35	51.00	T ₂	TMUK0008-32M
32	#10	3	3.80	4.00	7.95	51.00	T ₂	TMUK0010-32M
32	#10	3	3.80	4.00	7.95	51.00	HDTM19032M	
32	1/2	6	9.40	10.00	25.40	84.00	T ₂	
28	#10	3	3.80	4.00	8.20	51.00	T ₂	TMUK0010-28M
28	1/4	3	4.75	6.00	12.70	58.00	T ₂	TMUK0250-28M
28	7/16	4	7.90	8.00	19.95	64.00		TMUK0438-28M
28	1/2	6	9.40	10.00	25.40	84.00	T ₂	
24	#10	3	3.70	4.00	8.50	51.00	T ₂	TMUK0010-24M
24	#10	3	3.70	4.00	8.50	51.00	HDTM19024M	TMUK0313-24M
24	5/16	3	5.95	6.00	16.00	58.00	T ₂	TMUK0375-24M
24	3/8	4	7.25	8.00	19.00	64.00	T ₂	
24	1/2	6	9.40	10.00	25.40	84.00	T ₂	
20	1/4	3	4.75	6.00	12.70	58.00	T ₂	TMUK0250-20M
20	1/4	3	4.95	6.00	12.70	58.00	HDTM25020M	
20	7/16	4	8.75	10.00	22.85	73.00	T ₂	TMUK0438-20M
20	1/2	6	9.40	10.00	25.40	84.00	T ₂	

*Straight fluted

E THREADING

X SPECIALS



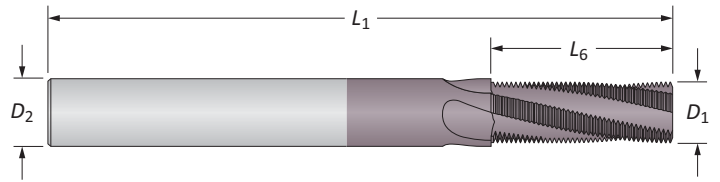
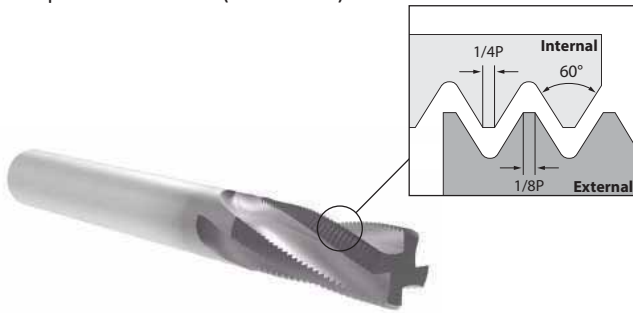
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
E: Cylindrical shank = **T** NK0500-NPT | Weldon shank flat = **T** NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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



Solid Carbide Thread Mills

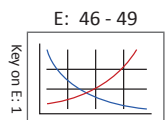
UN | Non-Coolant (continued)



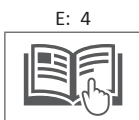
UN | Non-Coolant

Pitch	Pitch	Flutes	Thread Mill				Part No.	
			D ₂	D ₁	L ₁	L ₆	ThreadMills USA	Part No.
18	5/16	3	5.95	6.00	17.00	58.00	TMUK0313-18M	TMUK0313-18M
18	5/16	3	6.22	8.00	15.87	64.00	HDTM31218M	TMUK0313-18M
18	9/16	4	9.90	10.00	22.65	73.00	TMUK0563-18M	TMUK0563-18M
16	3/8	4	7.25	8.00	19.05	64.00	TMUK0375-16M	TMUK0375-16M
16	3/8	4	7.62	10.00	19.05	84.00	HDTM37516M	TMUK0375-16M
16	3/4	4	11.95	12.00	31.75	84.00	TMUK0750-16M	TMUK0750-16M
14	7/16	4	7.75	8.00	20.00	64.00	TMUK0438-14M	TMUK0438-14M
14	7/8	4	11.95	12.00	32.70	84.00	TMUK0875-14M	TMUK0875-14M
13	1/2	4	9.40	10.00	23.50	73.00	TMUK0500-13M	TMUK0500-13M
13	1/2	4	10.16	12.00	23.50	84.00	HDTM50013M	TMUK0500-13M
12	9/16	4	9.90	10.00	23.35	73.00	TMUK0563-12M	TMUK0563-12M
12	3/4	4	11.95	12.00	31.75	84.00	TMUK0750-12M	TMUK0750-12M
12	1	6	18.92	20.00	38.10	105.00	TMUK1000-12M	TMUK1000-12M
11	5/8	4	11.95	12.00	32.40	84.00	TMUK0625-11M	TMUK0625-11M
11	5/8	4	11.95	12.00	37.00	100.00	TMUK0625-11XLM	TMUK0625-11XLM
10	3/4	4	11.95	12.00	33.00	84.00	TMUK0750-10M	TMUK0750-10M
10	3/4	4	11.95	12.00	40.70	100.00	TMUK0750-10XLM	TMUK0750-10XLM
9	7/8	4	15.75	16.00	36.75	93.00	TMUK0875-9M	TMUK0875-9M
9	7/8	4	15.75	16.00	45.20	100.00	TMUK0875-9XLM	TMUK0875-9XLM
8	1	4	15.75	16.00	35.00	93.00	TMUK1000-8M	TMUK1000-8M
8	1	6	19.90	20.00	50.80	115.00	TMUK1000-8XLM	TMUK1000-8XLM
7	1-1/8	5	19.90	20.00	36.30	105.00	TMUK1125-7M	TMUK1125-7M
6	1-3/8	5	19.90	20.00	38.10	105.00	TMUK1375-6M	TMUK1375-6M

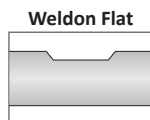
mm



E: 46 - 49



E: 4



Weldon Flat

To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)

Example: Cylindrical shank = TM NK0500-NPT | Weldon shank flat = TW NK0500-NPT

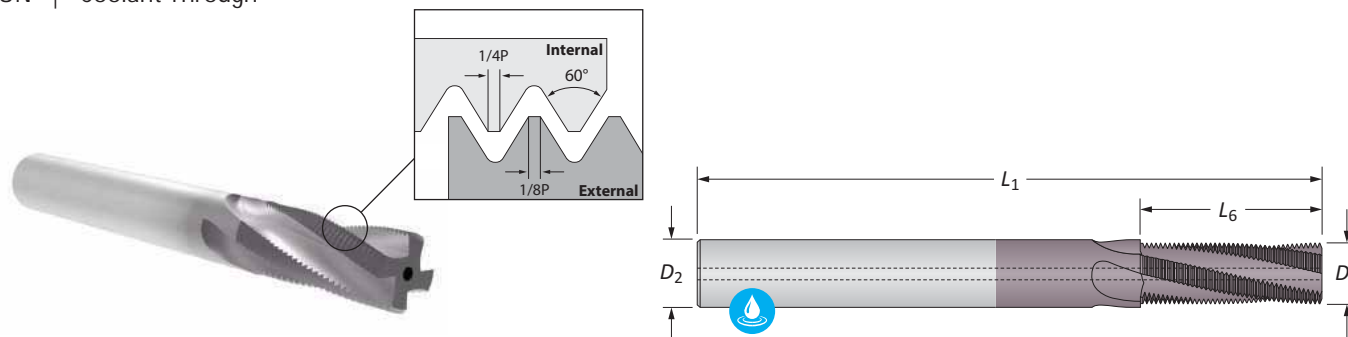
NOTE: Weldon flats have a minimum order quantity of 2 pieces

I = Imperial (in)

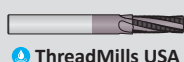
M = Metric (mm)

Solid Carbide Thread Mills

UN | Coolant Through

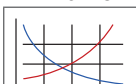


UN | Coolant Through


T ₂ (Pitch)	F ₂ Flutes	D ₂	T ₂ P ₂ P ₂ P ₂ P ₂ P ₂				Part No. 
			D ₂	L ₂	L ₂	L ₂	
64	#2	3*	0.065	0.125	0.125	1.500	TM08664CH
56	#2	3*	0.065	0.125	0.125	1.500	TM08656CH
48	#3	3*	0.075	0.125	0.167	1.500	TM09948CH
44	#5	3	0.095	0.125	0.228	1.500	TM12544CH
40	#4	3*	0.085	0.125	0.175	1.500	TM12540CH
36	#8	3	0.115	0.125	0.250	1.500	TM16436CH
32	#6	3	0.100	0.125	0.218	1.500	TM13832CH
32	#8	3	0.115	0.125	0.250	1.500	TM16432CH
32	#10	3	0.150	0.187	0.312	2.375	TM19032CH
32	#10	3	0.150	0.187	0.312	2.375	HDTM19032CH
32	1/2	6	0.370	0.375	1.000	3.500	TM50032CH
i 28	#10	3	0.120	0.125	0.312	1.500	TM19028CH
28	1/4	3	0.180	0.187	0.500	2.375	TM25028CH
28	1/2	6	0.370	0.375	1.000	3.500	TM50028CH
24	#10	3	0.145	0.187	0.312	2.375	TM19024CH
24	#10	3	0.145	0.187	0.312	2.375	HDTM19024CH
24	5/16	3	0.235	0.250	0.625	2.375	TM31224CH
24	3/8	4	0.285	0.312	0.750	3.000	TM37524CH
24	1/2	6	0.370	0.375	1.000	3.500	TM50024CH
20	1/4	3	0.180	0.187	0.500	2.375	TM25020CH
20	1/4	3	0.195	0.250	0.500	2.375	HDTM25020CH
20	7/16	4	0.335	0.375	0.875	3.000	TM43720CH
20	1/2	6	0.370	0.375	1.000	3.500	TM50020CH

*Straight fluted

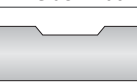
E: 46 - 49



E: 4



Weldon Flat



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)

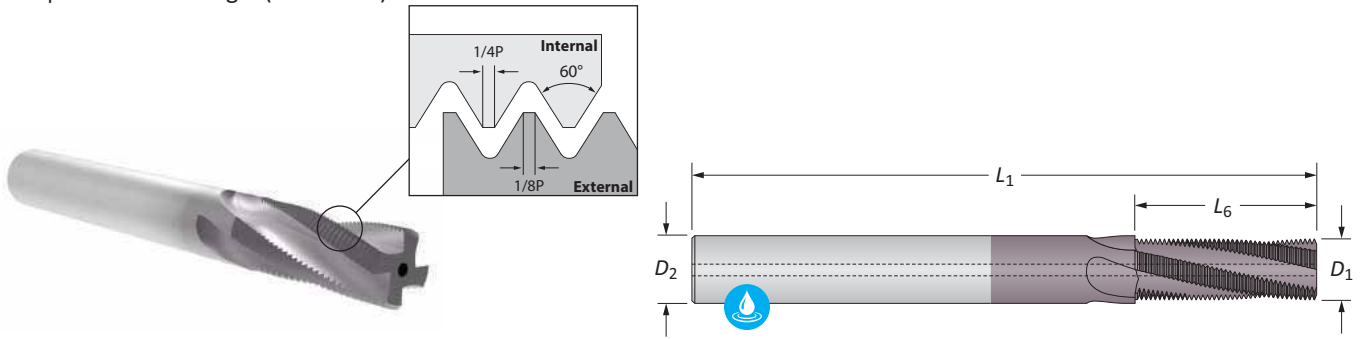
Example: Cylindrical shank = **TW** NK0500-NPT | Weldon shank flat = **TW** NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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

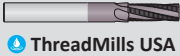


Solid Carbide Thread Mills

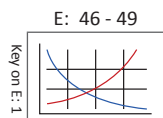
UN | Coolant Through (continued)



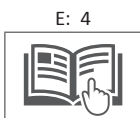
UN | Coolant Through

T ₂ (Pitch)	P _h (Pitch)	Flutes	T ₂ P _h L ₂ L ₆				Part No. 
			D ₂	D ₆	L ₂	L ₆	
18	5/16	3	0.235	0.250	0.625	2.375	TM31218CH
18	5/16	3	0.245	0.312	0.625	3.000	HDTM31218CH
18	9/16	4	0.370	0.375	0.875	3.000	TM56218CH
16	3/8	4	0.285	0.312	0.750	3.000	TM37516CH
16	3/8	4	0.300	0.375	0.750	3.000	HDTM37516CH
16	3/4	4	0.490	0.500	1.250	3.500	TM75016CH
14	7/16	4	0.305	0.312	0.750	3.000	TM43714CH
14	7/8	4	0.490	0.500	1.250	3.500	TM87514CH
13	1/2	4	0.350	0.375	0.875	3.000	TM50013CH
13	1/2	4	0.400	0.500	0.875	3.500	HDTM50013CH
12	9/16	4	0.370	0.375	0.875	3.500	TM56212CH
12	3/4	4	0.495	0.500	1.250	3.500	TM75012CH
12	1	6	0.745	0.750	1.500	4.000	TM10012CH
11	5/8	4	0.470	0.500	1.250	3.500	TM62511CH
11	5/8	4	0.470	0.500	1.455	3.500	TM62511CH-XL
10	3/4	4	0.495	0.500	1.250	3.500	TM75010CH
10	3/4	4	0.495	0.500	1.600	4.000	TM75010CH-XL
9	7/8	4	0.620	0.625	1.375	4.000	TM87509CH
9	7/8	4	0.620	0.625	1.778	4.000	TM87509CH-XL
8	1	4	0.620	0.625	1.375	4.000	TM10008CH
8	1	6	0.745	0.750	2.000	4.500	TM10008CH-XL
7	1-1/8	5	0.745	0.750	1.572	4.500	TM12507CH
6	1-3/8	5	0.745	0.750	1.500	4.500	TM13706CH

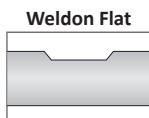
i



E: 46 - 49



E: 4



Weldon Flat

To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)

Example: Cylindrical shank = TW NK0500-NPT | Weldon shank flat = TW NK0500-NPT

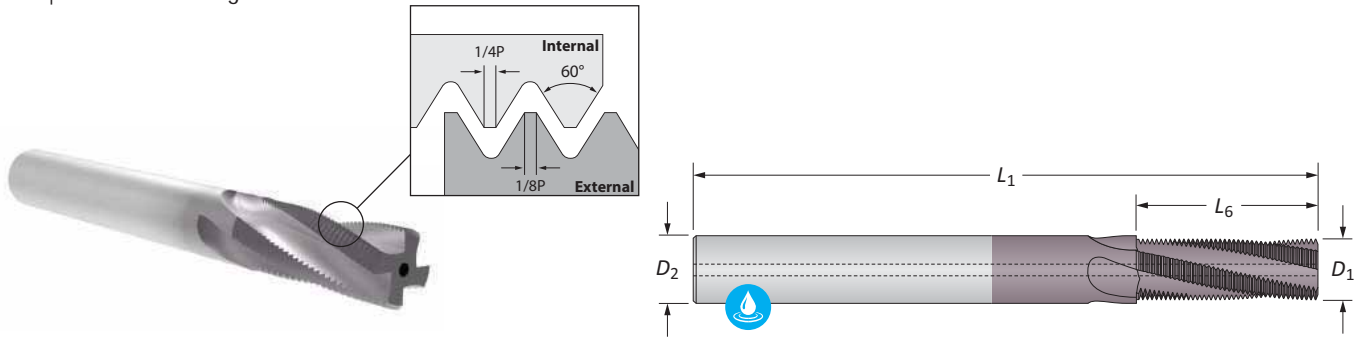
NOTE: Weldon flats have a minimum order quantity of 2 pieces

i = Imperial (in)

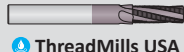
m = Metric (mm)

Solid Carbide Thread Mills

UN | Coolant Through



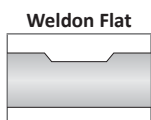
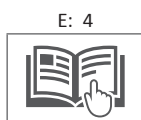
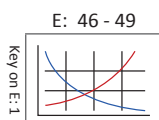
UN | Coolant Through

T ₂ (Pitch)	T ₂ #	Flutes	T ₂ L ₂ L ₂ L ₂				Part No. 
			D ₂	D ₂	L ₂	L ₂	
64	#2	3*	1.65	3.00	3.20	39.00	TM08664CHM
56	#2	3*	1.65	3.00	3.20	39.00	TM08656CHM
48	#3	3*	1.80	3.00	3.75	39.00	TM09948CHM
44	#5	3	2.40	3.00	4.65	39.00	TM12544CHM
40	#4	3*	2.20	3.00	4.45	39.00	TM12540CHM
36	#8	3	3.00	4.00	6.35	51.00	TM16436CHM
32	#6	3	2.50	3.00	5.55	39.00	TM13832CHM
32	#8	3	3.20	4.00	6.35	51.00	TM16432CHM
32	#10	3	3.80	4.00	7.95	51.00	TM19032CHM
32	#10	3	3.80	4.00	7.95	51.00	HDTM19032CHM
32	1/2	6	9.40	10.00	25.40	84.00	TM50032CHM
m 28	#10	3	3.80	4.00	8.20	51.00	TM19028CHM
28	1/4	3	4.75	6.00	12.70	58.00	TM25028CHM
28	1/2	6	9.40	10.00	25.40	84.00	TM50028CHM
24	#10	3	3.68	4.00	8.50	51.00	TM19024CHM
24	#10	3	3.70	4.00	8.50	51.00	HDTM19024CHM
24	5/16	3	5.95	6.00	16.00	58.00	TM31224CHM
24	3/8	4	7.25	8.00	19.00	64.00	TM37524CHM
24	1/2	6	9.40	10.00	25.40	84.00	TM50024CHM
20	1/4	3	4.75	6.00	12.70	58.00	TM25020CHM
20	1/4	3	4.95	6.00	12.70	58.00	HDTM25020CHM
20	7/16	4	8.75	10.00	22.85	84.00	TM43720CHM
20	1/2	6	9.40	10.00	25.40	84.00	TM50020CHM

*Straight fluted

E THREADING

X SPECIALS



To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)

Example: Cylindrical shank = TW NK0500-NPT | Weldon shank flat = TW NK0500-NPT

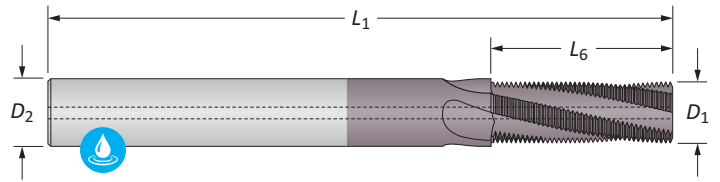
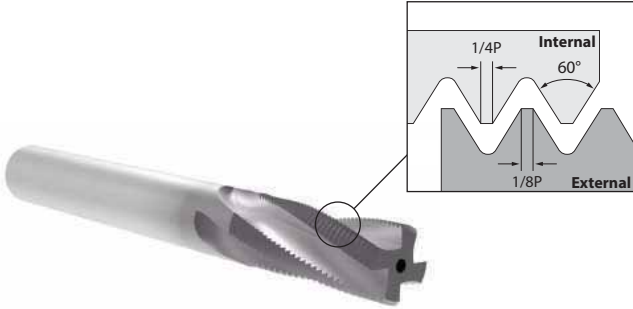
NOTE: Weldon flats have a minimum order quantity of 2 pieces

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



Solid Carbide Thread Mills

UN | Coolant Through (continued)



UN | Coolant Through

T ₂ (Pitch)	P _h (Pitch)	Flutes	D ₂	T ₂ P _h L ₁ L ₆			Part No. ThreadMills USA
				D ₂	L ₁	L ₆	
18	5/16	3	5.95	6.00	17.00	58.00	TM31218CHM
18	5/16	3	6.22	8.00	15.87	64.00	HDTM31218CHM
18	9/16	4	9.90	10.00	22.65	84.00	TM56218CHM
16	3/8	4	7.25	8.00	19.05	64.00	TM37516CHM
16	3/8	4	7.62	10.00	19.05	84.00	HDTM37516CHM
16	3/4	4	11.95	12.00	31.75	84.00	TM75016CHM
14	7/16	4	7.75	8.00	20.00	64.00	TM43714CHM
14	7/8	4	11.95	12.00	32.70	84.00	TM87514CHM
13	1/2	4	9.40	10.00	23.50	84.00	TM50013CHM
13	1/2	4	10.16	12.00	23.50	84.00	HDTM50013CHM
12	9/16	4	9.90	10.00	23.35	84.00	TM56212CHM
12	3/4	4	11.95	12.00	31.75	84.00	TM75012CHM
12	1	6	18.92	20.00	38.10	105.00	TM10012CHM
11	5/8	4	11.95	12.00	32.40	84.00	TM62511CHM
11	5/8	4	11.95	12.00	37.00	100.00	TM62511CHM-XL
10	3/4	4	11.95	12.00	33.00	84.00	TM75010CHM
10	3/4	4	11.95	12.00	40.70	100.00	TM75010CHM-XL
9	7/8	4	15.75	16.00	36.75	93.00	TM87509CHM
9	7/8	4	15.75	16.00	45.20	100.00	TM87509CHM-XL
8	1	4	15.75	16.00	35.00	93.00	TM10008CHM
8	1	6	19.90	20.00	50.80	115.00	TM10008CHM-XL
7	1-1/8	5	19.90	20.00	36.10	105.00	TM12507CHM
6	1-3/8	5	19.90	20.00	38.10	105.00	TM13706CHM

m

E: 46 - 49

Key on E: 1

E: 4

Weldon Flat

To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)

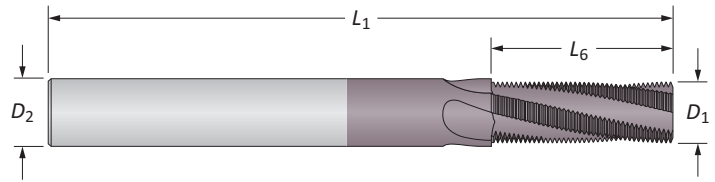
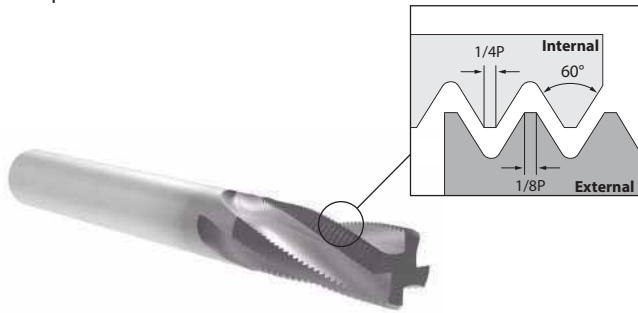
Example: Cylindrical shank = TW NK0500-NPT | Weldon shank flat = TW NK0500-NPT

NOTE: Weldon flats have a minimum order quantity of 2 pieces

Ⓜ = Imperial (in)
Ⓜ = Metric (mm)

Solid Carbide Thread Mills

ISO | Non-Coolant



ISO | Non-Coolant

Pitch	Pitch	Flutes	Tapered Flute				Part No.	
			D_2	D_1	L_1	L_6	ThreadMills USA	AMT ThreadMills
0.40	M2	3*	0.059	0.125	0.126	2.000	TM 00000	?
0.45	M2.5	3*	0.059	0.125	0.142	2.000	TM 00000	?
0.50	M3	3*	0.085	0.125	0.178	2.000	TM 00000	?
0.50	M6	3	0.181	0.187	0.473	2.500	TM 00000	?
0.50	M10	4	0.310	0.312	0.591	3.000	TM 00000	?
0.70	M4	3	0.115	0.125	0.276	2.000	TM 00000	?
0.75	M4.5	3	0.120	0.125	0.266	2.000	TM 00000	TM 0 00000000
0.75	M8	3	0.235	0.250	0.625	2.500	TM 00000	TM 0 00000000
0.75	M10	4	0.310	0.312	0.591	3.000	TM 00000	?
0.80	M5	3	0.120	0.125	0.312	2.000	TM 00000	TM 0 00000000
1.00	M6	3	0.170	0.187	0.500	2.500	TM 00000	TM 0 00000000
1.00	M12	4	0.360	0.375	0.875	3.500	TM 00000	TM 0 00000000
1.25	M8	3	0.235	0.250	0.625	2.500	TM 00000	TM 0 00000000
1.50	M10	4	0.300	0.312	0.750	3.000	TM 00000	TM 0 00000000
1.50	M14	4	0.370	0.375	0.875	3.500	TM 00000	TM 0 00000000
1.50	M18	4	0.490	0.500	1.250	3.500	TM 00000	TM 0 00000000
1.50	M20	5	0.620	0.625	1.418	4.000	TM 00000	?
1.75	M12	4	0.360	0.375	0.875	3.500	TM 00000	TM 0 00000000
2.00	M14	4	0.429	0.500	1.103	3.500	TM 00000	?
2.00	M16	4	0.470	0.500	1.250	3.500	TM 00000	TM 0 00000000
2.50	M20	4	0.495	0.500	1.250	3.500	TM 00000	TM 0 00000000
3.00	M24	4	0.620	0.625	1.375	4.000	TM 00000	TM 0 00000000
3.50	M30	4	0.620	0.625	1.516	4.000	TM 00000	?
4.00	M36	5	0.745	0.750	1.575	4.500	TM 00000	?

*Straight fluted

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

E: 46 - 49 E: 4 Weldon Flat

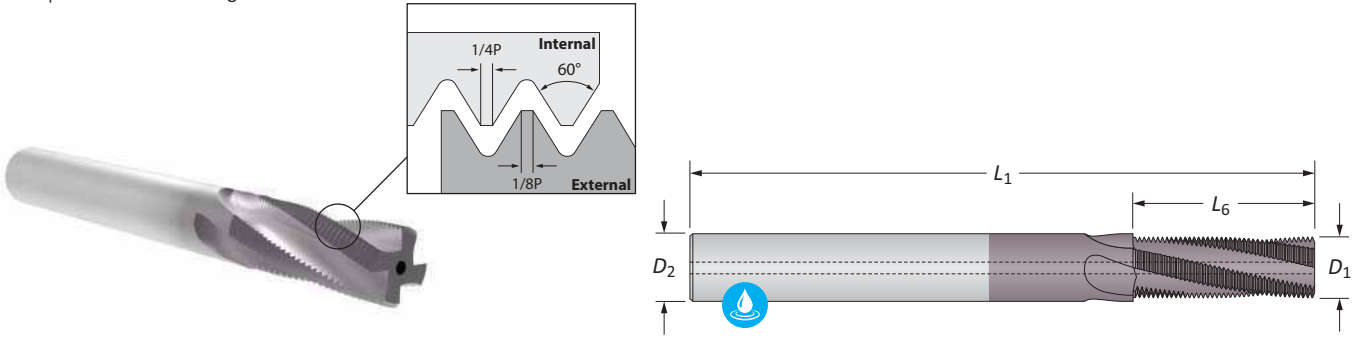
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = **TM** NK0500-NPT | Weldon shank flat = **TW** NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

ⓘ = Imperial (in)
 ⓘ = Metric (mm)



Solid Carbide Thread Mills

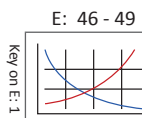
ISO | Coolant Through



ISO | Coolant Through

Pitch	 T	Flutes					 Part No.
			D_2	D_1	L_1	L_6	
0.40	M2	3*	0.059	0.125	0.126	1.500	TM20040CH
0.45	M2.5	3*	0.059	0.125	0.142	1.500	TM25045CH
0.50	M3	3*	0.085	0.125	0.178	1.500	TM30050CH
0.50	M6	3	0.181	0.187	0.473	2.375	TM60050CH
0.50	M10	4	0.310	0.312	0.591	3.000	TM10050CH
0.70	M4	3	0.115	0.125	0.276	1.500	TM40070CH
0.75	M4.5	3	0.120	0.125	0.266	1.500	TM45075CH
0.75	M8	3	0.235	0.250	0.625	2.375	TM80075CH
0.75	M10	4	0.310	0.312	0.591	3.000	TM10075CH
0.80	M5	3	0.120	0.125	0.312	1.500	TM50080CH
1.00	M6	3	0.170	0.187	0.500	2.375	TM60100CH
1.00	M12	4	0.360	0.375	0.875	3.000	TM12100CH
1.25	M8	3	0.235	0.250	0.625	2.375	TM80125CH
1.50	M10	4	0.300	0.312	0.750	3.000	TM10150CH
1.50	M14	4	0.370	0.375	0.875	3.000	TM14150CH
1.50	M18	4	0.490	0.500	1.250	3.500	TM18150CH
1.50	M20	5	0.620	0.625	1.418	4.000	TM20150CH
1.75	M12	4	0.360	0.375	0.875	3.000	TM12175CH
2.00	M14	4	0.429	0.500	1.103	3.500	TM14200CH
2.00	M16	4	0.470	0.500	1.250	3.500	TM16200CH
2.50	M20	4	0.495	0.500	1.250	3.500	TM20250CH
3.00	M24	4	0.620	0.625	1.375	4.000	TM24300CH
3.50	M30	4	0.620	0.625	1.516	4.000	TM30350CH
4.00	M36	5	0.745	0.750	1.575	4.500	TM36400CH

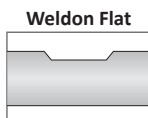
*Straight fluted



E: 46 - 49



E: 4



Weldon Flat

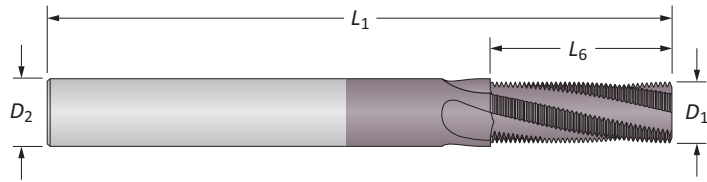
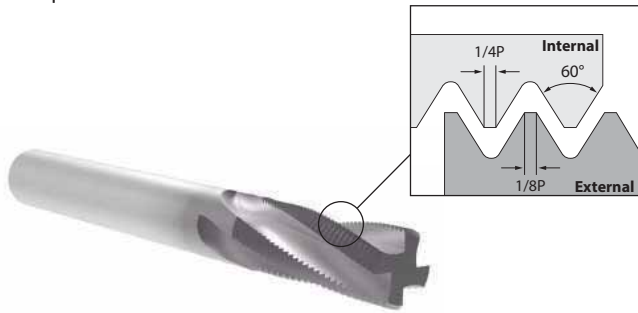
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = NK0500-NPT | Weldon shank flat = NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

