RedLine® Tools

PERFORMANCE MATTERS

Cutting Tools • Toolholders • Coolants

Made In The USA





Why Buy RedLine Tools?

Extensive Product Offering

Over 25,000 Quality Products Including:

Drills, Taps, Endmills, Threadmills, Reamers, Carbide Bars, Burs, Key Cutters, Dovetail Cutters, Chamfer Mills, Edge Breakers, Engraving Tools, Coolants, Cutting Oils and Toolholders.

Ease of Doing Business

Our website and product catalogs have been designed to give our users the best experience possible. Find what you need fast and get technical information that will help you increase tool life and decrease cycle times. Personal technical support is always available to help you select the best tools for your application.

American Made Value

All RedLine products are 100% Made in the USA. We strive to offer quality products with outstanding value, and excellent deliveries at fair prices.

Shop with Confidence

We value your business and will continue to do our best to meet your needs. If you are not completely satisfied with our service or purchase we will do our best to make it right.

RedLine Tools
Tool Coating Application Guide

Coatings play a crucial part in the performance of your cutting tools, however, tool geometry is just as important to be successful. Although we do not offer all of these coatings, this helpful guide shows most of the coatings in use today and what materials they are designed to be used with.

P - Steels		
Best Coatings:	AlCrN	Aluminum Chromium Nitride
	AlTiNX	Aluminum Titanium Nitride Xtreme
	TiAlNX	Titanium Aluminum Nitride Xtreme
	AlTiN	Aluminum Titanium Nitride
Alternatives:	TiCN	Titanium Carbo-Nitride
	TiN	Titanium Nitride
	CrC	Chromium Carbide
M - Stainless Steels		
Best Coatings:	AlCrN	Aluminum Chromium Nitride
	AlTiNX	Aluminum Titanium Nitride Xtreme
	TiAlNX	Titanium Aluminum Nitride Xtreme
	AlTiN	Aluminum Titanium Nitride
Alternatives:	TiCN	Titanium Carbo-Nitride
	CrC	Chromium Carbide
K - Cast Irons		
Best Coatings:	AlTiNX	Aluminum Titanium Nitride Xtreme
	TiAlNX	Titanium Aluminum Nitride Xtreme
	AlTiN	Aluminum Titanium Nitride
Alternatives:	AlCrN	Aluminum Chromium Nitride
	TiCN	Titanium Carbo-Nitride
	TiN	Titanium Nitride
N - Non Ferrous		
Best Coatings:	ZrN	Zirconium Nitride
	TiCN	Titanium Carbo-Nitride
	TiB2	Titanium Diboride
	DLC	Diamond Like Carbide
S - High Temp Alloys		
Best Coatings:	AlCrN	Aluminum Chromium Nitride
	AlTiNX	Aluminum Titanium Nitride Xtreme
	TiAlNX	Titanium Aluminum Nitride Xtreme
	AlTiN	Aluminum Titanium Nitride
Alternatives:	TiCN	Titanium Carbo-Nitride
	CrC	Chromium Carbide

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ENDMILLS

Includes High Performance and General Purpose carbide and high speed steel endmills in single and double-end in various end tips and lengths, as well as drill mills.

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DRILLS & COUNTERSINKS

Includes High Performance and General Purpose carbide, high speed steel and cobalt drills in wire, letter, fractional & metric sizes and drill sets. Also includes Countersinks and Combined Drill & Countersink.

222
Tech Info 322



CARBIDE THREADMILLS

Includes High Performance UN Threads, NPT & NPTF Pipe Threads and Metric Threads, Solid and Coolant Fed.

342
Tech Info 353



TAPS

Includes High Performance and General Purpose taps, spiral point and spiral flute taps, as well as thread forming, screw thread insert, oversize, taper pipe, pulley and small shank extension taps.

357
Tech Info 404



SPECIALTY TOOLS

Includes carbide key cutters, dovetail cutters, chamfer mills, edge breakers, double angle cutters and engraving tools.

417
Tech Info 463



REAMERS

Includes carbide, high speed steel and cobalt chucking, hand, construction and taper reamers, as well as capscrew counterbore tools.

467
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CARBIDE BARS

Includes quick change bar & boring bar holders, quick change bars, boring, grooving, threading, profile and reverse profile bar tools.

499
Tech Info 542



TOOLHOLDERS

Includes CAT40 and CAT50 collet & hydraulic chucks, endmill, facemill, tap, boring head, stub arbor, slitting saw, Jacobs taper & Morse taper holders, toolholder kits, collets & collet sets, coolant seals and accessories.

548



METALWORKING LUBRICANTS

Includes High Performance coolants, and cutting & grinding oils, machine cleaners, refractometer, oil skimmer, mixers and mixing pump & accessories.

629



Burs

A complete selection is available online for purchase. Offerings include cylindrical, ball nose, egg, pointed, flame, included angle, pointed cone and inverted taper burs.

Online Only

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NEW Product 23

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NEW Product 26

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NEW Product 29

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NEW Product 98

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NEW Product 125

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NEW Product
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NEW Product
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NEW Product
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NEW Product
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NEW Product
248
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252
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NEW Product
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NEW Product
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NEW Product
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NEW Product
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344
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More Items
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NEW Product
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Quick Change Grooving Bars, Uncoated, AlTiN Coated


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Quick Change Profile Bars, Uncoated & AlTiN Coated


505
Quick Change Threading Bars, Uncoated & AlTiN Coated

Boring Bars Carbide Boring Bars


MORE Items
506
Carbide Boring Bars, Sharp Corner, Uncoated & AlTiN


NEW Product
510
Carbide Boring Bars with Radius, Uncoated & AlTiN


514
Carbide Extreme Boring Tools, AlTiN Coated


516
Carbide Boring Bars for Aluminum, ZrN Coated


NEW Product
517
Carbide Boring Bars for Plastic, Uncoated


NEW Product
517
Carbide Long-Reach Boring Tools, AlTiN and Uncoated

Boring Bars Carbide Grooving Bars


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Carbide Grooving Bars, Uncoated


NEW Product
521
Carbide Deep Grooving Boring Bars, Uncoated & AlTiN


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Carbide Extra Reach Grooving Bars, Uncoated & AlTiN Coated


NEW Product 527

Carbide Full Radius Grooving Bars, Uncoated & AlTiN Coated

Boring Bars
Carbide Deep Slotting Bars


NEW Product 531

Carbide Deep Slotting Full Radius Grooving Bars, Uncoated & AlTiN Coated

Boring Bars
Carbide Threading Bars


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Carbide Threading Bars, Right-Hand ID, Uncoated & AlTiN Coated


NEW Product 535

Carbide Threading Bars, Left-Hand ID, Uncoated


NEW Product 536

Carbide Extra-Reach Threading Bars, Uncoated & AlTiN Coated

Boring Bars
Carbide Profiling Bars


537

Carbide Profile Bars, Uncoated & AlTiN Coated


538

Carbide Reverse Profile Bars, Uncoated


NEW Product 539

Carbide Right-Hand, Offset Profile Bars, Uncoated & AlTiN Coated


NEW Product 540

Carbide Long-Reach Profile Bars, Uncoated & AlTiN Coated


NEW Product 541

Carbide Thread Relief Bars

Carbide Bars
Technical Information 542

Contains information on Speeds & Feeds

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CAT40


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CAT40 ER11 Collet Chucks, Straight Shank Collet Extension and Parts


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CAT40 ER16 Collet Chucks, Straight Shank Collet Extension and Parts


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CAT40 ER20 Collet Chucks, Straight Shank Collet Extension and Parts


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CAT40 ER25 Collet Chucks, Straight Shank Collet Extension and Parts


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CAT40 ER32 Collet Chucks, Straight Shank Collet Extension and Parts


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CAT40 ER40 Collet Chucks, Straight Shank Collet Extension and Parts


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CAT40 TG100 Series Collet Chucks and Parts


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CAT40 TG150 Series Collet Chucks and Parts


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CAT40 Hydraulic Chucks


NEW Product 557

CAT40 Shink Fit Holders


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CAT40 Endmill Holders and Parts


560

CAT40 Facemill Holders and Parts


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CAT40 Rigid & Straight Shank Tap Holders and Parts


562

CAT40 Tension & Compression & Straight Shank Tap Holders and Parts


563

CAT40 Jacobs Taper Holders, Drill Chucks and Parts


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CAT40 Slitting Saw Holders and Parts


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CAT40 Stub Arbor Holders and Parts


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CAT40 Morse Taper Holders


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CAT50 Hydraulic Chucks


NEW Product
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CAT50 Shink Fit Holders


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CAT50 Endmill Holders and Parts


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CAT50 Boring Head Holders

HSK63A


NEW Product
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HSK63A ER11 Collet Chucks, Straight Shank Collet Extension & Parts


NEW Product
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HSK63A ER16 Collet Chucks, Straight Shank Collet Extension & Parts


NEW Product
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HSK63A ER20 Collet Chucks, Straight Shank Collet Extension & Parts


NEW Product
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HSK63A ER25 Collet Chucks, Straight Shank Collet Extension & Parts


NEW Product
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HSK63A ER32 Collet Chucks, Straight Shank Collet Extension & Parts


NEW Product
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HSK63A ER40 Collet Chucks, Straight Shank Collet Extension & Parts


NEW Product
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HSK63A TG100 Series Collet Chucks & Parts


NEW Product
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REGO-FIX® ER16 Collet Sets and Collets


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ER11 & ER16 Small Tool Adapter and Replacement Hardware for Milling & Boring


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CAT40 & CAT50 Retention Knobs 623



Vertical/Horizontal Setup Holding Fixture 623

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Coolants, Cutting/Machining Oils, Grinding Oils & Machine Cleaners

Coolants Mixing Specfications 630

Contains concentration and mixing ratios

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Basic Oil Refractometer 630



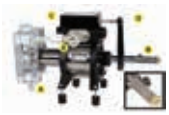
Flat Belt Oil Skimmer 630



Economy Mixer 631



Mixing Pump 631



Aluminum & Non-Ferrous



Uncoated | ZrN Coated

Aluminum & Non-Ferrous, 2-Flute, Regular & Long Length, Square & Corner Radius, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	ZrN Coated Part #
1/8	.1250	1/2	1-1/2	—	1/8	RE18408	RE18508
1/8	.1250	1/2	1-1/2	.020	1/8	RE20708	RE20808
1/8	.1250	3/4	2-1/4	—	1/8	RE18608	RE18708
1/8	.1250	3/4	2-1/4	.020	1/8	RE20908	RE21008
3/16	.1875	5/8	2	—	3/16	RE18412	RE18512
3/16	.1875	5/8	2	.020	3/16	RE20712	RE20812
3/16	.1875	3/4	2-1/2	—	3/16	RE18612	RE18712
3/16	.1875	3/4	2-1/2	.020	3/16	RE20912	RE21012
1/4	.2500	3/4	2-1/2	—	1/4	RE18416	RE18516
1/4	.2500	3/4	2-1/2	.020	1/4	—	RE20816
1/4	.2500	1-1/4	3	—	1/4	RE18616	RE18716
1/4	.2500	1-1/4	3	.020	1/4	—	RE21016
5/16	.3125	13/16	2-1/2	—	5/16	RE18420	RE18520
5/16	.3125	13/16	2-1/2	.020	5/16	—	RE20820
5/16	.3125	1-3/8	3	—	5/16	RE18620	RE18720
5/16	.3125	1-3/8	3	.020	5/16	—	RE21020
3/8	.3750	1	2-1/2	—	3/8	RE18424	RE18524
3/8	.3750	1	2-1/2	.020	3/8	—	RE20824
3/8	.3750	1-1/2	4	—	3/8	RE18624	RE18724
3/8	.3750	1-1/2	4	.020	3/8	—	RE21024
1/2	.5000	1-1/4	3	—	1/2	RE18432	RE18532
1/2	.5000	1-1/4	3	.040	1/2	—	RE20832
1/2	.5000	2	4	—	1/2	RE18632	RE18732
1/2	.5000	2	4	.040	1/2	—	RE21032
5/8	.6250	1-5/8	3-1/2	—	5/8	RE18440	RE18540
5/8	.6250	1-5/8	3-1/2	.040	5/8	—	RE20840
5/8	.6250	2-3/8	5	—	5/8	RE18640	RE18740
5/8	.6250	2-3/8	5	.040	5/8	—	RE21040
3/4	.7500	1-3/4	4	—	3/4	RE18448	RE18548
3/4	.7500	1-3/4	4	.040	3/4	—	RE20848
3/4	.7500	2-1/2	5	—	3/4	RE18648	RE18748
3/4	.7500	2-1/2	5	.040	3/4	—	RE21048
1	1.0000	1-3/4	4	—	1	RE18464	RE18564
1	1.0000	1-3/4	4	.040	1	—	RE20864
1	1.0000	2-1/4	5	—	1	RE18664	RE18764
1	1.0000	2-1/4	5	.040	1	—	RE21064

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Tolerances	Diameter	Shank	Radius
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8"-1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001



Plain Shank

Aluminum & Non-Ferrous, 2-Flute, Neck Relief, High Shear, Square End, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Shank ø	Plain Shank Part #
1/4	.2500	3/8	2-1/2	1-1/8	.235	1/4	REH7802
1/4	.2500	3/8	3	1-5/8	.235	1/4	REH7805
1/4	.2500	3/8	4	2-1/4	.235	1/4	REH7808
3/8	.3750	1/2	2-1/2	1-1/8	.355	3/8	REH7810
3/8	.3750	1/2	3	1-3/4	.355	3/8	REH7815
3/8	.3750	1/2	4	2-1/4	.355	3/8	REH7818
1/2	.5000	5/8	3	1-3/8	.475	1/2	REH7822
1/2	.5000	5/8	4	2-1/4	.475	1/2	REH7832
1/2	.5000	5/8	5	2-3/8	.475	1/2	REH7834
1/2	.5000	5/8	6	3-3/8	.475	1/2	REH7839
5/8	.6250	3/4	3-1/2	1-1/2	.590	5/8	REH7849
5/8	.6250	3/4	5	2-1/4	.590	5/8	REH7854
5/8	.6250	3/4	6	3-3/8	.590	5/8	REH7855
3/4	.7500	1	4	1-3/4	.715	3/4	REH7861
3/4	.7500	1	5	2-1/4	.715	3/4	REH7868
3/4	.7500	1	6	3-3/8	.715	3/4	REH7879

Tolerances	Diameter	Shank
Fractional	-0.0001, -0.0004	h6

For specific shank tolerance information please see page 200.

Tool application data page 185.

Aluminum & Non-Ferrous



Plain Shank



Weldon Shank

Aluminum & Non-Ferrous, High Shear, 2-Flute, Ball End, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Plain Shank Part #	Weldon Shank Part #
1/8	.1250	3/8	1-1/2	1/8	REH7600	–
3/16	.1875	9/16	2	3/16	REH7601	–
1/4	.2500	3/4	2-1/2	1/4	REH7602	–
5/16	.3125	13/16	2-1/2	5/16	REH7604	–
3/8	.3750	7/8	2-1/2	3/8	–	REH7606
3/8	.3750	1	2-1/2	3/8	REH7607	–
1/2	.5000	1-1/4	3	1/2	REH7608	–
1/2	.5000	1-1/4	3-1/4	1/2	–	REH7609
5/8	.6250	1-1/4	3-1/2	5/8	–	REH7610
5/8	.6250	1-5/8	3-1/2	5/8	REH7611	–
3/4	.7500	1-5/8	4	3/4	REH7612	REH7613



Plain Shank

Aluminum & Non-Ferrous, High Shear, 2-Flute, Ball End, Metric, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Plain Shank Part #
6MM	.2362	16	57	6	REH7700
8MM	.3149	19	63	8	REH7702
10MM	.3937	22	72	10	REH7704
16MM	.6299	32	92	16	REH7708
20MM	.7874	38	104	20	REH7710

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Tool application data pages 213-214.

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.000, -0.001
Metric	-0.0025, -0.0100	h6	+0.000, -0.025

For specific shank tolerance information please see page 200.



ZrN Coated

Aluminum & Non-Ferrous, 3-Flute, Square & Corner Radius, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	ZrN Coated Part #
1/8	.1250	1/2	1-1/2	—	1/8	RE19308
1/8	.1250	1/2	1-1/2	.020	1/8	RE21208
1/8	.1250	3/4	2-1/4	—	1/8	RE19508
1/8	.1250	3/4	2-1/4	.020	1/8	RE21408
3/16	.1875	5/8	2	—	3/16	RE19312
3/16	.1875	5/8	2	.020	3/16	RE21212
3/16	.1875	3/4	2-1/2	—	3/16	RE19512
3/16	.1875	3/4	2-1/2	.020	3/16	RE21410
1/4	.2500	3/4	2-1/2	—	1/4	RE19316
1/4	.2500	3/4	2-1/2	.020	1/4	RE21216
1/4	.2500	1-1/4	3	—	1/4	RE19516
1/4	.2500	1-1/4	3	.020	1/4	RE21416
5/16	.3125	13/16	2-1/2	—	5/16	RE19320
5/16	.3125	13/16	2-1/2	.020	5/16	RE21220
5/16	.3125	1-3/8	3	—	5/16	RE19520
5/16	.3125	1-3/8	3	.020	5/16	RE21420
3/8	.3750	1	2-1/2	—	3/8	RE19324
3/8	.3750	1	2-1/2	.020	3/8	RE21224
3/8	.3750	1-1/2	4	—	3/8	RE19524
3/8	.3750	1-1/2	4	.020	3/8	RE21424
1/2	.5000	1-1/4	3	—	1/2	RE19332
1/2	.5000	1-1/4	3	.040	1/2	RE21232
1/2	.5000	2	4	—	1/2	RE19532
1/2	.5000	2	4	.040	1/2	RE21432
5/8	.6250	1-5/8	3-1/2	—	5/8	RE19340
5/8	.6250	1-5/8	3-1/2	.040	5/8	RE21240
5/8	.6250	2-3/8	5	—	5/8	RE19540
5/8	.6250	2-3/8	5	.040	5/8	RE21440
3/4	.7500	1-3/4	4	—	3/4	RE19348
3/4	.7500	1-3/4	4	.040	3/4	RE21248
3/4	.7500	2-1/2	5	—	3/4	RE19548
3/4	.7500	2-1/2	5	.040	3/4	RE21448
1	1.0000	1-3/4	4	—	1	RE19364
1	1.0000	1-3/4	4	.040	1	RE21264
1	1.0000	2-1/4	5	—	1	RE19564
1	1.0000	2-1/4	5	.040	1	RE21464

Tolerances	Diameter	Shank	Radius
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8"-1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

Speeds & Feeds page 184.

Aluminum & Non-Ferrous

NEW Product

RedLine ProLine XHP



ZrN Coated-Plain Shank



ZrN Coated-Weldon Shank

Aluminum & Non-Ferrous, 3-Flute, Square and Corner Radius, 37° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	ZrN Coated	
						Plain Shank Part #	Weldon Shank Part #
1/8	.1250	1/4	1-1/2	—	1/8	REX3000	—
1/8	.1250	3/8	1-1/2	—	1/8	REX3001	—
1/8	.1250	3/8	1-1/2	.015	1/8	REX3002	—
1/8	.1250	1/2	2	—	1/8	REX3003	—
3/16	.1880	5/16	2	—	3/16	REX3004	—
3/16	.1880	9/16	2	—	3/16	REX3005	—
3/16	.1880	9/16	2	.015	3/16	REX3006	—
3/16	.1880	3/4	2-1/2	—	3/16	REX3007	—
1/4	.2500	1/2	2	—	1/4	REX3008	—
1/4	.2500	1/2	2	.015	1/4	REX3009	—
1/4	.2500	3/4	2-1/2	—	1/4	REX3010	—
1/4	.2500	3/4	2-1/2	.015	1/4	REX3011	—
1/4	.2500	3/4	2-1/2	.030	1/4	REX3012	—
1/4	.2500	1	3	—	1/4	REX3013	—
1/4	.2500	1	3	.015	1/4	REX3014	—
1/4	.2500	1	3	.030	1/4	REX3015	—
5/16	.3125	15/16	2-1/2	—	5/16	REX3016	—
5/16	.3125	15/16	2-1/2	.015	5/16	REX3017	—
5/16	.3125	15/16	2-1/2	.030	5/16	REX3018	—
5/16	.3125	1-3/8	3	—	5/16	REX3019	—
3/8	.3750	1/2	2	—	3/8	REX3020	—
3/8	.3750	1/2	2	.015	3/8	REX3021	—
3/8	.3750	15/16	2-1/2	—	3/8	REX3022	REX3023
3/8	.3750	15/16	2-1/2	.015	3/8	REX3024	—
3/8	.3750	15/16	2-1/2	.030	3/8	REX3025	—
3/8	.3750	15/16	2-1/2	.060	3/8	REX3026	—
3/8	.3750	1-1/8	3	—	3/8	REX3027	—
3/8	.3750	1-1/8	3	.015	3/8	REX3028	—
3/8	.3750	1-1/8	3	.030	3/8	REX3029	—
3/8	.3750	1-1/8	3	.060	3/8	REX3030	—
3/8	.3750	1-1/2	3-1/2	—	3/8	REX3031	REX3032
3/8	.3750	1-1/2	3-1/2	.015	3/8	REX3033	—
3/8	.3750	1-1/2	3-1/2	.030	3/8	REX3034	—
3/8	.3750	1-1/2	3-1/2	.060	3/8	REX3035	—
3/8	.3750	2	4	—	3/8	REX3036	—
1/2	.5000	5/8	2-1/2	—	1/2	REX3037	—
1/2	.5000	5/8	2-1/2	.030	1/2	REX3038	—
1/2	.5000	5/8	3	—	1/2	REX3039	—

Continued

Speeds & Feeds page 186.

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



ZrN Coated-Plain Shank



ZrN Coated-Weldon Shank

Aluminum & Non-Ferrous, 3-Flute, Square and Corner Radius, 37° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	ZrN Coated	
						Plain Shank Part #	Weldon Shank Part #
1/2	.5000	5/8	3	.030	1/2	REX3040	—
1/2	.5000	5/8	3	.125	1/2	REX3041	—
1/2	.5000	1	3	—	1/2	REX3042	REX3043
1/2	.5000	1	3	.015	1/2	REX3044	—
1/2	.5000	1	3	.030	1/2	REX3045	—
1/2	.5000	1	3	.060	1/2	REX3046	—
1/2	.5000	1	3	.125	1/2	REX3047	—
1/2	.5000	1-1/4	3	—	1/2	REX3048	—
1/2	.5000	1-1/4	3	.015	1/2	REX3049	—
1/2	.5000	1-1/4	3	.030	1/2	REX3050	—
1/2	.5000	1-1/4	3	.060	1/2	REX3051	—
1/2	.5000	1-1/4	3	.125	1/2	REX3052	—
1/2	.5000	1-1/2	3-1/2	—	1/2	REX3053	REX3054
1/2	.5000	1-1/2	3-1/2	.030	1/2	REX3055	—
1/2	.5000	1-1/2	3-1/2	.060	1/2	REX3056	—
1/2	.5000	1-1/2	3-1/2	.125	1/2	REX3057	—
1/2	.5000	2	4	—	1/2	REX3058	REX3059
1/2	.5000	2	4	.015	1/2	REX3060	—
1/2	.5000	2	4	.030	1/2	REX3061	—
1/2	.5000	2	4	.060	1/2	REX3062	—
1/2	.5000	2	4	.125	1/2	REX3063	—
1/2	.5000	2-1/2	5	—	1/2	REX3064	—
1/2	.5000	2-1/2	5	.030	1/2	REX3065	—
5/8	.6250	1-1/4	3-1/2	—	5/8	REX3066	—
5/8	.6250	1-1/4	3-1/2	.030	5/8	REX3067	—
5/8	.6250	1-1/4	3-1/2	.125	5/8	REX3068	—
5/8	.6250	1-7/8	4	—	5/8	REX3069	REX3070
5/8	.6250	1-7/8	4	.030	5/8	REX3071	—
5/8	.6250	1-7/8	4	.125	5/8	REX3072	—
5/8	.6250	2-1/2	5	—	5/8	REX3073	—
5/8	.6250	2-1/2	5	.030	5/8	REX3074	—
3/4	.7500	1-5/8	4	—	3/4	REX3075	REX3076
3/4	.7500	1-5/8	4	.030	3/4	REX3077	—
3/4	.7500	1-5/8	4	.060	3/4	REX3078	—
3/4	.7500	1-5/8	4	.125	3/4	REX3079	—
3/4	.7500	2-1/4	5	—	3/4	REX3080	REX3081
3/4	.7500	2-1/4	5	.030	3/4	REX3082	—

Continued

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

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Aluminum & Non-Ferrous

NEW Product

RedLine ProLine XHP



ZrN Coated-Plain Shank



ZrN Coated-Weldon Shank

Aluminum & Non-Ferrous, 3-Flute, Square and Corner Radius, 37° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	ZrN Coated	
						Plain Shank Part #	Weldon Shank Part #
3/4	.7500	2-1/4	5	.060	3/4	REX3083	—
3/4	.7500	2-1/4	5	.125	3/4	REX3084	—
3/4	.7500	3-1/4	6	—	3/4	REX3085	REX3086
3/4	.7500	3-1/4	6	.030	3/4	REX3087	—
3/4	.7500	3-1/4	6	.125	3/4	REX3088	—
1	1.0000	1-1/4	4	—	1	REX3089	—
1	1.0000	1-1/4	4	.030	1	REX3090	—
1	1.0000	2	5	—	1	REX3091	REX3092
1	1.0000	2	5	.030	1	REX3093	—
1	1.0000	3-1/4	6	—	1	REX3094	REX3095
1	1.0000	3-1/4	6	.030	1	REX3096	—
1	1.0000	4-1/4	7	—	1	REX3097	—
1	1.0000	4-1/4	7	.030	1	REX3098	—

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Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



ZrN Coated

Aluminum & Non-Ferrous, 3-Flute, High Sheer, Square & Corner Radius, Neck Relief, 37° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	ZrN Coated Part #
1/8	.1250	1/4	2-1/2	3/4	.118	—	1/8	REX3200
1/8	.1250	1/4	2-1/2	3/4	.118	.015	1/8	REX3201
1/8	.1250	1/4	3	1	.118	—	1/8	REX3202
1/8	.1250	1/4	3	1	.118	.015	1/8	REX3203
3/16	.1875	1/4	2-1/2	3/4	.176	—	3/16	REX3204
3/16	.1875	1/4	2-1/2	3/4	.176	.015	3/16	REX3205
3/16	.1875	1/4	3	1	.176	—	3/16	REX3206
3/16	.1875	1/4	3	1	.176	.015	3/16	REX3207
1/4	.2500	3/8	2-1/2	7/8	.235	—	1/4	REX3208
1/4	.2500	3/8	2-1/2	7/8	.235	.015	1/4	REX3209
1/4	.2500	3/8	2-1/2	7/8	.235	.030	1/4	REX3210
1/4	.2500	3/8	3	1-3/8	.235	—	1/4	REX3211
1/4	.2500	3/8	3	1-3/8	.235	.015	1/4	REX3212
1/4	.2500	3/8	3	1-3/8	.235	.030	1/4	REX3213
1/4	.2500	3/8	4	2-1/4	.235	—	1/4	REX3214
1/4	.2500	3/8	4	2-1/4	.235	.015	1/4	REX3215
1/4	.2500	3/8	4	2-1/4	.235	.030	1/4	REX3216
3/8	.3750	1/2	2-1/2	1-1/8	.355	—	3/8	REX3217
3/8	.3750	1/2	2-1/2	1-1/8	.355	.015	3/8	REX3218
3/8	.3750	1/2	2-1/2	1-1/8	.355	.030	3/8	REX3219
3/8	.3750	1/2	2-1/2	1-1/8	.355	.060	3/8	REX3220
3/8	.3750	1/2	3	1-1/4	.355	—	3/8	REX3221
3/8	.3750	1/2	3	1-1/4	.355	.015	3/8	REX3222
3/8	.3750	1/2	3	1-1/4	.355	.030	3/8	REX3223
3/8	.3750	1/2	3	1-1/4	.355	.060	3/8	REX3224
3/8	.3750	1/2	4	2-1/4	.355	—	3/8	REX3225
3/8	.3750	1/2	4	2-1/4	.355	.015	3/8	REX3226
3/8	.3750	1/2	4	2-1/4	.355	.030	3/8	REX3227
1/2	.5000	5/8	3	1-3/8	.475	—	1/2	REX3228
1/2	.5000	5/8	3	1-3/8	.475	.015	1/2	REX3229
1/2	.5000	5/8	3	1-3/8	.475	.030	1/2	REX3230
1/2	.5000	5/8	3	1-3/8	.475	.060	1/2	REX3231
1/2	.5000	5/8	3	1-3/8	.475	.125	1/2	REX3232
1/2	.5000	5/8	4	2-1/4	.475	—	1/2	REX3233
1/2	.5000	5/8	4	2-1/4	.475	.015	1/2	REX3234
1/2	.5000	5/8	4	2-1/4	.475	.030	1/2	REX3235
1/2	.5000	5/8	4	2-1/4	.475	.060	1/2	REX3236
1/2	.5000	5/8	4	2-1/4	.475	.125	1/2	REX3237
1/2	.5000	5/8	5	3-1/4	.475	—	1/2	REX3238

Continued

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

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Aluminum & Non-Ferrous

NEW Product

RedLine ProLine XHP



ZrN Coated

Aluminum & Non-Ferrous, 3-Flute, High Sheer, Square & Corner Radius, Neck Relief, 37° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	ZrN Coated Part #
1/2	.5000	5/8	5	3-1/4	.475	.015	1/2	REX3239
1/2	.5000	5/8	5	3-1/4	.475	.030	1/2	REX3240
1/2	.5000	5/8	5	3-1/4	.475	.060	1/2	REX3241
1/2	.5000	5/8	5	3-1/4	.475	.125	1/2	REX3242
1/2	.5000	5/8	6	4-1/4	.475	—	1/2	REX3243
1/2	.5000	5/8	6	4-1/4	.475	.015	1/2	REX3244
1/2	.5000	5/8	6	4-1/4	.475	.030	1/2	REX3245
1/2	.5000	5/8	6	4-1/4	.475	.060	1/2	REX3246
1/2	.5000	5/8	6	4-1/4	.475	.125	1/2	REX3247
5/8	.6250	3/4	4	1-3/4	.590	—	5/8	REX3248
5/8	.6250	3/4	4	1-3/4	.590	.030	5/8	REX3249
5/8	.6250	3/4	4	1-3/4	.590	.125	5/8	REX3250
5/8	.6250	3/4	5	2-3/8	.590	—	5/8	REX3251
5/8	.6250	3/4	5	2-3/8	.590	.030	5/8	REX3252
5/8	.6250	3/4	5	2-3/8	.590	.125	5/8	REX3253
5/8	.6250	3/4	6	3-3/8	.590	—	5/8	REX3254
5/8	.6250	3/4	6	3-3/8	.590	.030	5/8	REX3255
5/8	.6250	3/4	6	3-3/8	.590	.125	5/8	REX3256
3/4	.7500	1	4	1-3/4	.715	—	3/4	REX3257
3/4	.7500	1	4	1-3/4	.715	.030	3/4	REX3258
3/4	.7500	1	4	1-3/4	.715	.060	3/4	REX3259
3/4	.7500	1	4	1-3/4	.715	.125	3/4	REX3260
3/4	.7500	1	5	2-3/8	.715	—	3/4	REX3261
3/4	.7500	1	5	2-3/8	.715	.030	3/4	REX3262
3/4	.7500	1	5	2-3/8	.715	.060	3/4	REX3263
3/4	.7500	1	5	2-3/8	.715	.125	3/4	REX3264
3/4	.7500	1	6	3-3/8	.715	—	3/4	REX3265
3/4	.7500	1	6	3-3/8	.715	.030	3/4	REX3266
3/4	.7500	1	6	3-3/8	.715	.060	3/4	REX3267
3/4	.7500	1	6	3-3/8	.715	.125	3/4	REX3268
1	1.0000	1-1/4	5	2-5/8	.960	—	1	REX3269
1	1.0000	1-1/4	5	2-5/8	.960	.030	1	REX3270
1	1.0000	1-1/4	6	3-3/8	.960	—	1	REX3271
1	1.0000	1-1/4	6	3-3/8	.960	.030	1	REX3272
1	1.0000	1-1/4	7	4-3/8	.960	—	1	REX3273
1	1.0000	1-1/4	7	4-3/8	.960	.030	1	REX3274

Technical data found on page 186.

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



ZrN Coated

Aluminum & Non-Ferrous, 3-Flute, Rougher, Corner Radius, 37° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	ZrN Coated Part #
1/4	.1250	3/4	2-1/2	.015	1/4	REX3011R
1/4	.1250	1	3	.015	1/4	REX3014R
3/8	.3750	15/16	2-1/2	.015	3/8	REX3024R
3/8	.3750	1-1/8	3	.015	3/8	REX3028R
3/8	.3750	1-1/2	3-1/2	.015	3/8	REX3033R
1/2	.5000	1-1/4	3	.030	1/2	REX3050R
1/2	.5000	1-1/2	3-1/2	.030	1/2	REX3055R
1/2	.5000	2	4	.030	1/2	REX3061R
5/8	.6250	1-1/4	3-1/2	.030	5/8	REX3067R
5/8	.6250	1-7/8	4	.030	5/8	REX3071R
3/4	.7500	1-5/8	4	.030	3/4	REX3077R
3/4	.7500	2-1/4	5	.030	3/4	REX3082R
1	1.0000	1-1/4	4	.030	1	REX3090R
1	1.0000	2	5	.030	1	REX3093R

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.003	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Technical data found on page 187.

Aluminum & Non-Ferrous

NEW Product



ZrN Coated

Aluminum & Non-Ferrous, 3-Flute, High Sheer, Ball End, 37° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	ZrN Coated Part #
1/8	.1250	3/8	1-1/2	1/8	REX3300
3/16	.1875	9/16	2	3/16	REX3301
1/4	.2500	3/4	2-1/2	1/4	REX3302
3/8	.3750	15/16	2-1/2	3/8	REX3303
1/2	.5000	1	3	1/2	REX3304
5/8	.6250	1-7/8	4	5/8	REX3305
3/4	.7500	1-5/8	4	3/4	REX3306

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Tool application data pages 213-214.

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.000, -0.001

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



ZrN Coated

Aluminum & Non-Ferrous, 3-Flute, Ball End, Neck Relief, 37° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Shank ø	ZrN Coated Part #
1/8	.1250	1/4	2-1/2	3/4	.118	1/8	REX3320
1/8	.1250	1/4	3	1	.118	1/8	REX3321
3/16	.1875	1/4	2-1/2	3/4	.176	3/16	REX3322
3/16	.1875	1/4	3	1	.176	3/16	REX3323
1/4	.2500	3/8	2-1/2	7/8	.235	1/4	REX3324
1/4	.2500	3/8	3	1-3/8	.235	1/4	REX3325
1/4	.2500	3/8	4	2-1/4	.235	1/4	REX3326
3/8	.3750	1/2	2-1/2	1-1/8	.355	3/8	REX3327
3/8	.3750	1/2	3	1-1/4	.355	3/8	REX3328
3/8	.3750	1/2	4	2-1/4	.355	3/8	REX3329
1/2	.5000	5/8	3	1-3/8	.475	1/2	REX3330
1/2	.5000	5/8	4	2-1/4	.475	1/2	REX3331
1/2	.5000	5/8	5	3-1/4	.475	1/2	REX3332
1/2	.5000	5/8	6	4-1/4	.475	1/2	REX3333
5/8	.6250	3/4	4	1-3/4	.590	5/8	REX3334
5/8	.6250	3/4	5	2-3/8	.590	5/8	REX3335
5/8	.6250	3/4	6	3-3/8	.590	5/8	REX3336
3/4	.7500	1	4	1-3/4	.715	3/4	REX3337
3/4	.7500	1	5	2-3/8	.715	3/4	REX3338
3/4	.7500	1	6	3-3/8	.715	3/4	REX3339
1	1.0000	1-1/4	5	2-5/8	.960	1	REX3340
1	1.0000	1-1/4	6	3-3/8	.960	1	REX3341
1	1.0000	1-1/4	7	4-3/8	.960	1	REX3342

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.000, -0.001

For specific shank tolerance information please see page 200.

Speeds & Feeds page 186.
Tool application data pages 213-214.

Aluminum & Non-Ferrous

NEW Product



DLC Coated

Aluminum & Non-Ferrous, 5-Flute, Square & Corner Radius, 35° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	DLC Coated Part #
1/4	.2500	1/2	2	—	1/4	REA5000
1/4	.2500	1/2	2	.015	1/4	REA5001
1/4	.2500	1/2	2	.030	1/4	REA5002
1/4	.2500	1/2	2	.060	1/4	REA5003
1/4	.2500	3/4	2-1/2	—	1/4	REA5004
1/4	.2500	3/4	2-1/2	.015	1/4	REA5005
1/4	.2500	3/4	2-1/2	.030	1/4	REA5006
1/4	.2500	3/4	2-1/2	.060	1/4	REA5007
1/4	.2500	1	3	—	1/4	REA5008
1/4	.2500	1	3	.015	1/4	REA5009
1/4	.2500	1	3	.030	1/4	REA5010
3/8	.3750	3/4	2-1/2	—	3/8	REA5012
3/8	.3750	3/4	2-1/2	.015	3/8	REA5013
3/8	.3750	3/4	2-1/2	.030	3/8	REA5014
3/8	.3750	3/4	2-1/2	.060	3/8	REA5015
3/8	.3750	3/4	2-1/2	.090	3/8	REA5016
3/8	.3750	1-1/8	3	—	3/8	REA5017
3/8	.3750	1-1/8	3	.015	3/8	REA5018
3/8	.3750	1-1/8	3	.030	3/8	REA5019
3/8	.3750	1-1/8	3	.060	3/8	REA5020
3/8	.3750	1-1/8	3	.090	3/8	REA5021
3/8	.3750	1-1/2	3-1/2	—	3/8	REA5022
3/8	.3750	1-1/2	3-1/2	.015	3/8	REA5023
3/8	.3750	1-1/2	3-1/2	.030	3/8	REA5024
1/2	.5000	1	3	—	1/2	REA5027
1/2	.5000	1	3	.015	1/2	REA5028
1/2	.5000	1	3	.030	1/2	REA5029
1/2	.5000	1	3	.060	1/2	REA5030
1/2	.5000	1	3	.090	1/2	REA5031
1/2	.5000	1	3	.125	1/2	REA5032
1/2	.5000	1-1/4	3-1/4	—	1/2	REA5033
1/2	.5000	1-1/4	3-1/4	.015	1/2	REA5034
1/2	.5000	1-1/4	3-1/4	.030	1/2	REA5035
1/2	.5000	1-1/4	3-1/4	.060	1/2	REA5036
1/2	.5000	1-1/4	3-1/4	.090	1/2	REA5037
1/2	.5000	1-1/4	3-1/4	.125	1/2	REA5038
1/2	.5000	1-1/2	3-1/2	—	1/2	REA5039
1/2	.5000	1-1/2	3-1/2	.015	1/2	REA5040
1/2	.5000	1-1/2	3-1/2	.030	1/2	REA5041

Continued

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Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



DLC Coated

Aluminum & Non-Ferrous, 5-Flute, Square & Corner Radius, 35° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	DLC Coated Part #
1/2	.5000	1-1/2	3-1/2	.060	1/2	REA5042
1/2	.5000	1-1/2	3-1/2	.090	1/2	REA5044
1/2	.5000	1-1/2	3-1/2	.125	1/2	REA5045
1/2	.5000	1-3/4	4	—	1/2	REA5046
1/2	.5000	1-3/4	4	.015	1/2	REA5047
1/2	.5000	1-3/4	4	.030	1/2	REA5048
1/2	.5000	1-3/4	4	.060	1/2	REA5049
1/2	.5000	1-3/4	4	.125	1/2	REA5050
1/2	.5000	2	4	—	1/2	REA5051
1/2	.5000	2	4	.015	1/2	REA5052
1/2	.5000	2	4	.030	1/2	REA5053
1/2	.5000	2	4	.060	1/2	REA5054
1/2	.5000	2	4	.125	1/2	REA5056
5/8	.6250	1-1/4	3-1/2	—	5/8	REA5057
5/8	.6250	1-1/4	3-1/2	.030	5/8	REA5059
5/8	.6250	1-1/4	3-1/2	.060	5/8	REA5060
5/8	.6250	1-1/4	3-1/2	.090	5/8	REA5061
5/8	.6250	1-1/4	3-1/2	.125	5/8	REA5062
5/8	.6250	1-1/4	3-1/2	.187	5/8	REA5063
5/8	.6250	1-7/8	4	—	5/8	REA5064
5/8	.6250	1-7/8	4	.030	5/8	REA5066
5/8	.6250	1-7/8	4	.060	5/8	REA5067
5/8	.6250	1-7/8	4	.090	5/8	REA5068
5/8	.6250	1-7/8	4	.125	5/8	REA5069
5/8	.6250	1-7/8	4	.187	5/8	REA5070
5/8	.6250	2-1/2	5	—	5/8	REA5071
5/8	.6250	2-1/2	5	.030	5/8	REA5073
5/8	.6250	2-1/2	5	.125	5/8	REA5076
3/4	.7500	1-1/2	4	—	3/4	REA5080
3/4	.7500	1-1/2	4	.030	3/4	REA5081
3/4	.7500	1-1/2	4	.060	3/4	REA5082
3/4	.7500	1-1/2	4	.090	3/4	REA5083
3/4	.7500	1-1/2	4	.125	3/4	REA5084
3/4	.7500	1-1/2	4	.187	3/4	REA5085
3/4	.7500	1-1/2	4	.250	3/4	REA5086
3/4	.7500	1-7/8	4-1/2	—	3/4	REA5087
3/4	.7500	1-7/8	4-1/2	.030	3/4	REA5089
3/4	.7500	1-7/8	4-1/2	.060	3/4	REA5090
3/4	.7500	1-7/8	4-1/2	.125	3/4	REA5092

Continued

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

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Tool application data pages 208-212.

Aluminum & Non-Ferrous

NEW Product



DLC Coated

Aluminum & Non-Ferrous, 5-Flute, Square & Corner Radius, 35° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	DLC Coated Part #
3/4	.7500	2-1/4	5	—	3/4	REA5095
3/4	.7500	2-1/4	5	.030	3/4	REA5097
3/4	.7500	2-1/4	5	.060	3/4	REA5098
3/4	.7500	2-1/4	5	.090	3/4	REA5099
3/4	.7500	2-1/4	5	.125	3/4	REA5100
3/4	.7500	2-1/4	5	.187	3/4	REA5101
3/4	.7500	2-1/4	5	.250	3/4	REA5102
3/4	.7500	2-5/8	5	—	3/4	REA5103
3/4	.7500	2-5/8	5	.030	3/4	REA5105
3/4	.7500	2-5/8	5	.060	3/4	REA5106
3/4	.7500	2-5/8	5	.125	3/4	REA5108
3/4	.7500	3	6	—	3/4	REA5111
3/4	.7500	3	6	.030	3/4	REA5113
3/4	.7500	3	6	.060	3/4	REA5114
3/4	.7500	3	6	.090	3/4	REA5115
3/4	.7500	3	6	.125	3/4	REA5116
3/4	.7500	3	6	.250	3/4	REA5118
1	1.0000	2	5	—	1	REA5119
1	1.0000	2	5	.030	1	REA5121
1	1.0000	2	5	.125	1	REA5124
1	1.0000	2	5	.187	1	REA5125
1	1.0000	2	5	.250	1	REA5126
1	1.0000	3	6	—	1	REA5127
1	1.0000	3	6	.030	1	REA5129
1	1.0000	3	6	.125	1	REA5132
1	1.0000	3	6	.187	1	REA5133
1	1.0000	3	6	.250	1	REA5134
1	1.0000	4	7	—	1	REA5135
1	1.0000	4	7	.030	1	REA5137
1	1.0000	4	7	.125	1	REA5140
1	1.0000	4	7	.250	1	REA5142

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Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



DLC Coated

Aluminum & Non-Ferrous, 5-Flute, Chip Control, Square & Corner Radius, 35° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	DLC Coated Part #
3/8	.3750	1-1/8	3	—	3/8	REA5017C
3/8	.3750	1-1/8	3	.015	3/8	REA5018C
3/8	.3750	1-1/2	3-1/2	—	3/8	REA5022C
3/8	.3750	1-1/2	3-1/2	.015	3/8	REA5023C
1/2	.5000	1-1/4	3-1/4	—	1/2	REA5033C
1/2	.5000	1-1/4	3-1/4	.030	1/2	REA5035C
1/2	.5000	1-1/2	3-1/2	—	1/2	REA5039C
1/2	.5000	1-1/2	3-1/2	.030	1/2	REA5041C
1/2	.5000	1-3/4	4	—	1/2	REA5046C
1/2	.5000	1-3/4	4	.030	1/2	REA5048C
1/2	.5000	2	4	—	1/2	REA5051C
1/2	.5000	2	4	.030	1/2	REA5053C
5/8	.6250	1-1/4	3-1/2	—	5/8	REA5057C
5/8	.6250	1-1/4	3-1/2	.030	5/8	REA5059C
5/8	.6250	1-7/8	4	—	5/8	REA5064C
5/8	.6250	1-7/8	4	.030	5/8	REA5066C
5/8	.6250	2-1/2	5	—	5/8	REA5071C
5/8	.6250	2-1/2	5	.030	5/8	REA5073C
3/4	.7500	1-7/8	4-1/2	—	3/4	REA5087C
3/4	.7500	1-7/8	4-1/2	.030	3/4	REA5089C
3/4	.7500	2-1/4	5	—	3/4	REA5095C
3/4	.7500	2-1/4	5	.030	3/4	REA5097C
3/4	.7500	2-5/8	5	—	3/4	REA5103C
3/4	.7500	2-5/8	5	.030	3/4	REA5105C
3/4	.7500	3	6	—	3/4	REA5111C
3/4	.7500	3	6	.030	3/4	REA5113C
1	1.0000	2	5	—	1	REA5119C
1	1.0000	2	5	.030	1	REA5121C
1	1.0000	3	6	—	1	REA5127C
1	1.0000	3	6	.030	1	REA5129C
1	1.0000	4	7	—	1	REA5135C
1	1.0000	4	7	.030	1	REA5137C

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

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Tool application data pages 208-212.

Aluminum & Non-Ferrous

NEW Product

RedLine ProLine XHP



DLC Coated

Aluminum & Non-Ferrous, 5-Flute, Square & Corner Radius, Neck Relief, 35° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	DLC Coated Part #
1/4	.2500	3/8	2-1/2	7/8	.235	—	1/4	REA5300
1/4	.2500	3/8	2-1/2	7/8	.235	.015	1/4	REA5301
1/4	.2500	3/8	2-1/2	7/8	.235	.030	1/4	REA5302
1/4	.2500	3/8	2-1/2	7/8	.235	.060	1/4	REA5303
1/4	.2500	3/8	3	1-3/8	.235	—	1/4	REA5304
1/4	.2500	3/8	3	1-3/8	.235	.015	1/4	REA5305
1/4	.2500	3/8	3	1-3/8	.235	.030	1/4	REA5306
1/4	.2500	3/8	3	1-3/8	.235	.060	1/4	REA5307
1/4	.2500	3/8	4	2-1/4	.235	—	1/4	REA5308
1/4	.2500	3/8	4	2-1/4	.235	.015	1/4	REA5309
1/4	.2500	3/8	4	2-1/4	.235	.030	1/4	REA5310
3/8	.3750	9/16	2-1/2	1-1/16	.355	—	3/8	REA5312
3/8	.3750	9/16	2-1/2	1-1/16	.355	.015	3/8	REA5313
3/8	.3750	9/16	2-1/2	1-1/16	.355	.030	3/8	REA5314
3/8	.3750	9/16	2-1/2	1-1/16	.355	.060	3/8	REA5315
3/8	.3750	9/16	2-1/2	1-1/16	.355	.090	3/8	REA5316
3/8	.3750	9/16	3	1-1/8	.355	—	3/8	REA5317
3/8	.3750	9/16	3	1-1/8	.355	.015	3/8	REA5318
3/8	.3750	9/16	3	1-1/8	.355	.030	3/8	REA5319
3/8	.3750	9/16	3	1-1/8	.355	.060	3/8	REA5320
3/8	.3750	9/16	3	1-1/8	.355	.090	3/8	REA5321
3/8	.3750	9/16	4	2-3/16	.355	—	3/8	REA5322
3/8	.3750	9/16	4	2-3/16	.355	.015	3/8	REA5323
3/8	.3750	9/16	4	2-3/16	.355	.030	3/8	REA5324
1/2	.5000	3/4	3	1-1/4	.475	—	1/2	REA5327
1/2	.5000	3/4	3	1-1/4	.475	.015	1/2	REA5328
1/2	.5000	3/4	3	1-1/4	.475	.030	1/2	REA5329
1/2	.5000	3/4	3	1-1/4	.475	.060	1/2	REA5330
1/2	.5000	3/4	3	1-1/4	.475	.090	1/2	REA5331
1/2	.5000	3/4	3	1-1/4	.475	.125	1/2	REA5332
1/2	.5000	3/4	4	2-1/8	.475	—	1/2	REA5333
1/2	.5000	3/4	4	2-1/8	.475	.015	1/2	REA5334
1/2	.5000	3/4	4	2-1/8	.475	.030	1/2	REA5335
1/2	.5000	3/4	4	2-1/8	.475	.060	1/2	REA5336
1/2	.5000	3/4	4	2-1/8	.475	.090	1/2	REA5337
1/2	.5000	3/4	4	2-1/8	.475	.125	1/2	REA5338
1/2	.5000	3/4	5	3-1/8	.475	—	1/2	REA5339
1/2	.5000	3/4	5	3-1/8	.475	.015	1/2	REA5340
1/2	.5000	3/4	5	3-1/8	.475	.030	1/2	REA5341

Continued

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Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



DLC Coated

Aluminum & Non-Ferrous, 5-Flute, Square & Corner Radius, Neck Relief, 35° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	DLC Coated Part #
1/2	.5000	3/4	5	3-1/8	.475	.060	1/2	REA5342
1/2	.5000	3/4	5	3-1/8	.475	.090	1/2	REA5343
1/2	.5000	3/4	5	3-1/8	.475	.125	1/2	REA5344
1/2	.5000	3/4	6	4-1/8	.475	—	1/2	REA5345
1/2	.5000	3/4	6	4-1/8	.475	.015	1/2	REA5346
1/2	.5000	3/4	6	4-1/8	.475	.030	1/2	REA5347
1/2	.5000	3/4	6	4-1/8	.475	.060	1/2	REA5348
1/2	.5000	3/4	6	4-1/8	.475	.125	1/2	REA5350
5/8	.5000	15/16	4	1-9/16	.590	—	5/8	REA5351
5/8	.5000	15/16	4	1-9/16	.590	.030	5/8	REA5353
5/8	.5000	15/16	4	1-9/16	.590	.060	5/8	REA5354
5/8	.5000	15/16	4	1-9/16	.590	.090	5/8	REA5355
5/8	.6250	15/16	4	1-9/16	.590	.125	5/8	REA5356
5/8	.6250	15/16	5	2-3/16	.590	—	5/8	REA5357
5/8	.6250	15/16	5	2-3/16	.590	.030	5/8	REA5359
5/8	.6250	15/16	5	2-3/16	.590	.060	5/8	REA5360
5/8	.6250	15/16	5	2-3/16	.590	.090	5/8	REA5361
5/8	.6250	15/16	5	2-3/16	.590	.125	5/8	REA5362
5/8	.6250	15/16	6	3-3/16	.590	—	5/8	REA5363
5/8	.6250	15/16	6	3-3/16	.590	.030	5/8	REA5365
5/8	.6250	15/16	6	3-3/16	.590	.125	5/8	REA5368
3/4	.7500	1-1/8	4	1-5/8	.715	—	3/4	REA5369
3/4	.7500	1-1/8	4	1-5/8	.715	.030	3/4	REA5371
3/4	.7500	1-1/8	4	1-5/8	.715	.060	3/4	REA5372
3/4	.7500	1-1/8	4	1-5/8	.715	.090	3/4	REA5373
3/4	.7500	1-1/8	4	1-5/8	.715	.125	3/4	REA5374
3/4	.7500	1-1/8	5	2-1/4	.715	—	3/4	REA5376
3/4	.7500	1-1/8	5	2-1/4	.715	.030	3/4	REA5378
3/4	.7500	1-1/8	5	2-1/4	.715	.060	3/4	REA5379
3/4	.7500	1-1/8	5	2-1/4	.715	.090	3/4	REA5380
3/4	.7500	1-1/8	5	2-1/4	.715	.125	3/4	REA5381
3/4	.7500	1-1/8	6	3-1/4	.715	—	3/4	REA5383
3/4	.7500	1-1/8	6	3-1/4	.715	.030	3/4	REA5385
3/4	.7500	1-1/8	6	3-1/4	.715	.060	3/4	REA5386
3/4	.7500	1-1/8	6	3-1/4	.715	.125	3/4	REA5388
1	1.0000	1-1/2	5	2-3/8	.960	—	1	REA5390
1	1.0000	1-1/2	5	2-3/8	.960	.030	1	REA5392
1	1.0000	1-1/2	5	2-3/8	.960	.125	1	REA5395

Continued

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

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Tool application data pages 208-212.

Aluminum & Non-Ferrous

NEW Product



DLC Coated

Aluminum & Non-Ferrous, 5-Flute, Square & Corner Radius, Neck Relief, 35° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	DLC Coated Part #
1	1.0000	1-1/2	6	3-1/8	.960	—	1	REA5397
1	1.0000	1-1/2	6	3-1/8	.960	.030	1	REA5399
1	1.0000	1-1/2	6	3-1/8	.960	.125	1	REA5402
1	1.0000	1-1/2	7	4-1/8	.960	—	1	REA5404
1	1.0000	1-1/2	7	4-1/8	.960	.030	1	REA5406
1	1.0000	1-1/2	7	4-1/8	.960	.125	1	REA5409

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Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	-0.0001, -0.0004	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Micro 3-Flute - Variable Helix



AlCrN Coated

Variable Helix, 3-Flute, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrN Coated Part #
1/32	.0312	.063	2-1/2	—	1/4	REM1000
1/32	.0312	.063	2-1/2	.006	1/4	REM1001
1/32	.0312	.094	2-1/2	—	1/4	REM1002
1/32	.0312	.094	2-1/2	.006	1/4	REM1003
3/64	.0469	.094	2-1/2	—	1/4	REM1004
3/64	.0469	.094	2-1/2	.010	1/4	REM1005
3/64	.0469	.141	2-1/2	—	1/4	REM1006
3/64	.0469	.141	2-1/2	.010	1/4	REM1007
1/16	.0625	.140	2-1/2	—	1/4	REM1008
1/16	.0625	.140	2-1/2	.010	1/4	REM1009
1/16	.0625	.188	2-1/2	—	1/4	REM1010
1/16	.0625	.188	2-1/2	.010	1/4	REM1011
5/64	.0781	.140	2-1/2	—	1/4	REM1012
5/64	.0781	.140	2-1/2	.010	1/4	REM1013
5/64	.0781	.234	2-1/2	—	1/4	REM1014
5/64	.0781	.234	2-1/2	.010	1/4	REM1015
3/32	.0938	.188	2-1/2	—	1/4	REM1016
3/32	.0938	.188	2-1/2	.010	1/4	REM1017
3/32	.0938	.375	2-1/2	—	1/4	REM1018
3/32	.0938	.375	2-1/2	.010	1/4	REM1019
7/64	.1094	.188	2-1/2	—	1/4	REM1020
7/64	.1094	.188	2-1/2	.010	1/4	REM1021
7/64	.1094	.438	2-1/2	—	1/4	REM1022
7/64	.1094	.438	2-1/2	.010	1/4	REM1023
1/8	.1250	.250	2-1/2	—	1/4	REM1024
1/8	.1250	.250	2-1/2	.015	1/4	REM1025
1/8	.1250	.500	2-1/2	—	1/4	REM1026
1/8	.1250	.500	2-1/2	.015	1/4	REM1027
5/32	.1562	.375	2-1/2	—	1/4	REM1028
5/32	.1562	.375	2-1/2	.015	1/4	REM1029
5/32	.1562	.563	2-1/2	—	1/4	REM1030
5/32	.1562	.563	2-1/2	.015	1/4	REM1031

Continued

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.0008	+0.0001, -0.0003	+0.002, -0.002

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Micro 3-Flute - Variable Helix



AlCrN Coated

Variable Helix, 3-Flute, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrN Coated Part #
3/16	.1875	.375	2-1/2	—	1/4	REM1032
3/16	.1875	.375	2-1/2	.015	1/4	REM1033
3/16	.1875	.625	2-1/2	—	1/4	REM1034
3/16	.1875	.625	2-1/2	.015	1/4	REM1035
7/32	.2188	.375	2-1/2	—	1/4	REM1036
7/32	.2188	.375	2-1/2	.015	1/4	REM1037
7/32	.2188	.625	2-1/2	—	1/4	REM1038
7/32	.2188	.625	2-1/2	.015	1/4	REM1039
1/4	.2500	.500	2-1/2	—	1/4	REM1040
1/4	.2500	.500	2-1/2	.015	1/4	REM1041
1/4	.2500	.750	2-1/2	—	1/4	REM1042
1/4	.2500	.750	2-1/2	.015	1/4	REM1043

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Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.0008	+0.000, -0.0003	+0.002, -0.002

Micro 3-Flute - Variable Helix



AlCrN Coated

Variable Helix, 3-Flute, Square & Corner Radius, Metric

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrN Coated Part #
1MM	.0394	1.5	63.5	–	6	REM2000
1MM	.0394	1.5	63.5	.1	6	REM2001
1MM	.0394	1.5	63.5	.2	6	REM2002
1MM	.0394	1.5	63.5	.3	6	REM2003
1MM	.0394	3	63.5	–	6	REM2004
1MM	.0394	3	63.5	.1	6	REM2005
1MM	.0394	3	63.5	.2	6	REM2006
1MM	.0394	3	63.5	.3	6	REM2007
1.5MM	.0591	2.5	63.5	–	6	REM2008
1.5MM	.0591	2.5	63.5	.1	6	REM2009
1.5MM	.0591	2.5	63.5	.2	6	REM2010
1.5MM	.0591	2.5	63.5	.3	6	REM2011
1.5MM	.0591	2.5	63.5	.5	6	REM2012
1.5MM	.0591	4.5	63.5	–	6	REM2013
1.5MM	.0591	4.5	63.5	.1	6	REM2014
1.5MM	.0591	4.5	63.5	.2	6	REM2015
1.5MM	.0591	4.5	63.5	.3	6	REM2016
1.5MM	.0591	4.5	63.5	.5	6	REM2017
2MM	.0787	3	63.5	–	6	REM2018
2MM	.0787	3	63.5	.2	6	REM2019
2MM	.0787	3	63.5	.3	6	REM2020
2MM	.0787	3	63.5	.5	6	REM2021
2MM	.0787	6	63.5	–	6	REM2022
2MM	.0787	6	63.5	.2	6	REM2023
2MM	.0787	6	63.5	.3	6	REM2024
2MM	.0787	6	63.5	.5	6	REM2025
2.5MM	.0984	4	63.5	–	6	REM2026
2.5MM	.0984	4	63.5	.2	6	REM2027
2.5MM	.0984	4	63.5	.3	6	REM2028
2.5MM	.0984	4	63.5	.5	6	REM2029
2.5MM	.0984	7.5	63.5	–	6	REM2030
2.5MM	.0984	7.5	63.5	.2	6	REM2031
2.5MM	.0984	7.5	63.5	.3	6	REM2032
2.5MM	.0984	7.5	63.5	.5	6	REM2033
3MM	.1181	5	63.5	–	6	REM2034
3MM	.1181	5	63.5	.2	6	REM2035
3MM	.1181	5	63.5	.3	6	REM2036
3MM	.1181	5	63.5	.5	6	REM2037

Continued

Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.020	+0.000, -0.008	+0.050, -0.050

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Micro 3-Flute - Variable Helix



AlCrN Coated

Variable Helix, 3-Flute, Square & Corner Radius, Metric

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrN Coated Part #
3MM	.1181	5	63.5	—	6	REM2038
3MM	.1181	9	63.5	—	6	REM2039
3MM	.1181	9	63.5	.2	6	REM2040
3MM	.1181	9	63.5	.3	6	REM2041
3MM	.1181	9	63.5	.5	6	REM2042
3MM	.1181	9	63.5	1	6	REM2043
4MM	.1575	6	63.5	—	6	REM2044
4MM	.1575	6	63.5	.2	6	REM2045
4MM	.1575	6	63.5	.3	6	REM2046
4MM	.1575	6	63.5	.5	6	REM2047
4MM	.1575	6	63.5	1	6	REM2048
4MM	.1575	12	63.5	—	6	REM2049
4MM	.1575	12	63.5	.2	6	REM2050
4MM	.1575	12	63.5	.3	6	REM2051
4MM	.1575	12	63.5	.5	6	REM2052
4MM	.1575	12	63.5	1	6	REM2053
5MM	.1969	8	63.5	—	6	REM2054
5MM	.1969	8	63.5	.2	6	REM2055
5MM	.1969	8	63.5	.3	6	REM2056
5MM	.1969	8	63.5	.5	6	REM2057
5MM	.1969	8	63.5	1	6	REM2058
5MM	.1969	8	63.5	1	6	REM2059
5MM	.1969	15	63.5	—	6	REM2060
5MM	.1969	15	63.5	.2	6	REM2061
5MM	.1969	15	63.5	.3	6	REM2062
5MM	.1969	15	63.5	.5	6	REM2063
5MM	.1969	15	63.5	1	6	REM2064
5MM	.1969	15	63.5	1	6	REM2065
6MM	.2362	9	63.5	—	6	REM2066
6MM	.2362	9	63.5	.2	6	REM2067
6MM	.2362	9	63.5	.3	6	REM2068
6MM	.2362	9	63.5	.5	6	REM2069
6MM	.2362	9	63.5	1	6	REM2070
6MM	.2362	9	63.5	1	6	REM2071
6MM	.2362	9	63.5	2	6	REM2072
6MM	.2362	18	63.5	—	6	REM2073
6MM	.2362	18	63.5	.2	6	REM2074
6MM	.2362	18	63.5	.3	6	REM2075

Continued

Speeds & Feeds page 189.

Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.020	+0.000, -0.008	+0.050, -0.050

Micro 3-Flute - Variable Helix



AlCrN Coated

Variable Helix, 3-Flute, Square & Corner Radius, Metric

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrN Coated Part #
6MM	.2362	18	63.5	.5	6	REM2076
6MM	.2362	18	63.5	1	6	REM2077
6MM	.2362	18	63.5	1.5	6	REM2078
6MM	.2362	18	63.5	2	6	REM2079
8MM	.3150	12	63.5	—	8	REM2080
8MM	.3150	12	63.5	.2	8	REM2081
8MM	.3150	12	63.5	.3	8	REM2082
8MM	.3150	12	63.5	.5	8	REM2083
8MM	.3150	12	63.5	1	8	REM2084
8MM	.3150	12	63.5	1.5	8	REM2085
8MM	.3150	12	63.5	2	8	REM2086
8MM	.3150	24	63.5	—	8	REM2087
8MM	.3150	24	63.5	.2	8	REM2088
8MM	.3150	24	63.5	.3	8	REM2089
8MM	.3150	24	63.5	.5	8	REM2090
8MM	.3150	24	63.5	1	8	REM2091
8MM	.3150	24	63.5	1.5	8	REM2092
8MM	.3150	24	63.5	2	8	REM2093

Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.020	+0.000, -0.008	+0.050, -0.050

Speeds & Feeds page 189.

Micro 3-Flute - Variable Helix



AlCrN Coated

Variable Helix, 3-Flute, Extended Reach, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	Reach Length	OAL	Corner Radius	Shank ø	AlCrN Coated Part #
1/32	.0312	.063	.155	2-1/2	—	1/4	REM1044
1/32	.0312	.094	.155	2-1/2	.006	1/4	REM1045
3/64	.0469	.094	.230	2-1/2	—	1/4	REM1046
3/64	.0469	.141	.230	2-1/2	.010	1/4	REM1047
1/16	.0625	.140	.312	2-1/2	—	1/4	REM1048
1/16	.0625	.188	.312	2-1/2	.010	1/4	REM1049
5/64	.0781	.140	.390	2-1/2	—	1/4	REM1050
5/64	.0781	.234	.390	2-1/2	.010	1/4	REM1051
3/32	.0938	.188	.465	2-1/2	—	1/4	REM1052
3/32	.0938	.375	.465	2-1/2	.010	1/4	REM1053
7/64	.1094	.188	.545	2-1/2	—	1/4	REM1054
7/64	.1094	.438	.545	2-1/2	.010	1/4	REM1055
1/8	.1250	.250	.625	2-1/2	—	1/4	REM1056
1/8	.1250	.500	.625	2-1/2	.015	1/4	REM1057
5/32	.1562	.375	.781	2-1/2	—	1/4	REM1058
5/32	.1562	.563	.781	2-1/2	.015	1/4	REM1059
3/16	.1875	.375	.938	2-1/2	—	1/4	REM1060
3/16	.1875	.625	.938	2-1/2	.015	1/4	REM1061
7/32	.2188	.375	1.093	2-1/2	—	1/4	REM1062
7/32	.2188	.625	1.093	2-1/2	.015	1/4	REM1063
1/4	.2500	.500	1.250	2-1/2	—	1/4	REM1064
1/4	.2500	.750	1.250	2-1/2	.015	1/4	REM1065

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Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.0008	+0.000, -0.0003	+0.002, -0.002

Micro 3-Flute - Variable Helix



AlCrN Coated

Variable Helix, 3-Flute, Extended Reach, Square & Corner Radius, Metric

Cutter ø	Decimal Equiv	Flute Length	Reach Length	OAL	Corner Radius	Shank ø	AlCrN Coated Part #
1MM	.0394	3	10	75	—	6	REM2094
1MM	.0394	3	10	75	.1	6	REM2095
1MM	.0394	3	10	75	.2	6	REM2096
1MM	.0394	3	10	75	.3	6	REM2097
1.5MM	.0591	4.5	15	75	—	6	REM2098
1.5MM	.0591	4.5	15	75	.1	6	REM2099
1.5MM	.0591	4.5	15	75	.2	6	REM2100
1.5MM	.0591	4.5	15	75	.3	6	REM2101
1.5MM	.0591	4.5	15	75	.5	6	REM2102
2MM	.0787	6	20	75	—	6	REM2103
2MM	.0787	6	20	75	.2	6	REM2104
2MM	.0787	6	20	75	.3	6	REM2105
2MM	.0787	6	20	75	.5	6	REM2106
2.5MM	.0984	7.5	25	75	—	6	REM2107
2.5MM	.0984	7.5	25	75	.2	6	REM2108
2.5MM	.0984	7.5	25	75	.3	6	REM2109
2.5MM	.0984	7.5	25	75	.5	6	REM2110
3MM	.1181	9	30	75	—	6	REM2111
3MM	.1181	9	30	75	.2	6	REM2112
3MM	.1181	9	30	75	.3	6	REM2113
3MM	.1181	9	30	75	.5	6	REM2114
3MM	.1181	9	30	75	1	6	REM2115
4MM	.1575	12	30	75	—	6	REM2116
4MM	.1575	12	30	75	.2	6	REM2117
4MM	.1575	12	30	75	.3	6	REM2118
4MM	.1575	12	30	75	.5	6	REM2119
4MM	.1575	12	30	75	1	6	REM2120
5MM	.1969	15	40	75	—	6	REM2121
5MM	.1969	15	40	75	.2	6	REM2122
5MM	.1969	15	40	75	.3	6	REM2123
5MM	.1969	15	40	75	.5	6	REM2124
5MM	.1969	15	40	75	1	6	REM2125
5MM	.1969	15	40	75	1.5	6	REM2126
6MM	.2362	18	45	75	—	6	REM2127
6MM	.2362	18	45	75	.2	6	REM2128
6MM	.2362	18	45	75	.3	6	REM2129
6MM	.2362	18	45	75	.5	6	REM2130
6MM	.2362	18	45	75	1	6	REM2131
6MM	.2362	18	45	75	1.5	6	REM2132

Continued

Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.020	+0.000, -0.008	+0.050, -0.050

Speeds & Feeds page 189.

Micro 3-Flute - Variable Helix



AlCrN Coated

Variable Helix, 3-Flute, Extended Reach, Square & Corner Radius, Metric

Cutter ø	Decimal Equiv	Flute Length	Reach Length	OAL	Corner Radius	Shank ø	AlCrN Coated Part #
6MM	.2362	18	45	75	2	6	REM2133
8MM	.3150	24	50	100	—	8	REM2134
8MM	.3150	24	50	100	.2	8	REM2135
8MM	.3150	24	50	100	.3	8	REM2136
8MM	.3150	24	50	100	.5	8	REM2137
8MM	.3150	24	50	100	1	8	REM2138
8MM	.3150	24	50	100	1.5	8	REM2139
8MM	.3150	24	50	100	2	8	REM2140

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Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.020	+0.000, -0.008	+0.050, -0.050



AlTiN Coated

3-Flute 60° Helix, Regular Length, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlTiN Coated Part #
1/8	.1250	1/2	1-1/2	—	1/8	RE17308
1/8	.1250	1/2	1-1/2	.010	1/8	RE20008
3/16	.1875	5/8	2	—	3/16	RE17312
3/16	.1875	5/8	2	.010	3/16	RE20012
1/4	.2500	3/4	2-1/2	—	1/4	RE17316
1/4	.2500	3/4	2-1/2	.020	1/4	RE20016
5/16	.3125	13/16	2-1/2	—	5/16	RE17320
5/16	.3125	13/16	2-1/2	.020	5/16	RE20020
3/8	.3750	1	2-1/2	—	3/8	RE17324
3/8	.3750	1	2-1/2	.020	3/8	RE20024
1/2	.5000	1-1/4	3	—	1/2	RE17332
1/2	.5000	1-1/4	3	.040	1/2	RE20032
5/8	.6250	1-5/8	3-1/2	—	5/8	RE17340
5/8	.6250	1-5/8	3-1/2	.040	5/8	RE20040
3/4	.7500	1-5/8	4	—	3/4	RE17348
3/4	.7500	1-5/8	4	.040	3/4	RE20048

Tolerances	Diameter	Shank	Radius
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8"-3/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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3-Flute 45°



AlTiN Coated

3-Flute 45° Helix, Regular Length, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlTiN Coated Part #
1/8	.1250	1/2	1-1/2	—	1/8	RE17508
1/8	.1250	1/2	1-1/2	.010	1/8	RE20208
3/16	.1875	5/8	2	—	3/16	RE17512
3/16	.1875	5/8	2	.010	3/16	RE20212
1/4	.2500	3/4	2-1/2	—	1/4	RE17516
1/4	.2500	3/4	2-1/2	.020	1/4	RE20216
5/16	.3125	13/16	2-1/2	—	5/16	RE17520
5/16	.3125	13/16	2-1/2	.020	5/16	RE20220
3/8	.3750	1	2-1/2	—	3/8	RE17524
3/8	.3750	1	2-1/2	.020	3/8	RE20224
1/2	.5000	1-1/4	3	—	1/2	RE17532
1/2	.5000	1-1/4	3	.040	1/2	RE20232
5/8	.6250	1-5/8	3-1/2	—	5/8	RE17540
5/8	.6250	1-5/8	3-1/2	.040	5/8	RE20240
3/4	.7500	1-5/8	4	—	3/4	RE17548
3/4	.7500	1-5/8	4	.040	3/4	RE20248

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Tolerances	Diameter	Shank	Radius
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8"-3/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 4-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
1/8	.1250	1/4	1-1/2	–	1/8	REV4600	–
1/8	.1250	1/4	1-1/2	.008	1/8	REV4601	–
1/8	.1250	1/2	2	–	1/8	REV4602	–
1/8	.1250	1/2	2	.010	1/8	REV4603	–
1/8	.1250	1/2	2	.020	1/8	REV4604	–
1/8	.1250	1/2	2	.030	1/8	REV4605	–
3/16	.1875	3/8	2	–	3/16	REV4606	–
3/16	.1875	3/8	2	.008	3/16	REV4607	–
3/16	.1875	9/16	2	–	3/16	REV4608	–
3/16	.1875	9/16	2	.010	3/16	REV4609	–
3/16	.1875	9/16	2	.020	3/16	REV4610	–
3/16	.1875	9/16	2	.030	3/16	REV4611	–
1/4	.2500	3/8	2	–	1/4	REV4300	–
1/4	.2500	3/8	2	.015	1/4	REV4301	–
1/4	.2500	3/4	2-1/2	–	1/4	REV4302	–
1/4	.2500	3/4	2-1/2	.015	1/4	REV4303	–
1/4	.2500	3/4	2-1/2	.030	1/4	REV4304	–
1/4	.2500	3/4	2-1/2	.060	1/4	REV4305	–
1/4	.2500	1-1/8	3	–	1/4	REV4306	–
1/4	.2500	1-1/8	3	.015	1/4	REV4307	–
1/4	.2500	1-1/8	3	.030	1/4	REV4308	–
1/4	.2500	1-1/2	4	–	1/4	REV4309	–
1/4	.2500	1-1/2	4	.015	1/4	REV4310	–
1/4	.2500	1-1/2	4	.030	1/4	REV4311	–
5/16	.3125	7/16	2	–	5/16	REV4312	–
5/16	.3125	7/16	2	.015	5/16	REV4313	–
5/16	.3125	13/16	2-1/2	–	5/16	REV4314	–
5/16	.3125	13/16	2-1/2	.015	5/16	REV4315	–
5/16	.3125	13/16	2-1/2	.030	5/16	REV4316	–
5/16	.3125	13/16	2-1/2	.060	5/16	REV4317	–
5/16	.3125	1-1/8	3	–	5/16	REV4318	–
5/16	.3125	1-1/8	3	.015	5/16	REV4319	–
5/16	.3125	1-1/8	3	.030	5/16	REV4320	–

Continued

Tolerances	Diameter	Shank	Radius
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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4 Flute - Variable Index



AlCrNX Coated-Plain Shank

AlCrNX Coated-Weldon Shank

Variable Index, 4-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
3/8	.3750	1/2	2	—	3/8	REV4321	—
3/8	.3750	1/2	2	.015	3/8	REV4322	—
3/8	.3750	1	2-1/2	—	3/8	REV4323	—
3/8	.3750	1	2-1/2	.015	3/8	REV4324	—
3/8	.3750	1	2-1/2	.030	3/8	REV4325	—
3/8	.3750	1	2-1/2	.060	3/8	REV4326	—
3/8	.3750	1-1/4	3	—	3/8	REV4327	—
3/8	.3750	1-1/4	3	.030	3/8	REV4328	—
3/8	.3750	1-1/4	3	.060	3/8	REV4329	—
3/8	.3750	2	4	—	3/8	REV4330	—
3/8	.3750	2	4	.030	3/8	REV4331	—
3/8	.3750	2	4	.060	3/8	REV4332	—
7/16	.4375	5/8	2-1/2	—	7/16	REV4751	—
7/16	.4375	5/8	2-1/2	.030	7/16	REV4753	—
7/16	.4375	1	2-3/4	—	7/16	REV4755	—
7/16	.4375	1	2-3/4	.015	7/16	REV4757	—
7/16	.4375	1	2-3/4	.030	7/16	REV4759	—
7/16	.4375	1	2-3/4	.060	7/16	REV4761	—
7/16	.4375	2	4	—	7/16	REV4763	—
7/16	.4375	2	4	.030	7/16	REV4765	—
7/16	.4375	2	4	.060	7/16	REV4767	—
7/16	.4375	3	6	—	7/16	REV4769	—
7/16	.4375	3	6	.030	7/16	REV4771	—
7/16	.4375	3	6	.060	7/16	REV4773	—
1/2	.5000	5/8	2-1/2	—	1/2	REV4333	REV4334
1/2	.5000	5/8	2-1/2	.030	1/2	REV4335	REV4336
1/2	.5000	1	3	—	1/2	REV4337	REV4338
1/2	.5000	1	3	.015	1/2	REV4339	REV4340
1/2	.5000	1	3	.030	1/2	REV4341	REV4342
1/2	.5000	1	3	.060	1/2	REV4343	REV4344
1/2	.5000	1	3	.090	1/2	REV4345	REV4346
1/2	.5000	1	3	.120	1/2	REV4347	REV4348
1/2	.5000	1-1/4	3	—	1/2	REV4349	REV4350

Continued

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Tolerances	Diameter	Shank	Radius
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 4-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
1/2	.5000	1-1/4	3	.015	1/2	REV4351	REV4352
1/2	.5000	1-1/4	3	.030	1/2	REV4353	REV4354
1/2	.5000	1-1/4	3	.060	1/2	REV4355	REV4356
1/2	.5000	1-1/4	3	.090	1/2	REV4357	REV4358
1/2	.5000	1-1/4	3	.120	1/2	REV4359	REV4360
1/2	.5000	1-1/2	4	—	1/2	REV4361	REV4362
1/2	.5000	1-1/2	4	.030	1/2	REV4363	REV4364
1/2	.5000	1-1/2	4	.060	1/2	REV4365	REV4366
1/2	.5000	2	4	—	1/2	REV4367	REV4368
1/2	.5000	2	4	.030	1/2	REV4369	REV4370
1/2	.5000	2	4	.060	1/2	REV4371	REV4372
1/2	.5000	3	6	—	1/2	REV4373	REV4374
1/2	.5000	3	6	.030	1/2	REV4375	REV4376
1/2	.5000	3	6	.060	1/2	REV4377	REV4378
5/8	.6250	3/4	3	—	5/8	REV4379	REV4380
5/8	.6250	3/4	3	.030	5/8	REV4381	REV4382
5/8	.6250	1-5/8	3-1/2	—	5/8	REV4383	REV4384
5/8	.6250	1-5/8	3-1/2	.030	5/8	REV4385	REV4386
5/8	.6250	1-5/8	3-1/2	.060	5/8	REV4387	REV4388
5/8	.6250	1-5/8	3-1/2	.090	5/8	REV4389	REV4390
5/8	.6250	1-5/8	3-1/2	.120	5/8	REV4391	REV4392
5/8	.6250	2-1/4	5	—	5/8	REV4393	REV4394
5/8	.6250	2-1/4	5	.030	5/8	REV4395	REV4396
5/8	.6250	2-1/4	5	.060	5/8	REV4397	REV4398
5/8	.6250	3	6	—	5/8	REV4399	REV4400
5/8	.6250	3	6	.030	5/8	REV4401	REV4402
5/8	.6250	3	6	.060	5/8	REV4403	REV4404
3/4	.7500	1	3	—	3/4	REV4405	REV4406
3/4	.7500	1	3	.030	3/4	REV4407	REV4408
3/4	.7500	1-5/8	4	—	3/4	REV4409	REV4410
3/4	.7500	1-5/8	4	.030	3/4	REV4411	REV4412
3/4	.7500	1-5/8	4	.060	3/4	REV4413	REV4414
3/4	.7500	1-5/8	4	.090	3/4	REV4415	REV4416

Continued

Tolerances	Diameter	Shank	Radius
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

Speeds & Feeds pages 192 & 193.

4 Flute - Variable Index



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 4-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
3/4	.7500	1-5/8	4	.120	3/4	REV4417	REV4418
3/4	.7500	2-1/4	5	—	3/4	REV4419	REV4420
3/4	.7500	2-1/4	5	.030	3/4	REV4421	REV4423
3/4	.7500	2-1/4	5	.060	3/4	REV4422	REV4424
3/4	.7500	3	6	—	3/4	REV4425	REV4426
3/4	.7500	3	6	.030	3/4	REV4427	REV4428
3/4	.7500	3	6	.060	3/4	REV4429	REV4430
3/4	.7500	4	7	—	3/4	REV4431	REV4432
3/4	.7500	4	7	.030	3/4	REV4433	REV4434
3/4	.7500	4	7	.060	3/4	REV4435	REV4436
1	1.0000	2	4	—	1	REV4437	REV4438
1	1.0000	2	4	.030	1	REV4439	REV4440
1	1.0000	2	4	.060	1	REV4441	REV4442
1	1.0000	2	4	.090	1	REV4443	REV4444
1	1.0000	2	4	.120	1	REV4445	REV4446
1	1.0000	2-1/4	5	—	1	REV4447	REV4448
1	1.0000	2-1/4	5	.030	1	REV4449	REV4450
1	1.0000	2-1/4	5	.060	1	REV4451	REV4452
1	1.0000	3	6	—	1	REV4453	REV4454
1	1.0000	3	6	.030	1	REV4455	REV4456
1	1.0000	3	6	.060	1	REV4457	REV4458
1	1.0000	4-1/4	7	—	1	REV4459	REV4460
1	1.0000	4-1/4	7	.030	1	REV4461	REV4462
1	1.0000	4-1/4	7	.060	1	REV4463	REV4464

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Tolerances	Diameter	Shank	Radius
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 4-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
1/8	.1250	1/4	1-1/2	—	1/8	REX4000	—
1/8	.1250	1/4	1-1/2	.015	1/8	REX4001	—
1/8	.1250	1/2	1-1/2	—	1/8	REX4002	—
1/8	.1250	1/2	1-1/2	.015	1/8	REX4003	—
1/8	.1250	3/4	2-1/4	—	1/8	REX4004	—
1/8	.1250	3/4	2-1/4	.015	1/8	REX4005	—
5/32	.1562	9/16	2	—	3/16	REX4006	—
5/32	.1562	9/16	2	.015	3/16	REX4007	—
3/16	.1875	5/16	2	—	3/16	REX4008	—
3/16	.1875	5/16	2	.015	3/16	REX4009	—
3/16	.1875	5/16	2	.030	3/16	REX4010	—
3/16	.1875	9/16	2	—	3/16	REX4011	—
3/16	.1875	9/16	2	.015	3/16	REX4012	—
3/16	.1875	9/16	2	.030	3/16	REX4013	—
3/16	.1875	3/4	2-1/2	—	3/16	REX4014	—
3/16	.1875	3/4	2-1/2	.015	3/16	REX4015	—
3/16	.1875	3/4	2-1/2	.030	3/16	REX4016	—
7/32	.2187	3/4	2-1/2	—	1/4	REX4020	—
7/32	.2187	3/4	2-1/2	.015	1/4	REX4021	—
1/4	.2500	3/8	2	—	1/4	REX4022	—
1/4	.2500	3/8	2	.015	1/4	REX4023	—
1/4	.2500	3/8	2	.030	1/4	REX4024	—
1/4	.2500	3/4	2-1/2	—	1/4	REX4025	—
1/4	.2500	3/4	2-1/2	.015	1/4	REX4026	—
1/4	.2500	3/4	2-1/2	.030	1/4	REX4027	—
1/4	.2500	3/4	2-1/2	.060	1/4	REX4028	—
1/4	.2500	1-1/4	3	—	1/4	REX4029	—
1/4	.2500	1-1/4	3	.015	1/4	REX4030	—
1/4	.2500	1-1/4	3	.030	1/4	REX4031	—
1/4	.2500	1-3/4	4	—	1/4	REX4032	—
1/4	.2500	1-3/4	4	.015	1/4	REX4033	—
1/4	.2500	1-3/4	4	.030	1/4	REX4034	—
9/32	.2812	3/4	2-1/2	—	5/16	REX4017	—
9/32	.2812	3/4	2-1/2	.015	5/16	REX4018	—
9/32	.2812	3/4	2-1/2	.030	5/16	REX4019	—
5/16	.3125	7/16	2	—	5/16	REX4035	—
5/16	.3125	7/16	2	.015	5/16	REX4036	—
5/16	.3125	7/16	2	.030	5/16	REX4037	—

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For detailed tolerance information, see page 200.

Speeds & Feeds pages 194 & 195.

4 Flute - Variable Index



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 4-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
5/16	.3125	13/16	2-1/2	—	5/16	REX4038	—
5/16	.3125	13/16	2-1/2	.015	5/16	REX4039	—
5/16	.3125	13/16	2-1/2	.030	5/16	REX4040	—
5/16	.3125	13/16	2-1/2	.060	5/16	REX4041	—
5/16	.3125	1-1/4	3	—	5/16	REX4042	—
5/16	.3125	1-1/4	3	.015	5/16	REX4043	—
5/16	.3125	1-1/4	3	.030	5/16	REX4044	—
5/16	.3125	2-1/8	4	—	5/16	REX4045	—
5/16	.3125	2-1/8	4	.015	5/16	REX4046	—
5/16	.3125	2-1/8	4	.030	5/16	REX4047	—
11/32	.3437	7/8	2-1/2	—	3/8	REX4048	—
11/32	.3437	7/8	2-1/2	.030	3/8	REX4049	—
3/8	.3750	1/2	2	—	3/8	REX4050	—
3/8	.3750	1/2	2	.015	3/8	REX4051	—
3/8	.3750	1/2	2	.030	3/8	REX4052	—
3/8	.3750	7/8	2-1/2	—	3/8	REX4053	REX4054
3/8	.3750	7/8	2-1/2	.015	3/8	REX4055	REX4056
3/8	.3750	7/8	2-1/2	.030	3/8	REX4057	REX4058
3/8	.3750	7/8	2-1/2	.060	3/8	REX4059	—
3/8	.3750	7/8	2-1/2	.090	3/8	REX4061	—
3/8	.3750	1-1/4	3	—	3/8	REX4062	REX4063
3/8	.3750	1-1/4	3	.015	3/8	REX4064	REX4065
3/8	.3750	1-1/4	3	.030	3/8	REX4066	REX4067
3/8	.3750	1-1/4	3	.060	3/8	REX4068	—
3/8	.3750	1-5/8	4	—	3/8	REX4070	—
3/8	.3750	1-5/8	4	.015	3/8	REX4072	—
3/8	.3750	1-5/8	4	.030	3/8	REX4074	—
3/8	.3750	1-5/8	4	.060	3/8	REX4076	—
3/8	.3750	2	4	—	3/8	REX4078	—
3/8	.3750	2	4	.015	3/8	REX4080	—
3/8	.3750	2	4	.030	3/8	REX4082	—
3/8	.3750	2	4	.060	3/8	REX4084	—
3/8	.3750	2-1/2	5	—	3/8	REX4086	—
3/8	.3750	2-1/2	5	.015	3/8	REX4088	—
3/8	.3750	2-1/2	5	.030	3/8	REX4089	—
13/32	.4062	1	2-3/4	—	7/16	REX4090	—
13/32	.4062	1	2-3/4	.030	7/16	REX4091	—
7/16	.4375	5/8	2-1/2	—	7/16	REX4092	—

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Speeds & Feeds pages 194 & 195.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For detailed tolerance information, see page 200.

RedLine ProLine XHP



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 4-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
7/16	.4375	5/8	2-1/2	.030	7/16	REX4093	—
7/16	.4375	1	2-3/4	—	7/16	REX4094	—
7/16	.4375	1	2-3/4	.030	7/16	REX4096	—
7/16	.4375	2	4	—	7/16	REX4097	—
7/16	.4375	2	4	.030	7/16	REX4099	—
1/2	.5000	5/8	2-1/2	—	1/2	REX4100	—
1/2	.5000	5/8	2-1/2	.030	1/2	REX4101	—
1/2	.5000	5/8	2-1/2	.060	1/2	REX4103	—
1/2	.5000	1	3	—	1/2	REX4105	REX4106
1/2	.5000	1	3	.015	1/2	REX4107	REX4108
1/2	.5000	1	3	.030	1/2	REX4109	REX4110
1/2	.5000	1	3	.060	1/2	REX4111	—
1/2	.5000	1	3	.090	1/2	REX4113	—
1/2	.5000	1	3	.120	1/2	REX4114	—
1/2	.5000	1-1/4	3	—	1/2	REX4116	REX4117
1/2	.5000	1-1/4	3	.015	1/2	REX4118	REX4119
1/2	.5000	1-1/4	3	.030	1/2	REX4120	REX4121
1/2	.5000	1-1/4	3	.060	1/2	REX4122	—
1/2	.5000	1-1/4	3	.090	1/2	REX4124	—
1/2	.5000	1-1/4	3	.120	1/2	REX4125	—
1/2	.5000	1-5/8	4	—	1/2	REX4127	REX4128
1/2	.5000	1-5/8	4	.030	1/2	REX4129	REX4130
1/2	.5000	1-5/8	4	.060	1/2	REX4131	—
1/2	.5000	1-5/8	4	.090	1/2	REX4133	—
1/2	.5000	1-5/8	4	.120	1/2	REX4134	—
1/2	.5000	2-1/8	4	—	1/2	REX4135	REX4136
1/2	.5000	2-1/8	4	.030	1/2	REX4137	REX4138
1/2	.5000	2-1/8	4	.060	1/2	REX4139	—
1/2	.5000	2-1/8	4	.090	1/2	REX4141	—
1/2	.5000	2-1/8	4	.120	1/2	REX4142	—
1/2	.5000	2-5/8	5	—	1/2	REX4143	—
1/2	.5000	2-5/8	5	.030	1/2	REX4145	—
1/2	.5000	2-5/8	5	.060	1/2	REX4147	—
1/2	.5000	3-1/4	6	—	1/2	REX4149	—
1/2	.5000	3-1/4	6	.030	1/2	REX4151	—
1/2	.5000	3-1/4	6	.060	1/2	REX4153	—
9/16	.5625	1-1/4	3-1/2	—	9/16	REX4155	—
9/16	.5625	1-1/4	3-1/2	.030	9/16	REX4156	—

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For detailed tolerance information, see page 200.

Speeds & Feeds pages 194 & 195.

4 Flute - Variable Index



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 4-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Plain Shank Part #	AlCrNX Coated Weldon Shank Part #
5/8	.6250	3/4	3	—	5/8	REX4157	—
5/8	.6250	3/4	3	.030	5/8	REX4158	—
5/8	.6250	3/4	3	.060	5/8	REX4159	—
5/8	.6250	1-3/8	3-1/2	—	5/8	REX4160	REX4161
5/8	.6250	1-3/8	3-1/2	.030	5/8	REX4162	REX4163
5/8	.6250	1-3/8	3-1/2	.060	5/8	REX4164	—
5/8	.6250	2-1/8	4	—	5/8	REX4168	REX4169
5/8	.6250	2-1/8	4	.030	5/8	REX4170	REX4171
5/8	.6250	2-1/8	4	.060	5/8	REX4172	—
5/8	.6250	2-1/8	4	.090	5/8	REX4174	—
5/8	.6250	2-1/8	4	.120	5/8	REX4175	—
5/8	.6250	2-5/8	5	—	5/8	REX4176	—
5/8	.6250	2-5/8	5	.030	5/8	REX4178	—
5/8	.6250	2-5/8	5	.060	5/8	REX4180	—
5/8	.6250	3-1/4	6	—	5/8	REX4182	—
3/4	.7500	1	3	—	3/4	REX4188	—
3/4	.7500	1	3	.030	3/4	REX4189	—
3/4	.7500	1	3	.060	3/4	REX4190	—
3/4	.7500	1-5/8	4	—	3/4	REX4191	REX4192
3/4	.7500	1-5/8	4	.030	3/4	REX4193	REX4194
3/4	.7500	1-5/8	4	.060	3/4	REX4195	—
3/4	.7500	1-5/8	4	.090	3/4	REX4197	—
3/4	.7500	1-5/8	4	.120	3/4	REX4198	—
3/4	.7500	2-3/8	5	—	3/4	REX4200	REX4201
3/4	.7500	2-3/8	5	.030	3/4	REX4202	REX4203
3/4	.7500	2-3/8	5	.060	3/4	REX4204	—
3/4	.7500	2-3/8	5	.090	3/4	REX4206	—
3/4	.7500	2-3/8	5	.120	3/4	REX4207	—
3/4	.7500	3-1/4	6	—	3/4	REX4209	—
3/4	.7500	3-1/4	6	.030	3/4	REX4211	—
3/4	.7500	3-1/4	6	.060	3/4	REX4213	—
3/4	.7500	4-1/8	7	—	3/4	REX4215	—
3/4	.7500	4-1/8	7	.030	3/4	REX4217	—
3/4	.7500	4-1/8	7	.060	3/4	REX4219	—
1	1.0000	1-3/4	4	—	1	REX4221	REX4222
1	1.0000	1-3/4	4	.030	1	REX4223	REX4224

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Speeds & Feeds pages 194 & 195.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For detailed tolerance information, see page 200.



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 4-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
1	1.0000	1-3/4	4	.060	1	REX4225	—
1	1.0000	2-1/4	5	—	1	REX4230	REX4231
1	1.0000	2-1/4	5	.030	1	REX4232	REX4233
1	1.0000	3-1/4	6	—	1	REX4238	—
1	1.0000	3-1/4	6	.030	1	REX4240	—
1	1.0000	4-1/4	7	—	1	REX4244	—
1	1.0000	4-1/4	7	.030	1	REX4246	—

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For detailed tolerance information, see page 200.

Speeds & Feeds pages 194 & 195.

4 Flute - Variable Index



AlCrNX Coated-Plain Shank

Variable Index, 4-Flute, Square & Corner Radius, Metric, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
3MM	.1181	9	38	—	3	REX4500
3MM	.1181	12	38	—	3	REX4505
3MM	.1181	12	38	.3	3	REX4506
3MM	.1181	12	57	—	6	REX4507
3MM	.1181	12	57	.3	6	REX4508
6MM	.2362	13	57	—	6	REX4525
6MM	.2362	13	57	.3	6	REX4527
6MM	.2362	13	57	.5	6	REX4528
6MM	.2362	25	75	—	6	REX4535
6MM	.2362	25	75	.3	6	REX4537
8MM	.3150	19	63	—	8	REX4543
8MM	.3150	19	63	.5	8	REX4545
8MM	.3150	32	75	—	8	REX4547
8MM	.3150	32	75	.5	8	REX4549
10MM	.3937	22	72	—	10	REX4554
10MM	.3937	22	72	.5	10	REX4556
10MM	.3937	22	72	1	10	REX4558
10MM	.3937	40	88	—	10	REX4560
10MM	.3937	40	88	.5	10	REX4562
12MM	.4724	26	83	—	12	REX4567
12MM	.4724	26	83	.5	12	REX4569
12MM	.4724	26	83	1	12	REX4571
12MM	.4724	50	100	—	12	REX4573
12MM	.4724	50	100	.5	12	REX4575
12MM	.4724	75	150	—	12	REX4577
12MM	.4724	75	150	.5	12	REX4579
14MM	.5512	32	83	—	14	REX4581
14MM	.5512	32	83	1	14	REX4584
16MM	.6299	34	92	—	16	REX4586
16MM	.6299	34	92	.5	16	REX4588
16MM	.6299	34	92	1	16	REX4590
16MM	.6299	55	110	—	16	REX4592
16MM	.6299	55	110	.5	16	REX4594
16MM	.6299	75	150	—	16	REX4596
16MM	.6299	75	150	.5	16	REX4598

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Speeds & Feeds pages 194 & 195.

Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.050	h6	+0.038, -0.038

For detailed tolerance information, see page 200.



AlCrNX Coated-Plain Shank

Variable Index, 4-Flute, Square & Corner Radius, Metric, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
20MM	.7874	38	104	—	20	REX4600
20MM	.7874	38	104	1	20	REX4604
20MM	.7874	65	125	—	20	REX4612
20MM	.7874	85	150	—	20	REX4616
25MM	.9842	52	120	—	25	REX4620
25MM	.9842	85	150	—	25	REX4626

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.050	h6	+0.038, -0.038

For detailed tolerance information, see page 200.

Speeds & Feeds pages 194 & 195.

Fine Pitch Roughers



Uncoated



AlTiN Coated

Fine Pitch Roughers, 4-Flute, Stub, Regular & Long Length, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/4	.2500	3/8	2	1/4	RE18216	RE18316
1/4	.2500	3/4	2-1/2	1/4	RE18016	RE18116
1/4	.2500	1-1/2	4	1/4	RE21516	RE21616
5/16	.3125	1/2	2	5/16	RE18220	RE18320
5/16	.3125	13/16	2-1/2	5/16	RE18020	RE18120
5/16	.3125	1-1/2	4	5/16	RE21520	RE21620
3/8	.3750	9/16	2	3/8	RE18224	RE18324
3/8	.3750	7/8	2-1/2	3/8	RE18024	RE18124
3/8	.3750	1-3/4	4	3/8	RE21524	RE21624
1/2	.5000	5/8	2-1/2	1/2	RE18232	RE18332
1/2	.5000	1-1/4	3	1/2	RE18032	RE18132
1/2	.5000	2	4	1/2	RE21532	RE21632
5/8	.6250	3/4	3	5/8	RE18240	RE18340
5/8	.6250	1-5/8	3-1/2	5/8	RE18040	RE18140
5/8	.6250	2-1/2	5	5/8	RE21540	RE21640
3/4	.7500	1	3	3/4	RE18248	RE18348
3/4	.7500	1-5/8	4	3/4	RE18048	RE18148
3/4	.7500	2-1/2	5	3/4	RE21548	RE21648
1	1.0000	2	4	1	RE18064	RE18164
1	1.0000	2-1/2	5	1	RE21564	RE21664

Speeds & Feeds page 196.

Tolerances	Diameter	Shank
1/4"-1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8"-1"	+0.000, -0.003	-0.0001, -0.0004



Uncoated | AlTiN Coated

Roughers/Finishers, 4-Flute, Regular Length, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/4	.2500	3/4	2-1/2	.020	1/4	RE21716	RE21816
5/16	.3125	13/16	2-1/2	.020	5/16	RE21720	RE21820
3/8	.3750	7/8	2-1/2	.020	3/8	RE21724	RE21824
1/2	.5000	1-1/4	3	.040	1/2	RE21732	RE21832
5/8*	.6250	1-5/8	3-1/2	.040	5/8	RE21740	RE21840
3/4*	.7500	1-5/8	4	.040	3/4	RE21748	RE21848
1*	1.0000	1-5/8	4	.040	1	RE21764	RE21864

* With Weldon Flats

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	-0.0001, -0.0004	+0.002, -0.002

Speeds & Feeds page 196.

4-Flute Ball - Variable Index



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 4-Flute, Ball End, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	AlCrNX Coated	
					Plain Shank Part #	Weldon Shank Part #
1/8	.1250	1/4	1-1/2	1/8	REV4616	—
1/8	.1250	1/2	2	1/8	REV4618	—
3/16	.1875	3/8	2	3/16	REV4620	—
3/16	.1875	9/16	2	3/16	REV4622	—
1/4	.2500	3/8	2	1/4	REV4624	—
1/4	.2500	3/4	2-1/2	1/4	REV4626	—
1/4	.2500	1-1/8	3	1/4	REV4628	—
1/4	.2500	1-1/2	4	1/4	REV4630	—
5/16	.3125	7/16	2	5/16	REV4632	—
5/16	.3125	13/16	2-1/2	5/16	REV4634	—
5/16	.3125	1-1/8	3	5/16	REV4636	—
3/8	.3750	1/2	2	3/8	REV4638	—
3/8	.3750	1	2-1/2	3/8	REV4640	—
3/8	.3750	1-1/4	3	3/8	REV4642	—
3/8	.3750	2	4	3/8	REV4644	—
7/16	.4375	5/8	2-1/2	7/16	REV4646	—
7/16	.4375	1	2-3/4	7/16	REV4648	—
7/16	.4375	2	4	7/16	REV4650	—
7/16	.4375	3	6	7/16	REV4652	—
1/2	.5000	5/8	2-1/2	1/2	REV4655	REV4656
1/2	.5000	1	3	1/2	REV4659	REV4660
1/2	.5000	1-1/4	3	1/2	REV4663	REV4664
1/2	.5000	1-1/2	4	1/2	REV4667	REV4668
1/2	.5000	2	4	1/2	REV4671	REV4672
1/2	.5000	3	6	1/2	REV4675	REV4676
5/8	.6250	3/4	3	5/8	REV4679	REV4680
5/8	.6250	1-5/8	3-1/2	5/8	REV4683	REV4684
5/8	.6250	2-1/4	5	5/8	REV4687	REV4688
5/8	.6250	3	6	5/8	REV4691	REV4692
3/4	.7500	1	3	3/4	REV4695	REV4696
3/4	.7500	1-5/8	4	3/4	REV4699	REV4700
3/4	.7500	2-1/4	5	3/4	REV4703	REV4704
3/4	.7500	3	6	3/4	REV4707	REV4708
3/4	.7500	4	7	3/4	REV4711	REV4712
1	1.0000	2	4	1	REV4715	REV4716
1	1.0000	2-1/4	5	1	REV4719	REV4720
1	1.0000	3	6	1	REV4723	REV4724
1	1.0000	4-1/4	7	1	REV4727	REV4728

Speeds & Feeds page 192-193.
Tool application data pages 213-214.

Tolerances	Diameter	Shank	Radius
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.000, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.000, -0.001



AlCrNX Coated

Variable Index, 4-Flute, Ball End, Fractional, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	AlCrNX Coated Part #
1/8	.1250	1/2	1-1/2	1/8	REX4300
5/32	.1563	9/16	2	3/16	REX4301
3/16	.1875	9/16	2	3/16	REX4302
1/4	.2500	3/4	2-1/2	1/4	REX4304
5/16	.3125	13/16	2-1/2	5/16	REX4305
3/8	.3750	7/8	2-1/2	3/8	REX4306
7/16	.4375	1	2-3/4	7/16	REX4307
1/2	.5000	1-1/4	3	1/2	REX4308
5/8	.6250	1-3/8	3-1/2	5/8	REX4310
3/4	.7500	1-5/8	4	3/4	REX4311



AlCrNX Coated

Variable Index, 4-Flute, Ball End, Metric, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	AlCrNX Coated Part #
6MM	.2362	13	57	6	REX4653
8MM	.3150	19	63	8	REX4654
10MM	.3937	22	72	10	REX4655
12MM	.4724	26	83	12	REX4656
16MM	.6299	34	92	16	REX4657
20MM	.7874	38	104	20	REX4658

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	-0.0001, -0.0004	+0.000, -0.001

Tolerances	Diameter	Shank	
Metric	+0.000, -0.050	-0.0025, -0.0100	+0.000, -0.025

Speeds & Feeds page 194-195.
Tool application data pages 213-214.

4-Flute Ball - Fine Pitch Roughers

NEW Product

RedLine FINISH LINE HP



Uncoated



AlTiN Coated

Fine Pitch Roughers, Ball End, 4-Flute, Regular Length, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/4	.2500	3/4	2-1/2	1/4	RE22716	RE22816
5/16	.3125	7/8	2-1/2	5/16	RE22720	RE22820
3/8	.3750	1	2-1/2	3/8	RE22724	RE22824
1/2	.5000	1-1/4	3	1/2	RE22732	RE22832
5/8	.6250	1-5/8	3-1/2	5/8	RE22740	RE22840
3/4	.7500	1-5/8	4	3/4	RE22748	RE22848
1	1.0000	2	4	1	RE22764	RE22864

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Tolerances	Diameter	Shank	Radius
1/4" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

RedLine Finish Line HP



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 5-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Plain Shank Part #	AlCrNX Coated Weldon Shank Part #
1/8	.1250	1/4	1-1/2	—	1/8	REV5401	—
1/8	.1250	1/4	1-1/2	.008	1/8	REV5403	—
1/8	.1250	1/2	2	—	1/8	REV5405	—
3/16	.1875	3/8	2	—	3/16	REV5407	—
3/16	.1875	3/8	2	.008	3/16	REV5409	—
3/16	.1875	9/16	2	—	3/16	REV5411	—
1/4	.2500	3/8	2	—	1/4	REV5413	—
1/4	.2500	3/8	2	.015	1/4	REV5415	—
1/4	.2500	3/4	2-1/2	—	1/4	REV5417	—
1/4	.2500	3/4	2-1/2	.015	1/4	REV5200	—
1/4	.2500	3/4	2-1/2	.030	1/4	REV5201	—
1/4	.2500	3/4	2-1/2	.060	1/4	REV5202	—
1/4	.2500	1-1/8	3	—	1/4	REV5419	—
1/4	.2500	1-1/8	3	.015	1/4	REV5203	—
1/4	.2500	1-1/8	3	.030	1/4	REV5204	—
1/4	.2500	1-1/2	4	—	1/4	REV5421	—
1/4	.2500	1-1/2	4	.015	1/4	REV5205	—
1/4	.2500	1-1/2	4	.030	1/4	REV5206	—
5/16	.3125	7/16	2	—	5/16	REV5423	—
5/16	.3125	7/16	2	.015	5/16	REV5425	—
5/16	.3125	13/16	2-1/2	—	5/16	REV5427	—
5/16	.3125	13/16	2-1/2	.015	5/16	REV5207	—
5/16	.3125	13/16	2-1/2	.030	5/16	REV5208	—
5/16	.3125	13/16	2-1/2	.060	5/16	REV5209	—
5/16	.3125	1-1/8	3	—	5/16	REV5429	—
5/16	.3125	1-1/8	3	.015	5/16	REV5210	—
5/16	.3125	1-1/8	3	.030	5/16	REV5211	—
3/8	.3750	1/2	2	—	3/8	REV5431	—
3/8	.3750	1/2	2	.015	3/8	REV5433	—
3/8	.3750	1	2-1/2	—	3/8	REV5435	—
3/8	.3750	1	2-1/2	.015	3/8	REV5212	—
3/8	.3750	1	2-1/2	.030	3/8	REV5213	—
3/8	.3750	1	2-1/2	.060	3/8	REV5214	—
3/8	.3750	1-1/4	3	—	3/8	REV5437	—
3/8	.3750	1-1/4	3	.030	3/8	REV5215	—
3/8	.3750	1-1/4	3	.060	3/8	REV5216	—
3/8	.3750	2	4	—	3/8	REV5439	—
3/8	.3750	2	4	.030	3/8	REV5217	—

Continued

Tolerances	Diameter	Shank	Radius
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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5-Flute - Variable Index



AlCrNX Coated-Plain Shank



AlCrNX Coated-Weldon Shank

Variable Index, 5-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
3/8	.3750	2	4	.060	3/8	REV5218	—
1/2	.5000	5/8	2-1/2	—	1/2	REV5441	REV5443
1/2	.5000	5/8	2-1/2	.030	1/2	REV5445	REV5447
1/2	.5000	1	3	—	1/2	REV5449	REV5451
1/2	.5000	1	3	.015	1/2	REV5219	REV5220
1/2	.5000	1	3	.030	1/2	REV5221	REV5222
1/2	.5000	1	3	.060	1/2	REV5223	REV5224
1/2	.5000	1	3	.090	1/2	REV5225	REV5226
1/2	.5000	1	3	.120	1/2	REV5227	REV5228
1/2	.5000	1-1/4	3	—	1/2	REV5453	REV5455
1/2	.5000	1-1/4	3	.015	1/2	REV5229	REV5230
1/2	.5000	1-1/4	3	.030	1/2	REV5231	REV5232
1/2	.5000	1-1/4	3	.060	1/2	REV5233	REV5234
1/2	.5000	1-1/4	3	.090	1/2	REV5235	REV5236
1/2	.5000	1-1/4	3	.120	1/2	REV5237	REV5238
1/2	.5000	1-1/2	4	—	1/2	REV5457	REV5459
1/2	.5000	2	4	—	1/2	REV5461	REV5463
1/2	.5000	2	4	.030	1/2	REV5239	REV5240
1/2	.5000	2	4	.060	1/2	REV5241	REV5242
1/2	.5000	3	6	—	1/2	REV5465	REV5467
1/2	.5000	3	6	.030	1/2	REV5243	REV5244
1/2	.5000	3	6	.060	1/2	REV5245	REV5246
5/8	.6250	3/4	3	—	5/8	REV5470	REV5471
5/8	.6250	3/4	3	.030	5/8	REV5487	REV5488
5/8	.6250	1-5/8	3-1/2	—	5/8	REV5474	REV5475
5/8	.6250	1-5/8	3-1/2	.030	5/8	REV5247	REV5248
5/8	.6250	1-5/8	3-1/2	.060	5/8	REV5249	REV5250
5/8	.6250	1-5/8	3-1/2	.090	5/8	REV5251	REV5252
5/8	.6250	1-5/8	3-1/2	.120	5/8	REV5253	REV5254
5/8	.6250	2-1/4	5	—	5/8	REV5479	REV5480
5/8	.6250	2-1/4	5	.030	5/8	REV5255	REV5256
5/8	.6250	2-1/4	5	.060	5/8	REV5257	REV5258
5/8	.6250	3	6	—	5/8	REV5483	REV5484
5/8	.6250	3	6	.030	5/8	REV5259	REV5260
5/8	.6250	3	6	.060	5/8	REV5261	REV5262
3/4	.7500	1	3	—	3/4	REV5491	REV5492
3/4	.7500	1	3	.030	3/4	REV5511	REV5512
3/4	.7500	1-5/8	4	—	3/4	REV5495	REV5496

Continued

Tolerances	Diameter	Shank	Radius
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

Speeds & Feeds page 197.



AlCrNX Coated-Plain Shank

AlCrNX Coated-Weldon Shank

Variable Index, 5-Flute, Square & Corner Radius, 38° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
3/4	.7500	1-5/8	4	.030	3/4	REV5263	REV5264
3/4	.7500	1-5/8	4	.060	3/4	REV5265	REV5266
3/4	.7500	1-5/8	4	.090	3/4	REV5267	REV5268
3/4	.7500	1-5/8	4	.120	3/4	REV5269	REV5270
3/4	.7500	2-1/4	5	—	3/4	REV5499	REV5500
3/4	.7500	2-1/4	5	.030	3/4	REV5271	REV5272
3/4	.7500	2-1/4	5	.060	3/4	REV5273	REV5274
3/4	.7500	3	6	—	3/4	REV5505	REV5507
3/4	.7500	3	6	.030	3/4	REV5275	REV5276
3/4	.7500	3	6	.060	3/4	REV5277	REV5278
3/4	.7500	4	7	—	3/4	REV5506	REV5508
3/4	.7500	4	7	.030	3/4	REV5279	REV5280
3/4	.7500	4	7	.060	3/4	REV5281	REV5282
1	1.0000	2	4	—	1	REV5515	REV5516
1	1.0000	2	4	.030	1	REV5283	REV5284
1	1.0000	2	4	.060	1	REV5285	REV5286
1	1.0000	2	4	.090	1	REV5287	REV5288
1	1.0000	2	4	.120	1	REV5289	REV5290
1	1.0000	2-1/4	5	—	1	REV5519	REV5520
1	1.0000	2-1/4	5	.030	1	REV5291	REV5292
1	1.0000	2-1/4	5	.060	1	REV5293	REV5294
1	1.0000	3	6	—	1	REV5525	REV5527
1	1.0000	3	6	.030	1	REV5295	REV5296
1	1.0000	3	6	.060	1	REV5297	REV5298
1	1.0000	4-1/4	7	—	1	REV5526	REV5528
1	1.0000	4-1/4	7	.030	1	REV5299	REV5300
1	1.0000	4-1/4	7	.060	1	REV5301	REV5302

Tolerances	Diameter	Shank	Radius
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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5-Flute - Variable Index



AlCrNX Coated

Variable Index, 5-Flute, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1/8	.1250	1/4	1-1/2	–	1/8	REX5000
1/8	.1250	1/4	1-1/2	.015	1/8	REX5001
1/8	.1250	1/4	1-1/2	.030	1/8	REX5002
1/8	.1250	1/2	1-1/2	–	1/8	REX5003
1/8	.1250	1/2	1-1/2	.015	1/8	REX5004
1/8	.1250	1/2	1-1/2	.030	1/8	REX5005
1/8	.1250	3/4	2-1/2	–	1/8	REX5006
1/8	.1250	3/4	2-1/2	.015	1/8	REX5007
1/8	.1250	3/4	2-1/2	.030	1/8	REX5008
3/16	.1875	5/16	2	–	3/16	REX5009
3/16	.1875	5/16	2	.015	3/16	REX5010
3/16	.1875	5/16	2	.030	3/16	REX5011
3/16	.1875	9/16	2	–	3/16	REX5012
3/16	.1875	9/16	2	.015	3/16	REX5013
3/16	.1875	9/16	2	.030	3/16	REX5014
3/16	.1875	3/4	2-1/2	–	3/16	REX5015
3/16	.1875	3/4	2-1/2	.015	3/16	REX5016
3/16	.1875	3/4	2-1/2	.030	3/16	REX5017
1/4	.2500	3/8	2	–	1/4	REX5018
1/4	.2500	3/8	2	.015	1/4	REX5019
1/4	.2500	3/8	2	.030	1/4	REX5020
1/4	.2500	3/8	2	.060	1/4	REX5021
1/4	.2500	3/8	2	.090	1/4	REX5022
1/4	.2500	3/4	2-1/2	–	1/4	REX5023
1/4	.2500	3/4	2-1/2	.015	1/4	REX5024
1/4	.2500	3/4	2-1/2	.030	1/4	REX5025
1/4	.2500	3/4	2-1/2	.060	1/4	REX5026
1/4	.2500	3/4	2-1/2	.090	1/4	REX5027
1/4	.2500	1-1/8	3	–	1/4	REX5028
1/4	.2500	1-1/8	3	.015	1/4	REX5029
1/4	.2500	1-1/8	3	.030	1/4	REX5030
1/4	.2500	1-1/8	3	.060	1/4	REX5031
1/4	.2500	1-1/8	3	.090	1/4	REX5032
5/16	.3125	7/16	2	–	5/16	REX5033
5/16	.3125	7/16	2	.015	5/16	REX5034
5/16	.3125	7/16	2	.030	5/16	REX5035
5/16	.3125	7/16	2	.060	5/16	REX5036
5/16	.3125	7/16	2	.090	5/16	REX5037
5/16	.3125	13/16	2-1/2	–	5/16	REX5038

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

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Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.



AlCrNX Coated

Variable Index, 5-Flute, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
5/16	.3125	13/16	2-1/2	.015	5/16	REX5039
5/16	.3125	13/16	2-1/2	.030	5/16	REX5040
5/16	.3125	13/16	2-1/2	.060	5/16	REX5041
5/16	.3125	13/16	2-1/2	.090	5/16	REX5042
5/16	.3125	1-1/4	3	—	5/16	REX5043
5/16	.3125	1-1/4	3	.015	5/16	REX5044
5/16	.3125	1-1/4	3	.030	5/16	REX5045
5/16	.3125	1-1/4	3	.060	5/16	REX5046
5/16	.3125	1-1/4	3	.090	5/16	REX5047
5/16	.3125	2-1/8	4	—	5/16	REX5048
5/16	.3125	2-1/8	4	.015	5/16	REX5049
5/16	.3125	2-1/8	4	.030	5/16	REX5050
5/16	.3125	2-1/8	4	.060	5/16	REX5051
5/16	.3125	2-1/8	4	.090	5/16	REX5052
3/8	.3750	1/2	2	—	3/8	REX5053
3/8	.3750	1/2	2	.015	3/8	REX5054
3/8	.3750	1/2	2	.030	3/8	REX5055
3/8	.3750	1/2	2	.060	3/8	REX5056
3/8	.3750	1/2	2	.090	3/8	REX5057
3/8	.3750	1/2	2	.120	3/8	REX5058
3/8	.3750	1	2-1/2	—	3/8	REX5060
3/8	.3750	1	2-1/2	.015	3/8	REX5061
3/8	.3750	1	2-1/2	.030	3/8	REX5062
3/8	.3750	1	2-1/2	.060	3/8	REX5063
3/8	.3750	1	2-1/2	.090	3/8	REX5064
3/8	.3750	1	2-1/2	.120	3/8	REX5065
3/8	.3750	1-1/4	3	—	3/8	REX5067
3/8	.3750	1-1/4	3	.015	3/8	REX5068
3/8	.3750	1-1/4	3	.030	3/8	REX5069
3/8	.3750	1-1/4	3	.060	3/8	REX5070
3/8	.3750	1-1/4	3	.090	3/8	REX5071
3/8	.3750	1-1/4	3	.120	3/8	REX5072
3/8	.3750	1-5/8	3-1/2	—	3/8	REX5088
3/8	.3750	1-5/8	3-1/2	.015	3/8	REX5089
3/8	.3750	1-5/8	3-1/2	.030	3/8	REX5090
3/8	.3750	1-5/8	3-1/2	.060	3/8	REX5091
3/8	.3750	1-5/8	3-1/2	.090	3/8	REX5092
3/8	.3750	1-5/8	3-1/2	.120	3/8	REX5093
3/8	.3750	1-5/8	4	—	3/8	REX5074

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

5-Flute - Variable Index



AlCrNX Coated

Variable Index, 5-Flute, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
3/8	.3750	1-5/8	4	.015	3/8	REX5075
3/8	.3750	1-5/8	4	.030	3/8	REX5076
3/8	.3750	1-5/8	4	.060	3/8	REX5077
3/8	.3750	1-5/8	4	.090	3/8	REX5078
3/8	.3750	1-5/8	4	.120	3/8	REX5079
3/8	.3750	2	4	—	3/8	REX5095
3/8	.3750	2	4	.015	3/8	REX5096
3/8	.3750	2	4	.030	3/8	REX5097
3/8	.3750	2	4	.060	3/8	REX5098
3/8	.3750	2	4	.090	3/8	REX5099
7/16	.4375	5/8	2-1/2	—	7/16	REX5109
7/16	.4375	5/8	2-1/2	.015	7/16	REX5110
7/16	.4375	5/8	2-1/2	.030	7/16	REX5111
7/16	.4375	1	2-3/4	—	7/16	REX5116
7/16	.4375	1	2-3/4	.015	7/16	REX5117
7/16	.4375	1	2-3/4	.030	7/16	REX5118
7/16	.4375	2	4	—	7/16	REX5123
7/16	.4375	2	4	.015	7/16	REX5124
7/16	.4375	2	4	.030	7/16	REX5125
1/2	.5000	5/8	2-1/2	—	1/2	REX5130
1/2	.5000	5/8	2-1/2	.015	1/2	REX5131
1/2	.5000	5/8	2-1/2	.030	1/2	REX5132
1/2	.5000	5/8	2-1/2	.060	1/2	REX5133
1/2	.5000	5/8	2-1/2	.090	1/2	REX5134
1/2	.5000	5/8	2-1/2	.120	1/2	REX5135
1/2	.5000	1	3	—	1/2	REX5138
1/2	.5000	1	3	.015	1/2	REX5139
1/2	.5000	1	3	.030	1/2	REX5140
1/2	.5000	1	3	.060	1/2	REX5141
1/2	.5000	1	3	.090	1/2	REX5142
1/2	.5000	1	3	.120	1/2	REX5143
1/2	.5000	1-1/4	3	—	1/2	REX5146
1/2	.5000	1-1/4	3	.015	1/2	REX5147
1/2	.5000	1-1/4	3	.030	1/2	REX5148
1/2	.5000	1-1/4	3	.060	1/2	REX5149
1/2	.5000	1-1/4	3	.090	1/2	REX5150
1/2	.5000	1-1/4	3	.120	1/2	REX5151
1/2	.5000	1-5/8	4	—	1/2	REX5154
1/2	.5000	1-5/8	4	.015	1/2	REX5155

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.



