



ALLIED MACHINE & ENGINEERING

Holemaking Solutions for Today's Manufacturing



Boring



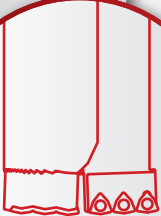
Reaming



Burnishing



Threading



Drilling

► Revolution Drill®

Large Diameter IC Insert Drilling System



Specials

The Foundation

Since 1941, Allied Machine & Engineering has provided dependable and practical holmaking 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: holmaking.

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 holmaking 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 Future

Allied Machine is constantly investing in the brightest and sharpest minds, shaping a future filled with success and quality for customers around the world.



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

DRILLING

High Penetration



GEN3SYS® XT Pro



GEN3SYS® XT



ASC 320®

General Production

(certain sizes are ideal for deep hole drilling and/or large diameter drilling)



GEN2 T-A®



Original T-A®



High Performance



Universal

Large Diameter



Revolution Drill®



Opening Drill®

Large Diameter / Deep Hole



APX Drill



BT-A Drill

Deep Hole



Guided T-A® Drill
(special)

Porting



AccuPort 432®

Structural Steel



GEN3SYS® XT



T-A®

BORING



WOHLHAUPTER®

Bringing you the finest in precision cutting tools

CRITERION™

REAMING



ALVAN®
Reaming Systems

S.C.A.M.I.®



S.C.A.M.I.®
Roller Burnishing

THREADING



AccuThread™ 856
Pin Style Indexable



AccuThread™ 856
Bolt-in Style Indexable



AccuThread™ 856
Solid Carbide



ThreadMills USA
Solid Carbide



SPECIALS



Insta-Quote™
Online custom tool builder and quote generator



i-Form
Custom indexable drill / form tool system

Engineered Specials

If your special holmaking needs cannot be met with the Insta-Quote system, Allied Machine can specially engineer ANY product to make your application a success. Simply contact your local Field Sales Engineer or the Allied Machine Application Engineering department for assistance with creating your special tooling. Let Allied Machine resolve your challenges today.

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

Revolution Drill®

Large Diameter Replaceable IC Insert Drilling System

► Diameter Range: 1.875" - 4.000" (47.6mm - 101.0mm)

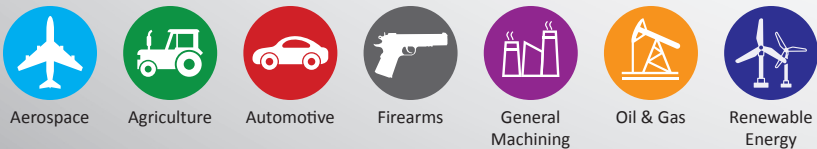


Large Scale Innovation

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.

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.

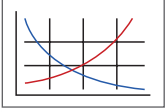
Reference Icons

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

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



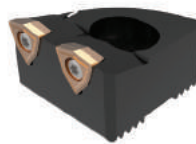
Product Overview

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

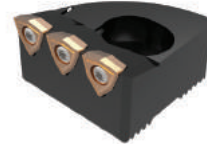
NOTE: Stacked plate styles are also available

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



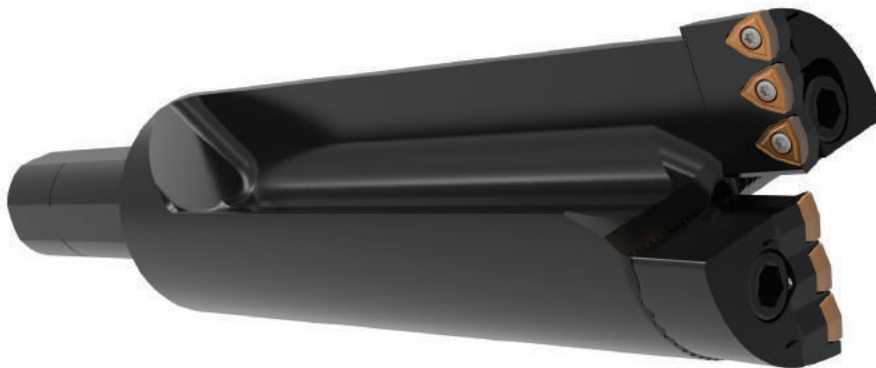
2 Inserts
(34 - 42 series)



3 Inserts
(44 - 54 series)



4 Inserts
(56 - 58 series)



Shank Options



Straight Shank
(all series)