= Imperial (in)
 = Metric (mm)

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

Solid Carbide Thread Mills

ISO | Non-Coolant

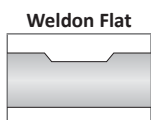
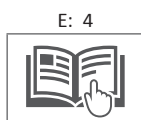
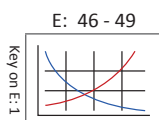


ISO | Non-Coolant

Pitch	Pitch T P P P P P	Flutes	T P P P P P P P				Part No.	
			D ₂	D ₁	L ₁	L ₆	ThreadMills USA	A P P P T P P P P P P P P P P
0.40	M2	3*	1.50	3.00	3.20	39.00	T P P P P P P P	T P P P P P P P P P P P P P P P
0.45	M2.5	3*	1.50	3.00	3.60	39.00	T P P P P P P P	T P P P P P P P P P P P P P P P
0.50	M3	3*	2.15	3.00	4.50	39.00	T P P P P P P P	T P P P P P P P P P P P P P P P
0.50	M6	3	4.60	6.00	12.00	58.00	T P P P P P P P	T P P P P P P P P P P P P P P P
0.50	M10	4	7.95	8.00	15.00	64.00	T P P P P P P P	T P P P P P P P P P P P P P P P
0.70	M4	3	2.90	3.00	8.00	39.00	T P P P P P P P	T P P P P P P P P P P P P P P P
0.75	M4.5	3	3.00	4.00	6.75	51.00	T P P P P P P P	T P P P P P P P P P P P P P P P
0.75	M6	3	4.60	6.00	12.00	58.00	T P P P P P P P	T P P P P P P P P P P P P P P P
0.75	M10	4	7.95	8.00	15.00	64.00	T P P P P P P P	T P P P P P P P P P P P P P P P
0.80	M5	3	3.60	4.00	8.00	51.00	T P P P P P P P	T P P P P P P P P P P P P P P P
1.00	M6	3	4.60	6.00	12.00	58.00	T P P P P P P P	T P P P P P P P P P P P P P P P
1.00	M12	4	9.40	10.00	20.00	73.00	T P P P P P P P	T P P P P P P P P P P P P P P P
1.25	M8	3	5.90	6.00	16.25	58.00	T P P P P P P P	T P P P P P P P P P P P P P P P
1.50	M10	4	7.40	8.00	19.50	64.00	T P P P P P P P	T P P P P P P P P P P P P P P P
1.50	M14	4	10.90	12.00	27.00	84.00	T P P P P P P P	T P P P P P P P P P P P P P P P
1.50	M18	4	11.90	12.00	31.50	84.00	T P P P P P P P	T P P P P P P P P P P P P P P P
1.50	M20	5	15.75	16.00	36.00	93.00	T P P P P P P P	T P P P P P P P P P P P P P P P
1.75	M12	4	9.40	10.00	22.71	73.00	T P P P P P P P	T P P P P P P P P P P P P P P P
2.00	M14	4	10.90	12.00	28.00	84.00	T P P P P P P P	T P P P P P P P P P P P P P P P
2.00	M16	4	11.95	12.00	30.00	84.00	T P P P P P P P	T P P P P P P P P P P P P P P P
2.50	M20	4	11.90	12.00	30.00	84.00	T P P P P P P P	T P P P P P P P P P P P P P P P
3.00	M24	4	15.90	16.00	36.00	93.00	T P P P P P P P	T P P P P P P P P P P P P P P P
3.50	M30	4	15.75	16.00	38.50	100.00	T P P P P P P P	T P P P P P P P P P P P P P P P
4.00	M36	5	19.90	20.00	40.00	105.00	T P P P P P P P	T P P P P P P P P P P P P P P P

*Straight fluted

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



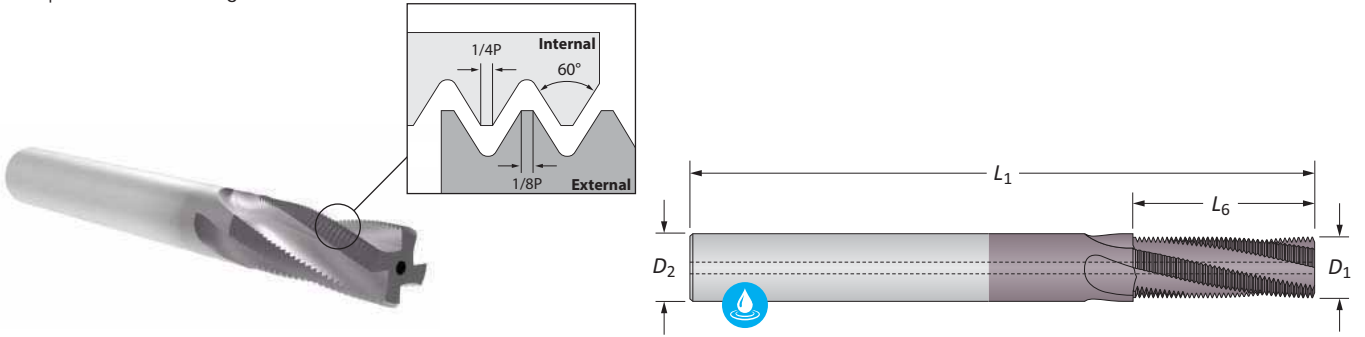
To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = TW NK0500-NPT | Weldon shank flat = TW NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

Ⓜ = Imperial (in)
 Ⓜ = Metric (mm)



Solid Carbide Thread Mills

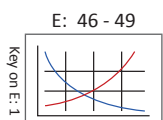
ISO | Coolant Through



ISO | Coolant Through

Pitch	 TM	Flutes	 TM				Part No.
			D_2	D_1	L_1	L_6	
0.40	M2	3*	1.50	3.00	3.20	39.00	TM20040CHM
0.45	M2.5	3*	1.50	3.00	3.60	39.00	TM25045CHM
0.50	M3	3*	2.15	3.00	4.50	39.00	TM30050CHM
0.50	M6	3	4.60	6.00	12.00	58.00	TM60050CHM
0.50	M10	4	7.95	8.00	15.00	64.00	TM10050CHM
0.70	M4	3	2.90	3.00	8.00	39.00	TM40070CHM
0.75	M4.5	3	3.00	4.00	6.75	51.00	TM45075CHM
0.75	M6	3	4.60	6.00	12.00	58.00	TM60075CHM
0.75	M10	4	7.95	8.00	15.00	64.00	TM10075CHM
0.80	M5	3	3.60	4.00	8.00	51.00	TM50080CHM
1.00	M6	3	4.60	6.00	12.00	58.00	TM60100CHM
1.00	M12	4	9.40	10.00	20.00	84.00	TM12100CHM
1.25	M8	3	5.90	6.00	16.25	58.00	TM80125CHM
1.50	M10	4	7.40	8.00	19.50	64.00	TM10150CHM
1.50	M14	4	10.90	12.00	27.00	84.00	TM14150CHM
1.50	M18	4	11.90	12.00	31.50	84.00	TM18150CHM
1.50	M20	5	15.75	16.00	36.00	93.00	TM20150CHM
1.75	M12	4	9.40	10.00	22.71	84.00	TM12175CHM
2.00	M14	4	10.90	12.00	28.00	84.00	TM14200CHM
2.00	M16	4	11.95	12.00	30.00	84.00	TM16200CHM
2.50	M20	4	11.90	12.00	30.00	84.00	TM20250CHM
3.00	M24	4	15.90	16.00	36.00	93.00	TM24300CHM
3.50	M30	4	15.75	16.00	38.50	100.00	TM30350CHM
4.00	M36	5	19.90	20.00	40.00	105.00	TM36400CHM

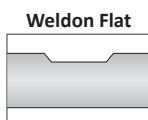
*Straight fluted



E: 46 - 49



E: 4



Weldon Flat

To order a thread mill with a Weldon flat, replace the leading TM designator with TW (available for inch shanks 3/8 and above, or metric shanks 6mm and above)
Example: Cylindrical shank = **TM** NK0500-NPT | Weldon shank flat = **TW** NK0500-NPT
NOTE: Weldon flats have a minimum order quantity of 2 pieces

= Imperial (in)
 = Metric (mm)

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

Indexable Insert Thread Mills Overview

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



Bolt-in Style

- Replaceable inserts allow for quick set-ups and tool changes to keep the production process moving smoothly
- Inserts are available with AM210® coating, which increases tool life
- Available with 1 flute only
- Multiple thread form styles are available
- Tapered thread forms: NPT, NPTF, BSPT
- Straight thread forms: BSPP, UN, UNJ, ISO

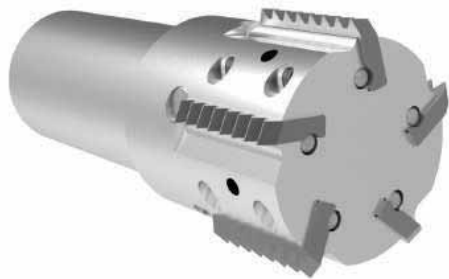
Bolt-in Style Indexable Thread Mill Assembly



Step 1:
Slide the thread mill insert into the insert holder slot.



Step 2:
Tighten the screws to hold the insert in place.



Pin Style

- Replaceable inserts allow for quick set-ups and tool changes to keep the production process moving smoothly
- Inserts are available with AM210® coating, which increases tool life
- Holders available in 2 styles: Weldon Shank and Shell Mill
- Weldon Shank holders available with 1, 2, 3, and 5 flutes
- Shell Mill holders available with 6, 7, and 8 flutes
- Thread forms available: NPT, NPTF, BSPT, BSPP, API-ROUND, ACME, UN, UNJ, ISO

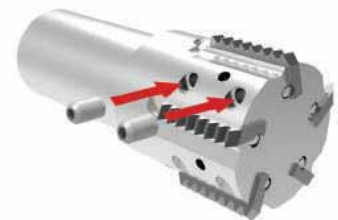
Pin Style Indexable Thread Mill Assembly



Step 1:
Slide the thread mill insert into the insert holder slot.



Step 2:
Slide the pin into the pin holder slot to hold the insert in place.



Step 3:
Tighten the screws to hold both the insert and pin in place.



Product Nomenclature

AccuThread™ 856 Indexable Inserts

T	???	?	?	UN	??	?
1	2	3	4	5	6	



Bolt-in Style

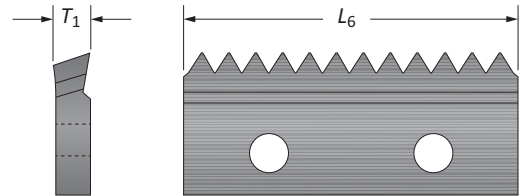


Pin Style

1. Insert Style	2. Insert Length	3. Coating	4. Thread Class	5. Thread Pitch	6. Thread Style
T = Bolt-in TN = Pin style	$\frac{??}{??}$ = 3/4 $\frac{??}{??}$ = 1.00 $\frac{??}{??}$ = 1.50	\square = AM210® A = TiAlN U = Uncoated	UN = UN UNJ = UNJ NPT = NPT NPT = NPTF BSP = BSPP BST = BSPT \square = ISO \square A = Full ACME \square A = API Round BSP = BSPP	$\frac{??}{??}$ = UN 1.0 = ISO	\square = Internal E = External

Indexable Inserts

???	??ol	Attribute
L_6		Length of insert
T_1		Insert thickness



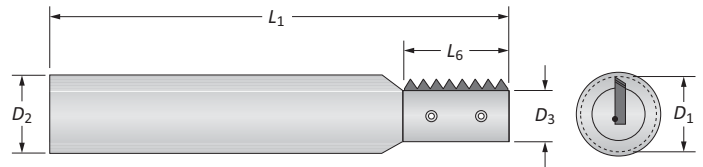
AccuThread™ 856 Indexable Insert Holders

THT	?	????	?	??	???	?
1	2	3	4	5		

1. Holder Style	
Bolt-in Style	Pin Style
THT = Tapered Head	THP = Weldon Positive Rake
THN = Straight Head	TN = Weldon Neutral Rake
	TEN = Shell Mill Positive Rake
	TEN = Shell Mill Neutral Rake

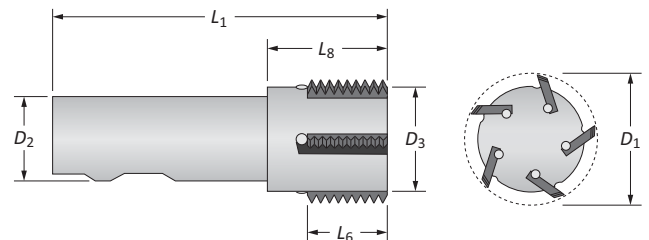
2. Length of Insert	3. Shank Designation
$\frac{??}{??}$ = 0.400	$\frac{??}{??}$ = 1 flute $\frac{??}{??}$ = 6 flutes $\frac{??}{??}$ = 2 flutes $\frac{??}{??}$ = 7 flutes $\frac{??}{??}$ = 3 flutes $\frac{??}{??}$ = 8 flutes $\frac{??}{??}$ = 5 flutes

4. Length of Insert	5. Shank Designation
$\frac{??}{??}$ = 3/4 $\frac{??}{??}$ = 1.00 $\frac{??}{??}$ = 1.50	Blank = Inch \square = Metric



Bolt-in Style Holders

???	??ol	Attribute	???	??ol	Attribute
D_2		Maximum cutter diameter	L_1		Overall length
D_3		Shank diameter	L_6		Length of insert
D_1		Pilot diameter			



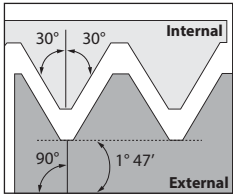
Pin Style Holders

???	??ol	Attribute	???	??ol	Attribute
D_2		Cutter diameter	D_2		Bore diameter (Shell Mill)
D_2^*		Oversized cutter diameter	L_1		Overall length
D_3		Shank diameter	L_6		Length of insert
D_1		Pilot diameter	L_8		Flute length
D_2		Body diameter (Shell Mill)	T_1		Slot width (Shell Mill)

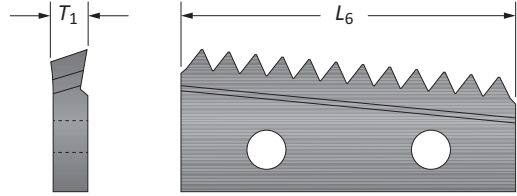
A AccuThread™ 856 Thread Mill Inserts

DRILLING

Bolt-in Style | NPT / NPTF



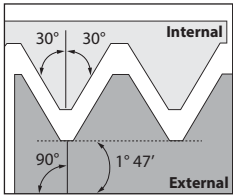
NPT
Internal / External



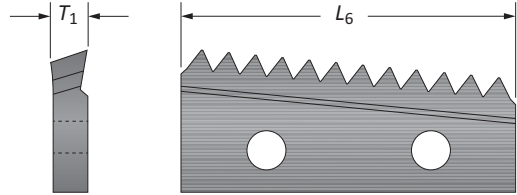
B BORING

TPI (Pitch)	Insert				Part No. NPT Internal/External
	L_6 [in]	L_6 [mm]	T_1 [in]	T_1 [mm]	
18	0.750	19.05	0.080	2.03	T856NPT
14	1.000	25.40	0.140	3.56	T856NPTF

C REAMING



NPT
Internal / External

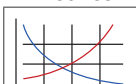

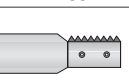


TPI (Pitch)	Insert				Part No. NPT Internal/External
	L_6 [in]	L_6 [mm]	T_1 [in]	T_1 [mm]	
18	0.750	19.05	0.080	2.03	T856NPT
14	1.000	25.40	0.140	3.56	T856NPTF

D BURNISHING

E THREADING

X SPECIALS

E: 50 - 53  E: 28  E: 35 

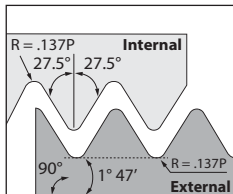
Key on E: 1

Inserts sold in quantities of 2

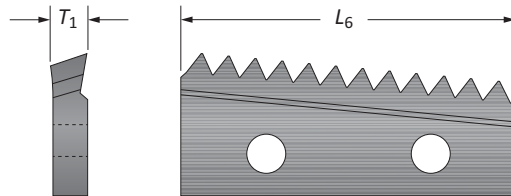


AccuThread™ 856 Thread Mill Inserts

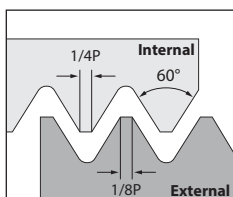
Bolt-in Style | BSPT / BSPP



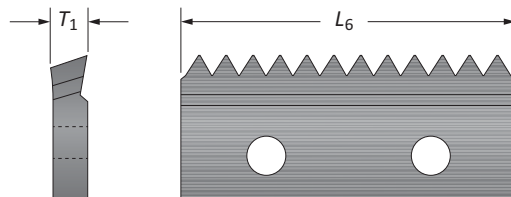
B??T
Internal / External



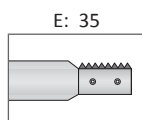
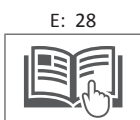
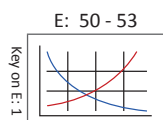
TPI (Pitch)	Insert				Part No.
	L_6 [mm]	L_6 [in]	T_1 [mm]	T_1 [in]	B??T Internal/External
19	0.750	19.05	0.080	2.03	T?????B??T??
19	1.000	25.40	0.140	3.56	T?????B??T??
14	1.000	25.40	0.140	3.56	T?????B??T??



B??T?
Internal / External



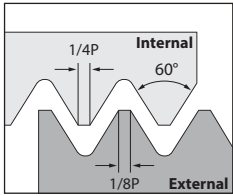
TPI (Pitch)	Insert				Part No.
	L_6 [mm]	L_6 [in]	T_1 [mm]	T_1 [in]	B??T? Internal/External
19	0.750	19.05	0.080	2.03	T?????B??T??
19	1.000	25.40	0.140	3.56	T?????B??T??
14	1.000	25.40	0.140	3.56	T?????B??T??



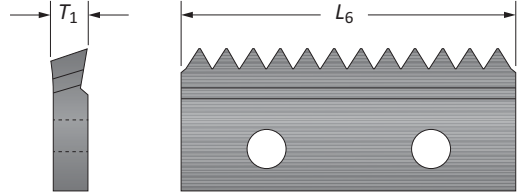
Inserts sold in quantities of 2

AccuThread™ 856 Thread Mill Inserts

Bolt-in Style | UN

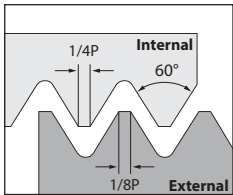


UN
Internal

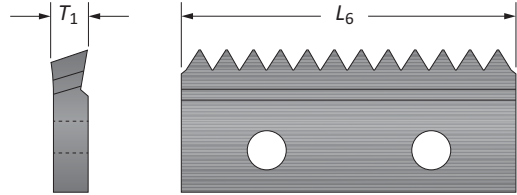


TPI (Pitch)	Insert				Part No. UN Internal
	L_6 (mm)	L_6 (in)	T_1 (mm)	T_1 (in)	
32	0.750	19.05	0.080	2.03	TP075K-UN32I
32	1.000	25.40	0.140	3.56	TP100K-UN32I
24	0.750	19.05	0.080	2.03	TP075K-UN24I
24	1.000	25.40	0.140	3.56	TP100K-UN24I
20	0.750	19.05	0.080	2.03	TP075K-UN20I
20	1.000	25.40	0.140	3.56	TP100K-UN20I
18	0.750	19.05	0.080	2.03	TP075K-UN18I
18	1.000	25.40	0.140	3.56	TP100K-UN18I
16	0.750	19.05	0.080	2.03	TP075K-UN16I
16	1.000	25.40	0.140	3.56	TP100K-UN16I
14	1.000	25.40	0.140	3.56	TP100K-UN14I
13	1.000	25.40	0.140	3.56	TP100K-UN13I
12	1.000	25.40	0.140	3.56	TP100K-UN12I
10*	1.000	25.40	0.140	3.56	TP100K-UN10I

*This item is only used with THN-0611-1F100 or THN-0611-1F100M. The reduced body allows a 3/4"-10 UN/UNJ to be produced.

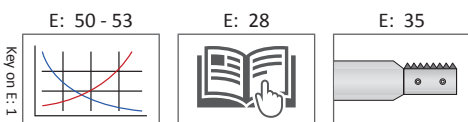


UN
External



TPI (Pitch)	Insert				Part No. UN External
	L_6 (mm)	L_6 (in)	T_1 (mm)	T_1 (in)	
32	0.750	19.05	0.080	2.03	TP075K-UN32E
32	1.000	25.40	0.140	3.56	TP100K-UN32E
24	0.750	19.05	0.080	2.03	TP075K-UN24E
24	1.000	25.40	0.140	3.56	TP100K-UN24E
20	0.750	19.05	0.080	2.03	TP075K-UN20E
20	1.000	25.40	0.140	3.56	TP100K-UN20E
18	0.750	19.05	0.080	2.03	TP075K-UN18E
18	1.000	25.40	0.140	3.56	TP100K-UN18E
16	0.750	19.05	0.080	2.03	TP075K-UN16E
16	1.000	25.40	0.140	3.56	TP100K-UN16E
14	1.000	25.40	0.140	3.56	TP100K-UN14E
13	1.000	25.40	0.140	3.56	TP100K-UN13E
12	1.000	25.40	0.140	3.56	TP100K-UN12E
10*	1.000	25.40	0.140	3.56	TP100K-UN10E

*This item is only used with THN-0611-1F100 or THN-0611-1F100M. The reduced body allows a 3/4"-10 UN/UNJ to be produced.



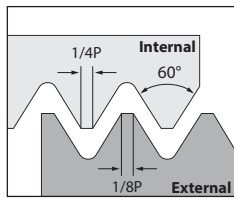
Inserts sold in quantities of 2

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

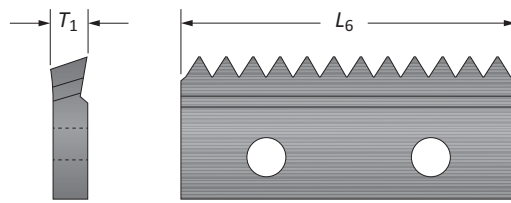


AccuThread™ 856 Thread Mill Inserts

Bolt-in Style | UNJ

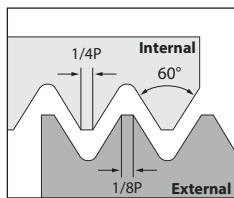


UNJ
Internal

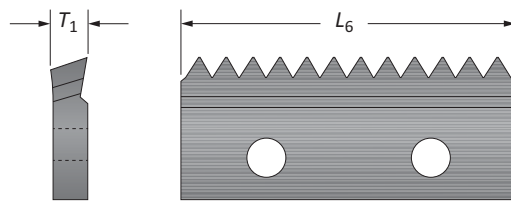


TPI (Pitch)	Insert				Part No. UNJ Internal
	L_6 [mm]	L_6 [in]	T_1 [mm]	T_1 [in]	
32	0.750	19.05	0.080	2.03	TP075K-UNJ32I
32	1.000	25.40	0.140	3.56	TP100K-UNJ32I
24	0.750	19.05	0.080	2.03	TP075K-UNJ24I
24	1.000	25.40	0.140	3.56	TP100K-UNJ24I
20	0.750	19.05	0.080	2.03	TP075K-UNJ20I
20	1.000	25.40	0.140	3.56	TP100K-UNJ20I
18	0.750	19.05	0.080	2.03	TP075K-UNJ18I
18	1.000	25.40	0.140	3.56	TP100K-UNJ18I
16	0.750	19.05	0.080	2.03	TP075K-UNJ16I
16	1.000	25.40	0.140	3.56	TP100K-UNJ16I
14	1.000	25.40	0.140	3.56	TP100K-UNJ14I
12	1.000	25.40	0.140	3.56	TP100K-UNJ12I
10*	1.000	25.40	0.140	3.56	TP100K-UNJ10I

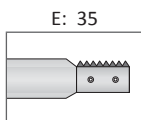
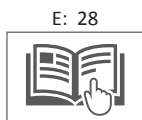
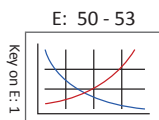
*This item is only used with THN-0611-1F100 or THN-0611-1F100M. The reduced body allows a 3/4"-10 UN/UNJ to be produced.



UNJ
External



TPI (Pitch)	Insert				Part No. UNJ External
	L_6 [mm]	L_6 [in]	T_1 [mm]	T_1 [in]	
32	0.750	19.05	0.080	2.03	TP075K-UNJ32E
32	1.000	25.40	0.140	3.56	TP100K-UNJ32E
24	0.750	19.05	0.080	2.03	TP075K-UNJ24E
24	1.000	25.40	0.140	3.56	TP100K-UNJ24E
20	0.750	19.05	0.080	2.03	TP075K-UNJ20E
20	1.000	25.40	0.140	3.56	TP100K-UNJ20E
18	0.750	19.05	0.080	2.03	TP075K-UNJ18E
18	1.000	25.40	0.140	3.56	TP100K-UNJ18E
16	0.750	19.05	0.080	2.03	TP075K-UNJ16E
16	1.000	25.40	0.140	3.56	TP100K-UNJ16E
12	1.000	25.40	0.140	3.56	TP100K-UNJ12E



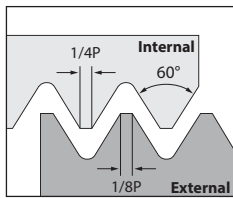
Inserts sold in quantities of 2

A

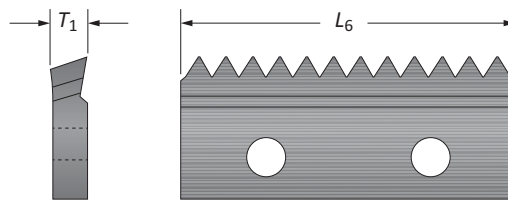
AccuThread™ 856 Thread Mill Inserts

Bolt-in Style | ISO

DRILLING



ISO
Internal



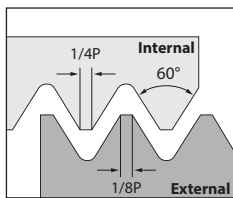
B

BORING

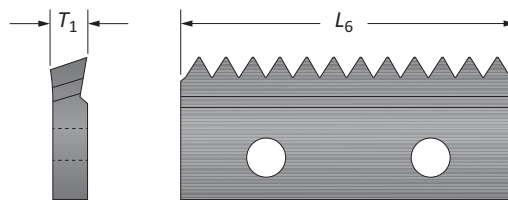
Pitch	Insert				Part No.
	L_{in}	L_{mm}	T_{in}	T_{mm}	ISO Internal
0.5	0.750	19.05	0.080	2.03	TP075K-M0.5I
1.0	0.750	19.05	0.080	2.03	TP075K-M1.0I
1.0	1.000	24.40	0.140	3.56	TP100K-M1.0I
1.25	0.750	19.05	0.080	2.03	TP075K-M1.25I
1.5	0.750	19.05	0.080	2.03	TP075K-M1.5I
1.5	1.000	25.40	0.140	3.56	TP100K-M1.5I
2.0	1.000	25.40	0.140	3.56	TP100K-M2.0I

C

REAMING



ISO
External



D

BURNISHING

Pitch	Insert				Part No.
	L_{in}	L_{mm}	T_{in}	T_{mm}	ISO External
1.0	1.000	24.40	0.140	3.56	TP100K-M1.0E
1.5	1.000	25.40	0.140	3.56	TP100K-M1.5E
2.0	1.000	25.40	0.140	3.56	TP100K-M2.0E

E

THREADING

X

SPECIALS

E: 50 - 53 E: 28 E: 35

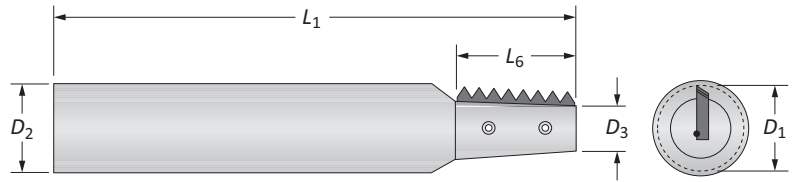
Key on E: 1

Inserts sold in quantities of 2



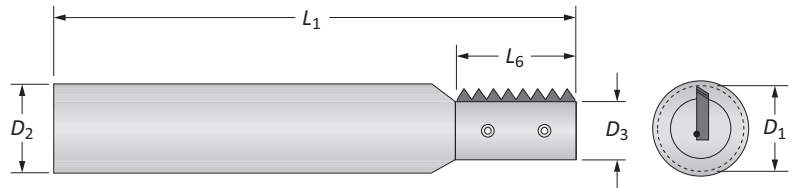
AccuThread™ 856 Thread Mill Insert Holders

Bolt-in Style



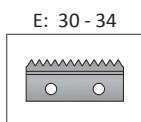
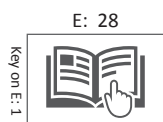
Tapered Insert Holders | NPT / NPTF / BSPT