AlCrNX Coated

Variable Index, 5-Flute, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1/2	.5000	1-5/8	4	.030	1/2	REX5156
1/2	.5000	1-5/8	4	.060	1/2	REX5157
1/2	.5000	1-5/8	4	.090	1/2	REX5158
1/2	.5000	1-5/8	4	.120	1/2	REX5159
1/2	.5000	1-5/8	6	—	1/2	REX5162
1/2	.5000	1-5/8	6	.015	1/2	REX5163
1/2	.5000	1-5/8	6	.030	1/2	REX5164
1/2	.5000	1-5/8	6	.060	1/2	REX5165
1/2	.5000	1-5/8	6	.090	1/2	REX5166
1/2	.5000	1-5/8	6	.120	1/2	REX5167
1/2	.5000	2-1/8	4	—	1/2	REX5170
1/2	.5000	2-1/8	4	.015	1/2	REX5171
1/2	.5000	2-1/8	4	.030	1/2	REX5172
1/2	.5000	2-1/8	4	.060	1/2	REX5173
1/2	.5000	2-1/8	4	.090	1/2	REX5174
1/2	.5000	2-1/8	4	.120	1/2	REX5175
1/2	.5000	2-5/8	5	—	1/2	REX5178
1/2	.5000	2-5/8	5	.015	1/2	REX5179
1/2	.5000	2-5/8	5	.030	1/2	REX5180
1/2	.5000	2-5/8	5	.060	1/2	REX5181
1/2	.5000	2-5/8	5	.090	1/2	REX5182
1/2	.5000	2-5/8	5	.120	1/2	REX5183
1/2	.5000	3-1/4	6	—	1/2	REX5186
1/2	.5000	3-1/4	6	.015	1/2	REX5187
1/2	.5000	3-1/4	6	.030	1/2	REX5188
1/2	.5000	3-1/4	6	.060	1/2	REX5189
1/2	.5000	3-1/4	6	.090	1/2	REX5190
1/2	.5000	3-1/4	6	.120	1/2	REX5191
5/8	.6250	3/4	3	—	5/8	REX5194
5/8	.6250	3/4	3	.015	5/8	REX5195
5/8	.6250	3/4	3	.030	5/8	REX5196
5/8	.6250	3/4	3	.060	5/8	REX5197
5/8	.6250	3/4	3	.120	5/8	REX5199
5/8	.6250	1-5/8	3-1/2	—	5/8	REX5203
5/8	.6250	1-5/8	3-1/2	.015	5/8	REX5204
5/8	.6250	1-5/8	3-1/2	.030	5/8	REX5205
5/8	.6250	1-5/8	3-1/2	.060	5/8	REX5206
5/8	.6250	1-5/8	3-1/2	.090	5/8	REX5207
5/8	.6250	1-5/8	3-1/2	.120	5/8	REX5208

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

5-Flute - Variable Index



AlCrNX Coated

Variable Index, 5-Flute, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
5/8	.6250	2-1/8	4	—	5/8	REX5212
5/8	.6250	2-1/8	4	.015	5/8	REX5213
5/8	.6250	2-1/8	4	.030	5/8	REX5214
5/8	.6250	2-1/8	4	.060	5/8	REX5215
5/8	.6250	2-1/8	4	.120	5/8	REX5217
5/8	.6250	2-1/8	6	—	5/8	REX5221
5/8	.6250	2-1/8	6	.015	5/8	REX5222
5/8	.6250	2-1/8	6	.030	5/8	REX5223
5/8	.6250	2-1/8	6	.060	5/8	REX5224
5/8	.6250	2-1/8	6	.120	5/8	REX5226
5/8	.6250	2-5/8	5	—	5/8	REX5230
5/8	.6250	2-5/8	5	.015	5/8	REX5231
5/8	.6250	2-5/8	5	.030	5/8	REX5232
5/8	.6250	2-5/8	5	.060	5/8	REX5233
5/8	.6250	2-5/8	5	.090	5/8	REX5234
5/8	.6250	2-5/8	5	.120	5/8	REX5235
5/8	.6250	3-1/4	6	—	5/8	REX5239
5/8	.6250	3-1/4	6	.015	5/8	REX5240
5/8	.6250	3-1/4	6	.030	5/8	REX5241
5/8	.6250	3-1/4	6	.060	5/8	REX5242
5/8	.6250	3-1/4	6	.120	5/8	REX5244
5/8	.6250	4	6	—	5/8	REX5248
5/8	.6250	4	6	.015	5/8	REX5249
5/8	.6250	4	6	.030	5/8	REX5250
5/8	.6250	4	6	.060	5/8	REX5251
5/8	.6250	4	6	.120	5/8	REX5253
3/4	.7500	1	3	—	3/4	REX5257
3/4	.7500	1	3	.015	3/4	REX5258
3/4	.7500	1	3	.030	3/4	REX5259
3/4	.7500	1	3	.060	3/4	REX5260
3/4	.7500	1	3	.120	3/4	REX5262
3/4	.7500	1-5/8	4	—	3/4	REX5266
3/4	.7500	1-5/8	4	.015	3/4	REX5267
3/4	.7500	1-5/8	4	.030	3/4	REX5268
3/4	.7500	1-5/8	4	.060	3/4	REX5269
3/4	.7500	1-5/8	4	.090	3/4	REX5270
3/4	.7500	1-5/8	4	.120	3/4	REX5271
3/4	.7500	1-5/8	4	.190	3/4	REX5273
3/4	.7500	1-5/8	4	.250	3/4	REX5274

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

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Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.



AlCrNX Coated

Variable Index, 5-Flute, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
3/4	.7500	2-3/8	5	—	3/4	REX5275
3/4	.7500	2-3/8	5	.015	3/4	REX5276
3/4	.7500	2-3/8	5	.030	3/4	REX5277
3/4	.7500	2-3/8	5	.060	3/4	REX5278
3/4	.7500	2-3/8	5	.090	3/4	REX5279
3/4	.7500	2-3/8	5	.120	3/4	REX5280
3/4	.7500	2-3/8	6	—	3/4	REX5284
3/4	.7500	2-3/8	6	.015	3/4	REX5285
3/4	.7500	2-3/8	6	.030	3/4	REX5286
3/4	.7500	2-3/8	6	.060	3/4	REX5287
3/4	.7500	2-3/8	6	.120	3/4	REX5289
3/4	.7500	3-1/4	6	—	3/4	REX5293
3/4	.7500	3-1/4	6	.015	3/4	REX5294
3/4	.7500	3-1/4	6	.030	3/4	REX5295
3/4	.7500	3-1/4	6	.060	3/4	REX5296
3/4	.7500	3-1/4	6	.120	3/4	REX5298
3/4	.7500	4-1/8	7	—	3/4	REX5302
3/4	.7500	4-1/8	7	.015	3/4	REX5303
3/4	.7500	4-1/8	7	.030	3/4	REX5304
3/4	.7500	4-1/8	7	.060	3/4	REX5305
3/4	.7500	4-1/8	7	.120	3/4	REX5307
1	1.0000	1-3/4	4	—	1	REX5311
1	1.0000	1-3/4	4	.015	1	REX5312
1	1.0000	1-3/4	4	.030	1	REX5313
1	1.0000	1-3/4	4	.060	1	REX5314
1	1.0000	1-3/4	4	.090	1	REX5315
1	1.0000	1-3/4	4	.120	1	REX5316
1	1.0000	2-5/8	5	—	1	REX5321
1	1.0000	2-5/8	5	.015	1	REX5322
1	1.0000	2-5/8	5	.030	1	REX5323
1	1.0000	2-5/8	5	.060	1	REX5324
1	1.0000	2-5/8	5	.090	1	REX5325
1	1.0000	2-5/8	5	.120	1	REX5326
1	1.0000	3-1/4	6	—	1	REX5331
1	1.0000	3-1/4	6	.015	1	REX5332
1	1.0000	3-1/4	6	.030	1	REX5333
1	1.0000	3-1/4	6	.060	1	REX5334
1	1.0000	3-1/4	6	.120	1	REX5336
1	1.0000	3-1/4	6	.250	1	REX5339

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

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Tool application data pages 208-212.

5-Flute - Variable Index



AlCrNX Coated

Variable Index, 5-Flute, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1	1.0000	4-1/4	7	—	1	REX5341
1	1.0000	4-1/4	7	.015	1	REX5342
1	1.0000	4-1/4	7	.030	1	REX5343
1	1.0000	4-1/4	7	.060	1	REX5344
1	1.0000	4-1/4	7	.120	1	REX5346

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.



AlCrNX Coated

Variable Index, 5-Flute, Square & Corner Radius, Metric, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
6MM	.2362	13	57	—	6	REX5450
6MM	.2362	13	57	.5	6	REX5451
6MM	.2362	13	57	1	6	REX5453
6MM	.2362	13	57	1.5	6	REX5454
8MM	.3150	19	63	—	8	REX5455
8MM	.3150	19	63	.5	8	REX5456
8MM	.3150	19	63	1	8	REX5458
8MM	.3150	19	63	1.5	8	REX5459
10MM	.3937	22	72	—	10	REX5460
10MM	.3937	22	72	.5	10	REX5461
10MM	.3937	22	72	1	10	REX5463
10MM	.3937	22	72	1.5	10	REX5464
10MM	.3937	22	72	2	10	REX5465
12MM	.4724	26	83	—	12	REX5466
12MM	.4724	26	83	.5	12	REX5467
12MM	.4724	26	83	.75	12	REX5468
12MM	.4724	26	83	1	12	REX5469
12MM	.4724	26	83	1.5	12	REX5470
12MM	.4724	26	83	2	12	REX5471
12MM	.4724	26	83	3	12	REX5472
12MM	.4724	50	100	—	12	REX5880
12MM	.4724	50	100	.75	12	REX5881
12MM	.4724	50	100	1	12	REX5882
12MM	.4724	50	100	1.5	12	REX5883
12MM	.4724	75	150	—	12	REX5884
12MM	.4724	75	150	.75	12	REX5885
12MM	.4724	75	150	1	12	REX5886
12MM	.4724	75	150	1.5	12	REX5887
16MM	.6299	32	92	—	16	REX5473
16MM	.6299	32	92	.75	16	REX5474
16MM	.6299	32	92	1	16	REX5475
16MM	.6299	32	92	1.5	16	REX5476
16MM	.6299	32	92	2	16	REX5477
16MM	.6299	32	92	3	16	REX5478
16MM	.6299	55	110	—	16	REX5888
16MM	.6299	55	110	.75	16	REX5889
16MM	.6299	55	110	1	16	REX5890
16MM	.6299	55	110	1.5	16	REX5891
16MM	.6299	75	150	—	16	REX5892

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.050	h6	+0.038, -0.038

For specific shank tolerance information please see page 200.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

5-Flute - Variable Index



AlCrNX Coated

Variable Index, 5-Flute, Square & Corner Radius, Metric, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
16MM	.6299	75	150	.75	16	REX5893
16MM	.6299	75	150	1	16	REX5894
16MM	.6299	75	150	1.5	16	REX5895
20MM	.7874	38	104	—	20	REX5480
20MM	.7874	38	104	1	20	REX5482
20MM	.7874	38	104	1.5	20	REX5483
20MM	.7874	38	104	2	20	REX5484
20MM	.7874	38	104	3	20	REX5485
20MM	.7874	38	104	4	20	REX5486
20MM	.7874	38	104	5	20	REX5487
20MM	.7874	65	125	—	20	REX5896
20MM	.7874	65	125	1	20	REX5898
20MM	.7874	65	125	1.5	20	REX5899
20MM	.7874	85	150	—	20	REX5900
20MM	.7874	85	150	1	20	REX5902
20MM	.7874	85	150	1.5	20	REX5903
25MM	.9843	45	120	—	25	REX5488
25MM	.9843	45	120	1	25	REX5490
25MM	.9843	45	120	1.5	25	REX5491
25MM	.9843	45	120	2	25	REX5492
25MM	.9843	45	120	3	25	REX5493
25MM	.9843	85	150	—	25	REX5904
25MM	.9843	85	150	1	25	REX5906
25MM	.9843	85	150	1.5	25	REX5907

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.050	h6	+0.038, -0.038

For specific shank tolerance information please see page 200.



AlCrNX Coated

Variable Index, 5-Flute, Chip Control, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1/2	.5000	2-1/8	4	—	1/2	REX5910
1/2	.5000	2-1/8	4	.015	1/2	REX5911
1/2	.5000	2-1/8	4	.030	1/2	REX5912
1/2	.5000	2-1/8	4	.060	1/2	REX5913
1/2	.5000	2-5/8	5	—	1/2	REX5915
1/2	.5000	2-5/8	5	.015	1/2	REX5916
1/2	.5000	2-5/8	5	.030	1/2	REX5917
1/2	.5000	2-5/8	5	.060	1/2	REX5918
1/2	.5000	3-1/4	6	—	1/2	REX5920
1/2	.5000	3-1/4	6	.015	1/2	REX5921
1/2	.5000	3-1/4	6	.030	1/2	REX5922
1/2	.5000	3-1/4	6	.060	1/2	REX5923
5/8	.6250	2-1/8	4	—	5/8	REX5925
5/8	.6250	2-1/8	4	.030	5/8	REX5927
5/8	.6250	2-1/8	4	.060	5/8	REX5928
5/8	.6250	2-5/8	5	—	5/8	REX5930
5/8	.6250	2-5/8	5	.030	5/8	REX5932
5/8	.6250	2-5/8	5	.060	5/8	REX5933
5/8	.6250	3-1/4	6	—	5/8	REX5935
5/8	.6250	3-1/4	6	.030	5/8	REX5937
5/8	.6250	3-1/4	6	.060	5/8	REX5938
3/4	.7500	2-3/8	5	—	3/4	REX5940
3/4	.7500	2-3/8	5	.030	3/4	REX5942
3/4	.7500	2-3/8	5	.120	3/4	REX5944
3/4	.7500	3-1/4	6	—	3/4	REX5945
3/4	.7500	3-1/4	6	.030	3/4	REX5947
3/4	.7500	3-1/4	6	.120	3/4	REX5949
3/4	.7500	4-1/8	7	—	3/4	REX5950
3/4	.7500	4-1/8	7	.030	3/4	REX5952
1	1.0000	2-5/8	5	—	1	REX5955
1	1.0000	2-5/8	5	.030	1	REX5957
1	1.0000	3-1/4	6	—	1	REX5960
1	1.0000	3-1/4	6	.030	1	REX5962
1	1.0000	4-1/4	7	—	1	REX5965
1	1.0000	4-1/4	7	.030	1	REX5967

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

5-Flute - Variable Index



AlCrNX Coated

Variable Index, 5-Flute, Chip Control, Square & Corner Radius, Metric, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
12	.4724	50	100	—	12	REX5970
12	.4724	50	100	.75	12	REX5971
12	.4724	50	100	1	12	REX5972
12	.4724	50	100	1.5	12	REX5973
12	.4724	75	150	—	12	REX5974
12	.4724	75	150	.75	12	REX5975
12	.4724	75	150	1	12	REX5976
12	.4724	75	150	1.5	12	REX5977
16	.6299	55	110	—	16	REX5978
16	.6299	55	110	.75	16	REX5979
16	.6299	55	110	1	16	REX5980
16	.6299	55	110	1.5	16	REX5981
16	.6299	75	150	—	16	REX5982
16	.6299	75	150	.75	16	REX5983
16	.6299	75	150	1	16	REX5984
16	.6299	75	150	1.5	16	REX5985
20	.7874	65	125	—	20	REX5986
20	.7874	65	125	1	20	REX5988
20	.7874	65	125	1.5	20	REX5989
20	.7874	85	150	—	20	REX5990
20	.7874	85	150	1	20	REX5992
20	.7874	85	150	1.5	20	REX5993
25	.9843	55	120	—	25	REX5994
25	.9843	55	120	1	25	REX5996
25	.9843	55	120	1.5	25	REX5997
25	.9843	85	150	—	25	REX5998
25	.9843	85	150	1	25	REX6000
25	.9843	85	150	1.5	25	REX6001

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.050	h6	+0.038, -0.038

For specific shank tolerance information please see page 200.



AlCrNX Coated

Variable Index, 5-Flute, Neck Relief, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	AlCrNX Coated Part #
1/4	.2500	3/8	2-1/2	1-1/8	.235	–	1/4	REX5500
1/4	.2500	3/8	2-1/2	1-1/8	.235	.015	1/4	REX5501
1/4	.2500	3/8	2-1/2	1-1/8	.235	.030	1/4	REX5502
1/4	.2500	3/8	2-1/2	1-1/8	.235	.060	1/4	REX5503
1/4	.2500	3/8	3	1-3/8	.235	–	1/4	REX5505
1/4	.2500	3/8	3	1-3/8	.235	.015	1/4	REX5506
1/4	.2500	3/8	3	1-3/8	.235	.030	1/4	REX5507
1/4	.2500	3/8	3	1-3/8	.235	.060	1/4	REX5508
1/4	.2500	3/8	4	2-3/8	.235	–	1/4	REX5510
1/4	.2500	3/8	4	2-3/8	.235	.015	1/4	REX5511
1/4	.2500	3/8	4	2-3/8	.235	.030	1/4	REX5512
1/4	.2500	3/8	4	2-3/8	.235	.060	1/4	REX5513
3/8	.3750	1/2	3	1-3/8	.355	–	3/8	REX5515
3/8	.3750	1/2	3	1-3/8	.355	.015	3/8	REX5516
3/8	.3750	1/2	3	1-3/8	.355	.030	3/8	REX5517
3/8	.3750	1/2	3	1-3/8	.355	.060	3/8	REX5518
3/8	.3750	1/2	4	2-3/8	.355	–	3/8	REX5522
3/8	.3750	1/2	4	2-3/8	.355	.015	3/8	REX5523
3/8	.3750	1/2	4	2-3/8	.355	.030	3/8	REX5524
3/8	.3750	1/2	4	2-3/8	.355	.060	3/8	REX5525
3/8	.3750	1/2	5	3-3/8	.355	–	3/8	REX5529
3/8	.3750	1/2	5	3-3/8	.355	.015	3/8	REX5530
3/8	.3750	1/2	5	3-3/8	.355	.030	3/8	REX5531
3/8	.3750	1/2	5	3-3/8	.355	.060	3/8	REX5532
1/2	.5000	5/8	3	1-3/8	.475	–	1/2	REX5543
1/2	.5000	5/8	3	1-3/8	.475	.015	1/2	REX5544
1/2	.5000	5/8	3	1-3/8	.475	.030	1/2	REX5545
1/2	.5000	5/8	3	1-3/8	.475	.060	1/2	REX5546
1/2	.5000	5/8	3	1-3/8	.475	.120	1/2	REX5548
1/2	.5000	5/8	4	2-1/4	.475	–	1/2	REX5551
1/2	.5000	5/8	4	2-1/4	.475	.015	1/2	REX5552
1/2	.5000	5/8	4	2-1/4	.475	.030	1/2	REX5553
1/2	.5000	5/8	4	2-1/4	.475	.060	1/2	REX5554
1/2	.5000	5/8	4	2-1/4	.475	.120	1/2	REX5556
1/2	.5000	5/8	5	3-1/4	.475	–	1/2	REX5559
1/2	.5000	5/8	5	3-1/4	.475	.015	1/2	REX5560
1/2	.5000	5/8	5	3-1/4	.475	.030	1/2	REX5561
1/2	.5000	5/8	5	3-1/4	.475	.060	1/2	REX5562
1/2	.5000	5/8	5	3-1/4	.475	.120	1/2	REX5564

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

5-Flute - Variable Index



AlCrNX Coated

Variable Index, 5-Flute, Neck Relief, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	AlCrNX Coated Part #
1/2	.5000	5/8	6	4-1/4	.475	—	1/2	REX5567
1/2	.5000	5/8	6	4-1/4	.475	.015	1/2	REX5568
1/2	.5000	5/8	6	4-1/4	.475	.030	1/2	REX5569
1/2	.5000	5/8	6	4-1/4	.475	.060	1/2	REX5570
1/2	.5000	5/8	6	4-1/4	.475	.120	1/2	REX5572
5/8	.6250	3/4	4	2-1/8	.590	—	5/8	REX5575
5/8	.6250	3/4	4	2-1/8	.590	.030	5/8	REX5577
5/8	.6250	3/4	4	2-1/8	.590	.060	5/8	REX5578
5/8	.6250	3/4	4	2-1/8	.590	.120	5/8	REX5580
5/8	.6250	3/4	5	3-1/8	.590	—	5/8	REX5584
5/8	.6250	3/4	5	3-1/8	.590	.030	5/8	REX5586
5/8	.6250	3/4	5	3-1/8	.590	.060	5/8	REX5587
5/8	.6250	3/4	5	3-1/8	.590	.120	5/8	REX5589
5/8	.6250	3/4	6	4-1/8	.590	—	5/8	REX5593
5/8	.6250	3/4	6	4-1/8	.590	.030	5/8	REX5595
5/8	.6250	3/4	6	4-1/8	.590	.060	5/8	REX5596
5/8	.6250	3/4	6	4-1/8	.590	.120	5/8	REX5598
3/4	.7500	1	4	2	.715	—	3/4	REX5602
3/4	.7500	1	4	2	.715	.030	3/4	REX5604
3/4	.7500	1	4	2	.715	.060	3/4	REX5605
3/4	.7500	1	4	2	.715	.120	3/4	REX5607
3/4	.7500	1	5	2-7/8	.715	—	3/4	REX5611
3/4	.7500	1	5	2-7/8	.715	.030	3/4	REX5613
3/4	.7500	1	5	2-7/8	.715	.060	3/4	REX5614
3/4	.7500	1	5	2-7/8	.715	.120	3/4	REX5616
3/4	.7500	1	6	3-7/8	.715	—	3/4	REX5620
3/4	.7500	1	6	3-7/8	.715	.030	3/4	REX5622
3/4	.7500	1	6	3-7/8	.715	.060	3/4	REX5623
3/4	.7500	1	6	3-7/8	.715	.120	3/4	REX5625
3/4	.7500	1	6	3-7/8	.715	.250	3/4	REX5628
3/4	.7500	1	7	4-7/8	.715	—	3/4	REX5629
3/4	.7500	1	7	4-7/8	.715	.030	3/4	REX5631
3/4	.7500	1	7	4-7/8	.715	.060	3/4	REX5632
3/4	.7500	1	7	4-7/8	.715	.120	3/4	REX5634
1	1.0000	1-1/4	5	2-5/8	.960	—	1	REX5648
1	1.0000	1-1/4	5	2-5/8	.960	.030	1	REX5650
1	1.0000	1-1/4	5	2-5/8	.960	.060	1	REX5651
1	1.0000	1-1/4	5	2-5/8	.960	.120	1	REX5653
1	1.0000	1-1/4	6	3-5/8	.960	—	1	REX5658

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.



AlCrNX Coated

Variable Index, 5-Flute, Neck Relief, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	AlCrNX Coated Part #
1	1.0000	1-1/4	6	3-5/8	.960	.030	1	REX5660
1	1.0000	1-1/4	6	3-5/8	.960	.060	1	REX5661
1	1.0000	1-1/4	6	3-5/8	.960	.120	1	REX5663
1	1.0000	1-1/4	7	4-5/8	.960	—	1	REX5668
1	1.0000	1-1/4	7	4-5/8	.960	.030	1	REX5670
1	1.0000	1-1/4	7	4-5/8	.960	.060	1	REX5671
1	1.0000	1-1/4	7	4-5/8	.960	.120	1	REX5673

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 198-199.
Tool application data pages 208-212.

5-Flute Ball - Variable Index



AlCrNX Coated

Variable Index, 5-Flute, Ball End, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	AlCrNX Coated Part #
1/8	.1250	1/4	1-1/2	1/8	REX5390
1/8	.1250	1/2	1-1/2	1/8	REX5391
1/8	.1250	3/4	2-1/2	1/8	REX5392
3/16	.1875	5/16	2	3/16	REX5393
3/16	.1875	9/16	2	3/16	REX5394
3/16	.1875	3/4	2-1/2	3/16	REX5395
1/4	.2500	3/8	2	1/4	REX5396
1/4	.2500	3/4	2-1/2	1/4	REX5397
1/4	.2500	1-1/8	3	1/4	REX5398
5/16	.3125	7/16	2	5/16	REX5399
5/16	.3125	13/16	2-1/2	5/16	REX5400
5/16	.3125	1-1/4	3	5/16	REX5401
5/16	.3125	2-1/8	4	5/16	REX5402
3/8	.3750	1/2	2	3/8	REX5403
3/8	.3750	1	2-1/2	3/8	REX5404
3/8	.3750	1-1/4	3	3/8	REX5405
3/8	.3750	1-5/8	3-1/2	3/8	REX5406
3/8	.3750	1-5/8	4	3/8	REX5407
3/8	.3750	2	4	3/8	REX5409
7/16	.4375	5/8	2-1/2	7/16	REX5411
7/16	.4375	1	2-3/4	7/16	REX5412
7/16	.4375	2	4	7/16	REX5413
1/2	.5000	5/8	2-1/2	1/2	REX5414
1/2	.5000	1	3	1/2	REX5415
1/2	.5000	1-1/4	3	1/2	REX5416
1/2	.5000	1-5/8	4	1/2	REX5417
1/2	.5000	1-5/8	6	1/2	REX5418
1/2	.5000	2-1/8	4	1/2	REX5419
1/2	.5000	2-5/8	5	1/2	REX5420
1/2	.5000	3-1/4	6	1/2	REX5421
5/8	.6250	3/4	3	5/8	REX5422
5/8	.6250	1-5/8	3-1/2	5/8	REX5423
5/8	.6250	2-1/8	4	5/8	REX5424
5/8	.6250	2-1/8	6	5/8	REX5425
5/8	.6250	2-5/8	5	5/8	REX5426
5/8	.6250	3-1/4	6	5/8	REX5427
5/8	.6250	4	6	5/8	REX5428
3/4	.7500	1	3	3/4	REX5429
3/4	.7500	1-5/8	4	3/4	REX5430

Continued

Speeds & Feeds page 198-199.
Tool application data pages 208-214.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.000, -0.001

For specific shank tolerance information please see page 200.

5-Flute Ball - Variable Index



AlCrNX Coated

Variable Index, 5-Flute, Ball End, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	AlCrNX Coated Part #
3/4	.7500	2-3/8	5	3/4	REX5431
3/4	.7500	2-3/8	6	3/4	REX5432
3/4	.7500	3-1/4	6	3/4	REX5433
3/4	.7500	4-1/8	7	3/4	REX5434
1	1.0000	1-3/4	4	1	REX5435
1	1.0000	2-5/8	5	1	REX5436
1	1.0000	3-1/4	6	1	REX5437
1	1.0000	4-1/4	7	1	REX5438

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.000, -0.001

For specific shank tolerance information please see page 200.

Speeds & Feeds page 198-199.
Tool application data pages 208-214.

5-Flute Ball - Variable Index



AlCrNX Coated

Variable Index, 5-Flute, Neck Relief, Ball End, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Shank ø	AlCrNX Coated Part #
1/4	.2500	3/8	2-1/2	1-1/8	.235	1/4	REX5830
1/4	.2500	3/8	3	1-3/8	.235	1/4	REX5831
1/4	.2500	3/8	4	2-3/8	.235	1/4	REX5832
3/8	.3750	1/2	3	1-3/8	.355	3/8	REX5833
3/8	.3750	1/2	4	2-3/8	.355	3/8	REX5834
3/8	.3750	1/2	5	3-3/8	.355	3/8	REX5835
1/2	.5000	5/8	3	1-3/8	.475	1/2	REX5837
1/2	.5000	5/8	4	2-1/4	.475	1/2	REX5838
1/2	.5000	5/8	5	3-1/4	.475	1/2	REX5839
1/2	.5000	5/8	6	4-1/4	.475	1/2	REX5840
5/8	.6250	3/4	4	2-1/8	.590	5/8	REX5841
5/8	.6250	3/4	5	3-1/8	.590	5/8	REX5842
5/8	.6250	3/4	6	4-1/8	.590	5/8	REX5843
3/4	.7500	1	4	2	.590	3/4	REX5844
3/4	.7500	1	5	2-7/8	.715	3/4	REX5845
3/4	.7500	1	6	3-7/8	.715	3/4	REX5846
3/4	.7500	1	7	4-7/8	.715	3/4	REX5847

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Tool application data pages 208-214.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.000, -0.001

For specific shank tolerance information please see page 200.



AlCrNX Coated-Plain Shank

AlCrNX Coated-Weldon Shank

6-Flute Finishers for Inconel, Corner Radius, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
1/4	.2500	3/8	2	.015	1/4	RFX1300	—
1/4	.2500	3/4	2-1/2	.015	1/4	RFX1301	—
5/16	.3125	7/16	2	.015	5/16	RFX1302	—
5/16	.3125	13/16	2-1/2	.015	5/16	RFX1303	—
3/8	.3750	1/2	2	.030	3/8	RFX1304	—
3/8	.3750	7/8	2-1/2	.030	3/8	RFX1305	RFX1306
3/8	.3750	1-1/4	3	.030	3/8	RFX1307	RFX1308
1/2	.5000	5/8	2-1/2	.030	1/2	RFX1309	—
1/2	.5000	1	3	.030	1/2	RFX1310	—
1/2	.5000	1-1/4	3	.030	1/2	RFX1311	RFX1312
1/2	.5000	1-5/8	3-1/2	.030	1/2	RFX1313	RFX1314
5/8	.6250	1-3/8	3-1/2	.030	5/8	RFX1316	RFX1317
5/8	.6250	2	4	.030	5/8	RFX1318	RFX1319
3/4	.7500	1-5/8	4	.030	3/4	RFX1321	RFX1322
3/4	.7500	2-3/8	5	.030	3/4	RFX1323	RFX1324
1	1.000	1-1/2	4	.030	1	RFX1325	RFX1326
1	1.000	2-1/2	5	.030	1	RFX1327	RFX1328

6-Flute Finishers for Inconel, Corner Radius, Metric, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated	
						Plain Shank Part #	Weldon Shank Part #
6MM	.2362	13	57	.5	6	RFX2300	RFX2301
6MM	.2362	19	63	.5	6	RFX2302	RFX2303
8MM	.3150	19	63	.5	8	RFX2304	RFX2305
8MM	.3150	25	75	.5	8	RFX2306	RFX2307
10MM	.3937	22	72	1	10	RFX2308	RFX2309
10MM	.3937	32	80	1	10	RFX2310	RFX2311
12MM	.4724	26	83	1	12	RFX2312	RFX2313
12MM	.4724	38	93	1	12	RFX2314	RFX2315
16MM	.6299	34	92	1	16	RFX2316	RFX2317
16MM	.6299	50	108	1	16	RFX2318	RFX2319
20MM	.7874	42	104	1	20	RFX2320	RFX2321
20MM	.7874	62	125	1	20	RFX2322	RFX2323
25MM	.9843	52	120	1	25	RFX2324	RFX2325

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015
Metric	+0.000, -0.050	h6	+0.038, -0.038

For specific shank tolerance information please see page 200.

Speeds & Feeds page 202.

Finishers for Inconel



AlCrNX Coated

6-Flute Finishers for Inconel, Neck Relief, Corner Radius, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	AlCrNX Coated Part #
1/4	.2500	1/2	3	1-3/8	.235	.015	1/4	RFX1351
1/4	.2500	1/2	4	2-3/8	.235	.015	1/4	RFX1353
3/8	.3750	3/4	3	1-3/8	.355	.030	3/8	RFX1356
3/8	.3750	3/4	4	2-3/8	.355	.030	3/8	RFX1360
1/2	.5000	1	4	2-1/4	.475	.030	1/2	RFX1364
1/2	.5000	1	5	3-1/4	.475	.030	1/2	RFX1368
5/8	.6250	1-1/4	4	2-1/8	.590	.030	5/8	RFX1376
5/8	.6250	1-1/4	5	3-1/8	.590	.030	5/8	RFX1380
3/4	.7500	1-1/2	5	2-7/8	.715	.030	3/4	RFX1384
3/4	.7500	1-1/2	6	3-7/8	.715	.030	3/4	RFX1388

6-Flute Finishers for Inconel, Neck Relief, Corner Radius, Metric, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	AlCrNX Coated Part #
6MM	.2362	12	75	39	5.4	.5	6	RFX2352
6MM	.2362	12	100	64	5.4	.5	6	RFX2356
8MM	.3150	16	75	39	7.4	.5	8	RFX2360
10MM	.3937	20	88	48	9.3	1	10	RFX2368
10MM	.3937	20	100	60	9.3	1	10	RFX2372
12MM	.4724	24	100	55	11.2	1	12	RFX2376
12MM	.4724	24	125	80	11.2	1	12	RFX2380
16MM	.6299	32	110	62	15	1	16	RFX2388
16MM	.6299	32	150	102	15	1	16	RFX2392
20MM	.7874	40	125	75	19	1	20	RFX2396
20MM	.7874	40	150	100	19	1	20	RFX2400

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Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015
Metric	+0.000, -0.050	h6	+0.038, -0.038

For specific shank tolerance information please see page 200.



AlTiNX Coated-Plain Shank

AlTiNX Coated-Weldon Shank

5 & 6-Flute Finishers, Square & Corner Radius, 45° Helix

	Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlTiNX Coated Plain Shank Part #	AlTiNX Coated Weldon Shank Part #
*	1/8	.1250	1/4	1-1/2	—	1/8	RFX1000	—
*	1/8	.1250	1/4	1-1/2	.015	1/8	RFX1001	—
*	1/8	.1250	1/2	1-1/2	—	1/8	RFX1002	—
*	1/8	.1250	1/2	1-1/2	.015	1/8	RFX1003	—
*	3/16	.1875	5/16	2	—	3/16	RFX1004	—
*	3/16	.1875	5/16	2	.015	3/16	RFX1005	—
*	3/16	.1875	9/16	2	—	3/16	RFX1006	—
*	3/16	.1875	9/16	2	.015	3/16	RFX1007	—
	1/4	.2500	3/4	2-1/2	—	1/4	RFX1008	—
	1/4	.2500	3/4	2-1/2	.015	1/4	RFX1009	—
	1/4	.2500	3/4	2-1/2	.030	1/4	RFX1010	—
	1/4	.2500	1-1/4	3	—	1/4	RFX1011	—
	1/4	.2500	1-1/4	3	.015	1/4	RFX1012	—
	1/4	.2500	1-1/4	3	.030	1/4	RFX1013	—
	3/8	.3750	7/8	2-1/2	—	3/8	RFX1014	RFX1015
	3/8	.3750	7/8	2-1/2	.015	3/8	RFX1016	RFX1017
	3/8	.3750	7/8	2-1/2	.030	3/8	RFX1018	RFX1019
	3/8	.3750	1-1/4	3	—	3/8	RFX1020	RFX1021
	3/8	.3750	1-1/4	3	.015	3/8	RFX1022	RFX1023
	3/8	.3750	1-1/4	3	.030	3/8	RFX1024	RFX1025
	3/8	.3750	2	4	—	3/8	RFX1026	RFX1027
	3/8	.3750	2	4	.015	3/8	RFX1028	RFX1029
	3/8	.3750	2	4	.030	3/8	RFX1030	RFX1031
	1/2	.5000	1	3	—	1/2	RFX1032	RFX1033
	1/2	.5000	1	3	.015	1/2	RFX1034	RFX1035
	1/2	.5000	1	3	.030	1/2	RFX1036	RFX1037
	1/2	.5000	1	3	.060	1/2	RFX1038	RFX1039
	1/2	.5000	1-1/4	3	—	1/2	RFX1040	RFX1041
	1/2	.5000	1-1/4	3	.015	1/2	RFX1042	RFX1043
	1/2	.5000	1-1/4	3	.030	1/2	RFX1044	RFX1045
	1/2	.5000	1-1/4	3	.060	1/2	RFX1046	RFX1047
	1/2	.5000	1-5/8	3-1/2	—	1/2	RFX1048	RFX1049
	1/2	.5000	1-5/8	3-1/2	.015	1/2	RFX1050	RFX1051
	1/2	.5000	1-5/8	3-1/2	.030	1/2	RFX1052	RFX1053

Continued

* 5-Flute

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Technical data found on page 201.

6-Flute Finishers



AlTiNX Coated-Plain Shank



AlTiNX Coated-Weldon Shank

5 & 6-Flute Finishers, Square & Corner Radius, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlTiNX Coated	
						Plain Shank Part #	Weldon Shank Part #
1/2	.5000	1-5/8	3-1/2	.060	1/2	RFX1054	RFX1055
1/2	.5000	2-1/8	4	—	1/2	RFX1056	RFX1057
1/2	.5000	2-1/8	4	.015	1/2	RFX1058	RFX1059
1/2	.5000	2-1/8	4	.030	1/2	RFX1060	RFX1061
1/2	.5000	2-1/8	4	.060	1/2	RFX1062	RFX1063
1/2	.5000	2-5/8	5	—	1/2	RFX1064	RFX1065
1/2	.5000	2-5/8	5	.015	1/2	RFX1066	RFX1067
1/2	.5000	2-5/8	5	.030	1/2	RFX1068	RFX1069
1/2	.5000	2-5/8	5	.060	1/2	RFX1070	RFX1071
5/8	.6250	1-3/8	3-1/2	—	5/8	RFX1072	RFX1073
5/8	.6250	1-3/8	3-1/2	.030	5/8	RFX1074	RFX1075
5/8	.6250	1-3/8	3-1/2	.060	5/8	RFX1076	RFX1077
5/8	.6250	1-7/8	4	—	5/8	RFX1078	RFX1079
5/8	.6250	1-7/8	4	.030	5/8	RFX1080	RFX1081
5/8	.6250	1-7/8	4	.060	5/8	RFX1082	RFX1083
5/8	.6250	2-5/8	5	—	5/8	RFX1084	RFX1085
5/8	.6250	2-5/8	5	.030	5/8	RFX1086	RFX1087
5/8	.6250	2-5/8	5	.060	5/8	RFX1088	RFX1089
3/4	.7500	1-5/8	4	—	3/4	RFX1090	RFX1091
3/4	.7500	1-5/8	4	.030	3/4	RFX1092	RFX1093
3/4	.7500	1-5/8	4	.060	3/4	RFX1094	RFX1095
3/4	.7500	2-5/8	5	—	3/4	RFX1096	RFX1097
3/4	.7500	2-5/8	5	.030	3/4	RFX1098	RFX1099
3/4	.7500	2-5/8	5	.060	3/4	RFX1100	RFX1101
3/4	.7500	3-3/8	6	—	3/4	RFX1102	RFX1103
3/4	.7500	3-3/8	6	.030	3/4	RFX1104	RFX1105
3/4	.7500	3-3/8	6	.060	3/4	RFX1106	RFX1107

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Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.



AlTiNX Coated

5 & 6-Flute Finishers, Neck Relief, Square & Corner Radius, 45° Helix

	Cutter ø	Decimal Equiv	Flute Length	OAL	Length Below Shank	Neck ø	Corner Radius	Shank ø	AlTiNX Coated Part #
*	1/8	.1250	1/4	1-1/2	1/2	.118	.015	1/8	RFX1111
*	1/8	.1250	1/4	2-1/2	1-1/8	.118	.015	1/8	RFX1115
*	3/16	.1875	5/16	2	9/16	.176	.015	3/16	RFX1117
*	3/16	.1875	3/8	3	1-3/8	.176	.015	3/16	RFX1121
	1/4	.2500	3/8	2-1/2	5/8	.235	.015	1/4	RFX1123
	1/4	.2500	5/8	3	1-3/8	.235	.015	1/4	RFX1129
	1/4	.2500	5/8	4	2-3/8	.235	.015	1/4	RFX1135
	3/8	.3750	1/2	2-1/2	3/4	.355	.030	3/8	RFX1139
	3/8	.3750	7/8	3	1-3/8	.355	.030	3/8	RFX1145
	3/8	.3750	7/8	4	2-3/8	.355	.030	3/8	RFX1151
	1/2	.5000	5/8	3	1-3/8	.475	.030	1/2	RFX1158
	1/2	.5000	1-1/8	3-1/2	1-3/4	.475	.030	1/2	RFX1166
	1/2	.5000	1-1/8	4	2-1/4	.475	.030	1/2	RFX1174
	1/2	.5000	1-1/8	5	3-1/4	.475	.030	1/2	RFX1182
	5/8	.6250	1-1/8	4	2-1/8	.590	.030	5/8	RFX1194
	5/8	.6250	1-3/8	5	3-1/8	.590	.030	5/8	RFX1200
	3/4	.7500	1-1/8	4	2	.715	.030	3/4	RFX1206
	3/4	.7500	1-5/8	5	2-7/8	.715	.030	3/4	RFX1212
	3/4	.7500	1-5/8	6	3-7/8	.715	.030	3/4	RFX1218

* 5-Flute

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 201.

7-Flute Finishers



AlCrNX Coated

7-Flute Finishers, Square & Corner Radius, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
3/8	.375	1/2	2	—	3/8	RFX7000
3/8	.375	1/2	2	.015	3/8	RFX7001
3/8	.375	1/2	2	.030	3/8	RFX7002
3/8	.375	1/2	2	.060	3/8	RFX7003
3/8	.375	7/8	2-1/2	—	3/8	RFX7006
3/8	.375	7/8	2-1/2	.015	3/8	RFX7007
3/8	.375	7/8	2-1/2	.030	3/8	RFX7008
3/8	.375	7/8	2-1/2	.060	3/8	RFX7009
3/8	.375	1-1/4	3	—	3/8	RFX7012
3/8	.375	1-1/4	3	.015	3/8	RFX7013
3/8	.375	1-1/4	3	.030	3/8	RFX7014
3/8	.375	1-1/4	3	.060	3/8	RFX7015
1/2	.500	5/8	2-1/2	—	1/2	RFX7018
1/2	.500	5/8	2-1/2	.015	1/2	RFX7019
1/2	.500	5/8	2-1/2	.030	1/2	RFX7020
1/2	.500	5/8	2-1/2	.060	1/2	RFX7021
1/2	.500	1-1/4	3	—	1/2	RFX7024
1/2	.500	1-1/4	3	.015	1/2	RFX7025
1/2	.500	1-1/4	3	.030	1/2	RFX7026
1/2	.500	1-1/4	3	.060	1/2	RFX7027
1/2	.500	1-5/8	3-1/2	—	1/2	RFX7030
1/2	.500	1-5/8	3-1/2	.015	1/2	RFX7031
1/2	.500	1-5/8	3-1/2	.030	1/2	RFX7032
1/2	.500	1-5/8	3-1/2	.060	1/2	RFX7033
1/2	.500	2-1/8	4	—	1/2	RFX7036
1/2	.500	2-1/8	4	.015	1/2	RFX7037
1/2	.500	2-1/8	4	.030	1/2	RFX7038
1/2	.500	2-1/8	4	.060	1/2	RFX7039
1/2	.500	2-5/8	5	.015	1/2	RFX7043
1/2	.500	2-5/8	5	.030	1/2	RFX7044
1/2	.500	2-5/8	5	.060	1/2	RFX7045
1/2	.500	2-5/8	5	.125	1/2	RFX7047
5/8	.625	3/4	3	—	5/8	RFX7048
5/8	.625	3/4	3	.030	5/8	RFX7050
5/8	.625	3/4	3	.060	5/8	RFX7051
5/8	.625	1-3/8	3-1/2	—	5/8	RFX7054
5/8	.625	1-3/8	3-1/2	.030	5/8	RFX7056
5/8	.625	1-3/8	3-1/2	.060	5/8	RFX7057
5/8	.625	2-1/8	4	—	5/8	RFX7060

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

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Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.



AlCrNX Coated

7-Flute Finishers, Square & Corner Radius, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
5/8	.625	2-1/8	4	.030	5/8	RFX7062
5/8	.625	2-1/8	4	.060	5/8	RFX7063
5/8	.625	2-5/8	5	—	5/8	RFX7066
5/8	.625	2-5/8	5	.030	5/8	RFX7068
5/8	.625	2-5/8	5	.060	5/8	RFX7069
5/8	.625	3-1/4	6	—	5/8	RFX7072
5/8	.625	3-1/4	6	.030	5/8	RFX7074
5/8	.625	3-1/4	6	.060	5/8	RFX7075
3/4	.750	1	3	—	3/4	RFX7078
3/4	.750	1	3	.030	3/4	RFX7080
3/4	.750	1	3	.060	3/4	RFX7081
3/4	.750	1-5/8	4	—	3/4	RFX7084
3/4	.750	1-5/8	4	.030	3/4	RFX7086
3/4	.750	1-5/8	4	.060	3/4	RFX7087
3/4	.750	2-3/8	5	—	3/4	RFX7090
3/4	.750	2-3/8	5	.030	3/4	RFX7092
3/4	.750	2-3/8	5	.060	3/4	RFX7093
3/4	.750	3-1/4	6	—	3/4	RFX7096
3/4	.750	3-1/4	6	.030	3/4	RFX7098
3/4	.750	3-1/4	6	.060	3/4	RFX7099
3/4	.750	4-1/8	7	—	3/4	RFX7102
3/4	.750	4-1/8	7	.030	3/4	RFX7104
3/4	.750	4-1/8	7	.060	3/4	RFX7105
1	1.000	1-3/4	4	—	1	RFX7108
1	1.000	1-3/4	4	.030	1	RFX7110
1	1.000	1-3/4	4	.060	1	RFX7111
1	1.000	2-1/4	5	—	1	RFX7114
1	1.000	2-1/4	5	.030	1	RFX7116
1	1.000	2-1/4	5	.060	1	RFX7117
1	1.000	3-1/4	6	—	1	RFX7120
1	1.000	3-1/4	6	.030	1	RFX7122
1	1.000	3-1/4	6	.060	1	RFX7123
1	1.000	4-1/8	7	—	1	RFX7126
1	1.000	4-1/8	7	.030	1	RFX7128
1	1.000	4-1/8	7	.060	1	RFX7129

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 203.
Tool application data pages 208-212.

7-Flute Finishers

NEW Product

RedLine ProLine XHP



AlCrNX Coated

7-Flute Finishers, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
3/16	.187	3/8	2	—	3/16	RFZ07000
3/16	.187	3/8	2	.015	3/16	RFZ07001
3/16	.187	3/8	2	.030	3/16	RFZ07002
3/16	.187	9/16	2	—	3/16	RFZ07003
3/16	.187	9/16	2	.015	3/16	RFZ07004
3/16	.187	9/16	2	.030	3/16	RFZ07005
3/16	.187	3/4	2-1/2	—	3/16	RFZ07006
3/16	.187	3/4	2-1/2	.015	3/16	RFZ07007
3/16	.187	3/4	2-1/2	.030	3/16	RFZ07008
1/4	.250	1/2	2	—	1/4	RFZ07009
1/4	.250	1/2	2	.015	1/4	RFZ07010
1/4	.250	1/2	2	.030	1/4	RFZ07011
1/4	.250	1/2	2	.060	1/4	RFZ07012
1/4	.250	3/4	2-1/2	—	1/4	RFZ07013
1/4	.250	3/4	2-1/2	.015	1/4	RFZ07014
1/4	.250	3/4	2-1/2	.030	1/4	RFZ07015
1/4	.250	3/4	2-1/2	.060	1/4	RFZ07016
1/4	.250	1	3	—	1/4	RFZ07017
1/4	.250	1	3	.015	1/4	RFZ07018
1/4	.250	1	3	.030	1/4	RFZ07019
1/4	.250	1	3	.060	1/4	RFZ07020
3/8	.375	3/4	2-1/2	—	3/8	RFZ07021
3/8	.375	3/4	2-1/2	.015	3/8	RFZ07022
3/8	.375	3/4	2-1/2	.030	3/8	RFZ07023
3/8	.375	3/4	2-1/2	.060	3/8	RFZ07024
3/8	.375	3/4	2-1/2	.090	3/8	RFZ07025
3/8	.375	15/16	2-1/2	—	3/8	RFZ07026
3/8	.375	15/16	2-1/2	.015	3/8	RFZ07027
3/8	.375	15/16	2-1/2	.030	3/8	RFZ07028
3/8	.375	15/16	2-1/2	.060	3/8	RFZ07029
3/8	.375	15/16	2-1/2	.090	3/8	RFZ07030
3/8	.375	1-1/8	3	—	3/8	RFZ07031
3/8	.375	1-1/8	3	.015	3/8	RFZ07032
3/8	.375	1-1/8	3	.030	3/8	RFZ07033
3/8	.375	1-1/8	3	.060	3/8	RFZ07034
3/8	.375	1-1/8	3	.090	3/8	RFZ07035
3/8	.375	1-1/2	3-1/2	—	3/8	RFZ07036
3/8	.375	1-1/2	3-1/2	.015	3/8	RFZ07037
3/8	.375	1-1/2	3-1/2	.030	3/8	RFZ07038

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Speeds & Feeds page 204.
Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product



AlCrNX Coated

7-Flute Finishers, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
3/8	.375	1-1/2	3-1/2	.060	3/8	RFZ07039
1/2	.500	1	3	—	1/2	RFZ07040
1/2	.500	1	3	.030	1/2	RFZ07041
1/2	.500	1	3	.060	1/2	RFZ07042
1/2	.500	1	3	.090	1/2	RFZ07043
1/2	.500	1	3	.125	1/2	RFZ07044
1/2	.500	1-1/4	3-1/4	—	1/2	RFZ07045
1/2	.500	1-1/4	3-1/4	.030	1/2	RFZ07046
1/2	.500	1-1/4	3-1/4	.060	1/2	RFZ07047
1/2	.500	1-1/4	3-1/4	.090	1/2	RFZ07048
1/2	.500	1-1/4	3-1/4	.125	1/2	RFZ07049
1/2	.500	1-1/2	3-1/2	—	1/2	RFZ07050
1/2	.500	1-1/2	3-1/2	.030	1/2	RFZ07051
1/2	.500	1-1/2	3-1/2	.060	1/2	RFZ07052
1/2	.500	1-1/2	3-1/2	.090	1/2	RFZ07053
1/2	.500	1-1/2	3-1/2	.125	1/2	RFZ07054
1/2	.500	1-3/4	4	—	1/2	RFZ07055
1/2	.500	1-3/4	4	.030	1/2	RFZ07056
1/2	.500	1-3/4	4	.060	1/2	RFZ07057
1/2	.500	1-3/4	4	.090	1/2	RFZ07058
1/2	.500	1-3/4	4	.125	1/2	RFZ07059
1/2	.500	2	4	—	1/2	RFZ07060
1/2	.500	2	4	.030	1/2	RFZ07061
1/2	.500	2	4	.060	1/2	RFZ07062
1/2	.500	2	4	.090	1/2	RFZ07063
1/2	.500	2	4	.125	1/2	RFZ07064
1/2	.500	2-1/4	4	—	1/2	RFZ07065
1/2	.500	2-1/4	4	.030	1/2	RFZ07066
1/2	.500	2-1/4	4	.060	1/2	RFZ07067
1/2	.500	2-1/4	4	.090	1/2	RFZ07068
1/2	.500	2-1/4	4	.125	1/2	RFZ07069
5/8	.625	1-1/4	3-1/2	—	5/8	RFZ07070
5/8	.625	1-1/4	3-1/2	.030	5/8	RFZ07071
5/8	.625	1-1/4	3-1/2	.060	5/8	RFZ07072
5/8	.625	1-1/4	3-1/2	.090	5/8	RFZ07073
5/8	.625	1-1/4	3-1/2	.125	5/8	RFZ07074
5/8	.625	1-9/16	4	—	5/8	RFZ07076
5/8	.625	1-9/16	4	.030	5/8	RFZ07077
5/8	.625	1-9/16	4	.060	5/8	RFZ07078

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 204.
Tool application data pages 208-212.

7-Flute Finishers

NEW Product



AlCrNX Coated

7-Flute Finishers, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
5/8	.625	1-9/16	4	.090	5/8	RFZ07079
5/8	.625	1-9/16	4	.125	5/8	RFZ07080
5/8	.625	1-7/8	4	—	5/8	RFZ07082
5/8	.625	1-7/8	4	.030	5/8	RFZ07083
5/8	.625	1-7/8	4	.060	5/8	RFZ07084
5/8	.625	1-7/8	4	.090	5/8	RFZ07085
5/8	.625	1-7/8	4	.125	5/8	RFZ07086
5/8	.625	2-3/16	4-1/2	—	5/8	RFZ07088
5/8	.625	2-3/16	4-1/2	.030	5/8	RFZ07089
5/8	.625	2-3/16	4-1/2	.060	5/8	RFZ07090
5/8	.625	2-3/16	4-1/2	.125	5/8	RFZ07091
5/8	.625	2-1/2	5	—	5/8	RFZ07092
5/8	.625	2-1/2	5	.030	5/8	RFZ07093
5/8	.625	2-1/2	5	.060	5/8	RFZ07094
5/8	.625	2-1/2	5	.125	5/8	RFZ07095
3/4	.750	1-1/2	4	—	3/4	RFZ07096
3/4	.750	1-1/2	4	.030	3/4	RFZ07097
3/4	.750	1-1/2	4	.060	3/4	RFZ07098
3/4	.750	1-1/2	4	.125	3/4	RFZ07099
3/4	.750	1-7/8	4-1/2	—	3/4	RFZ07102
3/4	.750	1-7/8	4-1/2	.030	3/4	RFZ07103
3/4	.750	1-7/8	4-1/2	.060	3/4	RFZ07104
3/4	.750	1-7/8	4-1/2	.090	3/4	RFZ07105
3/4	.750	1-7/8	4-1/2	.125	3/4	RFZ07106
3/4	.750	2-1/4	5	—	3/4	RFZ07109
3/4	.750	2-1/4	5	.030	3/4	RFZ07110
3/4	.750	2-1/4	5	.060	3/4	RFZ07111
3/4	.750	2-1/4	5	.090	3/4	RFZ07112
3/4	.750	2-1/4	5	.125	3/4	RFZ07113
3/4	.750	2-5/8	5	—	3/4	RFZ07116
3/4	.750	2-5/8	5	.030	3/4	RFZ07117
3/4	.750	2-5/8	5	.060	3/4	RFZ07118
3/4	.750	2-5/8	5	.090	3/4	RFZ07119
3/4	.750	2-5/8	5	.125	3/4	RFZ07120
3/4	.750	3	6	—	3/4	RFZ07121
3/4	.750	3	6	.030	3/4	RFZ07122
3/4	.750	3	6	.060	3/4	RFZ07123
3/4	.750	3	6	.125	3/4	RFZ07124

Continued

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 204.
Tool application data pages 208-212.

NEW Product

RedLine ProLine XHP



AlCrNX Coated

7-Flute Finishers, Square & Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1	1.000	2	5	—	1	RFZ07125
1	1.000	2	5	.030	1	RFZ07126
1	1.000	2	5	.060	1	RFZ07127
1	1.000	2	5	.090	1	RFZ07128
1	1.000	2	5	.125	1	RFZ07129
1	1.000	2-1/2	5-1/2	—	1	RFZ07132
1	1.000	2-1/2	5-1/2	.030	1	RFZ07133
1	1.000	2-1/2	5-1/2	.060	1	RFZ07134
1	1.000	2-1/2	5-1/2	.090	1	RFZ07135
1	1.000	2-1/2	5-1/2	.125	1	RFZ07136
1	1.000	3	6	—	1	RFZ07139
1	1.000	3	6	.030	1	RFZ07140
1	1.000	3	6	.060	1	RFZ07141
1	1.000	3	6	.125	1	RFZ07142
1	1.000	3-1/2	6-1/2	—	1	RFZ07143
1	1.000	3-1/2	6-1/2	.030	1	RFZ07144
1	1.000	3-1/2	6-1/2	.060	1	RFZ07145
1	1.000	3-1/2	6-1/2	.125	1	RFZ07146
1	1.000	4	7	—	1	RFZ07147
1	1.000	4	7	.030	1	RFZ07148
1	1.000	4	7	.060	1	RFZ07149
1	1.000	4	7	.125	1	RFZ07150

NOTE: Square Tools will not cut a true square corner due to an edge prep which strengthens the cutting edge.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 204.
Tool application data pages 208-212.