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

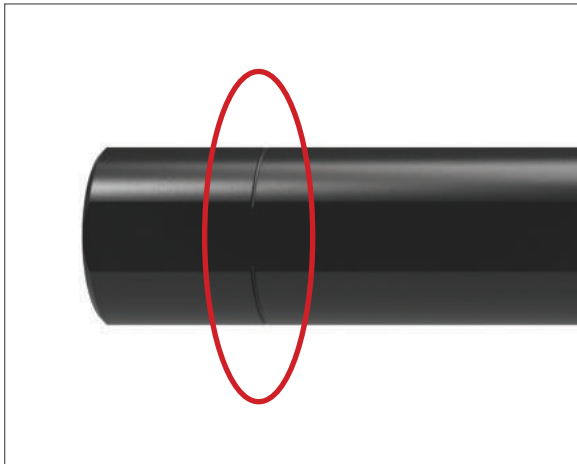
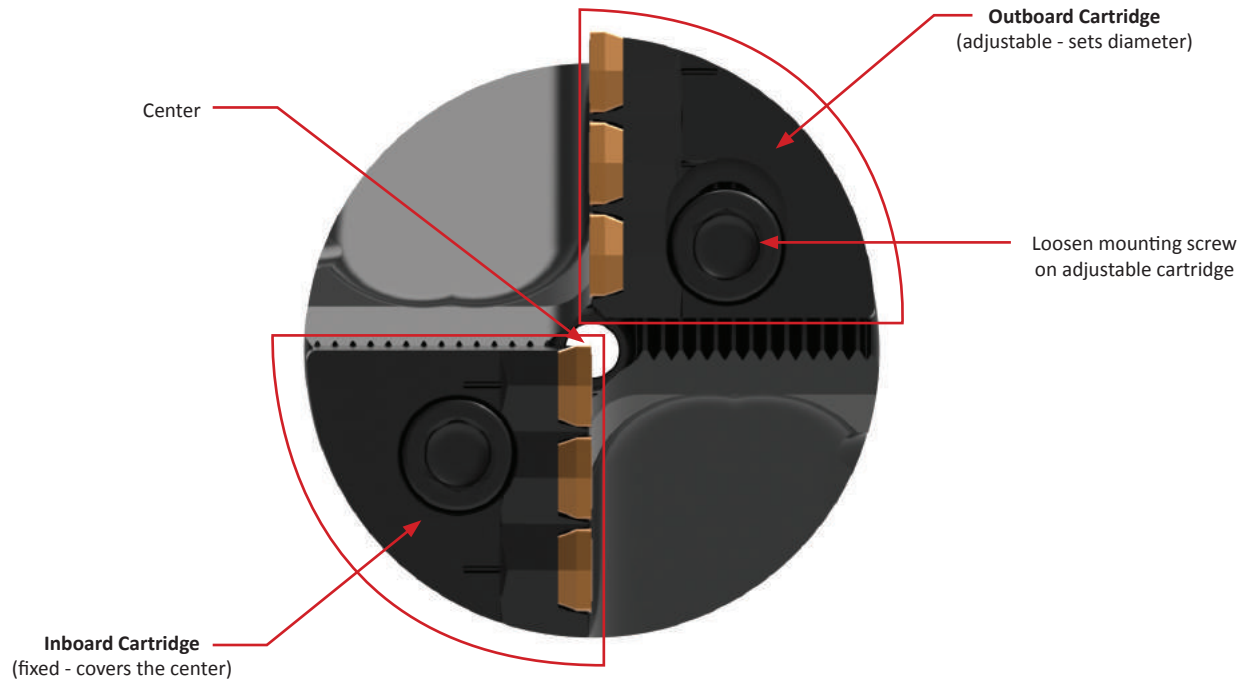


CAT50 Shank
(all series)

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. ▶ <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>

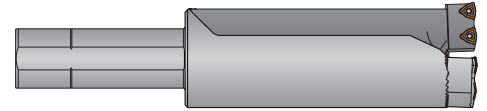
Additional Geometry Option

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

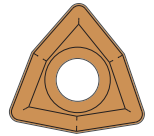
R	34	X	22	–	150L
1	2		3		4



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

Revolution Drill Inserts

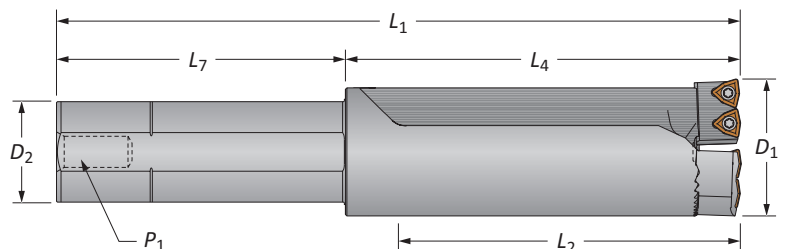
OP	–	05	T3	08	–	1	H	HR
1		2	3	4		5	6	7



1. Compatible with:	2. IC Type	3. Thickness	4. Radius	5. Carbide Grade
Opening Drill Revolution Drill	05 = 5/16"	T3 = 5/32"	08 = 1/32"	Blank = C5 (P35) 1 = C1 (K35) 2 = C2 (K25)
6. Coating	7. Geometry			
P = AM300® H = AM200® T = TiN A = TiAlN N = TiCN U = Uncoated	Blank = General Purpose HR = High Rake			