	Holder					Flutes	Part No.	Inserts	Screw	Screw
	D_2	D_3	D_1	L_2	L_1					
i	0.400	0.229	0.500	0.750	3.000	1	THT-0400-1F075	TP075K...	TMS-250	8T-8
	0.659	0.379	0.500	1.000	3.000	1	THT-0659-1F100	TP100K...	TMS-45	8T-9
m	10.16	5.82	13.00	19.05	76.20	1	THT-0400-1F075M	TP075K...	TMS-250	8T-8
	16.74	9.65	13.00	25.40	76.20	1	THT-0659-1F100M	TP100K...	TMS-45	8T-9



Straight Insert Holders | BSPP / UN / UNJ / ISO

	Holder					Flutes	Part No.	Inserts	Screw	Screw
	D_2	D_3	D_1	L_2	L_1					
i	0.394	0.250	0.500	0.750	3.000	1	THN-0394-1F075	TP075K...	TMS-250	8T-8
	0.611	0.383	0.750	1.000	3.500	1	THN-0611-1F100	TP100K...	TMS-40	8T-9
	0.625	0.454	0.750	1.000	3.500	1	THN-0625-1F100	TP100K...	TMS-40	8T-9
m	10.01	6.35	13.00	19.05	76.20	1	THN-0394-1F075M	TP075K...	TMS-250	8T-8
	15.88	11.58	25.00	25.40	88.90	1	THN-0625-1F100M	TP100K...	TMS-40	8T-9



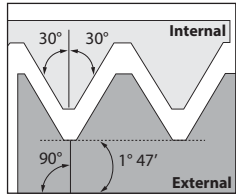
Key on E: 1

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

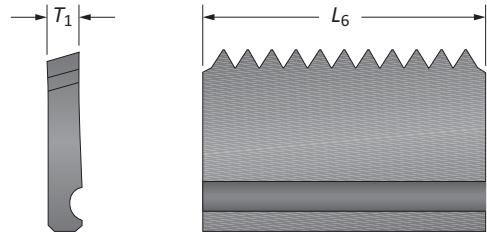
A AccuThread™ 856 Thread Mill Inserts

DRILLING

Pin Style | NPT / NPTF / BSPT



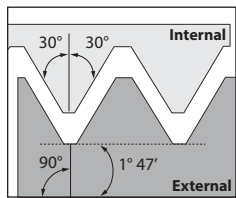
N₁T
Internal / External



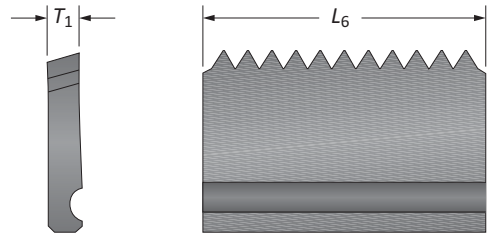
BORING

TPI (Pitch)	Insert				Part No.
	L_6 [in]	L_6 [mm]	T_1 [in]	T_1 [mm]	
11.5	1.500	38.10	0.140	3.56	N₁T Internal/External
8	1.500	38.10	0.140	3.56	TN₁150K-NPT

REAMING

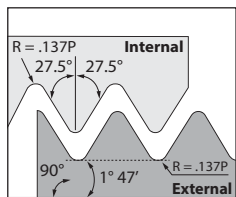


N₂T
Internal / External

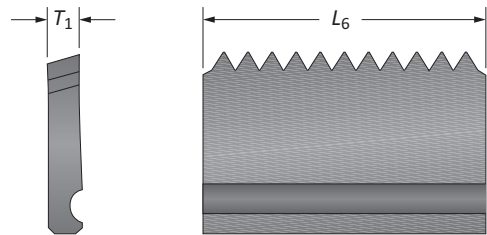


TPI (Pitch)	Insert				Part No.
	L_6 [in]	L_6 [mm]	T_1 [in]	T_1 [mm]	
11.5	1.500	38.10	0.140	3.56	N₂T Internal/External
8	1.500	38.10	0.140	3.56	TN₂150K-NPTF

BURNISHING



B₁T
Internal / External



THREADING

TPI (Pitch)	Insert				Part No.
	L_6 [in]	L_6 [mm]	T_1 [in]	T_1 [mm]	
11	1.500	38.10	0.140	3.56	TN₁150K-B₁T

SPECIALS

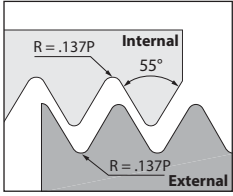
E: 50 - 53 E: 28 E: 42 - 43

Inserts sold in quantities of 2

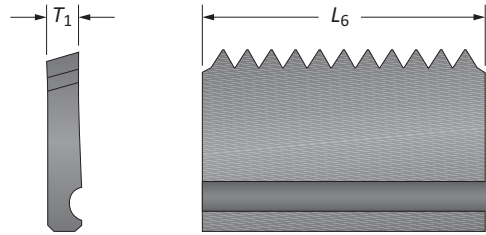


AccuThread™ 856 Thread Mill Inserts

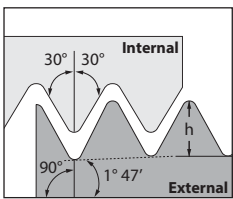
Pin Style | BSPP / API-ROUND / ACME



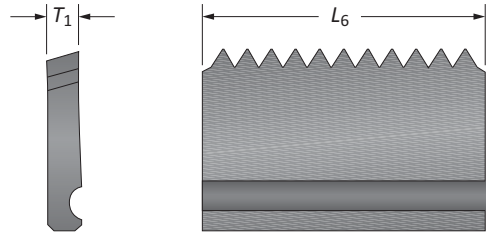
B Internal / External



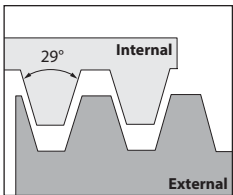
TPI (Pitch)	Insert				Part No.
	L_6	L_6	T_1	T_1	B Internal/External
11	1.500	38.10	0.140	3.56	TN



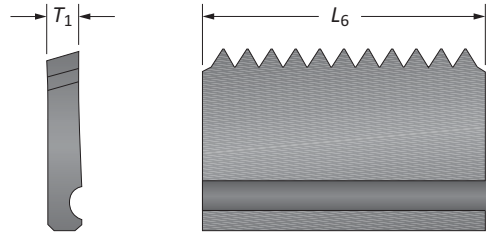
API-ROUND Internal / External



TPI (Pitch)	Insert				Part No.
	L_6	L_6	T_1	T_1	API-ROUND Internal/External
10	1.500	38.10	0.140	3.56	TN
8	1.500	38.10	0.140	3.56	TN



ACME Full Profile



TPI (Pitch)	Insert				Part No.
	L_6	L_6	T_1	T_1	ACME Full Profile
12	1.000	25.40	0.140	3.56	TN
12	1.500	38.10	0.140	3.56	TN
10	1.000	25.40	0.140	3.56	TN
10	1.500	38.10	0.140	3.56	TN
8	1.000	25.40	0.140	3.56	TN
8	1.500	38.10	0.140	3.56	TN
6	1.500	38.10	0.140	3.56	TN
5	1.500	38.10	0.140	3.56	TN

E: 50 - 53 E: 28 E: 42 - 43

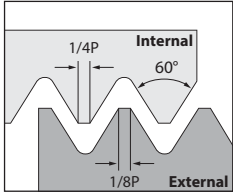
Inserts sold in quantities of 2

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

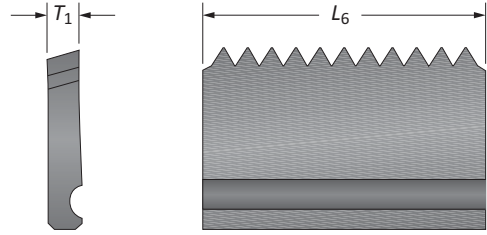
A AccuThread™ 856 Thread Mill Inserts

DRILLING

Pin Style | UN



UN
Internal



B

BORING

TPI (Pitch)	Insert				Part No. UN Internal
	L_1 (mm)	L_2 (mm)	T_1 (mm)	T_2 (mm)	
32	1.000	25.40	0.140	3.56	TN100K-UN32I
24	1.000	25.40	0.140	3.56	TN100K-UN24I
24	1.500	38.10	0.140	3.56	TN150K-UN24I
20	1.000	25.40	0.140	3.56	TN100K-UN20I
20	1.500	38.10	0.140	3.56	TN150K-UN20I
18	1.000	25.40	0.140	3.56	TN100K-UN18I
18	1.500	38.10	0.140	3.56	TN150K-UN18I
16	1.000	25.40	0.140	3.56	TN100K-UN16I
16	1.500	38.10	0.140	3.56	TN150K-UN16I
14	1.500	38.10	0.140	3.56	TN150K-UN14I
12	1.000	25.40	0.140	3.56	TN100K-UN12I
12	1.500	38.10	0.140	3.56	TN150K-UN12I
10	1.000	25.40	0.140	3.56	TN100K-UN10I
10	1.500	38.10	0.140	3.56	TN150K-UN10I
8	1.000	25.40	0.140	3.56	TN100K-UN8I
8	1.500	38.10	0.140	3.56	TN150K-UN8I
7	1.000	25.40	0.140	3.56	TN100K-UN7I
7	1.500	38.10	0.140	3.56	TN150K-UN7I
6	1.500	38.10	0.140	3.56	TN150K-UN6I

C

REAMING

D

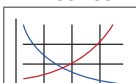
BURNISHING


E

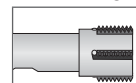
THREADING

X

SPECIALS

E: 50 - 53  Key on E: 1

E: 28 

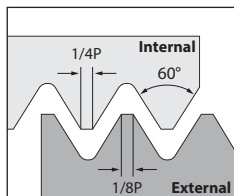
E: 42 - 43 

Inserts sold in quantities of 2

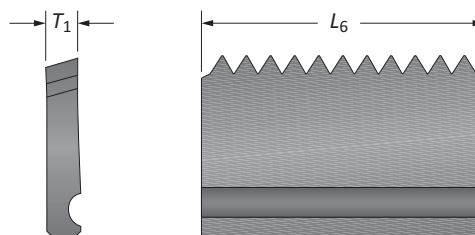


AccuThread™ 856 Thread Mill Inserts

Pin Style | UN



UN
External



TPI (Pitch)	Insert				Part No.
	L_6 (mm)	L_6 (in)	T_1 (mm)	T_1 (in)	UN External
32	1.000	25.40	0.140	3.56	TN100K-UN32E
24	1.000	25.40	0.140	3.56	TN100K-UN24E
24	1.500	38.10	0.140	3.56	TN150K-UN24E
20	1.000	25.40	0.140	3.56	TN100K-UN20E
20	1.500	38.10	0.140	3.56	TN150K-UN20E
18	1.000	25.40	0.140	3.56	TN100K-UN18E
18	1.500	38.10	0.140	3.56	TN150K-UN18E
16	1.000	25.40	0.140	3.56	TN100K-UN16E
16	1.500	38.10	0.140	3.56	TN150K-UN16E
12	1.000	25.40	0.140	3.56	TN100K-UN12E
12	1.500	38.10	0.140	3.56	TN150K-UN12E
10	1.000	25.40	0.140	3.56	TN100K-UN10E
10	1.500	38.10	0.140	3.56	TN150K-UN10E
8	1.000	25.40	0.140	3.56	TN100K-UN8E
8	1.500	38.10	0.140	3.56	TN150K-UN8E
6	1.500	38.10	0.140	3.56	TN150K-UN6E

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

E: 50 - 53

E: 28

E: 42 - 43

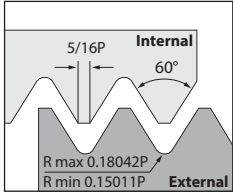
Key on E: 1

Inserts sold in quantities of 2

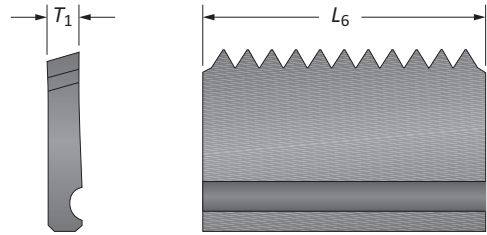
AccuThread™ 856 Thread Mill Inserts

Pin Style | UNJ

DRILLING



UNJ
Internal



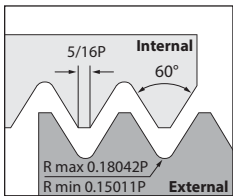
B

BORING

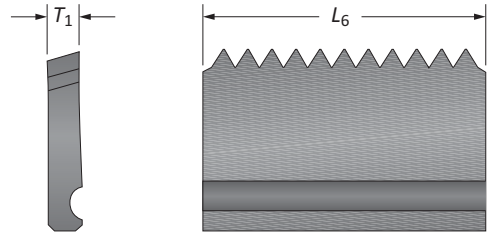
TPI (Pitch)	Insert				Part No. UNJ Internal
	L_{Pin} (mm)	L_{Pin} (in)	T_{Pin} (mm)	T_{Pin} (in)	
32	1.000	25.40	0.140	3.56	TN100K-UNJ32I
24	1.000	25.40	0.140	3.56	TN100K-UNJ24I
24	1.500	38.10	0.140	3.56	TN150K-UNJ24I
20	1.000	25.40	0.140	3.56	TN100K-UNJ20I
20	1.500	38.10	0.140	3.56	TN150K-UNJ20I
18	1.000	25.40	0.140	3.56	TN100K-UNJ18I
18	1.500	38.10	0.140	3.56	TN150K-UNJ18I
16	1.000	25.40	0.140	3.56	TN100K-UNJ16I
16	1.500	38.10	0.140	3.56	TN150K-UNJ16I
12	1.000	25.40	0.140	3.56	TN100K-UNJ12I
12	1.500	38.10	0.140	3.56	TN150K-UNJ12I
8	1.500	38.10	0.140	3.56	TN150K-UNJ8I

C

REAMING



UNJ
External



D

BURNISHING

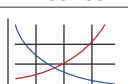

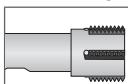
TPI (Pitch)	Insert				Part No. UNJ External
	L_{Pin} (mm)	L_{Pin} (in)	T_{Pin} (mm)	T_{Pin} (in)	
32	1.000	25.40	0.140	3.56	TN100K-UNJ32E
24	1.000	25.40	0.140	3.56	TN100K-UNJ24E
24	1.500	38.10	0.140	3.56	TN150K-UNJ24E
20	1.000	25.40	0.140	3.56	TN100K-UNJ20E
20	1.500	38.10	0.140	3.56	TN150K-UNJ20E
18	1.000	25.40	0.140	3.56	TN100K-UNJ18E
18	1.500	38.10	0.140	3.56	TN150K-UNJ18E
16	1.000	25.40	0.140	3.56	TN100K-UNJ16E
16	1.500	38.10	0.140	3.56	TN150K-UNJ16E
12	1.000	25.40	0.140	3.56	TN100K-UNJ12E
12	1.500	38.10	0.140	3.56	TN150K-UNJ12E
8	1.500	38.10	0.140	3.56	TN150K-UNJ8E

E

THREADING

X

SPECIALS

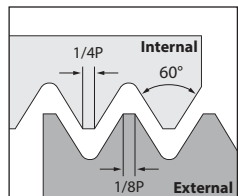
E: 50 - 53  E: 28  E: 42 - 43 

Key on E: 1

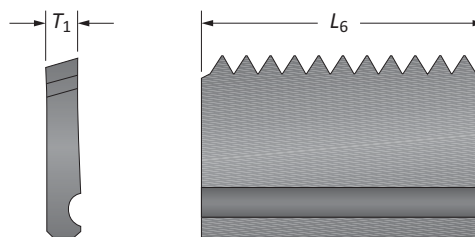
Inserts sold in quantities of 2

AccuThread™ 856 Thread Mill Inserts

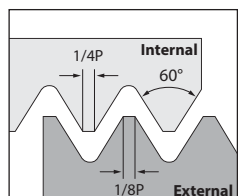
Pin Style | ISO



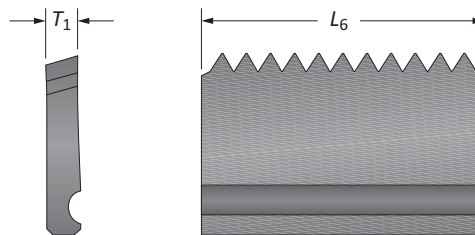
ISO
Internal



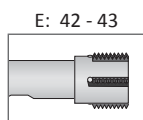
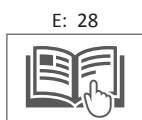
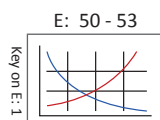
Pitch	Insert				Part No.
	L_6 [mm]	L_6 [in]	T_1 [mm]	T_1 [in]	ISO Internal
1.5	1.500	38.10	0.140	3.56	TN150K-M1.5I
2.0	1.500	38.10	0.140	3.56	TN150K-M2.0I
2.5	1.500	38.10	0.140	3.56	TN150K-M2.5I
3.0	1.500	38.10	0.140	3.56	TN150K-M3.0I
3.5	1.500	38.10	0.140	3.56	TN150K-M3.5I
4.0	1.500	38.10	0.140	3.56	TN150K-M4.0I
4.5	1.500	38.10	0.140	3.56	TN150K-M4.5I
5.0	1.500	38.10	0.140	3.56	TN150K-M5.0I
6.0	1.500	38.10	0.140	3.56	TN150K-M6.0I



ISO
External



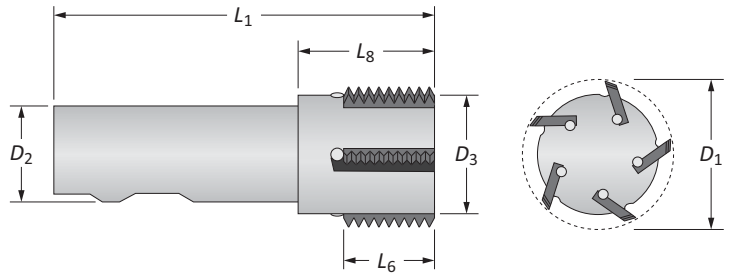
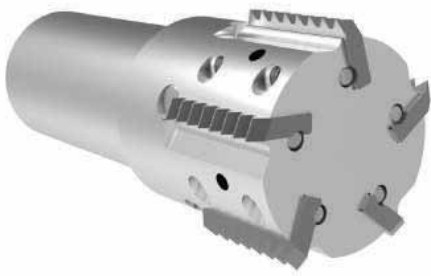
Pitch	Insert				Part No.
	L_6 [mm]	L_6 [in]	T_1 [mm]	T_1 [in]	ISO External
2.0	1.500	38.10	0.140	3.56	TN150K-M2.0E
4.0	1.500	38.10	0.140	3.56	TN150K-M4.0E
4.5	1.500	38.10	0.140	3.56	TN150K-M4.5E
5.0	1.500	38.10	0.140	3.56	TN150K-M5.0E
6.0	1.500	38.10	0.140	3.56	TN150K-M6.0E



Inserts sold in quantities of 2

AccuThread™ Pin Style Holders

Weldon Shank



Positive Rake

D_2		Holder					Coolant	Flutes	Part No.	Inserts	Screw	Pitch	Pitch
Standard	Oversize*	D_2	L_2	L_3	L_4	D_3							
0.969	-	0.750	1.38	1.000	4.500	1.000	N	2	THP-0969-2F100	TN100K...	TMSS-3	3/32	TMP-1
1.755	-	1.500	2.25	1.000	4.000	1.250	Y	5	THP-1755-5F100	TN100K...	TMSS-2	3/32	TMP-1
0.932	1.063	0.722	1.90	1.500	4.500	1.000	N	1	THP-0932-1F150	TN150K...	TMSS-2	3/32	TMP-2
0.969	1.100	0.750	2.00	1.500	4.500	1.000	N	2	THP-0969-2F150	TN150K...	TMSS-3	3/32	TMP-2
1.116	1.247	0.812	2.00	1.500	4.500	1.000	Y	3	THP-1116-3F150	TN150K...	TMSS-3	3/32	TMP-2
1.755	1.887	1.500	2.25	1.500	4.500	1.250	Y	5	THP-1755-5F150	TN150K...	TMSS-2	3/32	TMP-2
<hr/>													
24.61	-	19.05	35.05	25.40	114.30	25.00	N	2	THP-0969-2F100M	TN100K...	TMSS-3	3/32	TMP-1
44.58	-	38.10	57.15	25.40	101.60	32.00	Y	5	THP-1755-5F100M	TN100K...	TMSS-2	3/32	TMP-1
23.67	27.00	18.34	48.44	38.10	114.30	25.00	N	1	THP-0932-1F150M	TN150K...	TMSS-2	3/32	TMP-2
24.61	27.94	19.05	50.80	38.10	114.30	25.00	N	2	THP-0969-2F150M	TN150K...	TMSS-3	3/32	TMP-2
28.35	31.67	20.63	50.80	38.10	114.30	25.00	Y	3	THP-1116-3F150M	TN150K...	TMSS-3	3/32	TMP-2
44.58	47.93	38.10	57.15	38.10	114.30	32.00	Y	5	THP-1755-5F150M	TN150K...	TMSS-2	3/32	TMP-2

*See note at bottom of page

Neutral Rake

D_2		Holder					Coolant	Flutes	Part No.	Inserts	Screw	Pitch	Pitch
Standard	Oversize*	D_2	L_2	L_3	L_4	D_3							
1.116	1.247	0.812	2.00	1.500	4.500	1.000	Y	3	TN0000000000	TN150K...	TMSS-3	3/32	TMP-2
1.755	1.887	1.500	2.25	1.500	4.531	1.250	Y	5	TN0000000000	TN150K...	TMSS-2	3/32	TMP-2
28.35	31.67	20.63	50.80	38.10	114.30	25.00	Y	3	TN0000000000	TN150K...	TMSS-3	3/32	TMP-2
44.58	47.93	38.10	57.15	38.10	114.30	32.00	Y	5	TN0000000000	TN150K...	TMSS-2	3/32	TMP-2

*See note at bottom of page

*Oversized cutter diameter occurs when assembled with the following pin style inserts:

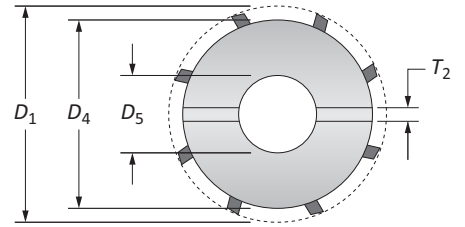
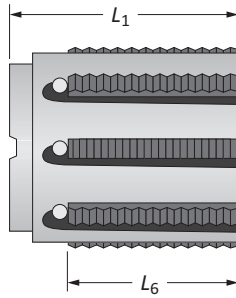
E: 28	E: 36 - 41	NPT 8	API 8	Metric 6.0	ACME 5
		NPTF 11.5		Metric 5.0	ACME 6
Key on E: 1		NPTF 8		Metric 4.5	

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



AccuThread™ Pin Style Holders

Shell Mill



Positive Rake

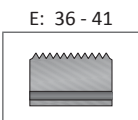
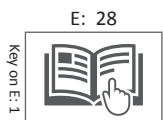
	D_0		Holder					Flutes	Part No.	Inserts	Screw	Key	Pin
	Standard	Oversize*	D_0	D_0	L_0	L_0	T_0						
i	2.714	2.845	2.500	1.000	1.500	2.250	0.375	7	TN150K...	TN150K...	TMSS-2	3/32	TMP-2
	3.208	3.340	3.000	1.250	1.500	2.250	0.500	8	TN150K...	TN150K...	TMSS-2	3/32	TMP-2
m	68.94	72.26	63.50	27.00	38.10	57.15	12	7	TN150K...	TN150K...	TMSS-2	3/32	TMP-2
	81.48	84.84	76.20	32.00	38.10	57.15	14	8	TN150K...	TN150K...	TMSS-2	3/32	TMP-2

*See note at bottom of page

Neutral Rake

	D_0		Holder					Flutes	Part No.	Inserts	Screw	Key	Pin
	Standard	Oversize*	D_0	D_0	L_0	L_0	T_0						
i	2.217	2.349	2.000	0.750	1.500	2.250	0.312	6	TN150K...	TN150K...	TMSS-2	3/32	TMP-2
m	56.31	59.66	50.80	22.00	38.10	57.15	10.00	6	TN150K...	TN150K...	TMSS-2	3/32	TMP-2

*See note at bottom of page



*Oversized cutter diameter occurs when assembled with the following pin style inserts:

NPT 8	API 8	Metric 6.0	ACME 5
NPTF 11.5		Metric 5.0	ACME 6
NPTF 8		Metric 4.5	

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

Thread Mill Pre-Drill Information

Linear Feed Rate (LFR)

$$\text{LFR} = \text{RPM} \cdot (\text{IPT} \cdot \text{Number of flutes})$$

RPM = Revolutions per minute

IPT = Recommended feed (inch / tooth)

Surface Feet per Minute (SFM)

$$\text{SFM} = \text{RPM} \cdot 0.262 \cdot \text{Diameter}$$

RPM = Revolutions per minute

Revolutions per Minute (RPM)

$$\text{RPM} = \frac{\text{SFM} \cdot 3.82}{\text{Diameter}}$$

SFM = Surface feet per minute

Adjusted Feed Rate (AFR) - For Internal Threading

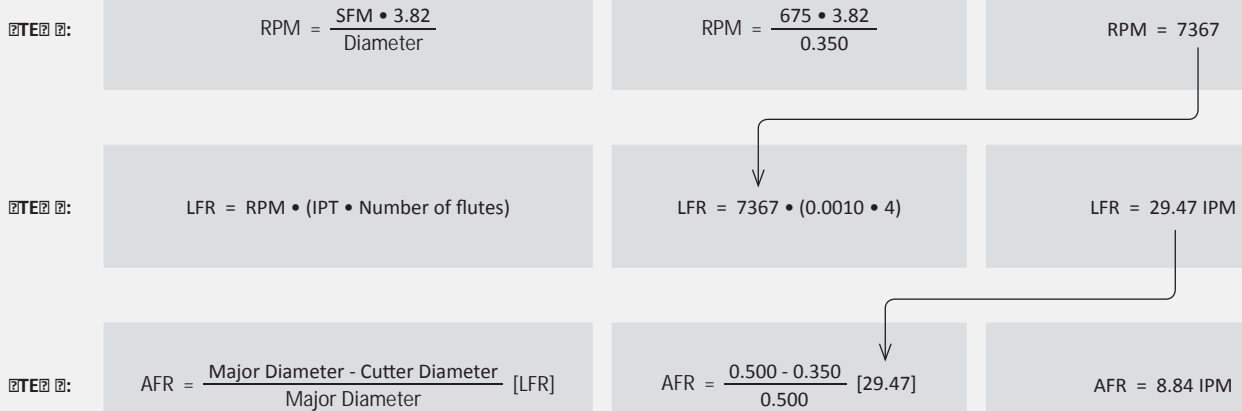
$$\text{AFR} = \frac{\text{Major Diameter} - \text{Cutter Diameter}}{\text{Major Diameter}} [\text{LFR}]$$

LFR = Linear feed rate

NOTICE: The above formula on an internal thread program adjusts the linear feed rate to be applied to the outer diameter instead of the center of the cutting tool. If the feed rate is not adjusted, the excessive feed rate will cause the thread mill cutting edges to fail.

Example of an Internal Adjusted Feed Rate Calculation:

Cast iron 125 BHN with a 1/2-13 thread form using AccuThread 856 solid carbide (TMUK0500-13)



Thread Mill Calculations and Recommended Passes

Thread Mill Drill Calculation

Based on nominal tap drill diameter. Based on 0.003" or 0.075mm probable mean oversize.

