ALLIED MACHINE & ENGINEERING

Holemaking Solutions for Today's Manufacturing

Boring

Reaming

Burnishing

Threading

Specials

Revolution Drill®

DRILLING

Indexable Insert Drilling System

North America

Allied Machine
120 Deeds Drive
Dover, OH 44622
United States

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

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

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

Europe

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

Wohlhaupter® GmbH
Maybachstrasse 4
Postfach 1264
72636 Frickenhausen
Germany

Asia

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

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

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

ALLIED MACHINE & ENGINEERING®

www.alliedmachine.com

ALLIED MACHINE & ENGINEERING

Holemaking Solutions for Today's Manufacturing

Revolution Drill®

The Foundation

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

The Beginning

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

The T-A®

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

The Innovation

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

The People

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

The Future

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

Steve Stokey
Executive Vice President

William H. Stokey
President and CEO

Mike Stokey
Executive Vice President

WOHLHAUPTER® ThreadMills USA SUPERION™ CRITERION™

Replaceable Insert Drills

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

Indexable Insert Drills

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

Replaceable / Indexable Insert Drills

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

Solid Carbide Drills

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

Structural Steel Solutions

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

BTA (STS) Machining Solutions

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

Hydraulic Port Contour Cutters

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

4 IN 1

Enhanced Special Drilling Capabilities

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

WOHLHAUPTER®
High Precision Boring Systems

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

CRITERION™
Modular Boring Systems

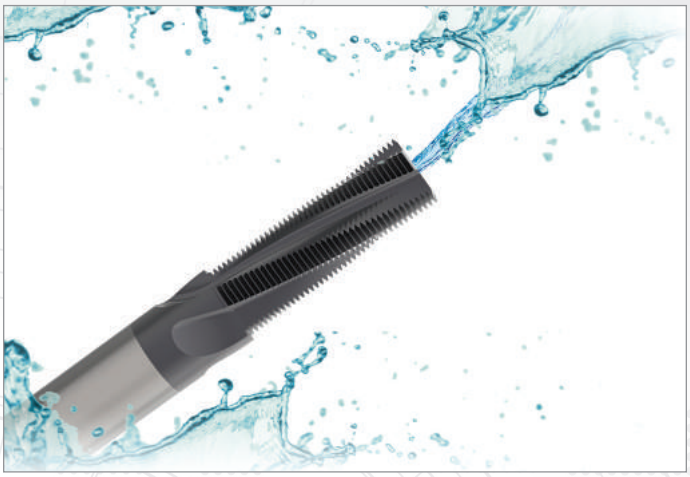
- The modular capabilities are ideal for use across multiple different projects
- Offers versatile boring heads suitable for all job shops and tooling rooms
- Provides an economical solution for low volume and/or short-term production applications
- Offers both rough and finish boring solutions
- Products: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

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

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

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

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

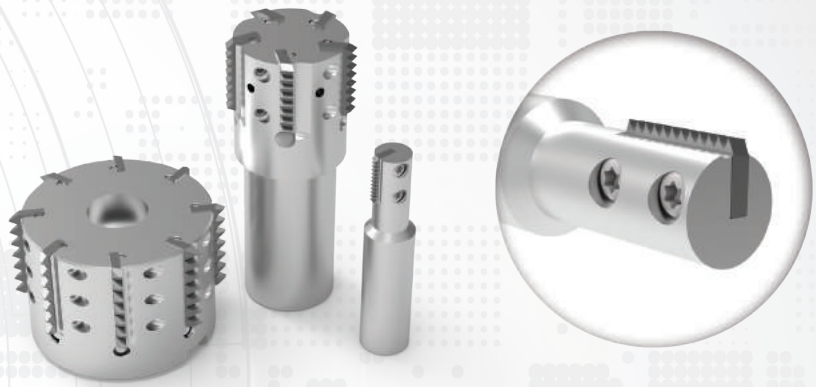


Solid Carbide Thread Mills

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

Replaceable Insert Thread Mills

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



SPECIAL CAPABILITIES

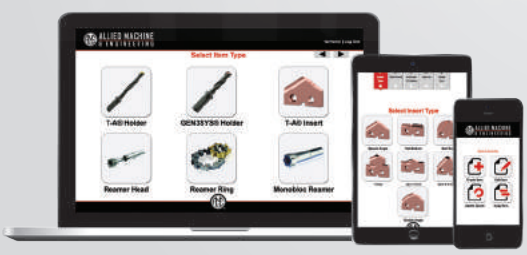
When it comes to designing and developing special solutions for customers, Allied Machine is the top choice. If your application requires special tooling, give us a call. Our engineered specials are developed by the brightest engineers in the industry. Most of our standard tooling can be altered as specials,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

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

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

Whatever your application, Allied Machine has the answer.

Insta-Quote™



SUPERION™

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

Applicable Industries

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

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

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

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

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

⚠ WARNING

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

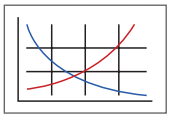
NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

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

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

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

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
36	2.000 - 2.200	50.8 - 55.9
38	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
46	2.800 - 3.000	71.1 - 76.2
48	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
56	3.600 - 3.800	91.4 - 96.5
58	3.800 - 4.000	96.5 - 101.6

Revolution Drill® Contents

Introduction Information

Drill Series

Recommended Cutting Data

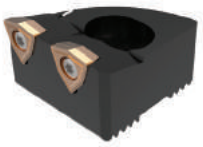
Product Overview

Series	Diameter Range		Length to Diameter Ratio	Shank Options			Inserts per Cartridge	Page
	Imperial (in)	Metric (mm)		Straight	CAT40	CAT50		
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

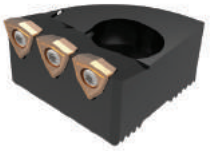
NOTE: Stacked plate styles are also available

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

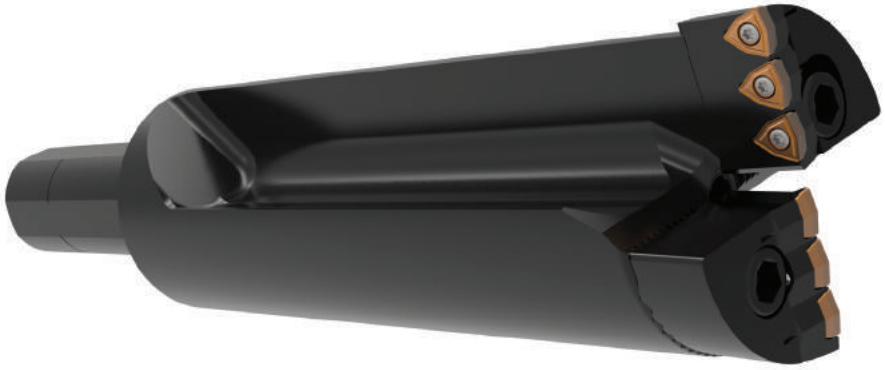


2 Inserts
(34 - 42 series)

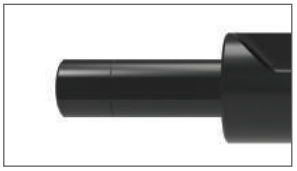


3 Inserts
(44 - 54 series)

4 Inserts
(56 - 58 series)



Shank Options



Straight Shank
(all series)