Reference Key

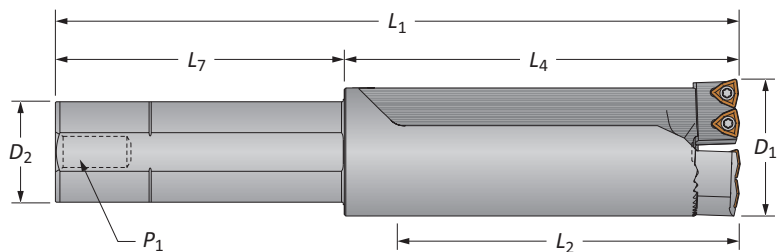
Symbol	Attribute
D₁	Drill diameter range
D₂	Shank diameter
L₁	Overall length
L₂	Maximum drill depth
L₄	Holder length
L₇	Shank length
P₁	Rear pipe tap





Revolution Drill Holders

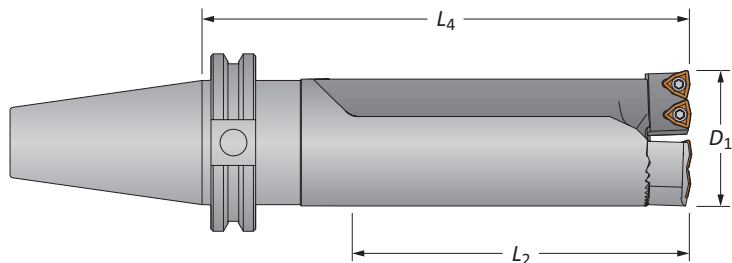
34 Series | Diameter Range: 1.875" - 2.000" (47.6mm - 50.8mm)



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	—	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-...

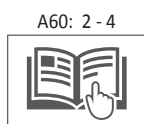
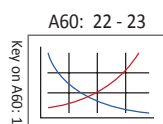
*Holder includes cartridges; however, inserts are sold separately.



CV40 Shank

	Style	Length	D ₁ Range	Holder		Shank	Part No.*	Cartridges
				L ₂	L ₄			
i	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-...

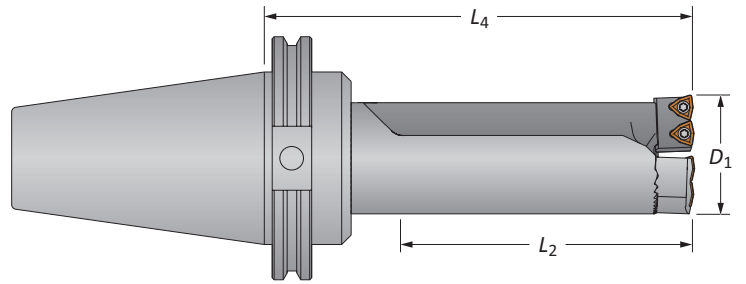
*Holder includes cartridges; however, inserts are sold separately.



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			
i	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-...

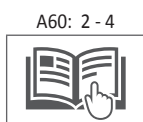
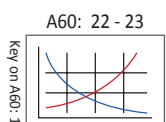
*Holder includes cartridges; however, inserts are sold separately.

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R34...	C34-FIX	2	MS-17M-1	AS-18T9-1
	C34-ADJ	2	MS-17M-1	AS-18T9-1
SP34...	C34SP-FIX	2	MS-17M-1	AS-18T9-1
	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-P	OP-05T308-H	OP-05T308-T	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	—	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	—	IS-10-1



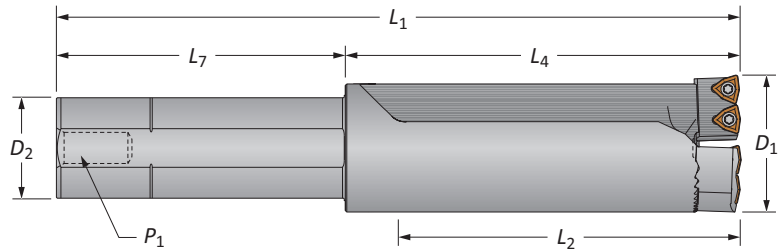
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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



Revolution Drill Holders

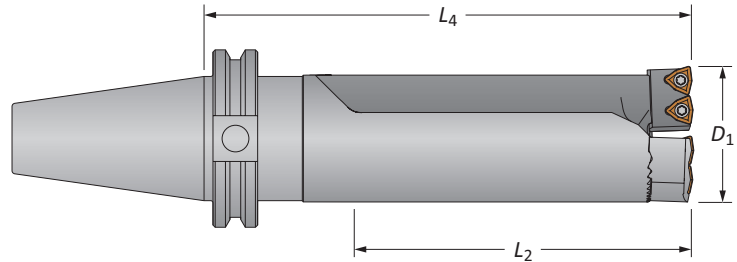
36 Series | Diameter Range: 2.000" - 2.200" (50.8mm - 55.9mm)



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-...

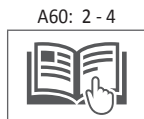
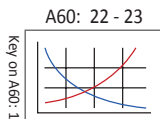
*Holder includes cartridges; however, inserts are sold separately.



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-...