To calculate the percent of full thread for a given hole diameter:

FEET:
$$\% \text{ of thread} = \# \text{ of threads per inch} \cdot \frac{\text{Basic major diameter of thread} - \text{Drill hole size}}{0.0130}$$

ETC:
$$\% \text{ of thread} = \frac{76.96}{\text{Pitch (mm)}} \cdot [\text{Basic major diameter of thread} - \text{Drill hole size}]$$

Major Thread Diameter for # Drills

Drill #	Thread Diameter
# 2	0.086
# 3	0.099
# 4	0.112
# 5	0.125
# 6	0.132
# 8	0.164
# 10	0.190
# 12	0.216

Recommended Passes

Pitch TPI	NPT / NPTF / BSPT / API		
	Machinability		
	Easy	Average	Difficult
28	1	1	2
27	1	1	2
19	1	1	2
18	1	1	2
14	1	2	3
11.5	1	2	3
11	1	2	3
10	1	2	3
8	2	3	4

- 1 Pass
- 2 Passes
- 3 Passes
- 4 Passes

Pitch TPI	ISO		
	Machinability		
	Easy	Average	Difficult
0.40	1	1	2
0.45	1	1	2
0.50	1	1	2
0.70	1	1	2
0.75	1	1	2
0.80	1	1	2
1.00	1	1	2
1.25	1	2	3
1.50	1	2	3
1.75	1	2	3
2.00	1	2	3
2.50	2	3	4
3.00	2	3	4
3.50	2	3	4
4.00	2	3	4
4.50	2	3	4
5.00	2	3	4
6.00	2	3	4

Pitch TPI	UN / UNJ / BSPP / BSW / NPS / NPSF		
	Machinability		
	Easy	Average	Difficult
64	1	1	2
56	1	1	2
48	1	1	2
44	1	1	2
40	1	1	2
36	1	1	2
32	1	1	2
28	1	1	2
24	1	1	2
20	1	2	3
19	1	2	3
18	1	2	3
16	1	2	3
14	1	2	3
13	1	2	3
12	1	2	3
11	2	2	4
10	2	3	4
9	2	3	4
8	2	3	4
7	2	3	4
6	2	3	4

Recommended Cutting Data | Imperial (inch)

Solid Carbide | AccuThread™ 856

Material	Hardness (BHN)	Machinability*	Feed (SFM)	Recommended Feed (inch/tooth) by Cutter Diameter								
				0.060 to 0.125	0.126 to 0.188	0.189 to 0.250	0.251 to 0.312	0.313 to 0.375	0.376 to 0.500	0.501 to 0.625	0.626 to 0.750	
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	Easy	900	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	150 - 200	Easy	700	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	200 - 250	Easy	500	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144	85 - 125	Average	900	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025
		125 - 175	Average	700	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025
		175 - 225	Average	600	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025
		225 - 275	Average	500	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025
	Medium Carbon Steel 1010, 1040, 1050, 1527, 1140	125 - 175	Average	575	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020
		175 - 225	Average	500	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020
		225 - 275	Average	450	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020
		275 - 325	Average	400	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020
	Alloy Steel 4140, 5140, 8640	125 - 175	Average	575	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020
175 - 225		Average	500	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
225 - 275		Average	450	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
275 - 325		Difficult	400	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
325 - 375		Difficult	375	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
High Strength Alloy 4340, 4330V, 300M	225 - 300	Average	450	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
	300 - 350	Difficult	400	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
	350 - 400	Difficult	350	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
Structural Steel A36, A285, A516	100 - 150	Average	600	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	150 - 250	Average	500	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	250 - 350	Difficult	450	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
High Temp Alloy Hastelloy B, Inconel 600	140 - 220	Difficult	120	0.0003	0.0004	0.0006	0.0008	0.0009	0.0010	0.0012	0.0015	
	220 - 310	Difficult	90	0.0003	0.0004	0.0006	0.0008	0.0009	0.0010	0.0012	0.0015	
Stainless Steel 303, 416, 420	135 - 185	Difficult	525	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0015	0.0020	
	185 - 275	Difficult	500	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0015	0.0020	
	Stainless Steel PH 17-4	185 - 275	Difficult	300	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0015	0.0020
		275 - 325	Difficult	150	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0015	0.0020
Tool Steel H-13, H21, A-4	150 - 200	Difficult	575	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	200 - 250	Difficult	500	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
Cast Iron Grey, Ductile, Nodular	120 - 150	Easy	675	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	150 - 200	Easy	625	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	200 - 220	Easy	575	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	220 - 260	Average	500	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	260 - 320	Average	475	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
Wrought Aluminum 6061 T6	30	Easy	1100	0.0005	0.0006	0.0009	0.0010	0.0015	0.0020	0.0025	0.0030	
	180	Easy	1000	0.0005	0.0006	0.0009	0.0010	0.0015	0.0020	0.0025	0.0030	
	Cast Aluminum** up to 10% silicon	120	Easy	625	0.0005	0.0006	0.0009	0.0010	0.0015	0.0020	0.0025	0.0030
		30 - 125	Easy	1100	0.0005	0.0006	0.0009	0.0010	0.0015	0.0020	0.0025	0.0030

NOTE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 45 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

Recommended Cutting Data | Metric (mm)

Solid Carbide | AccuThread™ 856

Material	Hardness (BHN)	Machinability*	Feed (M/min)	Recommended Feed (mm/tooth) by Cutter Diameter							
				1.50 to 3.18	3.19 to 4.76	4.77 to 6.35	6.36 to 7.94	7.95 to 9.53	9.54 to 12.70	12.71 to 15.88	15.89 to 19.05
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	Easy	274	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	150 - 200	Easy	213	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	200 - 250	Easy	152	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
Low Carbon Steel 1010, 1020, 1025, 1522, 1144	85 - 125	Average	274	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	125 - 175	Average	213	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	175 - 225	Average	183	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	225 - 275	Average	152	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
Medium Carbon Steel 1010, 1040, 1050, 1527, 1140	125 - 175	Average	175	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
	175 - 225	Average	152	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
	225 - 275	Average	137	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
	275 - 325	Average	122	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
Alloy Steel 4140, 5140, 8640	125 - 175	Average	175	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
	175 - 225	Average	152	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
	225 - 275	Average	137	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
	275 - 325	Difficult	122	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
	325 - 375	Difficult	114	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
High Strength Alloy 4340, 4330V, 300M	225 - 300	Average	137	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
	300 - 350	Difficult	122	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
	350 - 400	Difficult	107	0.010	0.013	0.015	0.020	0.025	0.033	0.046	0.051
Structural Steel A36, A285, A516	100 - 150	Average	183	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	150 - 250	Average	152	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	250 - 350	Difficult	137	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
High Temp Alloy Hastelloy B, Inconel 600	140 - 220	Difficult	37	0.008	0.010	0.015	0.020	0.023	0.025	0.030	0.038
	220 - 310	Difficult	27	0.008	0.010	0.015	0.020	0.023	0.025	0.030	0.038
Stainless Steel 303, 416, 420	135 - 185	Difficult	160	0.010	0.013	0.015	0.020	0.023	0.025	0.038	0.051
	185 - 275	Difficult	152	0.010	0.013	0.015	0.020	0.023	0.025	0.038	0.051
	175 - 275	Difficult	91	0.010	0.013	0.015	0.020	0.023	0.025	0.038	0.051
	275 - 325	Difficult	46	0.010	0.013	0.015	0.020	0.023	0.025	0.038	0.051
Tool Steel H-13, H21, A-4	150 - 200	Difficult	175	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	200 - 250	Difficult	152	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
Cast Iron Grey, Ductile, Nodular	120 - 150	Easy	206	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	150 - 200	Easy	191	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	200 - 220	Easy	175	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
	220 - 260	Average	152	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064
Wrought Aluminum 6061 T6	30	Easy	335	0.013	0.015	0.023	0.025	0.038	0.051	0.064	0.076
	180	Easy	305	0.013	0.015	0.023	0.025	0.038	0.051	0.064	0.076
Cast Aluminum** up to 10% silicon	120	Easy	191	0.013	0.015	0.023	0.025	0.038	0.051	0.064	0.076
Brass	30 - 125	Easy	335	0.013	0.015	0.023	0.025	0.038	0.051	0.064	0.076

NOTE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 45 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

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

Recommended Cutting Data | Imperial (inch)

Solid Carbide | ThreadMills USA

Material	Hardness (BHN)	Machinability*	Feed (SFM)	Recommended Feed (inch/tooth) by Cutter Diameter								
				0.060 to 0.125	0.126 to 0.188	0.189 to 0.250	0.251 to 0.312	0.313 to 0.375	0.376 to 0.500	0.501 to 0.625	0.626 to 0.750	
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	Easy	725	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	150 - 200	Easy	550	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	200 - 250	Easy	450	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144	85 - 125	Average	725	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025
		125 - 175	Average	550	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025
		175 - 225	Average	450	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025
		225 - 275	Average	400	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025
	Medium Carbon Steel 1010, 1040, 1050, 1527, 1140	125 - 175	Average	450	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020
		175 - 225	Average	400	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020
		225 - 275	Average	350	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020
		275 - 325	Average	300	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020
	Alloy Steel 4140, 5140, 8640	125 - 175	Average	450	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020
175 - 225		Average	400	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
225 - 275		Average	350	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
275 - 325		Difficult	300	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
325 - 375		Difficult	250	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
High Strength Alloy 4340, 4330V, 300M	225 - 300	Average	350	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
	300 - 350	Difficult	300	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
	350 - 400	Difficult	250	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0018	0.0020	
Structural Steel A36, A285, A516	100 - 150	Average	450	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	150 - 250	Average	400	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	250 - 350	Difficult	300	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
High Temp Alloy Hastelloy B, Inconel 600	140 - 220	Difficult	100	0.0003	0.0004	0.0006	0.0008	0.0009	0.0010	0.0012	0.0015	
	220 - 310	Difficult	75	0.0003	0.0004	0.0006	0.0008	0.0009	0.0010	0.0012	0.0015	
Stainless Steel 303, 416, 420	135 - 185	Difficult	425	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0015	0.0020	
	185 - 275	Difficult	400	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0015	0.0020	
	Stainless Steel PH 17-4	185 - 275	Difficult	250	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0015	0.0020
		275 - 325	Difficult	125	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0015	0.0020
Tool Steel H-13, H21, A-4	150 - 200	Difficult	325	0.0004	0.0005	0.0007	0.0008	0.0010	0.0015	0.0020	0.0025	
	200 - 250	Difficult	225	0.0004	0.0005	0.0007	0.0008	0.0010	0.0015	0.0020	0.0025	
Cast Iron Grey, Ductile, Nodular	120 - 150	Easy	550	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	150 - 200	Easy	500	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	200 - 220	Easy	450	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	220 - 260	Average	400	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
	260 - 320	Average	375	0.0004	0.0005	0.0007	0.0009	0.0010	0.0015	0.0020	0.0025	
Wrought Aluminum 6061 T6	30	Easy	1000	0.0005	0.0006	0.0009	0.0010	0.0015	0.0020	0.0025	0.0030	
	180	Easy	900	0.0005	0.0006	0.0009	0.0010	0.0015	0.0020	0.0025	0.0030	
	Cast Aluminum** up to 10% silicon	120	Easy	500	0.0005	0.0006	0.0009	0.0010	0.0015	0.0020	0.0025	0.0030
		30 - 125	Easy	1000	0.0005	0.0006	0.0009	0.0010	0.0015	0.0020	0.0025	0.0030

NOTE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 45 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

Recommended Cutting Data | Metric (mm)

Solid Carbide | ThreadMills USA

Material	Hardness (BHN)	Machinability*	Feed (M/min)	Recommended Feed (mm/tooth) by Cutter Diameter								
				1.50 to 3.18	3.19 to 4.76	4.77 to 6.35	6.36 to 7.94	7.95 to 9.53	9.54 to 12.70	12.71 to 15.88	15.89 to 19.05	
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	Easy	221	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	150 - 200	Easy	168	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	200 - 250	Easy	137	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
Low Carbon Steel 1010, 1020, 1025, 1522, 1144	85 - 125	Average	221	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	125 - 175	Average	168	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	175 - 225	Average	137	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	225 - 275	Average	122	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
Medium Carbon Steel 1010, 1040, 1050, 1527, 1140	125 - 175	Average	137	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
	175 - 225	Average	122	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
	225 - 275	Average	107	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
	275 - 325	Average	91	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
Alloy Steel 4140, 5140, 8640	125 - 175	Average	137	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
	175 - 225	Average	122	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
	225 - 275	Average	107	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
	275 - 325	Difficult	91	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
	325 - 375	Difficult	76	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
High Strength Alloy 4340, 4330V, 300M	225 - 300	Average	107	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
	300 - 350	Difficult	91	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
	350 - 400	Difficult	76	0.010	0.013	0.015	0.020	0.025	0.038	0.046	0.051	
Structural Steel A36, A285, A516	100 - 150	Average	137	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	150 - 250	Average	122	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	250 - 350	Difficult	91	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
High Temp Alloy Hastelloy B, Inconel 600	140 - 220	Difficult	30	0.008	0.010	0.015	0.020	0.023	0.025	0.030	0.038	
	220 - 310	Difficult	23	0.008	0.010	0.015	0.020	0.023	0.025	0.030	0.038	
Stainless Steel 303, 416, 420	135 - 185	Difficult	130	0.010	0.013	0.015	0.020	0.023	0.025	0.038	0.051	
	185 - 275	Difficult	122	0.010	0.013	0.015	0.020	0.023	0.025	0.038	0.051	
	Stainless Steel PH 17-4	185 - 275	Difficult	76	0.010	0.013	0.015	0.020	0.023	0.025	0.038	0.051
		275 - 325	Difficult	38	0.010	0.013	0.015	0.020	0.023	0.025	0.038	0.051
Tool Steel H-13, H21, A-4	150 - 200	Difficult	99	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	200 - 250	Difficult	69	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
Cast Iron Grey, Ductile, Nodular	120 - 150	Easy	168	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	150 - 200	Easy	152	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	200 - 220	Easy	137	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	220 - 260	Average	122	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
	260 - 320	Average	114	0.010	0.013	0.018	0.023	0.025	0.038	0.051	0.064	
Wrought Aluminum 6061 T6	30	Easy	305	0.013	0.015	0.023	0.025	0.038	0.051	0.064	0.076	
	180	Easy	274	0.013	0.015	0.023	0.025	0.038	0.051	0.064	0.076	
	Cast Aluminum** up to 10% silicon	120	Easy	152	0.013	0.015	0.023	0.025	0.038	0.051	0.064	0.076
		30 - 125	Easy	305	0.013	0.015	0.023	0.025	0.038	0.051	0.064	0.076

NOTE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 45 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

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

Recommended Cutting Data | Imperial (inch)

Indexable | AccuThread™ 856 | Positive Rake

Material	Hardness (BHN)	Machinability**	Feed (SFM)	Recommended Feed (inch/tooth) by Cutter Diameter							
				1 flute		2 flutes	3 flutes	5 flutes	7 flutes	8 flutes	
				0.375 - 0.500	0.501 - 0.750	0.751 - 1.000	1.001 - 1.500	1.501 - 2.000	2.001 - 2.750	2.751 - 3.500	
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	Easy	900	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030	
	150 - 200	Easy	700	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030	
	200 - 250	Easy	500	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144	85 - 125	Average	900	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030
		125 - 175	Average	700	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030
		175 - 225	Average	600	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030
		225 - 275	Average	500	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030
	Medium Carbon Steel 1010, 1040, 1050, 1527, 1140	125 - 175	Average	575	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025
		175 - 225	Average	500	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025
		225 - 275	Average	450	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025
		275 - 325	Average	400	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025
	Alloy Steel 4140, 5140, 8640	125 - 175	Average	575	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025
175 - 225		Average	500	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025	
225 - 275		Average	450	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025	
275 - 325		Difficult	400	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025	
325 - 375		Difficult	375	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025	
High Strength Alloy 4340, 4330V, 300M	225 - 300	Average	450	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025	
	300 - 350	Difficult	400	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025	
	350 - 400	Difficult	350	0.0008	0.0009	0.0010	0.0012	0.0015	0.0020	0.0025	
Structural Steel A36, A285, A516	100 - 150	Average	600	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030	
	150 - 250	Average	500	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030	
	250 - 350	Difficult	450	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030	
High Temp Alloy Hastelloy B, Inconel 600	140 - 220	Difficult	120	0.0005	0.0006	0.0008	0.0010	0.0015	0.0020	0.0025	
	220 - 310	Difficult	90	0.0005	0.0006	0.0008	0.0010	0.0015	0.0020	0.0025	
Stainless Steel 303, 416, 420	135 - 185	Difficult	525	0.0005	0.0007	0.0009	0.0015	0.0020	0.0025	0.0030	
	185 - 275	Difficult	500	0.0005	0.0007	0.0009	0.0015	0.0020	0.0025	0.0030	
	Stainless Steel PH 17-4	185 - 275	Difficult	300	0.0005	0.0007	0.0009	0.0015	0.0020	0.0025	0.0030
		275 - 325	Difficult	150	0.0005	0.0007	0.0009	0.0015	0.0020	0.0025	0.0030
Tool Steel H-13, H21, A-4	150 - 200	Difficult	575	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030	
	200 - 250	Difficult	500	0.0008	0.0010	0.0012	0.0015	0.0020	0.0025	0.0030	
Cast Iron Grey, Ductile, Nodular	120 - 150	Easy	675	0.0008	0.0012	0.0015	0.0020	0.0030	0.0040	0.0050	
	150 - 200	Easy	625	0.0008	0.0012	0.0015	0.0020	0.0030	0.0040	0.0050	
	200 - 220	Easy	575	0.0008	0.0012	0.0015	0.0020	0.0030	0.0040	0.0050	
	220 - 260	Average	500	0.0008	0.0012	0.0015	0.0020	0.0030	0.0040	0.0050	
	260 - 320	Average	475	0.0008	0.0012	0.0015	0.0020	0.0030	0.0040	0.0050	
Wrought Aluminum 6061 T6	30	Easy	1100	0.0015	0.0020	0.0025	0.0030	0.0040	0.0050	0.0060	
	180	Easy	1000	0.0015	0.0020	0.0025	0.0030	0.0040	0.0050	0.0060	
	Cast Aluminum** up to 10% silicon	120	Easy	625	0.0015	0.0020	0.0025	0.0030	0.0040	0.0050	0.0060
	Brass	30 - 125	Easy	1100	0.0020	0.0025	0.0030	0.0040	0.0045	0.0055	0.0065

NOTICE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 45 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

Recommended Cutting Data | Metric (mm)

Indexable | AccuThread™ 856 | Positive Rake

Material	Hardness (BHN)	Machinability**	Feed (M/min)	Recommended Feed (mm/tooth) by Cutter Diameter						
				1 flute		2 flutes	3 flutes	5 flutes	7 flutes	8 flutes
				9.53 - 12.70	12.71 - 19.05	19.06 - 25.40	25.41 - 38.10	38.11 - 50.80	50.81 - 69.85	69.86 - 88.90
Free Machining Steel 1118, 1215, 12L14, etc. Low Carbon Steel 1010, 1020, 1025, 1522, 1144 Medium Carbon Steel 1010, 1040, 1050, 1527, 1140 Alloy Steel 4140, 5140, 8640 High Strength Alloy 4340, 4330V, 300M Structural Steel A36, A285, A516	100 - 150	Easy	274	0.020	0.025	0.030	0.038	0.051	0.064	0.076
	150 - 200	Easy	213	0.020	0.025	0.030	0.038	0.051	0.064	0.076
	200 - 250	Easy	152	0.020	0.025	0.030	0.038	0.051	0.064	0.076
	85 - 125	Average	274	0.020	0.025	0.030	0.038	0.051	0.064	0.076
	125 - 175	Average	213	0.020	0.025	0.030	0.038	0.051	0.064	0.076
	175 - 225	Average	183	0.020	0.025	0.030	0.038	0.051	0.064	0.076
	225 - 275	Average	152	0.020	0.025	0.030	0.038	0.051	0.064	0.076
	125 - 175	Average	175	0.020	0.023	0.025	0.030	0.038	0.051	0.064
	175 - 225	Average	152	0.020	0.023	0.025	0.030	0.038	0.051	0.064
	225 - 275	Average	137	0.020	0.023	0.025	0.030	0.038	0.051	0.064
	275 - 325	Average	122	0.020	0.023	0.025	0.030	0.038	0.051	0.064
	125 - 175	Average	175	0.020	0.023	0.025	0.030	0.038	0.051	0.064
	175 - 225	Average	152	0.020	0.023	0.025	0.030	0.038	0.051	0.064
	225 - 275	Average	137	0.020	0.023	0.025	0.030	0.038	0.051	0.064
	275 - 325	Difficult	122	0.020	0.023	0.025	0.030	0.038	0.051	0.064
	325 - 375	Difficult	114	0.020	0.023	0.025	0.030	0.038	0.051	0.064
225 - 300	Average	137	0.020	0.023	0.025	0.030	0.038	0.051	0.064	
300 - 350	Difficult	122	0.020	0.023	0.025	0.030	0.038	0.051	0.064	
350 - 400	Difficult	107	0.020	0.023	0.025	0.030	0.038	0.051	0.064	
100 - 150	Average	183	0.020	0.025	0.030	0.038	0.051	0.064	0.076	
150 - 250	Average	152	0.020	0.025	0.030	0.038	0.051	0.064	0.076	
250 - 350	Difficult	137	0.020	0.025	0.030	0.038	0.051	0.064	0.076	
High Temp Alloy Hastelloy B, Inconel 600	140 - 220	Difficult	37	0.013	0.015	0.020	0.025	0.038	0.051	0.064
	220 - 310	Difficult	27	0.013	0.015	0.020	0.025	0.038	0.051	0.064
Stainless Steel 303, 416, 420 Stainless Steel PH 17-4 Tool Steel H-13, H21, A-4	135 - 185	Difficult	160	0.013	0.018	0.023	0.038	0.051	0.064	0.076
	185 - 275	Difficult	152	0.013	0.018	0.023	0.038	0.051	0.064	0.076
	185 - 275	Difficult	91	0.013	0.018	0.023	0.038	0.051	0.064	0.076
	275 - 325	Difficult	46	0.013	0.018	0.023	0.038	0.051	0.064	0.076
150 - 200	Difficult	175	0.020	0.025	0.030	0.038	0.051	0.064	0.076	
200 - 250	Difficult	152	0.020	0.025	0.030	0.038	0.051	0.064	0.076	
Cast Iron Grey, Ductile, Nodular	120 - 150	Easy	206	0.020	0.030	0.038	0.051	0.076	0.102	0.127
	150 - 200	Easy	191	0.020	0.030	0.038	0.051	0.076	0.102	0.127
	200 - 220	Easy	175	0.020	0.030	0.038	0.051	0.076	0.102	0.127
	220 - 260	Average	152	0.020	0.030	0.038	0.051	0.076	0.102	0.127
	260 - 320	Average	145	0.020	0.030	0.038	0.051	0.076	0.102	0.127
Wrought Aluminum 6061 T6 Cast Aluminum** up to 10% silicon Brass	30	Easy	335	0.038	0.051	0.064	0.076	0.102	0.127	0.152
	180	Easy	305	0.038	0.051	0.064	0.076	0.102	0.127	0.152
	120	Easy	191	0.038	0.051	0.064	0.076	0.102	0.127	0.152
	30 - 125	Easy	335	0.051	0.064	0.076	0.102	0.114	0.140	0.165

NOTE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 45 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

Recommended Cutting Data | Imperial (inch)

Indexable | AccuThread™ 856 | Neutral Rake

Material	Hardness (BHN)	Machinability**	Speed (SFM)	Recommended Feed (inch/tooth) by Cutter Diameter			
				3 flutes	5 flutes	6 flutes	
				1.000 - 1.499	1.500 - 1.999	2.000 - 2.750	
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	Easy	765	0.0013	0.0017	0.0021	
	150 - 200	Easy	595	0.0013	0.0017	0.0021	
	200 - 250	Easy	425	0.0013	0.0017	0.0021	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144	85 - 125	Average	765	0.0013	0.0017	0.0021
		125 - 175	Average	595	0.0013	0.0017	0.0021
		175 - 225	Average	510	0.0013	0.0017	0.0021
		225 - 275	Average	425	0.0013	0.0017	0.0021
	Medium Carbon Steel 1010, 1040, 1050, 1527, 1140	125 - 175	Average	490	0.0010	0.0013	0.0017
		175 - 225	Average	425	0.0010	0.0013	0.0017
		225 - 275	Average	380	0.0010	0.0013	0.0017
		275 - 325	Average	340	0.0010	0.0013	0.0017
	Alloy Steel 4140, 5140, 8640	125 - 175	Average	490	0.0010	0.0013	0.0017
175 - 225		Average	425	0.0010	0.0013	0.0017	
225 - 275		Average	380	0.0010	0.0013	0.0017	
275 - 325		Difficult	340	0.0010	0.0013	0.0017	
325 - 375		Difficult	320	0.0010	0.0013	0.0017	
High Strength Alloy 4340, 4330V, 300M	225 - 300	Average	390	0.0010	0.0013	0.0017	
	300 - 350	Difficult	340	0.0010	0.0013	0.0017	
	350 - 400	Difficult	300	0.0010	0.0013	0.0017	
Structural Steel A36, A285, A516	100 - 150	Average	510	0.0013	0.0017	0.0021	
	150 - 250	Average	425	0.0013	0.0017	0.0021	
	250 - 350	Difficult	390	0.0013	0.0017	0.0021	
High Temp Alloy Hastelloy B, Inconel 600	140 - 220	Difficult	-	-	-	-	
	220 - 310	Difficult	-	-	-	-	
Stainless Steel 303, 416, 420	135 - 185	Difficult	-	-	-	-	
	185 - 275	Difficult	-	-	-	-	
	Stainless Steel PH 17-4	185 - 275	Difficult	-	-	-	-
		275 - 325	Difficult	-	-	-	-
Tool Steel H-13, H21, A-4	150 - 200	Difficult	-	-	-	-	
	200 - 250	Difficult	-	-	-	-	
Cast Iron Grey, Ductile, Nodular	120 - 150	Easy	575	0.0017	0.0026	0.0034	
	150 - 200	Easy	525	0.0017	0.0026	0.0034	
	200 - 220	Easy	490	0.0017	0.0026	0.0034	
	220 - 260	Average	425	0.0017	0.0026	0.0034	
	260 - 320	Average	400	0.0017	0.0026	0.0034	
Wrought Aluminum 6061 T6	30	Easy	-	-	-	-	
	180	Easy	-	-	-	-	
	Cast Aluminum** up to 10% silicon	120	Easy	-	-	-	
		30 - 125	Easy	-	-	-	

NOTE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 45 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

Recommended Cutting Data | Metric (mm)

Indexable | AccuThread™ 856 | Neutral Rake

Material	Hardness (BHN)	Machinability**	Speed (M/min)	Recommended Feed (mm/tooth) by Cutter Diameter			
				3 flutes	5 flutes	6 flutes	
				25.41 - 38.09	38.10 - 50.77	50.78 - 69.85	
O Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	Easy	233	0.032	0.043	0.054	
	150 - 200	Easy	181	0.032	0.043	0.054	
	200 - 250	Easy	129	0.032	0.043	0.054	
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144	85 - 125	Average	233	0.032	0.043	0.054
		125 - 175	Average	181	0.032	0.043	0.054
		175 - 225	Average	156	0.032	0.043	0.054
		225 - 275	Average	129	0.032	0.043	0.054
	Medium Carbon Steel 1010, 1040, 1050, 1527, 1140	125 - 175	Average	149	0.026	0.032	0.043
		175 - 225	Average	129	0.026	0.032	0.043
		225 - 275	Average	116	0.026	0.032	0.043
		275 - 325	Average	104	0.026	0.032	0.043
	Alloy Steel 4140, 5140, 8640	125 - 175	Average	149	0.026	0.032	0.043
		175 - 225	Average	129	0.026	0.032	0.043
		225 - 275	Average	116	0.026	0.032	0.043
		275 - 325	Difficult	104	0.026	0.032	0.043
		325 - 375	Difficult	97	0.026	0.032	0.043
	High Strength Alloy 4340, 4330V, 300M	225 - 300	Average	116	0.026	0.032	0.043
		300 - 350	Difficult	104	0.026	0.032	0.043
350 - 400		Difficult	91	0.026	0.032	0.043	
Structural Steel A36, A285, A516	100 - 150	Average	156	0.032	0.043	0.054	
	150 - 250	Average	129	0.032	0.043	0.054	
	250 - 350	Difficult	116	0.032	0.043	0.054	
High Temp Alloy Hastelloy B, Inconel 600	140 - 220	Difficult	-	-	-	-	
	220 - 310	Difficult	-	-	-	-	
Stainless Steel 303, 416, 420	135 - 185	Difficult	-	-	-	-	
	185 - 275	Difficult	-	-	-	-	
	Stainless Steel PH 17-4	185 - 275	Difficult	-	-	-	-
		275 - 325	Difficult	-	-	-	-
Tool Steel H-13, H21, A-4	150 - 200	Difficult	-	-	-	-	
	200 - 250	Difficult	-	-	-	-	
Cast Iron Grey, Ductile, Nodular	120 - 150	Easy	175	0.043	0.065	0.087	
	150 - 200	Easy	162	0.043	0.065	0.087	
	200 - 220	Easy	149	0.043	0.065	0.087	
	220 - 260	Average	129	0.043	0.065	0.087	
	260 - 320	Average	123	0.043	0.065	0.087	
Wrought Aluminum 6061 T6	30	Easy	-	-	-	-	
	180	Easy	-	-	-	-	
	Cast Aluminum** up to 10% silicon	120	Easy	-	-	-	-
		30 - 125	Easy	-	-	-	-

NOTE: Reduce feed and speed by 30% for tapered thread forms due to additional material removal

*Refer to recommended pass chart on page E: 45 when referencing material machinability

**Uncoated thread mills are recommended for cast aluminum applications

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

Threading

What you need to know

- Thread milling can be easily accomplished with simple G code programming
- If your machine is capable of 3 axis (helical) interpolation, you can and **should** be thread milling
- Basic programming of a one pass thread mill can be achieved in 6 basic steps

AVAILABLE ONLINE 24/7
 or download **INSTA-CODE™**
 visit www.alliedmachine.com

The following are examples of how to calculate and program a 7/16-20 right hand thread that will be 1/2 deep produced in one pass

Major thread diameter	0.4375	Major diameter of thread (7/16 = 0.4375)
Threads per inch	20	Number of threads per inch (20 is from 7/16-20 designation)
Length of thread	0.5	Desired length of cut
SFM	222	Recommended surface footage for material to be cut
Feed per flute	0.0025	Recommended feed rate per cutting edge
Number of flutes	7	Number of flutes on tool to be used
Tool diameter	0.335	Diameter of cutting tool