7-Flute Finishers

NEW Product

RedLine ProLine XHP



AlCrNX Coated

7-Flute Finishers, Chip Control, Corner Radius, 40° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
3/8	.375	1-1/8	3	.030	3/8	RFZ07200
3/8	.375	1-1/2	3-1/2	.030	3/8	RFZ07201
1/2	.500	1-1/4	3-1/4	.030	1/2	RFZ07202
1/2	.500	1-1/4	3-1/4	.060	1/2	RFZ07203
1/2	.500	1-1/2	3-1/2	.030	1/2	RFZ07204
1/2	.500	1-1/2	3-1/2	.060	1/2	RFZ07205
1/2	.500	1-3/4	4	.030	1/2	RFZ07206
1/2	.500	1-3/4	4	.060	1/2	RFZ07207
1/2	.500	2	4	.030	1/2	RFZ07208
1/2	.500	2	4	.060	1/2	RFZ07209
5/8	.625	1-1/4	3-1/2	.030	5/8	RFZ07210
5/8	.625	1-1/4	3-1/2	.060	5/8	RFZ07211
5/8	.625	1-9/16	4	.030	5/8	RFZ07212
5/8	.625	1-9/16	4	.060	5/8	RFZ07213
5/8	.625	1-7/8	4	.030	5/8	RFZ07214
5/8	.625	1-7/8	4	.060	5/8	RFZ07215
5/8	.625	2-3/16	4-1/2	.030	5/8	RFZ07216
5/8	.625	2-3/16	4-1/2	.060	5/8	RFZ07217
5/8	.625	2-1/2	5	.030	5/8	RFZ07218
5/8	.625	2-1/2	5	.060	5/8	RFZ07219
3/4	.750	1-1/2	4	.030	3/4	RFZ07220
3/4	.750	1-1/2	4	.060	3/4	RFZ07221
3/4	.750	1-7/8	4-1/2	.030	3/4	RFZ07222
3/4	.750	1-7/8	4-1/2	.060	3/4	RFZ07223
3/4	.750	2-1/4	5	.030	3/4	RFZ07224
3/4	.750	2-1/4	5	.060	3/4	RFZ07225
3/4	.750	2-5/8	5	.030	3/4	RFZ07226
3/4	.750	2-5/8	5	.060	3/4	RFZ07227
3/4	.750	3	6	.030	3/4	RFZ07228
3/4	.750	3	6	.060	3/4	RFZ07229
1	1.000	2	5	.030	1	RFZ07230
1	1.000	2	5	.060	1	RFZ07231
1	1.000	2-1/2	5-1/2	.030	1	RFZ07232
1	1.000	2-1/2	5-1/2	.060	1	RFZ07233
1	1.000	3	6	.030	1	RFZ07234
1	1.000	3	6	.060	1	RFZ07235
1	1.000	3-1/2	6-1/2	.030	1	RFZ07236
1	1.000	3-1/2	6-1/2	.060	1	RFZ07237
1	1.000	4	7	.030	1	RFZ07238
1	1.000	4	7	.060	1	RFZ07239

Speeds & Feeds page 204.
Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



AlCrNX Coated

9-Flute Finishers, Corner Radius, 36° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1/4	.250	1/2	2	.015	1/4	RFZ09000
1/4	.250	1/2	2	.030	1/4	RFZ09001
1/4	.250	5/8	2-1/2	.015	1/4	RFZ09002
1/4	.250	5/8	2-1/2	.030	1/4	RFZ09003
1/4	.250	3/4	2-1/2	.015	1/4	RFZ09004
1/4	.250	3/4	2-1/2	.030	1/4	RFZ09005
1/4	.250	7/8	3	.015	1/4	RFZ09006
1/4	.250	7/8	3	.030	1/4	RFZ09007
3/8	.375	3/4	2-1/2	.015	3/8	RFZ09008
3/8	.375	3/4	2-1/2	.030	3/8	RFZ09009
3/8	.375	15/16	2-1/2	.015	3/8	RFZ09010
3/8	.375	15/16	2-1/2	.030	3/8	RFZ09011
3/8	.375	1-1/8	3	.015	3/8	RFZ09012
3/8	.375	1-1/8	3	.030	3/8	RFZ09013
3/8	.375	1-5/16	3-1/2	.015	3/8	RFZ09014
3/8	.375	1-5/16	3-1/2	.030	3/8	RFZ09015
1/2	.500	1	3	.030	1/2	RFZ09016
1/2	.500	1	3	.060	1/2	RFZ09017
1/2	.500	1-1/4	3-1/4	.030	1/2	RFZ09018
1/2	.500	1-1/4	3-1/4	.060	1/2	RFZ09019
1/2	.500	1-1/2	3-1/2	.030	1/2	RFZ09020
1/2	.500	1-1/2	3-1/2	.060	1/2	RFZ09021
1/2	.500	1-3/4	4	.030	1/2	RFZ09022
1/2	.500	1-3/4	4	.060	1/2	RFZ09023
5/8	.625	1-1/4	3-1/2	.030	5/8	RFZ09024
5/8	.625	1-1/4	3-1/2	.060	5/8	RFZ09025
5/8	.625	1-9/16	4	.030	5/8	RFZ09026
5/8	.625	1-9/16	4	.060	5/8	RFZ09027
5/8	.625	1-7/8	4	.030	5/8	RFZ09028
5/8	.625	1-7/8	4	.060	5/8	RFZ09029
5/8	.625	2-3/16	4-1/2	.030	5/8	RFZ09030
5/8	.625	2-3/16	4-1/2	.060	5/8	RFZ09031
3/4	.750	1-1/2	4	.030	3/4	RFZ09032
3/4	.750	1-1/2	4	.060	3/4	RFZ09033
3/4	.750	1-1/2	4	.125	3/4	RFZ09034
3/4	.750	1-7/8	4-1/2	.030	3/4	RFZ09035
3/4	.750	1-7/8	4-1/2	.060	3/4	RFZ09036
3/4	.750	1-7/8	4-1/2	.125	3/4	RFZ09037
3/4	.750	2-1/4	5	.030	3/4	RFZ09038
3/4	.750	2-1/4	5	.060	3/4	RFZ09039

Continued

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 205.
Tool application data pages 208-212.

9-Flute Finishers

NEW Product

RedLine ProLine XHP



AlCrNX Coated

9-Flute Finishers, Corner Radius, 36° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
3/4	.750	2-1/4	5	.125	3/4	RFZ09040
3/4	.750	2-5/8	5	.030	3/4	RFZ09041
3/4	.750	2-5/8	5	.060	3/4	RFZ09042
3/4	.750	2-5/8	5	.125	3/4	RFZ09043
1	1.000	2	5	.030	1	RFZ09044
1	1.000	2	5	.060	1	RFZ09045
1	1.000	2	5	.125	1	RFZ09046
1	1.000	2-1/2	5-1/2	.030	1	RFZ09047
1	1.000	2-1/2	5-1/2	.060	1	RFZ09048
1	1.000	2-1/2	5-1/2	.125	1	RFZ09049
1	1.000	3	6	.030	1	RFZ09050
1	1.000	3	6	.060	1	RFZ09051
1	1.000	3	6	.125	1	RFZ09052
1	1.000	3-1/2	6-1/2	.030	1	RFZ09053
1	1.000	3-1/2	6-1/2	.060	1	RFZ09054
1	1.000	3-1/2	6-1/2	.125	1	RFZ09055

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Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



AlCrNX Coated

9-Flute Finishers, Chip Control, Corner Radius, 36° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1/2	.500	1	3	.030	1/2	RFZ09200
1/2	.500	1-1/4	3-1/4	.030	1/2	RFZ09201
1/2	.500	1-1/2	3-1/2	.030	1/2	RFZ09202
1/2	.500	1-1/2	3-1/2	.060	1/2	RFZ09203
1/2	.500	1-3/4	4	.030	1/2	RFZ09204
1/2	.500	1-3/4	4	.060	1/2	RFZ09205
5/8	.625	1-1/4	3-1/2	.030	5/8	RFZ09206
5/8	.625	1-9/16	4	.030	5/8	RFZ09207
5/8	.625	1-9/16	4	.060	5/8	RFZ09208
5/8	.625	1-7/8	4	.030	5/8	RFZ09209
5/8	.625	1-7/8	4	.060	5/8	RFZ09210
5/8	.625	2-3/16	4-1/2	.030	5/8	RFZ09211
5/8	.625	2-3/16	4-1/2	.060	5/8	RFZ09212
3/4	.750	1-1/2	4	.030	3/4	RFZ09213
3/4	.750	1-1/2	4	.060	3/4	RFZ09214
3/4	.750	1-1/2	4	.125	3/4	RFZ09215
3/4	.750	1-7/8	4-1/2	.030	3/4	RFZ09216
3/4	.750	1-7/8	4-1/2	.060	3/4	RFZ09217
3/4	.750	1-7/8	4-1/2	.125	3/4	RFZ09218
3/4	.750	2-1/4	5	.030	3/4	RFZ09219
3/4	.750	2-1/4	5	.060	3/4	RFZ09220
3/4	.750	2-1/4	5	.125	3/4	RFZ09221
3/4	.750	2-5/8	5	.030	3/4	RFZ09222
3/4	.750	2-5/8	5	.060	3/4	RFZ09223
3/4	.750	2-5/8	5	.125	3/4	RFZ09224
1	1.000	2	5	.030	1	RFZ09225
1	1.000	2	5	.060	1	RFZ09226
1	1.000	2	5	.125	1	RFZ09227
1	1.000	2-1/2	5-1/2	.030	1	RFZ09228
1	1.000	2-1/2	5-1/2	.060	1	RFZ09229
1	1.000	2-1/2	5-1/2	.125	1	RFZ09230
1	1.000	3	6	.030	1	RFZ09231
1	1.000	3	6	.060	1	RFZ09232
1	1.000	3	6	.125	1	RFZ09233
1	1.000	3-1/2	6-1/2	.030	1	RFZ09234
1	1.000	3-1/2	6-1/2	.060	1	RFZ09235
1	1.000	3-1/2	6-1/2	.125	1	RFZ09236

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 205.
Tool application data pages 208-212.

11-Flute Finishers

NEW Product

RedLine ProLine XHP



AlCrNX Coated

11-Flute Finishers, Corner Radius, 34° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1/2	.500	1	3	.030	1/2	RFZ11000
1/2	.500	1	3	.060	1/2	RFZ11001
1/2	.500	1-1/4	3-1/4	.030	1/2	RFZ11002
1/2	.500	1-1/4	3-1/4	.060	1/2	RFZ11003
1/2	.500	1-1/2	3-1/2	.030	1/2	RFZ11004
1/2	.500	1-1/2	3-1/2	.060	1/2	RFZ11005
1/2	.500	1-3/4	4	.030	1/2	RFZ11006
1/2	.500	1-3/4	4	.060	1/2	RFZ11007
5/8	.625	1-1/4	3-1/2	.030	5/8	RFZ11008
5/8	.625	1-1/4	3-1/2	.060	5/8	RFZ11009
5/8	.625	1-9/16	4	.030	5/8	RFZ11010
5/8	.625	1-9/16	4	.060	5/8	RFZ11011
5/8	.625	1-7/8	4	.030	5/8	RFZ11012
5/8	.625	1-7/8	4	.060	5/8	RFZ11013
5/8	.625	2-3/16	4-1/2	.030	5/8	RFZ11014
5/8	.625	2-3/16	4-1/2	.060	5/8	RFZ11015
3/4	.750	1-1/2	4	.030	3/4	RFZ11016
3/4	.750	1-1/2	4	.060	3/4	RFZ11017
3/4	.750	1-1/2	4	.125	3/4	RFZ11018
3/4	.750	1-7/8	4-1/2	.030	3/4	RFZ11019
3/4	.750	1-7/8	4-1/2	.060	3/4	RFZ11020
3/4	.750	1-7/8	4-1/2	.125	3/4	RFZ11021
3/4	.750	2-1/4	5	.030	3/4	RFZ11022
3/4	.750	2-1/4	5	.060	3/4	RFZ11023
3/4	.750	2-1/4	5	.125	3/4	RFZ11024
3/4	.750	2-5/8	5	.030	3/4	RFZ11025
3/4	.750	2-5/8	5	.060	3/4	RFZ11026
3/4	.750	2-5/8	5	.125	3/4	RFZ11027
1	1.000	2	5	.030	1	RFZ11028
1	1.000	2	5	.060	1	RFZ11029
1	1.000	2	5	.125	1	RFZ11030
1	1.000	2-1/2	5-1/2	.030	1	RFZ11031
1	1.000	2-1/2	5-1/2	.060	1	RFZ11032
1	1.000	2-1/2	5-1/2	.125	1	RFZ11033
1	1.000	3	6	.030	1	RFZ11034
1	1.000	3	6	.060	1	RFZ11035
1	1.000	3	6	.125	1	RFZ11036

Continued

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Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



AlCrNX Coated

11-Flute Finishers, Corner Radius, 34° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1	1.000	3-1/2	6-1/2	.030	1	RFZ11037
1	1.000	3-1/2	6-1/2	.060	1	RFZ11038
1	1.000	3-1/2	6-1/2	.125	1	RFZ11039
1-1/4	1.250	2-1/2	5-1/2	.030	1-1/4	RFZ11040
1-1/4	1.250	2-1/2	5-1/2	.060	1-1/4	RFZ11041
1-1/4	1.250	2-1/2	5-1/2	.125	1-1/4	RFZ11042
1-1/4	1.250	3-1/8	6-1/2	.030	1-1/4	RFZ11043
1-1/4	1.250	3-1/8	6-1/2	.060	1-1/4	RFZ11044
1-1/4	1.250	3-1/8	6-1/2	.125	1-1/4	RFZ11045

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 206.
Tool application data pages 208-212.

11-Flute Finishers

NEW Product

RedLine ProLine XHP



AlCrNX Coated

11-Flute Finishers, Chip Control, Corner Radius, 34° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1/2	.500	1-1/2	3-1/2	.030	1/2	RFZ11200
1/2	.500	1-1/2	3-1/2	.060	1/2	RFZ11201
1/2	.500	1-3/4	4	.030	1/2	RFZ11202
1/2	.500	1-3/4	4	.060	1/2	RFZ11203
5/8	.625	1-9/16	4	.030	5/8	RFZ11204
5/8	.625	1-9/16	4	.060	5/8	RFZ11205
5/8	.625	1-7/8	4	.030	5/8	RFZ11206
5/8	.625	1-7/8	4	.060	5/8	RFZ11207
5/8	.625	2-3/16	4-1/2	.030	5/8	RFZ11208
5/8	.625	2-3/16	4-1/2	.060	5/8	RFZ11209
3/4	.750	1-1/2	4	.030	3/4	RFZ11210
3/4	.750	1-1/2	4	.060	3/4	RFZ11211
3/4	.750	1-1/2	4	.125	3/4	RFZ11212
3/4	.750	1-7/8	4-1/2	.030	3/4	RFZ11213
3/4	.750	1-7/8	4-1/2	.060	3/4	RFZ11214
3/4	.750	1-7/8	4-1/2	.125	3/4	RFZ11215
3/4	.750	2-1/4	5	.030	3/4	RFZ11216
3/4	.750	2-1/4	5	.060	3/4	RFZ11217
3/4	.750	2-1/4	5	.125	3/4	RFZ11218
3/4	.750	2-5/8	5	.030	3/4	RFZ11219
3/4	.750	2-5/8	5	.060	3/4	RFZ11220
3/4	.750	2-5/8	5	.125	3/4	RFZ11221
1	1.000	2	5	.030	1	RFZ11222
1	1.000	2	5	.060	1	RFZ11223
1	1.000	2	5	.125	1	RFZ11224
1	1.000	2-1/2	5-1/2	.030	1	RFZ11225
1	1.000	2-1/2	5-1/2	.060	1	RFZ11226
1	1.000	2-1/2	5-1/2	.125	1	RFZ11227
1	1.000	3	6	.030	1	RFZ11228
1	1.000	3	6	.060	1	RFZ11229
1	1.000	3	6	.125	1	RFZ11230
1	1.000	3-1/2	6-1/2	.030	1	RFZ11231
1	1.000	3-1/2	6-1/2	.060	1	RFZ11232
1	1.000	3-1/2	6-1/2	.125	1	RFZ11233

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Speeds & Feeds page 206.
Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

NEW Product

RedLine ProLine XHP



AlCrNX Coated

11-Flute Finishers, Chip Control, Corner Radius, 34° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1-1/4	1.250	2-1/2	5-1/2	.030	1-1/4	RFZ11234
1-1/4	1.250	2-1/2	5-1/2	.060	1-1/4	RFZ11235
1-1/4	1.250	2-1/2	5-1/2	.125	1-1/4	RFZ11236
1-1/4	1.250	3-1/8	6-1/2	.030	1-1/4	RFZ11237
1-1/4	1.250	3-1/8	6-1/2	.060	1-1/4	RFZ11238
1-1/4	1.250	3-1/8	6-1/2	.125	1-1/4	RFZ11239

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 206.
Tool application data pages 208-212.

13-Flute Finishers

NEW Product

RedLine ProLine XHP



AlCrNX Coated

13-Flute Finishers, Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1/2	.500	1	3	.030	1/2	RFZ13000
1/2	.500	1	3	.060	1/2	RFZ13001
1/2	.500	1-1/4	3-1/4	.030	1/2	RFZ13002
1/2	.500	1-1/4	3-1/4	.060	1/2	RFZ13003
1/2	.500	1-1/2	3-1/2	.030	1/2	RFZ13004
1/2	.500	1-1/2	3-1/2	.060	1/2	RFZ13005
1/2	.500	1-3/4	4	.030	1/2	RFZ13006
1/2	.500	1-3/4	4	.060	1/2	RFZ13007
5/8	.625	1-1/4	3-1/2	.030	5/8	RFZ13008
5/8	.625	1-1/4	3-1/2	.060	5/8	RFZ13009
5/8	.625	1-9/16	4	.030	5/8	RFZ13010
5/8	.625	1-9/16	4	.060	5/8	RFZ13011
5/8	.625	1-7/8	4	.030	5/8	RFZ13012
5/8	.625	1-7/8	4	.060	5/8	RFZ13013
5/8	.625	2-3/16	4-1/2	.030	5/8	RFZ13014
5/8	.625	2-3/16	4-1/2	.060	5/8	RFZ13015
3/4	.750	1-1/2	4	.030	3/4	RFZ13016
3/4	.750	1-1/2	4	.060	3/4	RFZ13017
3/4	.750	1-1/2	4	.125	3/4	RFZ13018
3/4	.750	1-7/8	4-1/2	.030	3/4	RFZ13019
3/4	.750	1-7/8	4-1/2	.060	3/4	RFZ13020
3/4	.750	1-7/8	4-1/2	.125	3/4	RFZ13021
3/4	.750	2-1/4	5	.030	3/4	RFZ13022
3/4	.750	2-1/4	5	.060	3/4	RFZ13023
3/4	.750	2-1/4	5	.125	3/4	RFZ13024
3/4	.750	2-5/8	5	.030	3/4	RFZ13025
3/4	.750	2-5/8	5	.060	3/4	RFZ13026
3/4	.750	2-5/8	5	.125	3/4	RFZ13027
1	1.000	2	5	.030	1	RFZ13028
1	1.000	2	5	.060	1	RFZ13029
1	1.000	2	5	.125	1	RFZ13030
1	1.000	2-1/2	5-1/2	.030	1	RFZ13031
1	1.000	2-1/2	5-1/2	.060	1	RFZ13032
1	1.000	2-1/2	5-1/2	.125	1	RFZ13033

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Speeds & Feeds page 207.
Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

13-Flute Finishers

NEW Product

RedLine ProLine XHP



AlCrNX Coated

13-Flute Finishers, Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1	1.000	3	6	.030	1	RFZ13034
1	1.000	3	6	.060	1	RFZ13035
1	1.000	3	6	.125	1	RFZ13036
1	1.000	3-1/2	6-1/2	.030	1	RFZ13037
1	1.000	3-1/2	6-1/2	.060	1	RFZ13038
1	1.000	3-1/2	6-1/2	.125	1	RFZ13039
1-1/4	1.250	2-1/2	5-1/2	.030	1-1/4	RFZ13040
1-1/4	1.250	2-1/2	5-1/2	.060	1-1/4	RFZ13041
1-1/4	1.250	2-1/2	5-1/2	.125	1-1/4	RFZ13042
1-1/4	1.250	3-1/8	6-1/2	.030	1-1/4	RFZ13043
1-1/4	1.250	3-1/8	6-1/2	.060	1-1/4	RFZ13044
1-1/4	1.250	3-1/8	6-1/2	.125	1-1/4	RFZ13045

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 207.
Tool application data pages 208-212.

13-Flute Finishers

NEW Product

RedLine ProLine XHP



AlCrNX Coated

13-Flute Finishers, Chip Control, Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1/2	.500	1-1/2	3-1/2	.030	1/2	RFZ13200
1/2	.500	1-1/2	3-1/2	.060	1/2	RFZ13201
1/2	.500	1-3/4	4	.030	1/2	RFZ13202
1/2	.500	1-3/4	4	.060	1/2	RFZ13203
5/8	.625	1-9/16	4	.030	5/8	RFZ13204
5/8	.625	1-9/16	4	.060	5/8	RFZ13205
5/8	.625	1-7/8	4	.030	5/8	RFZ13206
5/8	.625	1-7/8	4	.060	5/8	RFZ13207
5/8	.625	2-3/16	4-1/2	.030	5/8	RFZ13208
5/8	.625	2-3/16	4-1/2	.060	5/8	RFZ13209
3/4	.750	1-1/2	4	.030	3/4	RFZ13210
3/4	.750	1-1/2	4	.060	3/4	RFZ13211
3/4	.750	1-1/2	4	.125	3/4	RFZ13212
3/4	.750	1-7/8	4-1/2	.030	3/4	RFZ13213
3/4	.750	1-7/8	4-1/2	.060	3/4	RFZ13214
3/4	.750	1-7/8	4-1/2	.125	3/4	RFZ13215
3/4	.750	2-1/4	5	.030	3/4	RFZ13216
3/4	.750	2-1/4	5	.060	3/4	RFZ13217
3/4	.750	2-1/4	5	.125	3/4	RFZ13218
3/4	.750	2-5/8	5	.030	3/4	RFZ13219
3/4	.750	2-5/8	5	.060	3/4	RFZ13220
3/4	.750	2-5/8	5	.125	3/4	RFZ13221
1	1.000	2	5	.030	1	RFZ13222
1	1.000	2	5	.060	1	RFZ13223
1	1.000	2	5	.125	1	RFZ13224
1	1.000	2-1/2	5-1/2	.030	1	RFZ13225
1	1.000	2-1/2	5-1/2	.060	1	RFZ13226
1	1.000	2-1/2	5-1/2	.125	1	RFZ13227
1	1.000	3	6	.030	1	RFZ13228
1	1.000	3	6	.060	1	RFZ13229
1	1.000	3	6	.125	1	RFZ13230
1	1.000	3-1/2	6-1/2	.030	1	RFZ13231
1	1.000	3-1/2	6-1/2	.060	1	RFZ13232
1	1.000	3-1/2	6-1/2	.125	1	RFZ13233

Continued

Speeds & Feeds page 207.
Tool application data pages 208-212.

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

13-Flute Finishers

NEW Product

RedLine ProLine XHP



AlCrNX Coated

13-Flute Finishers, Chip Control, Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	AlCrNX Coated Part #
1-1/4	1.250	2-1/2	5-1/2	.030	1-1/4	RFZ13234
1-1/4	1.250	2-1/2	5-1/2	.060	1-1/4	RFZ13235
1-1/4	1.250	2-1/2	5-1/2	.125	1-1/4	RFZ13236
1-1/4	1.250	3-1/8	6-1/2	.030	1-1/4	RFZ13237
1-1/4	1.250	3-1/8	6-1/2	.060	1-1/4	RFZ13238
1-1/4	1.250	3-1/8	6-1/2	.125	1-1/4	RFZ13239

Tolerances	Diameter	Shank	Radius
Fractional	+0.000, -0.002	h6	+0.0015, -0.0015

For specific shank tolerance information please see page 200.

Speeds & Feeds page 207.
Tool application data pages 208-212.

Micro 2-Flute



Uncoated



AlTiN Coated

2-Flute, Square End, 30° Helix (.005-.038)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.005	.008	1-1/2	1/8	RE25505	RE25705
.005	.015	1-1/2	1/8	RE14805	RE25105
.006	.018	1-1/2	1/8	RE14806	RE25106
.007	.021	1-1/2	1/8	RE14807	RE25107
.008	.024	1-1/2	1/8	RE14808	RE25108
.009	.027	1-1/2	1/8	RE14809	RE25109
.010	.015	1-1/2	1/8	RE25510	RE25710
.010	.030	1-1/2	1/8	RE14810	RE25110
.011	.033	1-1/2	1/8	RE14811	RE25111
.012	.036	1-1/2	1/8	RE14812	RE25112
.013	.039	1-1/2	1/8	RE14813	RE25113
.014	.042	1-1/2	1/8	RE14814	RE25114
.015	.023	1-1/2	1/8	RE25515	RE25715
.015	.045	1-1/2	1/8	RE14815	RE25115
.016	.048	1-1/2	1/8	RE14816	RE25116
.017	.051	1-1/2	1/8	RE14817	RE25117
.018	.054	1-1/2	1/8	RE14818	RE25118
.019	.057	1-1/2	1/8	RE14819	RE25119
.020	.030	1-1/2	1/8	RE25520	RE25720
.020	.060	1-1/2	1/8	RE14820	RE25120
.021	.063	1-1/2	1/8	RE14821	RE25121
.022	.066	1-1/2	1/8	RE14822	RE25122
.023	.069	1-1/2	1/8	RE14823	RE25123
.024	.072	1-1/2	1/8	RE14824	RE25124
.025	.038	1-1/2	1/8	RE25525	RE25725
.025	.075	1-1/2	1/8	RE14825	RE25125
.026	.078	1-1/2	1/8	RE14826	RE25126
.027	.081	1-1/2	1/8	RE14827	RE25127
.028	.084	1-1/2	1/8	RE14828	RE25128
.029	.087	1-1/2	1/8	RE14829	RE25129
.030	.045	1-1/2	1/8	RE25530	RE25730
.030	.090	1-1/2	1/8	RE14830	RE25130
.031	.047	1-1/2	1/8	RE25531	RE25731
.031	.093	1-1/2	1/8	RE14831	RE25131
.032	.096	1-1/2	1/8	RE14832	RE25132
.033	.099	1-1/2	1/8	RE14833	RE25133
.034	.102	1-1/2	1/8	RE14834	RE25134
.035	.053	1-1/2	1/8	RE25535	RE25735
.035	.105	1-1/2	1/8	RE14835	RE25135
.036	.108	1-1/2	1/8	RE14836	RE25136
.037	.111	1-1/2	1/8	RE14837	RE25137
.038	.114	1-1/2	1/8	RE14838	RE25138

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Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003



Uncoated



AlTiN Coated

2-Flute, Square End, 30° Helix (.039-.071)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.039	.117	1-1/2	1/8	RE14839	RE25139
.040	.060	1-1/2	1/8	RE25540	RE25740
.040	.120	1-1/2	1/8	RE14840	RE25140
.041	.123	1-1/2	1/8	RE14841	RE25141
.042	.126	1-1/2	1/8	RE14842	RE25142
.043	.129	1-1/2	1/8	RE14843	RE25143
.044	.132	1-1/2	1/8	RE14844	RE25144
.045	.068	1-1/2	1/8	RE25545	RE25745
.045	.135	1-1/2	1/8	RE14845	RE25145
.046	.138	1-1/2	1/8	RE14846	RE25146
.047	.071	1-1/2	1/8	RE25548	RE25747
.047	.141	1-1/2	1/8	RE14847	RE25147
.048	.144	1-1/2	1/8	RE14848	RE25148
.049	.147	1-1/2	1/8	RE14849	RE25149
.050	.075	1-1/2	1/8	RE25550	RE25750
.050	.150	1-1/2	1/8	RE14850	RE25150
.051	.153	1-1/2	1/8	RE14851	RE25151
.052	.156	1-1/2	1/8	RE14852	RE25152
.053	.159	1-1/2	1/8	RE14853	RE25153
.054	.162	1-1/2	1/8	RE14854	RE25154
.055	.083	1-1/2	1/8	RE25555	RE25755
.055	.165	1-1/2	1/8	RE14855	RE25155
.056	.168	1-1/2	1/8	RE14856	RE25156
.057	.171	1-1/2	1/8	RE14857	RE25157
.058	.174	1-1/2	1/8	RE14858	RE25158
.059	.177	1-1/2	1/8	RE14859	RE25159
.060	.090	1-1/2	1/8	RE25560	RE25760
.060	.180	1-1/2	1/8	RE14860	RE25160
.061	.183	1-1/2	1/8	RE14861	RE25161
.062	.093	1-1/2	1/8	RE25562	RE25762
.062	.186	1-1/2	1/8	RE14862	RE25162
.063	.189	1-1/2	1/8	RE14863	RE25163
.064	.192	1-1/2	1/8	RE14864	RE25164
.065	.098	1-1/2	1/8	RE25565	RE25765
.065	.195	1-1/2	1/8	RE14865	RE25165
.066	.198	1-1/2	1/8	RE14866	RE25166
.067	.201	1-1/2	1/8	RE14867	RE25167
.068	.204	1-1/2	1/8	RE14868	RE25168
.069	.207	1-1/2	1/8	RE14869	RE25169
.070	.105	1-1/2	1/8	RE25570	RE25770
.070	.210	1-1/2	1/8	RE14870	RE25170
.071	.213	1-1/2	1/8	RE14871	RE25171

Continued

Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003

Speeds & Feeds page 215.

Micro 2-Flute



Uncoated



AlTiN Coated

2-Flute, Square End, 30° Helix (.072-.105)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.072	.216	1-1/2	1/8	RE14872	RE25172
.073	.219	1-1/2	1/8	RE14873	RE25173
.074	.222	1-1/2	1/8	RE14874	RE25174
.075	.113	1-1/2	1/8	RE25575	RE25775
.075	.225	1-1/2	1/8	RE14875	RE25175
.076	.228	1-1/2	1/8	RE14876	RE25176
.077	.231	1-1/2	1/8	RE14877	RE25177
.078	.117	1-1/2	1/8	RE25578	RE25778
.078	.234	1-1/2	1/8	RE14878	RE25178
.079	.237	1-1/2	1/8	RE14879	RE25179
.080	.120	1-1/2	1/8	RE25580	RE25780
.080	.240	1-1/2	1/8	RE14880	RE25180
.081	.243	1-1/2	1/8	RE14881	RE25181
.082	.246	1-1/2	1/8	RE14882	RE25182
.083	.249	1-1/2	1/8	RE14883	RE25183
.084	.252	1-1/2	1/8	RE14884	RE25184
.085	.128	1-1/2	1/8	RE25585	RE25785
.085	.255	1-1/2	1/8	RE14885	RE25185
.086	.258	1-1/2	1/8	RE14886	RE25186
.087	.261	1-1/2	1/8	RE14887	RE25187
.088	.264	1-1/2	1/8	RE14888	RE25188
.089	.267	1-1/2	1/8	RE14889	RE25189
.090	.135	1-1/2	1/8	RE25590	RE25790
.090	.270	1-1/2	1/8	RE14890	RE25190
.091	.273	1-1/2	1/8	RE14891	RE25191
.092	.276	1-1/2	1/8	RE14892	RE25192
.093	.140	1-1/2	1/8	RE25593	RE25793
.093	.279	1-1/2	1/8	RE14893	RE25193
.094	.282	1-1/2	1/8	RE14894	RE25194
.095	.143	1-1/2	1/8	RE25595	RE25795
.095	.285	1-1/2	1/8	RE14895	RE25195
.096	.288	1-1/2	1/8	RE14896	RE25196
.097	.291	1-1/2	1/8	RE14897	RE25197
.098	.294	1-1/2	1/8	RE14898	RE25198
.099	.297	1-1/2	1/8	RE14899	RE25199
.100	.150	1-1/2	1/8	RE25500	RE25700
.100	.300	1-1/2	1/8	RE14900	RE25300
.101	.303	1-1/2	1/8	RE14901	RE25301
.102	.306	1-1/2	1/8	RE14902	RE25302
.103	.309	1-1/2	1/8	RE14903	RE25303
.104	.312	1-1/2	1/8	RE14904	RE25304
.105	.315	1-1/2	1/8	RE14905	RE25305

Continued

Speeds & Feeds page 215.

Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003



Uncoated



AlTiN Coated

2-Flute, Square End, 30° Helix (.106-.120)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.106	.318	1-1/2	1/8	RE14906	RE25306
.107	.321	1-1/2	1/8	RE14907	RE25307
.108	.324	1-1/2	1/8	RE14908	RE25308
.109	.327	1-1/2	1/8	RE14909	RE25309
.110	.330	1-1/2	1/8	RE14910	RE25310
.115	.345	1-1/2	1/8	RE14915	RE25315
.120	.360	1-1/2	1/8	RE14920	RE25320

Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003

Speeds & Feeds page 215.

2-Flute



Uncoated



AlTiN Coated



TiCN Coated

2-Flute, Square End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
1/64	.0156	.023	1-1/2	1/8	RE10001	RE10201	–
1/64	.0156	1/32	1-1/2	1/8	RE10801	RE11001	RE11201
1/32	.0313	1/16	1-1/2	1/8	RE10002	RE10202	–
1/32	.0313	1/8	1-1/2	1/8	RE10802	RE11002	RE11202
3/64	.0469	3/32	1-1/2	1/8	RE10003	RE10203	–
3/64	.0469	1/8	1-1/2	1/8	RE10803	RE11003	RE11203
1/16	.0625	1/8	1-1/2	1/8	RE10004	RE10204	–
1/16	.0625	1/4	1-1/2	1/8	RE10804	RE11004	RE11204
5/64	.0781	1/8	1-1/2	1/8	RE10005	RE10205	–
5/64	.0781	1/4	1-1/2	1/8	RE10805	RE11005	RE11205
3/32	.0938	3/16	1-1/2	1/8	RE10006	RE10206	–
3/32	.0938	3/8	1-1/2	1/8	RE10806	RE11006	RE11206
7/64	.1094	3/8	1-1/2	1/8	RE10807	RE11007	RE11207
1/8	.1250	1/4	1-1/2	1/8	RE10008	RE10208	–
1/8	.1250	1/2	1-1/2	1/8	RE10808	RE11008	RE11208
1/8	.1250	3/4	2-1/4	1/8	RE12008	RE12408	RE12808
1/8	.1250	1	3	1/8	RE12208	RE12608	RE13008
9/64	.1406	9/16	2	3/16	RE10809	RE11009	RE11209
5/32	.1563	5/16	2	3/16	RE10010	RE10210	–
5/32	.1563	9/16	2	3/16	RE10810	RE11010	RE11210
11/64	.1719	5/8	2	3/16	RE10811	RE11011	RE11211
3/16	.1875	3/8	2	3/16	RE10012	RE10212	–
3/16	.1875	5/8	2	3/16	RE10812	RE11012	RE11212
3/16	.1875	3/4	2-1/2	3/16	RE12012	RE12412	RE12812
3/16	.1875	1-1/8	3	3/16	RE12212	RE12612	RE13012
13/64	.2031	5/8	2-1/2	1/4	RE10813	RE11013	RE11213
7/32	.2188	7/16	2	1/4	RE10014	RE10214	–
7/32	.2188	5/8	2-1/2	1/4	RE10814	RE11014	RE11214
15/64	.2344	3/4	2-1/2	1/4	RE10815	RE11015	RE11215
1/4	.2500	1/2	2	1/4	RE10016	RE10216	–
1/4	.2500	3/4	2-1/2	1/4	RE10816	RE11016	RE11216
1/4	.2500	1	4	1/4	RE12017	RE12417	RE12817
1/4	.2500	1-1/8	3	1/4	RE12016	RE12416	RE12816
1/4	.2500	1-1/2	4	1/4	RE12216	RE12616	RE13016
1/4	.2500	1-1/2	6	1/4	RE12217	RE12617	RE13017
17/64	.2656	3/4	2-1/2	5/16	RE10817	RE11017	RE11217
9/32	.2813	3/4	2-1/2	5/16	RE10818	RE11018	RE11218

Continued

Tolerances	Diameter	Shank
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004
9/16"-1"	+0.000, -0.003	-0.0001, -0.0004

Speeds & Feeds page 216.



Uncoated



AlTiN Coated



TiCN Coated

2-Flute, Square End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
19/64	.2969	13/16	2-1/2	5/16	RE10819	RE11019	RE11219
5/16	.3125	1/2	2	5/16	RE10020	RE10220	–
5/16	.3125	13/16	2-1/2	5/16	RE10820	RE11020	RE11220
5/16	.3125	1-1/8	3	5/16	RE12020	RE12420	RE12820
5/16	.3125	1-5/8	4	5/16	RE12220	RE12620	RE13020
21/64	.3281	1	2-1/2	3/8	RE10821	RE11021	RE11221
11/32	.3438	1	2-1/2	3/8	RE10822	RE11022	RE11222
23/64	.3594	1	2-1/2	3/8	RE10823	RE11023	RE11223
3/8	.3750	5/8	2	3/8	RE10024	RE10224	–
3/8	.3750	1	4	3/8	RE12025	RE12425	RE12825
3/8	.3750	1	2-1/2	3/8	RE10824	RE11024	RE11224
3/8	.3750	1-1/8	3	3/8	RE12024	RE12424	RE12824
3/8	.3750	1-1/2	6	3/8	RE12225	RE12625	RE13025
3/8	.3750	1-3/4	4	3/8	RE12224	RE12624	RE13024
25/64	.3906	1	2-3/4	7/16	RE10825	RE11025	RE11225
13/32	.4063	1	2-3/4	7/16	RE10826	RE11026	RE11226
27/64	.4219	1	2-3/4	7/16	RE10827	RE11027	RE11227
7/16	.4375	5/8	2-1/2	7/16	RE10028	RE10228	–
7/16	.4375	1	2-3/4	7/16	RE10828	RE11028	RE11228
7/16	.4375	2	4	7/16	RE12028	RE12428	RE12828
7/16	.4375	3	6	7/16	RE12228	RE12628	RE13028
29/64	.4531	1	3	1/2	RE10829	RE11029	RE11229
15/32	.4688	1	3	1/2	RE10830	RE11030	RE11230
31/64	.4844	1	3	1/2	RE10831	RE11031	RE11231
1/2	.5000	5/8	2-1/2	1/2	RE10032	RE10232	–
1/2	.5000	1	3	1/2	RE10832	RE11032	RE11232
1/2	.5000	1	4	1/2	RE12032	RE12432	RE12832
1/2	.5000	1-1/2	6	1/2	RE12232	RE12632	RE13032
1/2	.5000	2	4	1/2	RE12033	RE12433	RE12833
1/2	.5000	3	6	1/2	RE12233	RE12633	RE13033
9/16	.5625	1-1/4	3-1/2	9/16	RE10836	RE11036	RE11236
5/8	.6250	3/4	3	5/8	RE10040	RE10240	–
5/8	.6250	1-1/4	3-1/2	5/8	RE10840	RE11040	RE11240
5/8	.6250	2-1/4	5	5/8	RE12040	RE12440	RE12840
5/8	.6250	3	6	5/8	RE12240	RE12640	RE13040
3/4	.7500	1	3	3/4	RE10048	RE10248	–
3/4	.7500	1-1/2	4	3/4	RE10848	RE11048	RE11248

Continued

Tolerances	Diameter	Shank
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004
9/16"-1"	+0.000, -0.003	-0.0001, -0.0004

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2-Flute



Uncoated



AlTiN Coated



TiCN Coated

2-Flute, Square End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
3/4	.7500	2-1/4	5	3/4	RE12048	RE12448	RE12848
3/4	.7500	3	6	3/4	RE12248	RE12648	RE13048
7/8	.8750	1-1/2	4	7/8	RE10856	RE11056	RE11256
7/8	.8750	2-1/4	5	7/8	RE12056	RE12456	RE12856
7/8	.8750	3	6	7/8	RE12256	RE12656	RE13056
1	1.0000	1-1/2	4	1	RE10864	RE11064	RE11264
1	1.0000	2-1/4	5	1	RE12064	RE12464	RE12864
1	1.0000	3	6	1	RE12264	RE12664	RE13064

Tolerances	Diameter	Shank
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004
9/16"-1"	+0.000, -0.003	-0.0001, -0.0004

Speeds & Feeds page 216.



Uncoated



AlTiN Coated

2-Flute, Square End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/16	.0625	1/8	1-1/2	1/8	RE15604	RE15704
3/32	.0938	3/16	1-1/2	1/8	RE15606	RE15706
1/8	.1250	1/4	1-1/2	1/8	RE15608	RE15708
1/8	.1250	3/8	3-1/8	3/8	RE16008	RE16108
5/32	.1563	5/16	2	3/16	RE15610	RE15710
5/32	.1563	7/16	3-1/4	3/8	RE16010	RE16110
3/16	.1875	3/8	2	3/16	RE15612	RE15712
3/16	.1875	1/2	3-1/4	3/8	RE16012	RE16112
7/32	.2188	1/2	2-1/2	1/4	RE15614	RE15714
7/32	.2188	9/16	3-1/2	3/8	RE16014	RE16114
1/4	.2500	1/2	2-1/2	1/4	RE15616	RE15716
1/4	.2500	5/8	3-1/2	3/8	RE16016	RE16116
9/32	.2813	11/16	3-1/2	3/8	RE15618	RE15718
9/32	.2813	11/16	3-1/2	3/8	RE16018	RE16118
5/16	.3125	1/2	2-1/2	5/16	RE15620	RE15720
5/16	.3125	3/4	3-1/2	3/8	RE16020	RE16120
11/32	.3438	3/4	3-1/2	3/8	RE16022	RE16122
3/8	.3750	9/16	2-1/2	3/8	RE15624	RE15724
3/8	.3750	3/4	3-1/2	3/8	RE16024	RE16124
7/16	.4375	9/16	2-3/4	7/16	RE15628	RE15728
7/16	.4375	7/8	4	1/2	RE16028	RE16128
1/2	.5000	5/8	3	1/2	RE15632	RE15732
1/2	.5000	1	4	1/2	RE16032	RE16132

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.002	-0.0001, -0.0004

Speeds & Feeds page 216.

Micro 2-Flute Ball



Uncoated



AlTiN Coated

2-Flute, Ball End, 30° Helix (.005-.038)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.005	.008	1-1/2	1/8	RE25905	RE25805
.005	.015	1-1/2	1/8	RE15205	RE25405
.006	.018	1-1/2	1/8	RE15206	RE25406
.007	.021	1-1/2	1/8	RE15207	RE25407
.008	.024	1-1/2	1/8	RE15208	RE25408
.009	.027	1-1/2	1/8	RE15209	RE25409
.010	.015	1-1/2	1/8	RE25910	RE25810
.010	.030	1-1/2	1/8	RE15210	RE25410
.011	.033	1-1/2	1/8	RE15211	RE25411
.012	.036	1-1/2	1/8	RE15212	RE25412
.013	.039	1-1/2	1/8	RE15213	RE25413
.014	.042	1-1/2	1/8	RE15214	RE25414
.015	.023	1-1/2	1/8	RE25915	RE25815
.015	.045	1-1/2	1/8	RE15215	RE25415
.016	.048	1-1/2	1/8	RE15216	RE25416
.017	.051	1-1/2	1/8	RE15217	RE25417
.018	.054	1-1/2	1/8	RE15218	RE25418
.019	.057	1-1/2	1/8	RE15219	RE25419
.020	.030	1-1/2	1/8	RE25920	RE25820
.020	.060	1-1/2	1/8	RE15220	RE25420
.021	.063	1-1/2	1/8	RE15221	RE25421
.022	.066	1-1/2	1/8	RE15222	RE25422
.023	.069	1-1/2	1/8	RE15223	RE25423
.024	.072	1-1/2	1/8	RE15224	RE25424
.025	.038	1-1/2	1/8	RE25925	RE25825
.025	.075	1-1/2	1/8	RE15225	RE25425
.026	.078	1-1/2	1/8	RE15226	RE25426
.027	.081	1-1/2	1/8	RE15227	RE25427
.028	.084	1-1/2	1/8	RE15228	RE25428
.029	.087	1-1/2	1/8	RE15229	RE25429
.030	.045	1-1/2	1/8	RE25930	RE25830
.030	.090	1-1/2	1/8	RE15230	RE25430
.031	.047	1-1/2	1/8	RE25931	RE25831
.031	.093	1-1/2	1/8	RE15231	RE25431
.032	.096	1-1/2	1/8	RE15232	RE25432
.033	.099	1-1/2	1/8	RE15233	RE25433
.034	.102	1-1/2	1/8	RE15234	RE25434
.035	.053	1-1/2	1/8	RE25935	RE25835
.035	.105	1-1/2	1/8	RE15235	RE25435
.036	.108	1-1/2	1/8	RE15236	RE25436
.037	.111	1-1/2	1/8	RE15237	RE25437
.038	.114	1-1/2	1/8	RE15238	RE25438

Continued

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002



Uncoated



AlTiN Coated

2-Flute, Ball End, 30° Helix (.039-.071)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.039	.117	1-1/2	1/8	RE15239	RE25439
.040	.060	1-1/2	1/8	RE25940	RE25840
.040	.120	1-1/2	1/8	RE15240	RE25440
.041	.123	1-1/2	1/8	RE15241	RE25441
.042	.126	1-1/2	1/8	RE15242	RE25442
.043	.129	1-1/2	1/8	RE15243	RE25443
.044	.132	1-1/2	1/8	RE15244	RE25444
.045	.068	1-1/2	1/8	RE25945	RE25845
.045	.135	1-1/2	1/8	RE15245	RE25445
.046	.138	1-1/2	1/8	RE15246	RE25446
.047	.071	1-1/2	1/8	RE25947	RE25847
.047	.141	1-1/2	1/8	RE15247	RE25447
.048	.144	1-1/2	1/8	RE15248	RE25448
.049	.147	1-1/2	1/8	RE15249	RE25449
.050	.075	1-1/2	1/8	RE25950	RE25850
.050	.150	1-1/2	1/8	RE15250	RE25450
.051	.153	1-1/2	1/8	RE15251	RE25451
.052	.156	1-1/2	1/8	RE15252	RE25452
.053	.159	1-1/2	1/8	RE15253	RE25453
.054	.162	1-1/2	1/8	RE15254	RE25454
.055	.083	1-1/2	1/8	RE25955	RE25855
.055	.165	1-1/2	1/8	RE15255	RE25455
.056	.168	1-1/2	1/8	RE15256	RE25456
.057	.171	1-1/2	1/8	RE15257	RE25457
.058	.174	1-1/2	1/8	RE15258	RE25458
.059	.177	1-1/2	1/8	RE15259	RE25459
.060	.090	1-1/2	1/8	RE25960	RE25860
.060	.180	1-1/2	1/8	RE15260	RE25460
.061	.183	1-1/2	1/8	RE15261	RE25461
.062	.093	1-1/2	1/8	RE25962	RE25862
.062	.186	1-1/2	1/8	RE15262	RE25462
.063	.189	1-1/2	1/8	RE15263	RE25463
.064	.192	1-1/2	1/8	RE15264	RE25464
.065	.098	1-1/2	1/8	RE25965	RE25865
.065	.195	1-1/2	1/8	RE15265	RE25465
.066	.198	1-1/2	1/8	RE15266	RE25466
.067	.201	1-1/2	1/8	RE15267	RE25467
.068	.204	1-1/2	1/8	RE15268	RE25468
.069	.207	1-1/2	1/8	RE15269	RE25469
.070	.105	1-1/2	1/8	RE25970	RE25870
.070	.210	1-1/2	1/8	RE15270	RE25470
.071	.213	1-1/2	1/8	RE15271	RE25471

Continued

Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002

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Micro 2-Flute Ball



Uncoated



AlTiN Coated

2-Flute, Ball End, 30° Helix (.072-.105)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.072	.216	1-1/2	1/8	RE15272	RE25472
.073	.219	1-1/2	1/8	RE15273	RE25473
.074	.222	1-1/2	1/8	RE15274	RE25474
.075	.113	1-1/2	1/8	RE25975	RE25875
.075	.225	1-1/2	1/8	RE15275	RE25475
.076	.228	1-1/2	1/8	RE15276	RE25476
.077	.231	1-1/2	1/8	RE15277	RE25477
.078	.117	1-1/2	1/8	RE25978	RE25878
.078	.234	1-1/2	1/8	RE15278	RE25478
.079	.237	1-1/2	1/8	RE15279	RE25479
.080	.120	1-1/2	1/8	RE25980	RE25880
.080	.240	1-1/2	1/8	RE15280	RE25480
.081	.243	1-1/2	1/8	RE15281	RE25481
.082	.246	1-1/2	1/8	RE15282	RE25482
.083	.249	1-1/2	1/8	RE15283	RE25483
.084	.252	1-1/2	1/8	RE15284	RE25484
.085	.128	1-1/2	1/8	RE25985	RE25885
.085	.255	1-1/2	1/8	RE15285	RE25485
.086	.258	1-1/2	1/8	RE15286	RE25486
.087	.261	1-1/2	1/8	RE15287	RE25487
.088	.264	1-1/2	1/8	RE15288	RE25488
.089	.267	1-1/2	1/8	RE15289	RE25489
.090	.135	1-1/2	1/8	RE25990	RE25890
.090	.270	1-1/2	1/8	RE15290	RE25490
.091	.273	1-1/2	1/8	RE15291	RE25491
.092	.276	1-1/2	1/8	RE15292	RE25492
.093	.140	1-1/2	1/8	RE25993	RE25893
.093	.279	1-1/2	1/8	RE15293	RE25493
.094	.282	1-1/2	1/8	RE15294	RE25494
.095	.143	1-1/2	1/8	RE25995	RE25895
.095	.285	1-1/2	1/8	RE15295	RE25495
.096	.288	1-1/2	1/8	RE15296	RE25496
.097	.291	1-1/2	1/8	RE15297	RE25497
.098	.294	1-1/2	1/8	RE15298	RE25498
.099	.297	1-1/2	1/8	RE15299	RE25499
.100	.150	1-1/2	1/8	RE25900	RE25800
.100	.300	1-1/2	1/8	RE15300	RE25600
.101	.303	1-1/2	1/8	RE15301	RE25601
.102	.306	1-1/2	1/8	RE15302	RE25602
.103	.309	1-1/2	1/8	RE15303	RE25603
.104	.312	1-1/2	1/8	RE15304	RE25604
.105	.315	1-1/2	1/8	RE15305	RE25605

Continued

Speeds & Feeds page 215.

Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002



Uncoated



AlTiN Coated

2-Flute, Ball End, 30° Helix (.106-.120)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.106	.318	1-1/2	1/8	RE15306	RE25606
.107	.321	1-1/2	1/8	RE15307	RE25607
.108	.324	1-1/2	1/8	RE15308	RE25608
.109	.327	1-1/2	1/8	RE15309	RE25609
.110	.330	1-1/2	1/8	RE15310	RE25610
.115	.345	1-1/2	1/8	RE15315	RE25615
.120	.360	1-1/2	1/8	RE15320	RE25620

Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002

Speeds & Feeds page 215.

2-Flute Ball



Uncoated



AlTiN Coated



TiCN Coated

2-Flute, Ball End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
1/64	.0156	.023	1-1/2	1/8	RE10401	RE10601	–
1/64	.0156	1/32	1-1/2	1/8	RE11401	RE11601	RE11801
1/32	.0313	1/16	1-1/2	1/8	RE10402	RE10602	–
1/32	.0313	1/8	1-1/2	1/8	RE11402	RE11602	RE11802
3/64	.0469	3/32	1-1/2	1/8	RE10403	RE10603	–
3/64	.0469	1/8	1-1/2	1/8	RE11403	RE11603	RE11803
1/16	.0625	1/8	1-1/2	1/8	RE10404	RE10604	–
1/16	.0625	1/4	1-1/2	1/8	RE11404	RE11604	RE11804
5/64	.0781	1/8	1-1/2	1/8	RE10405	RE10605	–
5/64	.0781	1/4	1-1/2	1/8	RE11405	RE11605	RE11805
3/32	.0938	3/16	1-1/2	1/8	RE10406	RE10606	–
3/32	.0938	3/8	1-1/2	1/8	RE11406	RE11606	RE11806
7/64	.1094	3/8	1-1/2	1/8	RE11407	RE11607	RE11807
1/8	.1250	1/4	1-1/2	1/8	RE10408	RE10608	–
1/8	.1250	1/2	1-1/2	1/8	RE11408	RE11608	RE11808
1/8	.1250	3/4	2-1/4	1/8	RE13208	RE13608	RE14008
1/8	.1250	1	3	1/8	RE13408	RE13808	RE14208
9/64	.1406	9/16	2	3/16	RE11409	RE11609	RE11809
5/32	.1563	5/16	2	3/16	RE10410	RE10610	–
5/32	.1563	9/16	2	3/16	RE11410	RE11610	RE11810
11/64	.1719	5/8	2	3/16	RE11411	RE11611	RE11811
3/16	.1875	3/8	2	3/16	RE10412	RE10612	–
3/16	.1875	5/8	2	3/16	RE11412	RE11612	RE11812
3/16	.1875	3/4	2-1/2	3/16	RE13212	RE13612	RE14012
3/16	.1875	1-1/8	3	3/16	RE13412	RE13812	RE14212
13/64	.2031	5/8	2-1/2	1/4	RE11413	RE11613	RE11813
7/32	.2188	7/16	2	1/4	RE10414	RE10614	–
7/32	.2188	5/8	2-1/2	1/4	RE11414	RE11614	RE11814
15/64	.2344	3/4	2-1/2	1/4	RE11415	RE11615	RE11815
1/4	.2500	1/2	2	1/4	RE10416	RE10616	–
1/4	.2500	3/4	2-1/2	1/4	RE11416	RE11616	RE11816
1/4	.2500	1	4	1/4	RE13217	RE13617	RE14017
1/4	.2500	1-1/8	3	1/4	RE13216	RE13616	RE14016
1/4	.2500	1-1/2	4	1/4	RE13416	RE13816	RE14216
1/4	.2500	1-1/2	6	1/4	RE13417	RE13817	RE14217
17/64	.2656	3/4	2-1/2	5/16	RE11417	RE11617	RE11817
9/32	.2813	3/4	2-1/2	5/16	RE11418	RE11618	RE11818

Continued

Tolerances	Diameter	Shank	Radius
1/64"-1/8"	+0.000, -0.002	-0.0001, -0.0004	+0.0002, -0.0002
9/64"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8”-1”	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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Uncoated



AlTiN Coated



TiCN Coated

2-Flute, Ball End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
19/64	.2969	13/16	2-1/2	5/16	RE11419	RE11619	RE11819
5/16	.3125	1/2	2	5/16	RE10420	RE10620	–
5/16	.3125	13/16	2-1/2	5/16	RE11420	RE11620	RE11820
5/16	.3125	1-1/8	3	5/16	RE13220	RE13620	RE14020
5/16	.3125	1-5/8	4	5/16	RE13420	RE13820	RE14220
21/64	.3281	1	2-1/2	3/8	RE11421	RE11621	RE11821
11/32	.3438	1	2-1/2	3/8	RE11422	RE11622	RE11822
23/64	.3594	1	2-1/2	3/8	RE11423	RE11623	RE11823
3/8	.3750	5/8	2	3/8	RE10424	RE10624	–
3/8	.3750	1	2-1/2	3/8	RE11424	RE11624	RE11824
3/8	.3750	1	4	3/8	RE13225	RE13625	RE14025
3/8	.3750	1-1/8	3	3/8	RE13224	RE13624	RE14024
3/8	.3750	1-1/2	6	3/8	RE13425	RE13825	RE14225
3/8	.3750	1-3/4	4	3/8	RE13424	RE13824	RE14224
25/64	.3906	1	2-3/4	7/16	RE11425	RE11625	RE11825
13/32	.4063	1	2-3/4	7/16	RE11426	RE11626	RE11826
27/64	.4219	1	2-3/4	7/16	RE11427	RE11627	RE11827
7/16	.4375	5/8	2-1/2	7/16	RE10428	RE10628	–
7/16	.4375	1	2-3/4	7/16	RE11428	RE11628	RE11828
7/16	.4375	2	4	7/16	RE13228	RE13628	RE14028
7/16	.4375	3	6	7/16	RE13428	RE13828	RE14228
29/64	.4531	1	3	1/2	RE11429	RE11629	RE11829
15/32	.4688	1	3	1/2	RE11430	RE11630	RE11830
31/64	.4844	1	3	1/2	RE11431	RE11631	RE11831
1/2	.5000	5/8	2-1/2	1/2	RE10432	RE10632	–
1/2	.5000	1	3	1/2	RE11432	RE11632	RE11832
1/2	.5000	1	4	1/2	RE13232	RE13632	RE14032
1/2	.5000	1-1/2	6	1/2	RE13432	RE13832	RE14232
1/2	.5000	2	4	1/2	RE13233	RE13633	RE14033
1/2	.5000	3	6	1/2	RE13433	RE13833	RE14233
9/16	.5625	1-1/4	3-1/2	9/16	RE11436	RE11636	RE11836
5/8	.6250	3/4	3	5/8	RE10440	RE10640	–
5/8	.6250	1-1/4	3-1/2	5/8	RE11440	RE11640	RE11840
5/8	.6250	2-1/4	5	5/8	RE13240	RE13640	RE14040
5/8	.6250	3	6	5/8	RE13440	RE13840	RE14240

Continued

Tolerances	Diameter	Shank	Radius
1/64"-1/8"	+0.000, -0.002	-0.0001, -0.0004	+0.0002, -0.0002
9/64"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8"-1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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2-Flute Ball



Uncoated



AlTiN Coated



TiCN Coated

2-Flute, Ball End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
3/4	.7500	1	3	3/4	RE10448	RE10648	–
3/4	.7500	1-1/2	4	3/4	RE11448	RE11648	RE11848
3/4	.7500	2-1/4	5	3/4	RE13248	RE13648	RE14048
3/4	.7500	3	6	3/4	RE13448	RE13848	RE14248
7/8	.8750	1-1/2	4	7/8	RE11456	RE11656	RE11856
7/8	.8750	2-1/4	5	7/8	RE13256	RE13656	RE14056
7/8	.8750	3	6	7/8	RE13456	RE13856	RE14256
1	1.0000	1-1/2	4	1	RE11464	RE11664	RE11864
1	1.0000	2-1/4	5	1	RE13264	RE13664	RE14064
1	1.0000	3	6	1	RE13464	RE13864	RE14264

Tolerances	Diameter	Shank	Radius
1/64"-1/8"	+0.000, -0.002	-0.0001, -0.0004	+0.0002, -0.0002
9/64"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8"-1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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Uncoated



AlTiN Coated

2-Flute, Ball End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/16	.0625	1/8	1-1/2	1/8	RE16404	RE16504
3/32	.0938	3/16	1-1/2	1/8	RE16406	RE16506
1/8	.1250	1/4	1-1/2	1/8	RE16408	RE16508
1/8	.1250	3/8	3-1/8	3/8	RE16808	RE16908
5/32	.1563	5/16	2	3/16	RE16410	RE16510
5/32	.1563	7/16	3-1/4	3/8	RE16810	RE16910
3/16	.1875	3/8	2	3/16	RE16412	RE16512
3/16	.1875	1/2	3-1/4	3/8	RE16812	RE16912
7/32	.2188	1/2	2-1/2	1/4	RE16414	RE16514
7/32	.2188	9/16	3-1/2	3/8	RE16814	RE16914
1/4	.2500	1/2	2-1/2	1/4	RE16416	RE16516
1/4	.2500	5/8	3-1/2	3/8	RE16816	RE16916
9/32	.2813	11/16	3-1/2	3/8	RE16818	RE16918
5/16	.3125	1/2	2-1/2	5/16	RE16420	RE16520
5/16	.3125	3/4	3-1/2	3/8	RE16820	RE16920
11/32	.3438	3/4	3-1/2	3/8	RE16822	RE16922
3/8	.3750	9/16	2-1/2	3/8	RE16424	RE16524
3/8	.3750	3/4	3-1/2	3/8	RE16824	RE16924
7/16	.4375	9/16	2-3/4	7/16	RE16428	RE16528
7/16	.4375	7/8	4	1/2	RE16828	RE16928
1/2	.5000	5/8	3	1/2	RE16432	RE16532
1/2	.5000	1	4	1/2	RE16832	RE16932

Tolerances	Diameter	Shank	Radius
1/64"-1/8"	+0.000, -0.002	-0.0001, -0.0004	+0.0002, -0.0002
9/64"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001

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Micro 3-Flute

NEW Product



Uncoated



AlTiN Coated



DLC Coated

3-Flute, Regular, Long & Extra Long Flute Length, Long Reach, Square End, 30° Helix (.0100-.0625)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0100	.050	2-1/2	1/8	RET1100	RET1101	RET1102
.0100	.080	2-1/2	1/8	RET1103	RET1104	RET1105
.0150	.075	2-1/2	1/8	RET1000	RET2000	RET1106
.0156	.078	2-1/2	1/8	RET1107	RET1108	RET1109
.0156	.125	2-1/2	1/8	RET1110	RET1111	RET1112
.0156	.187	2-1/2	1/8	RET1113	RET1114	RET1115
.0200	.100	2-1/2	1/8	RET1001	RET2001	RET1116
.0200	.160	2-1/2	1/8	RET1117	RET1118	RET1119
.0200	.250	2-1/2	1/8	RET1120	RET1121	RET1122
.0250	.125	2-1/2	1/8	RET1002	RET2002	RET1123
.0250	.203	2-1/2	1/8	RET1124	RET1125	RET1126
.0300	.150	2-1/2	1/8	RET1003	RET2003	RET1127
.0300	.250	2-1/2	1/8	RET1128	RET1129	RET1130
.0300	.375	2-1/2	1/8	RET1131	RET1132	RET1133
.0312	.156	2-1/2	1/8	RET1134	RET1135	RET1136
.0312	.250	2-1/2	1/8	RET1137	RET1138	RET1139
.0312	.375	2-1/2	1/8	RET1140	RET1141	RET1142
.0312	.470	2-1/2	1/8	RET1143	RET1144	RET1145
.0350	.175	2-1/2	1/8	RET1004	RET2004	RET1146
.0350	.280	2-1/2	1/8	RET1147	RET1148	RET1149
.0400	.200	2-1/2	1/8	RET1005	RET2005	RET1150
.0400	.325	2-1/2	1/8	RET1151	RET1152	RET1153
.0400	.480	2-1/2	1/8	RET1154	RET1155	RET1156
.0450	.225	2-1/2	1/8	RET1006	RET2006	RET1157
.0450	.375	2-1/2	1/8	RET1158	RET1159	RET1160
.0469	.250	2-1/2	1/8	RET1161	RET1162	RET1163
.0469	.375	2-1/2	1/8	RET1164	RET1165	RET1166
.0469	.570	2-1/2	1/8	RET1167	RET1168	RET1169
.0469	.710	2-1/2	1/8	RET1170	RET1171	RET1172
.0500	.300	2-1/2	1/8	RET1007	RET2007	RET1173
.0500	.400	2-1/2	1/8	RET1174	RET1175	RET1176
.0500	.600	2-1/2	1/8	RET1177	RET1178	RET1179
.0550	.275	2-1/2	1/8	RET1180	RET1181	RET1182
.0550	.385	2-1/2	1/8	RET1008	RET2008	RET1183
.0600	.312	2-1/2	1/8	RET1184	RET1185	RET1186
.0600	.500	2-1/2	1/8	RET1009	RET2009	RET1187
.0625	.312	2-1/2	1/8	RET1188	RET1189	RET1190
.0625	.500	2-1/2	1/8	RET1191	RET1192	RET1193

Continued

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Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	+0.000, -0.0003

NEW Product



Uncoated



AlTiN Coated



DLC Coated

3-Flute, Regular, Long & Extra Long Flute Length, Long Reach, Square End, 30° Helix (.0625-.1250)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0625	.750	2-1/2	1/8	RET1194	RET1195	RET1196
.0625	.950	2-1/2	1/8	RET1197	RET1198	RET1199
.0650	.500	2-1/2	1/8	RET1010	RET2010	RET1200
.0700	.375	2-1/2	1/8	RET1201	RET1202	RET1203
.0700	.500	2-1/2	1/8	RET1011	RET2011	RET1204
.0750	.375	2-1/2	1/8	RET1205	RET1206	RET1207
.0750	.500	2-1/2	1/8	RET1012	RET2012	RET1208
.0781	.406	2-1/2	1/8	RET1209	RET1210	RET1211
.0781	.625	2-1/2	1/8	RET1212	RET1213	RET1214
.0781	.940	2-1/2	1/8	RET1215	RET1216	RET1217
.0781	1.187	2-1/2	1/8	RET1218	RET1219	RET1220
.0800	.406	2-1/2	1/8	RET1221	RET1222	RET1223
.0800	.750	2-1/2	1/8	RET1013	RET2013	RET1224
.0850	.425	2-1/2	1/8	RET1225	RET1226	RET1227
.0850	.750	2-1/2	1/8	RET1014	RET2014	RET1228
.0900	.450	2-1/2	1/8	RET1229	RET1230	RET1231
.0900	.750	2-1/2	1/8	RET1015	RET2015	RET1232
.0938	.500	2-1/2	1/8	RET1233	RET1234	RET1235
.0938	.750	2-1/2	1/8	RET1236	RET1237	RET1238
.0938	1.125	2-1/2	1/8	RET1239	RET1240	RET1241
.0938	1.400	3	1/8	RET1242	RET1243	RET1244
.0950	.750	2-1/2	1/8	RET1016	RET2016	RET1245
.1000	.500	2-1/2	1/8	RET1246	RET1247	RET1248
.1000	.750	2-1/2	1/8	RET1017	RET2017	RET1249
.1250	.625	2-1/2	1/8	RET1250	RET1251	RET1252
.1250	1.000	2-1/2	1/8	RET1253	RET1254	RET1255
.1250	1.500	3	1/8	RET1256	RET1257	RET1258
.1250	1.875	3	1/8	RET1259	RET1260	RET1261

Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	+0.000, -0.0003

Speeds & Feeds page 217.