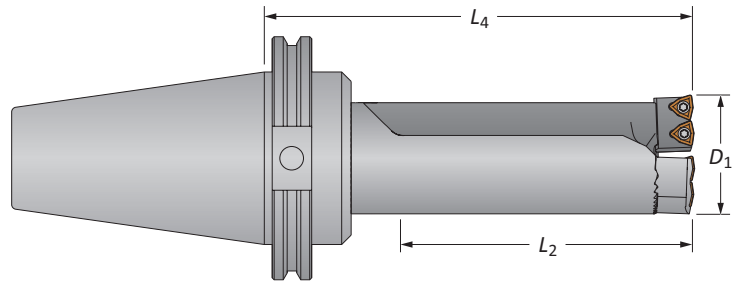
*Holder includes cartridges; however, inserts are sold separately.



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			
i	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-...

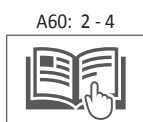
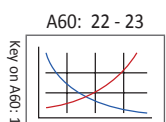
*Holder includes cartridges; however, inserts are sold separately.

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R36...	C36-FIX	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-P	OP-05T308-H	OP-05T308-T	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	—	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	—	IS-10-1



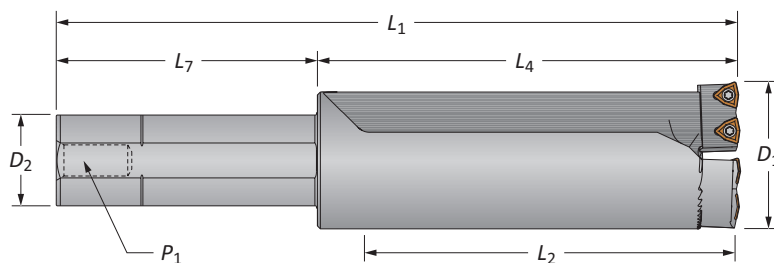
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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



Revolution Drill Holders

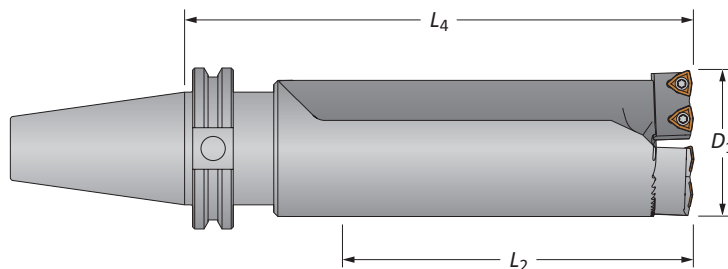
38 Series | Diameter Range: 2.200" - 2.400" (55.9mm - 61.0mm)



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-...

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

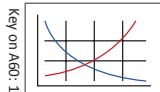


CV40 Shank

	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-...

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

A60: 22 - 23



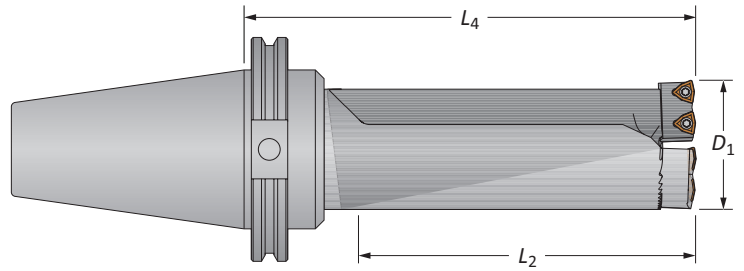
A60: 2 - 4



i = Imperial (in)
m = 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		Shank	Part No.*	Cartridges
				L ₂	L ₄			
i	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-...

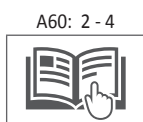
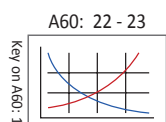
*Holder includes cartridges; however, inserts are sold separately.

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R38...	C38-FIX	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-P	OP-05T308-H	OP-05T308-T	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	—	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	—	IS-10-1



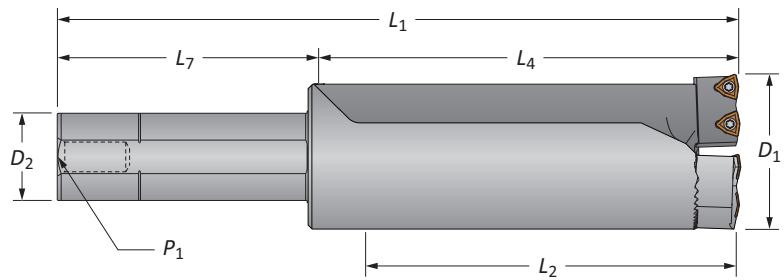
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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



Revolution Drill Holders

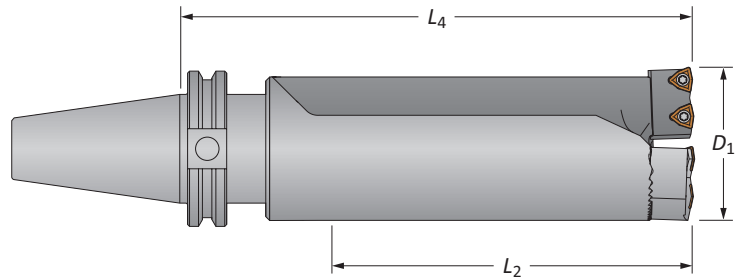
42 Series | Diameter Range: 2.400" - 2.600" (61.0mm - 66.0mm)



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	—	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-...