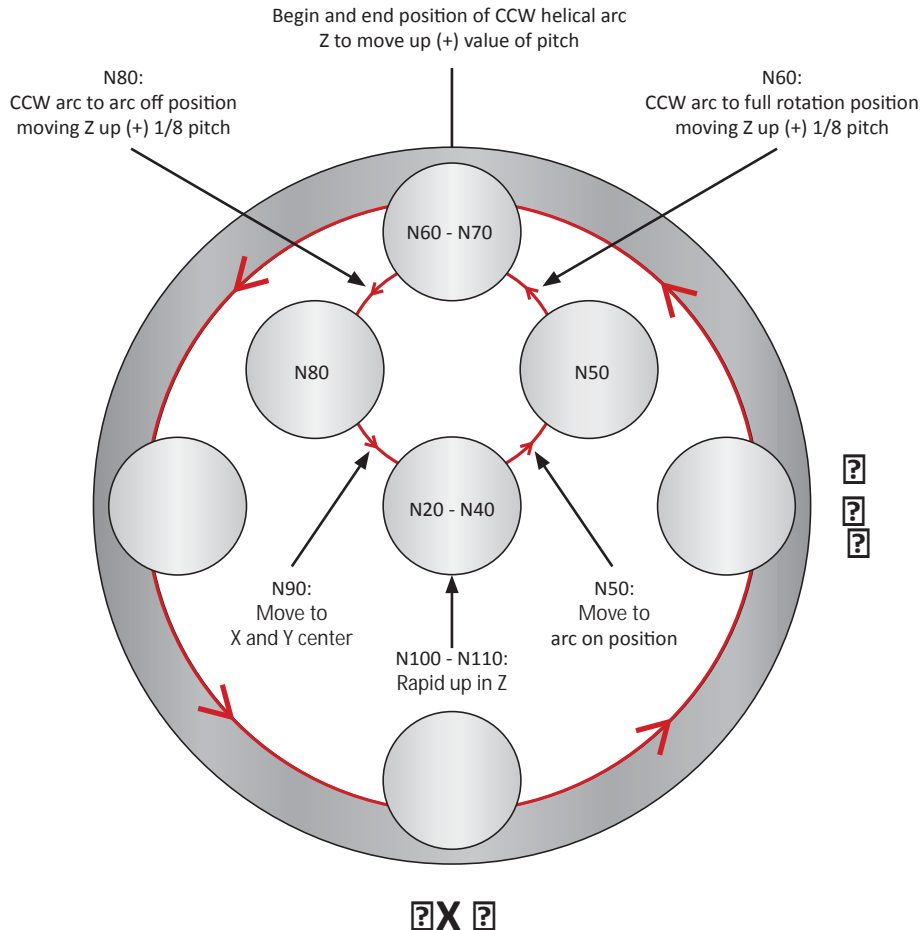
Using the information above, the values can be calculated:

Pitch	0.05	= 1 / thread per inch
RPM	222	(SFM • 3.82) / Tool diameter
Linear feed	54.16	RPM • Feed per flute • Number of flutes
Feed rate for thread milling	12.69	Linear feed • ((Major thread diameter - Tool diameter) / Major thread diameter)
Z axis move on arc on	0.0063	(Pitch / 8)
Z axis move for full thread	0.5063	(Pitch / 8) + Length of cut
Arc on/off	0.0256	(Major thread diameter - Tool diameter) / 4
Full rotation value	0.05125	(Major thread diameter - Tool diameter) / 2

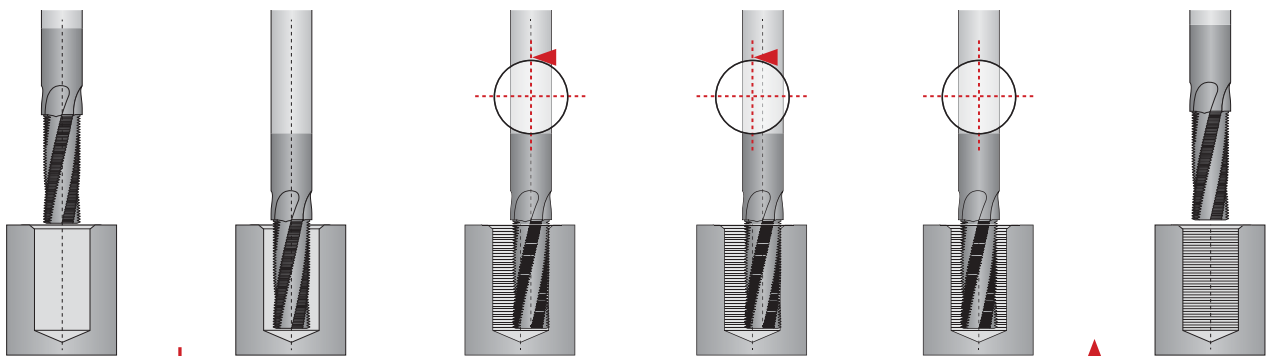
Major thread diameter	0.4375
Cutter diameter	0.335
Length of thread	0.5

Feed rate for thread milling	12.69
Z axis depth for full thread	0.5063
Z axis for arc on/off	0.0063

Arc on/off value	0.0256
Full rotation value	0.05125
Pitch value	0.05



N10	S	5416 M03					Absolute position in rapid to center of hole in X and Y, then rapid to Z0 (level with surface of hole)(assumed to be X0, Y0, Z0 for demonstration purposes). To be done by customer.	
N20	G90	G00	X 0.0000	Y 0.0000				
N30					Z 0.0000			
N40	G91	G01			Z -0.5063	F 50.0		
N50	G41	G01	X 0.0256	Y 0.0256	D1	F 3.17		
N60		CCW arc from full rotation from the arc on position at the calculated thread milling feed rate moving Z up (+) 1/8 pitch value (Z axis move up for arc on/off). X and Y positions are the incremental distance from where tool is to where it will be after arc (arc on/off value). 1 is the incremental X value of center of rotation from where tool currently is arc on/off value *-1. J is the incremental Y value from current tool position to center of rotation.						
N70	G03	X -0.0256	Y 0.0256	Z 0.0063	I -0.0256	J 0.0000	F 12.69	
N80		One complete CCW arc from the full arc rotation position at the calculated thread milling feed rate moving Z up (positive pitch value). I and J values are calculated same as above. I will be 0.0 and J will be full rotation value *-1.						
N90	G40	G03	X -0.0256	Y -0.0256	Z 0.0063	I 0.0000	J -0.0256	F 25.38
N100		Shut off cutter comp and move from arc off position to center of hole in X (arc on/off value -1) and Y (arc on/off value *-1) at high feed rate.						
N110	G90	G00			Z 0.4438	Rapid Z up incremental value (length of thread - all Z values in G03 arc commands).		
N110		G00			Z 1.0000	Switch back to absolute positioning and rapid to a safe point in Z above part level (assumed to be 1 above part level for demonstration purposes).		



Step 1 N10 - N30	Step 2 N40	Step 3 N50 - N60	Step 4 N70	Step 5 N80 - N90	Step 6 N100 - N110
<ul style="list-style-type: none"> Preparatory commands Positioning above hole center and at hole level in Z In absolute position mode 	<ul style="list-style-type: none"> Change to incremental Feed to bottom of hole Z axis depth for full thread 	<ul style="list-style-type: none"> Activate left cutter comp Feed to arc on position Arc to full rotation value while moving Z up 1/8 pitch Z axis move for arc on 	<ul style="list-style-type: none"> One complete CCW rotation at full arc rotation value while moving Z up 1 pitch value 	<ul style="list-style-type: none"> CCW arc from full rotation value to the arc on/off value while moving Z up 1/8 pitch (Z axis move for arc off) 	<ul style="list-style-type: none"> Rapid up in Z



Thread Mill Troubleshooting Guide

Causes		Symptoms										
		Thread mill is showing accelerated or excessive wear	Cutting edges are chipping	Thread mill is breaking in the first hole of part	Thread mill is creating excessive chatter	Out of round thread is produced	Bell mouthed thread form (small at bottom, big at top)	Part rejection because of rough flank finish	Steps in thread profile	Gauge difference from part to part	Machine not making correct paths to create thread profile	Control not accepting the program
Catalog	Incorrect tool selection			☐	☐							
	Incorrect speed and feed selection	☐, ☐	☐, ☐		☐, ☐			☐, ☐				
Speed and Feed	RPM too high	☐										
	RPM too low				☐		☐	☐				
	Machine tool specifications restrict RPMs			☐, ☐☐								
	Feed rate too high		☐	☐			☐	☐	☐			
	Feed rate too low	☐										
	Incorrect adjusted feed rate adjustment ratio			☐☐								
	Machine tool specification restricts feed rate					☐, ☐☐						
	Ramp-in is programmed as an axial move			☐☐					☐☐			
Tool	Thread mill moved or slipped in its holding device	☐☐	☐☐	☐☐	☐☐			☐☐	☐☐			
	Tool is sticking out of the holder too far	☐☐	☐☐	☐☐	☐☐			☐☐	☐☐	☐☐		
	Runout between thread mill and holder				☐☐			☐☐				
	Incorrect coating creating built up edge	☐, ☐☐								☐, ☐☐		
	Helix angle too low				☐			☐				
	Excessive thread mill wear								☐☐	☐☐		
	Excessive tool pressure	☐, ☐☐, ☐☐						☐, ☐☐, ☐☐				
Machine	Workpiece moving in its fixturing	☐☐	☐☐	☐☐	☐☐			☐☐		☐☐		
	Insufficient coolant pressure or flow	☐☐	☐☐									
	Lack of machine rigidity	☐☐	☐☐		☐☐		☐☐	☐☐				
Programming	Incorrect number of passes			☐☐			☐☐					
	Incorrect program variables			☐☐, ☐☐							☐☐, ☐☐	
	Did not account for X/Y radial moves for tapered threads										☐☐, ☐☐	
	Incorrect cutter compensation variables			☐☐, ☐☐								☐☐, ☐☐
	Helical interpolation option not on machine or turned off										☐☐, ☐☐	☐☐, ☐☐
Machine tool control is not formatted to standard EIA/ASCII/ISO Code											☐☐, ☐☐	

Troubleshooting Solutions

1. Refer to catalog to ensure proper tool selection.
2. Verify the correct speed was selected from the catalog speed and feed chart.
3. Verify the correct feed rate was selected from the catalog speed and feed chart.
4. Increase the spindle speed (RPM).
5. Decrease the spindle speed (RPM).
6. Increase feed per tooth.
7. Decrease feed per tooth.
8. Investigate other coatings.
9. Increase the tool helix.
10. Gauge runout between thread mill and tool holder.
11. Perform tool change at quicker intervals.
12. Adjust the feed rate ratio properly to the correct actual penetration rate for internal threads. Refer to speed and feed pages for formula.
13. Use hydraulic clamping chuck.
14. Check the tool for excessive wear. Beginning threads will wear the fastest.
15. Make the amount of overhang in the holding device as short as possible.
16. Verify the workpiece is properly clamped. Re-tighten or increase stability if necessary.
17. Increase the coolant flow and volume.
18. Check the milling program variables, especially the positive or negative value associated with I and J values.
19. Make sure the machine has the appropriate axis and path speed capabilities.
20. Make sure the thread mill is arcing in the major diameter instead of making a radial move.
21. Make sure the machine tool has a helical interpolation option that is on.
22. Increase the number of thread mill passes.
23. Make sure the cutter compensation variables are input into the G41 program line.
24. Adjust the program for pipe tap threads to taper out on diameter in X/Y directions to create proper form.
25. Request information from the machine tool builder regarding its programming formats.
26. Scan and email a copy of your program to the Application Engineering department at appeng@alliedmachine.com.

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

Special Tooling Solutions

Superion™ | Insta-Quote™ | Engineered Specials



Specialty is Our Specialty

It's true. When it comes to designing and developing special solutions for customers, Allied Machine is the top choice. Our engineers see applications in ways many others don't, and that ability allows us to win situations that haven't been won before.

If you have a particularly unique or difficult application, give us a call. Most of our tooling can be tweaked as specials, and we can create entirely new concepts if alterations to standard product won't do the trick.

After all, everyone deserves some special attention.



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.



ATTENTION (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.

Special Tooling Solutions Contents

Introduction Information

Overview of Specials Capabilities 2 - 3

Superion™ 4 - 5

Insta-Quote™

Program Overview 6

User Guide 7 - 9

T-A® Inserts 10

T-A® Holders 11

GEN3SYS® XT Holders 12

ALVAN® Reamers 13

Engineered Specials

Insert Designs 14

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Send in Your Own Design 24 - 25

Deep Hole Drilling Guidelines 26

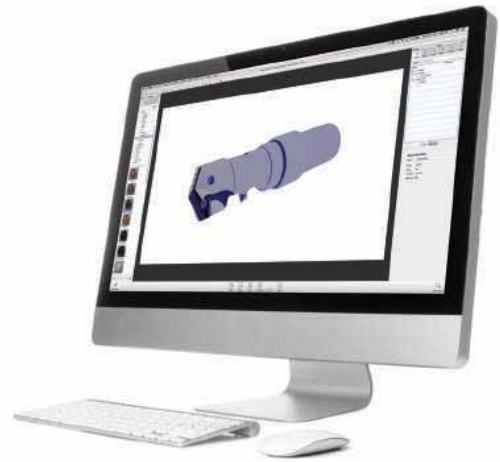
Special Tooling Options

Special Tooling is Our Specialty

Allied Machine offers three methods for obtaining special tooling to solve any application problem you encounter: Superion™, Insta-Quote™, and Engineered Specials. We know standard tooling can't be the answer for everyone, and that's why we specialize in developing unique tooling to fit your needs.

Many of our products can be altered as specials. In fact, many of our standard items are results of frequently requested special features. Many times, one special design can end up solving problems for multiple customers across a variety of industries. Our specials capabilities truly sets us apart from our competition.

Our Application Engineering team and Field Sales Engineers are trained and highly skilled to develop unique solutions that you won't find anywhere else. If you need special tooling, give us a call. Let us be the ones to tell you it can't be done. But don't expect us to.



Advanced Capabilities

With the addition of the Superion™ solid carbide products, Allied Machine can now provide made-to-order special tooling to better help customers achieve optimal performance and productivity in their holemaking applications. Give us a call today and see the new solutions we can provide.

Made-to-Order Solid Carbide Specials

- PCD Tooling
- Burnishing Drills
- Solid Carbide Drills
- Carbide / PCD Step Reamers

SUPERION™

Solid Carbide Specials



Insta-Quote™

Insta-Quote is an online custom tool designer. The program is available 24/7 and guides you through the steps as you create a special tool designed to meet the requirements of your application.

Products Available:

- T-A® Inserts
- T-A® Holders
- GEN3SYS® XT Holders
- ALVAN® Reamers



See pages X: 6 - 13



Engineered Specials

When the requirements of your application fall outside the limitations of Insta-Quote, your special tooling becomes an Engineered Special. These are tool designs that our engineers get to create and develop specifically for you.

Reasons to Call:

- Many standard products can be specially engineered
- Allied Machine specials can save you time and increase tool life
- Our engineers have the skills and knowledge to create designs that meet the challenge



See pages X: 14 - 21

Industry Solutions

Every Industry Needs Some Special Attention

Many specific industry applications can be tricky, and processes can change drastically from one sector to the next. Allied's Field Sales Engineers and Application Engineers work together to develop breakthrough solutions that help customers master processes that before seemed impossible to improve.

You know your parts. You know your materials. You know what works and what doesn't. All you need to do is let us know what you're dealing with, and we'll take it from there. Whether you're machining the wings of an airplane or the engine block in a new car, we'll develop the right design to solve the problem you're facing.

For more industry examples, see Allied Machine's Case Studies and Success Stories at www.alliedmachine.com/RealLifeResults.



Automotive
Engine Block



Aerospace
Central Fuselage Wing Box



Heavy Machinery
Track Links



Oil and Gas
Heat Exchanger

COMPLEX SOLUTIONS



INNOVATIVE SOLUTIONS



LONG SOLUTIONS



EVERY PROBLEM
HAS A
SOLUTION

Superion™

Solid Carbide Special Capabilities



a solid combination

Providing New Capabilities

With the acquisition of Superion, Inc., Allied Machine has gained the ability to provide top-of-the-line solid carbide special tooling. Superion has built its reputation as a manufacturer of innovative special solid carbide and PCD tipped rotary cutting tools such as:

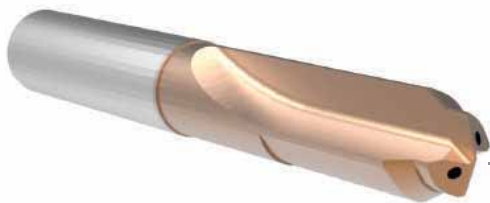
- PCD Tools
- Reamers
- Drills
- Step Tools

Superion is widely recognized as the expert in developing customized solutions in specialty tooling. And now Allied Machine is bringing that expertise to you.

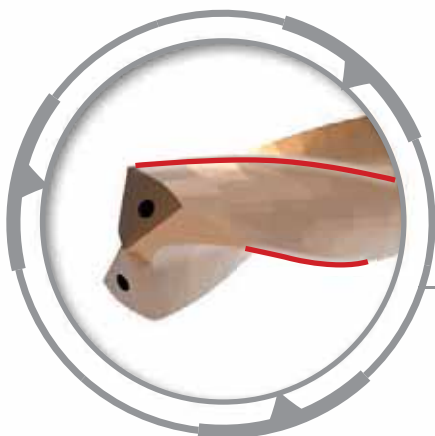
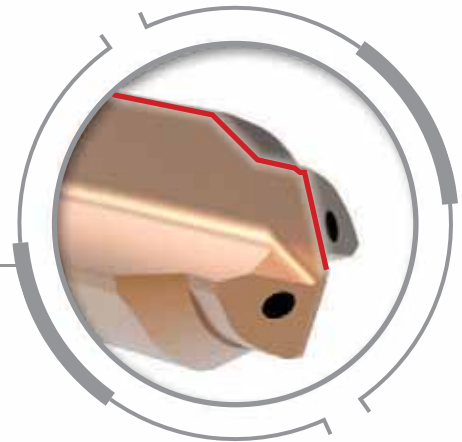


SOLID CARBIDE
SPECIALS

PCD Tooling ■ Burnishing Drills ■ Solid Carbide Drills ■ Carbide / PCD Step Reamers



FORM DRILL



DOUBLE MARGIN



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



01 PCD DRILLS



Industry Application
Aerospace



Industry Application
Automotive

Wafer Style

- Wide diameter range of 3mm - 50mm
- Can be designed with multiple steps
- Can be designed with coolant through

Solid Head Style

- Diameter range of 3mm - 16mm
- Available with PCD to the center of the tool
- Can be reground

Aerospace

- Solid head PCD tools are used in composite materials (CFRP)
- Wafer tools are used for aluminum applications



02 SOLID CARBIDE DRILLS



Industry Application
Firearms



Industry Application
Automotive



Industry Application
Aerospace

Diameter | 25xD

- Wide diameter range of 3mm - 50mm
- Depth-to-diameter ratio up to 25xD

Multi-Step

- Can be designed with multiple steps
- Reduces cost per hole by eliminating tool changes

Automotive | Firearm

- Customized solutions available for the automotive, firearm, and aerospace industries



03 BURNISHING DRILLS



Industry Application
Aerospace



Industry Application
Automotive

Design

- Wide diameter range of 3mm - 50mm

Design

- Straight flutes, thinned web, four margins
- Available with or without coolant

Materials

- Specifically designed for cast iron and aluminum applications
- Produces rounder, more consistent holes

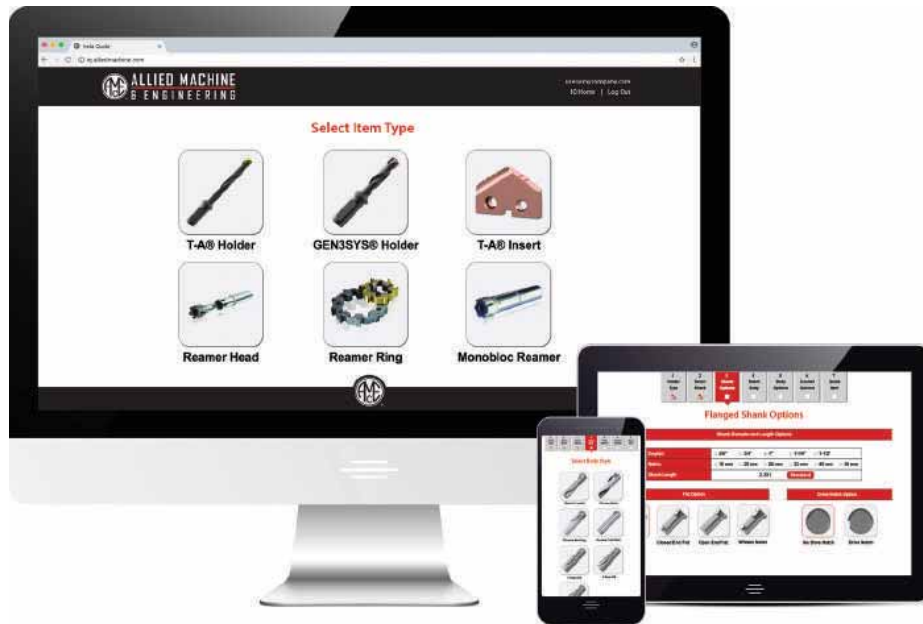
Insta-Quote™

Design Your Custom Tooling



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

iq.alliedmachine.com



Design Your Own Solutions

Insta-Quote is an online program that allows you to design and quote your own tooling in a matter of minutes. After you log in, Insta-Quote will guide you through the steps to gather all the necessary information and generate the solution you need. Within the system, you can choose from the following tools to design:

- T-A® Inserts
- T-A® Holders
- GEN3SYS® XT Holders

Along with designing these products as specials, Insta-Quote can also help you create your item number for ALVAN® Reamers. Because reamer item numbers do not follow the same method as Allied Machine's standard products, you must build your reamer item numbers. Insta-Quote can do that for you.

- Replaceable Head Style
- Monobloc Style
- Cutting Ring Style



Design anytime from anywhere.
Available online 24/7.



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

Insta-Quote™

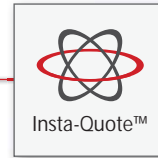
User Guide



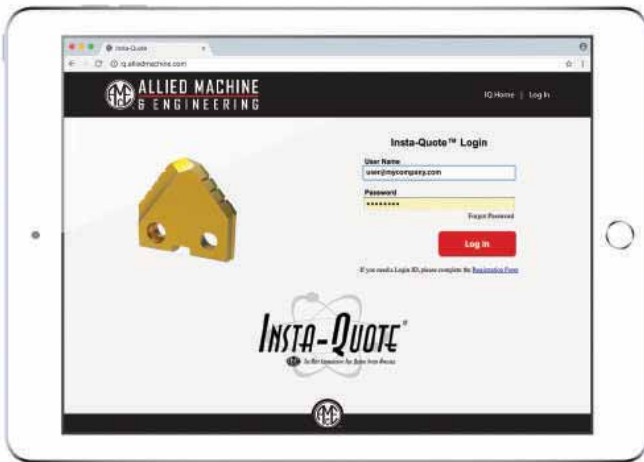
Where Do I Find Insta-Quote?

There are two ways to get to the Insta-Quote program. You can visit the Allied Machine homepage (www.alliedmachine.com) and click on the Insta-Quote icon under the quick links menu (☰)

Or, you can simply go to iq.alliedmachine.com to access Insta-Quote directly.

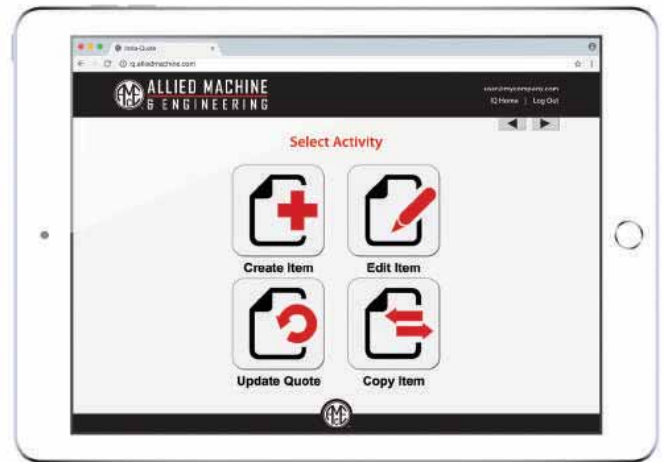


OR iq.alliedmachine.com

**1**

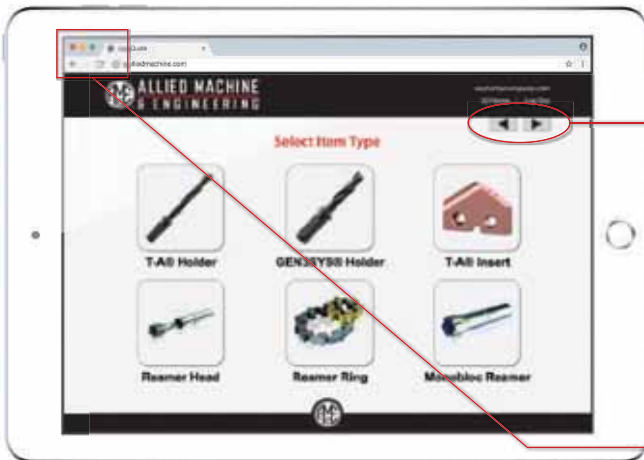
Log In

Fill in "User Name" and "Password" and click the login button. If you do not have a login, just click the "Registration Form" option beneath the log in button and submit your registration.

**2**

Select Activity

On this screen, you can choose to create a new tool, edit a previous tool, update your quote, or copy a previous item.

**3**

Select Tool Type

Choose the type of special tool you would like to create. The options include T-A® inserts, T-A® holders, GEN3SYS® holders, replaceable head reamers, monobloc reamers, and cutting ring reamers.



IMPORTANT:

The right and left arrows will navigate you through each step. **DO NOT** use the web browser's back and forward buttons; doing so may result in loss of progress.



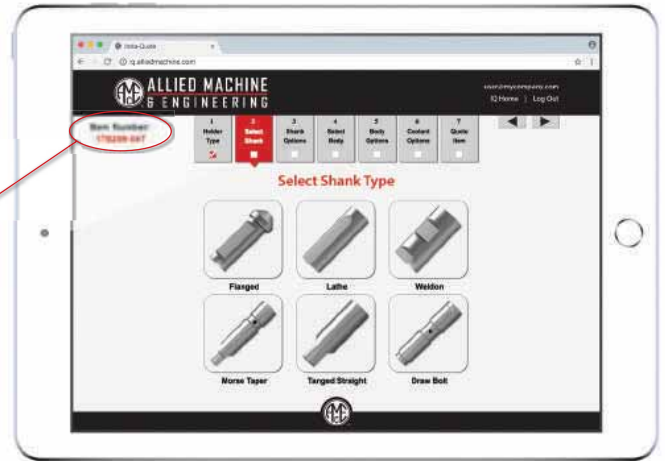
Do not use the web browser's back and forward arrows

What is My Item Number?

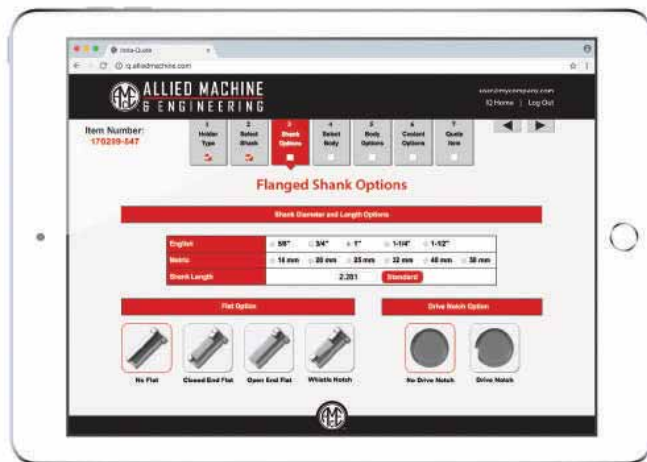
As soon as you select the type of product you want to design, Insta-Quote automatically generates the item number for your tool. The item number will appear at the top left-hand side of your screen.

170209-547

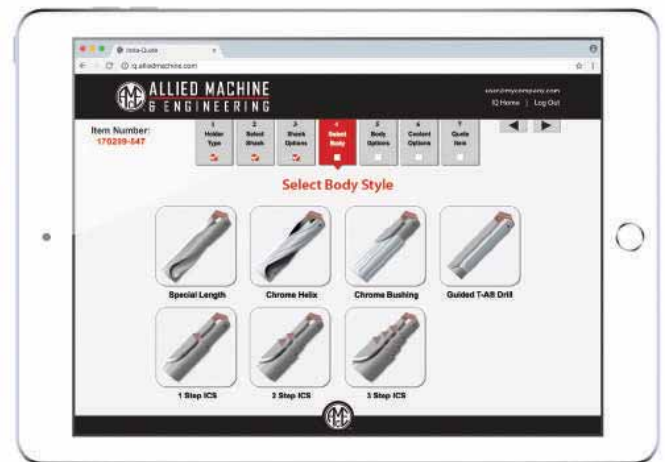
Year Month Day Reference No.



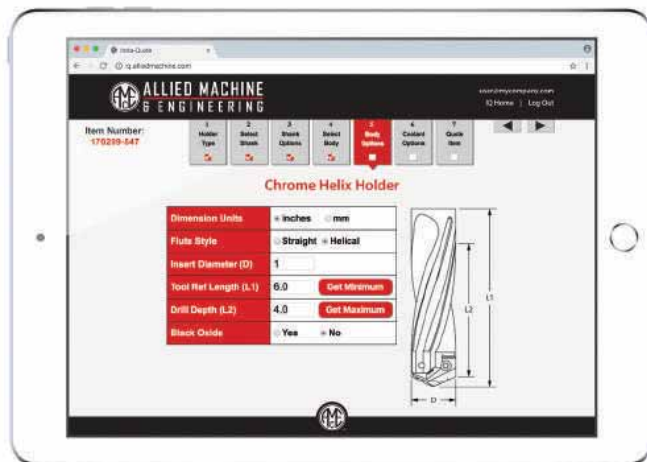
4 Shank Selection
Select the shank type you require and then click the right arrow button ► to proceed.