Micro 3-Flute



Uncoated



AlTiN Coated

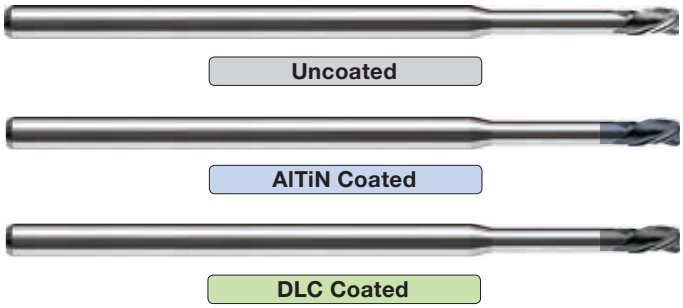
3-Flute, Regular Length, Corner Radius, 3X Diameter, Metric, 50° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
1MM	.0394	3	38	.1	3	RET0001	RET0020
1.5MM	.0591	4.5	38	.15	3	RET0002	RET0021
2MM	.0787	6	38	.2	3	RET0003	RET0022
2MM	.0980	7.5	38	.25	3	RET0004	RET0023
3MM	.1181	9	38	.3	3	RET0005	RET0024
3.5MM	.1378	12	50	.35	6	RET0006	RET0025
4MM	.1575	12	50	.4	5	RET0007	RET0026
4.5MM	.1770	15	50	.45	6	RET0008	RET0027
5MM	.1968	15	50	.5	5	RET0009	RET0028
5.5MM	.2165	18	50	.55	6	RET0010	RET0029
6MM	.2362	18	50	.6	6	RET0011	RET0030

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.020	+0.000, -0.007	+0.000, -0.050

NEW Product



3-Flute, Square End, Long Reach, Stub Flute, 30° Helix (.0100-.0500)

Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0100	.015	1.5	2-1/2	.030	3	1/8	RET7000	RET7001	RET7002
.0100	.015	1.5	2-1/2	.050	5	1/8	RET7003	RET7004	RET7005
.0100	.015	1.5	2-1/2	.080	8	1/8	RET7006	RET7007	RET7008
.0150	.022	1.5	2-1/2	.078	5	1/8	RET1025	RET2025	RET7009
.0150	.022	1.5	2-1/2	.125	8	1/8	RET1026	RET2026	RET7010
.0156	.022	1.5	2-1/2	.045	3	1/8	RET7011	RET7012	RET7013
.0156	.022	1.5	2-1/2	.078	5	1/8	RET7014	RET7015	RET7016
.0156	.022	1.5	2-1/2	.125	8	1/8	RET7017	RET7018	RET7019
.0200	.030	1.5	2-1/2	.060	3	1/8	RET7020	RET7021	RET7022
.0200	.030	1.5	2-1/2	.100	5	1/8	RET1028	RET2028	RET7023
.0200	.030	1.5	2-1/2	.160	8	1/8	RET1029	RET2029	RET7024
.0250	.037	1.5	2-1/2	.075	3	1/8	RET7025	RET7026	RET7027
.0250	.037	1.5	2-1/2	.125	5	1/8	RET1031	RET2031	RET7028
.0250	.037	1.5	2-1/2	.200	8	1/8	RET1032	RET2032	RET7029
.0300	.045	1.5	2-1/2	.090	3	1/8	RET7030	RET7031	RET7032
.0300	.045	1.5	2-1/2	.156	5	1/8	RET1034	RET2034	RET7033
.0300	.045	1.5	2-1/2	.250	8	1/8	RET1035	RET2035	RET7034
.0312	.046	1.5	2-1/2	.093	3	1/8	RET7035	RET7036	RET7037
.0312	.046	1.5	2-1/2	.156	5	1/8	RET7038	RET7039	RET7040
.0312	.046	1.5	2-1/2	.250	8	1/8	RET7041	RET7042	RET7043
.0350	.052	1.5	2-1/2	.105	3	1/8	RET7044	RET7045	RET7046
.0350	.052	1.5	2-1/2	.187	5	1/8	RET1037	RET2037	RET7047
.0350	.052	1.5	2-1/2	.280	8	1/8	RET1038	RET2038	RET7048
.0394	.059	1.5	2-1/2	.117	3	1/8	RET7049	RET7050	RET7051
.0394	.059	1.5	2-1/2	.203	5	1/8	RET7052	RET7053	RET7054
.0394	.059	1.5	2-1/2	.325	8	1/8	RET7055	RET7056	RET7057
.0400	.060	1.5	2-1/2	.120	3	1/8	RET7058	RET7059	RET7060
.0400	.060	1.5	2-1/2	.200	5	1/8	RET1040	RET2040	RET7061
.0400	.060	1.5	2-1/2	.325	8	1/8	RET1041	RET2041	RET7062
.0450	.067	1.5	2-1/2	.135	3	1/8	RET7063	RET7064	RET7065
.0450	.067	1.5	2-1/2	.225	5	1/8	RET1043	RET2043	RET7066
.0450	.067	1.5	2-1/2	.375	8	1/8	RET1044	RET2044	RET7067
.0469	.070	1.5	2-1/2	.141	3	1/8	RET7068	RET7069	RET7070
.0469	.070	1.5	2-1/2	.250	5	1/8	RET7071	RET7072	RET7073
.0469	.070	1.5	2-1/2	.375	8	1/8	RET7074	RET7075	RET7076
.0500	.075	1.5	2-1/2	.150	3	1/8	RET7077	RET7078	RET7079
.0500	.075	1.5	2-1/2	.250	5	1/8	RET1046	RET2046	RET7080
.0500	.075	1.5	2-1/2	.400	8	1/8	RET1047	RET7159	RET7081

Continued

Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	+0.000, -0.0003

Speeds & Feeds page 217.

Micro 3-Flute

NEW Product



Uncoated



AlTiN Coated



DLC Coated

3-Flute, Square End, Long Reach, Stub Flute, 30° Helix (.0550-.2500)

Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0550	.082	1.5	2-1/2	.165	3	1/8	RET7082	RET7083	RET7084
.0550	.082	1.5	2-1/2	.275	5	1/8	RET1049	RET2049	RET7085
.0550	.082	1.5	2-1/2	.450	8	1/8	RET1050	RET2050	RET7086
.0600	.090	1.5	2-1/2	.180	3	1/8	RET7087	RET7088	RET7089
.0600	.090	1.5	2-1/2	.300	5	1/8	RET1052	RET2052	RET7090
.0600	.090	1.5	2-1/2	.500	8	1/8	RET1053	RET2053	RET7091
.0625	.093	1.5	2-1/2	.186	3	1/8	RET7092	RET7093	RET7094
.0625	.093	1.5	2-1/2	.312	5	1/8	RET7095	RET7096	RET7097
.0625	.093	1.5	2-1/2	.500	8	1/8	RET7098	RET7099	RET7100
.0650	.097	1.5	2-1/2	.325	5	1/8	RET1055	RET2055	RET7101
.0650	.097	1.5	2-1/2	.530	8	1/8	RET1056	RET2056	RET7102
.0700	.105	1.5	2-1/2	.375	5	1/8	RET1058	RET2058	RET7103
.0700	.105	1.5	2-1/2	.570	8	1/8	RET1059	RET2059	RET7104
.0750	.112	1.5	2-1/2	.375	5	1/8	RET1061	RET2061	RET7105
.0750	.112	1.5	2-1/2	.625	8	1/8	RET1062	RET2062	RET7106
.0781	.117	1.5	2-1/2	.234	3	1/8	RET7107	RET7108	RET7109
.0781	.117	1.5	2-1/2	.406	5	1/8	RET7110	RET7111	RET7112
.0781	.117	1.5	2-1/2	.625	8	1/8	RET7113	RET7114	RET7115
.0800	.120	1.5	2-1/2	.400	5	1/8	RET1064	RET2064	RET7116
.0800	.120	1.5	2-1/2	.650	8	1/8	RET1065	RET2065	RET7117
.0850	.127	1.5	2-1/2	.425	5	1/8	RET1067	RET2067	RET7118
.0850	.127	1.5	2-1/2	.700	8	1/8	RET1068	RET2068	RET7119
.0900	.135	1.5	2-1/2	.450	5	1/8	RET1070	RET2070	RET7120
.0900	.135	1.5	2-1/2	.750	8	1/8	RET1071	RET2071	RET7121
.0938	.139	1.5	2-1/2	.279	3	1/8	RET7122	RET7123	RET7124
.0938	.139	1.5	2-1/2	.500	5	1/8	RET7125	RET7126	RET7127
.0938	.139	1.5	2-1/2	.750	8	1/8	RET7128	RET7129	RET7130
.0950	.142	1.5	2-1/2	.500	5	1/8	RET1073	RET2073	RET7131
.0950	.142	1.5	2-1/2	.750	8	1/8	RET1074	RET2074	RET7132
.1000	.150	1.5	2-1/2	.500	5	1/8	RET1076	RET2076	RET7133
.1000	.150	1.5	2-1/2	.800	8	1/8	RET1077	RET2077	RET7134
.1250	.187	1.5	2-1/2	.625	5	1/8	RET7135	RET7136	RET7137
.1250	.187	1.5	2-1/2	1.000	8	1/8	RET7138	RET7139	RET7140
.1562	.234	1.5	3	.750	5	3/16	RET7141	RET7142	RET7143
.1562	.234	1.5	3	1.250	8	3/16	RET7144	RET7145	RET7146
.1875	.281	1.5	3	1.000	5	3/16	RET7147	RET7148	RET7149
.1875	.281	1.5	3	1.500	8	3/16	RET7150	RET7151	RET7152
.2500	.375	1.5	4	1.250	5	1/4	RET7153	RET7154	RET7155
.2500	.375	1.5	4	2.000	8	1/4	RET7156	RET7157	RET7158

Speeds & Feeds page 217.

Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	+0.000, -0.0003

NEW Product


Uncoated


AlTiN Coated


DLC Coated

3-Flute, Corner Radius, Long Reach, Stub Flute, 30° Helix (.0156-.0938)

Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0156	.022	1.5	2-1/2	.078	5	.003	1/8	RET7800	RET7801	RET7802
.0156	.022	1.5	2-1/2	.125	8	.003	1/8	RET7803	RET7804	RET7805
.0200	.030	1.5	2-1/2	.100	5	.005	1/8	RET7806	RET7807	RET7808
.0200	.030	1.5	2-1/2	.160	8	.005	1/8	RET7809	RET7810	RET7811
.0250	.037	1.5	2-1/2	.125	5	.005	1/8	RET7812	RET7813	RET7814
.0250	.037	1.5	2-1/2	.203	8	.005	1/8	RET7815	RET7816	RET7817
.0312	.046	1.5	2-1/2	.156	5	.005	1/8	RET7818	RET7819	RET7820
.0312	.046	1.5	2-1/2	.156	5	.010	1/8	RET7821	RET7822	RET7823
.0312	.046	1.5	2-1/2	.250	8	.005	1/8	RET7824	RET7825	RET7826
.0312	.046	1.5	2-1/2	.250	8	.010	1/8	RET7827	RET7828	RET7829
.0312	.046	1.5	2-1/2	.375	12	.005	1/8	RET7830	RET7831	RET7832
.0312	.046	1.5	2-1/2	.375	12	.010	1/8	RET7833	RET7834	RET7835
.0469	.070	1.5	2-1/2	.250	5	.005	1/8	RET7836	RET7837	RET7838
.0469	.070	1.5	2-1/2	.250	5	.010	1/8	RET7839	RET7840	RET7841
.0469	.070	1.5	2-1/2	.375	8	.005	1/8	RET7842	RET7843	RET7844
.0469	.070	1.5	2-1/2	.375	8	.010	1/8	RET7845	RET7846	RET7847
.0469	.070	1.5	2-1/2	.570	12	.005	1/8	RET7848	RET7849	RET7850
.0469	.070	1.5	2-1/2	.570	12	.010	1/8	RET7851	RET7852	RET7853
.0625	.093	1.5	2-1/2	.312	5	.005	1/8	RET7854	RET7855	RET7856
.0625	.093	1.5	2-1/2	.312	5	.010	1/8	RET7857	RET7858	RET7859
.0625	.093	1.5	2-1/2	.312	5	.015	1/8	RET7860	RET7861	RET7862
.0625	.093	1.5	2-1/2	.500	8	.005	1/8	RET7863	RET7864	RET7865
.0625	.093	1.5	2-1/2	.500	8	.010	1/8	RET7866	RET7867	RET7868
.0625	.093	1.5	2-1/2	.500	8	.015	1/8	RET7869	RET7870	RET7871
.0625	.093	1.5	2-1/2	.750	12	.005	1/8	RET7872	RET7873	RET7874
.0625	.093	1.5	2-1/2	.750	12	.010	1/8	RET7875	RET7876	RET7877
.0625	.093	1.5	2-1/2	.750	12	.015	1/8	RET7878	RET7879	RET7880
.0781	.117	1.5	2-1/2	.406	5	.005	1/8	RET7881	RET7882	RET7883
.0781	.117	1.5	2-1/2	.406	5	.010	1/8	RET7884	RET7885	RET7886
.0781	.117	1.5	2-1/2	.406	5	.015	1/8	RET7887	RET7888	RET7889
.0781	.117	1.5	2-1/2	.625	8	.005	1/8	RET7890	RET7891	RET7892
.0781	.117	1.5	2-1/2	.625	8	.010	1/8	RET7893	RET7894	RET7895
.0781	.117	1.5	2-1/2	.625	8	.015	1/8	RET7896	RET7897	RET7898
.0781	.117	1.5	2-1/2	.940	12	.005	1/8	RET7899	RET7900	RET7901
.0781	.117	1.5	2-1/2	.940	12	.010	1/8	RET7902	RET7903	RET7904
.0781	.117	1.5	2-1/2	.940	12	.015	1/8	RET7905	RET7906	RET7907
.0938	.139	1.5	2-1/2	.500	5	.005	1/8	RET7908	RET7909	RET7910
.0938	.139	1.5	2-1/2	.500	5	.010	1/8	RET7911	RET7912	RET7913
.0938	.139	1.5	2-1/2	.500	5	.015	1/8	RET7914	RET7915	RET7916

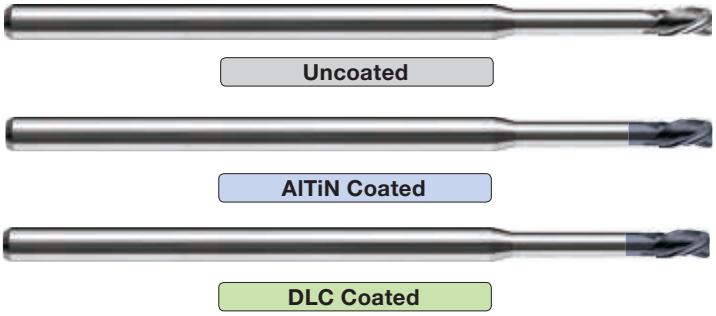
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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	+0.000, -0.0003	+0.001, -0.001

Speeds & Feeds page 217.

Micro 3-Flute

NEW Product



3-Flute, Corner Radius, Long Reach, Stub Flute, 30° Helix (.0938-.2500)

Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0938	.139	1.5	2-1/2	.750	8	.005	1/8	RET7917	RET7918	RET7919
.0938	.139	1.5	2-1/2	.750	8	.010	1/8	RET7920	RET7921	RET7922
.0938	.139	1.5	2-1/2	.750	8	.015	1/8	RET7923	RET7924	RET7925
.0938	.139	1.5	2-1/2	1.125	12	.005	1/8	RET7926	RET7927	RET7928
.0938	.139	1.5	2-1/2	1.125	12	.010	1/8	RET7929	RET7930	RET7931
.0938	.139	1.5	2-1/2	1.125	12	.015	1/8	RET7932	RET7933	RET7934
.1250	.187	1.5	2-1/2	.625	5	.010	1/8	RET7935	RET7936	RET7937
.1250	.187	1.5	2-1/2	.625	5	.015	1/8	RET7938	RET7939	RET7940
.1250	.187	1.5	2-1/2	.625	5	.030	1/8	RET7941	RET7942	RET7943
.1250	.187	1.5	2-1/2	1.000	8	.010	1/8	RET7944	RET7945	RET7946
.1250	.187	1.5	2-1/2	1.000	8	.015	1/8	RET7947	RET7948	RET7949
.1250	.187	1.5	2-1/2	1.000	8	.030	1/8	RET7950	RET7951	RET7952
.1250	.187	1.5	3	1.500	12	.010	1/8	RET7953	RET7954	RET7955
.1250	.187	1.5	3	1.500	12	.015	1/8	RET7956	RET7957	RET7958
.1250	.187	1.5	3	1.500	12	.030	1/8	RET7959	RET7960	RET7961
.1562	.234	1.5	3	.750	5	.010	3/16	RET7962	RET7963	RET7964
.1562	.234	1.5	3	.750	5	.015	3/16	RET7965	RET7966	RET7967
.1562	.234	1.5	3	1.250	8	.010	3/16	RET7968	RET7969	RET7970
.1562	.234	1.5	3	1.250	8	.015	3/16	RET7971	RET7972	RET7973
.1875	.281	1.5	3	1.000	5	.015	3/16	RET7974	RET7975	RET7976
.1875	.281	1.5	3	1.000	5	.030	3/16	RET7977	RET7978	RET7979
.1875	.281	1.5	3	1.500	8	.015	3/16	RET7980	RET7981	RET7982
.1875	.281	1.5	3	1.500	8	.030	3/16	RET7983	RET7984	RET7985
.1875	.281	1.5	4	2.250	12	.015	3/16	RET7986	RET7987	RET7988
.1875	.281	1.5	4	2.250	12	.030	3/16	RET7989	RET7990	RET7991
.2500	.375	1.5	4	1.250	5	.015	1/4	RET7992	RET7993	RET7994
.2500	.375	1.5	4	1.250	5	.030	1/4	RET7995	RET7996	RET7997
.2500	.375	1.5	4	2.000	8	.015	1/4	RET7998	RET7999	RET8000
.2500	.375	1.5	4	2.000	8	.030	1/4	RET8001	RET8002	RET8003
.2500	.375	1.5	6	3.000	12	.015	1/4	RET8004	RET8005	RET8006
.2500	.375	1.5	6	3.000	12	.030	1/4	RET8007	RET8008	RET8009

Speeds & Feeds page 217.

Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	+0.000, -0.0003	+0.001, -0.001

NEW Product



Uncoated



AlTiN Coated



DLC Coated

3-Flute, Square End, Extra Long Reach, Stub Flute, 30° Helix (.0100-.0550)

Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0100	.015	1.5	2-1/2	.125	12.5	1/8	RET7300	RET7301	RET7302
.0100	.015	1.5	2-1/2	.150	15	1/8	RET7303	RET7304	RET7305
.0156	.022	1.5	2-1/2	.156	10	1/8	RET7306	RET7307	RET7308
.0156	.022	1.5	2-1/2	.187	12	1/8	RET7309	RET7310	RET7311
.0156	.022	1.5	2-1/2	.225	14	1/8	RET7312	RET7313	RET7314
.0156	.022	1.5	2-1/2	.300	19	1/8	RET7315	RET7316	RET7317
.0200	.030	1.5	2-1/2	.250	12.5	1/8	RET7318	RET7319	RET7320
.0200	.030	1.5	2-1/2	.300	15	1/8	RET7321	RET7322	RET7323
.0200	.030	1.5	2-1/2	.400	20	1/8	RET7324	RET7325	RET7326
.0250	.037	1.5	2-1/2	.312	12.5	1/8	RET7327	RET7328	RET7329
.0250	.037	1.5	2-1/2	.375	15	1/8	RET7330	RET7331	RET7332
.0250	.037	1.5	2-1/2	.500	20	1/8	RET7333	RET7334	RET7335
.0300	.045	1.5	2-1/2	.375	12.5	1/8	RET7336	RET7337	RET7338
.0300	.045	1.5	2-1/2	.450	15	1/8	RET7339	RET7340	RET7341
.0312	.046	1.5	2-1/2	.312	10	1/8	RET7342	RET7343	RET7344
.0312	.046	1.5	2-1/2	.375	12	1/8	RET7345	RET7346	RET7347
.0312	.046	1.5	2-1/2	.470	15	1/8	RET7348	RET7349	RET7350
.0312	.046	1.5	2-1/2	.565	18	1/8	RET7351	RET7352	RET7353
.0312	.046	1.5	2-1/2	.625	20	1/8	RET7354	RET7355	RET7356
.0312	.046	1.5	2-1/2	.775	25	1/8	RET7357	RET7358	RET7359
.0350	.052	1.5	2-1/2	.425	12	1/8	RET7360	RET7361	RET7362
.0350	.052	1.5	2-1/2	.525	15	1/8	RET7363	RET7364	RET7365
.0350	.052	1.5	2-1/2	.700	20	1/8	RET7366	RET7367	RET7368
.0394	.059	1.5	2-1/2	.480	12	1/8	RET7369	RET7370	RET7371
.0400	.060	1.5	2-1/2	.480	12	1/8	RET7372	RET7373	RET7374
.0400	.060	1.5	2-1/2	.600	15	1/8	RET7375	RET7376	RET7377
.0400	.060	1.5	2-1/2	.800	20	1/8	RET7378	RET7379	RET7380
.0450	.067	1.5	2-1/2	.550	12	1/8	RET7381	RET7382	RET7383
.0450	.067	1.5	2-1/2	.680	15	1/8	RET7384	RET7385	RET7386
.0450	.067	1.5	2-1/2	.900	20	1/8	RET7387	RET7388	RET7389
.0469	.070	1.5	2-1/2	.480	10	1/8	RET7390	RET7391	RET7392
.0469	.070	1.5	2-1/2	.570	12	1/8	RET7393	RET7394	RET7395
.0469	.070	1.5	2-1/2	.710	15	1/8	RET7396	RET7397	RET7398
.0469	.070	1.5	2-1/2	.950	20	1/8	RET7399	RET7400	RET7401
.0469	.070	1.5	2-1/2	1.187	25	1/8	RET7402	RET7403	RET7404
.0500	.075	1.5	2-1/2	.600	12	1/8	RET7405	RET7406	RET7407
.0500	.075	1.5	2-1/2	.750	15	1/8	RET7408	RET7409	RET7410
.0550	.082	1.5	2-1/2	.660	12	1/8	RET7411	RET7412	RET7413
.0550	.082	1.5	2-1/2	.825	15	1/8	RET7414	RET7415	RET7416

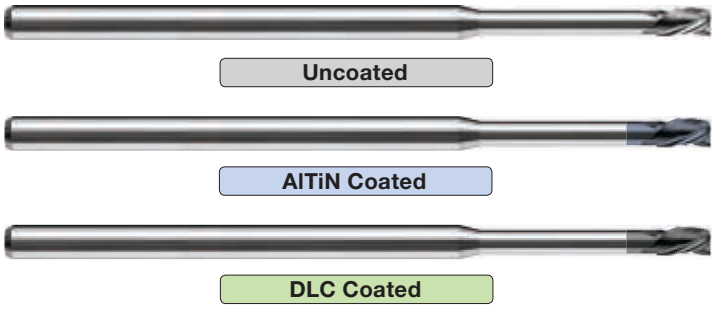
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Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	+0.000, -0.0003

Speeds & Feeds page 217.

Micro 3-Flute

NEW Product



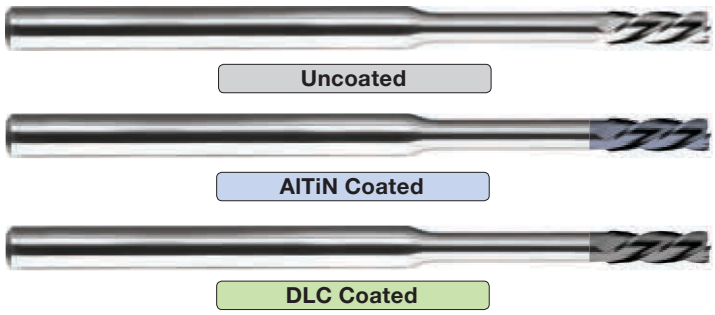
3-Flute, Square End, Extra Long Reach, Stub Flute, 30° Helix (.0600-.2500)

Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0600	.090	1.5	2-1/2	.720	12	1/8	RET7417	RET7418	RET7419
.0600	.090	1.5	2-1/2	.900	15	1/8	RET7420	RET7421	RET7422
.0625	.093	1.5	2-1/2	.625	10	1/8	RET7423	RET7424	RET7425
.0625	.093	1.5	2-1/2	.750	12	1/8	RET7426	RET7427	RET7428
.0625	.093	1.5	2-1/2	.950	15	1/8	RET7429	RET7430	RET7431
.0625	.093	1.5	2-1/2	1.125	18	1/8	RET7432	RET7433	RET7434
.0625	.093	1.5	2-1/2	1.250	20	1/8	RET7435	RET7436	RET7437
.0625	.093	1.5	3	1.550	25	1/8	RET7438	RET7439	RET7440
.0650	.097	1.5	2-1/2	.800	12	1/8	RET7441	RET7442	RET7443
.0700	.105	1.5	2-1/2	.850	12	1/8	RET7444	RET7445	RET7446
.0750	.112	1.5	2-1/2	.900	12	1/8	RET7447	RET7448	RET7449
.0781	.117	1.5	2-1/2	.800	10	1/8	RET7450	RET7451	RET7452
.0781	.117	1.5	2-1/2	.940	12	1/8	RET7453	RET7454	RET7455
.0781	.117	1.5	2-1/2	1.187	15	1/8	RET7456	RET7457	RET7458
.0781	.117	1.5	3	1.562	20	1/8	RET7459	RET7460	RET7461
.0781	.117	1.5	3	1.950	25	1/8	RET7462	RET7463	RET7464
.0800	.120	1.5	2-1/2	.960	12	1/8	RET7465	RET7466	RET7467
.0850	.127	1.5	2-1/2	1.020	12	1/8	RET7468	RET7469	RET7470
.0900	.135	1.5	2-1/2	1.080	12	1/8	RET7471	RET7472	RET7473
.0938	.139	1.5	2-1/2	.950	10	1/8	RET7474	RET7475	RET7476
.0938	.139	1.5	2-1/2	1.125	12	1/8	RET7477	RET7478	RET7479
.0938	.139	1.5	3	1.400	15	1/8	RET7480	RET7481	RET7482
.0938	.139	1.5	3	1.675	17	1/8	RET7483	RET7484	RET7485
.0938	.139	1.5	4	1.875	20	1/8	RET7486	RET7487	RET7488
.0938	.139	1.5	4	2.312	25	1/8	RET7489	RET7490	RET7491
.0950	.142	1.5	2-1/2	1.150	12	1/8	RET7492	RET7493	RET7494
.1000	.150	1.5	2-1/2	1.200	12	1/8	RET7495	RET7496	RET7497
.1250	.187	1.5	2-1/2	1.250	10	1/8	RET7498	RET7499	RET7500
.1250	.187	1.5	3	1.500	12	1/8	RET7501	RET7502	RET7503
.1250	.187	1.5	3	1.875	15	1/8	RET7504	RET7505	RET7506
.1250	.187	1.5	4	2.250	18	1/8	RET7507	RET7508	RET7509
.1250	.187	1.5	4	2.500	20	1/8	RET7510	RET7511	RET7512
.1250	.187	1.5	4	3.125	25	1/8	RET7513	RET7514	RET7515
.1562	.234	1.5	4	1.875	12	3/16	RET7516	RET7517	RET7518
.1875	.281	1.5	4	1.875	10	3/16	RET7519	RET7520	RET7521
.1875	.281	1.5	4	2.250	12	3/16	RET7522	RET7523	RET7524
.1875	.281	1.5	4	2.812	15	3/16	RET7525	RET7526	RET7527
.2500	.375	1.5	4	2.500	10	1/4	RET7528	RET7529	RET7530
.2500	.375	1.5	6	3.000	12	1/4	RET7531	RET7532	RET7533
.2500	.375	1.5	6	3.750	15	1/4	RET7534	RET7535	RET7536

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Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	+0.000, -0.0003

NEW Product



3-Flute, Square End, Extra Long Reach, Regular Flute, 30° Helix (.0100-.2500)

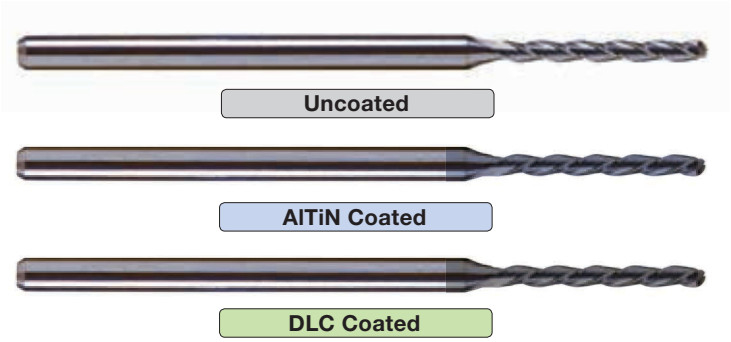
Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0100	.050	5	2-1/2	.100	10	1/8	RET7700	RET7701	RET7702
.0150	.075	5	2-1/2	.150	10	1/8	RET1027	RET2027	RET7703
.0156	.075	5	2-1/2	.150	9.5	1/8	RET7704	RET7705	RET7706
.0200	.100	5	2-1/2	.200	10	1/8	RET1030	RET2030	RET7707
.0250	.125	5	2-1/2	.250	10	1/8	RET1033	RET2033	RET7708
.0300	.150	5	2-1/2	.300	10	1/8	RET1036	RET2036	RET7709
.0312	.155	5	2-1/2	.310	10	1/8	RET7710	RET7711	RET7712
.0350	.175	5	2-1/2	.350	10	1/8	RET1039	RET2039	RET7713
.0400	.200	5	2-1/2	.400	10	1/8	RET1042	RET2042	RET7714
.0450	.225	5	2-1/2	.450	10	1/8	RET1045	RET2045	RET7715
.0469	.250	5	2-1/2	.500	10	1/8	RET7716	RET7717	RET7718
.0500	.300	6	2-1/2	.600	12	1/8	RET1048	RET2048	RET7719
.0550	.385	7	2-1/2	.770	14	1/8	RET1051	RET2051	RET7720
.0600	.500	8	2-1/2	1.000	16	1/8	RET1054	RET2054	RET7721
.0625	.500	8	2-1/2	1.000	16	1/8	RET7722	RET7723	RET7724
.0650	.500	8	2-1/2	1.000	15	1/8	RET1057	RET2057	RET7725
.0700	.500	7	2-1/2	1.000	14	1/8	RET1060	RET2060	RET7726
.0750	.500	7	2-1/2	1.000	13	1/8	RET1063	RET2063	RET7727
.0781	.500	7	2-1/2	1.000	12	1/8	RET7728	RET7729	RET7730
.0800	.750	9	2-1/2	1.250	15	1/8	RET1066	RET2066	RET7731
.0850	.750	9	2-1/2	1.250	15	1/8	RET1069	RET2069	RET7732
.0900	.750	8	2-1/2	1.250	14	1/8	RET1072	RET2072	RET7733
.0938	.750	8	2-1/2	1.250	13	1/8	RET7734	RET7735	RET7736
.0950	.750	8	2-1/2	1.250	13	1/8	RET1075	RET2075	RET7737
.1000	.750	7.5	2-1/2	1.250	12.5	1/8	RET1078	RET2078	RET7738
.1250	1.000	8	2-1/2	1.500	12	1/8	RET7739	RET7740	RET7741
.1875	1.125	6	3	1.625	8	3/16	RET7742	RET7743	RET7744
.2500	1.500	6	4	2.000	8	1/4	RET7745	RET7746	RET7747

Tolerances	Diameter	Shank
All Sizes	+0.0005, -0.0005	+0.000, -0.0003

Speeds & Feeds page 217.

Micro 3-Flute Ball

NEW Product



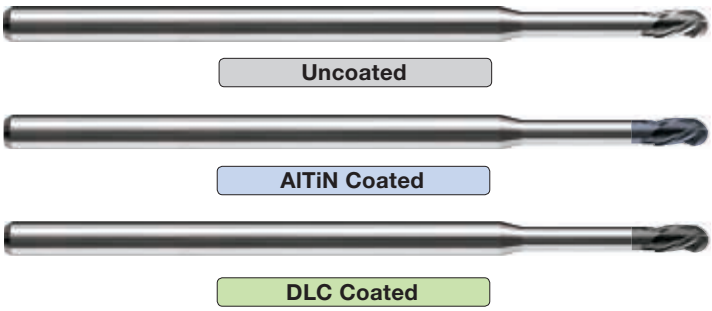
3-Flute, Ball End, Long Flute, Long Reach
30° Helix (.0100-.1000)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0100	.050	2-1/2	1/8	RET8100	RET8101	RET8102
.0150	.075	2-1/2	1/8	RET3000	RET4000	RET8103
.0156	.078	2-1/2	1/8	RET8104	RET8105	RET8106
.0156	.125	2-1/2	1/8	RET8107	RET8108	RET8109
.0200	.100	2-1/2	1/8	RET3001	RET4001	RET8110
.0200	.160	2-1/2	1/8	RET8111	RET8112	RET8113
.0250	.125	2-1/2	1/8	RET3002	RET4002	RET8114
.0250	.203	2-1/2	1/8	RET8115	RET8116	RET8117
.0300	.150	2-1/2	1/8	RET3003	RET4003	RET8118
.0312	.156	2-1/2	1/8	RET8119	RET8120	RET8121
.0312	.250	2-1/2	1/8	RET8122	RET8123	RET8124
.0312	.375	2-1/2	1/8	RET8125	RET8126	RET8127
.0350	.175	2-1/2	1/8	RET3004	RET4004	RET8128
.0400	.200	2-1/2	1/8	RET3005	RET4005	RET8129
.0400	.325	2-1/2	1/8	RET8130	RET8131	RET8132
.0450	.225	2-1/2	1/8	RET3006	RET4006	RET8133
.0469	.250	2-1/2	1/8	RET8134	RET8135	RET8136
.0469	.375	2-1/2	1/8	RET8137	RET8138	RET8139
.0469	.570	2-1/2	1/8	RET8140	RET8141	RET8142
.0500	.300	2-1/2	1/8	RET3007	RET4007	RET8143
.0500	.400	2-1/2	1/8	RET8144	RET8145	RET8146
.0550	.385	2-1/2	1/8	RET3008	RET4008	RET8147
.0600	.312	2-1/2	1/8	RET8148	RET8149	RET8150
.0600	.500	2-1/2	1/8	RET3009	RET4009	RET8151
.0625	.312	2-1/2	1/8	RET8152	RET8153	RET8154
.0625	.500	2-1/2	1/8	RET8155	RET8156	RET8157
.0650	.500	2-1/2	1/8	RET3010	RET4010	RET8158
.0700	.500	2-1/2	1/8	RET3011	RET4011	RET8159
.0750	.500	2-1/2	1/8	RET3012	RET4012	RET8160
.0800	.750	2-1/2	1/8	RET3013	RET4013	RET8161
.0850	.750	2-1/2	1/8	RET3014	RET4014	RET8162
.0900	.750	2-1/2	1/8	RET3015	RET4015	RET8163
.0950	.750	2-1/2	1/8	RET3016	RET4016	RET8164
.1000	.750	2-1/2	1/8	RET3017	RET4017	RET8165

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	+0.000, -0.0003	+0.000, -0.0004

NEW Product



3-Flute, Ball End, Long Reach, Stub Flute, 30° Helix (.0100-.0750)

Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0100	.015	1.5	2-1/2	.050	5	1/8	RET8300	RET8301	RET8302
.0100	.015	1.5	2-1/2	.080	8	1/8	RET8303	RET8304	RET8305
.0156	.022	1.5	2-1/2	.045	3	1/8	RET8306	RET8307	RET8308
.0156	.022	1.5	2-1/2	.078	5	1/8	RET8309	RET8310	RET8311
.0156	.022	1.5	2-1/2	.125	8	1/8	RET8312	RET8313	RET8314
.0200	.030	1.5	2-1/2	.100	5	1/8	RET8315	RET8316	RET8317
.0200	.030	1.5	2-1/2	.160	8	1/8	RET8318	RET8319	RET8320
.0250	.037	1.5	2-1/2	.125	5	1/8	RET8321	RET8322	RET8323
.0250	.037	1.5	2-1/2	.203	8	1/8	RET8324	RET8325	RET8326
.0300	.045	1.5	2-1/2	.156	5	1/8	RET8327	RET8328	RET8329
.0300	.045	1.5	2-1/2	.250	8	1/8	RET8330	RET8331	RET8332
.0312	.046	1.5	2-1/2	.093	3	1/8	RET8333	RET8334	RET8335
.0312	.046	1.5	2-1/2	.156	5	1/8	RET8336	RET8337	RET8338
.0312	.046	1.5	2-1/2	.250	8	1/8	RET8339	RET8340	RET8341
.0350	.052	1.5	2-1/2	.187	5	1/8	RET8342	RET8343	RET8344
.0350	.052	1.5	2-1/2	.281	8	1/8	RET8345	RET8346	RET8347
.0400	.060	1.5	2-1/2	.203	5	1/8	RET8348	RET8349	RET8350
.0400	.060	1.5	2-1/2	.325	8	1/8	RET8351	RET8352	RET8353
.0450	.067	1.5	2-1/2	.225	5	1/8	RET8354	RET8355	RET8356
.0450	.067	1.5	2-1/2	.375	8	1/8	RET8357	RET8358	RET8359
.0469	.070	1.5	2-1/2	.141	3	1/8	RET8360	RET8361	RET8362
.0469	.070	1.5	2-1/2	.250	5	1/8	RET8363	RET8364	RET8365
.0469	.070	1.5	2-1/2	.375	8	1/8	RET8366	RET8367	RET8368
.0500	.075	1.5	2-1/2	.250	5	1/8	RET8369	RET8370	RET8371
.0500	.075	1.5	2-1/2	.400	8	1/8	RET8372	RET8373	RET8374
.0550	.082	1.5	2-1/2	.275	5	1/8	RET8375	RET8376	RET8377
.0550	.082	1.5	2-1/2	.450	8	1/8	RET8378	RET8379	RET8380
.0600	.090	1.5	2-1/2	.312	5	1/8	RET8381	RET8382	RET8383
.0600	.090	1.5	2-1/2	.500	8	1/8	RET8384	RET8385	RET8386
.0625	.093	1.5	2-1/2	.186	3	1/8	RET8387	RET8388	RET8389
.0625	.093	1.5	2-1/2	.312	5	1/8	RET8390	RET8391	RET8392
.0625	.093	1.5	2-1/2	.500	8	1/8	RET8393	RET8394	RET8395
.0650	.097	1.5	2-1/2	.325	5	1/8	RET8396	RET8397	RET8398
.0650	.097	1.5	2-1/2	.530	8	1/8	RET8399	RET8400	RET8401
.0700	.105	1.5	2-1/2	.375	5	1/8	RET8402	RET8403	RET8404
.0700	.105	1.5	2-1/2	.570	8	1/8	RET8405	RET8406	RET8407
.0750	.112	1.5	2-1/2	.375	5	1/8	RET8408	RET8409	RET8410
.0750	.112	1.5	2-1/2	.625	8	1/8	RET8411	RET8412	RET8413

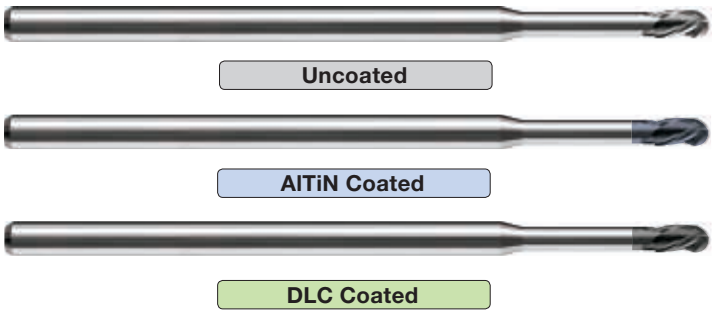
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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	+0.000, -0.0003	+0.0004, -0.0004

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Micro 3-Flute Ball

NEW Product



3-Flute, Ball End, Long Reach, Stub Flute, 30° Helix (.0781-.2500)

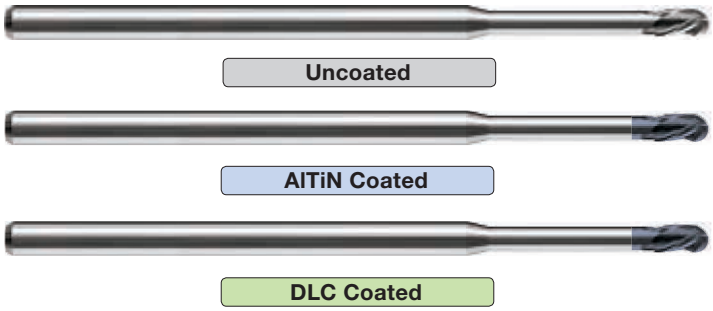
Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0781	.117	1.5	2-1/2	.234	3	1/8	RET8414	RET8415	RET8416
.0781	.117	1.5	2-1/2	.406	5	1/8	RET8417	RET8418	RET8419
.0781	.117	1.5	2-1/2	.625	8	1/8	RET8420	RET8421	RET8422
.0800	.120	1.5	2-1/2	.406	5	1/8	RET8423	RET8424	RET8425
.0800	.120	1.5	2-1/2	.650	8	1/8	RET8426	RET8427	RET8428
.0850	.127	1.5	2-1/2	.425	5	1/8	RET8429	RET8430	RET8431
.0850	.127	1.5	2-1/2	.700	8	1/8	RET8432	RET8433	RET8434
.0900	.120	1.5	2-1/2	.450	5	1/8	RET8435	RET8436	RET8437
.0900	.120	1.5	2-1/2	.750	8	1/8	RET8438	RET8439	RET8440
.0938	.139	1.5	2-1/2	.279	3	1/8	RET8441	RET8442	RET8443
.0938	.139	1.5	2-1/2	.500	5	1/8	RET8444	RET8445	RET8446
.0938	.139	1.5	2-1/2	.750	8	1/8	RET8447	RET8448	RET8449
.0950	.142	1.5	2-1/2	.500	5	1/8	RET8450	RET8451	RET8452
.0950	.142	1.5	2-1/2	.750	8	1/8	RET8453	RET8454	RET8455
.1000	.150	1.5	2-1/2	.500	5	1/8	RET8456	RET8457	RET8458
.1000	.150	1.5	2-1/2	.800	8	1/8	RET8459	RET8460	RET8461
.1250	.187	1.5	2-1/2	.625	5	1/8	RET8462	RET8463	RET8464
.1250	.187	1.5	2-1/2	1.000	8	1/8	RET8465	RET8466	RET8467
.1562	.234	1.5	3	.750	5	3/16	RET8468	RET8469	RET8470
.1562	.234	1.5	3	1.250	8	3/16	RET8471	RET8472	RET8473
.1875	.281	1.5	3	1.000	5	3/16	RET8474	RET8475	RET8476
.1875	.281	1.5	3	1.500	8	3/16	RET8477	RET8478	RET8479
.2500	.375	1.5	4	1.250	5	1/4	RET8480	RET8481	RET8482
.2500	.375	1.5	4	2.000	8	1/4	RET8483	RET8484	RET8485

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	+0.000, -0.0003	+0.0004, -0.0004

Micro 3-Flute Ball

NEW Product



3-Flute, Ball End, Extra Long Reach, Stub Flute, 30° Helix (.0100-.0625)

Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0100	.015	1.5	2-1/2	.125	12	1/8	RET8500	RET8501	RET8502
.0100	.015	1.5	2-1/2	.150	15	1/8	RET8503	RET8504	RET8505
.0156	.022	1.5	2-1/2	.156	10	1/8	RET8506	RET8507	RET8508
.0156	.022	1.5	2-1/2	.187	12	1/8	RET8509	RET8510	RET8511
.0156	.022	1.5	2-1/2	.225	14	1/8	RET8512	RET8513	RET8514
.0156	.022	1.5	2-1/2	.300	19	1/8	RET8515	RET8516	RET8517
.0200	.030	1.5	2-1/2	.250	12	1/8	RET8518	RET8519	RET8520
.0200	.030	1.5	2-1/2	.300	15	1/8	RET8521	RET8522	RET8523
.0200	.030	1.5	2-1/2	.400	20	1/8	RET8524	RET8525	RET8526
.0250	.037	1.5	2-1/2	.312	12	1/8	RET8527	RET8528	RET8529
.0250	.037	1.5	2-1/2	.375	15	1/8	RET8530	RET8531	RET8532
.0300	.045	1.5	2-1/2	.375	12	1/8	RET8533	RET8534	RET8535
.0300	.045	1.5	2-1/2	.450	15	1/8	RET8536	RET8537	RET8538
.0312	.046	1.5	2-1/2	.312	10	1/8	RET8539	RET8540	RET8541
.0312	.046	1.5	2-1/2	.375	12	1/8	RET8542	RET8543	RET8544
.0312	.046	1.5	2-1/2	.470	15	1/8	RET8545	RET8546	RET8547
.0312	.046	1.5	2-1/2	.565	18	1/8	RET8548	RET8549	RET8550
.0312	.046	1.5	2-1/2	.625	20	1/8	RET8551	RET8552	RET8553
.0312	.046	1.5	2-1/2	.775	25	1/8	RET8554	RET8555	RET8556
.0350	.052	1.5	2-1/2	.425	12	1/8	RET8557	RET8558	RET8559
.0350	.052	1.5	2-1/2	.525	15	1/8	RET8560	RET8561	RET8562
.0400	.060	1.5	2-1/2	.480	12	1/8	RET8563	RET8564	RET8565
.0400	.060	1.5	2-1/2	.600	15	1/8	RET8566	RET8567	RET8568
.0400	.060	1.5	2-1/2	.800	20	1/8	RET8569	RET8570	RET8571
.0450	.067	1.5	2-1/2	.550	12	1/8	RET8572	RET8573	RET8574
.0450	.067	1.5	2-1/2	.680	15	1/8	RET8575	RET8576	RET8577
.0469	.070	1.5	2-1/2	.480	10	1/8	RET8578	RET8579	RET8580
.0469	.070	1.5	2-1/2	.570	12	1/8	RET8581	RET8582	RET8583
.0469	.070	1.5	2-1/2	.710	15	1/8	RET8584	RET8585	RET8586
.0469	.070	1.5	2-1/2	.950	20	1/8	RET8587	RET8588	RET8589
.0469	.070	1.5	2-1/2	1.187	25	1/8	RET8590	RET8591	RET8592
.0500	.075	1.5	2-1/2	.600	12	1/8	RET8593	RET8594	RET8595
.0550	.082	1.5	2-1/2	.660	12	1/8	RET8596	RET8597	RET8598
.0600	.090	1.5	2-1/2	.720	12	1/8	RET8599	RET8600	RET8601
.0600	.090	1.5	2-1/2	.900	15	1/8	RET8602	RET8603	RET8604
.0600	.090	1.5	2-1/2	1.080	18	1/8	RET8605	RET8606	RET8607
.0600	.090	1.5	2-1/2	1.260	21	1/8	RET8608	RET8609	RET8610
.0625	.093	1.5	2-1/2	.625	10	1/8	RET8611	RET8612	RET8613

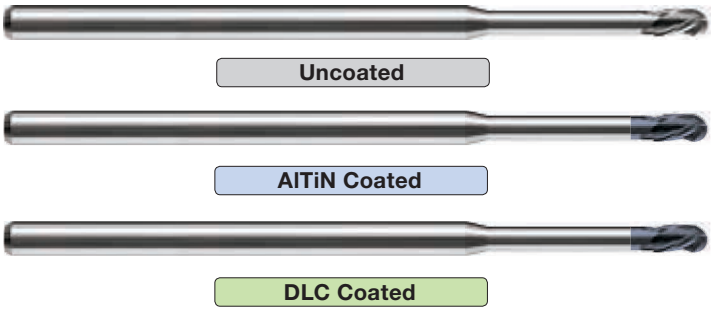
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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	+0.000, -0.0003	+0.0004, -0.0004

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Micro 3-Flute Ball

NEW Product



3-Flute, Ball End, Extra Long Reach, Stub Flute, 30° Helix (.0625-.2500)

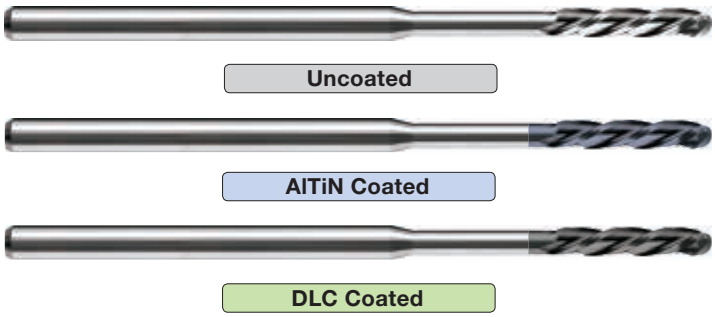
Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0625	.093	1.5	2-1/2	.750	12	1/8	RET8614	RET8615	RET8616
.0625	.093	1.5	2-1/2	.950	15	1/8	RET8617	RET8618	RET8619
.0625	.093	1.5	2-1/2	1.125	18	1/8	RET8620	RET8621	RET8622
.0625	.093	1.5	2-1/2	1.250	20	1/8	RET8623	RET8624	RET8625
.0625	.093	1.5	3	1.550	25	1/8	RET8626	RET8627	RET8628
.0781	.117	1.5	2-1/2	.800	10	1/8	RET8629	RET8630	RET8631
.0781	.117	1.5	2-1/2	.940	12	1/8	RET8632	RET8633	RET8634
.0781	.117	1.5	2-1/2	1.187	15	1/8	RET8635	RET8636	RET8637
.0781	.117	1.5	3	1.562	20	1/8	RET8638	RET8639	RET8640
.0781	.117	1.5	3	1.950	25	1/8	RET8641	RET8642	RET8643
.0938	.139	1.5	2-1/2	.950	10	1/8	RET8644	RET8645	RET8646
.0938	.139	1.5	2-1/2	1.125	12	1/8	RET8647	RET8648	RET8649
.0938	.139	1.5	3	1.400	15	1/8	RET8650	RET8651	RET8652
.0938	.139	1.5	3	1.675	18	1/8	RET8653	RET8654	RET8655
.0938	.139	1.5	4	1.875	20	1/8	RET8656	RET8657	RET8658
.0938	.139	1.5	4	2.312	25	1/8	RET8659	RET8660	RET8661
.1250	.187	1.5	2-1/2	1.250	10	1/8	RET8662	RET8663	RET8664
.1250	.187	1.5	3	1.500	12	1/8	RET8665	RET8666	RET8667
.1250	.187	1.5	3	1.875	15	1/8	RET8668	RET8669	RET8670
.1250	.187	1.5	4	2.250	18	1/8	RET8671	RET8672	RET8673
.1250	.187	1.5	4	2.500	20	1/8	RET8674	RET8675	RET8676
.1250	.187	1.5	4	3.125	25	1/8	RET8677	RET8678	RET8679
.1875	.281	1.5	4	1.875	10	3/16	RET8680	RET8681	RET8682
.1875	.281	1.5	4	2.250	12	3/16	RET8683	RET8684	RET8685
.1875	.281	1.5	4	2.812	15	3/16	RET8686	RET8687	RET8688
.2500	.375	1.5	4	2.500	10	1/4	RET8689	RET8690	RET8691
.2500	.375	1.5	6	3.000	12	1/4	RET8692	RET8693	RET8694
.2500	.375	1.5	6	3.750	15	1/4	RET8695	RET8696	RET8697

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	+0.000, -0.0003	+0.0004, -0.0004

Micro 3-Flute Ball

NEW Product



3-Flute, Ball End, Extra Long Reach, Regular Flute, 30° Helix (.0100-.1000)

Cutter ø	Flute Length	Reach Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0100	.050	.100	2-1/2	1/8	RET8200	RET8201	RET8202
.0150	.075	.150	2-1/2	1/8	RET3025	RET4025	RET8203
.0156	.075	.150	2-1/2	1/8	RET8204	RET8205	RET8206
.0200	.100	.200	2-1/2	1/8	RET3026	RET4026	RET8207
.0250	.125	.250	2-1/2	1/8	RET3027	RET4027	RET8208
.0300	.150	.300	2-1/2	1/8	RET3028	RET4028	RET8209
.0312	.155	.310	2-1/2	1/8	RET8210	RET8211	RET8212
.0350	.175	.350	2-1/2	1/8	RET3029	RET4029	RET8213
.0400	.200	.400	2-1/2	1/8	RET3030	RET4030	RET8214
.0450	.225	.450	2-1/2	1/8	RET3031	RET4031	RET8215
.0469	.250	.500	2-1/2	1/8	RET8216	RET8217	RET8218
.0500	.300	.600	2-1/2	1/8	RET3032	RET4032	RET8219
.0550	.385	.770	2-1/2	1/8	RET3033	RET4033	RET8220
.0600	.500	1.000	2-1/2	1/8	RET3034	RET4034	RET8221
.0625	.500	1.000	2-1/2	1/8	RET8222	RET8223	RET8224
.0650	.500	1.000	2-1/2	1/8	RET3035	RET4035	RET8225
.0700	.500	1.000	2-1/2	1/8	RET3036	RET4036	RET8226
.0750	.500	1.000	2-1/2	1/8	RET3037	RET4037	RET8227
.0781	.500	1.000	2-1/2	1/8	RET8228	RET8229	RET8230
.0800	.750	1.250	2-1/2	1/8	RET3038	RET4038	RET8231
.0850	.750	1.250	2-1/2	1/8	RET3039	RET4039	RET8232
.0900	.750	1.250	2-1/2	1/8	RET3040	RET4040	RET8233
.0938	.750	1.250	2-1/2	1/8	RET8234	RET8235	RET8236
.0950	.750	1.250	2-1/2	1/8	RET3041	RET4041	RET8237
.1000	.750	1.250	2-1/2	1/8	RET3042	RET4042	RET8238

Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	+0.000, -0.0003	+0.0004, -0.0004

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Micro 4-Flute



Uncoated



AlTiN Coated

4-Flute, Square End & Corner Radius, 30° Helix (.010-.031)