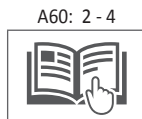
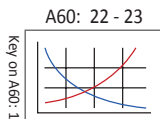
*Holder includes cartridges; however, inserts are sold separately.



CV40 Shank

	Style	Length	D ₁ Range	Holder		Shank	Part No.*	Cartridges
				L ₂	L ₄			
i	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-...

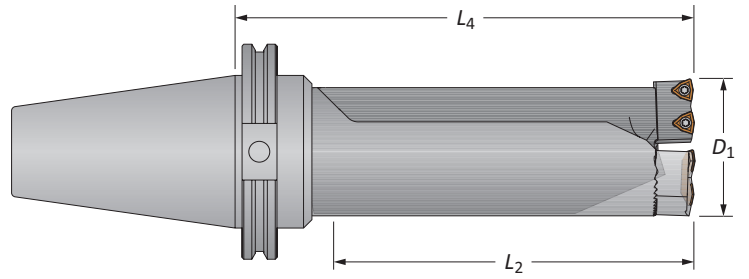
*Holder includes cartridges; however, inserts are sold separately.



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			
i	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-...

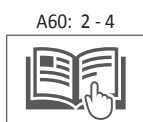
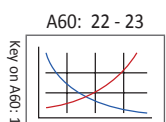
*Holder includes cartridges; however, inserts are sold separately.

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R42...	C42-FIX	2	MS-19M-1	AS-18T9-1
	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-P	OP-05T308-H	OP-05T308-T	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	—	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	—	IS-10-1



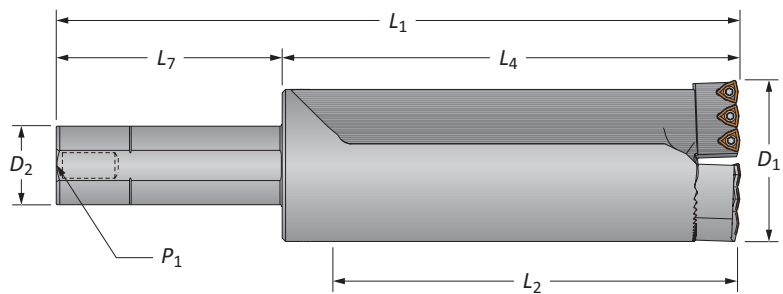
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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



Revolution Drill Holders

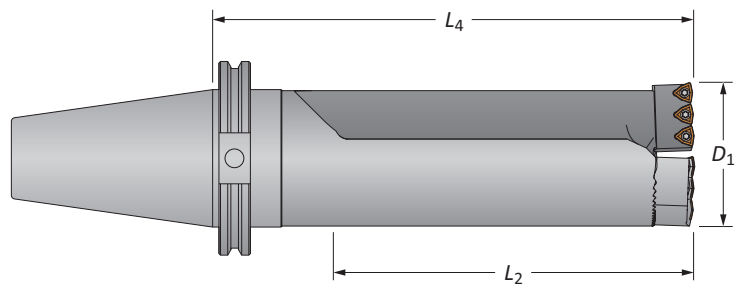
44 Series | Diameter Range: 2.600" - 2.800" (66.0mm - 71.1mm)



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	–	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		Shank	Part No.*	Cartridges
				L ₂	L ₄			
i	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.

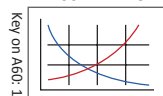
Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R44...	C44-FIX	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-P	OP-05T308-H	OP-05T308-T	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	–	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	–	IS-10-1

A60: 22 - 23



A60: 2 - 4

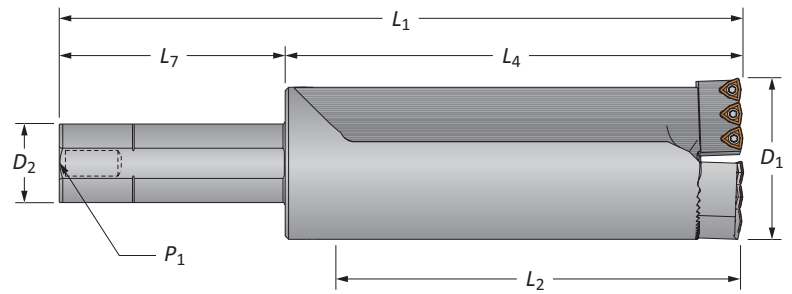


Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

Revolution Drill Holders

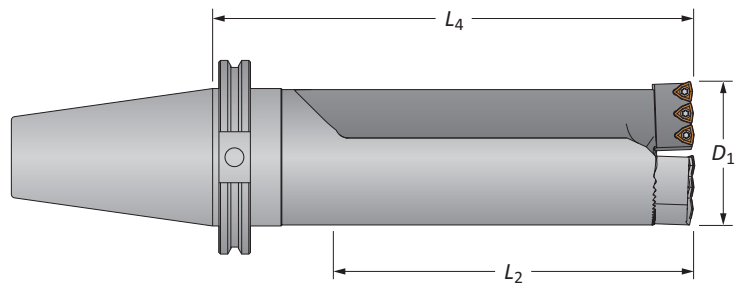
46 Series | Diameter Range: 2.800" - 3.000" (71.1mm - 76.2mm)



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	–	R46X22-40M	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		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-...