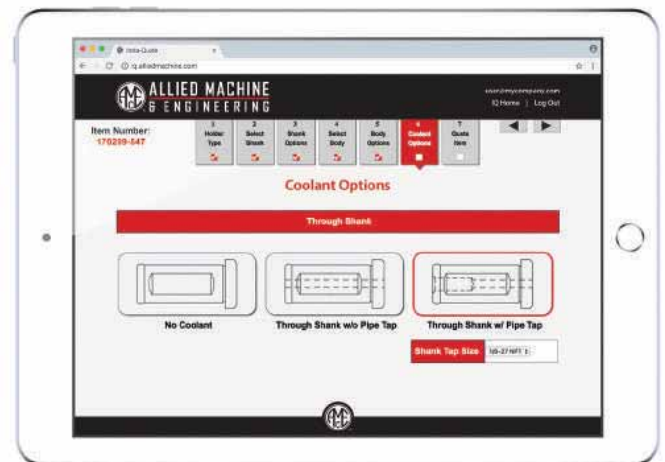
5 Shank Options
After choosing the shank type, you will be provided with additional shank options (if applicable). Once your selections are made, click the right arrow button ► to proceed.



6 Select Body Style
Choose the holder style you need, and then click the right arrow button ► to proceed.



7 Body Options
After choosing the holder style, you will be provided with additional holder options (if applicable). Once your selections are made, click the right arrow button ► to proceed.



8 Coolant Options
On this screen you will select your coolant options. When finished, click the right arrow button ► to proceed.

A DRILLING

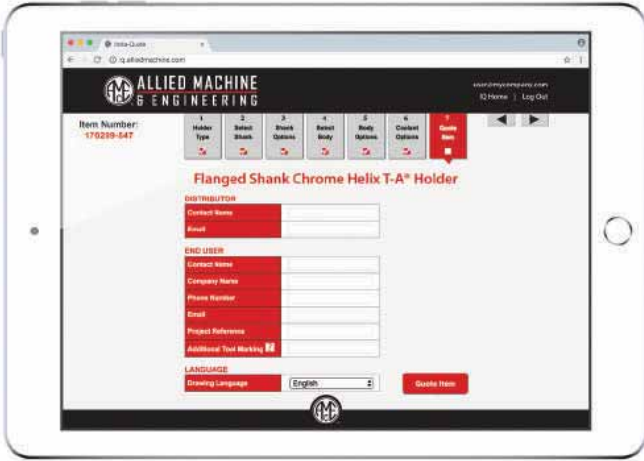
B BORING

C REAMING

D BURNISHING

E THREADING

X SPECIALS



9 **Contact Information**
Complete the contact details and select a language for the drawing. Click the "Quote Item" button to proceed.

10 **Quote Your Item**
Once you have selected "Quote Item," a box will appear to let you know the estimated time remaining before your quote and drawing are created (typical wait time is less than 1 minute).
NOTE: Your pop-up blocker must be disabled in order to view the downloaded files.

Date: 02/09/2017

Quotation Number:
N-012345-678910
Please reference the above number when placing an order

ALLIED MACHINE & ENGINEERING
Manufacturing Solutions for Today's Manufacturing
120 Deeds Drive
Dover, OH 44622
P: +1.330.343.4283
F: +1.330.602.3400
www.alliedmachine.com

Attn: Joe Thomas
Customer Name: ABC Company
Customer Contact: Joe Thomas
Customer Item Reference N/A
Email: joe@mycompany.com
Phone: 3303303300

270801
Customer Account
123 Holmaking Pkwy
Suite 1000
Dover, OH 44622
Phone: 330-343-4283
Fax: 330-602-3400
AMEC Rep: Harold Stokely

USA

This quotation is being offered based on the information that has been provided to AMEC. The price and manufacturability is subject to change based on the final design of the item.

DESCRIPTION	QTY	LIST PRICE EACH (U.S.)
#2 Series T-A* Chrome Helix Holder With 1.000" Drill Diameter, 5.860" Helical Flute, 4.00" Drill Depth, 1.000" Dia. By 2.281" Long Flanged Shank With No Flat With Through Shank Coolant, Per AMECA 170210-523 Rev. 0	1	\$ 0.00
	2	\$ 0.00
	3	\$ 0.00
	4-5	\$ 0.00
	6-9	\$ 0.00
	10-14	\$ 0.00
	15-24	\$ 0.00
	25-49	\$ 0.00
	50+	\$ 0.00

For additional opportunities to lower cost, please review AMEC's Blanket Release Order Policy (BRO Policy 021010 Rev.1).

Order Quantity	Variance Amount	Order Quantity	Variance Amount
1-9	+0/-0	150-299	+0/-3
10-49	+0/-1	300-499	+0/-5
50-149	+0/-2	500+	+0/-10

* Deviations with approval by the customer

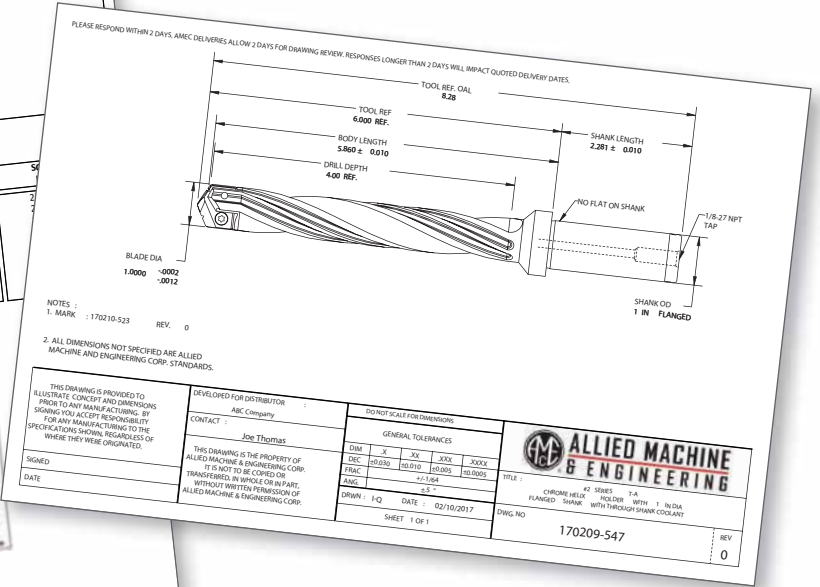
WARNING For Deep Hole Drilling
Tool failure will cause customer injury. To prevent:
- When using lengths greater than 50D without support tooling, use a support length holder to establish an initial flute that is 2-3 diameters deep.
- Do not rotate tool more than 90 RPM unless it's supported with workpiece or fixture.
- Follow the Deep Hole Drilling Guidelines on technical reference section of the catalog for best practices for deep hole drilling.
- In cutting, use speed & feed multipliers at bottom of coolant jets to calculate proper feed recommendations.
- In cutting, use correct multipliers at bottom of coolant jets to calculate proper feed recommendations.
- In cutting, use correct multipliers at bottom of coolant jets to calculate proper feed recommendations.
Visit www.alliedmachine.com/technicalreference page for tool life data, algorithms and programs.
Factory technical assistance is also available at 800.221.1237 or at 330.343.4283 outside the US and Canada.

This Document will serve as our official response. Please notify us if additional copies should be mailed.

- This quote is valid until 12/31/2018 unless you are sent a specific notification to the contrary.
- Scheduled lead time is based on availability of material at time of order. You will be notified within 3 business days of receipt of order, if a lead time change is required.
- Scheduled lead time starts upon receipt of order as well as customer approved AMEC drawing when appropriate.

All special order cancellations are subject to a minimum of 10% cancellation charge. AMEC reserves the right to increase the cancellation charge as deemed necessary to cover costs associated with items being cancelled.

ALLIED MACHINE & ENGINEERING CORP
This quote prepared by: Insta-Quote



The drawing contains all relevant dimensions. It must be signed before manufacturing can begin.
NOTE: The drawing is a generic representation and is not to scale.

Insta-Quote™ Custom Tooling

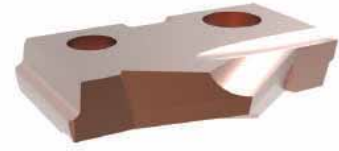
T-A® Inserts



Anile



Double Angle



Spur Point



Spot and Chamfer



Step Insert

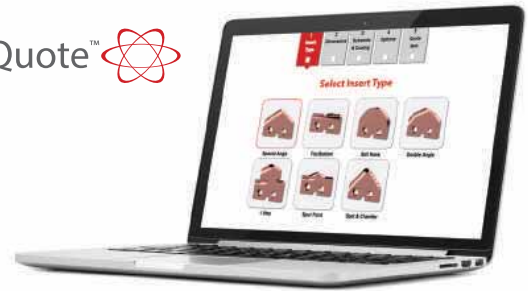


Flat Bottom



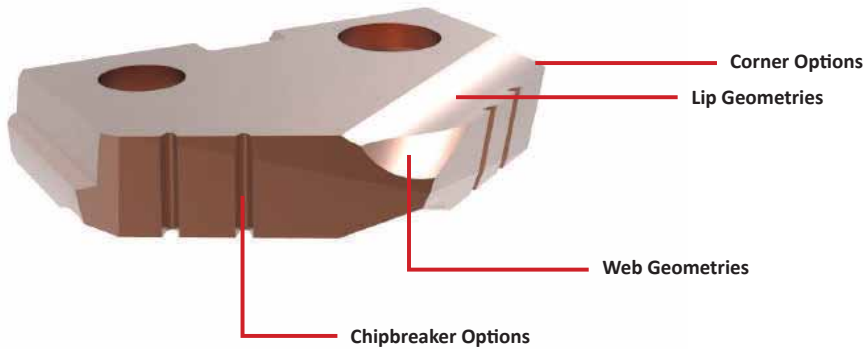
Ball Nose

Insta-Quote™



Additional Features

Insta-Quote provides multiple options to enhance different areas of the insert. If you have questions about which options would most benefit your application, just give us a call. We'll be happy to provide in-depth explanations about how certain options can optimize your results.



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

Substrate Options
HSS: Super Cobalt, Premium Cobalt
Carbide: C1, C2, C3, C5

Coating Options			
AM200®	TiN	TiAlN	TiCN

Insta-Quote™ Custom Tooling

T-A® Holders



Chrome Helix



Chrome Bushing



 Guided Holder



One Step ICS



Two Step ICS

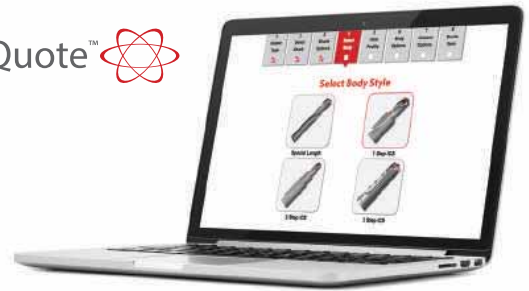


Three Step ICS



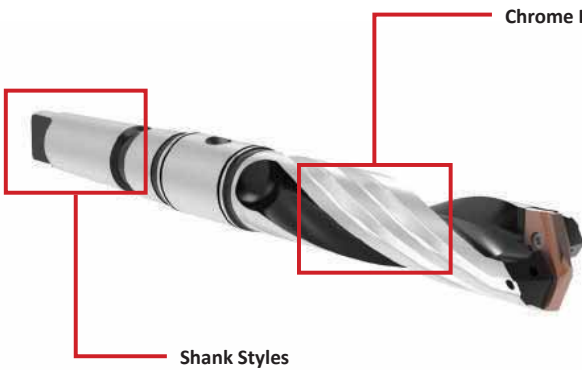
 Special Length

Insta-Quote™ 



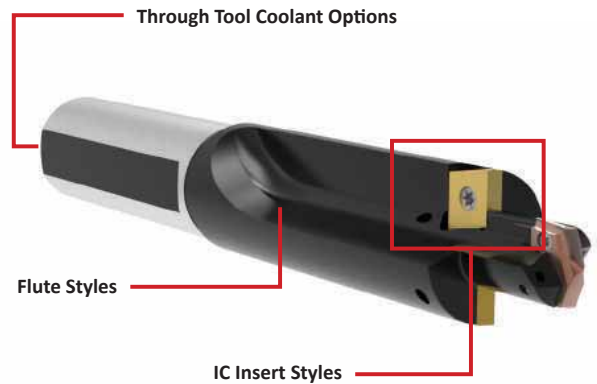
Additional Features

Insta-Quote provides multiple options to enhance different parts of the holder. If you have questions about which options would most benefit your application, just give us a call. We'll be happy to provide in-depth explanations about how certain options can optimize your results.



Chrome Bearing Areas


Shank Styles



Through Tool Coolant Options

Flute Styles

IC Insert Styles

 **ATTENTION** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page X: 26 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.

Insta-Quote™ Custom Tooling

GEN3SYS® XT Holders

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



Chrome Helix



Chrome Bushing



⚠ Special Length



One Step ICS



Two Step ICS

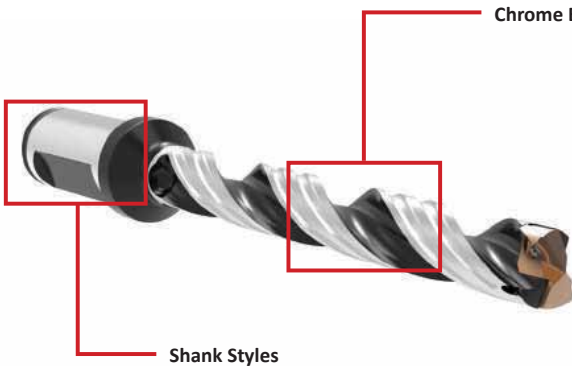
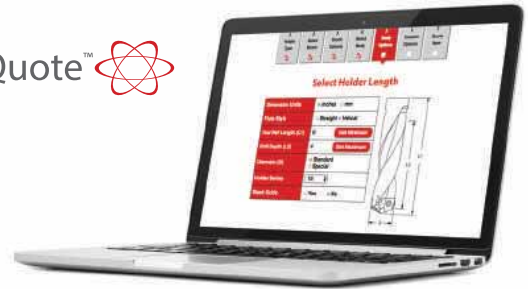


Three Step ICS

Additional Features

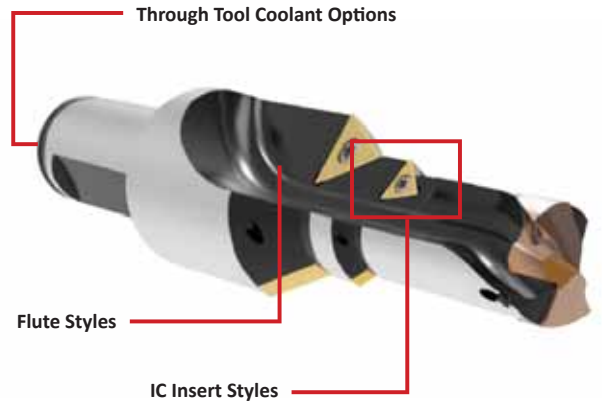
Insta-Quote provides multiple options to enhance different parts of the holder. If you have questions about which options would most benefit your application, just give us a call. We'll be happy to provide in-depth explanations about how certain options can optimize your results.

Insta-Quote™ 



Chrome Bearing Areas

Shank Styles



Through Tool Coolant Options

Flute Styles

IC Insert Styles


Where are the Inserts?

Though Insta-Quote incorporates special designs for GEN3SYS XT holders, it does not include options for designing special GEN3SYS XT inserts. GEN3SYS XT holders utilize standard GEN3SYS XT inserts, which can be found in Section A20 of the product catalog.

If you need a special insert, or would simply like to discuss options for designing one to fit your application, please contact us and we can create a special design as an engineered special.



Engineered Special
GEN3SYS XT insert designed for specific aerospace application

 **WARNING** Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page X: 26 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.

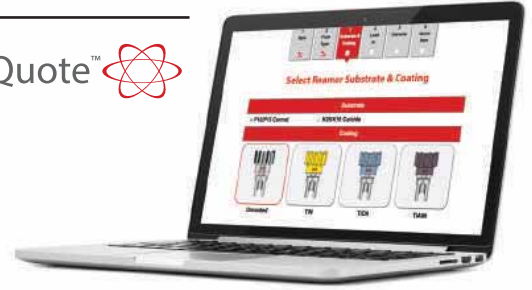
Insta-Quote™ Custom Tooling

ALVAN® Reamers

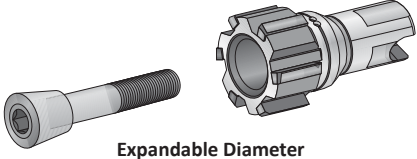
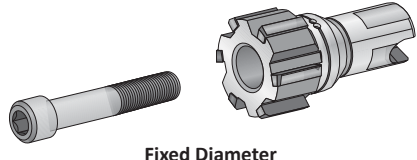
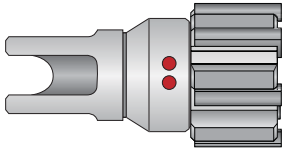
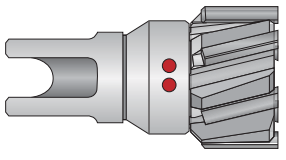




Use Insta-Quote to Build Your Part Numbers

Insta-Quote can help you find or build the ALVAN® Reamer item numbers you need along with the price and delivery of the items. It can also give you the recondition item and delivery. Just follow the steps, and Insta-Quote will guide you through the process.

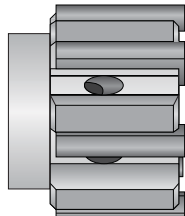
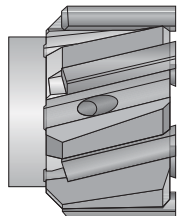




Insta-Quote™ 



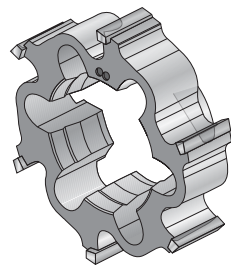
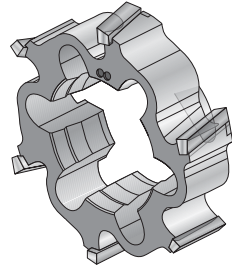




Replaceable Head Style

Diameter Options	Flute Options	Coating Options
 <p>Expandable Diameter</p>  <p>Fixed Diameter</p>	<p>Straight Flute</p>  <p>Left Hand Helical Flute</p> 	 <p>Uncoated</p>  <p>TiN</p>  <p>TiAlN</p>  <p>TiCN</p>

Monobloc Style

Flute Options	Coating Options
 <p>Straight Flute</p>  <p>Left Hand Helical Flute</p>	<p>Uncoated</p>  <p>TiN</p>  <p>TiAlN</p>  <p>TiCN</p> 

Cutting Ring Style

Flute Options	Coating Options
 <p>Straight Flute</p>  <p>Left Hand Helical Flute</p>	<p>Uncoated</p>  <p>TiN</p>  <p>TiAlN</p>  <p>TiCN</p> 

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

Engineered Specials

Insert Designs

Infinite Solutions

Though Insta-Quote™ and i-Form are incredible special tooling systems, some applications require a deeper level of engineering to accomplish the optimal results. No matter what the application may be, Allied Machine engineers have the knowledge, experience, and expertise to design and develop a special product to exceed your expectations.

Engineered Specials are not limited to T-A® or GEN3SYS® XT products. In fact, Engineered Specials can be created for most products offered by Allied Machine, including APX Drill, Opening Drill®, ASC 320®, AccuThread™ 856, Wohlhaupter® boring products, and many other product families.



Multiple Step



Special Point



Non-Center Cutting and Chamfer



Back Chamfer



Back Chamfer with Chipbreakers



Flat Fottom with Pilot, Corner Radius, and Chamfer



Special Step



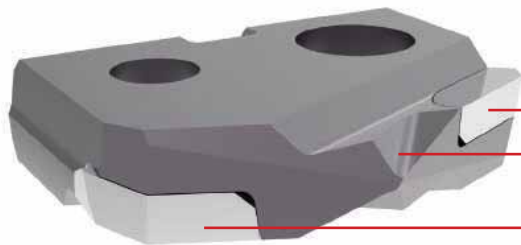
Non-Center Cutting and Chamfer



Back chamfer



Non-Center Cutting and Chamfer



The Proof is in the Numbers

See the following results from a customer who was experiencing difficulty when drilling CFRP material:

- The fibers are characterized by high strength
- The material is difficult to cut, which wears down the cutting tool and causes splintering and/or fraying
- The plastic matrix is sensitive to heat and will melt
- The structure is built up by layers of material, which results in delamination upon exit

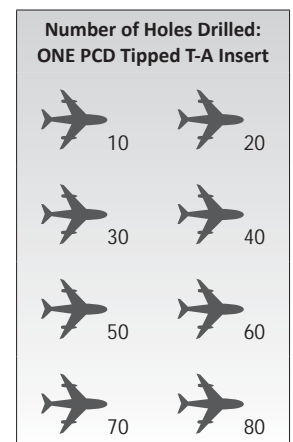
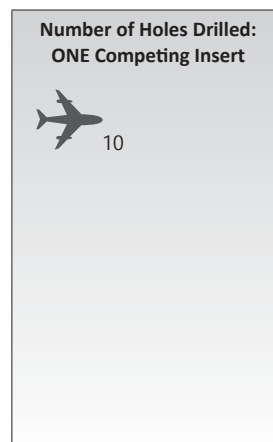
INCREASED tool life by **80%**

T-A® PCD Diamond Tipped Insert: Why PCD?

What allows the PCD (polycrystalline diamond) insert to generate such great success is the sharp cutting edge made for extreme wear resistance. While other tools encounter massive tearing when exiting, the PCD insert geometry, along with precise OD corner prep and Notch Point® technology, encounters minimal delamination. This produces an almost perfect tight tolerance and smooth hole.

Insert Highlights

- C3 carbide substrate increases tool life
- PCD tip is designed for carbon fiber reinforced polymer (CFRP) material
- Notch Point® geometry, special corner clip, and drill point angle help minimize delamination upon exiting the hole



Engineered Specials

Featured Design | GEN3SYS® XT Vacuum Drill

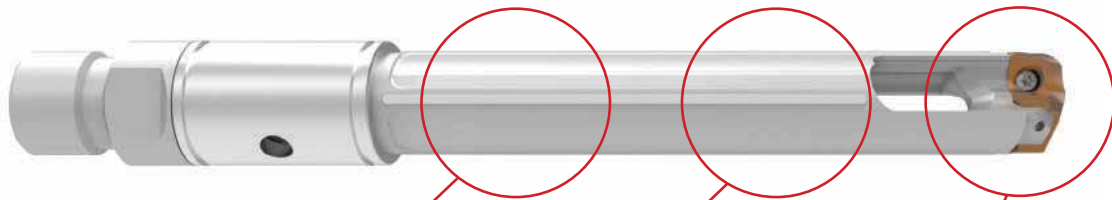


Vacuum Drill Highlights

- Keeps material contained in a sealed vacuum system
- Provides mobile ability to perform operations away from a stationary machine tool
- Eliminates operation limitations
- There is a range of diameters per holder
- The same holder can be used for different material specific inserts



Industry Application
Aerospace



Tight tolerance body diameter to run through a drill bushing

Spent coolant and chips are evacuated through an internal flute

Replaceable insert for quick and easy changes

Carbon-Fiber-Reinforced Polymers (CFRP)

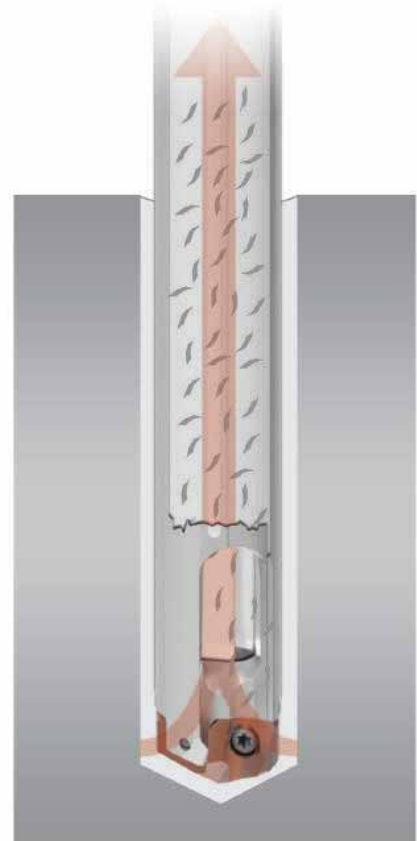
These are composite materials consisting of two parts: a matrix and a reinforcement (carbon fiber). Unlike isotropic materials like steel and aluminum, CFRP has directional strength properties, which depend on the layouts of the carbon fiber and the proportion of the carbon fibers in relation to the polymer.

Drilling in CFRP

- These applications are run with the vacuum only, no coolant
- Can be run with or without a micro peck cycle

Drilling in Metal

- These applications are run with the vacuum and coolant or mist
- Recommended to be run with a micro peck cycle



Engineered Specials

Featured Design | T-A® Stealth Drill

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



T-A Stealth Drill Highlights

- 2 adjustable Torx® PLUS screw pins allow for diameter adjustment to reduce TIR
- Provides improved tool life and hole finish
- Guided wear pads improve hole straightness
- Coolant through design with multiple coolant outlets along the drill holder provides stability in deep hole drilling applications and also improves chip evacuation



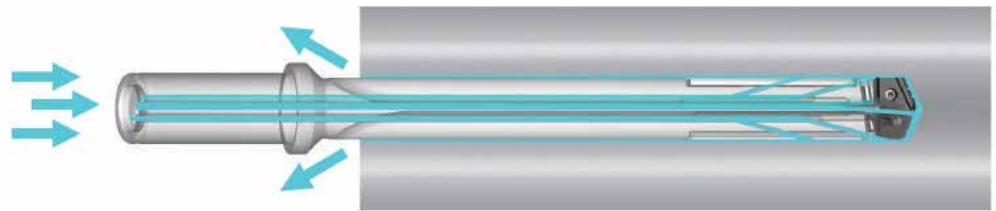
Industry Application
Automotive



Industry Application
Aerospace

Triple Coolant Outlets

- Additional coolant outlets help keep the holder straight and precise
- Longer holders experience and maintain increased stability in deeper holes



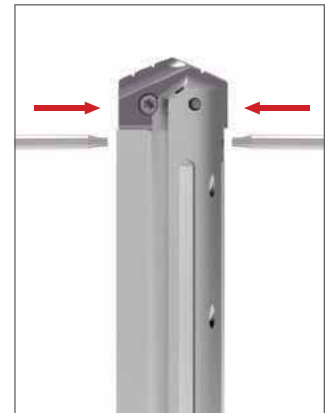
Locate the 2 adjustable Torx® PLUS screws (one on each side).



Loosen each screw.



Adjust insert position.



Tighten each screw.

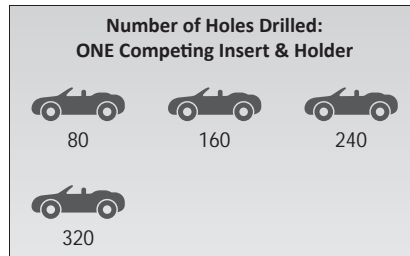
The Proof is in the Numbers

The following results came from a real-life application that utilized the T-A Stealth Drill. The customer was experiencing a high scrap rate and needed to find a solution to eliminate the problem.



✓ Our Chips

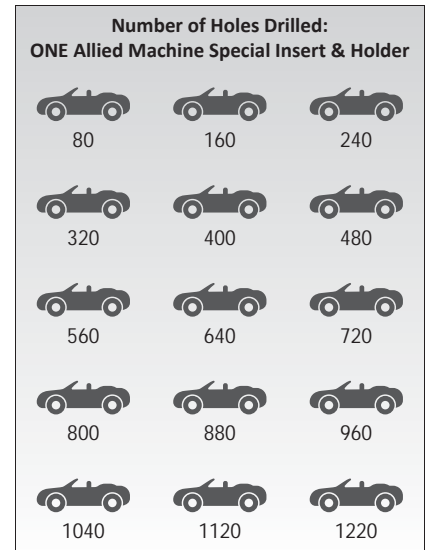
✗ Their Chips



In this application, Allied Machine:

- Eliminated **\$240,000** in scrap per year
- Optimized the chip formation
- Enhanced the chip evacuation
- Provided excellent surface finish

INCREASED tool life by
280%



Engineered Specials

Success Stories

Real-Life Results

Below are five brief success stories. Each one provides an overview of specific situations when our special tooling achieved top-quality performance for our customers. For more success stories, or to read full in-depth case studies, go to www.alliedmachine.com/RealLifeResults.



Industry Application

Oil & Gas

Special AccuPort 432® Port Contour Cutter

Hydraulic Manifolds

- Eliminated multiple tools in the process
- Eliminated regrinds
- Improved performance in cross hole applications



Industry Application

Heavy Equipment

Special T-A® Holder & Insert

Axle Shafts

- 100% increase in tool life
- \$7,500 reduction in set-up costs
- Eliminated scrap that was caused by set-up issues



Industry Application

Firearms

i-Form Drill

Barrel Nut

- Eliminated three tools in the process
- Reduced cycle time by 25%
- Improved chip formation



Industry Application

Automotive

T-A® Rim Drill

Aluminum Wheels

- 50% increase in penetration rates
- 50% increase in tool life
- Eliminated regrinds



Industry Application

Aerospace

Special Carbide Clad T-A® Holder with Diamond Coated Insert

Carbon Fiber Landing Arm

- Eliminated delamination of carbon fiber
- 7x more tool life
- Special shank threads directly into drill unit for easy tool change



A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS



Engineered Specials

i-Form Custom Indexable Drill / Form Tool System

Any Way You Want It

What if you could utilize complex forms that only seem to be available as brazed or solid carbide tools? Allied Machine's i-Form custom indexable drill/form tool system allows for complex designs with a replaceable cutting edge. This will reduce set-up times and eliminate regrinds, allowing you to increase your productivity and reduce costs. Don't settle for being good when the possibility of being great is right in front of you.

This is just a small sample of what you can do.