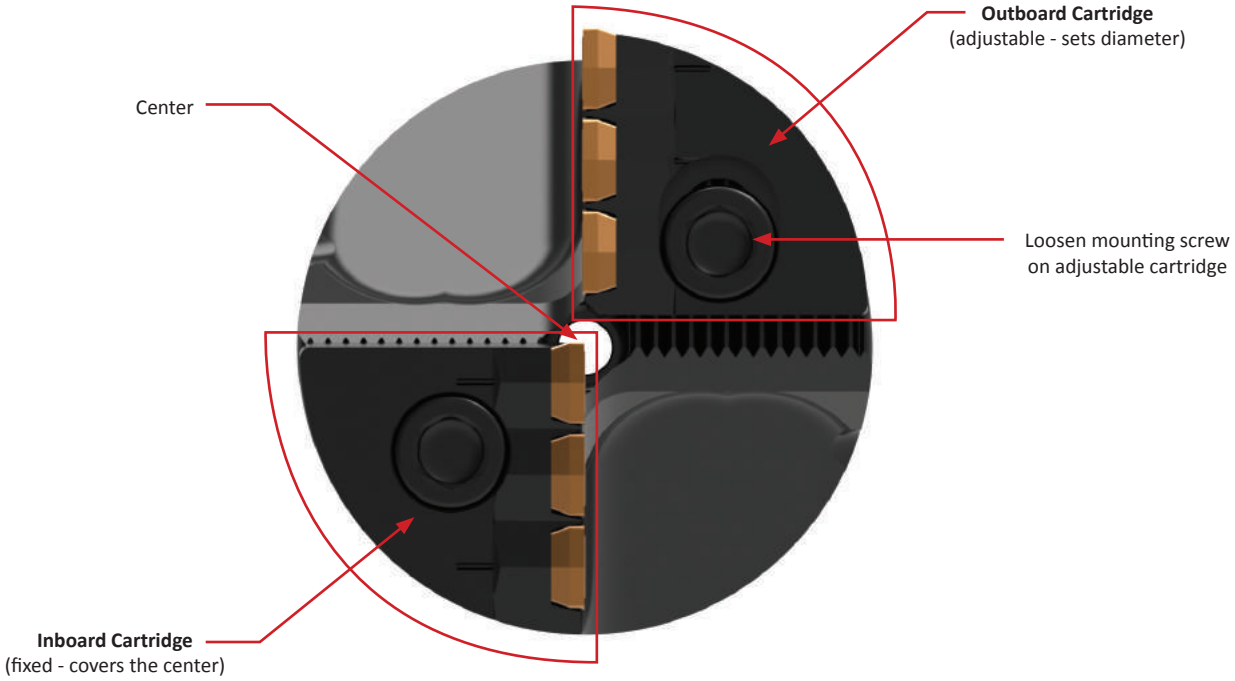
CAT40 Shank
(34, 36, 38, 42 series)

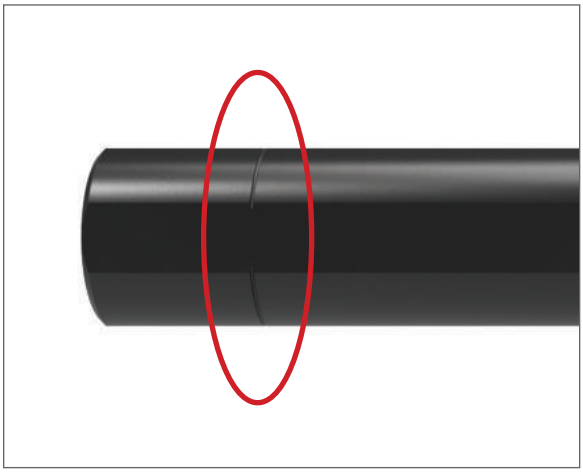
CAT50 Shank
(all series)

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

Product Overview

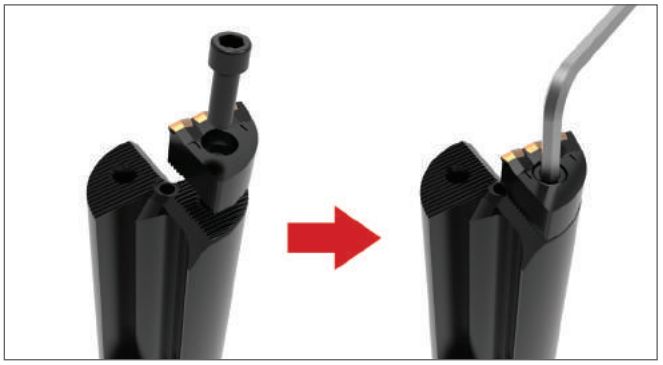




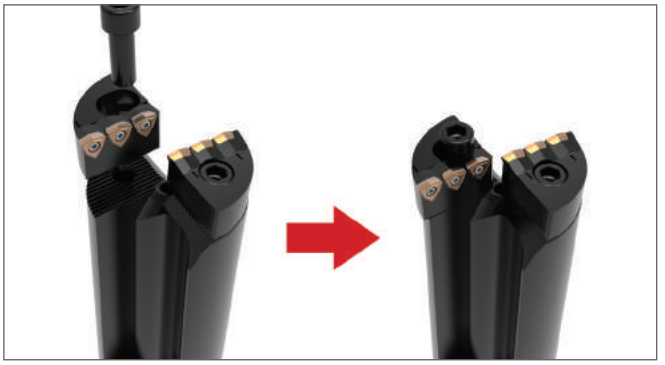
Straight Shanks

- 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



Step 1:
Mount the fixed cartridge and tighten the mounting screw to 11-14 ft-lbf (15-19 N-m).



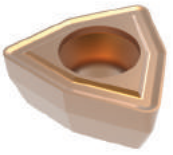
Step 2:
Finger-tighten the mounting screw on the adjustable cartridge.

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.

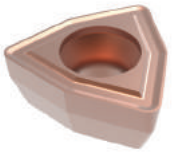
Step 4:
Tighten the mounting screw to 11-14 ft-lbf (15-19 N-m).

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

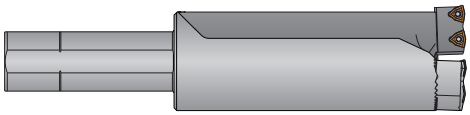
Insert Application Recommendations

Carbide Grade Options	
C5 (P35)	General purpose carbide grade suitable for most applications. ▶ *Common application in steels and stainless steels.*
C1 (K35)	Toughest carbide grade. Provides the best combination of edge strength and tool life. ▶ *Recommended for less rigid applications.*
C2 (K25)	Higher wear resistant carbide suitable for abrasive material applications. ▶ *Recommended for grey, ductile, and nodular irons.*
Additional Geometry Option	
High Rake (HR)	Provides superior chip control and tool life in long chipping carbon and alloy steels below 200 Bhn.

Product Nomenclature

Revolution Drill Holders

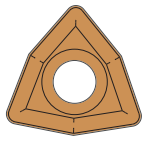
R	34	X	22	–	150L
1	2		3		4



1. Drill Style	2. Series	3. Length to Diameter Ratio	4. Shank Information
R = Standard	**34** = 34 series	**10** = 1.0xD	**150L** = 1-1/2 Ø straight
SP = Stacked Plate	**36** = 36 series	**22** = 2.2xD	**200L** = 2.0 Ø straight
	38 = 38 series	**25** = 2.5xD	**40M** = 40mm ISO 9766
	42 = 42 series	**35** = 3.5xD	**50M** = 50mm ISO 9766
	44 = 44 series	**45** = 4.5xD	**CV40** = CAT40
	46 = 46 series		**CV50** = CAT50
	48 = 48 series		
	52 = 52 series		
	54 = 54 series		
	56 = 56 series		
	58 = 58 series		

Revolution Drill Inserts

OP	–	05	T3	08	–	1	H	HR
1		2	3	4		5	6	7

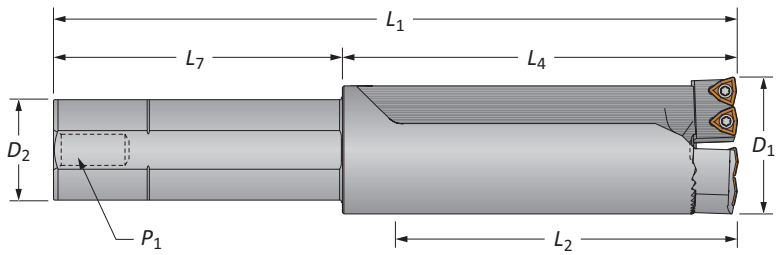


1. Compatible with:	2. IC Type	3. Thickness	4. Radius	5. Carbide Grade
Opening Drill	**05** = 5/16”	**T3** = 5/32”	**08** = 1/32”	**Blank** = C5 (P35)
Revolution Drill				**1** = C1 (K35)
				2 = C2 (K25)