Cutter ø	Flute Length	OAL	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
.010	.015	1-1/2	–	1/8	RE26010	RE26210
.010	.030	1-1/2	–	1/8	RE15010	RE28010
.011	.033	1-1/2	–	1/8	RE15011	RE28011
.012	.036	1-1/2	–	1/8	RE15012	RE28012
.013	.039	1-1/2	–	1/8	RE15013	RE28013
.014	.042	1-1/2	–	1/8	RE15014	RE28014
.015	.023	1-1/2	–	1/8	RE26015	RE26215
.015	.023	1-1/2	.003	1/8	RE27003	RE27204
.015	.045	1-1/2	–	1/8	RE15015	RE28015
.015	.045	1-1/2	.003	1/8	RE27403	RE27604
.016	.048	1-1/2	–	1/8	RE15016	RE28016
.017	.051	1-1/2	–	1/8	RE15017	RE28017
.018	.054	1-1/2	–	1/8	RE15018	RE28018
.019	.057	1-1/2	–	1/8	RE15019	RE28019
.020	.030	1-1/2	–	1/8	RE26020	RE26220
.020	.030	1-1/2	.005	1/8	RE27005	RE27206
.020	.060	1-1/2	–	1/8	RE15020	RE28020
.020	.060	1-1/2	.005	1/8	RE27405	RE27606
.021	.063	1-1/2	–	1/8	RE15021	RE28021
.022	.066	1-1/2	–	1/8	RE15022	RE28022
.023	.069	1-1/2	–	1/8	RE15023	RE28023
.024	.072	1-1/2	–	1/8	RE15024	RE28024
.025	.038	1-1/2	–	1/8	RE26025	RE26225
.025	.038	1-1/2	.005	1/8	RE27007	RE27208
.025	.075	1-1/2	–	1/8	RE15025	RE28025
.025	.075	1-1/2	.005	1/8	RE27407	RE27608
.026	.078	1-1/2	–	1/8	RE15026	RE28026
.027	.081	1-1/2	–	1/8	RE15027	RE28027
.028	.084	1-1/2	–	1/8	RE15028	RE28028
.029	.087	1-1/2	–	1/8	RE15029	RE28029
.030	.045	1-1/2	–	1/8	RE26030	RE26230
.030	.045	1-1/2	.005	1/8	RE27009	RE27210
.030	.045	1-1/2	.010	1/8	RE27011	RE27212
.030	.090	1-1/2	–	1/8	RE15030	RE28030
.030	.090	1-1/2	.005	1/8	RE27409	RE27610
.030	.090	1-1/2	.010	1/8	RE27411	RE27612
.031	.047	1-1/2	–	1/8	RE26031	RE26231
.031	.047	1-1/2	.005	1/8	RE27013	RE27214
.031	.047	1-1/2	.010	1/8	RE27015	RE27216
.031	.093	1-1/2	–	1/8	RE15031	RE28031
.031	.093	1-1/2	.005	1/8	RE27413	RE27614
.031	.093	1-1/2	.010	1/8	RE27415	RE27616

Continued

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002



Uncoated



AlTiN Coated

4-Flute, Square End & Corner Radius, 30° Helix (.032-.049)

Cutter ø	Flute Length	OAL	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
.032	.096	1-1/2	–	1/8	RE15032	RE28032
.033	.099	1-1/2	–	1/8	RE15033	RE28033
.034	.102	1-1/2	–	1/8	RE15034	RE28034
.035	.053	1-1/2	–	1/8	RE26035	RE26235
.035	.053	1-1/2	.005	1/8	RE27017	RE27218
.035	.053	1-1/2	.010	1/8	RE27019	RE27220
.035	.105	1-1/2	–	1/8	RE15035	RE28035
.035	.105	1-1/2	.005	1/8	RE27417	RE27618
.035	.105	1-1/2	.010	1/8	RE27419	RE27620
.036	.108	1-1/2	–	1/8	RE15036	RE28036
.037	.111	1-1/2	–	1/8	RE15037	RE28037
.038	.114	1-1/2	–	1/8	RE15038	RE28038
.039	.117	1-1/2	–	1/8	RE15039	RE28039
.040	.060	1-1/2	–	1/8	RE26040	RE26240
.040	.060	1-1/2	.005	1/8	RE27021	RE27222
.040	.060	1-1/2	.010	1/8	RE27023	RE27224
.040	.120	1-1/2	–	1/8	RE15040	RE28040
.040	.120	1-1/2	.005	1/8	RE27421	RE27622
.040	.120	1-1/2	.010	1/8	RE27423	RE27624
.041	.123	1-1/2	–	1/8	RE15041	RE28041
.042	.126	1-1/2	–	1/8	RE15042	RE28042
.043	.129	1-1/2	–	1/8	RE15043	RE28043
.044	.132	1-1/2	–	1/8	RE15044	RE28044
.045	.068	1-1/2	–	1/8	RE26045	RE26245
.045	.068	1-1/2	.005	1/8	RE27025	RE27226
.045	.068	1-1/2	.010	1/8	RE27027	RE27228
.045	.068	1-1/2	.015	1/8	RE27029	RE27230
.045	.135	1-1/2	–	1/8	RE15045	RE28045
.045	.135	1-1/2	.005	1/8	RE27425	RE27626
.045	.135	1-1/2	.010	1/8	RE27427	RE27628
.045	.135	1-1/2	.015	1/8	RE27429	RE27630
.046	.138	1-1/2	–	1/8	RE15046	RE28046
.047	.071	1-1/2	–	1/8	RE26047	RE26247
.047	.071	1-1/2	.005	1/8	RE27031	RE27232
.047	.071	1-1/2	.010	1/8	RE27033	RE27234
.047	.071	1-1/2	.015	1/8	RE27035	RE27236
.047	.141	1-1/2	–	1/8	RE15047	RE28047
.047	.141	1-1/2	.005	1/8	RE27431	RE27632
.047	.141	1-1/2	.010	1/8	RE27433	RE27634
.047	.141	1-1/2	.015	1/8	RE27435	RE27636
.048	.144	1-1/2	–	1/8	RE15048	RE28048
.049	.147	1-1/2	–	1/8	RE15049	RE28049

Continued

Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002

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Micro 4-Flute



Uncoated



AlTiN Coated

4-Flute, Square End & Corner Radius, 30° Helix (.050-.068)

Cutter ø	Flute Length	OAL	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
.050	.075	1-1/2	–	1/8	RE26050	RE26250
.050	.075	1-1/2	.005	1/8	RE27037	RE27238
.050	.075	1-1/2	.010	1/8	RE27039	RE27240
.050	.075	1-1/2	.015	1/8	RE27041	RE27242
.050	.150	1-1/2	–	1/8	RE15050	RE28050
.050	.150	1-1/2	.005	1/8	RE27437	RE27638
.050	.150	1-1/2	.010	1/8	RE27439	RE27640
.050	.150	1-1/2	.015	1/8	RE27441	RE27642
.051	.153	1-1/2	–	1/8	RE15051	RE28051
.052	.156	1-1/2	–	1/8	RE15052	RE28052
.053	.159	1-1/2	–	1/8	RE15053	RE28053
.054	.162	1-1/2	–	1/8	RE15054	RE28054
.055	.083	1-1/2	–	1/8	RE26055	RE26255
.055	.165	1-1/2	–	1/8	RE15055	RE28055
.056	.168	1-1/2	–	1/8	RE15056	RE28056
.057	.171	1-1/2	–	1/8	RE15057	RE28057
.058	.174	1-1/2	–	1/8	RE15058	RE28058
.059	.177	1-1/2	–	1/8	RE15059	RE28059
.060	.090	1-1/2	–	1/8	RE26060	RE26260
.060	.090	1-1/2	.005	1/8	RE27049	RE27250
.060	.090	1-1/2	.010	1/8	RE27051	RE27252
.060	.090	1-1/2	.015	1/8	RE27053	RE27254
.060	.180	1-1/2	–	1/8	RE15060	RE28060
.060	.180	1-1/2	.005	1/8	RE27449	RE27650
.060	.180	1-1/2	.010	1/8	RE27451	RE27652
.060	.180	1-1/2	.015	1/8	RE27453	RE27654
.061	.183	1-1/2	–	1/8	RE15061	RE28061
.062	.093	1-1/2	–	1/8	RE26062	RE26262
.062	.093	1-1/2	.005	1/8	RE27055	RE27256
.062	.093	1-1/2	.010	1/8	RE27057	RE27258
.062	.093	1-1/2	.015	1/8	RE27059	RE27260
.062	.186	1-1/2	–	1/8	RE15062	RE28062
.062	.186	1-1/2	.005	1/8	RE27455	RE27656
.062	.186	1-1/2	.010	1/8	RE27457	RE27658
.062	.186	1-1/2	.015	1/8	RE27459	RE27660
.063	.189	1-1/2	–	1/8	RE15063	RE28063
.064	.192	1-1/2	–	1/8	RE15064	RE28064
.065	.098	1-1/2	–	1/8	RE26065	RE26265
.065	.195	1-1/2	–	1/8	RE15065	RE28065
.066	.198	1-1/2	–	1/8	RE15066	RE28066
.067	.201	1-1/2	–	1/8	RE15067	RE28067
.068	.204	1-1/2	–	1/8	RE15068	RE28068

Continued

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002



Uncoated



AlTiN Coated

4-Flute, Square End & Corner Radius, 30° Helix (.069-.090)

Cutter ø	Flute Length	OAL	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
.069	.207	1-1/2	–	1/8	RE15069	RE28069
.070	.105	1-1/2	–	1/8	RE26070	RE26270
.070	.210	1-1/2	–	1/8	RE15070	RE28070
.071	.213	1-1/2	–	1/8	RE15071	RE28071
.072	.216	1-1/2	–	1/8	RE15072	RE28072
.073	.219	1-1/2	–	1/8	RE15073	RE28073
.074	.222	1-1/2	–	1/8	RE15074	RE28074
.075	.113	1-1/2	–	1/8	RE26075	RE26275
.075	.113	1-1/2	.005	1/8	RE27073	RE27274
.075	.113	1-1/2	.010	1/8	RE27075	RE27276
.075	.113	1-1/2	.015	1/8	RE27077	RE27278
.075	.225	1-1/2	–	1/8	RE15075	RE28075
.075	.225	1-1/2	.005	1/8	RE27473	RE27674
.075	.225	1-1/2	.010	1/8	RE27475	RE27676
.075	.225	1-1/2	.015	1/8	RE27477	RE27678
.076	.228	1-1/2	–	1/8	RE15076	RE28076
.077	.231	1-1/2	–	1/8	RE15077	RE28077
.078	.117	1-1/2	–	1/8	RE26078	RE26278
.078	.117	1-1/2	.005	1/8	RE27079	RE27280
.078	.117	1-1/2	.010	1/8	RE27081	RE27282
.078	.117	1-1/2	.015	1/8	RE27083	RE27284
.078	.234	1-1/2	–	1/8	RE15078	RE28078
.078	.234	1-1/2	.005	1/8	RE27479	RE27680
.078	.234	1-1/2	.010	1/8	RE27481	RE27682
.078	.234	1-1/2	.015	1/8	RE27483	RE27684
.079	.237	1-1/2	–	1/8	RE15079	RE28079
.080	.240	1-1/2	–	1/8	RE15080	RE28080
.081	.243	1-1/2	–	1/8	RE15081	RE28081
.082	.246	1-1/2	–	1/8	RE15082	RE28082
.083	.249	1-1/2	–	1/8	RE15083	RE28083
.084	.252	1-1/2	–	1/8	RE15084	RE28084
.085	.128	1-1/2	–	1/8	RE26085	RE26285
.085	.255	1-1/2	–	1/8	RE15085	RE28085
.086	.258	1-1/2	–	1/8	RE15086	RE28086
.087	.261	1-1/2	–	1/8	RE15087	RE28087
.088	.264	1-1/2	–	1/8	RE15088	RE28088
.089	.267	1-1/2	–	1/8	RE15089	RE28089
.090	.135	1-1/2	–	1/8	RE26090	RE26290
.090	.135	1-1/2	.005	1/8	RE27097	RE27298
.090	.135	1-1/2	.010	1/8	RE27099	RE27300
.090	.135	1-1/2	.015	1/8	RE27101	RE27302
.090	.270	1-1/2	–	1/8	RE15090	RE28090

Continued

Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002

Speeds & Feeds page 215.

Micro 4-Flute



Uncoated



AlTiN Coated

4-Flute, Square End & Corner Radius, 30° Helix (.090-.120)

Cutter ø	Flute Length	OAL	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
.090	.270	1-1/2	.005	1/8	RE27497	RE27698
.090	.270	1-1/2	.010	1/8	RE27499	RE27700
.090	.270	1-1/2	.015	1/8	RE27501	RE27702
.091	.273	1-1/2	—	1/8	RE15091	RE28091
.092	.276	1-1/2	—	1/8	RE15092	RE28092
.093	.140	1-1/2	—	1/8	RE26093	RE26293
.093	.140	1-1/2	.005	1/8	RE27103	RE27304
.093	.140	1-1/2	.010	1/8	RE27105	RE27306
.093	.140	1-1/2	.015	1/8	RE27107	RE27308
.093	.279	1-1/2	—	1/8	RE15093	RE28093
.093	.279	1-1/2	.005	1/8	RE27503	RE27704
.093	.279	1-1/2	.010	1/8	RE27505	RE27706
.093	.279	1-1/2	.015	1/8	RE27507	RE27708
.095	.143	1-1/2	—	1/8	RE26095	RE26295
.095	.285	1-1/2	—	1/8	RE15095	RE28095
.096	.288	1-1/2	—	1/8	RE15096	RE28096
.097	.291	1-1/2	—	1/8	RE15097	RE28097
.098	.294	1-1/2	—	1/8	RE15098	RE28098
.099	.297	1-1/2	—	1/8	RE15099	RE28099
.100	.150	1-1/2	—	1/8	RE26000	RE26200
.100	.150	1-1/2	.005	1/8	RE27115	RE27316
.100	.150	1-1/2	.010	1/8	RE27117	RE27318
.100	.150	1-1/2	.015	1/8	RE27119	RE27320
.100	.300	1-1/2	—	1/8	RE15100	RE28100
.100	.300	1-1/2	.005	1/8	RE27515	RE27716
.100	.300	1-1/2	.010	1/8	RE27517	RE27718
.100	.300	1-1/2	.015	1/8	RE27519	RE27720
.101	.303	1-1/2	—	1/8	RE15101	RE28101
.102	.306	1-1/2	—	1/8	RE15102	RE28102
.103	.309	1-1/2	—	1/8	RE15103	RE28103
.104	.312	1-1/2	—	1/8	RE15104	RE28104
.105	.315	1-1/2	—	1/8	RE15105	RE28105
.106	.318	1-1/2	—	1/8	RE15106	RE28106
.107	.321	1-1/2	—	1/8	RE15107	RE28107
.108	.324	1-1/2	—	1/8	RE15108	RE28108
.109	.327	1-1/2	—	1/8	RE15109	RE28109
.110	.330	1-1/2	—	1/8	RE15110	RE28110
.115	.345	1-1/2	—	1/8	RE15115	RE28115
.120	.360	1-1/2	—	1/8	RE15120	RE28120

Speeds & Feeds page 215.

Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002

NEW Product



Uncoated



AlTiN Coated

4-Flute, Square End, Extra Long Reach, Stub Flute, 30° Helix (.0100-.0938)

Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #
.0100	.030	3	1-1/2	.100	10	1/8	RET8800	RET8801
.0150	.045	3	1-1/2	.128	8	1/8	RET8802	RET8803
.0150	.045	3	1-1/2	.150	10	1/8	RET8804	RET8805
.0156	.047	3	1-1/2	.120	8	1/8	RET8806	RET8807
.0200	.060	3	1-1/2	.170	8	1/8	RET8808	RET8809
.0200	.060	3	1-1/2	.200	10	1/8	RET8810	RET8811
.0250	.075	3	1-1/2	.213	8	1/8	RET8812	RET8813
.0250	.075	3	1-1/2	.250	10	1/8	RET8814	RET8815
.0300	.090	3	1-1/2	.270	9	1/8	RET8816	RET8817
.0300	.090	3	1-1/2	.300	10	1/8	RET8818	RET8819
.0312	.093	3	1-1/2	.279	9	1/8	RET8820	RET8821
.0312	.094	3	1-1/2	.315	10	1/8	RET8822	RET8823
.0350	.105	3	1-1/2	.315	9	1/8	RET8824	RET8825
.0350	.105	3	1-1/2	.350	10	1/8	RET8826	RET8827
.0400	.120	3	1-1/2	.360	9	1/8	RET8828	RET8829
.0400	.120	3	1-1/2	.400	10	1/8	RET8830	RET8831
.0450	.135	3	1-1/2	.405	9	1/8	RET8832	RET8833
.0450	.135	3	1-1/2	.450	10	1/8	RET8834	RET8835
.0469	.141	3	1-1/2	.390	8	1/8	RET8836	RET8837
.0469	.141	3	1-1/2	.423	9	1/8	RET8838	RET8839
.0500	.150	3	1-1/2	.500	10	1/8	RET8840	RET8841
.0550	.165	3	1-1/2	.500	9	1/8	RET8842	RET8843
.0600	.180	3	1-1/2	.500	8	1/8	RET8844	RET8845
.0600	.180	3	2	.600	10	1/8	RET8846	RET8847
.0625	.186	3	1-1/2	.590	9	1/8	RET8848	RET8849
.0625	.188	3	2	.590	9	1/8	RET8850	RET8851
.0650	.195	3	1-1/2	.500	8	1/8	RET8852	RET8853
.0650	.195	3	2	.600	9	1/8	RET8854	RET8855
.0700	.210	3	1-1/2	.500	7	1/8	RET8856	RET8857
.0700	.210	3	2	.700	10	1/8	RET8858	RET8859
.0750	.225	3	1-1/2	.500	6	1/8	RET8860	RET8861
.0750	.225	3	2	.700	9	1/8	RET8862	RET8863
.0781	.234	3	1-1/2	.590	7	1/8	RET8864	RET8865
.0781	.234	3	2	.590	8	1/8	RET8866	RET8867
.0800	.240	3	1-1/2	.500	6	1/8	RET8868	RET8869
.0800	.240	3	2	.750	9	1/8	RET8870	RET8871
.0850	.255	3	1-1/2	.500	6	1/8	RET8872	RET8873
.0850	.255	3	2	.750	8	1/8	RET8874	RET8875
.0900	.270	3	1-1/2	.625	7	1/8	RET8876	RET8877
.0900	.270	3	2	.750	8	1/8	RET8878	RET8879
.0938	.279	3	1-1/2	.625	7	1/8	RET8880	RET8881

Continued

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.001	+0.000, -0.0003

Speeds & Feeds page 217.

Micro 4-Flute

NEW Product



Uncoated



AlTiN Coated

4-Flute, Square End, Extra Long Reach, Stub Flute, 30° Helix (.0938-.1250)

Cutter ø	Flute Length	XD LOC	OAL	Reach Length	XD Reach	Shank ø	Uncoated Part #	AlTiN Coated Part #
.0938	.281	3	2	.590	6	1/8	RET8882	RET8883
.0950	.285	3	1-1/2	.625	6	1/8	RET8884	RET8885
.0950	.285	3	2	.750	8	1/8	RET8886	RET8887
.1000	.300	3	1-1/2	.625	6	1/8	RET8888	RET8889
.1000	.300	3	2	.750	7	1/8	RET8890	RET8891
.1094	.328	3	2	.590	5	1/8	RET8892	RET8893
.1100	.330	3	2	.750	7	1/8	RET8894	RET8895
.1250	.375	3	2	.590	5	1/8	RET8896	RET8897

Speeds & Feeds page 217.

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.001	+0.000, -0.0003

NEW Product

Variable Index & Helix Endmills At General Purpose Prices



Uncoated



AlTiN Coated

4-Flute, Variable Index & Helix, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	1/4	1-1/2	-	1/8	RE10108Z	RE10308Z
1/8	.1250	1/4	1-1/2	.010	1/8	RE20000Z	RE20001Z
1/8	.1250	1/4	1-1/2	.015	1/8	RE20002Z	RE20003Z
1/8	.1250	1/4	1-1/2	.020	1/8	RE20004Z	RE20005Z
1/8	.1250	1/4	1-1/2	.030	1/8	RE20006Z	RE20007Z
1/8	.1250	1/2	1-1/2	-	1/8	RE10908Z	RE11108Z
1/8	.1250	1/2	1-1/2	.010	1/8	RE20250Z	RE20009Z
1/8	.1250	1/2	1-1/2	.015	1/8	RE14503Z	RE14704Z
1/8	.1250	1/2	1-1/2	.020	1/8	RE14505Z	RE14706Z
1/8	.1250	1/2	1-1/2	.030	1/8	RE14507Z	RE14708Z
1/8	.1250	3/4	2-1/4	-	1/8	RE12108Z	RE12508Z
1/8	.1250	3/4	2-1/4	.015	1/8	RE24501Z	RE24701Z
1/8	.1250	3/4	2-1/4	.020	1/8	RE24502Z	RE24702Z
1/8	.1250	3/4	2-1/4	.030	1/8	RE24503Z	RE24703Z
1/8	.1250	1	3	-	1/8	RE12308Z	RE12708Z
1/8	.1250	1	3	.015	1/8	RE24901Z	RE25001Z
1/8	.1250	1	3	.020	1/8	RE24902Z	RE25002Z
1/8	.1250	1	3	.030	1/8	RE24903Z	RE25003Z
3/16	.1875	3/8	2	-	3/16	RE10112Z	RE10312Z
3/16	.1875	3/8	2	.010	3/16	RE20010Z	RE20011Z
3/16	.1875	3/8	2	.015	3/16	RE20251Z	RE20013Z
3/16	.1875	3/8	2	.020	3/16	RE20014Z	RE20015Z
3/16	.1875	3/8	2	.030	3/16	RE20252Z	RE20017Z
3/16	.1875	3/8	2	.045	3/16	RE20018Z	RE20019Z
3/16	.1875	5/8	2	-	3/16	RE10912Z	RE11112Z
3/16	.1875	5/8	2	.010	3/16	RE20253Z	RE20021Z
3/16	.1875	5/8	2	.015	3/16	RE14509Z	RE14710Z
3/16	.1875	5/8	2	.020	3/16	RE14511Z	RE14712Z
3/16	.1875	5/8	2	.030	3/16	RE14513Z	RE14714Z
3/16	.1875	5/8	2	.045	3/16	RE20022Z	RE22223Z
3/16	.1875	3/4	2-1/2	-	3/16	RE12112Z	RE12512Z
3/16	.1875	3/4	2-1/2	.015	3/16	RE24504Z	RE24704Z
3/16	.1875	3/4	2-1/2	.020	3/16	RE24505Z	RE24705Z
3/16	.1875	3/4	2-1/2	.030	3/16	RE24506Z	RE24706Z
3/16	.1875	1	4	.015	3/16	RE20254Z	RE20025Z
3/16	.1875	1	4	.020	3/16	RE20026Z	RE20027Z
3/16	.1875	1	4	.030	3/16	RE20028Z	RE20029Z

Continued

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	+0.000, -0.0004	+0.001, -0.001

Speeds & Feeds page 218.

Variable Index & Helix Endmills At General Purpose Prices

NEW Product



Uncoated



AlTiN Coated

4-Flute, Variable Index & Helix, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/16	.1875	1-1/8	3	-	3/16	RE12312Z	RE12712Z
3/16	.1875	1-1/8	3	.015	3/16	RE24904Z	RE25004Z
3/16	.1875	1-1/8	3	.020	3/16	RE24905Z	RE25005Z
3/16	.1875	1-1/8	3	.030	3/16	RE24906Z	RE25006Z
1/4	.2500	1/2	2-1/2	-	1/4	RE12366Z	RE12766Z
1/4	.2500	1/2	2-1/2	.015	1/4	RE20030Z	RE20031Z
1/4	.2500	1/2	2-1/2	.020	1/4	RE20255Z	RE20033Z
1/4	.2500	1/2	2-1/2	.030	1/4	RE20034Z	RE20035Z
1/4	.2500	1/2	2-1/2	.045	1/4	RE20036Z	RE20037Z
1/4	.2500	1/2	2-1/2	.060	1/4	RE20038Z	RE20039Z
1/4	.2500	3/4	2-1/2	-	1/4	RE10916Z	RE11116Z
1/4	.2500	3/4	2-1/2	.015	1/4	RE14515Z	RE14716Z
1/4	.2500	3/4	2-1/2	.020	1/4	RE14517Z	RE14718Z
1/4	.2500	3/4	2-1/2	.030	1/4	RE14519Z	RE14720Z
1/4	.2500	3/4	2-1/2	.045	1/4	RE14521Z	RE14722Z
1/4	.2500	3/4	2-1/2	.060	1/4	RE14523Z	RE14724Z
1/4	.2500	1	4	.015	1/4	RE24512Z	RE24712Z
1/4	.2500	1	4	.020	1/4	RE24513Z	RE24713Z
1/4	.2500	1	4	.030	1/4	RE24514Z	RE24714Z
1/4	.2500	1	4	.045	1/4	RE24515Z	RE24715Z
1/4	.2500	1	4	.060	1/4	RE24516Z	RE24716Z
1/4	.2500	1-1/8	3	-	1/4	RE12116Z	RE12516Z
1/4	.2500	1-1/8	3	.015	1/4	RE24507Z	RE24707Z
1/4	.2500	1-1/8	3	.020	1/4	RE24508Z	RE24708Z
1/4	.2500	1-1/8	3	.030	1/4	RE24509Z	RE24709Z
1/4	.2500	1-1/8	3	.045	1/4	RE24510Z	RE24710Z
1/4	.2500	1-1/8	3	.060	1/4	RE24511Z	RE24711Z
1/4	.2500	1-1/2	4	-	1/4	RE12316Z	RE12716Z
1/4	.2500	1-1/2	4	.015	1/4	RE24907Z	RE25007Z
1/4	.2500	1-1/2	4	.020	1/4	RE24908Z	RE25008Z
1/4	.2500	1-1/2	4	.030	1/4	RE24909Z	RE25009Z
1/4	.2500	1-1/2	4	.045	1/4	RE24910Z	RE25010Z
1/4	.2500	1-1/2	4	.060	1/4	RE24911Z	RE25011Z
1/4	.2500	1-1/2	6	.015	1/4	RE24912Z	RE25012Z
1/4	.2500	1-1/2	6	.020	1/4	RE24913Z	RE25013Z
1/4	.2500	1-1/2	6	.030	1/4	RE24914Z	RE25014Z
1/4	.2500	1-1/2	6	.045	1/4	RE24915Z	RE25015Z

Continued

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	+0.000, -0.0004	+0.001, -0.001

NEW Product

Variable Index & Helix Endmills At General Purpose Prices



Uncoated



AlTiN Coated

4-Flute, Variable Index & Helix, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/4	.2500	1-1/2	6	.060	1/4	RE24916Z	RE25016Z
5/16	.3125	1/2	2-1/2	-	5/16	RE12367Z	RE12767Z
5/16	.3125	1/2	2-1/2	.015	5/16	RE20050Z	RE20051Z
5/16	.3125	1/2	2-1/2	.020	5/16	RE20052Z	RE20053Z
5/16	.3125	1/2	2-1/2	.030	5/16	RE20054Z	RE20055Z
5/16	.3125	1/2	2-1/2	.045	5/16	RE20056Z	RE20057Z
5/16	.3125	1/2	2-1/2	.060	5/16	RE20058Z	RE20059Z
5/16	.3125	1/2	2-1/2	.090	5/16	RE20060Z	RE20061Z
5/16	.3125	13/16	2-1/2	-	5/16	RE10920Z	RE11120Z
5/16	.3125	13/16	2-1/2	.015	5/16	RE14525Z	RE14726Z
5/16	.3125	13/16	2-1/2	.020	5/16	RE14527Z	RE14728Z
5/16	.3125	13/16	2-1/2	.030	5/16	RE14529Z	RE14730Z
5/16	.3125	13/16	2-1/2	.045	5/16	RE14531Z	RE14732Z
5/16	.3125	13/16	2-1/2	.060	5/16	RE14533Z	RE14734Z
5/16	.3125	13/16	2-1/2	.090	5/16	RE20062Z	RE20063Z
5/16	.3125	1-1/8	3	-	5/16	RE12120Z	RE12520Z
5/16	.3125	1-1/8	3	.015	5/16	RE24517Z	RE24717Z
5/16	.3125	1-1/8	3	.020	5/16	RE24518Z	RE24718Z
5/16	.3125	1-1/8	3	.030	5/16	RE24519Z	RE24719Z
5/16	.3125	1-1/8	3	.045	5/16	RE24520Z	RE24720Z
5/16	.3125	1-1/8	3	.060	5/16	RE24521Z	RE24721Z
5/16	.3125	1-1/2	6	.015	5/16	RE20064Z	RE20065Z
5/16	.3125	1-1/2	6	.020	5/16	RE20066Z	RE20067Z
5/16	.3125	1-1/2	6	.030	5/16	RE20068Z	RE20069Z
5/16	.3125	1-1/2	6	.045	5/16	RE20070Z	RE20071Z
5/16	.3125	1-1/2	6	.060	5/16	RE20072Z	RE20073Z
5/16	.3125	1-5/8	4	-	5/16	RE12320Z	RE12720Z
5/16	.3125	1-5/8	4	.015	5/16	RE24917Z	RE25017Z
5/16	.3125	1-5/8	4	.020	5/16	RE24918Z	RE25018Z
5/16	.3125	1-5/8	4	.030	5/16	RE24919Z	RE25019Z
5/16	.3125	1-5/8	4	.045	5/16	RE24920Z	RE25020Z
5/16	.3125	1-5/8	4	.060	5/16	RE24921Z	RE25021Z
3/8	.3750	5/8	2-1/2	-	3/8	RE12368Z	RE12768Z
3/8	.3750	5/8	2-1/2	.015	3/8	RE20074Z	RE20075Z
3/8	.3750	5/8	2-1/2	.020	3/8	RE20076Z	RE20077Z
3/8	.3750	5/8	2-1/2	.030	3/8	RE20078Z	RE20079Z
3/8	.3750	5/8	2-1/2	.045	3/8	RE20080Z	RE20081Z

Continued

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	+0.000, -0.0004	+0.001, -0.001

Speeds & Feeds page 218.

Variable Index & Helix Endmills At General Purpose Prices

NEW Product



Uncoated



AlTiN Coated

4-Flute, Variable Index & Helix, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/8	.3750	5/8	2-1/2	.060	3/8	RE20082Z	RE20083Z
3/8	.3750	5/8	2-1/2	.090	3/8	RE20084Z	RE20085Z
3/8	.3750	1	2-1/2	-	3/8	RE10924Z	RE11124Z
3/8	.3750	1	2-1/2	.015	3/8	RE14535Z	RE14736Z
3/8	.3750	1	2-1/2	.020	3/8	RE14537Z	RE14738Z
3/8	.3750	1	2-1/2	.030	3/8	RE14539Z	RE14740Z
3/8	.3750	1	2-1/2	.045	3/8	RE14541Z	RE14742Z
3/8	.3750	1	2-1/2	.060	3/8	RE14543Z	RE14744Z
3/8	.3750	1	2-1/2	.090	3/8	RE20086Z	RE20087Z
3/8	.3750	1	4	.015	3/8	RE24527Z	RE24727Z
3/8	.3750	1	4	.020	3/8	RE24528Z	RE24728Z
3/8	.3750	1	4	.030	3/8	RE24529Z	RE24729Z
3/8	.3750	1	4	.045	3/8	RE24530Z	RE24730Z
3/8	.3750	1	4	.060	3/8	RE24531Z	RE24731Z
3/8	.3750	1-1/8	3	-	3/8	RE12124Z	RE12524Z
3/8	.3750	1-1/8	3	.015	3/8	RE24522Z	RE24722Z
3/8	.3750	1-1/8	3	.020	3/8	RE24523Z	RE24723Z
3/8	.3750	1-1/8	3	.030	3/8	RE24524Z	RE24724Z
3/8	.3750	1-1/8	3	.045	3/8	RE24525Z	RE24725Z
3/8	.3750	1-1/8	3	.060	3/8	RE24526Z	RE24726Z
3/8	.3750	1-1/2	6	.015	3/8	RE24927Z	RE25027Z
3/8	.3750	1-1/2	6	.020	3/8	RE24928Z	RE25028Z
3/8	.3750	1-1/2	6	.030	3/8	RE24929Z	RE25029Z
3/8	.3750	1-1/2	6	.045	3/8	RE24930Z	RE25030Z
3/8	.3750	1-1/2	6	.060	3/8	RE24931Z	RE25031Z
3/8	.3750	1-3/4	4	-	3/8	RE12324Z	RE12724Z
3/8	.3750	1-3/4	4	.015	3/8	RE24922Z	RE25022Z
3/8	.3750	1-3/4	4	.020	3/8	RE24923Z	RE25023Z
3/8	.3750	1-3/4	4	.030	3/8	RE24924Z	RE25024Z
3/8	.3750	1-3/4	4	.045	3/8	RE24925Z	RE25025Z
3/8	.3750	1-3/4	4	.060	3/8	RE24926Z	RE25026Z
7/16	.4375	1	2-3/4	-	7/16	RE10928Z	RE11128Z
7/16	.4375	1	2-3/4	.030	7/16	RE20098Z	RE20099Z
7/16	.4375	1	2-3/4	.045	7/16	RE20100Z	RE20101Z
7/16	.4375	1	2-3/4	.060	7/16	RE20102Z	RE20103Z
7/16	.4375	1	2-3/4	.090	7/16	RE20104Z	RE20105Z
7/16	.4375	1	2-3/4	.125	7/16	RE20106Z	RE20107Z

Continued

Speeds & Feeds page 218.

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	+0.000, -0.0004	+0.001, -0.001

NEW Product

Variable Index & Helix Endmills At General Purpose Prices



Uncoated



AlTiN Coated

4-Flute, Variable Index & Helix, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
7/16	.4375	2	4	-	7/16	RE12128Z	RE12528Z
7/16	.4375	3	6	-	7/16	RE12328Z	RE12728Z
1/2	.5000	5/8	3	-	1/2	RE12369Z	RE12769Z
1/2	.5000	5/8	3	.015	1/2	RE20256Z	RE20109Z
1/2	.5000	5/8	3	.020	1/2	RE20110Z	RE20111Z
1/2	.5000	5/8	3	.030	1/2	RE20257Z	RE20113Z
1/2	.5000	5/8	3	.045	1/2	RE20114Z	RE20115Z
1/2	.5000	5/8	3	.060	1/2	RE20258Z	RE20117Z
1/2	.5000	5/8	3	.090	1/2	RE20118Z	RE20119Z
1/2	.5000	5/8	3	.125	1/2	RE20259Z	RE20121Z
1/2	.5000	1	3	-	1/2	RE10932Z	RE11132Z
1/2	.5000	1	4	.015	1/2	RE24532Z	RE24732Z
1/2	.5000	1	4	.020	1/2	RE24533Z	RE24733Z
1/2	.5000	1	4	.030	1/2	RE24534Z	RE24734Z
1/2	.5000	1	4	.045	1/2	RE24535Z	RE24735Z
1/2	.5000	1	4	.060	1/2	RE24536Z	RE24736Z
1/2	.5000	1	4	.090	1/2	RE24537Z	RE24737Z
1/2	.5000	1	4	.125	1/2	RE24538Z	RE24738Z
1/2	.5000	1-1/4	3	-	1/2	RE10933Z	RE11133Z
1/2	.5000	1-1/4	3	.015	1/2	RE20122Z	RE20123Z
1/2	.5000	1-1/4	3	.020	1/2	RE20260Z	RE20125Z
1/2	.5000	1-1/4	3	.030	1/2	RE20126Z	RE20127Z
1/2	.5000	1-1/4	3	.045	1/2	RE20128Z	RE20129Z
1/2	.5000	1-1/4	3	.060	1/2	RE20130Z	RE20131Z
1/2	.5000	1-1/4	3	.090	1/2	RE20261Z	RE20133Z
1/2	.5000	1-1/4	3	.125	1/2	RE20134Z	RE20135Z
1/2	.5000	1-1/2	4	-	1/2	RE10400Z	RE10410Z
1/2	.5000	1-1/2	4	.015	1/2	RE20136Z	RE20137Z
1/2	.5000	1-1/2	4	.020	1/2	RE20138Z	RE20139Z
1/2	.5000	1-1/2	4	.030	1/2	RE20262Z	RE20141Z
1/2	.5000	1-1/2	4	.045	1/2	RE20142Z	RE20143Z
1/2	.5000	1-1/2	4	.060	1/2	RE20144Z	RE20145Z
1/2	.5000	1-1/2	4	.090	1/2	RE20146Z	RE20147Z
1/2	.5000	1-1/2	4	.125	1/2	RE20263Z	RE20149Z
1/2	.5000	1-1/2	6	.015	1/2	RE24932Z	RE25032Z
1/2	.5000	1-1/2	6	.020	1/2	RE24933Z	RE25033Z
1/2	.5000	1-1/2	6	.030	1/2	RE24934Z	RE25034Z

Continued

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	+0.000, -0.0004	+0.001, -0.001

Speeds & Feeds page 218.

Variable Index & Helix Endmills At General Purpose Prices

NEW Product



Uncoated



AlTiN Coated

4-Flute, Variable Index & Helix, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/2	.5000	1-1/2	6	.045	1/2	RE24935Z	RE25035Z
1/2	.5000	1-1/2	6	.060	1/2	RE24936Z	RE25036Z
1/2	.5000	1-1/2	6	.090	1/2	RE24937Z	RE25037Z
1/2	.5000	1-1/2	6	.125	1/2	RE24938Z	RE25038Z
1/2	.5000	2	4	-	1/2	RE12133Z	RE12533Z
1/2	.5000	2	4	.015	1/2	RE24539Z	RE24739Z
1/2	.5000	2	4	.020	1/2	RE24540Z	RE24740Z
1/2	.5000	2	4	.030	1/2	RE24541Z	RE24741Z
1/2	.5000	2	4	.045	1/2	RE24542Z	RE24742Z
1/2	.5000	2	4	.060	1/2	RE24543Z	RE24743Z
1/2	.5000	2	4	.090	1/2	RE24544Z	RE24744Z
1/2	.5000	2	4	.125	1/2	RE24545Z	RE24745Z
1/2	.5000	3	6	-	1/2	RE12333Z	RE12733Z
1/2	.5000	3	6	.015	1/2	RE24939Z	RE25039Z
1/2	.5000	3	6	.020	1/2	RE24940Z	RE25040Z
1/2	.5000	3	6	.030	1/2	RE24941Z	RE25041Z
1/2	.5000	3	6	.045	1/2	RE24942Z	RE25042Z
1/2	.5000	3	6	.060	1/2	RE24943Z	RE25043Z
1/2	.5000	3	6	.090	1/2	RE24944Z	RE25044Z
1/2	.5000	3	6	.125	1/2	RE24945Z	RE25045Z
5/8	.6250	3/4	3-1/2	-	5/8	RE12370Z	RE12770Z
5/8	.6250	3/4	3-1/2	.015	5/8	RE20150Z	RE20151Z
5/8	.6250	3/4	3-1/2	.020	5/8	RE20152Z	RE20153Z
5/8	.6250	3/4	3-1/2	.030	5/8	RE20154Z	RE20155Z
5/8	.6250	3/4	3-1/2	.045	5/8	RE20156Z	RE20157Z
5/8	.6250	3/4	3-1/2	.060	5/8	RE20158Z	RE20159Z
5/8	.6250	3/4	3-1/2	.090	5/8	RE20160Z	RE20161Z
5/8	.6250	3/4	3-1/2	.125	5/8	RE20162Z	RE20163Z
5/8	.6250	1-1/4	3-1/2	-	5/8	RE10940Z	RE11140Z
5/8	.6250	1-1/4	3-1/2	.015	5/8	RE14559Z	RE14760Z
5/8	.6250	1-1/4	3-1/2	.020	5/8	RE14561Z	RE14762Z
5/8	.6250	1-1/4	3-1/2	.030	5/8	RE14563Z	RE14764Z
5/8	.6250	1-1/4	3-1/2	.045	5/8	RE14565Z	RE14766Z
5/8	.6250	1-1/4	3-1/2	.060	5/8	RE14567Z	RE14768Z
5/8	.6250	1-1/4	3-1/2	.090	5/8	RE14569Z	RE14770Z
5/8	.6250	1-1/4	3-1/2	.125	5/8	RE20164Z	RE20165Z
5/8	.6250	1-1/2	6	.030	5/8	RE20168Z	RE20169Z

Continued

Speeds & Feeds page 218.

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	+0.000, -0.0004	+0.001, -0.001

NEW Product

Variable Index & Helix Endmills At General Purpose Prices



Uncoated



AlTiN Coated

4-Flute, Variable Index & Helix, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
5/8	.6250	1-1/2	6	.045	5/8	RE20170Z	RE20171Z
5/8	.6250	1-1/2	6	.060	5/8	RE20172Z	RE20173Z
5/8	.6250	1-1/2	6	.090	5/8	RE20174Z	RE20175Z
5/8	.6250	1-1/2	6	.125	5/8	RE20176Z	RE20177Z
5/8	.6250	2-1/4	5	-	5/8	RE12140Z	RE12540Z
5/8	.6250	2-1/4	5	.030	5/8	RE24548Z	RE24748Z
5/8	.6250	2-1/4	5	.045	5/8	RE24549Z	RE24749Z
5/8	.6250	2-1/4	5	.060	5/8	RE24550Z	RE24750Z
5/8	.6250	2-1/4	5	.090	5/8	RE24551Z	RE24751Z
5/8	.6250	2-1/4	5	.125	5/8	RE20166Z	RE20167Z
5/8	.6250	3	6	-	5/8	RE12340Z	RE12740Z
5/8	.6250	3	6	.030	5/8	RE24948Z	RE25048Z
5/8	.6250	3	6	.045	5/8	RE24949Z	RE25049Z
5/8	.6250	3	6	.060	5/8	RE24950Z	RE25050Z
5/8	.6250	3	6	.090	5/8	RE24951Z	RE25051Z
5/8	.6250	3	6	.125	5/8	RE20178Z	RE20179Z
3/4	.7500	1	4	-	3/4	RE12371Z	RE12771Z
3/4	.7500	1	4	.030	3/4	RE20180Z	RE20181Z
3/4	.7500	1	4	.045	3/4	RE20182Z	RE20183Z
3/4	.7500	1	4	.060	3/4	RE20184Z	RE20185Z
3/4	.7500	1	4	.090	3/4	RE20186Z	RE20187Z
3/4	.7500	1	4	.125	3/4	RE20188Z	RE20189Z
3/4	.7500	1	4	.190	3/4	RE20190Z	RE20191Z
3/4	.7500	1	4	.250	3/4	RE20192Z	RE20193Z
3/4	.7500	1-1/2	4	-	3/4	RE10948Z	RE11148Z
3/4	.7500	1-1/2	4	.030	3/4	RE14575Z	RE14776Z
3/4	.7500	1-1/2	4	.045	3/4	RE14577Z	RE14778Z
3/4	.7500	1-1/2	4	.060	3/4	RE14579Z	RE14780Z
3/4	.7500	1-1/2	4	.090	3/4	RE14581Z	RE14782Z
3/4	.7500	1-1/2	4	.125	3/4	RE14583Z	RE14784Z
3/4	.7500	1-1/2	4	.190	3/4	RE20194Z	RE20195Z
3/4	.7500	1-1/2	4	.250	3/4	RE20196Z	RE20197Z
3/4	.7500	1-1/2	6	.030	3/4	RE20200Z	RE20201Z
3/4	.7500	1-1/2	6	.045	3/4	RE20202Z	RE20203Z
3/4	.7500	1-1/2	6	.060	3/4	RE20204Z	RE20205Z
3/4	.7500	1-1/2	6	.090	3/4	RE20206Z	RE20207Z
3/4	.7500	1-1/2	6	.125	3/4	RE20264Z	RE20209Z

Continued

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	+0.000, -0.0004	+0.001, -0.001

Speeds & Feeds page 218.

Variable Index & Helix Endmills At General Purpose Prices

NEW Product



Uncoated



AlTiN Coated

4-Flute, Variable Index & Helix, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/4	.7500	1-1/2	6	.250	3/4	RE20210Z	RE20211Z
3/4	.7500	2-1/4	5	-	3/4	RE12148Z	RE12548Z
3/4	.7500	2-1/4	5	.030	3/4	RE24554Z	RE24754Z
3/4	.7500	2-1/4	5	.045	3/4	RE24555Z	RE24755Z
3/4	.7500	2-1/4	5	.060	3/4	RE24556Z	RE24756Z
3/4	.7500	2-1/4	5	.090	3/4	RE24557Z	RE24757Z
3/4	.7500	2-1/4	5	.125	3/4	RE24558Z	RE24758Z
3/4	.7500	2-1/4	5	.250	3/4	RE20198Z	RE20199Z
3/4	.7500	3	6	-	3/4	RE12348Z	RE12748Z
3/4	.7500	3	6	.030	3/4	RE24954Z	RE25054Z
3/4	.7500	3	6	.045	3/4	RE24955Z	RE25055Z
3/4	.7500	3	6	.060	3/4	RE24956Z	RE25056Z
3/4	.7500	3	6	.090	3/4	RE24957Z	RE25057Z
3/4	.7500	3	6	.125	3/4	RE24958Z	RE25058Z
3/4	.7500	3	6	.250	3/4	RE20265Z	RE20213Z
3/4	.7500	4	7	-	3/4	RE12349Z	RE12749Z
3/4	.7500	4	7	.030	3/4	RE24961Z	RE25061Z
3/4	.7500	4	7	.045	3/4	RE24962Z	RE25062Z
3/4	.7500	4	7	.060	3/4	RE24963Z	RE25063Z
3/4	.7500	4	7	.090	3/4	RE24964Z	RE25064Z
3/4	.7500	4	7	.125	3/4	RE24965Z	RE25065Z
3/4	.7500	4	7	.250	3/4	RE20214Z	RE20215Z
1	1.000	1-1/2	4	-	1	RE10964Z	RE11164Z
1	1.000	1-1/2	4	.030	1	RE14589Z	RE14790Z
1	1.000	1-1/2	4	.045	1	RE14591Z	RE14792Z
1	1.000	1-1/2	4	.060	1	RE14593Z	RE14794Z
1	1.000	1-1/2	4	.090	1	RE14595Z	RE14796Z
1	1.000	1-1/2	4	.125	1	RE14597Z	RE14798Z
1	1.000	1-1/2	4	.190	1	RE20266Z	RE20217Z
1	1.000	1-1/2	4	.250	1	RE20218Z	RE20219Z
1	1.000	1-1/2	6	.030	1	RE20222Z	RE20223Z
1	1.000	1-1/2	6	.045	1	RE20267Z	RE20225Z
1	1.000	1-1/2	6	.060	1	RE20226Z	RE20227Z
1	1.000	1-1/2	6	.090	1	RE20228Z	RE20229Z
1	1.000	1-1/2	6	.125	1	RE20230Z	RE20231Z
1	1.000	1-1/2	6	.250	1	RE20268Z	RE20233Z
1	1.000	2-1/4	5	-	1	RE12164Z	RE12564Z

Continued

Speeds & Feeds page 218.

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	+0.000, -0.0004	+0.001, -0.001

NEW Product

Variable Index & Helix Endmills At General Purpose Prices



Uncoated



AlTiN Coated

4-Flute, Variable Index & Helix, Square & Corner Radius

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
1	1.000	2-1/4	5	.030	1	RE24561Z	RE24761Z
1	1.000	2-1/4	5	.045	1	RE24562Z	RE24762Z
1	1.000	2-1/4	5	.060	1	RE24563Z	RE24763Z
1	1.000	2-1/4	5	.090	1	RE24564Z	RE24764Z
1	1.000	2-1/4	5	.125	1	RE24565Z	RE24765Z
1	1.000	2-1/4	5	.250	1	RE20269Z	RE20221Z
1	1.000	3	6	-	1	RE12364Z	RE12764Z
1	1.000	3	6	.030	1	RE24968Z	RE25068Z
1	1.000	3	6	.045	1	RE24969Z	RE25069Z
1	1.000	3	6	.060	1	RE24970Z	RE25070Z
1	1.000	3	6	.090	1	RE24971Z	RE25071Z
1	1.000	3	6	.125	1	RE24972Z	RE25072Z
1	1.000	3	6	.250	1	RE20234Z	RE20235Z
1	1.000	4	7	-	1	RE12365Z	RE12765Z
1	1.000	4	7	.030	1	RE24975Z	RE25075Z
1	1.000	4	7	.045	1	RE24976Z	RE25076Z
1	1.000	4	7	.060	1	RE24977Z	RE25077Z
1	1.000	4	7	.090	1	RE24978Z	RE25078Z
1	1.000	4	7	.125	1	RE24979Z	RE25079Z
1	1.000	4	7	.250	1	RE20236Z	RE20237Z

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	+0.000, -0.0004	+0.001, -0.001

Speeds & Feeds page 218.



Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Square & Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
1/64	.0156	.023	1-1/2	—	1/8	RE10101	RE10301	—
1/64	.0156	1/32	1-1/2	—	1/8	RE10901	RE11101	RE11301
1/32	.0313	1/16	1-1/2	—	1/8	RE10102	RE10302	—
1/32	.0313	1/8	1-1/2	—	1/8	RE10902	RE11102	RE11302
3/64	.0469	3/32	1-1/2	—	1/8	RE10103	RE10303	—
3/64	.0469	1/8	1-1/2	—	1/8	RE10903	RE11103	RE11303
1/16	.0625	1/8	1-1/2	—	1/8	RE10104	RE10304	—
1/16	.0625	1/4	1-1/2	—	1/8	RE10904	RE11104	RE11304
5/64	.0781	1/8	1-1/2	—	1/8	RE10105	RE10305	—
5/64	.0781	1/4	1-1/2	—	1/8	RE10905	RE11105	RE11305
3/32	.0938	3/16	1-1/2	—	1/8	RE10106	RE10306	—
3/32	.0938	3/8	1-1/2	—	1/8	RE10906	RE11106	RE11306
7/64	.1094	3/8	1-1/2	—	1/8	RE10907	RE11107	RE11307
1/8	.1250	1/4	1-1/2	—	1/8	RE10108	RE10308	—
1/8	.1250	1/2	1-1/2	—	1/8	RE10908	RE11108	RE11308
1/8	.1250	1/2	1-1/2	.015	1/8	—	RE14704	—
1/8	.1250	1/2	1-1/2	.020	1/8	—	RE14706	—
1/8	.1250	1/2	1-1/2	.030	1/8	—	RE14708	—
1/8	.1250	3/4	2-1/4	—	1/8	RE12108	RE12508	RE12908
1/8	.1250	3/4	2-1/4	.015	1/8	—	RE24701	—
1/8	.1250	3/4	2-1/4	.020	1/8	—	RE24702	—
1/8	.1250	3/4	2-1/4	.030	1/8	—	RE24703	—
1/8	.1250	1	3	—	1/8	RE12308	RE12708	RE13108
1/8	.1250	1	3	.015	1/8	—	RE25001	—
1/8	.1250	1	3	.020	1/8	—	RE25002	—
1/8	.1250	1	3	.030	1/8	—	RE25003	—
9/64	.1406	9/16	2	—	3/16	RE10909	RE11109	RE11309
5/32	.1563	5/16	2	—	3/16	RE10110	RE10310	—
5/32	.1563	9/16	2	—	3/16	RE10910	RE11110	RE11310
11/64	.1719	5/8	2	—	3/16	RE10911	RE11111	RE11311
3/16	.1875	3/8	2	—	3/16	RE10112	RE10312	—
3/16	.1875	5/8	2	—	3/16	RE10912	RE11112	RE11312
3/16	.1875	5/8	2	.015	3/16	—	RE14710	—
3/16	.1875	5/8	2	.020	3/16	—	RE14712	—
3/16	.1875	5/8	2	.030	3/16	—	RE14714	—
3/16	.1875	3/4	2-1/2	—	3/16	RE12112	RE12512	RE12912
3/16	.1875	3/4	2-1/2	.015	3/16	—	RE24704	—

Continued

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1-1/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Square & Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
3/16	.1875	3/4	2-1/2	.020	3/16	—	RE24705	—
3/16	.1875	3/4	2-1/2	.030	3/16	—	RE24706	—
3/16	.1875	1-1/8	3	—	3/16	RE12312	RE12712	RE13112
3/16	.1875	1-1/8	3	.015	3/16	—	RE25004	—
3/16	.1875	1-1/8	3	.020	3/16	—	RE25005	—
3/16	.1875	1-1/8	3	.030	3/16	—	RE25006	—
13/64	.2031	5/8	2-1/2	—	1/4	RE10913	RE11113	RE11313
7/32	.2188	7/16	2	—	1/4	RE10114	RE10314	—
7/32	.2188	5/8	2-1/2	—	1/4	RE10914	RE11114	RE11314
15/64	.2344	3/4	2-1/2	—	1/4	RE10915	RE11115	RE11315
1/4	.2500	1/2	2	—	1/4	RE10116	RE10316	—
1/4	.2500	3/4	2-1/2	—	1/4	RE10916	RE11116	RE11316
1/4	.2500	3/4	2-1/2	.015	1/4	—	RE14716	—
1/4	.2500	3/4	2-1/2	.020	1/4	—	RE14718	—
1/4	.2500	3/4	2-1/2	.030	1/4	—	RE14720	—
1/4	.2500	3/4	2-1/2	.045	1/4	—	RE14722	—
1/4	.2500	3/4	2-1/2	.060	1/4	—	RE14724	—
1/4	.2500	1	4	—	1/4	RE12117	RE12517	RE12917
1/4	.2500	1	4	.015	1/4	—	RE24712	—
1/4	.2500	1	4	.020	1/4	—	RE24713	—
1/4	.2500	1	4	.030	1/4	—	RE24714	—
1/4	.2500	1	4	.045	1/4	—	RE24715	—
1/4	.2500	1	4	.060	1/4	—	RE24716	—
1/4	.2500	1-1/8	3	—	1/4	RE12116	RE12516	RE12916
1/4	.2500	1-1/8	3	.015	1/4	—	RE24707	—
1/4	.2500	1-1/8	3	.020	1/4	—	RE24708	—
1/4	.2500	1-1/8	3	.030	1/4	—	RE24709	—
1/4	.2500	1-1/8	3	.045	1/4	—	RE24710	—
1/4	.2500	1-1/8	3	.060	1/4	—	RE24711	—
1/4	.2500	1-1/2	4	—	1/4	RE12316	RE12716	RE13116
1/4	.2500	1-1/2	4	.015	1/4	—	RE25007	—
1/4	.2500	1-1/2	4	.020	1/4	—	RE25008	—
1/4	.2500	1-1/2	4	.030	1/4	—	RE25009	—
1/4	.2500	1-1/2	4	.045	1/4	—	RE25010	—
1/4	.2500	1-1/2	4	.060	1/4	—	RE25011	—
1/4	.2500	1-1/2	6	—	1/4	RE12317	RE12717	RE13117
1/4	.2500	1-1/2	6	.015	1/4	—	RE25012	—

Continued

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1-1/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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4-Flute



Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Square & Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
1/4	.2500	1-1/2	6	.020	1/4	—	RE25013	—
1/4	.2500	1-1/2	6	.030	1/4	—	RE25014	—
1/4	.2500	1-1/2	6	.045	1/4	—	RE25015	—
1/4	.2500	1-1/2	6	.060	1/4	—	RE25016	—
17/64	.2656	3/4	2-1/2	—	5/16	RE10917	RE11117	RE11317
9/32	.2813	3/4	2-1/2	—	5/16	RE10918	RE11118	RE11318
19/64	.2969	13/16	2-1/2	—	5/16	RE10919	RE11119	RE11319
5/16	.3125	1/2	2	—	5/16	RE10120	RE10320	
5/16	.3125	13/16	2-1/2	—	5/16	RE10920	RE11120	RE11320
5/16	.3125	13/16	2-1/2	.015	5/16	—	RE14726	—
5/16	.3125	13/16	2-1/2	.020	5/16	—	RE14728	—
5/16	.3125	13/16	2-1/2	.030	5/16	—	RE14730	—
5/16	.3125	13/16	2-1/2	.045	5/16	—	RE14732	—
5/16	.3125	13/16	2-1/2	.060	5/16	—	RE14734	—
5/16	.3125	1-1/8	3	—	5/16	RE12120	RE12520	RE12920
5/16	.3125	1-1/8	3	.015	5/16	—	RE24717	—
5/16	.3125	1-1/8	3	.020	5/16	—	RE24718	—
5/16	.3125	1-1/8	3	.030	5/16	—	RE24719	—
5/16	.3125	1-1/8	3	.045	5/16	—	RE24720	—
5/16	.3125	1-1/8	3	.060	5/16	—	RE24721	—
5/16	.3125	1-5/8	4	—	5/16	RE12320	RE12720	RE13120
5/16	.3125	1-5/8	4	.015	5/16	—	RE25017	—
5/16	.3125	1-5/8	4	.020	5/16	—	RE25018	—
5/16	.3125	1-5/8	4	.030	5/16	—	RE25019	—
5/16	.3125	1-5/8	4	.045	5/16	—	RE25020	—
5/16	.3125	1-5/8	4	.060	5/16	—	RE25021	—
21/64	.3281	1	2-1/2	—	3/8	RE10921	RE11121	RE11321
11/32	.3438	1	2-1/2	—	3/8	RE10922	RE11122	RE11322
23/64	.3594	1	2-1/2	—	3/8	RE10923	RE11123	RE11323
3/8	.3750	5/8	2	—	3/8	RE10124	RE10324	—
3/8	.3750	1	2-1/2	—	3/8	RE10924	RE11124	RE11324
3/8	.3750	1	2-1/2	.015	3/8	—	RE14736	—
3/8	.3750	1	2-1/2	.020	3/8	—	RE14738	—
3/8	.3750	1	2-1/2	.030	3/8	—	RE14740	—
3/8	.3750	1	2-1/2	.045	3/8	—	RE14742	—
3/8	.3750	1	2-1/2	.060	3/8	—	RE14744	—
3/8	.3750	1	4	—	3/8	RE12125	RE12525	RE12925

Continued

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1-1/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Square & Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
3/8	.3750	1	4	.015	3/8	—	RE24727	—
3/8	.3750	1	4	.020	3/8	—	RE24728	—
3/8	.3750	1	4	.030	3/8	—	RE24729	—
3/8	.3750	1	4	.045	3/8	—	RE24730	—
3/8	.3750	1	4	.060	3/8	—	RE24731	—
3/8	.3750	1-1/8	3	—	3/8	RE12124	RE12524	RE12924
3/8	.3750	1-1/8	3	.015	3/8	—	RE24722	—
3/8	.3750	1-1/8	3	.020	3/8	—	RE24723	—
3/8	.3750	1-1/8	3	.030	3/8	—	RE24724	—
3/8	.3750	1-1/8	3	.045	3/8	—	RE24725	—
3/8	.3750	1-1/8	3	.060	3/8	—	RE24726	—
3/8	.3750	1-1/2	6	—	3/8	RE12325	RE12725	RE13125
3/8	.3750	1-1/2	6	.015	3/8	—	RE25027	—
3/8	.3750	1-1/2	6	.020	3/8	—	RE25028	—
3/8	.3750	1-1/2	6	.030	3/8	—	RE25029	—
3/8	.3750	1-1/2	6	.045	3/8	—	RE25030	—
3/8	.3750	1-1/2	6	.060	3/8	—	RE25031	—
3/8	.3750	1-3/4	4	—	3/8	RE12324	RE12724	RE13124
3/8	.3750	1-3/4	4	.015	3/8	—	RE25022	—
3/8	.3750	1-3/4	4	.020	3/8	—	RE25023	—
3/8	.3750	1-3/4	4	.030	3/8	—	RE25024	—
3/8	.3750	1-3/4	4	.045	3/8	—	RE25025	—
3/8	.3750	1-3/4	4	.060	3/8	—	RE25026	—
25/64	.3906	1	2-3/4	—	7/16	RE10925	RE11125	RE11325
13/32	.4063	1	2-3/4	—	7/16	RE10926	RE11126	RE11326
27/64	.4219	1	2-3/4	—	7/16	RE10927	RE11127	RE11327
7/16	.4375	5/8	2-1/2	—	7/16	RE10128	RE10328	—
7/16	.4375	1	2-3/4	—	7/16	RE10928	RE11128	RE11328
7/16	.4375	2	4	—	7/16	RE12128	RE12528	RE12928
7/16	.4375	3	6	—	7/16	RE12328	RE12728	RE13128
29/64	.4531	1	3	—	1/2	RE10929	RE11129	RE11329
15/32	.4688	1	3	—	1/2	RE10930	RE11130	RE11330
31/64	.4844	1	3	—	1/2	RE10931	RE11131	RE11331
1/2	.5000	5/8	2-1/2	—	1/2	RE10132	RE10332	—
1/2	.5000	1	3	—	1/2	—	RE11132	RE11332
1/2	.5000	1	3	.015	1/2	—	RE14746	—
1/2	.5000	1	3	.020	1/2	—	RE14748	—