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

Cartridges

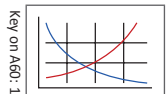
Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R46...	C46-FIX	3	MS-21M-1	AS-18T9-1
	C46-ADJ	3	MS-21M-1	AS-18T9-1
SP46...	C46SP-FIX	3	MS-21M-1	AS-18T9-1
	C46SP-ADJ	3	MS-21M-1	AS-18T9-1

IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard	OP-05T308-P	OP-05T308-H	OP-05T308-T	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	–	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	–	IS-10-1

A60: 22 - 23

A60: 2 - 4



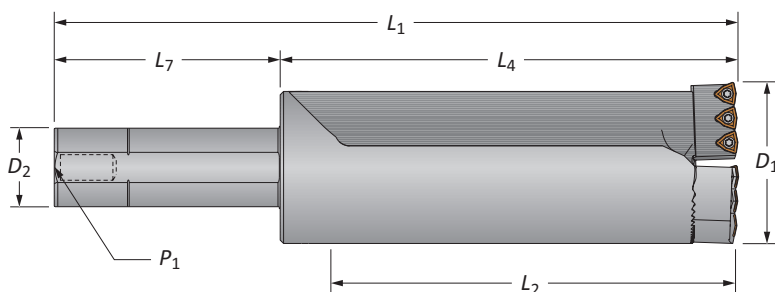
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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



Revolution Drill Holders

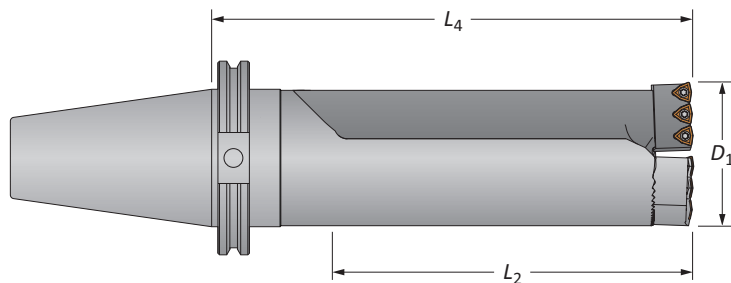
48 Series | Diameter Range: 3.000" - 3.200" (76.2mm - 81.3mm)



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-...

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



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	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.

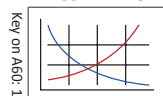
Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R48...	C48-FIX	3	MS-21M-1	AS-18T9-1
	C48-ADJ	3	MS-21M-1	AS-18T9-1
SP48...	C48SP-FIX	3	MS-21M-1	AS-18T9-1
	C48SP-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-P	OP-05T308-H	OP-05T308-T	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	—	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	—	IS-10-1

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A60: 2 - 4

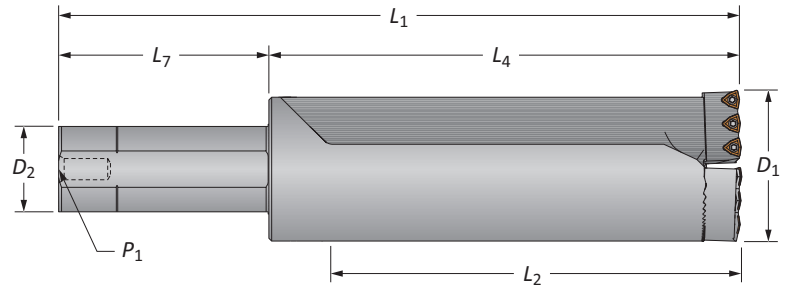


Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

Revolution Drill Holders

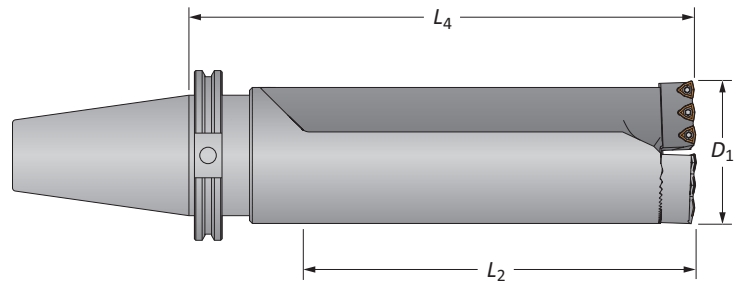
52 Series | Diameter Range: 3.200" - 3.400" (81.3mm - 86.4mm)



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-...

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



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	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.