6. Coating	7. Geometry
P = AM300®	**Blank** = General Purpose
H = AM200®	**HR** = High Rake
T = TiN	
A = TiAlN	
N = TiCN	
U = Uncoated	

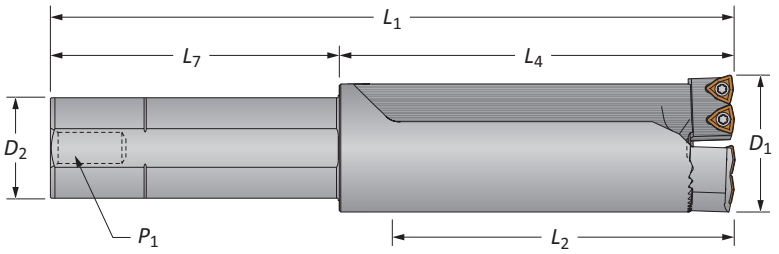
Reference Key

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

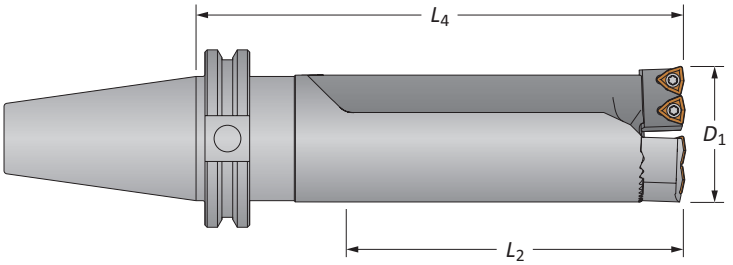
34 Series | Diameter Range: 1.875” - 2.000” (47.6mm - 50.8mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
ⓘ	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-...
ⓜ	Standard	2.2xD	47.6 - 50.8	114.9	137.4	207.4	40	70	–	**R34X22-40M**	C34-...
ⓜ	Standard	3.5xD	47.6 - 50.8	178.4	200.9	270.9	40	70	–	**R34X35-40M**	C34-...
ⓜ	Standard	4.5xD	47.6 - 50.8	229.2	251.7	321.7	40	70	–	**R34X45-40M**	C34-...
ⓜ	Stacked Plate	2.2xD	47.6 - 50.8	112.4	134.8	204.8	40	70	–	**SP34X22-40M**	C34SP-...

*Holder includes cartridges; however, inserts are sold separately.



CV40 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
ⓘ	Standard	2.2xD	1.875 - 2.000	4-17/32	6-25/32	CAT40	**R34X22-CV40**	C34-...
ⓘ	Standard	3.5xD	1.875 - 2.000	7-1/32	9-9/32	CAT40	**R34X35-CV40**	C34-...
ⓘ	Standard	4.5xD	1.875 - 2.000	9-1/32	11-9/32	CAT40	**R34X45-CV40**	C34-...
ⓘ	Stacked Plate	2.2xD	1.875 - 2.000	4-27/64	6-11/16	CAT40	**SP34X22-CV40**	C34SP-...

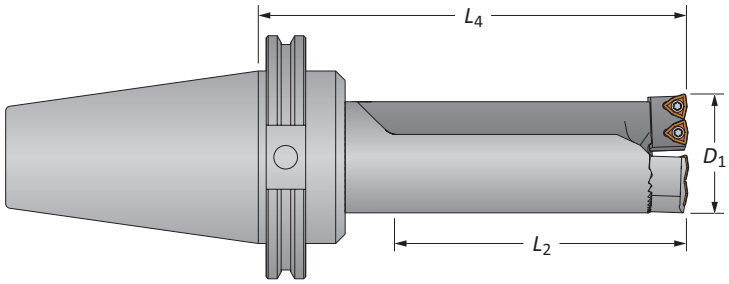
*Holder includes cartridges; however, inserts are sold separately.

A60: 22 - 23
Key on A60: 1
A60: 2 - 4

ⓘ = Imperial (in)
ⓜ = 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 L_2	Holder L_4	Shank	Part No.*	Cartridges
ⓘ	Standard	2.2xD	1.875 - 2.000	4-17/32	6-25/32	CAT50	**R34X22-CV50**	C34-...
ⓘ	Standard	3.5xD	1.875 - 2.000	7-1/32	9-9/32	CAT50	**R34X35-CV50**	C34-...
ⓘ	Standard	4.5xD	1.875 - 2.000	9-1/32	11-9/32	CAT50	**R34X45-CV50**	C34-...
	Stacked Plate	2.2xD	1.875 - 2.000	4-27/64	6-11/16	CAT50	**SP34X22-CV50**	C34SP-...

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R34...	**C34-FIX**	2	MS-17M-1	5mm	AS-16T9-1	8T-9
	C34-ADJ	2	MS-17M-1	5mm	AS-16T9-1	8T-9
SP34...	**C34SP-FIX**	2	MS-17M-1	5mm	AS-16T9-1	8T-9
	C34SP-ADJ	2	MS-17M-1	5mm	AS-16T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

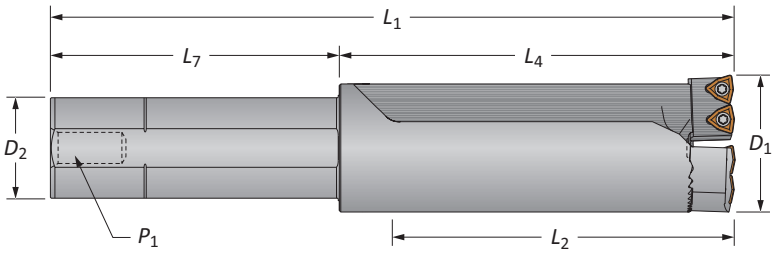
A60: 22 - 23
Key on A60: 1
A60: 2 - 4

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

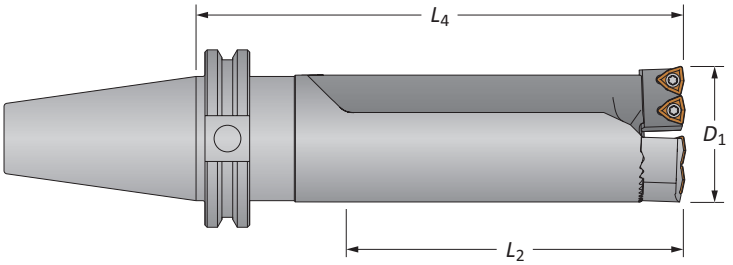
36 Series | Diameter Range: 2.000” - 2.200” (50.8mm - 55.9mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
ⓘ	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-...
ⓜ	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-...

*Holder includes cartridges; however, inserts are sold separately.



CV40 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
ⓘ	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-...

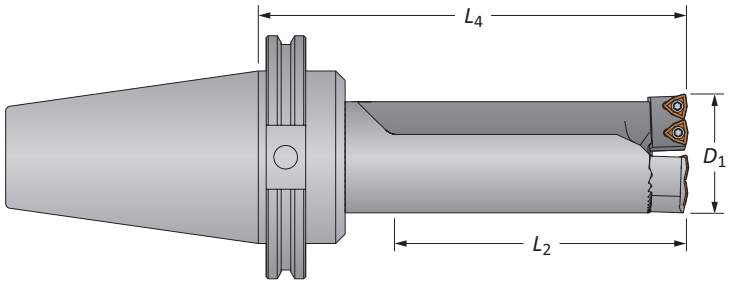
*Holder includes cartridges; however, inserts are sold separately.