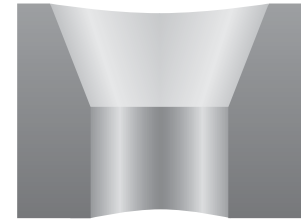
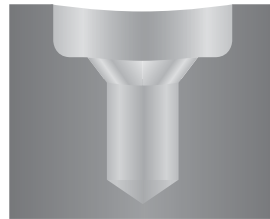
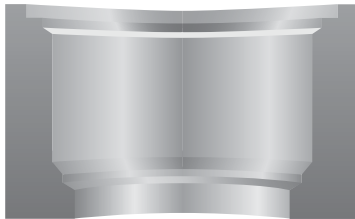
**i-Form Holder
with i-Form Inserts**



**Lug Hole T-A® Drill
with i-Form Inserts**



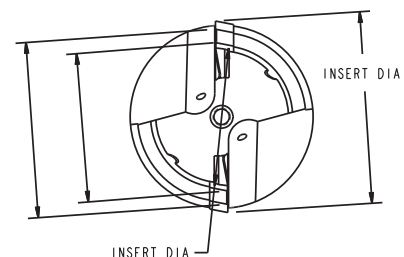
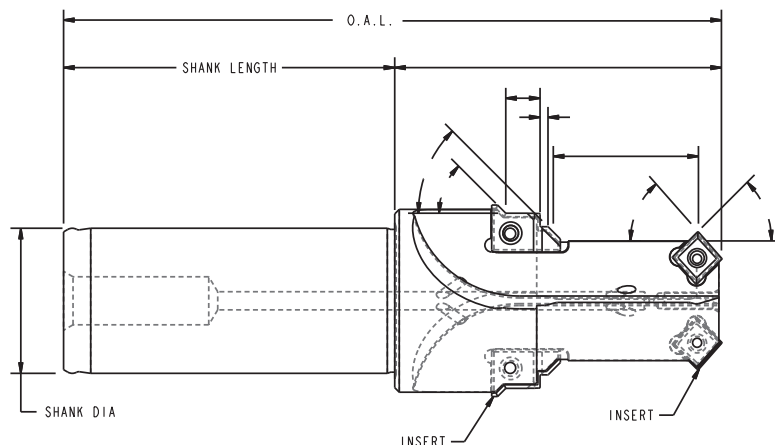
**i-Form Drill for Facing Operations
with ID-OD Chamfer**



Design Complex Forms for ANY Hole Style

i-Form allows you to design complex forms for any style hole with increased productivity. The i-Form product line - both pilot inserts and form inserts - creates custom engineered forms that provide complex designs with replaceable cutting edges and improved consistency, all while outperforming brazed and solid carbide tooling. i-Form tools will increase your productivity, minimize set-up times, and eliminate regrind tool float and inconsistency.

- Holders have coolant through capabilities
- Holders can utilize standard inserts, Insta-Quote™ inserts, and/or special insert designs



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

Engineered Specials

i-Form Custom Indexable Drill / Form Tool System



**GEN3SYS® XT Pilot Insert
with i-Form Inserts**



**GEN3SYS® XT Pilot Insert
with i-Form Inserts**



**GEN3SYS® XT Back Chamfer Insert
with i-Form Inserts**



**T-A® Flat Bottom Form Drill
with i-Form Inserts**



**T-A® ICS Drill
with i-Form Inserts**



**T-A® Pilot Insert
with i-Form Inserts**



**Square QDSI 34® Inserts
with i-Form Inserts**



**3 Flute IC Drill
with i-Form Inserts**



**i-Form Holder
with i-Form Inserts**



**AccuPort 432® Drill
with Special T-A® Form Insert**



**T-A 2 Step IC Drill
with i-Form Inserts**



**Special Core Drill
with i-Form Inserts**

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS



Engineered Specials

Special Designs | T-A® Products

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



**T-A IC Drill
with Back Chamfer Insert**



T-A 1 Step Stub Length



T-A IC Drill



T-A 2 Step IC Drill



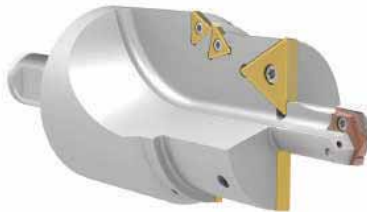
**T-A Counter Bore Tool
with Micro Adjustable Cartridge**



**T-A Form Drill
with Adjustable Cartridge**



**T-A Multiple Step Drill
with Adjustable Cartridge**



**T-A Large Diameter
Multiple Step IC Drill**



T-A Deburr Drill



**T-A IC Drill
with Customer Defined Shank**



**T-A Deep Hole Drill
with Customer Defined Design**



**T-A Chrome Bearing Drill
with Customer Defined Shank**



**T-A 1 Step IC Drill
with Flat Bottom Insert**



T-A Form Drill



**T-A Drill
with Special Holder and Insert Design**

Engineered Specials

Special Designs | Other Products



**Special BT-A Drill
with Internal Thread**



Special BT-A Drill



Special BT-A Drill



**APX Drill
with Carbide Clad Guides**



**APX Drill
with 1 Step Design**



**APX Drill
with HSK Shank**



**Opening Drill®
with Special Diameter**



**Special Core Drill
with 2 Step Design**



**ICS Drill
with Adjustable Cartridge**



**Superion™ Solid Carbide
with AM200® Coating**



**AccuThread™ 856
with Through Coolant**



**AccuPort 432®
Special Length**



**ALVAN® Ring Style Reamer
with Special Length**



**GEN3SYS® XT
with Morse Taper Shank**



**GEN3SYS® XT
with IC Inserts and Special Body**

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

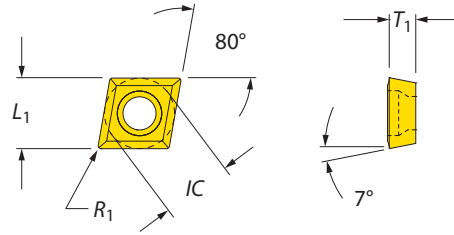
THREADING

X




SPECIALS

QDSI 34® Inserts

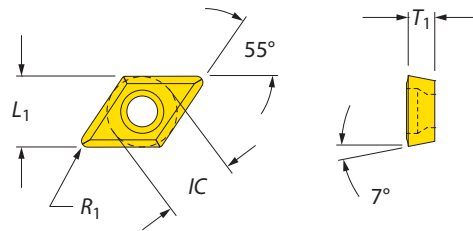
80° Diamond | 55° Diamond






80° Diamond Inserts

Imperial (inch)				Metric (mm)					Part No.	AN [®] Designation		Torx Screw		Torx Driver
IC	L ₁	T ₁	R ₁	IC	L ₁	T ₁	R ₁							
0.250	0.249	0.094	0.008	6.35	6.32	2.39	0.20	CCGT-060202	CCGT 2(1.5)0.5	7256-IP8-1	8IP-8			
0.250	0.247	0.094	0.016	6.35	6.28	2.39	0.40	CCMT-060204	CCMT 2(1.5)1	7256-IP8-1	8IP-8			
0.250	0.244	0.094	0.031	6.35	6.21	2.39	0.79	CCMT-060208	CCMT 2(1.5)2	7256-IP8-1	8IP-8			
0.250	0.244	0.156	0.031	6.35	6.21	3.96	0.79	CCGT-06T308	CCGT 2(2.5)2	7256-IP8-1	8IP-8			
0.375	0.374	0.156	0.008	9.53	9.49	3.96	0.20	CCGT-09T302	CCGT 3(2.5)0.5	7359-IP15-1	8IP-15			
0.375	0.372	0.156	0.016	9.53	9.46	3.96	0.40	CCMT-09T304	CCMT 3(2.5)1	7359-IP15-1	8IP-15			
0.375	0.369	0.156	0.031	9.53	9.39	3.96	0.79	CCMT-09T308	CCMT 3(2.5)2	7359-IP15-1	8IP-15			
0.500	0.497	0.188	0.016	12.70	12.63	4.76	0.40	CCMT-120404	CCMT 431	745105-IP20-1	8IP-20			
0.500	0.494	0.188	0.031	12.70	12.56	4.76	0.79	CCMT-120408	CCMT 432	745105-IP20-1	8IP-20			

NOTE: QDSI 34 inserts are utilized only in special ICS holders. Speeds and feeds for QDSI 34 inserts are determined by drill insert.



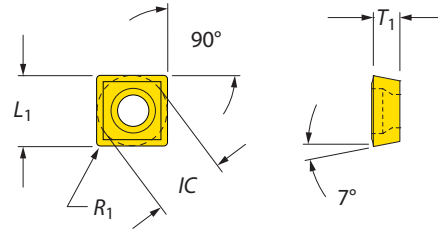
55° Diamond Inserts

Imperial (inch)				Metric (mm)					Part No.	AN [®] Designation		Torx Screw		Torx Driver
IC	L ₁	T ₁	R ₁	IC	L ₁	T ₁	R ₁							
0.250	0.243	0.094	0.008	6.35	6.18	2.39	0.008	DCGT-070202	DCGT 2(1.5)0.5	7256-IP8-1	8IP-8			
0.250	0.237	0.094	0.016	6.35	6.01	2.39	0.016	DCMT-070204	DCMT 2(1.5)1	7256-IP8-1	8IP-8			
0.250	0.223	0.094	0.031	6.35	5.67	2.39	0.031	DCMT-070208	DCMT 2(1.5)2	7256-IP8-1	8IP-8			
0.375	0.362	0.156	0.016	9.53	9.19	3.96	0.016	DCMT-11T304	DCMT 3(2.5)1	7359-IP15-1	8IP-15			
0.375	0.348	0.156	0.031	9.53	8.85	3.96	0.031	DCMT-11T308	DCMT 3(2.5)2	7359-IP15-1	8IP-15			



NOTE: QDSI 34 inserts are utilized only in special ICS holders. Speeds and feeds for QDSI 34 inserts are determined by drill insert.

QDSI 34® Inserts

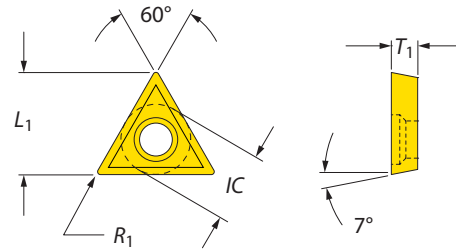
Square | 60° Triangle





Square Inserts

Imperial (inch)				Metric (mm)					Part No.	AN [®] Designation		Torx Driver
IC	L ₁	T ₁	R ₁	IC	L ₁	T ₁	R ₁					
0.375	0.375	0.156	0.016	9.53	9.53	3.96	0.40	SCMT-09T304	SCMT 3(2.5)1	7359-IP15-1	8IP-15	

NOTE: QDSI 34 inserts are utilized only in special ICS holders. Speeds and feeds for QDSI 34 inserts are determined by drill insert.



60° Triangle Inserts

Imperial (inch)				Metric (mm)					Part No.	AN [®] Designation		Torx Driver
IC	L ₁	T ₁	R ₁	IC	L ₁	T ₁	R ₁					
0.156	0.259	0.078	0.008	3.97	6.58	1.98	0.20	TCGT-06T102	TCGT 1.2(1.2)0.5	724-IP6-1	8IP-6	
0.156	0.248	0.078	0.016	3.97	6.29	1.98	0.40	TCGT-06T104	TCGT 1.2(1.2)1	724-IP6-1	8IP-6	
0.156	0.225	0.078	0.031	3.97	5.71	1.98	0.79	TCGT-06T108	TCGT 1.2(1.2)2	724-IP6-1	8IP-6	
0.219	0.367	0.094	0.008	5.65	9.33	2.39	0.20	TCGT-090202	TCGT 1.8(1.5)0.5	7225-IP7-1	8IP-7	
0.219	0.356	0.094	0.016	5.65	9.04	2.39	0.40	TCGT-090204	TCGT 1.8(1.5)1	7225-IP7-1	8IP-7	
0.219	0.333	0.094	0.031	5.65	8.46	2.39	0.79	TCGT-090208	TCGT 1.8(1.5)2	7225-IP7-1	8IP-7	
0.250	0.422	0.094	0.008	6.35	10.71	2.39	0.20	TCGT-110202	TCGT 2(1.5)0.5	7256-IP8-1	8IP-8	
0.250	0.410	0.094	0.016	6.35	10.42	2.39	0.40	TCMT-110204	TCMT 2(1.5)1	7256-IP8-1	8IP-8	
0.250	0.387	0.094	0.031	6.35	9.84	2.39	0.79	TCMT-110208	TCMT 2(1.5)2	7256-IP8-1	8IP-8	
0.375	0.627	0.156	0.016	9.53	15.92	3.96	0.40	TCMT-16T304	TCMT 3(2.5)1	7359-IP15-1	8IP-15	
0.375	0.604	0.156	0.031	9.53	15.34	3.96	0.79	TCMT-16T308	TCMT 3(2.5)2	7359-IP15-1	8IP-15	
0.500	0.820	0.188	0.031	12.70	20.83	4.76	0.79	TCGT-220408	TCGT 432	745105-IP20-1	8IP-20	

NOTE: QDSI 34 inserts are utilized only in special ICS holders. Speeds and feeds for QDSI 34 inserts are determined by drill insert.



Special Tooling

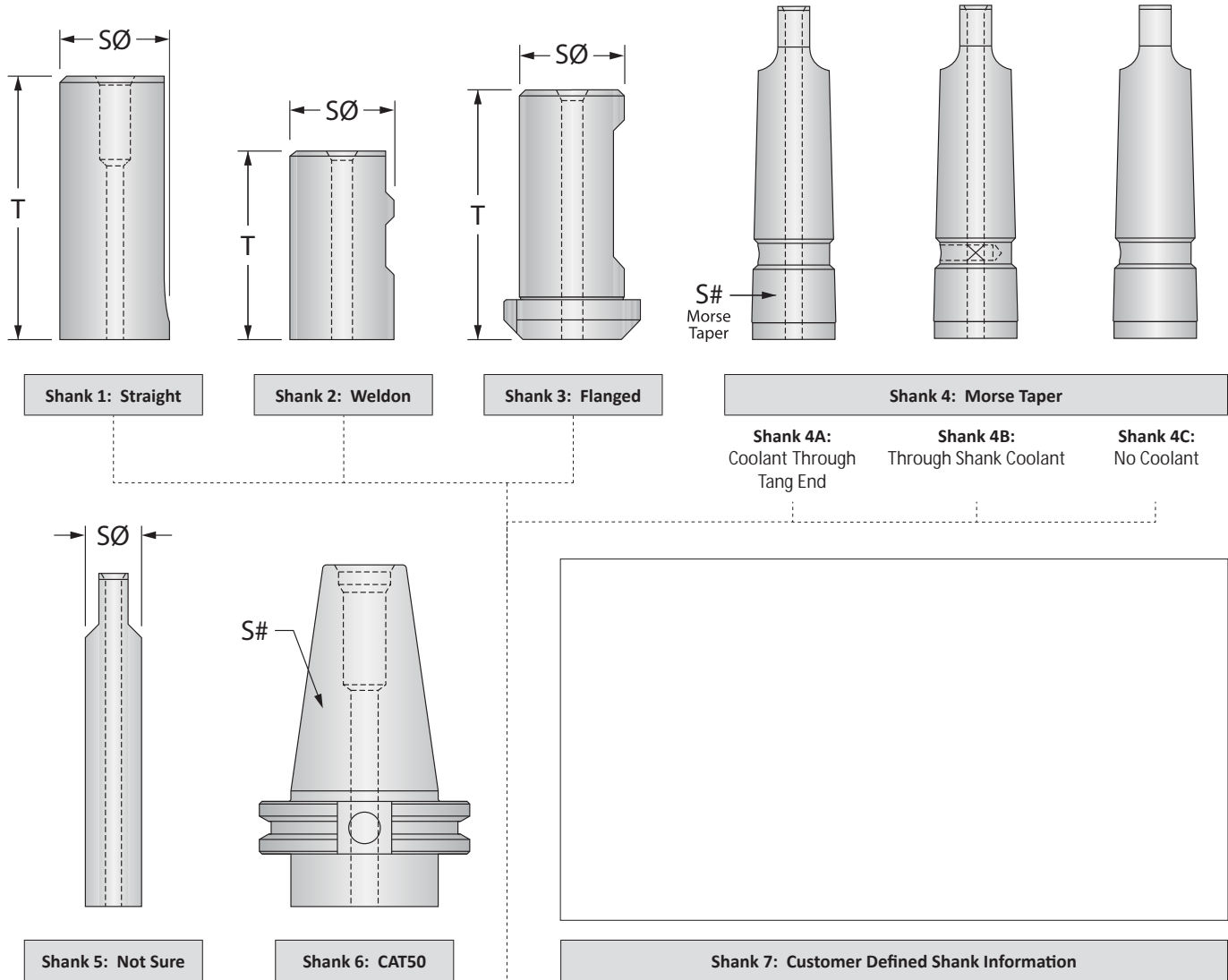
Complete Your Design

Show Us What You Need

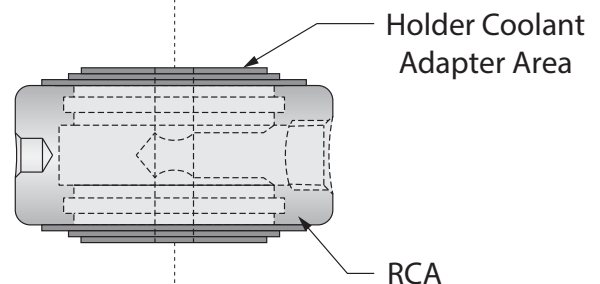
These pages have been included so you can assist us with defining your special tooling requirements.

- Select a Shank (1 - 6), or define Shank 7
- Indicate if the shank will be used with or without a Rotary Coolant Adapter (RCA)

We ask that you define your hole profile and offer an example of a tool form to help us with the design process. Tools 1 - 5 cover only a small portion of our capabilities, so feel free to use your imagination. Please scan these pages, record your information in the boxes on the next page, and email the information for our quickest response.



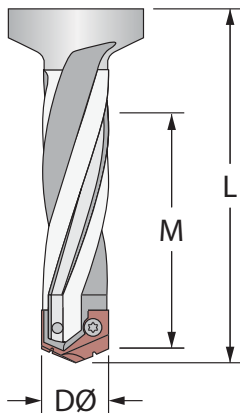
Shank	<input type="checkbox"/>	<input type="checkbox"/>	T	<input type="checkbox"/> CA
4A (EXAMPLE)	-	4MT	-	YES <input type="radio"/> NO <input checked="" type="radio"/>
				YES / NO
				YES / NO
				YES / NO



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

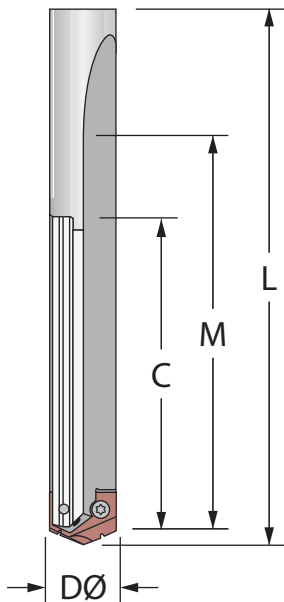
Tool 1

- Carbide Clad
- Chrome Plate
- Helical Flute
- Straight Flute



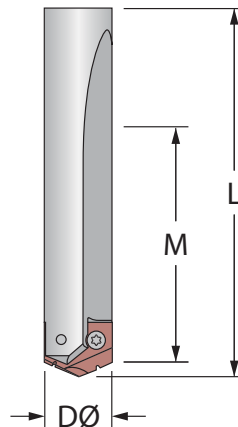
Tool 2

- Helical Pilot
- Chrome Pilot



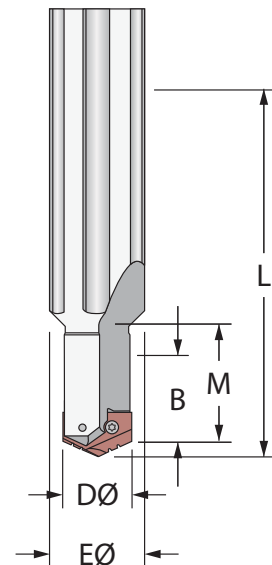
Tool 3

- Helical Flute
- Straight Flute



Tool 4

- Helical Pilot
- Chrome Pilot



Tool 5

- Helical Pilot
- Chrome Pilot

Hole Profile

Please email or fax your design to:
 Application Engineering Department
 P: 800.321.5537
 F: 330.343.7666
 E: aesupport@alliedmachine.com

Item	Tool	A ₁	A ₂	A ₃	B ₁	B ₂	B ₃	C	D Ø	E	F Ø	□	L	□
EXAMPLE	5	30°	-	-	1.00	-	-	0.25	0.620	1.25	-	-	4.50	3.00

Customer Signature: _____	Date: _____
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Please be sure to include shank and coolant information from the previous page when sending tool designs

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



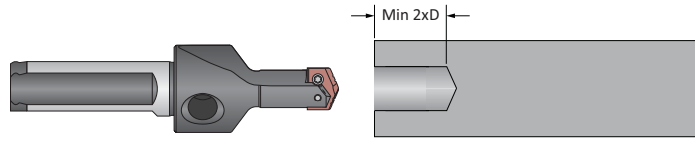
Deep Hole Drilling Guidelines

For Lengths Greater Than 9xD (including Extended, Long, XL, 3XL, and Special Length)

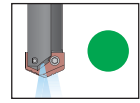
1. Pilot Hole

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.



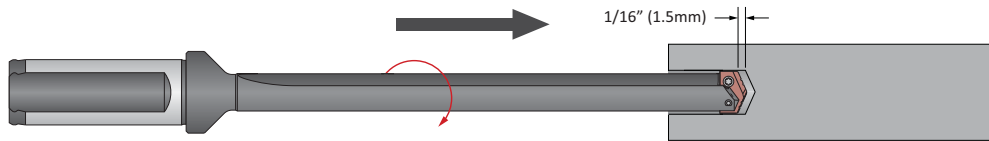
Coolant ON



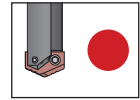
2. Feed-in

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.



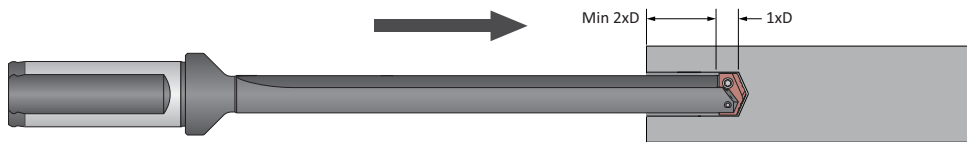
Coolant OFF



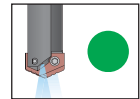
3. Deep Hole Transition Drilling

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. Minimum of 1 second dwell is required to meet full speed before feeding.



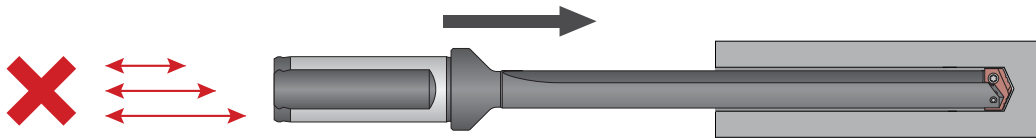
Coolant ON



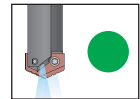
4. Deep Hole Drilling - Blind

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.*



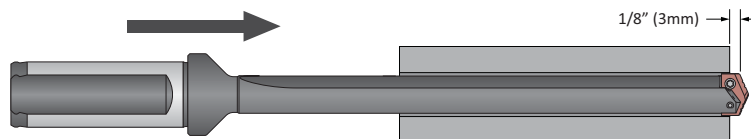
Coolant ON



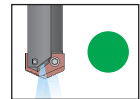
5. Deep Hole Drilling - at Breakout

50% RPM
75% IPR (mm/rev)

For through holes only:
Reduce speed by 50% and feed by 25% prior to breakout. Do not breakout more than 1/8" (3mm) past the full diameter of the drill.



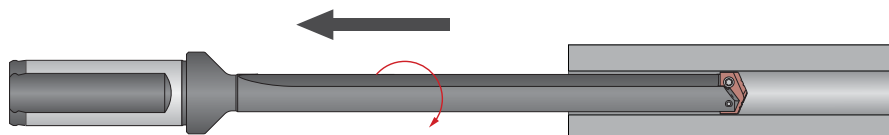
Coolant ON



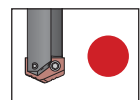
6. Drill Retract

50 RPM max

Reduce speed to a **maximum of 50 RPM** before retracting from the hole.



Coolant OFF



⚠️ A⚠️ NIN⚠️ Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders 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.

Part No	Part
02B.40...	C: 56
02B.45...	C: 56
02B.50...	C: 56
10214...	A40: 7
10215...	A40: 7
1021A...	A40: 6
1021N...	A40: 6
1021T...	A40: 6
1022A...	A40: 10
1022N...	A40: 10
1022T...	A40: 10
10234...	A40: 15
10235...	A40: 15
1023A...	A40: 14
1023N...	A40: 14
1023T...	A40: 14
10244...	A40: 19
10245...	A40: 19
1024A...	A40: 18
1024N...	A40: 18
1024T...	A40: 18
1024U...	A40: 18, A40: 38
10254...	A40: 23
10255...	A40: 23
1025A...	A40: 22
1025N...	A40: 22
1025T...	A40: 22
1025U...	A40: 22, A40: 38
10264...	A40: 27
10265...	A40: 27
1026A...	A40: 26
1026N...	A40: 26
1026T...	A40: 26
1026U...	A40: 26, A40: 38
10274...	A40: 31
10275...	A40: 31
1027A...	A40: 30
1027N...	A40: 30
1027T...	A40: 30
1027U...	A40: 30, A40: 38
10284...	A40: 35
10285...	A40: 35
1028A...	A40: 34
1028N...	A40: 34
1028T...	A40: 34
1028U...	A40: 34, A40: 38
10294...	A40: 36
10414...	A40: 7
10424...	A40: 11
10434...	A40: 15
10444...	A40: 19
10454...	A40: 23
10464...	A40: 27
10474...	A40: 31
10484...	A40: 35
11214...	A40: 7
11224...	A40: 11
11234...	A40: 15
11244...	A40: 19
11254...	A40: 23

Part No	Part
11264...	A40: 27
131...	A30: 48, A30: 49
132...	A30: 63, A30: 64
135...	A30: 95
136...	A30: 97
137...	A30: 103
138...	A30: 105
150...	A30: 34, A30: 35, A91: 20, A92: 21, A92: 23, A92: 25, A92: 27
151...	A30: 46, A30: 47, A30: 48, A91: 24, A92: 21, A92: 23, A92: 25, A92: 27
152...	A30: 60, A30: 61, A30: 62, A30: 63, A91: 28, A92: 21, A92: 23, A92: 27
153...	A30: 77, A30: 78, A30: 79, A91: 32
154...	A30: 88, A30: 89
155...	A30: 95
156...	A30: 97
157...	A30: 103
158...	A30: 105
15Y...	A30: 14, A30: 15, A92: 21, A92: 23, A92: 25, A92: 27
15Z...	A30: 24, A30: 25, A92: 21, A92: 23, A92: 25, A92: 27
180...	A30: 33
181...	A30: 45
182...	A30: 59
18Y...	A30: 13
18Z...	A30: 23
1C20...	A30: 36
1C21...	A30: 50
1C22...	A30: 65, A30: 66
1C23...	A30: 80
1C2Y...	A30: 16
1C2Z...	A30: 26
1C30...	A30: 37
1C31...	A30: 51
1C32...	A30: 67
1C3Y...	A30: 17
1C3Z...	A30: 27
1C50...	A30: 37
1C51...	A30: 51
1C52...	A30: 67
1C53...	A30: 81, A92: 7, A92: 9, A92: 11, A92: 13, A92: 15
1C5Y...	A30: 17
1C5Z...	A30: 27
1N20...	A30: 37
1N21...	A30: 51
1N22...	A30: 67
1N2Y...	A30: 17
1N2Z...	A30: 27

Part No	Part
20231...	A40: 16
20241...	A40: 20
20251...	A40: 24
20261...	A40: 28
20411...	A40: 8
20421...	A40: 12
20431...	A40: 16
20441...	A40: 20
20451...	A40: 24
20461...	A40: 28
20611...	A40: 8
20621...	A40: 12
20631...	A40: 16
20641...	A40: 20
20651...	A40: 24
20661...	A40: 28
20671...	A40: 32
20681...	A40: 37
20811...	A40: 8
20821...	A40: 12
20831...	A40: 16
20841...	A40: 20
20851...	A40: 24
20861...	A40: 28
20871...	A40: 32
20881...	A40: 37
21000...	A30: 38, A30: 42
21005...	A30: 38
21010...	A30: 52
21011...	A40: 8
21015...	A30: 52
21020...	A30: 68
21021...	A40: 12
21025...	A30: 68
21030...	A30: 82
21031...	A40: 16
21041...	A40: 20
21051...	A40: 24
21061...	A40: 28
210Y0...	A30: 18, A30: 21
210Z0...	A30: 28, A30: 31
21411...	A40: 9
21421...	A40: 12
21431...	A40: 16
21441...	A40: 20
21451...	A40: 24
21461...	A40: 28
21471...	A40: 32
21481...	A40: 37
21511...	A40: 9
21521...	A40: 12
21531...	A40: 16
21541...	A40: 20
21551...	A40: 24
21561...	A40: 28
21571...	A40: 32
21611...	A40: 9
21621...	A40: 12
21631...	A40: 16
21641...	A40: 20
21651...	A40: 24
21661...	A40: 28
21671...	A40: 32