Continued

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1-1/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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4-Flute



Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Square & Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
1/2	.5000	1	3	.030	1/2	—	RE14750	—
1/2	.5000	1	3	.045	1/2	—	RE14752	—
1/2	.5000	1	3	.060	1/2	—	RE14754	—
1/2	.5000	1	3	.090	1/2	—	RE14756	—
1/2	.5000	1	3	.125	1/2	—	RE14758	—
1/2	.5000	1	4	—	1/2	RE12132	RE12532	RE12932
1/2	.5000	1	4	.015	1/2	—	RE24732	—
1/2	.5000	1	4	.020	1/2	—	RE24733	—
1/2	.5000	1	4	.030	1/2	—	RE24734	—
1/2	.5000	1	4	.045	1/2	—	RE24735	—
1/2	.5000	1	4	.060	1/2	—	RE24736	—
1/2	.5000	1	4	.090	1/2	—	RE24737	—
1/2	.5000	1	4	.125	1/2	—	RE24738	—
1/2	.5000	1-1/4	3	—	1/2	RE10933	RE11133	RE11333
1/2	.5000	1-1/2	6	—	1/2	RE12332	RE12732	RE13132
1/2	.5000	1-1/2	6	.015	1/2	—	RE25032	—
1/2	.5000	1-1/2	6	.020	1/2	—	RE25033	—
1/2	.5000	1-1/2	6	.030	1/2	—	RE25034	—
1/2	.5000	1-1/2	6	.045	1/2	—	RE25035	—
1/2	.5000	1-1/2	6	.060	1/2	—	RE25036	—
1/2	.5000	1-1/2	6	.090	1/2	—	RE25037	—
1/2	.5000	1-1/2	6	.125	1/2	—	RE25038	—
1/2	.5000	2	4	—	1/2	RE12133	RE12533	RE12933
1/2	.5000	2	4	.015	1/2	—	RE24739	—
1/2	.5000	2	4	.020	1/2	—	RE24740	—
1/2	.5000	2	4	.030	1/2	—	RE24741	—
1/2	.5000	2	4	.045	1/2	—	RE24742	—
1/2	.5000	2	4	.060	1/2	—	RE24743	—
1/2	.5000	2	4	.090	1/2	—	RE24744	—
1/2	.5000	2	4	.125	1/2	—	RE24745	—
1/2	.5000	3	6	—	1/2	RE12333	RE12733	RE13133
1/2	.5000	3	6	.015	1/2	—	RE25039	—
1/2	.5000	3	6	.020	1/2	—	RE25040	—
1/2	.5000	3	6	.030	1/2	—	RE25041	—
1/2	.5000	3	6	.045	1/2	—	RE25042	—
1/2	.5000	3	6	.060	1/2	—	RE25043	—
1/2	.5000	3	6	.090	1/2	—	RE25044	—

Continued

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1-1/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Square & Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
1/2	.5000	3	6	.125	1/2	—	RE25045	—
9/16	.5625	1-1/4	3-1/2	—	9/16	RE10936	RE11136	RE11336
5/8	.6250	3/4	3	—	5/8	RE10140	RE10340	—
5/8	.6250	1-1/4	3-1/2	—	5/8	RE10940	RE11140	RE11340
5/8	.6250	1-1/4	3-1/2	.015	5/8	—	RE14760	—
5/8	.6250	1-1/4	3-1/2	.020	5/8	—	RE14762	—
5/8	.6250	1-1/4	3-1/2	.030	5/8	—	RE14764	—
5/8	.6250	1-1/4	3-1/2	.045	5/8	—	RE14766	—
5/8	.6250	1-1/4	3-1/2	.060	5/8	—	RE14768	—
5/8	.6250	1-1/4	3-1/2	.090	5/8	—	RE14770	—
5/8	.6250	2-1/4	5	—	5/8	RE12140	RE12540	RE12940
5/8	.6250	2-1/4	5	.015	5/8	—	RE24746	—
5/8	.6250	2-1/4	5	.020	5/8	—	RE24747	—
5/8	.6250	2-1/4	5	.030	5/8	—	RE24748	—
5/8	.6250	2-1/4	5	.045	5/8	—	RE24749	—
5/8	.6250	2-1/4	5	.060	5/8	—	RE24750	—
5/8	.6250	2-1/4	5	.090	5/8	—	RE24751	—
5/8	.6250	3	6	—	5/8	RE12340	RE12740	RE13140
5/8	.6250	3	6	.015	5/8	—	RE25046	—
5/8	.6250	3	6	.020	5/8	—	RE25047	—
5/8	.6250	3	6	.030	5/8	—	RE25048	—
5/8	.6250	3	6	.045	5/8	—	RE25049	—
5/8	.6250	3	6	.060	5/8	—	RE25050	—
5/8	.6250	3	6	.090	5/8	—	RE25051	—
3/4	.7500	1	3	—	3/4	RE10148	RE10348	—
3/4	.7500	1-1/2	4	—	3/4	RE10948	RE11148	RE11348
3/4	.7500	1-1/2	4	.015	3/4	—	RE14772	—
3/4	.7500	1-1/2	4	.020	3/4	—	RE14774	—
3/4	.7500	1-1/2	4	.030	3/4	—	RE14776	—
3/4	.7500	1-1/2	4	.045	3/4	—	RE14778	—
3/4	.7500	1-1/2	4	.060	3/4	—	RE14780	—
3/4	.7500	1-1/2	4	.090	3/4	—	RE14782	—
3/4	.7500	1-1/2	4	.125	3/4	—	RE14784	—
3/4	.7500	2-1/4	5	—	3/4	RE12148	RE12548	RE12948
3/4	.7500	2-1/4	5	.015	3/4	—	RE24752	—
3/4	.7500	2-1/4	5	.020	3/4	—	RE24753	—
3/4	.7500	2-1/4	5	.030	3/4	—	RE24754	—

Continued

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1-1/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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4-Flute



Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Square & Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
3/4	.7500	2-1/4	5	.045	3/4	–	RE24755	–
3/4	.7500	2-1/4	5	.060	3/4	–	RE24756	–
3/4	.7500	2-1/4	5	.090	3/4	–	RE24757	–
3/4	.7500	2-1/4	5	.125	3/4	–	RE24758	–
3/4	.7500	3	6	–	3/4	RE12348	RE12748	RE13148
3/4	.7500	3	6	.015	3/4	–	RE25052	–
3/4	.7500	3	6	.020	3/4	–	RE25053	–
3/4	.7500	3	6	.030	3/4	–	RE25054	–
3/4	.7500	3	6	.045	3/4	–	RE25055	–
3/4	.7500	3	6	.060	3/4	–	RE25056	–
3/4	.7500	3	6	.090	3/4	–	RE25057	–
3/4	.7500	3	6	.125	3/4	–	RE25058	–
3/4	.7500	4	7	–	3/4	RE12349	RE12749	RE13149
3/4	.7500	4	7	.015	3/4	–	RE25059	–
3/4	.7500	4	7	.020	3/4	–	RE25060	–
3/4	.7500	4	7	.030	3/4	–	RE25061	–
3/4	.7500	4	7	.045	3/4	–	RE25062	–
3/4	.7500	4	7	.060	3/4	–	RE25063	–
3/4	.7500	4	7	.090	3/4	–	RE25064	–
3/4	.7500	4	7	.125	3/4	–	RE25065	–
7/8	.8750	1-1/2	4	–	7/8	RE10956	RE11156	RE11356
7/8	.8750	2-1/4	5	–	7/8	RE12156	RE12556	RE12956
7/8	.8750	3	6	–	7/8	RE12356	RE12756	RE13156
1	1.0000	1-1/4	3-1/2	–	1	RE10164	RE10364	–
1	1.0000	1-1/2	4	–	1	RE10964	RE11164	RE11364
1	1.0000	1-1/2	4	.015	1	–	RE14786	–
1	1.0000	1-1/2	4	.020	1	–	RE14788	–
1	1.0000	1-1/2	4	.030	1	–	RE14790	–
1	1.0000	1-1/2	4	.045	1	–	RE14792	–
1	1.0000	1-1/2	4	.060	1	–	RE14794	–
1	1.0000	1-1/2	4	.090	1	–	RE14796	–
1	1.0000	1-1/2	4	.125	1	–	RE14798	–
1	1.0000	2-1/4	5	–	1	RE12164	RE12564	RE12964
1	1.0000	2-1/4	5	.015	1	–	RE24759	–
1	1.0000	2-1/4	5	.020	1	–	RE24760	–
1	1.0000	2-1/4	5	.030	1	–	RE24761	–
1	1.0000	2-1/4	5	.045	1	–	RE24762	–

Continued

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1-1/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Square & Corner Radius, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
1	1.0000	2-1/4	5	.060	1	—	RE24763	—
1	1.0000	2-1/4	5	.090	1	—	RE24764	—
1	1.0000	2-1/4	5	.125	1	—	RE24765	—
1	1.0000	3	6	—	1	RE12364	RE12764	RE13164
1	1.0000	3	6	.015	1	—	RE25066	—
1	1.0000	3	6	.020	1	—	RE25067	—
1	1.0000	3	6	.030	1	—	RE25068	—
1	1.0000	3	6	.045	1	—	RE25069	—
1	1.0000	3	6	.060	1	—	RE25070	—
1	1.0000	3	6	.090	1	—	RE25071	—
1	1.0000	3	6	.125	1	—	RE25072	—
1	1.0000	4	7	—	1	RE12365	RE12765	RE13165
1	1.0000	4	7	.015	1	—	RE25073	—
1	1.0000	4	7	.020	1	—	RE25074	—
1	1.0000	4	7	.030	1	—	RE25075	—
1	1.0000	4	7	.045	1	—	RE25076	—
1	1.0000	4	7	.060	1	—	RE25077	—
1	1.0000	4	7	.090	1	—	RE25078	—
1	1.0000	4	7	.125	1	—	RE25079	—
1-1/4	1.2500	2	4-1/2	—	1-1/4	RE10980	RE11180	RE11380

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1-1/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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4-Flute



Uncoated



AlTiN Coated

4-Flute, Regular Length, Square End, Metric, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1MM	.0394	3	38	3	RE19059	RE19159
1.5MM	.0591	4.2	38	3	RE19060	RE19160
2MM	.0787	6	38	3	RE19061	RE19161
2.5MM	.0984	8	38	3	RE19062	RE19162
3MM	.1181	12	38	3	RE19063	RE19163
3.5MM	.1378	12	50	4	RE19064	RE19164
4MM	.1575	14	50	4	RE19065	RE19165
4.5MM	.1772	16	50	6	RE19066	RE19166
5MM	.1969	16	50	6	RE19067	RE19167
5.5MM	.2165	16	50	6	RE19081	RE19181
6MM	.2362	19	50	6	RE19068	RE19168
6.5MM	.2559	19	63	8	RE19082	RE19182
7MM	.2756	19	63	8	RE19069	RE19169
7.5MM	.2952	19	63	8	RE19083	RE19183
8MM	.3150	20	63	8	RE19070	RE19170
9MM	.3543	22	75	10	RE19071	RE19171
10MM	.3937	22	75	10	RE19072	RE19172
11MM	.4331	25	75	12	RE19073	RE19173
12MM	.4724	25	75	12	RE19074	RE19174
14MM	.5512	32	89	14	RE19075	RE19175
16MM	.6299	32	89	16	RE19076	RE19176
18MM	.7087	38	100	18	RE19077	RE19177
20MM	.7874	38	100	20	RE19078	RE19178
25MM	.9843	38	100	25	RE19079	RE19179

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Tolerances	Diameter	Shank
All Sizes	+0.000, -0.050	-0.0025, -0.0100



Uncoated



AlTiN Coated

4-Flute, Square End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/16	.0625	1/8	1-1/2	1/8	RE15804	RE15904
3/32	.0938	3/16	1-1/2	1/8	RE15806	RE15906
1/8	.1250	1/4	1-1/2	1/8	RE15808	RE15908
1/8	.1250	3/8	3-1/8	3/8	RE16208	RE16308
5/32	.1563	5/16	2	3/16	RE15810	RE15910
5/32	.1563	7/16	3-1/4	3/8	RE16210	RE16310
3/16	.1875	3/8	2	3/16	RE15812	RE15912
3/16	.1875	1/2	3-1/4	3/8	RE16212	RE16312
7/32	.2188	1/2	2-1/2	1/4	RE15814	RE15914
7/32	.2188	9/16	3-1/2	3/8	RE16214	RE16314
1/4	.2500	1/2	2-1/2	1/4	RE15816	RE15916
1/4	.2500	5/8	3-1/2	3/8	RE16216	RE16316
9/32	.2813	11/16	3-1/2	3/8	RE16218	RE16318
5/16	.3125	1/2	2-1/2	5/16	RE15820	RE15920
5/16	.3125	3/4	3-1/2	3/8	RE16220	RE16320
11/32	.3438	3/4	3-1/2	3/8	RE16222	RE16322
3/8	.3750	9/16	2-1/2	3/8	RE15824	RE15924
3/8	.3750	3/4	3-1/2	3/8	RE16224	RE16324
7/16	.4375	9/16	2-3/4	7/16	RE15828	RE15928
7/16	.4375	7/8	4	1/2	RE16228	RE16328
1/2	.5000	5/8	3	1/2	RE15832	RE15932
1/2	.5000	1	4	1/2	RE16232	RE16332

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.002	-0.0001, -0.0004

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Micro 4-Flute Ball



Uncoated



AlTiN Coated

4-Flute, Ball End, 30° Helix (.010-.044)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.010	.015	1-1/2	1/8	RE26110	RE26310
.010	.030	1-1/2	1/8	RE15410	RE28210
.011	.033	1-1/2	1/8	RE15411	RE28211
.012	.036	1-1/2	1/8	RE15412	RE28212
.013	.039	1-1/2	1/8	RE15413	RE28213
.014	.042	1-1/2	1/8	RE15414	RE28214
.015	.023	1-1/2	1/8	RE26115	RE26315
.015	.045	1-1/2	1/8	RE15415	RE28215
.016	.048	1-1/2	1/8	RE15416	RE28216
.017	.051	1-1/2	1/8	RE15417	RE28217
.018	.054	1-1/2	1/8	RE15418	RE28218
.019	.057	1-1/2	1/8	RE15419	RE28219
.020	.030	1-1/2	1/8	RE26120	RE26320
.020	.060	1-1/2	1/8	RE15420	RE28220
.021	.063	1-1/2	1/8	RE15421	RE28221
.022	.066	1-1/2	1/8	RE15422	RE28222
.023	.069	1-1/2	1/8	RE15423	RE28223
.024	.072	1-1/2	1/8	RE15424	RE28224
.025	.038	1-1/2	1/8	RE26125	RE26325
.025	.075	1-1/2	1/8	RE15425	RE28225
.026	.078	1-1/2	1/8	RE15426	RE28226
.027	.081	1-1/2	1/8	RE15427	RE28227
.028	.084	1-1/2	1/8	RE15428	RE28228
.029	.087	1-1/2	1/8	RE15429	RE28229
.030	.045	1-1/2	1/8	RE26130	RE26330
.030	.090	1-1/2	1/8	RE15430	RE28230
.031	.047	1-1/2	1/8	RE26131	RE26331
.031	.093	1-1/2	1/8	RE15431	RE28231
.032	.096	1-1/2	1/8	RE15432	RE28232
.033	.099	1-1/2	1/8	RE15433	RE28233
.034	.102	1-1/2	1/8	RE15434	RE28234
.035	.053	1-1/2	1/8	RE26135	RE26335
.035	.105	1-1/2	1/8	RE15435	RE28235
.036	.108	1-1/2	1/8	RE15436	RE28236
.037	.111	1-1/2	1/8	RE15437	RE28237
.038	.114	1-1/2	1/8	RE15438	RE28238
.039	.117	1-1/2	1/8	RE15439	RE28239
.040	.060	1-1/2	1/8	RE26140	RE26340
.040	.120	1-1/2	1/8	RE15440	RE28240
.041	.123	1-1/2	1/8	RE15441	RE28241
.042	.126	1-1/2	1/8	RE15442	RE28242
.043	.129	1-1/2	1/8	RE15443	RE28243
.044	.132	1-1/2	1/8	RE15444	RE28244

Continued

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002



Uncoated



AlTiN Coated

4-Flute, Ball End, 30° Helix (.045-.078)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.045	.068	1-1/2	1/8	RE26145	RE26345
.045	.135	1-1/2	1/8	RE15445	RE28245
.046	.138	1-1/2	1/8	RE15446	RE28246
.047	.071	1-1/2	1/8	RE26147	RE26347
.047	.141	1-1/2	1/8	RE15447	RE28247
.048	.144	1-1/2	1/8	RE15448	RE28248
.049	.147	1-1/2	1/8	RE15449	RE28249
.050	.075	1-1/2	1/8	RE26150	RE26350
.050	.150	1-1/2	1/8	RE15450	RE28250
.051	.153	1-1/2	1/8	RE15451	RE28251
.052	.156	1-1/2	1/8	RE15452	RE28252
.053	.159	1-1/2	1/8	RE15453	RE28253
.054	.162	1-1/2	1/8	RE15454	RE28254
.055	.083	1-1/2	1/8	RE26155	RE26355
.055	.165	1-1/2	1/8	RE15455	RE28255
.056	.168	1-1/2	1/8	RE15456	RE28256
.057	.171	1-1/2	1/8	RE15457	RE28257
.058	.174	1-1/2	1/8	RE15458	RE28258
.059	.177	1-1/2	1/8	RE15459	RE28259
.060	.090	1-1/2	1/8	RE26160	RE26360
.060	.180	1-1/2	1/8	RE15460	RE28260
.061	.183	1-1/2	1/8	RE15461	RE28261
.062	.093	1-1/2	1/8	RE26162	RE26362
.062	.186	1-1/2	1/8	RE15462	RE28262
.063	.189	1-1/2	1/8	RE15463	RE28263
.064	.192	1-1/2	1/8	RE15464	RE28264
.065	.098	1-1/2	1/8	RE26165	RE26365
.065	.195	1-1/2	1/8	RE15465	RE28265
.066	.198	1-1/2	1/8	RE15466	RE28266
.067	.201	1-1/2	1/8	RE15467	RE28267
.068	.204	1-1/2	1/8	RE15468	RE28268
.069	.207	1-1/2	1/8	RE15469	RE28269
.070	.105	1-1/2	1/8	RE26170	RE26370
.070	.210	1-1/2	1/8	RE15470	RE28270
.071	.213	1-1/2	1/8	RE15471	RE28271
.072	.216	1-1/2	1/8	RE15472	RE28272
.073	.219	1-1/2	1/8	RE15473	RE28273
.074	.222	1-1/2	1/8	RE15474	RE28274
.075	.113	1-1/2	1/8	RE26175	RE26375
.075	.225	1-1/2	1/8	RE15475	RE28275
.076	.228	1-1/2	1/8	RE15476	RE28276
.077	.231	1-1/2	1/8	RE15477	RE28277
.078	.117	1-1/2	1/8	RE26178	RE26378

Continued

Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002

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Micro 4-Flute Ball



Uncoated



AlTiN Coated

4-Flute, Ball End, 30° Helix (.078-.120)

Cutter ø	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.078	.234	1-1/2	1/8	RE15478	RE28278
.079	.237	1-1/2	1/8	RE15479	RE28279
.080	.120	1-1/2	1/8	RE26180	RE26380
.080	.240	1-1/2	1/8	RE15480	RE28280
.081	.243	1-1/2	1/8	RE15481	RE28281
.082	.246	1-1/2	1/8	RE15482	RE28282
.083	.249	1-1/2	1/8	RE15483	RE28283
.084	.252	1-1/2	1/8	RE15484	RE28284
.085	.128	1-1/2	1/8	RE26185	RE26385
.085	.255	1-1/2	1/8	RE15485	RE28285
.086	.258	1-1/2	1/8	RE15486	RE28286
.087	.261	1-1/2	1/8	RE15487	RE28287
.088	.264	1-1/2	1/8	RE15488	RE28288
.089	.267	1-1/2	1/8	RE15489	RE28289
.090	.135	1-1/2	1/8	RE26190	RE26390
.090	.270	1-1/2	1/8	RE15490	RE28290
.091	.273	1-1/2	1/8	RE15491	RE28291
.092	.276	1-1/2	1/8	RE15492	RE28292
.093	.140	1-1/2	1/8	RE26193	RE26393
.093	.279	1-1/2	1/8	RE15493	RE28293
.094	.282	1-1/2	1/8	RE15494	RE28294
.095	.143	1-1/2	1/8	RE26195	RE26395
.095	.285	1-1/2	1/8	RE15495	RE28295
.096	.288	1-1/2	1/8	RE15496	RE28296
.097	.291	1-1/2	1/8	RE15497	RE28297
.098	.294	1-1/2	1/8	RE15498	RE28298
.099	.297	1-1/2	1/8	RE15499	RE28299
.100	.150	1-1/2	1/8	RE26100	RE26300
.100	.300	1-1/2	1/8	RE15500	RE28300
.101	.303	1-1/2	1/8	RE15501	RE28301
.102	.306	1-1/2	1/8	RE15502	RE28302
.103	.309	1-1/2	1/8	RE15503	RE28303
.104	.312	1-1/2	1/8	RE15504	RE28304
.105	.315	1-1/2	1/8	RE15505	RE28305
.106	.318	1-1/2	1/8	RE15506	RE28306
.107	.321	1-1/2	1/8	RE15507	RE28307
.108	.324	1-1/2	1/8	RE15508	RE28308
.109	.327	1-1/2	1/8	RE15509	RE28309
.110	.330	1-1/2	1/8	RE15510	RE28310
.115	.345	1-1/2	1/8	RE15515	RE28315
.120	.360	1-1/2	1/8	RE15520	RE28320

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	-0.0001, -0.0003	+0.0002, -0.0002



Uncoated



AlTiN Coated



DLC Coated

4-Flute, Ball End, Extended Reach

Cutter ø	Flute Length	OAL	Reach Length	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0100	.030	1-1/2	.080	1/8	RET9000	RET9001	RET9002
.0100	.030	1-1/2	.100	1/8	RET9003	RET9004	RET9005
.0150	.045	1-1/2	.128	1/8	RET9006	RET9007	RET9008
.0150	.045	1-1/2	.150	1/8	RET9009	RET9010	RET9011
.0156	.047	1-1/2	.120	1/8	RET9012	RET9013	RET9014
.0200	.060	1-1/2	.170	1/8	RET9015	RET9016	RET9017
.0200	.060	1-1/2	.200	1/8	RET9018	RET9019	RET9020
.0250	.075	1-1/2	.213	1/8	RET9021	RET9022	RET9023
.0250	.075	1-1/2	.250	1/8	RET9024	RET9025	RET9026
.0300	.090	1-1/2	.270	1/8	RET9027	RET9028	RET9029
.0300	.090	1-1/2	.300	1/8	RET9030	RET9031	RET9032
.0312	.094	1-1/2	.315	1/8	RET9033	RET9034	RET9035
.0350	.105	1-1/2	.315	1/8	RET9036	RET9037	RET9038
.0350	.105	1-1/2	.350	1/8	RET9039	RET9040	RET9041
.0400	.120	1-1/2	.360	1/8	RET9042	RET9043	RET9044
.0400	.120	1-1/2	.400	1/8	RET9045	RET9046	RET9047
.0450	.135	1-1/2	.405	1/8	RET9048	RET9049	RET9050
.0450	.135	1-1/2	.450	1/8	RET9051	RET9052	RET9053
.0469	.141	1-1/2	.390	1/8	RET9054	RET9055	RET9056
.0469	.141	1-1/2	.423	1/8	RET9057	RET9058	RET9059
.0500	.150	1-1/2	.500	1/8	RET9060	RET9061	RET9062
.0550	.165	1-1/2	.500	1/8	RET9063	RET9064	RET9065
.0600	.180	1-1/2	.500	1/8	RET9066	RET9067	RET9068
.0600	.180	2	.600	1/8	RET9069	RET9070	RET9071
.0625	.186	1-1/2	.590	1/8	RET9072	RET9073	RET9074
.0625	.188	2	.590	1/8	RET9075	RET9076	RET9077
.0650	.195	1-1/2	.500	1/8	RET9078	RET9079	RET9080
.0650	.195	2	.600	1/8	RET9081	RET9082	RET9083
.0700	.210	1-1/2	.500	1/8	RET9084	RET9085	RET9086
.0700	.210	2	.700	1/8	RET9087	RET9088	RET9089
.0750	.225	1-1/2	.500	1/8	RET9090	RET9091	RET9092
.0750	.225	2	.700	1/8	RET9093	RET9094	RET9095
.0781	.234	1-1/2	.590	1/8	RET9096	RET9097	RET9098
.0781	.234	2	.590	1/8	RET9099	RET9100	RET9101
.0800	.240	1-1/2	.500	1/8	RET9102	RET9103	RET9104
.0800	.240	2	.750	1/8	RET9105	RET9106	RET9107
.0850	.255	1-1/2	.500	1/8	RET9108	RET9109	RET9110
.0850	.255	2	.750	1/8	RET9111	RET9112	RET9113

Continued

Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	+0.0003, -0.0003	+0.0005, -0.0005

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Micro 4-Flute Ball



Uncoated



AlTiN Coated



DLC Coated

4-Flute, Ball End, Extended Reach

Cutter ø	Flute Length	OAL	Reach Length	Shank ø	Uncoated Part #	AlTiN Coated Part #	DLC Coated Part #
.0900	.270	1-1/2	.625	1/8	RET9114	RET9115	RET9116
.0900	.270	2	.750	1/8	RET9117	RET9118	RET9119
.0938	.279	1-1/2	.625	1/8	RET9120	RET9121	RET9122
.0938	.281	2	.590	1/8	RET9123	RET9124	RET9125
.0950	.285	1-1/2	.625	1/8	RET9126	RET9127	RET9128
.0950	.285	2	.750	1/8	RET9129	RET9130	RET9131
.1000	.300	1-1/2	.625	1/8	RET9132	RET9133	RET9134
.1000	.300	2	.750	1/8	RET9135	RET9136	RET9137
.1094	.328	2	.590	1/8	RET9138	RET9139	RET9140
.1100	.330	2	.750	1/8	RET9141	RET9142	RET9143
.1250	.375	2	.590	1/8	RET9144	RET9145	RET9146

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.0005, -0.0005	+0.0003, -0.0003	+0.0005, -0.0005



Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Ball End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
1/64	.0156	.023	1-1/2	1/8	RE10501	RE10701	–
1/64	.0156	1/32	1-1/2	1/8	RE11501	RE11701	RE11901
1/32	.0313	1/16	1-1/2	1/8	RE10502	RE10702	–
1/32	.0313	1/8	1-1/2	1/8	RE11502	RE11702	RE11902
3/64	.0469	3/32	1-1/2	1/8	RE10503	RE10703	–
3/64	.0469	1/8	1-1/2	1/8	RE11503	RE11703	RE11903
1/16	.0625	1/8	1-1/2	1/8	RE10504	RE10704	–
1/16	.0625	1/4	1-1/2	1/8	RE11504	RE11704	RE11904
5/64	.0781	1/8	1-1/2	1/8	RE10505	RE10705	–
5/64	.0781	1/4	1-1/2	1/8	RE11505	RE11705	RE11905
3/32	.0938	3/16	1-1/2	1/8	RE10506	RE10706	–
3/32	.0938	3/8	1-1/2	1/8	RE11506	RE11706	RE11906
7/64	.1094	3/8	1-1/2	1/8	RE11507	RE11707	RE11907
1/8	.1250	1/4	1-1/2	1/8	RE10508	RE10708	–
1/8	.1250	1/2	1-1/2	1/8	RE11508	RE11708	RE11908
1/8	.1250	3/4	2-1/4	1/8	RE13308	RE13708	RE14108
1/8	.1250	1	3	1/8	RE13508	RE13908	RE14308
9/64	.1406	9/16	2	3/16	RE11509	RE11709	RE11909
5/32	.1563	5/16	2	3/16	RE10510	RE10710	–
5/32	.1563	9/16	2	3/16	RE11510	RE11710	RE11910
11/64	.1719	5/8	2	3/16	RE11511	RE11711	RE11911
3/16	.1875	3/8	2	3/16	RE10512	RE10712	–
3/16	.1875	5/8	2	3/16	RE11512	RE11712	RE11912
3/16	.1875	3/4	2-1/2	3/16	RE13312	RE13712	RE14112
3/16	.1875	1-1/8	3	3/16	RE13512	RE13912	RE14312
13/64	.2031	5/8	2-1/2	1/4	RE11513	RE11713	RE11913
7/32	.2188	7/16	2	1/4	RE10514	RE10714	–
7/32	.2188	5/8	2-1/2	1/4	RE11514	RE11714	RE11914
15/64	.2344	3/4	2-1/2	1/4	RE11515	RE11715	RE11915
1/4	.2500	1/2	2	1/4	RE10516	RE10716	–
1/4	.2500	3/4	2-1/2	1/4	RE11516	RE11716	RE11916
1/4	.2500	1	4	1/4	RE13317	RE13717	RE14117
1/4	.2500	1-1/8	3	1/4	RE13316	RE13716	RE14116
1/4	.2500	1-1/2	4	1/4	RE13516	RE13916	RE14316
1/4	.2500	1-1/2	6	1/4	RE13517	RE13917	RE14317
17/64	.2656	3/4	2-1/2	5/16	RE11517	RE11717	RE11917
9/32	.2813	3/4	2-1/2	5/16	RE11518	RE11718	RE11918

Continued

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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4-Flute Ball



Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Ball End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
19/64	.2969	13/16	2-1/2	5/16	RE11519	RE11719	RE11919
5/16	.3125	1/2	2	5/16	RE10520	RE10720	–
5/16	.3125	13/16	2-1/2	5/16	RE11520	RE11720	RE11920
5/16	.3125	1-1/8	3	5/16	RE13320	RE13720	RE14120
5/16	.3125	1-5/8	4	5/16	RE13520	RE13920	RE14320
21/64	.3281	1	2-1/2	3/8	RE11521	RE11721	RE11921
11/32	.3438	1	2-1/2	3/8	RE11522	RE11722	RE11922
23/64	.3594	1	2-1/2	3/8	RE11523	RE11723	RE11923
3/8	.3750	5/8	2	3/8	RE10524	RE10724	–
3/8	.3750	1	4	3/8	RE13325	RE13725	RE14125
3/8	.3750	1	2-1/2	3/8	RE11524	RE11724	RE11924
3/8	.3750	1-1/8	3	3/8	RE13324	RE13724	RE14124
3/8	.3750	1-1/2	6	3/8	RE13525	RE13925	RE14325
3/8	.3750	1-3/4	4	3/8	RE13524	RE13924	RE14324
25/64	.3906	1	2-3/4	7/16	RE11525	RE11725	RE11925
13/32	.4063	1	2-3/4	7/16	RE11526	RE11726	RE11926
27/64	.4219	1	2-3/4	7/16	RE11527	RE11727	RE11927
7/16	.4375	5/8	2-1/2	7/16	RE10528	RE10728	–
7/16	.4375	1	2-3/4	7/16	RE11528	RE11728	RE11928
7/16	.4375	2	4	7/16	RE13328	RE13728	RE14128
7/16	.4375	3	6	7/16	RE13528	RE13928	RE14328
29/64	.4531	1	3	1/2	RE11529	RE11729	RE11929
15/32	.4688	1	3	1/2	RE11530	RE11730	RE11930
31/64	.4844	1	3	1/2	RE11531	RE11731	RE11931
1/2	.5000	5/8	2-1/2	1/2	RE10532	RE10732	–
1/2	.5000	1	3	1/2	RE11532	RE11732	RE11932
1/2	.5000	1	4	1/2	RE13332	RE13732	RE14132
1/2	.5000	1-1/2	6	1/2	RE13532	RE13932	RE14332
1/2	.5000	2	4	1/2	RE13333	RE13733	RE14133
1/2	.5000	3	6	1/2	RE13533	RE13933	RE14333
9/16	.5625	1-1/4	3-1/2	9/16	RE11536	RE11736	RE11936
5/8	.6250	3/4	3	5/8	RE10540	RE10740	–
5/8	.6250	1-1/4	3-1/2	5/8	RE11540	RE11740	RE11940
5/8	.6250	2-1/4	5	5/8	RE13340	RE13740	RE14140
5/8	.6250	3	6	5/8	RE13540	RE13940	RE14340
3/4	.7500	1	3	3/4	RE10548	RE10748	–
3/4	.7500	1-1/2	4	3/4	RE11548	RE11748	RE11948

Continued

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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Uncoated



AlTiN Coated



TiCN Coated

4-Flute, Ball End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #	TiCN Coated Part #
3/4	.7500	2-1/4	5	3/4	RE13348	RE13748	RE14148
3/4	.7500	3	6	3/4	RE13548	RE13948	RE14348
3/4	.7500	4	7	3/4	RE13549	RE13949	RE14349
7/8	.8750	1-1/2	4	7/8	RE11556	RE11756	RE11956
7/8	.8750	2-1/4	5	7/8	RE13356	RE13756	RE14156
7/8	.8750	3	6	7/8	RE13556	RE13956	RE14356
1	1.0000	1-1/4	3-1/2	1	RE10564	RE10764	–
1	1.0000	1-1/2	4	1	RE11564	RE11764	RE11964
1	1.0000	2-1/4	5	1	RE13364	RE13764	RE14164
1	1.0000	3	6	1	RE13564	RE13964	RE14364
1	1.0000	4	7	1	RE13565	RE13965	RE14365

Tolerances	Diameter	Shank	Radius
1/64"-7/64"	+0.000, -0.001	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
9/16"-1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001

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4-Flute Ball

NEW Product



Uncoated



AlTiN Coated

4-Flute, Regular Length, Metric, Ball End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1MM	.0394	3	38	3	RE18801	RE18902
1.5MM	.0591	4.5	38	3	RE18803	RE18904
2MM	.0787	6.3	38	3	RE18805	RE18906
2.5MM	.0984	9.5	38	3	RE18807	RE18908
3MM	.1181	12	38	3	RE18809	RE18910
3.5MM	.1378	12	50	4	RE18811	RE18912
4MM	.1575	14	50	4	RE18813	RE18914
4.5MM	.1772	16	50	6	RE18815	RE18916
5MM	.1969	16	50	6	RE18817	RE18918
5.5MM	.2165	16	50	6	RE18819	RE18920
6MM	.2362	19	50	6	RE18821	RE18922
6.5MM	.2559	19	63	8	RE18823	RE18924
7MM	.2756	19	63	8	RE18825	RE18926
7.5MM	.2953	19	63	8	RE18827	RE18928
8MM	.3150	20	63	8	RE18829	RE18930
9MM	.3543	22	75	10	RE18831	RE18932
10MM	.3937	22	75	10	RE18833	RE18934
11MM	.4331	25	75	12	RE18835	RE18936
12MM	.4724	25	75	12	RE18837	RE18938
14MM	.5512	32	89	14	RE18839	RE18940
16MM	.6299	32	89	16	RE18841	RE18942
18MM	.7087	38	100	18	RE18843	RE18944
20MM	.7874	38	100	20	RE18845	RE18946
25MM	.9842	38	100	25	RE18847	RE18948

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Tolerances	Diameter	Shank	Radius
Metric	+0.000, -0.050	-0.0025, -0.0100	+0.006, -0.006



Uncoated | AlTiN Coated

4-Flute, Ball End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/16	.0625	1/8	1-1/2	1/8	RE16604	RE16704
3/32	.0938	3/16	1-1/2	1/8	RE16606	RE16706
1/8	.1250	1/4	1-1/2	1/8	RE16608	RE16708
1/8	.1250	3/8	3-1/8	3/8	RE17008	RE17108
5/32	.1563	5/16	2	3/16	RE16610	RE16710
5/32	.1563	7/16	3-1/4	3/8	RE17010	RE17110
3/16	.1875	3/8	2	3/16	RE16612	RE16712
3/16	.1875	1/2	3-1/4	3/8	RE17012	RE17112
7/32	.2188	1/2	2-1/2	1/4	RE16614	RE16714
7/32	.2188	9/16	3-1/2	3/8	RE17014	RE17114
1/4	.2500	1/2	2-1/2	1/4	RE16616	RE16716
1/4	.2500	5/8	3-1/2	3/8	RE17016	RE17116
9/32	.2813	11/16	3-1/2	3/8	RE17018	RE17118
5/16	.3125	1/2	2-1/2	5/16	RE16620	RE16720
5/16	.3125	3/4	3-1/2	3/8	RE17020	RE17120
11/32	.3438	3/4	3-1/2	3/8	RE17022	RE17122
3/8	.3750	9/16	2-1/2	3/8	RE16624	RE16724
3/8	.3750	3/4	3-1/2	3/8	RE17024	RE17124
7/16	.4375	9/16	2-3/4	7/16	RE16628	RE16728
7/16	.4375	7/8	4	1/2	RE17028	RE17128
1/2	.5000	5/8	3	1/2	RE16632	RE16732
1/2	.5000	1	4	1/2	RE17032	RE17132

Tolerances	Diameter	Shank	Radius
1/16"-3/32"	+0.000, -0.002	-0.0001, -0.0004	+0.0002, -0.0002
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001

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5-Flute



AlTiN Coated

5-Flute, Square End & Corner Radius, 45° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	1/4	1-1/2	—	1/8	—	RE17708
1/8	.1250	1/4	1-1/2	.010	1/8	—	RE20408
1/8	.1250	1/2	1-1/2	—	1/8	—	RE17908
1/8	.1250	1/2	1-1/2	.010	1/8	—	RE20608
3/16	.1875	3/8	2	—	3/16	—	RE17712
3/16	.1875	3/8	2	.010	3/16	—	RE20412
3/16	.1875	3/4	2	—	3/16	—	RE17912
3/16	.1875	3/4	2	.010	3/16	—	RE20612
1/4	.2500	1/2	2	—	1/4	—	RE17716
1/4	.2500	1/2	2	.020	1/4	—	RE20416
1/4	.2500	3/4	2-1/2	—	1/4	—	RE17916
1/4	.2500	3/4	2-1/2	.020	1/4	—	RE20616
5/16	.3125	1/2	2	—	5/16	—	RE17720
5/16	.3125	1/2	2	.020	5/16	—	RE20420
5/16	.3125	7/8	2-1/2	—	5/16	—	RE17920
5/16	.3125	7/8	2-1/2	.020	5/16	—	RE20620
3/8	.3750	5/8	2	—	3/8	—	RE17724
3/8	.3750	5/8	2	.020	3/8	—	RE20424
3/8	.3750	1	2-1/2	—	3/8	—	RE17924
3/8	.3750	1	2-1/2	.020	3/8	—	RE20624
7/16	.4375	5/8	2-1/2	—	7/16	—	RE17728
7/16	.4375	5/8	2-1/2	.020	7/16	—	RE20428
1/2	.5000	5/8	2-1/2	—	1/2	—	RE17732
1/2	.5000	5/8	2-1/2	.040	1/2	—	RE20432
1/2	.5000	1-1/4	3	—	1/2	—	RE17932
1/2	.5000	1-1/4	3	.040	1/2	—	RE20632
5/8	.6250	3/4	3	—	5/8	—	RE17740
5/8	.6250	3/4	3	.040	5/8	—	RE20440
5/8	.6250	1-5/8	3-1/2	—	5/8	—	RE17940
5/8	.6250	1-5/8	3-1/2	.040	5/8	—	RE20640
3/4	.7500	1	3	—	3/4	—	RE17748
3/4	.7500	1	3	.040	3/4	—	RE20448
3/4	.7500	1-5/8	4	—	3/4	—	RE17948
3/4	.7500	1-5/8	4	.040	3/4	—	RE20648

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Tolerances	Diameter	Shank	Radius
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8"-3/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001



Uncoated



AlTiN Coated

2-Flute, Drill Mills, 60° Point, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/32	.0313	1/8	1-1/2	1/8	RDM20002	RDM20102
1/16	.0625	3/16	1-1/2	1/8	RDM20004	RDM20104
3/32	.0938	3/8	1-1/2	1/8	RDM20006	RDM20106
1/8	.1250	1/2	1-1/2	1/8	RDM20008	RDM20108
3/16	.1875	5/8	2	3/16	RDM20012	RDM20112
1/4	.2500	3/4	2-1/2	1/4	RDM20016	RDM20116
5/16	.3125	13/16	2-1/2	5/16	RDM20020	RDM20120
3/8	.3750	1	2-1/2	3/8	RDM20024	RDM20124
7/16	.4375	1	2-3/4	7/16	RDM20028	RDM20128
1/2	.5000	1	3	1/2	RDM20032	RDM20132
5/8	.6250	1-1/4	3-1/2	5/8	RDM20040	RDM20140
3/4	.7500	1-1/2	4	3/4	RDM20048	RDM20148



Uncoated



AlTiN Coated

4-Flute, Drill Mills, 60° Point, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/32	.0313	1/8	1-1/2	1/8	RDM40002	RDM40102
1/16	.0625	3/16	1-1/2	1/8	RDM40004	RDM40104
3/32	.0938	3/8	1-1/2	1/8	RDM40006	RDM40106
1/8	.1250	1/2	1-1/2	1/8	RDM40008	RDM40108
3/16	.1875	5/8	2	3/16	RDM40012	RDM40112
1/4	.2500	3/4	2-1/2	1/4	RDM40016	RDM40116
5/16	.3125	13/16	2-1/2	5/16	RDM40020	RDM40120
3/8	.3750	1	2-1/2	3/8	RDM40024	RDM40124
7/16	.4375	1	2-3/4	7/16	RDM40028	RDM40128
1/2	.5000	1	3	1/2	RDM40032	RDM40132
5/8	.6250	1-1/4	3-1/2	5/8	RDM40040	RDM40140
3/4	.7500	1-1/2	4	3/4	RDM40048	RDM40148

Tolerances	Diameter	Shank
1/32"-3/32"	+0.000, -0.001	-0.0001, -0.0004
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8"-3/4"	+0.000, -0.003	-0.0001, -0.0004

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82° Drill Mills

NEW Product



Uncoated



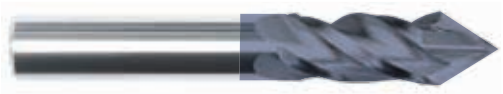
AlTiN Coated

2-Flute, Drill Mills, 82° Point, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	5/8	2	1/8	RDM20508	RDM20608
3/16	.1875	3/4	2-1/2	3/16	RDM20512	RDM20612
1/4	.2500	1	3	1/4	RDM20516	RDM20616
5/16	.3125	1	3	5/16	RDM20520	RDM20620
3/8	.3750	1	3	3/8	RDM20524	RDM20624
7/16	.4375	1	3	7/16	RDM20528	RDM20628
1/2	.5000	1	3	1/2	RDM20532	RDM20632



Uncoated



AlTiN Coated

4-Flute, Drill Mills, 82° Point, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	5/8	2	1/8	RDM40508	RDM40608
3/16	.1875	3/4	2-1/2	3/16	RDM40512	RDM40612
1/4	.2500	1	3	1/4	RDM40516	RDM40616
5/16	.3125	1	3	5/16	RDM40520	RDM40620
3/8	.3750	1	3	3/8	RDM40524	RDM40624
7/16	.4375	1	3	7/16	RDM40528	RDM40628
1/2	.5000	1	3	1/2	RDM40532	RDM40632

Speeds & Feeds page 216.

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.003	+0.000, -0.0005



Uncoated



AlTiN Coated

2-Flute, Drill Mills, 90° Point, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/32	.0313	1/8	1-1/2	1/8	RDM20302	RDM20402
1/16	.0625	3/16	1-1/2	1/8	RDM20304	RDM20404
3/32	.0938	3/8	1-1/2	1/8	RDM20306	RDM20406
1/8	.1250	1/2	1-1/2	1/8	RDM20308	RDM20408
3/16	.1875	5/8	2	3/16	RDM20312	RDM20412
1/4	.2500	3/4	2-1/2	1/4	RDM20316	RDM20416
5/16	.3125	13/16	2-1/2	5/16	RDM20320	RDM20420
3/8	.3750	1	2-1/2	3/8	RDM20324	RDM20424
7/16	.4375	1	2-3/4	7/16	RDM20328	RDM20428
1/2	.5000	1	3	1/2	RDM20332	RDM20432
5/8	.6250	1-1/4	3-1/2	5/8	RDM20340	RDM20440
3/4	.7500	1-1/2	4	3/4	RDM20348	RDM20448



Uncoated



AlTiN Coated

4-Flute, Drill Mills, 90° Point, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/32	.0313	1/8	1-1/2	1/8	RDM40302	RDM40402
1/16	.0625	3/16	1-1/2	1/8	RDM40304	RDM40404
3/32	.0938	3/8	1-1/2	1/8	RDM40306	RDM40406
1/8	.1250	1/2	1-1/2	1/8	RDM40308	RDM40408
3/16	.1875	5/8	2	3/16	RDM40312	RDM40412
1/4	.2500	3/4	2-1/2	1/4	RDM40316	RDM40416
5/16	.3125	13/16	2-1/2	5/16	RDM40320	RDM40420
3/8	.3750	1	2-1/2	3/8	RDM40324	RDM40424
7/16	.4375	1	2-3/4	7/16	RDM40328	RDM40428
1/2	.5000	1	3	1/2	RDM40332	RDM40432
5/8	.6250	1-1/4	3-1/2	5/8	RDM40340	RDM40440
3/4	.7500	1-1/2	4	3/4	RDM40348	RDM40448

Tolerances	Diameter	Shank
1/32"-3/32"	+0.000, -0.001	-0.0001, -0.0004
1/8"-1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8"-3/4"	+0.000, -0.003	-0.0001, -0.0004

Speeds & Feeds page 216.

120° Drill Mills

NEW Product



Uncoated



AlTiN Coated

2-Flute, Drill Mills, 120° Point, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	5/8	2	1/8	RDM20708	RDM20808
3/16	.1875	3/4	2-1/2	3/16	RDM20712	RDM20812
1/4	.2500	1	3	1/4	RDM20716	RDM20816
5/16	.3125	1	3	5/16	RDM20720	RDM20820
3/8	.3750	1	3	3/8	RDM20724	RDM20824
7/16	.4375	1	3	7/16	RDM20728	RDM20828
1/2	.5000	1	3	1/2	RDM20732	RDM20832



Uncoated



AlTiN Coated

4-Flute, Drill Mills, 120° Point, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	5/8	2	1/8	RDM40708	RDM40808
3/16	.1875	3/4	2-1/2	3/16	RDM40712	RDM40812
1/4	.2500	1	3	1/4	RDM40716	RDM40816
5/16	.3125	1	3	5/16	RDM40720	RDM40820
3/8	.3750	1	3	3/8	RDM40724	RDM40824
7/16	.4375	1	3	7/16	RDM40728	RDM40828
1/2	.5000	1	3	1/2	RDM40732	RDM40832

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Tolerances	Diameter	Shank
All Sizes	+0.000, -0.003	+0.000, -0.0005

NEW Product



Uncoated



AlTiN Coated



2-Flute, Corner Rounding, Double End

Radius Size	Tip ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.0050	.040	2	1/8	RCR681500	RCR681500A
.0079 (.2MM)	.040	2	1/8	RCR681505	RCR681505A
.0100	.040	2	1/8	RCR681510	RCR681510A
.0118 (.3MM)	.040	2	1/8	RCR681515	RCR681515A
.0150	.040	2	1/8	RCR681520	RCR681520A
.0157 (.4MM)	.040	2	1/8	RCR681525	RCR681525A
.0197 (.5MM)	.040	2	1/8	RCR681530	RCR681530A
.0200	.040	2	1/8	RCR681535	RCR681535A
.0236 (.6MM)	.040	2	1/8	RCR681540	RCR681540A
.0250	.040	2	1/8	RCR681545	RCR681545A
.0276 (.7MM)	.040	2	1/8	RCR681550	RCR681550A
.0300	.040	2	1/8	RCR681555	RCR681555A
.0312 (1/32)	.040	2	1/8	RCR681560	RCR681560A
.0315 (.8MM)	.040	2	1/8	RCR681565	RCR681565A
.0354 (.9MM)	.040	2	1/8	RCR681570	RCR681570A
.0394 (1MM)	.040	2	1/8	RCR681575	RCR681575A
.0469 (3/64)	.040	2	3/16	RCR681580	RCR681580A
.0500	.040	2	3/16	RCR681585	RCR681585A
.0591 (1.5MM)	.040	2	3/16	RCR681590	RCR681590A
.0600	.040	2	3/16	RCR681595	RCR681595A
.0625 (1/16)	.040	2	3/16	RCR681600	RCR681600A
.0781 (5/64)	.040	2.5	1/4	RCR681605	RCR681605A
.0787 (2MM)	.040	2.5	1/4	RCR681610	RCR681610A
.0938 (3/32)	.040	2.5	1/4	RCR681615	RCR681615A
.0984 (2.5MM)	.040	2.5	1/4	RCR681620	RCR681620A
.1094 (7/64)	.055	2.5	5/16	RCR681625	RCR681625A
.1181 (3MM)	.055	2.5	5/16	RCR681630	RCR681630A
.1250 (1/8)	.055	2.5	5/16	RCR681635	RCR681635A
.1378 (3.5MM)	.055	2.5	3/8	RCR681640	RCR681640A
.1406 (9/64)	.055	2.5	3/8	RCR681645	RCR681645A
.1562 (5/32)	.055	2.5	3/8	RCR681650	RCR681650A
.1575 (4MM)	.055	2.5	3/8	RCR681655	RCR681655A
.1719 (11/64)	.055	3	1/2	RCR681660	RCR681660A
.1772 (4.5MM)	.055	3	1/2	RCR681665	RCR681665A
.1875 (3/16)	.055	3	1/2	RCR681670	RCR681670A
.1969 (5MM)	.055	3	1/2	RCR681675	RCR681675A
.2031 (13/64)	.055	3	1/2	RCR681680	RCR681680A
.2165 (5.5MM)	.055	3	1/2	RCR681685	RCR681685A
.2188 (7/32)	.055	3	1/2	RCR681690	RCR681690A
.2344 (15/64)	.105	3.5	5/8	RCR681695	RCR681695A
.2362 (6MM)	.105	3.5	5/8	RCR681700	RCR681700A
.2500 (1/4)	.105	3.5	5/8	RCR681705	RCR681705A

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.003	+0.000, -0.0005	+0.000, -0.002

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Corner Rounding



Uncoated



AlTiN Coated



3-Flute, Corner Rounding, Double End

Radius Size		Tip ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.0100		.100	2	1/8	RCR681200	RCR681200A
.0100		.140	2.5	1/4	RCR681225	RCR681225A
.0156	(1/64)	.040	2.5	3/16	RCR681221	RCR681221A
.0156	(1/64)	.090	2	1/8	RCR681205	RCR681205A
.0156	(1/64)	.140	2.5	1/4	RCR681230	RCR681230A
.0200		.080	2	1/8	RCR681210	RCR681210A
.0200		.140	2.5	1/4	RCR681235	RCR681235A
.0250		.070	2	1/8	RCR681215	RCR681215A
.0250		.140	2.5	1/4	RCR681240	RCR681240A
.0312	(1/32)	.040	2.5	3/16	RCR681222	RCR681222A
.0312	(1/32)	.060	2	1/8	RCR681220	RCR681220A
.0312	(1/32)	.140	2.5	1/4	RCR681245	RCR681245A
.0350		.140	2.5	1/4	RCR681250	RCR681250A
.0394	(1MM)	.140	2.5	1/4	RCR681255	RCR681255A
.0469	(3/64)	.140	2.5	1/4	RCR681260	RCR681260A
.0500		.140	2.5	1/4	RCR681265	RCR681265A
.0550		.090	2.5	1/4	RCR681270	RCR681270A
.0591	(1.5MM)	.090	2.5	1/4	RCR681275	RCR681275A
.0625	(1/16)	.060	2.5	3/16	RCR681223	RCR681223A
.0625	(1/16)	.090	2.5	1/4	RCR681280	RCR681280A
.0700		.090	2.5	1/4	RCR681285	RCR681285A
.0750		.090	2.5	1/4	RCR681290	RCR681290A
.0781	(5/64)	.115	2.5	3/8	RCR681295	RCR681295A
.0787	(2MM)	.115	2.5	3/8	RCR681297	RCR681297A
.0938	(3/32)	.115	2.5	3/8	RCR681300	RCR681300A
.0984	(2.5MM)	.115	2.5	3/8	RCR681302	RCR681302A
.1094	(7/64)	.115	2.5	3/8	RCR681305	RCR681305A
.1181	(3MM)	.115	2.5	3/8	RCR681307	RCR681307A
.1250	(1/8)	.115	2.5	3/8	RCR681310	RCR681310A
.1400	(9/64)	.120	3	1/2	RCR681312	RCR681312A
.1562	(5/32)	.120	3	1/2	RCR681315	RCR681315A
.1575	(4MM)	.120	3	1/2	RCR681317	RCR681317A
.1718	(11/64)	.120	3	1/2	RCR681320	RCR681320A
.1875	(3/16)	.120	3	1/2	RCR681325	RCR681325A
.1969	(5MM)	.120	3.5	5/8	RCR681327	RCR681327A
.2031	(13/64)	.120	3.5	5/8	RCR681330	RCR681330A
.2188	(7/32)	.120	3.5	5/8	RCR681335	RCR681335A
.2344	(15/64)	.120	3.5	5/8	RCR681340	RCR681340A
.2362	(6MM)	.120	3.5	5/8	RCR681342	RCR681342A
.2500	(1/4)	.120	3.5	5/8	RCR681345	RCR681345A
.2812	(9/32)	.120	4	3/4	RCR681350	RCR681350A
.2969	(19/64)	.120	4	3/4	RCR681352	RCR681352A
.3125	(5/16)	.120	4	3/4	RCR681355	RCR681355A
.3281	(21/64)	.240	4	1	RCR681360	RCR681360A
.3438	(11/32)	.240	4	1	RCR681365	RCR681365A
.3750	(3/8)	.240	4	1	RCR681370	RCR681370A

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.003	+0.000, -0.0005	+0.000, -0.003

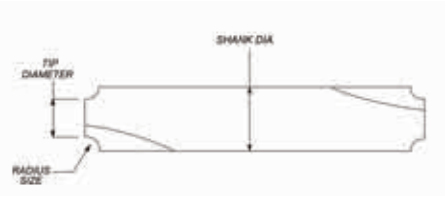
NEW Product



Uncoated



AlTiN Coated



3-Flute, Long Reach, Corner Rounding, Single End

Radius Size		Tip ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.0100	—	.100	3	1/8	RCR1701000	RCR1701000A
.0156	(1/64)	.090	3	1/8	RCR1701010	RCR1701010A
.0200	—	.080	3	1/8	RCR1701020	RCR1701020A
.0312	(1/32)	.060	3	1/8	RCR1701030	RCR1701030A
.0156	(1/64)	.040	4	3/16	RCR1701040	RCR1701040A
.0312	(1/32)	.040	4	3/16	RCR1701050	RCR1701050A
.0625	(1/16)	.060	4	3/16	RCR1701060	RCR1701060A
.0100	—	.140	4	1/4	RCR1701070	RCR1701070A
.0156	(1/64)	.140	4	1/4	RCR1701080	RCR1701080A
.0200	—	.140	4	1/4	RCR1701090	RCR1701090A
.0312	(1/32)	.140	4	1/4	RCR1701100	RCR1701100A
.0394	(1MM)	.140	4	1/4	RCR1701110	RCR1701110A
.0469	(3/64)	.140	4	1/4	RCR1701120	RCR1701120A
.0591	(1.5MM)	.090	4	1/4	RCR1701130	RCR1701130A
.0625	(1/16)	.090	4	1/4	RCR1701140	RCR1701140A
.0700	—	.090	4	1/4	RCR1701150	RCR1701150A
.0781	(5/64)	.115	4	3/8	RCR1701160	RCR1701160A
.0787	(2MM)	.115	4	3/8	RCR1701170	RCR1701170A
.0938	(3/32)	.115	4	3/8	RCR1701180	RCR1701180A
.0984	(2.5MM)	.115	4	3/8	RCR1701190	RCR1701190A
.1094	(7/64)	.115	4	3/8	RCR1701200	RCR1701200A
.1181	(3MM)	.115	4	3/8	RCR1701210	RCR1701210A
.1250	(1/8)	.115	4	3/8	RCR1701220	RCR1701220A
.1400	(9/64)	.120	6	1/2	RCR1701230	RCR1701230A
.1562	(5/32)	.120	6	1/2	RCR1701240	RCR1701240A
.1575	(4MM)	.120	6	1/2	RCR1701250	RCR1701250A
.1718	(11/64)	.120	6	1/2	RCR1701260	RCR1701260A
.1875	(3/16)	.120	6	1/2	RCR1701270	RCR1701270A
.2340	(15/64)	.105	6	5/8	RCR1701280	RCR1701280A
.2362	(6MM)	.105	6	5/8	RCR1701290	RCR1701290A
.2500	(1/4)	.105	6	5/8	RCR1701300	RCR1701300A

Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.003	+0.000, -0.0005	+0.000, -0.002

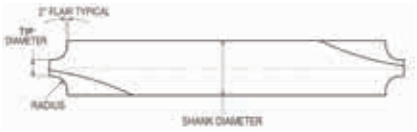
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Corner Rounding