A60: 22 - 23
Key on A60: 1
A60: 2 - 4

ⓘ = Imperial (in)
ⓜ = 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 L_2	Holder L_4	Shank	Part No.*	Cartridges
ⓘ	Standard	2.2xD	2.000 - 2.200	4-61/64	7-17/64	CAT50	**R36X22-CV50**	C36-...
ⓘ	Standard	3.5xD	2.000 - 2.200	7-45/64	10-1/64	CAT50	**R36X35-CV50**	C36-...
ⓘ	Standard	4.5xD	2.000 - 2.200	9-61/64	12-17/64	CAT50	**R36X45-CV50**	C36-...
ⓘ	Stacked Plate	2.2xD	2.000 - 2.200	4-57/64	7-35/64	CAT50	**SP36X22-CV50**	C36SP-...

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R36...	**C36-FIX**	2	MS-17M-1	5mm	AS-18T9-1	8T-9
	C36-ADJ	2	MS-17M-1	5mm	AS-18T9-1	8T-9
SP36...	**C36SP-FIX**	2	MS-17M-1	5mm	AS-18T9-1	8T-9
	C36SP-ADJ	2	MS-17M-1	5mm	AS-18T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

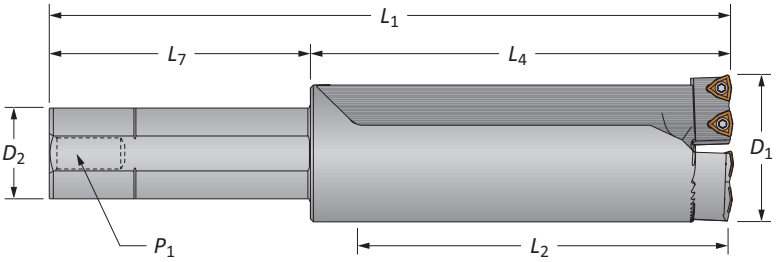
A60: 22 - 23
Key on A60: 1
A60: 2 - 4

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

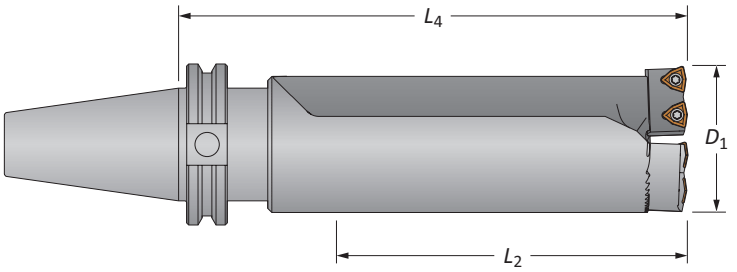
38 Series | Diameter Range: 2.200” - 2.400” (55.9mm - 61.0mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
ⓘ	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-...
ⓜ	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-...

*Holder includes cartridges; however, inserts are sold separately.



CV40 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
ⓘ	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-...

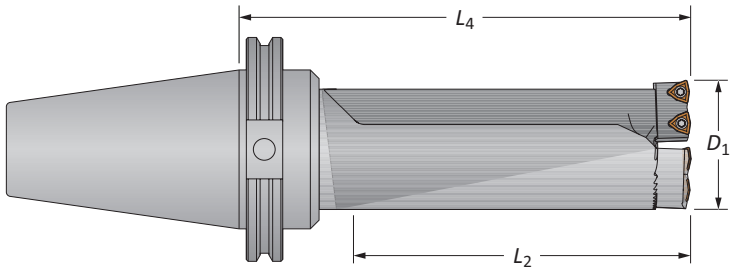
*Holder includes cartridges; however, inserts are sold separately.

A60: 22 - 23
Key on A60: 1
A60: 2 - 4

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

38 Series | Diameter Range: 2.200" - 2.400" (55.9mm - 61.0mm)



CV50 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
	Standard	2.2xD	2.200 - 2.400	5-29/64	7-49/64	CAT50	**R38X22-CV50**	C38-...
ⓘ	Standard	3.5xD	2.200 - 2.400	8-29/64	10-49/64	CAT50	**R38X35-CV50**	C38-...
	Standard	4.5xD	2.200 - 2.400	10-61/64	13-17/64	CAT50	**R38X45-CV50**	C38-...
	Stacked Plate	2.2xD	2.200 - 2.400	5-3/8	7-43/64	CAT50	**SP38X22-CV50**	C38SP-...

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R38...	**C38-FIX**	2	MS-17M-1	5mm	AS-18T9-1	8T-9
	C38-ADJ	2	MS-17M-1	5mm	AS-18T9-1	8T-9
SP38...	**C38SP-FIX**	2	MS-17M-1	5mm	AS-18T9-1	8T-9
	C38SP-ADJ	2	MS-17M-1	5mm	AS-18T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

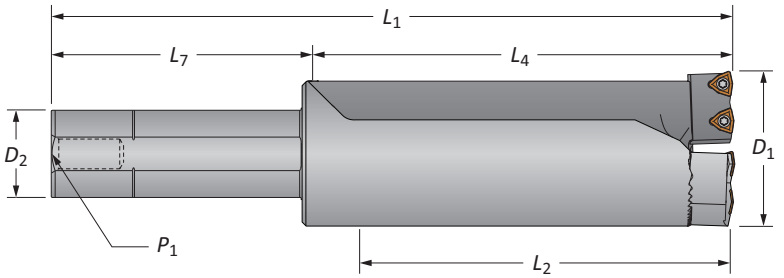
A60: 22 - 23
Key on A60: 1
A60: 2 - 4

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

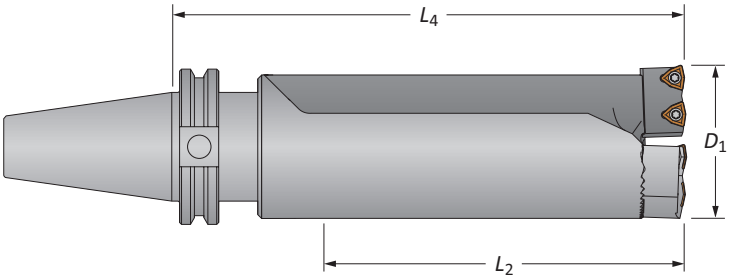
42 Series | Diameter Range: 2.400” - 2.600” (61.0mm - 66.0mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
ⓘ	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-...
ⓜ	Standard	2.2xD	61.0 - 66.0	144.9	171.7	241.7	40	70	–	**R42X22-40M**	C42-...
ⓜ	Standard	3.5xD	61.0 - 66.0	233.8	260.6	330.6	40	70	–	**R42X35-40M**	C42-...
ⓜ	Standard	4.5xD	61.0 - 66.0	297.3	324.1	394.1	40	70	–	**R42X45-40M**	C42-...
ⓜ	Stacked Plate	2.2xD	61.0 - 66.0	146.1	172.9	242.9	40	70	–	**SP42X22-40M**	C42SP-...

*Holder includes cartridges; however, inserts are sold separately.



CV40 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
ⓘ	Standard	2.2xD	2.400 - 2.600	5-45/64	8-9/64	CAT40	**R42X22-CV40**	C42-...
ⓘ	Standard	3.5xD	2.400 - 2.600	9-13/64	11-41/64	CAT40	**R42X35-CV40**	C42-...
ⓘ	Standard	4.5xD	2.400 - 2.600	11-45/64	14-9/64	CAT40	**R42X45-CV40**	C42-...
ⓘ	Stacked Plate	2.2xD	2.400 - 2.600	5-3/4	8-3/16	CAT40	**SP42X22-CV40**	C42SP-...