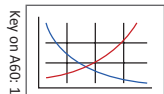
Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R52...	C52-FIX	3	MS-19M-1	AS-18T9-1
	C52-ADJ	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-P	OP-05T308-H	OP-05T308-T	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	—	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	—	IS-10-1

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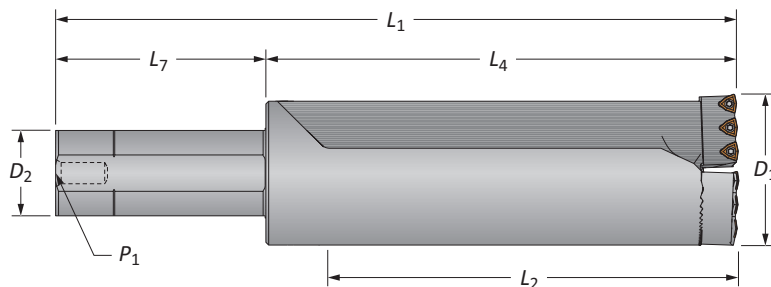
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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



Revolution Drill Holders

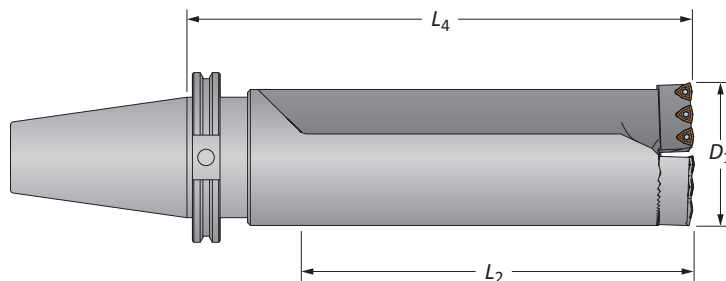
54 Series | Diameter Range: 3.400" - 3.600" (86.4mm - 91.4mm)



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-...

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



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-...

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

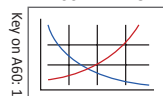
Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R54...	C54-FIX	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-P	OP-05T308-H	OP-05T308-T	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	—	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	—	IS-10-1

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A60: 2 - 4

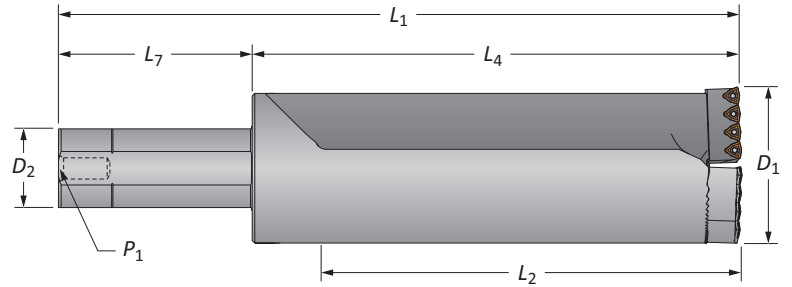


Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
IC inserts sold in multiples of 10 | Insert screws sold in multiples of 10

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

Revolution Drill Holders

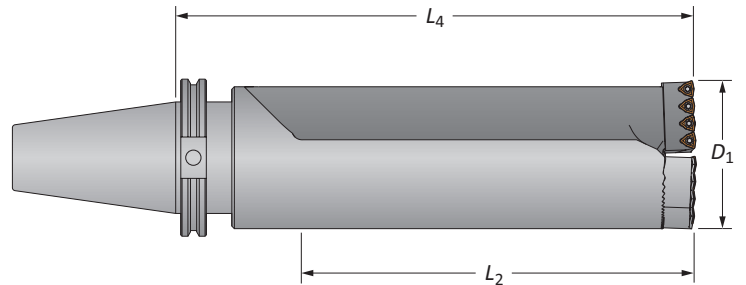
56 Series | Diameter Range: 3.600" - 3.800" (91.4mm - 96.5mm)



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-...

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



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-...

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

Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R56...	C56-FIX	4	MS-21M-1	AS-18T9-1
	C56-ADJ	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

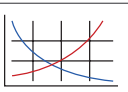
IC Inserts

Carbide Grade	Geometry	Part No.			Insert Screws
		AM300®	AM200®	TiN	
C5 (P35)	Standard	OP-05T308-P	OP-05T308-H	OP-05T308-T	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	—	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	—	IS-10-1

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Key on A60: 1



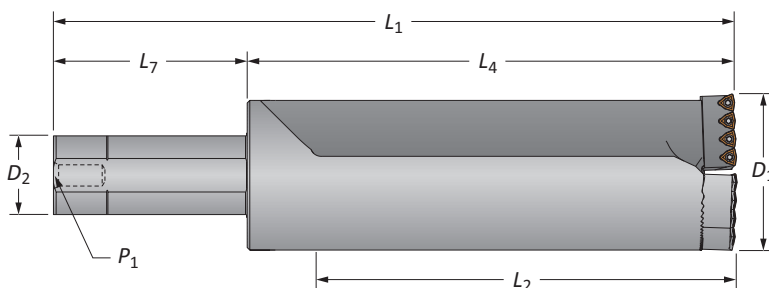
Mounting screws sold in multiples of 4 | Adjusting screws sold in multiples of 4
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i = Imperial (in)
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Revolution Drill Holders