Part No	Part
21681...	A40: 37
21811...	A40: 9
21821...	A40: 12
21831...	A40: 16
21841...	A40: 20
21851...	A40: 24
21861...	A40: 28
21871...	A40: 32
21881...	A40: 37
22000...	A30: 38, A30: 40, A30: 42, A91: 22
22005...	A30: 38, A30: 40, A30: 42, A91: 22
22010...	A30: 52, A30: 54, A30: 56, A91: 26
22011...	A40: 9
22015...	A30: 52, A30: 54, A30: 56, A91: 26
22020...	A30: 68, A30: 70, A30: 72, A91: 30
22025...	A30: 68, A30: 70, A30: 72
22021...	A40: 12
22025...	A91: 30
22030...	A30: 82, A30: 84, A30: 85, A91: 34
22031...	A40: 16
22040...	A30: 90, A30: 91, A30: 92
22041...	A40: 20
22050...	A30: 98, A30: 99, A30: 100
22051...	A40: 24
22061...	A40: 28
22070...	A30: 106, A30: 107, A30: 108
22071...	A40: 32
22081...	A40: 37
220Y0...	A30: 18, A30: 20, A30: 21
220Z0...	A30: 28, A30: 30, A30: 31
22211...	A40: 9
22221...	A40: 12
22231...	A40: 16
22241...	A40: 20
22261...	A40: 28
22271...	A40: 32
22281...	A40: 37
22421...	A40: 13
22431...	A40: 17
22461...	A40: 29
22471...	A40: 33
22621...	A40: 13
22631...	A40: 17
22641...	A40: 21
22651...	A40: 25
22661...	A40: 29
22671...	A40: 33
22821...	A40: 13
22831...	A40: 17
22841...	A40: 21
22851...	A40: 25

Part No	Part
22861...	A40: 29
22881...	A40: 33
23010...	A30: 52, A30: 53, A30: 54, A30: 55, A30: 56
23015...	A30: 52, A30: 53, A30: 54, A30: 55, A30: 56
23020...	A30: 68, A30: 69, A30: 70, A30: 71, A30: 72
23025...	A30: 68, A30: 69, A30: 70, A30: 71, A30: 72
23030...	A30: 82, A30: 83, A30: 84, A30: 85
24000...	A30: 38, A30: 39, A30: 40, A30: 41, A30: 42, A91: 23
24005...	A30: 38, A30: 39, A30: 40, A30: 41, A30: 42, A91: 23
24010...	A30: 52, A30: 53, A30: 54, A30: 55, A30: 56, A91: 27
24015...	A30: 52, A30: 53, A30: 54, A30: 55, A30: 56, A91: 27
24020...	A30: 68, A30: 69, A30: 70, A30: 71, A30: 72, A91: 31
24025...	A30: 68, A30: 69, A30: 70, A30: 71, A30: 72, A91: 31
24030...	A30: 82, A30: 83, A30: 84, A30: 85, A91: 34
24040...	A30: 90, A30: 91, A30: 92
24050...	A30: 98, A30: 99, A30: 100
24070...	A30: 106, A30: 107, A30: 108
240Y0...	A30: 18, A30: 19, A30: 20, A30: 21
240Z0...	A30: 28, A30: 29, A30: 30, A30: 31
2430...	C: 26
2431...	C: 27
2440...	C: 22
2441...	C: 23
24410...	A40: 41
24420...	A40: 41
24430...	A40: 41
24440...	A40: 41
24450...	A40: 41
24460...	A40: 41
24470...	A40: 41
24480...	A40: 41
24500...	A30: 39
24510...	A30: 53
24520...	A30: 69
245Y0...	A30: 19

Part No	Part
245Z0...	A30: 29
25000...	A30: 38, A30: 39, A30: 40, A30: 41, A30: 42, A91: 23
25005...	A30: 38, A30: 39, A30: 40, A30: 41, A30: 42, A91: 23
25010...	A30: 52, A30: 53, A30: 54, A30: 55, A30: 56, A91: 27
25015...	A30: 52, A30: 53, A30: 54, A30: 55, A30: 56, A91: 27
25020...	A30: 68, A30: 69, A30: 70, A30: 71, A30: 72, A91: 31
25025...	A30: 68, A30: 69, A30: 70, A30: 71, A30: 72
25030...	A30: 82, A30: 84, A30: 85
25040...	A30: 90, A30: 91, A30: 92
25050...	A30: 98, A30: 99, A30: 100
25070...	A30: 106, A30: 107, A30: 108
250Y0...	A30: 18, A30: 19, A30: 20, A30: 21
250Z0...	A30: 28, A30: 29, A30: 30, A30: 31
26000...	A30: 39, A30: 41, A30: 42
26005...	A30: 39, A30: 41, A30: 42
26010...	A30: 53, A91: 27
26015...	A91: 27
26020...	A30: 69, A91: 31
260Z0...	A30: 29
26500...	A30: 39
27000...	A30: 38, A30: 42
27010...	A30: 52, A30: 56
27020...	A30: 68, A30: 72
27030...	A30: 82, A30: 84, A30: 85
27040...	A30: 90, A30: 91, A30: 92
27050...	A30: 99, A30: 100
27070...	A30: 107, A30: 108
270Y0...	A30: 18, A30: 21
270Z0...	A30: 28, A30: 31
29000...	A30: 38, A30: 42
29010...	A30: 52, A30: 56
29020...	A30: 68, A30: 72
29030...	A30: 82, A30: 84, A30: 85
29040...	A30: 90, A30: 91, A30: 92
29050...	A30: 99, A30: 100
29070...	A30: 107, A30: 108
290Y0...	A30: 18, A30: 21
290Z0...	A30: 28, A30: 31
2T-2SR...	A30: 21, A30: 31,

Part No	Part
	A30: 43, A30: 110
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RSRY...	D: 39
	
S1500...	B20: 19
S2000...	B20: 19
S3000...	B20: 19
SBT-0062...	B20: 52, B20: 53
SBT-0093...	B20: 52, B20: 53
SBT-0125...	B20: 52, B20: 53, B20: 72, B20: 74, B20: 75, B20: 76
SBT-0187...	B20: 52, B20: 53, B20: 72, B20: 74, B20: 75, B20: 76
SBT-0250...	B20: 52, B20: 53, B20: 72, B20: 74, B20: 75, B20: 76
SBT-03...	B20: 53, B20: 72, B20: 76
SBT-0312...	B20: 52, B20: 53, B20: 72, B20: 74, B20: 75, B20: 76
SBT-0375...	B20: 52, B20: 53, B20: 72, B20: 74, B20: 75, B20: 76
SBT-04...	B20: 53, B20: 72, B20: 76
SBT-0500...	B20: 52, B20: 53, B20: 72, B20: 74, B20: 75, B20: 76
SBT-06...	B20: 53, B20: 72, B20: 76
SBT-0625...	B20: 52, B20: 72, B20: 74
SBT-0750...	B20: 54, B20: 72, B20: 74, B20: 75
SBT-08...	B20: 53, B20: 72, B20: 76
SBT-10...	B20: 53, B20: 72, B20: 76
SBT-1000...	B20: 52, B20: 72, B20: 74, B20: 75
SBT-12...	B20: 53, B20: 72,

Part No	Part No
	B20: 76
SBT-1250...	B20: 52, B20: 72, B20: 74
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SP38X22...	A60: 10, A60: 11
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SP46X22...	A60: 15
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SP48X25...	A60: 16
SP52X10...	A60: 17
SP52X25...	A60: 17
SP54X10...	A60: 18
SP54X25...	A60: 18
SP56X10...	A60: 19
SP56X25...	A60: 19
SP58X10...	A60: 20
SP58X25...	A60: 20
SQ-1500...	B20: 18, B20: 19
SQ-2000...	B20: 18, B20: 19
SQ-3000...	B20: 18, B20: 19
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SS0625...	B20: 46
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ST03220...	A91: 15
ST03225...	A91: 15
ST03240...	A91: 16
ST03260...	A91: 17
ST03290...	A91: 18
ST03320...	A91: 19
ST05120...	A91: 8
ST05140...	A91: 9
ST05150...	A91: 10
ST05160...	A91: 11
ST05170...	A91: 12

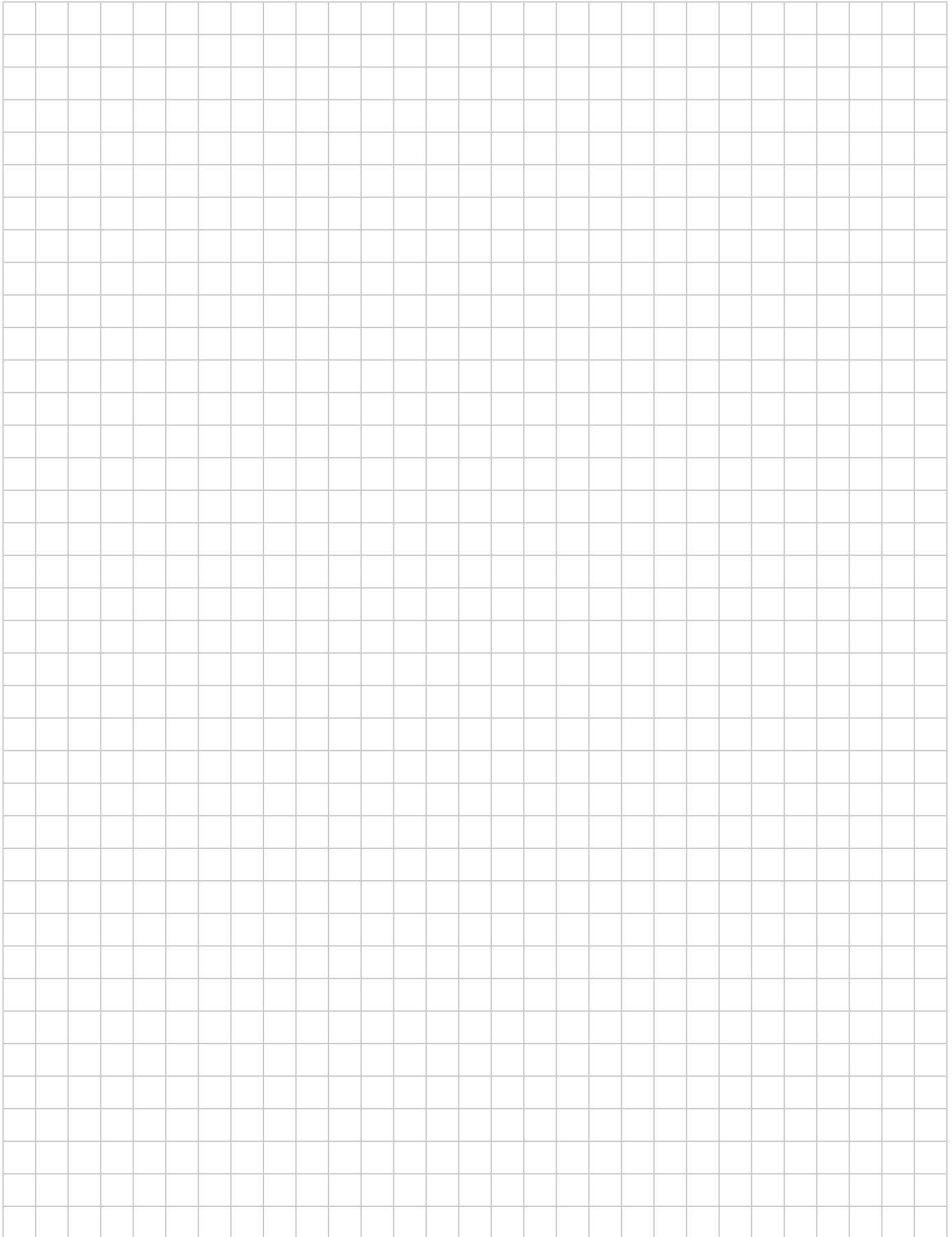
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ST05180...	A91: 13
ST05200...	A91: 14
ST05220...	A91: 15
ST05225...	A91: 15
ST05240...	A91: 16
ST05260...	A91: 17
ST05290...	A91: 18
ST05320...	A91: 19
ST07120...	A91: 8
ST07140...	A91: 9
ST07150...	A91: 10
ST07160...	A91: 11
ST07170...	A91: 12
ST07180...	A91: 13
ST07200...	A91: 14
ST07220...	A91: 15
ST07225...	A91: 15
ST07240...	A91: 16
ST07260...	A91: 17
ST07290...	A91: 18
ST07320...	A91: 19
	
TA-0250...	B20: 54, B20: 68, B20: 69, B20: 70, B20: 71, B20: 73, B20: 77
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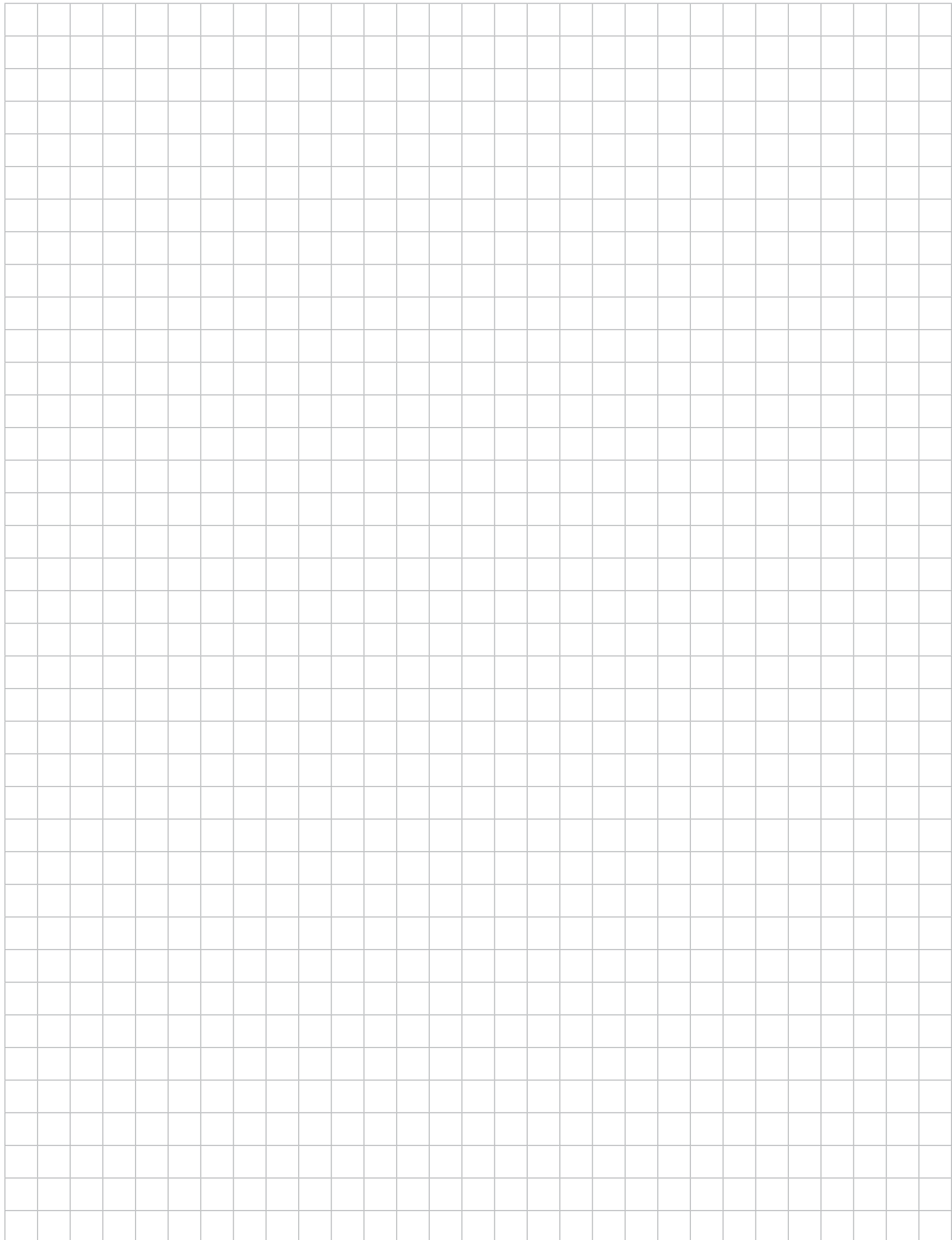
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TAS-06...	B20: 55, B20: 73, B20: 77
TAS-08...	B20: 55, B20: 73, B20: 77
TAS-10...	B20: 55, B20: 73, B20: 77
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TAS-25...	B20: 55
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TCMT...	A20: 15, A20: 19, A20: 23, A20: 27, A20: 31, A20: 35, A20: 39, A20: 43, A20: 47, A20: 51, A20: 55, A20: 59, A20: 63, A20: 67, B20: 64, B20: 68, B20: 69, X: 23
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THP...	E: 42
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TMAK...	A92: 18, A92: 20, A92: 26
TMAU...	A92: 19, A92: 21, A92: 27
TMBK...	E: 6
TMBKxBSPP...	E: 9
TMBKxBSPT...	E: 8
TMxBSP...	E: 9
TMxBSP...	E: 8
TMxBSW...	E: 6, E: 7
TMMK...	A92: 22, A92: 24, A92: 28, E: 24, E: 26
TMMU...	A92: 23, A92: 25
TMNKxNPT...	E: 10
TMNKxNPTF...	E: 12
TMxNPS...	E: 14
TMxNPSF...	E: 15
TMxNPT...	E: 10, E: 11
TMxNPTF...	E: 12, E: 13
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TN100K-UN...	E: 38, E: 39
TN100K-UNJ...	E: 40
TN150K-AP...	E: 37
TN150K-BSPP...	E: 37
TN150K-BSPT...	E: 36

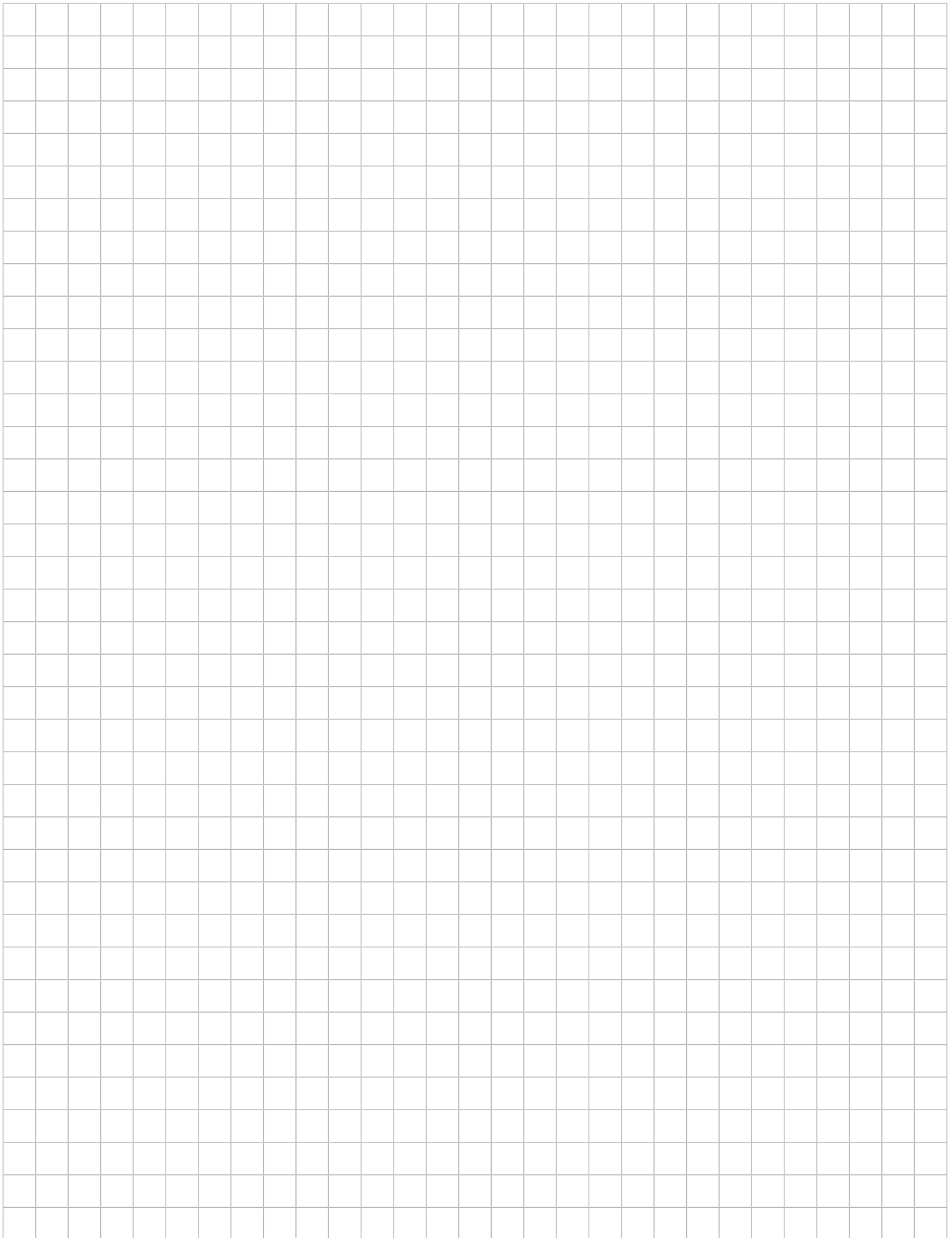
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TN150K-FA...	E: 37
TN150K-M...	E: 41
TN150K-NPT...	E: 36
TN150K-NPTF...	E: 36
TN150K-UN...	E: 38, E: 39
TN150K-UNJ...	E: 40
TNR...	E: 42
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TP075K-BSPT...	E: 31
TP075K-M...	E: 34
TP075K-NPT...	E: 30
TP075K-NPTF...	E: 30
TP075K-UN...	E: 32
TP075K-UNJ...	E: 33
TP100K-BSPP...	E: 31
TP100K-BSPT...	E: 31
TP100K-M...	E: 34
TP100K-NPT...	E: 30
TP100K-NPTF...	E: 30
TP100K-UN...	E: 32
TP100K-UNJ...	E: 33
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TPMT...	B20: 65
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TSR...	E: 43
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V3301D...	A50: 6
V3316D...	A50: 6
V3318D...	A50: 6
V3320D...	A50: 6
V3800D...	A50: 8
V3801D...	A50: 8
V3815D...	A50: 8
V3817D...	A50: 8
V3818D...	A50: 8
V3820D...	A50: 8
V4401D...	A50: 10
V4417D...	A50: 10
V4418D...	A50: 10
V4422D...	A50: 10
V5101D...	A50: 12
V5118D...	A50: 12
V5120D...	A50: 12
V5122D...	A50: 12
V5701D...	A50: 14
V5702D...	A50: 14
V5722D...	A50: 14
V5724D...	A50: 14
V5726D...	A50: 14
V6302D...	A50: 16
V6326D...	A50: 16
V6329D...	A50: 16
V6332D...	A50: 16

Part No	Part
V7002S...	A50: 18
V7029S...	A50: 18
V7602S...	A50: 20
V7629S...	A50: 20
V8302S...	A50: 22
V8332S...	A50: 22
V8902S...	A50: 24
V8929S...	A50: 24
V9502S...	A50: 26
V9532S...	A50: 26
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W3810H...	A50: 7
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W4405H...	A50: 9, A50: 11
W4408H...	A50: 9, A50: 11
W4410H...	A50: 9, A50: 11
W5103H...	A50: 13
W5105H...	A50: 13
W5108H...	A50: 13
W5110H...	A50: 13
W5703H...	A50: 15
W5705H...	A50: 15
W5708H...	A50: 15
W5710H...	A50: 15
W6303H...	A50: 17
W6305H...	A50: 17
W6308H...	A50: 17
W6310H...	A50: 17
W7003H...	A50: 19
W7005H...	A50: 19
W7008H...	A50: 19
W7010H...	A50: 19
W7603H...	A50: 21
W7605H...	A50: 21
W7608H...	A50: 21
W8303H...	A50: 23
W8305H...	A50: 23
W8308H...	A50: 23
W8903H...	A50: 25
W8905H...	A50: 25
W8908H...	A50: 25
W9503H...	A50: 27
W9505H...	A50: 27
W9508H...	A50: 27
WCMT...	B20: 67, B20: 68, B20: 69
WP...	A50: 18, A50: 20, A50: 22, A50: 24, A50: 26
X1926...	A92: 10, A92: 11
XTK11...	A20: 12
XTK12...	A20: 16
XTK13...	A20: 20
XTK14...	A20: 24
XTK15...	A20: 28
XTK16...	A20: 32
XTK17...	A20: 36
XTK18...	A20: 40

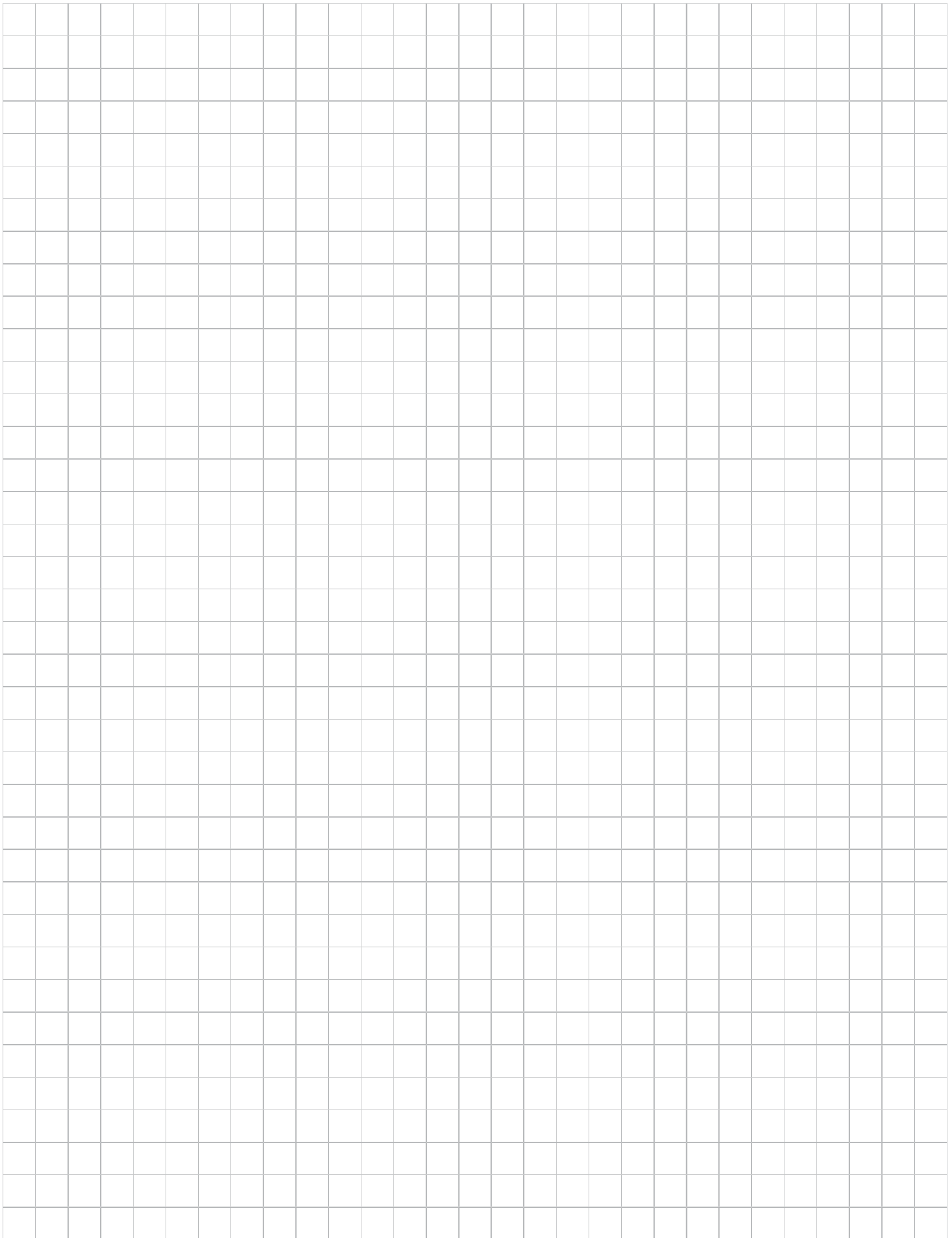
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XTK20...	A20: 44
XTK22...	A20: 48
XTK24...	A20: 52
XTK26...	A20: 56
XTK29...	A20: 60
XTK32...	A20: 64
XTN11...	A20: 12
XTN12...	A20: 16
XTN13...	A20: 20
XTN14...	A20: 24
XTN15...	A20: 28
XTN16...	A20: 32
XTN17...	A20: 36
XTN18...	A20: 40
XTN20...	A20: 44
XTN22...	A20: 48
XTN24...	A20: 52
XTN26...	A20: 56
XTN29...	A20: 60
XTN32...	A20: 64
XTP11...	A20: 12
XTP12...	A20: 16
XTP13...	A20: 20
XTP14...	A20: 24
XTP15...	A20: 28
XTP16...	A20: 32
XTP17...	A20: 36
XTP18...	A20: 40
XTP20...	A20: 44
XTP22...	A20: 48
XTP24...	A20: 52
XTP26...	A20: 56
XTP29...	A20: 60
XTP32...	A20: 64











Guaranteed Test / Demo Application Form

Distributor PO #	
------------------	--

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

For processing, send Purchase Order to your Allied Field Sales Engineer (FSE). Please clearly mark the paperwork as "Test Order."

Distributor Information

Company Name: _____
 Contact: _____
 Account Number: _____
 Phone: _____
 Email: _____

End User Information

Company Name: _____
 Contact: _____
 Industry: _____
 Phone: _____
 Email: _____

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: _____	Orientation: _____	Tool Rotating: _____
<input type="checkbox"/> Excellent	<input type="checkbox"/> Vertical	<input type="checkbox"/> Yes
<input type="checkbox"/> Good	<input type="checkbox"/> Horizontal	<input type="checkbox"/> No
<input type="checkbox"/> Poor		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

For processing, send Purchase Order to your Allied Field Sales Engineer (FSE). Please clearly mark the paperwork as "Test Order."



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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.

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