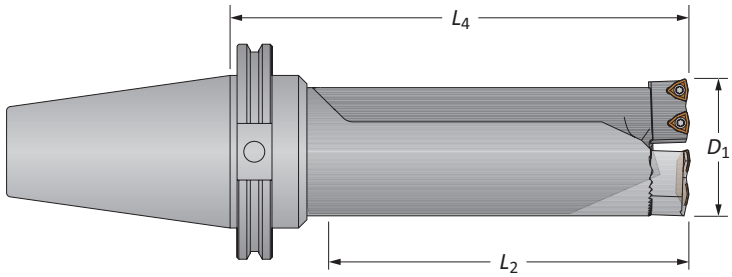
*Holder includes cartridges; however, inserts are sold separately.

A60: 22 - 23
Key on A60: 1
A60: 2 - 4

ⓘ = Imperial (in)
ⓜ = 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 L_2	Holder L_4	Shank	Part No.*	Cartridges
ⓘ	Standard	2.2xD	2.400 - 2.600	5-45/64	8-9/64	CAT50	**R42X22-CV50**	C42-...
ⓘ	Standard	3.5xD	2.400 - 2.600	9-13/64	11-41/64	CAT50	**R42X35-CV50**	C42-...
ⓘ	Standard	4.5xD	2.400 - 2.600	11-45/64	14-9/64	CAT50	**R42X45-CV50**	C42-...
	Stacked Plate	2.2xD	2.400 - 2.600	5-3/4	8-3/16	CAT50	**SP42X22-CV50**	C42SP-...

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R42...	**C42-FIX**	2	MS-19M-1	6mm	AS-18T9-1	8T-9
	C42-ADJ	2	MS-19M-1	6mm	AS-18T9-1	8T-9
SP42...	**C42SP-FIX**	2	MS-19M-1	6mm	AS-18T9-1	8T-9
	C42SP-ADJ	2	MS-19M-1	6mm	AS-18T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

A60: 22 - 23

Key on A60: 1

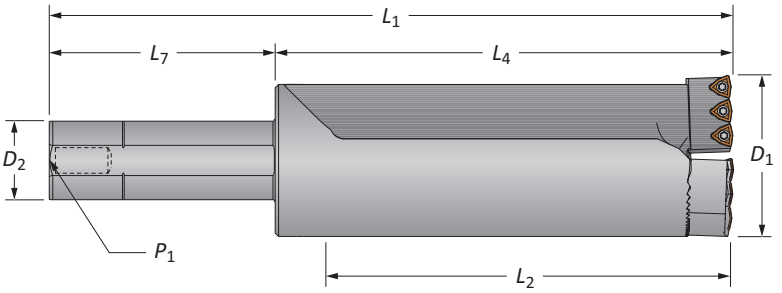
A60: 2 - 4

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

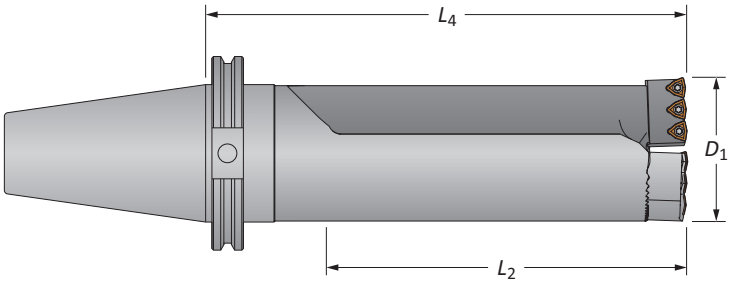
44 Series | Diameter Range: 2.600" - 2.800" (66.0mm - 71.1mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
ⓘ	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-...
ⓜ	Standard	2.2xD	66.0 - 71.1	157.6	190.7	260.7	40	70	–	**R44X22-40M**	C44-...
ⓜ	Standard	3.5xD	66.0 - 71.1	252.9	285.9	355.9	40	70	–	**R44X35-40M**	C44-...
	Stacked Plate	2.2xD	66.0 - 71.1	158.7	191.7	261.7	40	70	–	**SP44X22-40M**	C44SP-...

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
ⓘ	Standard	2.2xD	2.600 - 2.800	6-13/64	8-7/8	CAT50	**R44X22-CV50**	C44-...
ⓘ	Standard	3.5xD	2.600 - 2.800	9-61/64	12-5/8	CAT50	**R44X35-CV50**	C44-...
	Stacked Plate	2.2xD	2.600 - 2.800	6-1/4	8-59/64	CAT50	**SP44X22-CV50**	C44SP-...

*Holder includes cartridges; however, inserts are sold separately.

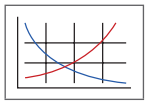
Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R44...	**C44-FIX**	3	MS-19M-1	6mm	AS-18T9-1	8T-9
	C44-ADJ	3	MS-19M-1	6mm	AS-18T9-1	8T-9
SP44...	**C44SP-FIX**	3	MS-19M-1	6mm	AS-18T9-1	8T-9
	C44SP-ADJ	3	MS-19M-1	6mm	AS-18T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

A60: 22 - 23



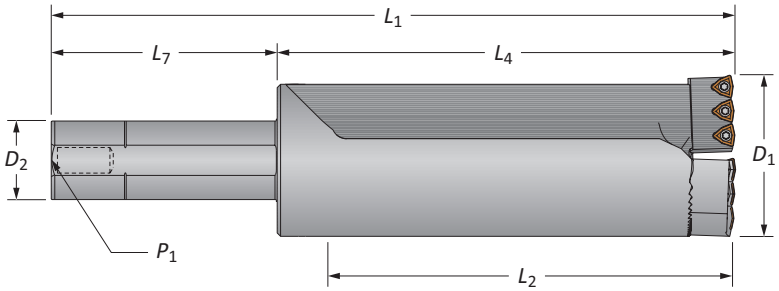
A60: 2 - 4

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

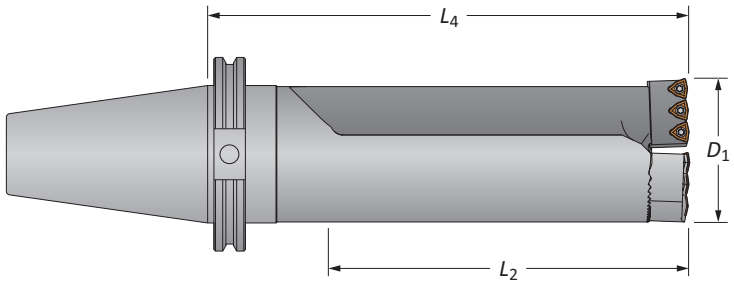
46 Series | Diameter Range: 2.800” - 3.000” (71.1mm - 76.2mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
	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-...
	Standard	2.2xD	71.1 - 76.2	170.4	203.4	273.4	40	70	–	**R46X22-40M**	C46-...
ⓜ	Standard	3.5xD	71.1 - 76.2	265.6	298.6	368.6	40	70	–	**R46X35-40M**	C46-...
	Stacked Plate	2.2xD	71.1 - 76.2	171.4	204.4	274.4	40	70	–	**SP46X22-40M**	C46SP-...

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
	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-...