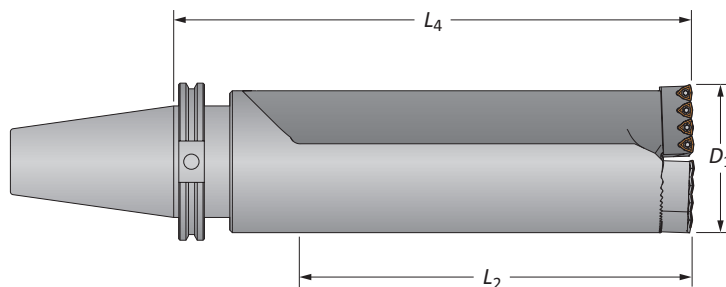
58 Series | Diameter Range: 3.800" - 4.000" (96.5mm - 101.6mm)



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-...

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



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-...

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

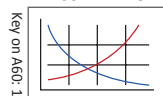
Cartridges

Holder Part No.	Replacement Cartridges	Qty. Inserts Needed	Mounting Screw	Adjusting Screw
R58...	C58-FIX	4	MS-21M-1	AS-18T9-1
	C58-ADJ	4	MS-21M-1	AS-18T9-1
SP58...	C58SP-FIX	4	MS-21M-1	AS-18T9-1
	C58SP-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-P	OP-05T308-H	OP-05T308-T	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	—	IS-10-1
C5 (P35)	High Rake	OP-05T308-PHR	OP-05T308-HHR	—	IS-10-1

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



Recommended Cutting Data | Imperial (inch)

ISO	Material	Hardness (BHN)	Speed (SFM)			Feed Rate (IPR)
			 AM300®	 AM200®	 TiN	
P	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
M	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
N	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 = $(3.82 \cdot \text{SFM}) / \text{DIA}$ where: RPM = revolutions per minute (rev/min) SFM = speed (ft/min) DIA = diameter of drill (inch)
2.	HP = $(0.6676 \cdot \text{DIA}^2 \cdot \text{IPR} \cdot \text{RPM} \cdot \text{K}_m) / 0.80$ 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/in ²) machine efficiency (using 0.80 as constant)
3.	Thrust = $148,500 \cdot \text{IPR} \cdot \text{DIA} \cdot \text{K}_m$ where: Thrust = axial thrust (lbs) IPR = feed rate (in/rev) DIA = diameter of drill (inch) K _m = specific cutting energy (lbs/in ²)
5.	Torque = $(\text{HP} \cdot 5252) / \text{RPM}$ 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)			Feed Rate (mm/rev)
			 AM300®	 AM200®	 TiN	
P	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
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
	Stainless Steel 300 Series 304, 316, 17-4PH, etc.	135 - 275	183 - 259	168 - 229	122 - 198	0.08 - 0.15
	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
	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.

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: _____ Builder: _____ Model #: _____
(Lathe / Screw machine / Machine center / etc.) (Haas, Mori Seiki, etc.)
Shank Required: _____ Power: _____ HP/KW
(CAT50 / Morse taper, etc.)
Rigidity: _____ Orientation: _____ Tool Rotating: _____ Thrust: _____ lbs/N
☐ Excellent ☐ Vertical ☐ Yes
☐ Good ☐ Horizontal ☐ No
☐ Poor

Coolant Information

Coolant Delivery: _____ Coolant Pressure: _____ PSI / bar
(Through tool / Flood)
Coolant Type: _____ Coolant Volume: _____ GPM / LPM
(Air mist, oil, synthetic, water soluble, etc.)

Requested Tooling

QTY	Item Number

QTY	Item Number



Allied Machine & Engineering
120 Deeds Drive
Dover, OH 44622

Telephone: (330) 343-4283
Toll Free USA & Canada: (800) 321-5537
Fax: (330) 602-3400

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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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Allied Machine & Engineering
Registered to ISO 9001
10001329

United States

Allied Machine & Engineering

120 Deeds Drive
Dover OH 44622
United States

Phone:

330.343.4283

Fax:

330.602.3400

Toll Free USA and Canada:

800.321.5537

Toll Free USA and Canada:

800.223.5140

Allied Machine & Engineering

485 W Third Street
Dover OH 44622
United States

Phone:

330.343.4283

Fax:

330.364.7666
(Engineering Dept.)

Toll Free USA and Canada:

800.321.5537

Europe

Allied Machine & Engineering Co. (Europe) Ltd.

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

Phone:

+44 (0) 1384 400900

Wohlhaupter GmbH

Maybachstrasse 4
Postfach 1264
72636 Frickenhausen
Germany

Phone:

011-49-7022-408-0

Fax:

011-49-7022-408-212

Asia

Wohlhaupter India Pvt. Ltd.

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

Phone:

+91-11-41827044

Your local Allied Machine representative:



www.alliedmachine.com

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