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R46...	**C46-FIX**	3	MS-21M-1	8mm	AS-18T9-1	8T-9
	C46-ADJ	3	MS-21M-1	8mm	AS-18T9-1	8T-9
SP46...	**C46SP-FIX**	3	MS-21M-1	8mm	AS-18T9-1	8T-9
	C46SP-ADJ	3	MS-21M-1	8mm	AS-18T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

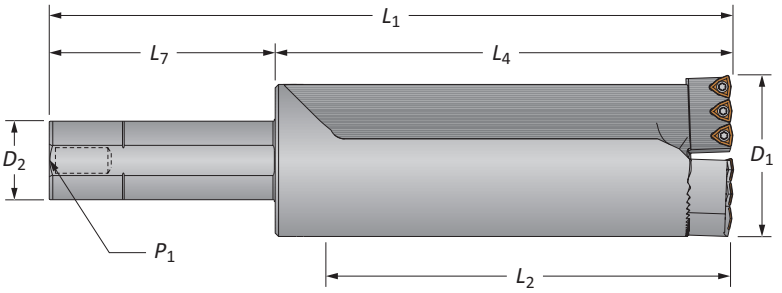
A60: 22 - 23
Key on A60: 1
A60: 2 - 4

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

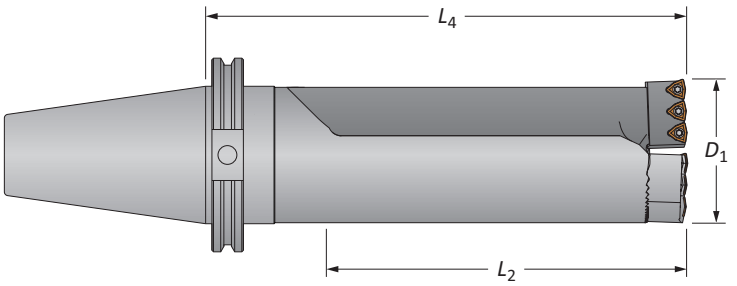
48 Series | Diameter Range: 3.000” - 3.200” (76.2mm - 81.3mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
	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-...
	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-...

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
	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-...

*Holder includes cartridges; however, inserts are sold separately.

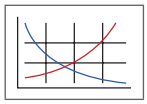
Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R48...	**C48-FIX**	3	MS-21M-1	8mm	AS-18T9-1	8T-9
	C48-ADJ	3	MS-21M-1	8mm	AS-18T9-1	8T-9
SP48...	**C48SP-FIX**	3	MS-21M-1	8mm	AS-18T9-1	8T-9
	C48SP-ADJ	3	MS-21M-1	8mm	AS-18T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

A60: 22 - 23



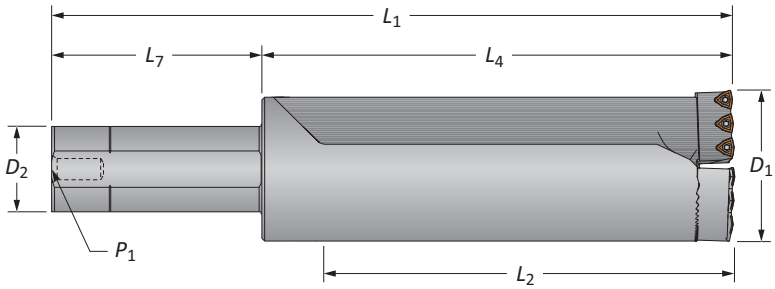
A60: 2 - 4

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

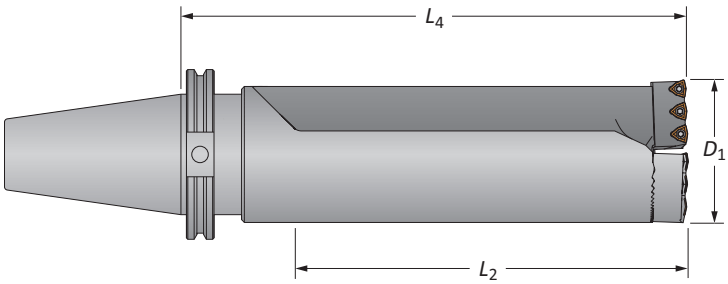
52 Series | Diameter Range: 3.200” - 3.400” (81.3mm - 86.4mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
ⓘ	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-...
ⓜ	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-...

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
ⓘ	Standard	1.0xD	3.200 - 3.400	3-27/64	6-25/64	CAT50	**R52X10-CV50**	C52-...
ⓘ	Standard	2.5xD	3.200 - 3.400	8-27/64	11-25/64	CAT50	**R52X25-CV50**	C52-...
ⓘ	Stacked Plate	1.0xD	3.200 - 3.400	3-31/64	6-29/64	CAT50	**SP52X10-CV50**	C52SP-...
ⓘ	Stacked Plate	2.5xD	3.200 - 3.400	8-31/64	11-29/64	CAT50	**SP52X25-CV50**	C52SP-...

*Holder includes cartridges; however, inserts are sold separately.

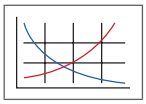
Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R52...	**C52-FIX**	3	MS-19M-1	6mm	AS-18T9-1	8T-9
	C52-ADJ	3	MS-19M-1	6mm	AS-18T9-1	8T-9
SP52...	**C52SP-FIX**	3	MS-19M-1	6mm	AS-18T9-1	8T-9
	C52SP-ADJ	3	MS-19M-1	6mm	AS-18T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

A60: 22 - 23



Key on A60: 1

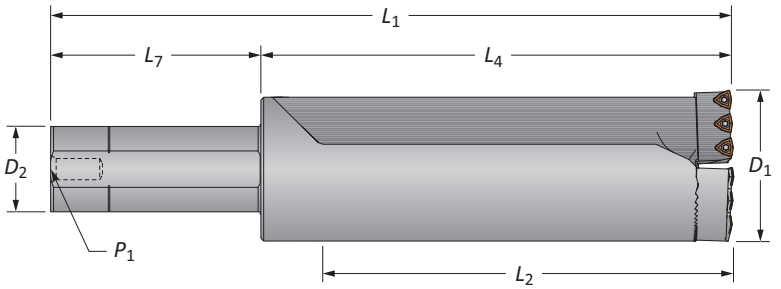
A60: 2 - 4

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

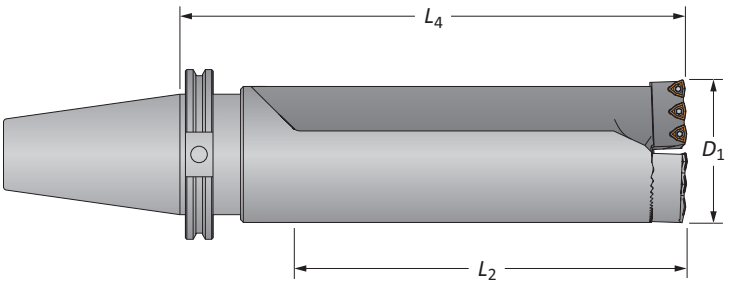
54 Series | Diameter Range: 3.400” - 3.600” (86.4mm - 91.4mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
	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-...
	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-...

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
	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-...

*Holder includes cartridges; however, inserts are sold separately.

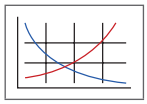
Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R54...	**C54-FIX**	3	MS-19M-1	6mm	AS-18T9-1	8T-9
	C54-ADJ	3	MS-19M-1	6mm	AS-18T9-1	8T-9
SP54...	**C54SP-FIX**	3	MS-19M-1	6mm	AS-18T9-1	8T-9
	C54SP-ADJ	3	MS-19M-1	6mm	AS-18T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

A60: 22 - 23



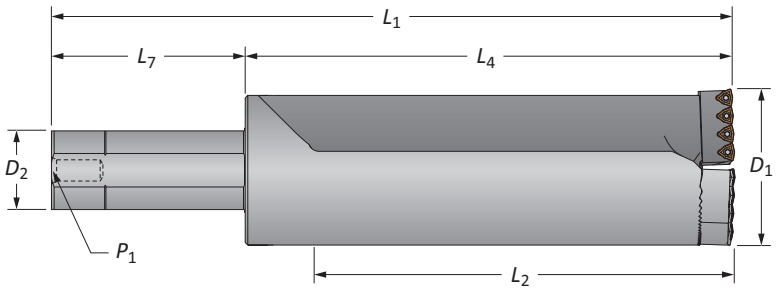
A60: 2 - 4

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

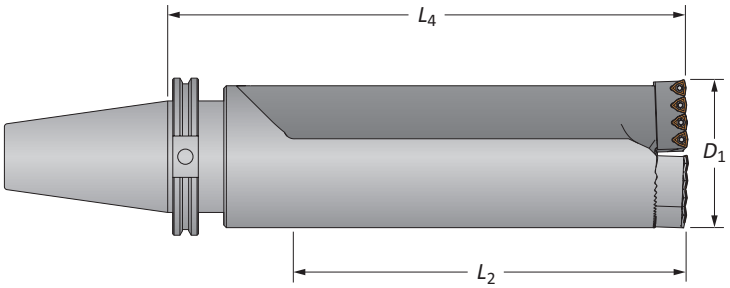
56 Series | Diameter Range: 3.600” - 3.800” (91.4mm - 96.5mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
ⓘ	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-...
ⓜ	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-...

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
ⓘ	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-...

*Holder includes cartridges; however, inserts are sold separately.

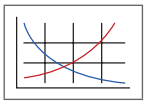
Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R56...	**C56-FIX**	4	MS-21M-1	8mm	AS-18T9-1	8T-9
	C56-ADJ	4	MS-21M-1	8mm	AS-18T9-1	8T-9
SP56...	**C56SP-FIX**	4	MS-21M-1	8mm	AS-18T9-1	8T-9
	C56SP-ADJ	4	MS-21M-1	8mm	AS-18T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

A60: 22 - 23



Key on A60: 1

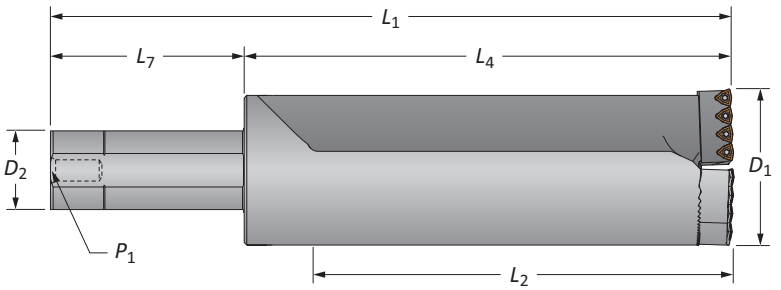
A60: 2 - 4

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Revolution Drill Holders

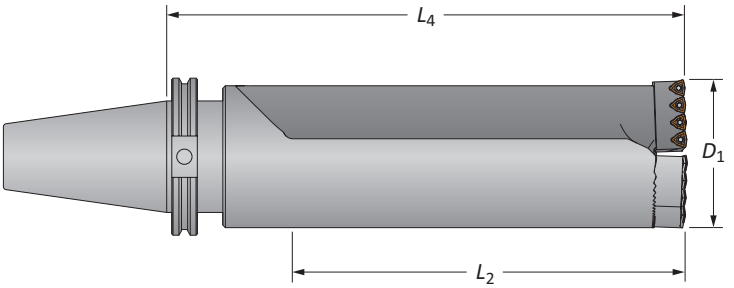
58 Series | Diameter Range: 3.800” - 4.000” (96.5mm - 101.6mm)



Straight Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Holder L_1	Shank D_2	Shank L_7	Shank P_1	Part No.*	Cartridges
	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-...
	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-...

*Holder includes cartridges; however, inserts are sold separately.



CV50 Shank

	Style	Length	D_1 Range	Holder L_2	Holder L_4	Shank	Part No.*	Cartridges
	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-...

*Holder includes cartridges; however, inserts are sold separately.

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Key Size	Adjusting Screw	Driver
R58...	**C58-FIX**	4	MS-21M-1	8mm	AS-18T9-1	8T-9
	C58-ADJ	4	MS-21M-1	8mm	AS-18T9-1	8T-9
SP58...	**C58SP-FIX**	4	MS-21M-1	8mm	AS-18T9-1	8T-9
	C58SP-ADJ	4	MS-21M-1	8mm	AS-18T9-1	8T-9

IC Inserts

Carbide Grade	Geometry	Part No. AM300®	Part No. AM200®	Part No. TiN	Insert Screws	Driver
C5 (P35)	Standard	**OP-05T308-P**	**OP-05T308-H**	**OP-05T308-T**	IS-10-1	8T-9
C1 (K35)	Standard	**OP-05T308-1P**	**OP-05T308-1H**	**OP-05T308-1T**	IS-10-1	8T-9
C2 (K25)	Standard	**OP-05T308-2P**	**OP-05T308-2H**	–	IS-10-1	8T-9
C5 (P35)	High Rake	**OP-05T308-PHR**	**OP-05T308-HHR**	–	IS-10-1	8T-9

A60: 22 - 23
Key on A60: 1

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

ⓘ = Imperial (in)
ⓜ = Metric (mm)

Notes

Recommended Cutting Data | Imperial (inch)

ISO	Material	Hardness (BHN)	Speed (SFM) AM300®	AM200®	TiN	Feed Rate (IPR)
P	**Free Machining Steel** 1118, 1215, 12L14, etc.	100 - 250	900 - 1300	850 - 1200	700 - 900	.0035 - .007
P	**Low Carbon Steel** 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	850 - 1250	800 - 1150	650 - 850	.003 - .0065
P	**Medium Carbon Steel** 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	800 - 1050	750 - 950	600 - 850	.0035 - .0065
P	**Alloy Steel** 4140, 5140, 8640, etc.	125 - 375	750 - 1000	700 - 900	600 - 850	.0035 - .0065
P	**High Strength Alloy** 4340, 4330V, 300M, etc.	225 - 400	600 - 850	550 - 750	400 - 650	.003 - .005
P	**Structural Steel** A36, A285, A516, etc.	100 - 350	850 - 1050	800 - 950	650 - 850	.003 - .0065
P	**Tool Steel** H-13, H-21, A-4, 0-2, 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
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 350	600 - 850	550 - 750	400 - 650	.003 - .006
M	**Stainless Steel 300 Series** 304, 316, 17-4PH, etc.	135 - 275	600 - 850	550 - 750	400 - 650	.003 - .006
M	**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
N	**Cast Aluminum**	30 - 180	1250 - 1650	1200 - 1550	950 - 1100	.006 - .012
N	**Wrought Aluminum**	30 - 180	1250 - 1650	1200 - 1550	950 - 1100	.006 - .012
N	**Brass**	30 - 100	950 - 1350	900 - 1250	750 - 1100	.005 - .009

Material Constants

Type of Material	Hardness (BHN)	K_m (lbs/in²)
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**

where:

RPM = revolutions per minute (rev/min)
SFM = speed (ft/min)
DIA = diameter of drill (inch)

2. **HP = (0.6676 • DIA² • IPR • RPM • K_m) / 0.80**

where:

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/in²)
machine efficiency (using 0.80 as constant)

3. **Thrust = 148,500 • IPR • DIA • K_m**

where:

Thrust = axial thrust (lbs)
IPR = feed rate (in/rev)
DIA = diameter of drill (inch)
K_m = specific cutting energy (lbs/in²)

5. **Torque = (HP • 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*.

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.

Recommended Cutting Data | Metric (mm)

ISO	Material	Hardness (BHN)	Speed (M/min) AM300®	AM200®	TiN	Feed Rate (mm/rev)
P	**Free Machining Steel** 1118, 1215, 12L14, etc.	100 - 250	274 - 396	259 - 366	213 - 274	0.09 - 0.18
P	**Low Carbon Steel** 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	259 - 381	244 - 351	198 - 259	0.08 - 0.17
P	**Medium Carbon Steel** 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 325	244 - 320	229 - 290	183 - 259	0.09 - 0.17
P	**Alloy Steel** 4140, 5140, 8640, etc.	125 - 375	229 - 305	213 - 274	183 - 259	0.09 - 0.17
P	**High Strength Alloy** 4340, 4330V, 300M, etc.	225 - 400	183 - 259	168 - 229	122 - 198	0.08 - 0.13
P	**Structural Steel** A36, A285, A516, etc.	100 - 350	259 - 320	244 - 290	198 - 259	0.08 - 0.17
P	**Tool Steel** H-13, H-21, A-4, 0-2, S-3, etc.	150 - 250	122 - 244	107 - 213	76 - 198	0.06 - 0.13
S	**High Temp Alloy** Hastelloy B, Inconel 600, etc.	140 - 310	76 - 137	76 - 107	46 - 91	0.06 - 0.11
M	**Stainless Steel 400 Series** 416, 420, etc.	185 - 350	183 - 259	168 - 229	122 - 198	0.08 - 0.15
M	**Stainless Steel 300 Series** 304, 316, 17-4PH, etc.	135 - 275	183 - 259	168 - 229	122 - 198	0.08 - 0.15
M	**Super Duplex 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
N	**Cast Aluminum**	30 - 180	381 - 503	381 - 472	290 - 335	0.15 - 0.30
N	**Wrought Aluminum**	30 - 180	381 - 503	381 - 472	290 - 335	0.15 - 0.30
N	**Brass**	30 - 100	290 - 411	274 - 381	229 - 335	0.13 - 0.23

Material Constants

Type of Material	Hardness (BHN)	K_m (lbs/in²)
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 • M/min) / DIA**

where:

RPM = revolutions per minute (rev/min)
M/min = speed (M/min)
DIA = diameter of drill (mm)

2. **kW = (DIA^2 • mm/rev • RPM • 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 • mm/rev • DIA • K_m**

where:

Thrust = axial thrust (N)
mm/rev = feed rate (mm/rev)
DIA = diameter of drill (mm)
K_m = specific cutting energy (kPa)

5. **Torque = (kW • 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.

Notes

Notes

Guaranteed Test / Demo Application Form

Distributor PO #	

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

Distributor Information

Company Name: _____

Contact: _____

Account Number: _____

Phone: _____

Email: _____

End User Information

Company Name: _____

Contact: _____

Industry: _____

Phone: _____

Email: _____

Current Process List all tooling, coatings, substrates, speeds and feeds, tool life, and any problems you are experiencing

_____

_____

Test Objective List what would make this a successful test (i.e. penetration rate, finish, tool life, hole size, etc.)

_____

_____

Application Information

Hole Diameter: _____ in/mm

Tolerance: _____

Material: _____ (4150 / A36 / Cast Iron / etc.)

Pre-existing Diameter: _____ in/mm

Depth of Cut: _____ in/mm

Hardness: _____ (BHN / Rc)

Required Finish: _____ RMS

State: _____ (Casting / Hot rolled / Forging)

Machine Information

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

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

Model #: _____

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

Power: _____ HP/KW

Rigidity:
- ☐ Excellent
- ☐ Good
- ☐ Poor

Orientation:
- ☐ Vertical
- ☐ Horizontal

Tool Rotating:
- ☐ Yes
- ☐ No

Thrust: _____ lbs/N

Coolant Information

Coolant Delivery: _____ (Through tool / Flood)

Coolant Pressure: _____ PSI / bar

Coolant Type: _____ (Air mist, oil, synthetic, water soluble, etc.)

Coolant Volume: _____ GPM / LPM

Requested Tooling

QTY	Item Number

QTY	Item Number

ALLIED MACHINE & ENGINEERING

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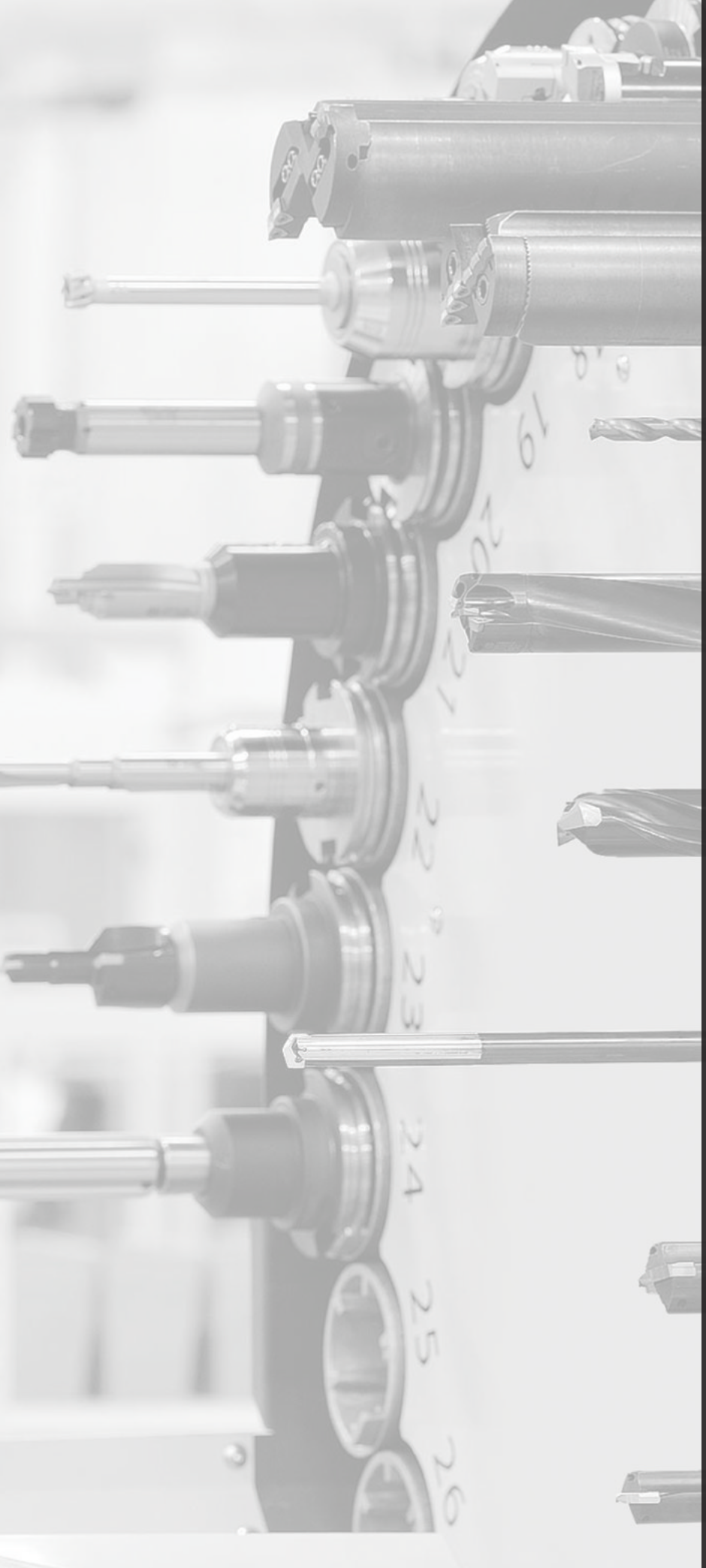

ALLIED MACHINE & ENGINEERING

Warranty Information

Allied Machine & Engineering warrants to original equipment manufacturers, distributors, industrial and commercial users of its products that each new product manufactured or supplied by Allied Machine shall be free from defects in material and workmanship.

Allied Machine's obligation under this warranty is limited to furnishing without additional charge a replacement or, at its option repairing or issuing credit for any product which shall within one year from the date of sale be returned freight prepaid to the plant designated by an Allied Machine representative and which upon inspection is determined by Allied Machine to be defective in materials or workmanship.

Complete information as to operating conditions, machine, set-up, and application of cutting fluid should accompany any product returned for inspection. The provisions of this warranty shall not apply to any Allied Machine products which have been subjected to misuse, improper operating conditions, machine set-up or application of cutting fluid or which have been repaired or altered if such repair or alteration in the judgment of Allied Machine would adversely affect performance of the product.

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