NEW Product



AlTiN Coated



Multi Flute, Corner Rounding, Double End

Radius Size	Tip ø	OAL	# of Flutes	Shank ø	AlTiN Coated Part #
.0100	.199	2.5	6	1/4	RCR1681000A
.0150	.189	2.5	6	1/4	RCR1681005A
.0200	.179	2.5	6	1/4	RCR1681010A
.0312 (1/32)	.157	2.5	6	1/4	RCR1681015A
.0312 (1/32)	.282	2.5	6	3/8	RCR1681020A
.0394 (1MM)	.265	2.5	6	3/8	RCR1681025A
.0469 (3/64)	.250	2.5	6	3/8	RCR1681030A
.0591 (1.5MM)	.226	2.5	6	3/8	RCR1681035A
.0625 (1/16)	.219	2.5	6	3/8	RCR1681040A
.0625 (1/16)	.344	3	6	1/2	RCR1681045A
.0700	.329	3	5	1/2	RCR1681050A
.0750	.319	3	5	1/2	RCR1681055A
.0781 (5/64)	.312	3	5	1/2	RCR1681060A
.0787 (2MM)	.311	3	5	1/2	RCR1681065A
.0938 (3/32)	.281	3	5	1/2	RCR1681070A
.0984 (2.5MM)	.272	3	5	1/2	RCR1681075A
.1094 (7/64)	.251	3	5	1/2	RCR1681080A
.1181 (3MM)	.233	3	5	1/2	RCR1681085A
.1250 (1/8)	.219	3	5	1/2	RCR1681090A
.1250 (1/8)	.343	3.5	5	5/8	RCR1681095A
.1562 (5/32)	.281	3.5	5	5/8	RCR1681100A
.1875 (3/16)	.219	3.5	5	5/8	RCR1681105A
.1250 (1/8)	.719	4	6	1	RCR1681110A
.1562 (5/32)	.656	4	6	1	RCR1681115A
.1575 (4MM)	.657	4	6	1	RCR1681120A
.1875 (3/16)	.594	4	6	1	RCR1681125A
.1969 (5MM)	.575	4	6	1	RCR1681130A
.2031 (13/64)	.563	4	6	1	RCR1681135A
.2188 (7/32)	.533	4	6	1	RCR1681140A
.2344 (15/64)	.501	4	6	1	RCR1681145A
.2362 (6MM)	.496	4	6	1	RCR1681150A
.2500 (1/4)	.469	4	6	1	RCR1681155A

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.003	+0.000, -0.0005	+0.000, -0.002

NEW Product



Uncoated



AlTiN Coated

3-Flute, Reverse Corner Rounders

Head ø	Radius Size	Neck ø	Neck Length	Head Width	OAL	# of Flutes	Shank ø	Uncoated Part #	AlTiN Coated Part #
.187	.031	.110	.250	1/16	2-1/2	3	3/16	RCR671400	RCR671400A
.187	.031	.110	.500	1/16	2-1/2	3	3/16	RCR671405	RCR671405A
.187	.031	.110	.750	1/16	2-1/2	3	3/16	RCR671410	RCR671410A
.250	.047	.140	.375	1/16	2-1/2	3	1/4	RCR671415	RCR671415A
.250	.047	.140	.625	1/16	2-1/2	3	1/4	RCR671420	RCR671420A
.250	.047	.140	.875	1/16	2-1/2	3	1/4	RCR671425	RCR671425A
.312	.062	.170	.375	1/16	2-1/2	3	5/16	RCR671430	RCR671430A
.312	.062	.170	.625	1/16	2-1/2	3	5/16	RCR671435	RCR671435A
.312	.062	.170	.825	1/16	2-1/2	3	5/16	RCR671440	RCR671440A
.312	.062	.170	1.000	1/16	2-1/2	3	5/16	RCR671445	RCR671445A
.375	.093	.170	.500	3/32	2-1/2	3	3/8	RCR671450	RCR671450A
.375	.093	.170	.750	3/32	2-1/2	3	3/8	RCR671455	RCR671455A
.375	.093	.170	1.000	3/32	2-1/2	3	3/8	RCR671460	RCR671460A
.375	.093	.170	1.250	3/32	2-1/2	3	3/8	RCR671465	RCR671465A
.500	.125	.230	.500	3/32	3	3	1/2	RCR671470	RCR671470A
.500	.125	.230	.750	3/32	3	3	1/2	RCR671475	RCR671475A
.500	.125	.230	1.000	3/32	3	3	1/2	RCR671480	RCR671480A
.500	.125	.230	1.250	3/32	3	3	1/2	RCR671485	RCR671485A
.625	.187	.230	.500	3/32	3-1/2	3	5/8	RCR671490	RCR671490A
.625	.187	.230	.750	3/32	3-1/2	3	5/8	RCR671495	RCR671495A
.625	.187	.230	1.000	3/32	3-1/2	3	5/8	RCR671500	RCR671500A
.625	.187	.230	1.250	3/32	3-1/2	3	5/8	RCR671505	RCR671505A

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Uncoated



AlTiN Coated

4-Flute, Undercutting Endmills, 270°, 10° Helix

Head ø	Flute Length	Neck ø	Neck Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.107	.075	.250	2-1/2	1/8	RLC294000	RLC294000A
	.107	.075	.375	2-1/2	1/8	RLC294005	RLC294005A
	.107	.075	.500	2-1/2	1/8	RLC294010	RLC294010A
	.107	.075	.750	2-1/2	1/8	RLC294015	RLC294015A
	.107	.075	1.000	2-1/2	1/8	RLC294020	RLC294020A
	.107	.075	1.250	2-1/2	1/8	RLC294025	RLC294025A
	.107	.075	1.500	2-1/2	1/8	RLC294030	RLC294030A
3/16	.160	.115	.250	2-1/2	3/16	RLC294035	RLC294035A
	.160	.115	.375	2-1/2	3/16	RLC294040	RLC294040A
	.160	.115	.500	2-1/2	3/16	RLC294045	RLC294045A
	.160	.115	.750	2-1/2	3/16	RLC294050	RLC294050A
	.160	.115	1.000	2-1/2	3/16	RLC294055	RLC294055A
	.160	.115	1.250	2-1/2	3/16	RLC294060	RLC294060A
	.160	.115	1.500	2-1/2	3/16	RLC294065	RLC294065A
1/4	.213	.155	.250	3	1/4	RLC294070	RLC294070A
	.213	.155	.375	3	1/4	RLC294075	RLC294075A
	.213	.155	.500	3	1/4	RLC294080	RLC294080A
	.213	.155	.750	3	1/4	RLC294085	RLC294085A
	.213	.155	1.000	3	1/4	RLC294090	RLC294090A
	.213	.155	1.250	3	1/4	RLC294095	RLC294095A
	.213	.155	1.500	3	1/4	RLC294100	RLC294100A
	.213	.155	2.000	3	1/4	RLC294105	RLC294105A
5/16	.266	.200	.250	3	5/16	RLC294110	RLC294110A
	.266	.200	.375	3	5/16	RLC294115	RLC294115A
	.266	.200	.500	3	5/16	RLC294120	RLC294120A
	.266	.200	1.000	3	5/16	RLC294125	RLC294125A
	.266	.200	1.250	3	5/16	RLC294130	RLC294130A
	.266	.200	1.500	3	5/16	RLC294135	RLC294135A
	.266	.200	2.000	3	5/16	RLC294140	RLC294140A
3/8	.325	.240	.250	3	3/8	RLC294145	RLC294145A
	.325	.240	.375	3	3/8	RLC294150	RLC294150A
	.325	.240	.500	3	3/8	RLC294155	RLC294155A
	.325	.240	.750	3	3/8	RLC294160	RLC294160A
	.325	.240	1.000	3	3/8	RLC294165	RLC294165A
	.325	.240	1.250	3	3/8	RLC294170	RLC294170A
	.325	.240	1.500	3	3/8	RLC294175	RLC294175A
	.325	.240	2.000	3	3/8	RLC294180	RLC294180A
1/2	.425	.320	.375	3	1/2	RLC294185	RLC294185A
	.425	.320	.500	3	1/2	RLC294190	RLC294190A
	.425	.320	1.000	3	1/2	RLC294195	RLC294195A
	.425	.320	1.250	3	1/2	RLC294200	RLC294200A
	.425	.320	1.500	4	1/2	RLC294205	RLC294205A
	.425	.320	2.000	4	1/2	RLC294210	RLC294210A

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Tolerances	Diameter	Shank	Radius
All Sizes	+0.000, -0.002	+0.000, -0.0005	+0.000, -0.002



Uncoated



AlTiN Coated

Cobalt, 2-Flute, Square End, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	3/8	2-5/16	3/8	RE51601	RE51702
3/16	.1875	9/32	2-5/16	3/8	RE51605	RE51706
1/4	.2500	1/2	2-5/16	3/8	RE51609	RE51710
5/16	.3125	9/16	2-5/16	3/8	RE51613	RE51714
3/8	.3750	9/16	2-5/16	3/8	RE51615	RE51716
7/16	.4375	13/16	2-1/2	3/8	RE51617	RE51718
1/2	.5000	13/16	2-1/2	3/8	RE51619	RE51720
1/2	.5000	1	3	1/2	RE51621	RE51722
9/16	.5625	1-1/8	3-1/8	1/2	RE51623	RE51724
5/8	.6250	1-1/8	3-1/8	1/2	RE51625	RE51726
5/8	.6250	1-5/16	3-7/16	5/8	RE51627	RE51728
3/4	.7500	1-5/16	3-5/16	1/2	RE51629	RE51730
3/4	.7500	1-5/16	3-7/16	5/8	RE51631	RE51732
3/4	.7500	1-5/16	3-9/16	3/4	RE51633	RE51734
13/16	.8125	1-1/2	3-5/8	5/8	RE51635	RE51736
13/16	.8125	1-1/2	3-3/4	3/4	RE51637	RE51738
7/8	.8750	1-1/2	3-3/4	3/4	RE51641	RE51742
7/8	.8750	1-1/2	3-3/4	7/8	RE51643	RE51744
15/16	.9375	1-1/2	3-5/8	5/8	RE51645	RE51746
15/16	.9375	1-1/2	3-3/4	3/4	RE51647	RE51748
1	1.0000	1-1/2	3-3/4	3/4	RE51653	RE51754
1	1.0000	1-5/8	4-1/8	1	RE51657	RE51758
1-1/8	1.1250	1-5/8	4-1/8	1	RE51661	RE51762
1-1/4	1.2500	1-5/8	4-1/8	1	RE51665	RE51766
1-1/2	1.5000	1-5/8	4-1/8	1 -1/4	RE51673	RE51774

Tolerances	Diameter	Shank
All Sizes	+0.0015, -0.0000	+0.0000, -0.0005

Speeds & Feeds page 220.

4-Flute



Uncoated



AlTiN Coated

Cobalt, 4-Flute, Square End, Center Cutting, 30° Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	3/8	2-5/16	3/8	RE51201	RE51302
5/32	.1563	3/8	2-5/16	3/8	RE51203	RE51304
3/16	.1875	1/2	2-3/8	3/8	RE51205	RE51306
7/32	.2188	1/2	2-3/8	3/8	RE51207	RE51308
1/4	.2500	5/8	2-7/16	3/8	RE51209	RE51310
9/32	.2813	11/16	2-1/2	3/8	RE51211	RE51312
5/16	.3125	3/4	2-1/2	3/8	RE51213	RE51314
11/32	.3438	3/4	2-1/2	3/8	RE51215	RE51316
3/8	.3750	3/4	2-1/2	3/8	RE51217	RE51318
13/32	.4062	3/4	2-1/2	3/8	RE51219	RE51320
7/16	.4375	1	2-11/16	3/8	RE51221	RE51322
15/32	.4688	1	2-11/16	3/8	RE51223	RE51324
1/2	.5000	1	2-11/16	3/8	RE51225	RE51326
1/2	.5000	1-1/4	3-1/4	1/2	RE51227	RE51328
17/32	.5312	1-1/4	3-1/4	1/2	RE51229	RE51330
9/16	.5625	1-3/8	3-3/8	1/2	RE51231	RE51332
5/8	.6250	1-3/8	3-3/8	1/2	RE51233	RE51334
5/8	.6250	1-5/8	3-3/4	5/8	RE51235	RE51336
11/16	.6875	1-5/8	3-5/8	1/2	RE51237	RE51338
11/16	.6875	1-5/8	3-3/4	5/8	RE51239	RE51340
3/4	.7500	1-5/8	3-5/8	1/2	RE51241	RE51342
3/4	.7500	1-5/8	3-3/4	5/8	RE51243	RE51344
3/4	.7500	1-5/8	3-7/8	3/4	RE51245	RE51346
13/16	.8125	1-7/8	4-1/8	3/4	RE51247	RE51348
7/8	.8750	1-7/8	4-1/8	3/4	RE51249	RE51350
7/8	.8750	1-7/8	4-1/8	7/8	RE51251	RE51352
15/16	.9375	1-7/8	4-1/8	3/4	RE51253	RE51354
1	1.0000	1-7/8	4-1/8	3/4	RE51257	RE51358
1	1.0000	2	4-1/2	1	RE51261	RE51362

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Tolerances	Diameter	Shank
All Sizes	+0.003, -0.0000	+0.0000, -0.0004



AlTiN Coated

Cobalt Rougher, Regular Length, Square End, Non-Center Cutting, Coarse Pitch, 30° RH Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	# Flutes	Shank ø	AlTiN Coated Part #
1/4	.2500	5/8	2-7/16	3	3/8	RE50704
5/16	.3125	3/4	2-1/2	3	3/8	RE50709
3/8	.3750	3/4	2-1/2	4	3/8	RE50714
7/16	.4375	1	2-11/16	4	3/8	RE50719
1/2	.5000	1	3	4	1/2	RE50728
1/2	.5000	1-1/4	3-1/4	4	1/2	RE50729
5/8	.6250	1-5/8	3-3/4	4	5/8	RE50736
3/4	.7500	1-5/8	3-7/8	4	3/4	RE50745
7/8	.8750	1-7/8	4-1/8	5	3/4	RE50754
1	1.0000	2	4-1/2	5	1	RE50766
1-1/8	1.1250	2	4-1/2	6	1	RE50771
1-1/4	1.2500	2	4-1/2	6	1-1/4	RE50775
1-1/2	1.5000	2	4-1/2	6	1-1/4	RE50783
2	2.0000	2	4-1/2	8	1-1/4	RE50792



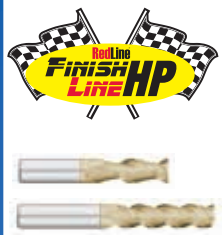
AlTiN Coated

Cobalt Rougher, Regular Length, Square End, Non-Center Cutting, Fine Pitch, 30° RH Helix

Cutter ø	Decimal Equiv	Flute Length	OAL	# Flutes	Shank ø	AlTiN Coated Part #
1/4	.2500	5/8	2-7/16	3	3/8	RE50904
5/16	.3125	3/4	2-1/2	3	3/8	RE50909
3/8	.3750	3/4	2-1/2	4	3/8	RE50914
7/16	.4375	1	2-11/16	4	3/8	RE50919
1/2	.5000	1-1/4	3-1/4	4	1/2	RE50929
5/8	.6250	1-5/8	3-3/4	4	5/8	RE50936
3/4	.7500	1-5/8	3-7/8	4	3/4	RE50945
7/8	.8750	1-7/8	4-1/8	5	3/4	RE50954
1	1.0000	2	4-1/2	5	1	RE50966
1-1/8	1.1250	2	4-1/2	6	1	RE50971
1-1/4	1.2500	2	4-1/2	6	1-1/4	RE50975
1-1/2	1.5000	2	4-1/2	6	1-1/4	RE50983
2	2.0000	2	4-1/2	8	1-1/4	RE50992

Tolerances	Diameter	Shank
All Sizes	+0.005, -0.005	+0.0000, -0.0005

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2 & 3-Flute High Performance Regular and Long Length Endmills, Square & Corner Radius, 45 Degree Helix, for Aluminum and Non-Ferrous Materials

- RedLine 2 & 3-Fute, 45 Degree Helix Endmills are designed for high speed machining in Aluminum, Brass and Bronze, and can be used for plunging, slotting and profiling in all non-ferrous materials.
- Aluminum, Brass, Bronze and other non-ferrous materials. These tools can be used for plunging, slotting and profiling.
- The ZrN coated tools allow for higher speeds, better tool life with a low affinity for Aluminum.
- These High Performance tools can be found on pages 14 & 17.

ZrN Coated for Aluminum & Non-Ferrous Tools Speeds & Feeds

Material	Grades	SFM Uncoated	SFM ZrN Coated	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
N - Non-Ferrous										
Aluminum Alloys	2014, 2024, 6061, 7075	500+	650+	.0010-.0020	.0012-.0018	.0015-.0020	.0020-.0040	.0050-.0080	.009-.0110	.0110-.0150
Aluminm High Silicon	A380, A390	500+	600+	.0010-.0013	.0010-.0015	.0015-.0020	.0020-.0040	.0050-.0080	.0090-.0110	.0110-.0150
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	300-400	390-520	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0040	.0040-.0080	.0070-.0100
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	250-1000	325-1300	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
Copper		400-500	520-650	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0040	.0040-.0080	.0070-.0100
Magnesium		500+	650+	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
S - High Temp Alloys										
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	500+	650+	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040	.0040-.0050

NOTES: (1) Speeds and Feeds listed are estimated and will vary by application.
(2) Reduce Speeds by 20% when slotting.
(3) When exceeding 1/2 the end mill diameter while profiling, reduce feed rate by 25%.
(4) The use of Long and Extra Long Endmills require a reduction in feed by up to 50%.
(5) Optimum performance can be achieved when using coated & stub length tools.



2-Flute, Neck Relief Square & Standard Ball End, Extra High Performance Endmills, 45 Degree Helix for Aluminum and Non-Ferrous Materials.

- Redline 2 Flute, Extra High Performance Endills are designed for milling all Aluminum including die cast extrusions and other non ferrous alloys.
- These Extra High Performance tools can be found on pages 15 & 16.

Aluminum & Non-Ferrous Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	# of Flutes	SFM	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
N - Non-Ferrous													
Aluminum Alloys	2024, 6061, 7075	Slotting	1 x D	1 x D	2	800	.0018	.0036	.0054	.0072	.0090	.0108	.0144
			.75 x D	1 x D	3	800	.0015	.0030	.0045	.0060	.0075	.0090	.0120
		Peripheral - Rough	1 x D	.75 x D	2	1000	.0025	.0050	.0075	.0100	.0125	.0150	.0200
			1 x D	.75 x D	3	1000	.0020	.0040	.0060	.0080	.0100	.0120	.0160
		Finish	1.5 x D	.01 x D	2	1200	.0030	.0060	.0090	.0120	.0150	.0210	.0240
			1.5 x D	.01 x D	3	1200	.0025	.0050	.0075	.0100	.0125	.0150	.0200
Aluminum High Silicon	A380, A390	Slotting	.75 x D	1 x D	2	500	.0013	.0026	.0039	.0052	.0065	.0078	.0104
			.5 x D	1 x D	3	500	.0011	.0022	.0033	.0044	.0055	.0066	.0088
		Peripheral - Rough	1 x D	.5 x D	2	700	.0016	.0033	.0049	.0065	.0081	.0098	.0130
			1 x D	.5 x D	3	700	.0014	.0028	.0041	.0055	.0069	.0083	.0110
		Finish	1.5 x D	.01 x D	2	900	.0020	.0041	.0061	.0082	.0102	.0122	.0163
			1.5 x D	.01 x D	3	900	.0017	.0035	.0052	.0069	.0086	.0104	.0138
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	Slotting	.75 x D	1 x D	2	500	.0011	.0022	.0033	.0044	.0055	.0066	.0088
			.75 x D	1 x D	3	500	.0009	.0018	.0027	.0036	.0045	.0054	.0072
		Peripheral - Rough	1 x D	.75 x D	2	575	.0011	.0022	.0033	.0044	.0055	.0066	.0088
			1 x D	.75 x D	3	575	.0013	.0026	.0039	.0052	.0065	.0078	.0104
		Finish	1.5 x D	.01 x D	2	650	.0018	.0036	.0054	.0072	.0090	.0108	.0144
			1.5 x D	.01 x D	3	650	.0015	.0030	.0045	.0060	.0075	.0090	.0120
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	Slotting	1 x D	1 x D	2	500	.0013	.0026	.0039	.0052	.0065	.0078	.0104
			1 x D	1 x D	3	500	.0011	.0022	.0033	.0044	.0055	.0066	.0088
		Peripheral - Rough	1 x D	.75 x D	2	700	.0016	.0033	.0049	.0065	.0081	.0098	.0130
			1 x D	.75 x D	3	700	.0014	.0028	.0041	.0055	.0069	.0083	.0110
		Finish	1.5 x D	.01 x D	2	900	.0020	.0041	.0061	.0082	.0102	.0122	.0163
			1.5 x D	.01 x D	3	900	.0017	.0035	.0052	.0069	.0086	.0104	.0138
Copper		Slotting	.75 x D	1 x D	2	500	.0011	.0022	.0033	.0044	.0055	.0066	.0088
			.75 x D	1 x D	3	500	.0009	.0018	.0027	.0036	.0045	.0054	.0072
		Peripheral - Rough	1 x D	.75 x D	2	575	.0011	.0022	.0033	.0044	.0055	.0066	.0088
			1 x D	.75 x D	3	575	.0013	.0026	.0039	.0052	.0065	.0078	.0104
		Finish	1.5 x D	.01 x D	2	650	.0018	.0036	.0054	.0072	.0090	.0108	.0144
			1.5 x D	.01 x D	3	650	.0015	.0030	.0045	.0060	.0075	.0090	.0120
Magnesium		Slotting	1 x D	1 x D	2	800	.0018	.0036	.0054	.0072	.0090	.0108	.0144
			.75 x D	1 x D	3	800	.0015	.0030	.0045	.0060	.0075	.0090	.0120
		Peripheral - Rough	1 x D	.75 x D	2	1000	.0025	.0050	.0075	.0100	.0125	.0150	.0200
			1 x D	.75 x D	3	1000	.0020	.0040	.0060	.0080	.0100	.0120	.0160
		Finish	1.5 x D	.01 x D	2	1200	.0030	.0060	.0090	.0120	.0150	.0210	.0240
			1.5 x D	.01 x D	3	1200	.0025	.0050	.0075	.0100	.0125	.0150	.0200

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown.
NOTE: Speeds and Feeds listed are estimated and will vary by application.



3-Flute Standard, Neck Relief and Ball End, 37 Degree Helix, Extra High Performance Endmills for Milling Aluminum and Non-Ferrous Materials.

- RedLine 3 Flute, Standard and Neck Relief Extra High Performance End Mills are designed for Roughing, Finishing or Slotting in Aluminum and Non-Ferrous materials.
- The ZrN coated tools allow for higher speeds, better tool life with a low affinity for Aluminum.
- Use for straight line and helical ramping.
- These Extra High Performance tools can be found on pages 18-22, 24-25.

Aluminum & Non-Ferrous Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	# of Flutes	SFM	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	5/16 (.3125)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
N - Non-Ferrous														
Aluminum Alloys	6061, 7075, 2024	Slotting	1 x D	1 x D	3	800	.0015	.0030	.0038	.0045	.0060	.0075	.0090	.0120
		Peripheral - Rough	<=2 x D	.5 x D	3	1000	.0020	.0040	.0050	.0060	.0080	.0100	.0120	.0160
			>2-3 x D	.5 x D	3	1000	.0019	.0038	.0047	.0056	.0075	.0094	.0113	.0150
			>3-4 x D	.45 x D	3	900	.0016	.0033	.0041	.0049	.0065	.0081	.0098	.0130
			>4-5 x D	.4 x D	3	800	.0015	.0029	.0036	.0044	.0058	.0073	.0087	.0116
		Finish	2.5 x D	.015 x D	3	1200	.0007	.0014	.0017	.0020	.0027	.0034	.0041	.0054
		*Helical Ramp Angle 3.0 deg.				800	.0012	.0024	.0030	.0036	.0048	.0060	.0072	.0096
Aluminum High Silicon	A380, A390	Slotting	.75 x D	1 x D	3	500	.0011	.0023	.0028	.0034	.0045	.0056	.0068	.0090
		Peripheral - Rough	<=2 x D	.4 x D	3	700	.0014	.0029	.0036	.0043	.0057	.0071	.0086	.0114
			>2-3 x D	.4 x D	3	700	.0014	.0028	.0034	.0041	.0055	.0069	.0083	.0110
			>3-4 x D	.375 x D	3	600	.0012	.0024	.0030	.0036	.0048	.0060	.0072	.0096
			>4-5 x D	.35 x D	3	500	.0010	.0020	.0025	.0030	.0040	.0050	.0060	.0080
		Finish	2.5 x D	.015 x D	3	900	.0006	.0013	.0016	.0019	.0025	.0031	.0038	.0050
		*Helical Ramp Angle 2.5 deg.				500	.0009	.0018	.0023	.0027	.0036	.0045	.0054	.0072
Magnesium Alloys		Slotting	1 x D	1 x D	3	800	.0015	.0030	.0038	.0045	.0060	.0075	.0090	.0120
		Peripheral - Rough	<=2 x D	.5 x D	3	1000	.0020	.0040	.0050	.0060	.0080	.0100	.0120	.0160
			>2-3 x D	.5 x D	3	1000	.0019	.0038	.0047	.0056	.0075	.0094	.0113	.0150
			>3-4 x D	.45 x D	3	900	.0016	.0033	.0041	.0049	.0065	.0081	.0098	.0130
			>4-5 x D	.4 x D	3	800	.0015	.0029	.0036	.0044	.0058	.0073	.0087	.0116
		Finish	2.5 x D	.015 x D	3	1200	.0007	.0014	.0017	.0020	.0027	.0034	.0041	.0054
		*Helical Ramp Angle 3.0 deg.				800	.0012	.0024	.0030	.0036	.0048	.0060	.0072	.0096
Copper Alloys, Brass		Slotting	.75 x D	1 x D	3	500	.0009	.0019	.0023	.0028	.0037	.0046	.0056	.0074
		Peripheral - Rough	<=2 x D	.4 x D	3	600	.0012	.0023	.0029	.0035	.0046	.0058	.0069	.0092
			>2-3 x D	.4 x D	3	600	.0011	.0023	.0028	.0034	.0045	.0056	.0068	.0090
			>3-4 x D	.375 x D	3	500	.0010	.0020	.0024	.0029	.0039	.0049	.0059	.0078
			>4-5 x D	.35 x D	3	450	.0008	.0017	.0021	.0025	.0033	.0041	.0050	.0066
		Finish	2.5 x D	.015 x D	3	650	.0005	.0011	.0013	.0016	.0021	.0026	.0032	.0042
		*Helical Ramp Angle 2.5 deg.				500	.0007	.0015	.0019	.0022	.0030	.0037	.0044	.0059
Bronze		Slotting	.75 x D	1 x D	3	500	.0009	.0018	.0022	.0026	.0035	.0044	.0053	.0070
		Peripheral - Rough	<=2 x D	.4 x D	3	600	.0011	.0022	.0028	.0033	.0044	.0055	.0066	.0088
			>2-3 x D	.4 x D	3	600	.0011	.0021	.0026	.0032	.0042	.0053	.0063	.0084
			>3-4 x D	.375 x D	3	500	.0009	.0018	.0022	.0026	.0035	.0044	.0053	.0070
			>4-5 x D	.35 x D	3	450	.0007	.0015	.0018	.0022	.0029	.0036	.0044	.0058
		Finish	2.5 x D	.015 x D	3	650	.0005	.0010	.0012	.0014	.0019	.0024	.0029	.0038
		*Helical Ramp Angle 2.0 deg.				500	.0007	.0014	.0018	.0021	.0028	.0035	.0042	.0056
Composites, Plastic, Fiberglass		Slotting	.75 x D	1 x D	3	500	.0011	.0023	.0028	.0034	.0045	.0056	.0068	.0090
		Peripheral - Rough	<=2 x D	.4 x D	3	700	.0014	.0029	.0036	.0043	.0057	.0071	.0086	.0114
			>2-3 x D	.4 x D	3	700	.0014	.0028	.0034	.0041	.0055	.0069	.0083	.0110
			>3-4 x D	.375 x D	3	600	.0012	.0024	.0030	.0036	.0048	.0060	.0072	.0096
			>4-5 x D	.35 x D	3	500	.0010	.0020	.0025	.0030	.0040	.0050	.0060	.0080
		Finish	2.5 x D	.015 x D	3	900	.0006	.0013	.0016	.0019	.0025	.0031	.0038	.0050
		*Helical Ramp Angle 3.0 deg.				500	.0009	.0018	.0023	.0027	.0036	.0045	.0054	.0072

***Straight line Ramp Angle= Helical Ramp Angle x 5 for entry up to 1 x D.**



3-Flute, Roughing, 37 Degree Helix, Extra High Performance Endmills for Aluminum and Non-Ferrous Materials.

- RedLine has a comprehensive offering of shank designs, corner radii, and tool lengths for milling all aluminums including die cast, extrusions and non-ferrous alloys.
- The ZrN coating allows for higher speeds, better tool life with a low affinity for Aluminum.
- Use for straight line and helical ramping.
- These Extra High Performance tools can be found on page 23.

Aluminum & Non-Ferrous Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	# of Flutes	SFM	Feed by Endmill Diameter (IPT) 1/8 (.1250)	3/16 (.1875)	1/4 (.2500)	5/16 (.3125)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
N - Non-Ferrous															
Aluminum Alloys	6061, 7075, 2024	Slotting	1 x D	1 x D	3	800	.0015	.0023	.0030	.0045	.0060	.0075	.0090	.0120	.0150
		Peripheral - Rough	<=2 x D	.5 x D	3	1000	.0020	.0030	.0040	.0060	.0080	.0100	.0120	.0160	.0200
			>2-3 x D	.5 x D	3	1000	.0019	.0028	.0038	.0056	.0075	.0094	.0113	.0150	.0188
			>3-4 x D	.45 x D	3	900	.0016	.0024	.0033	.0049	.0065	.0081	.0098	.0130	.0163
		*Helical Ramp Angle 3.0 deg.				800	.0012	.0018	.0024	.0036	.0048	.0060	.0072	.0096	.0120
Aluminum High Silicon	A380, A390	Slotting	.75 x D	1 x D	3	500	.0011	.0017	.0023	.0034	.0045	.0056	.0068	.0090	.0113
		Peripheral - Rough	<=2 x D	.4 x D	3	700	.0014	.0021	.0029	.0043	.0057	.0071	.0086	.0114	.0143
			>2-3 x D	.4 x D	3	700	.0014	.0021	.0028	.0041	.0055	.0069	.0083	.0110	.0138
			>3-4 x D	.375 x D	3	600	.0012	.0018	.0024	.0036	.0048	.0060	.0072	.0096	.0120
		*Helical Ramp Angle 2.5 deg.				500	.0009	.0014	.0018	.0027	.0036	.0045	.0054	.0072	.0090
Magnesium Alloys		Slotting	1 x D	1 x D	3	800	.0015	.0023	.0030	.0045	.0060	.0075	.0090	.0120	.0150
		Peripheral - Rough	<=2 x D	.5 x D	3	1000	.0020	.0030	.0040	.0060	.0080	.0100	.0120	.0160	.0200
			>2-3 x D	.5 x D	3	1000	.0019	.0028	.0038	.0056	.0075	.0094	.0113	.0150	.0188
			>3-4 x D	.45 x D	3	900	.0016	.0024	.0033	.0049	.0065	.0081	.0098	.0130	.0163
		*Helical Ramp Angle 3.0 deg.				800	.0012	.0018	.0024	.0036	.0048	.0060	.0072	.0096	.0120
Copper Alloys, Brass		Slotting	.75 x D	1 x D	3	500	.0009	.0014	.0019	.0028	.0037	.0046	.0056	.0074	.0093
		Peripheral - Rough	<=2 x D	.4 x D	3	600	.0012	.0017	.0023	.0035	.0046	.0058	.0069	.0092	.0115
			>2-3 x D	.4 x D	3	600	.0011	.0017	.0023	.0034	.0045	.0056	.0068	.0090	.0113
			>3-4 x D	.375 x D	3	500	.0010	.0015	.0020	.0029	.0039	.0049	.0059	.0078	.0098
		*Helical Ramp Angle 2.5 deg.				500	.0007	.0011	.0015	.0022	.0030	.0037	.0044	.0059	.0074
Bronze		Slotting	.75 x D	1 x D	3	500	.0009	.0013	.0018	.0026	.0035	.0044	.0053	.0070	.0088
		Peripheral - Rough	<=2 x D	.4 x D	3	600	.0011	.0017	.0022	.0033	.0044	.0055	.0066	.0088	.0110
			>2-3 x D	.4 x D	3	600	.0011	.0016	.0021	.0032	.0042	.0053	.0063	.0084	.0105
			>3-4 x D	.375 x D	3	500	.0009	.0013	.0018	.0026	.0035	.0044	.0053	.0070	.0088
		*Helical Ramp Angle 2.0 deg.				500	.0007	.0011	.0014	.0021	.0028	.0035	.0042	.0056	.0070
Composites, Plastic, Fiberglass		Slotting	.75 x D	1 x D	3	500	.0011	.0017	.0023	.0034	.0045	.0056	.0068	.0090	.0113
		Peripheral - Rough	<=2 x D	.4 x D	3	700	.0014	.0021	.0029	.0043	.0057	.0071	.0086	.0114	.0143
			>2-3 x D	.4 x D	3	700	.0014	.0021	.0028	.0041	.0055	.0069	.0083	.0110	.0138
			>3-4 x D	.375 x D	3	600	.0012	.0018	.0024	.0036	.0048	.0060	.0072	.0096	.0120
		*Helical Ramp Angle 3.0 deg.				500	.0009	.0014	.0018	.0027	.0036	.0045	.0054	.0072	.0090

***Straight line Ramp Angle= Helical Ramp Angle x 5 for entry up to 1 x D.**



5-Flute Square and Corner Radius, Standard and Neck Relief and Chip Control, 35 Degree Helix Extra High Performance Endmills for Aluminum.



- RedLine 5 Flute End Mills are (DLC) Diamond Like Carbon Coated to provide Extra High Performance when cutting Aluminum.
- With 5 Flutes you will get increased productivity with an excellent surface finish, and are designed to Rough, Slot, Finish and be used with High Efficiency Machining programs.
- 5-Flute Extra High Performance, Variable Helix End Mills
- These Extra High Performance tools can be found on page 26-32.

Aluminum Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	# of Flutes	SFM	Feed by Endmill Diameter (IPT) 1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
N - Non-Ferrous												
Aluminum Alloys	6061, 7075, 2024	Slotting	1 x D	1 x D	5	600	.0015	.002250	.0030	.003750	.00450	.0060
		Peripheral - Rough	<=2 x D	.45 x D	5	1000	.0024	.003600	.0048	.006000	.00720	.0096
			>2-3 x D	.375 x D	5	900	.0023	.003450	.0046	.005750	.00690	.0092
			>3-4 x D	.35 x D	5	800	.00225	.003375	.0045	.005625	.00675	.0090
		Peripheral - HEM	<=2 x D	.25 x D	5	850	.00500	.007500	.0100	.012500	.01500	.0200
			>2-2.5 x D	.25 x D	5	800	.00500	.007500	.0100	.012500	.01500	.0200
			>2.5-3 x D	.25 x D	5	800	.00500	.007500	.0100	.012500	.01500	.0200
			>3-3.5 x D	.25 x D	5	800	.00475	.007125	.0095	.011875	.01425	.0190
			>3.5-4 x D	.20 x D	5	780	.00475	.007125	.0095	.011875	.01425	.0190
		Finish	<= 4 x D	.01 x D	5	650	.00150	.002250	.0030	.003750	.00450	.0060

NOTE: HEM (high efficiency machinging) technical information can be found on page 208.



3-Flute Extra High Performance, Variable Helix Endmills

- RedLine XHP Variable Helix 3-Flute tools are designed for fast metal removal. We control vibration and chatter through a unique dampening geometry and can handle faster speeds and feeds generated by the application of our AlCrN coating.
- Designed to run in a wide range of materials from cast irons and steels to titanium and high temperature alloys.
- These Extra High Performance tools can be found on pages 33-40.

XHP Variable Helix 3-Flute Tools Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	SFM	Feed by Endmill Diameter (IPT)					
						1/32	1/16	3/32	1/8	3/16	1/4
					AlCrN	(.0312)	(.0625)	(.0937)	(.1250)	(.1875)	(.2500)
P - Steels											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	High Speed	1 x D	.1 x D	390	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	390	.0001	.0002	.0002	.0002	.0003	.0004
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020. 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	High Speed	1 x D	.1 x D	655	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	655	.0001	.0002	.0002	.0002	.0003	.0004
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	High Speed	1 x D	.1 x D	655	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	655	.0001	.0002	.0002	.0002	.0003	.0004
M - Stainless Steels											
Austenitic	301-304L, 310, 316L, 321, 347	High Speed	1 x D	.1 x D	325	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	325	.0001	.0002	.0002	.0002	.0003	.0004
Martensitic	403, 410, 416, 420, 430, 431, 440	High Speed	1 x D	.1 x D	325	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	325	.0001	.0002	.0002	.0002	.0003	.0004
Precipitation Hardening	12/8, 15/5, 17/4, AM-50/355/363, PH13-8MO, PH14-8/MO	High Speed	1 x D	.1 x D	325	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	325	.0001	.0002	.0002	.0002	.0003	.0004
K - Cast Irons											
Ductile	A536, J434, 60-40-18	High Speed	1 x D	.1 x D	655	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	655	.0001	.0002	.0002	.0002	.0003	.0004
Gray	A48, A436, A319, Class 20, G4000	High Speed	1 x D	.1 x D	655	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	655	.0001	.0002	.0002	.0002	.0003	.0004
Malleable	A220, A602, J158	High Speed	1 x D	.1 x D	655	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	655	.0001	.0002	.0002	.0002	.0003	.0004
N - Non-Ferrous											
Aluminum Alloys	2014, 2024, 6061, 7075	High Speed	1 x D	.1 x D	985	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	985	.0001	.0002	.0002	.0002	.0003	.0004
Aluminum High Silicon	A380, A390	High Speed	1 x D	.1 x D	985	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	985	.0001	.0002	.0002	.0002	.0003	.0004
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	High Speed	1 x D	.1 x D	400	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	400	.0001	.0002	.0002	.0002	.0003	.0004
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	High Speed	1 x D	.1 x D	390	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	390	.0001	.0002	.0002	.0002	.0003	.0004
Copper		High Speed	1 x D	.1 x D	400	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	400	.0001	.0002	.0002	.0002	.0003	.0004
Magnesium		High Speed	1 x D	.1 x D	800	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	800	.0001	.0002	.0002	.0002	.0003	.0004
S - High Temp Alloys											
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	High Speed	1 x D	.1 x D	260	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	260	.0001	.0002	.0002	.0002	.0003	.0004
Iron Base	Incoloy 800-802, Multmet N-155 Timkin 16-25-6, Carpenter 22-b3	High Speed	1 x D	.1 x D	260	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	260	.0001	.0002	.0002	.0002	.0003	.0004
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene,Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	High Speed	1 x D	.1 x D	195	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	195	.0001	.0002	.0002	.0002	.0003	.0004
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	High Speed	1 x D	.1 x D	260	.0002	.0002	.0002	.0003	.0004	.0005
		Copy Milling	1 x D	.1 x D	260	.0001	.0002	.0002	.0002	.0003	.0004





3-Flute, High Performance Endmills, 60 Degree Helix

- RedLine 3-flute 60° endmills are perfect for slotting and profiling in all high temperature alloys like Hastalloy, Waspalloy, Inconel, and Titanium.
- If you are looking for additional speed you can achieve up to a 40% increase in surface footage over uncoated tools by purchasing tools with the AlTiN coating.
- These High Performance tools can be found on page 41.

3-Flute 60° Speeds & Feeds

Material	Grades	SFM Uncoated	SFM AlTiN	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
P - Steels										
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	225-300	315-420	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
High Strength Tool Steel > 32 HRC		135-180	190-250	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	250-350	350-490	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040	.0040-.0050
Low Carbon > 32 HRC	Reduce SFM by 40%	150-210	210-290	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	250-350	350-490	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040	.0040-.0050
Medium Carbon > 32 HRC	Reduce SFM by 40%	150-210	210-290	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
M - Stainless Steels										
Austenitic	301-304L, 310, 316L, 321, 347	250-350	350-490	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Austenitic > 32 HRC		190-260	265-360	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Martensitic	403, 410, 416, 420, 430, 431, 440	200-350	280-490	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Martensitic > 32 HRC		150-260	210-360	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	200-350	280-490	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Precipitation Hardening > 32 HRC		150-260	210-360	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
K - Cast Irons										
Ductile	A536, J434, 60-40-18	300-400	420-560	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
Gray	A48, A436, A319, Class 20, G4000	350-450	490-630	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
Malleable	A220, A602, J158	490-630	680-740	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
N - Non-Ferrous										
Aluminum Alloys	2014, 2024, 6061, 7075	> 500	>700	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0040	.0050-.0080	.0090-.0110	.0110-.0150
Aluminum High Silicon	A380, A390	450	630	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0040	.0050-.0080	.0090-.0110	.0110-.0150
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	300-400	420-560	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0040	.0040-.0080	.0070-.0100
Composites		250-1000	350-1400	.0007-.0012	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
Copper		400-500	560-700	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0040	.0040-.0080	.0070-.0100
Magnesium	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	> 500	>700	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
S - High Temp W Alloys										
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	200-275	280-385	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Cobalt Base > 32 HRC		130-180	180-250	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Iron Base	Incoloy 800-802, Multmet N-155 Timkin 16-25-6, Carpenter 22-b3	250-300	350-420	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Iron Base > 32 HRC		150-180	210-250	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	150-200	210-280	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Nickel Base >32 HRC		90-120	125-165	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	250-400	350-560	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040	.0040-.0050

NOTE: Speeds and Feeds listed are estimated and will vary by application.



3-Flute, High Performance Endmills, 45 Degree Helix

- RedLine 3-flute 45° lead tools are recommended for slotting and profiling of stainless steel and other similar alloys. This tool is designed to run at higher speeds and feeds while producing excellent part finishes.
- These High Performance tools can be found on page 42.

3-Flute 45° Speeds & Feeds

Material	Grades	SFM Uncoated	SFM AlTiN	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
P - Steels										
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	225-300	315-420	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
High Strength Tool Steel > 32 HRC		135-180	190-250	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	250-350	350-490	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040	.0040-.0050
Low Carbon > 32 HRC	Reduce SFM by 40%	150-210	210-290	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	250-350	350-490	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040	.0040-.0050
Medium Carbon > 32 HRC	Reduce SFM by 40%	150-210	210-290	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
M - Stainless Steels										
Austenitic	301-304L, 310, 316L, 321, 347	250-350	350-490	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Austenitic > 32 HRC		190-260	265-360	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Martensitic	403, 410, 416, 420, 430, 431, 440	200-350	280-490	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Martensitic > 32 HRC		150-260	210-360	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	200-350	280-490	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Precipitation Hardening > 32 HRC		150-260	210-360	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
K - Cast Irons										
Ductile	A536, J434, 60-40-18	300-400	420-560	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
Gray	A48, A436, A319, Class 20, G4000	350-450	490-630	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
Malleable	A220, A602, J158	490-630	680-740	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
N - Non-Ferrous										
Aluminum Alloys	2014, 2024, 6061, 7075	> 500	>700	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0040	.0050-.0080	.0090-.0110	.0110-.0150
Aluminum High Silicon	A380, A390	450	630	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0040	.0050-.0080	.0090-.0110	.0110-.0150
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	300-400	420-560	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0040	.0040-.0080	.0070-.0100
Composites		250-1000	350-1400	.0007-.0012	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
Copper		400-500	560-700	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0040	.0040-.0080	.0070-.0100
Magnesium	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	> 500	>700	.0010-.0020	.0010-.0015	.0015-.0020	.0020-.0035	.0035-.0050	.0050-.0070	.0070-.0100
S - High Temp Alloys										
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	200-275	280-385	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Cobalt Base > 32 HRC		130-180	180-250	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Iron Base	Incoloy 800-802, Multmet N-155 Timkin 16-25-6, Carpenter 22-b3	250-300	350-420	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Iron Base > 32 HRC		150-180	210-250	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	150-200	210-280	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Nickel Base >32 HRC		90-120	125-165	.0003-.0005	.0004-.0005	.0005-.0008	.0010-.0015	.0012-.0015	.0015-.0020	.0020-.0030
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	250-400	350-560	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040	.0040-.0050

NOTE: Speeds and Feeds listed are estimated and will vary by application.



4-Flute, High Performance, Variable Index Endmills, Square, Corner Radius & Ball End, 38 Degree Helix

- RedLine HP Variable 4-Flute tools are designed for fast metal removal. We control vibration and chatter through a unique dampening geometry and can handle faster speeds and feeds.
- Our HP Variable 4-flute tools can be ran wet or dry and can be used in a wide variety of applications, from roughing and finishing to slotting and pocketing.
- Designed to run in a wide range of materials from cast irons and steels to titanium and high temperature alloys.
- These High Performance tools can be found on pages 43-46, 56.

HP Variable Index 4-Flute Tools Speeds & Feeds (Cont'd)

Material	Grades	Cut Type	Axial DOC	Radial DOC	Stub/Regular SFM AlCrNX	Long/X-Long SFM AlCrNX	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
P - Steels													
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	Slotting	1 x D	1 x D	300-360	210-250	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - Rough	1.25 x D	.3 x D	300-360	210-250	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - HEM	2 x D	.15 x D	300-360	210-250	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
High Strength Tool Steel > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	180-216	126-150	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	Slotting	1 x D	1 x D	560-660	400-550	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - Rough	1.25 x D	.5 x D	560-660	400-550	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	560-660	400-550	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	Slotting	1 x D	1 x D	525-630	380-520	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - Rough	1.25 x D	.5 x D	525-630	380-520	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	525-630	380-520	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M - Stainless Steels													
Austenitic	301-304L, 310, 316L, 321, 347	Slotting	1 x D	1 x D	300-360	210-250	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - Rough	1.25 x D	.3 x D	300-360	210-250	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - HEM	2 x D	.10 x D	300-360	210-250	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Austenitic > 32 HRC	Reduce SFM by 20%	N/A	N/A	N/A	240-288	168-200	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Martensitic	403, 410, 416, 420, 430, 431, 440	Slotting	1 x D	1 x D	300-360	210-250	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - Rough	1.25 x D	.3 x D	300-360	210-250	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - HEM	2 x D	.15 x D	300-360	210-250	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	Slotting	1 x D	1 x D	300-360	210-250	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - Rough	1.25 x D	.3 x D	300-360	210-250	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - HEM	1.5 x D	.10 x D	300-360	210-250	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Precipitation Hardening > 32 HRC	Reduce SFM by 20%	N/A	N/A	N/A	240-288	168-200	N/A	N/A	N/A	N/A	N/A	N/A	N/A

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown. Speeds and Feeds listed are estimated and will vary by application.

HP Variable Index 4-Flute Tools Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	Stub/Regular SFM AlCrNX	Long/X-Long SFM AlCrNX	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
K - Cast Irons													
Ductile	A536, J434 60-40-18	Slotting	1 x D	1 x D	560-660	400-550	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - Rough	1.25 x D	.5 x D	560-660	400-550	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	560-660	400-550	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gray	A48, A436, A319 Class 20, G4000	Slotting	1 x D	1 x D	560-660	400-550	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - Rough	1.25 x D	.5 x D	560-660	400-550	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	560-660	400-550	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Malleable	A220, A602, J158	Slotting	1 x D	1 x D	400-450	350-425	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - Rough	1.25 x D	.3 x D	400-450	350-425	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	400-450	350-425	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N - Non-Ferrous													
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Composites	G-10, Fiber-glass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		Slotting	1 x D	1 x D	560-660	400-550	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - Rough	1.25 x D	.3 x D	560-660	400-550	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	560-660	400-550	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Magnesium		Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S - High Temp Alloys													
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	Slotting	1 x D	1 x D	95-210	65-150	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
		Peripheral - Rough	1.25 x D	.25 x D	95-210	65-150	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
		Peripheral - HEM	1.5 x D	.10 x D	95-210	65-150	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cobalt Base > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	95-210	39-90	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Car-penter 22-b3	Slotting	1 x D	1 x D	95-210	65-150	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
		Peripheral - Rough	1.25 x D	.25 x D	95-210	65-150	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
		Peripheral - HEM	1.5 x D	.10 x D	95-210	65-150	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron Base > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	95-210	39-90	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	Slotting	1 x D	1 x D	95-210	65-150	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
		Peripheral - Rough	1.25 x D	.25 x D	95-210	65-150	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
		Peripheral - HEM	1.5 x D	.10 x D	95-210	65-150	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel Base >32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	95-210	39-90	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Titanium	Commercially Pure, 6Al-4V ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	Slotting	1 x D	1 x D	240-375	150-250	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - Rough	1.25 x D	.3 x D	240-375	150-250	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - HEM	1.5 x D	.10 x D	240-375	150-250	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A





4-Flute, Extra High Performance Endmills, Variable Index, Square, Corner Radius & Ball End, 38 Degree Helix

- RedLine XHP Variable 4-Flute tools are designed for faster metal removal. We control vibration and chatter through a unique dampening geometry and can handle faster speeds and feeds generated by the application of our AlCrNX coating.
- Our XHP Variable 4-flute tools can be run wet or dry and can be used in a wide variety of applications, from roughing and finishing to slotting and pocketing.
- Designed to run in a wide range of materials from cast irons and steels to titanium and high temperature alloys.
- These tools are the ultimate for versatility, performance and lowest overall cost.
- These Extra High Performance tools can be found on pages 47-53, 57.

XHP Variable Index 4-Flute Tools Speeds & Feeds (Cont'd)

Material	Grades	Cut Type	Axial DOC	Radial DOC	Stub/Reg SFM AlCrNX	Long/ X-Long SFM AlCrNX	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
P - Steels													
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	Slotting	.75 x D	1 x D	300	240	.0004-.0006	.0010-.0012	.0014-.0018	.0020-.0024	.0024-.0030	.0029-.0036	.0038-.0048
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0006-.0007	.0012-.0015	.0018-.0022	.0023-.0029	.0030-.0037	.0035-.0044	.0047-.0059
		Peripheral - HEM	2 x D	.15 x D	475	380	.0010-.0012	.0019-.0024	.0028-.0035	.0038-.0047	.0047-.0059	.0057-.0071	.0076-.0095
		Finish	1.5 x D	.015 x D	450	360	.0006-.0007	.0012-.0015	.0018-.0022	.0023-.0029	.0030-.0037	.0035-.0044	.0047-.0059
Low Carbon	A36, 12L14, 12L15,1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	Slotting	1 x D	1 x D	350	280	.0004-.0006	.0010-.0013	.0015-.0019	.0020-.0026	.0025-.0032	.0030-.0038	.0040-.0050
		Peripheral - Rough	1.25 x D	.5 x D	425	340	.0006-.0008	.0013-.0016	.0020-.0024	.0026-.0032	.0032-.0040	.0038-.0048	.0050-.0064
		Peripheral - HEM	2 x D	.15 x D	525	420	.0012-.0015	.0025-.0031	.0038-.0046	.0049-.0061	.0060-.0077	.0074-.0092	.0098-.0123
		Finish	1.5 x D	.015 x D	500	400	.0007-.0009	.0014-.0018	.0022-.0027	.0029-.0036	.0035-.0044	.0042-.0053	.0057-.0071
Medium Carbon	1040-1095, 1140-1151, 1330-1345 1520-1572, 4023-4063, 4120-4161 4330-4340, 4620-4640, 8620-8660 8740-8750, 6150, 51000, 52100	Slotting	1 x D	1 x D	300	240	.0004-.0006	.0010-.0012	.0014-.0018	.0020-.0024	.0024-.0030	.0029-.0036	.0038-.0048
		Peripheral - Rough	1.25 x D	.5 x D	375	300	.0006-.0008	.0012-.0015	.0018-.0023	.0024-.0030	.0030-.0038	.0036-.0045	.0048-.0060
		Peripheral - HEM	2 x D	.15 x D	475	380	.0011-.0014	.0022-.0028	.0034-.0042	.0045-.0056	.0056-.0070	.0067-.0084	.0090-.0110
		Finish	1.5 x D	.015 x D	450	360	.0006-.0008	.0136-.0170	.0020-.0025	.0026-.0033	.0034-.0042	.0040-.0050	.0054-.0067
M - Stainless Steels													
Austenitic	301-304L, 310, 316L, 321, 347	Slotting	.75 x D	1 x D	275	220	.0006-.0007	.0010-.0013	.0016-.0020	.0020-.0026	.0026-.0033	.0031-.0039	.0040-.0050
		Peripheral - Rough	1.25 x D	.3 x D	325	260	.0006-.0008	.0013-.0016	.0020-.0025	.0026-.0033	.0033-.0041	.0039-.0049	.0050-.0065
		Peripheral - HEM	2 x D	.10 x D	425	340	.0013-.0016	.0025-.0031	.0040-.0047	.0050-.0063	.0062-.0078	.0075-.0094	.0100-.0125
		Finish	1.5 x D	.015 x D	400	320	.0006-.0008	.0014-.0017	.0020-.0025	.0026-.0033	.0034-.0042	.0040-.0050	.0054-.0067
Martensitic	403, 410, 416, 420, 430, 431, 440	Slotting	.75 x D	1 x D	300	240	.0004-.0006	.0010-.0012	.0014-.0018	.0020-.0024	.0024-.0030	.0029-.0036	.0038-.0048
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0006-.0007	.0012-.0015	.0018-.0022	.0023-.0029	.0030-.0037	.0035-.0044	.0047-.0059
		Peripheral - HEM	2 x D	.15 x D	475	380	.0011-.0014	.0022-.0028	.0034-.0042	.0045-.0056	.0056-.0070	.0067-.0087	.0090-.0112
		Finish	1.5 x D	.015 x D	450	360	.0006-.0007	.0012-.0015	.0018-.0022	.0023-.0029	.0030-.0037	.0035-.0044	.0047-.0059
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363 PH13-8MO, PH14-8/MO	Slotting	.5 x D	1 x D	250	200	.0004-.0005	.0008-.0010	.0012-.0015	.0016-.0020	.0020-.0025	.0024-.0030	.0032-.0040
		Peripheral - Rough	1.25 x D	.3 x D	300	240	.0005-.0006	.0010-.0013	.0015-.0019	.0020-.0025	.0025-.0031	.0030-.0038	.0040-.0050
		Peripheral - HEM	1.5 x D	.10 x D	400	320	.0010-.0013	.0020-.0026	.0031-.0039	.0042-.0052	.0050-.0065	.0060-.0078	.0080-.0100
		Finish	1.5 x D	.015 x D	375	300	.0005-.0006	.0010-.0013	.0015-.0019	.0020-.0026	.0026-.0032	.0030-.0038	.0040-.0050
K - Cast Irons													
Ductile	A536, J434 60-40-18	Slotting	1 x D	1 x D	300	240	.0004-.0005	.0009-.0011	.0013-.0016	.0018-.0022	.0022-.0027	.0026-.0032	.0034-.0043
		Peripheral - Rough	1.25 x D	.5 x D	375	300	.0056-.0007	.0011-.0014	.0016-.0020	.0022-.0027	.0027-.0034	.0033-.0041	.0043-.0054
		Peripheral - HEM	2 x D	.15 x D	475	380	.0009-.0011	.0018-.0022	.0026-.0033	.0035-.0044	.0044-.0055	.0053-.0066	.0070-.0090
		Finish	1.5 x D	.015 x D	450	360	.0056-.0007	.0012-.0015	.0018-.0022	.0024-.0030	.0030-.0037	.0036-.0045	.0048-.0060

XHP Variable Index 4-Flute Tools Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	Stub/Reg SFM AlCrNX	Long/ X-Long SFM AlCrNX	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
K - Cast Irons													
Gray	A48, A436, A319 Class 20, G4000	Slotting	1 x D	1 x D	325	260	.0004-.0006	.0010-.0012	.0014-.0018	.0020-.0024	.0024-.0030	.0029-.0036	.0038-.0048
		Peripheral - Rough	1.25 x D	.5 x D	400	320	.0006-.0008	.0012-.0015	.0018-.0023	.0024-.0030	.0030-.0038	.0036-.0045	.0048-.0060
		Peripheral - HEM	2 x D	.15 x D	500	400	.0010-.0013	.0020-.0028	.0031-.0039	.0040-.0053	.0050-.0066	.0060-.0079	.0084-.0105
		Finish	1.5 x D	.015 x D	475	380	.0006-.0008	.0014-.0017	.0020-.0025	.0026-.0033	.0034-.0042	.0040-.0050	.0054-.0067
Malleable	A220, A602, J158	Slotting	.75 x D	1 x D	250	200	.0004-.0005	.0009-.0011	.0013-.0016	.0018-.0022	.0022-.0027	.0026-.0032	.0034-.0043
		Peripheral - Rough	1.25 x D	.3 x D	325	260	.0006-.0007	.0011-.0014	.0016-.0020	.0022-.0027	.0027-.0034	.0033-.0041	.0043-.0054
		Peripheral - HEM	2 x D	.15 x D	425	340	.0009-.0011	.0018-.0022	.0026-.0033	.0035-.0044	.0044-.0055	.0053-.0066	.0070-.0090
		Finish	1.5 x D	.015 x D	400	320	.0005-.0007	.0012-.0015	.0018-.0022	.0024-.0030	.0030-.0037	.0036-.0045	.0048-.0060
N - Non-Ferrous													
Brass/Bronze	Aluminum Bronze Low Silicon Bronze	Slotting	.5 x D	1 x D	350	280	.0005-.0006	.0010-.0012	.0015-.0018	.0020-.0025	.0025-.0030	.0034-.0039	.0045-.0050
		Peripheral - Rough	1 x D	.5 x D	400	320	.0006-.0008	.0012-.0015	.0018-.0022	.0025-.0030	.0032-.0037	.0042-.0047	.0055-.0060
		Peripheral - HEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	1.5 x D	.01 x D	425	340	.0007-.0009	.0015-.0017	.0022-.0026	.0030-.0035	.0040-.0045	.0050-.0055	.0065-.0070
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	NA	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		Slotting	.5 x D	1 x D	350	280	.0005-.0006	.0010-.0012	.0015-.0018	.0020-.0025	.0025-.0030	.0034-.0039	.0045-.0050
		Peripheral - Rough	1 x D	.5 x D	400	320	.0006-.0008	.0012-.0015	.0018-.0022	.0025-.0030	.0032-.0037	.0042-.0047	.0055-.0060
		Peripheral - HEM			N/A	N/A	—	—	—	—	—	—	—
		Finish	1.5 x D	.01 x D	425	340	.0007-.0009	.0015-.0017	.0022-.0026	.0030-.0035	.0040-.0045	.0050-.0055	.0065-.0070
Magnesium		N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S - High Temp Alloys													
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	Slotting	.25 x D	1 x D	60	48	.0004-.0005	.0009-.0011	.0013-.0016	.0017-.0021	.0022-.0027	.0026-.0032	.0034-.0042
		Peripheral - Rough	1.25 x D	.25 x D	90	72	.0006-.0007	.0010-.0013	.0016-.0020	.0022-.0027	.0026-.0033	.0032-.0040	.0040-.0053
		Peripheral - HEM	1.5 x D	.10 x D	225	180	.0007-.0009	.0014-.0018	.0022-.0027	.0029-.0036	.0035-.0044	.0042-.0053	.0057-.0071
		Finish	1.5 x D	.010 x D	125	100	.0006-.0008	.0013-.0016	.0018-.0023	.0025-.0031	.0031-.0039	.0038-.0047	.0050-.0060
Iron Base	Incoloy 800-802, Multmet N-155 Timkin 16-25-6, Carpenter 22-b3	Slotting	.25 x D	1 x D	60	48	.0004-.0005	.0009-.0011	.0013-.0016	.0017-.0021	.0022-.0027	.0026-.0032	.0034-.0042
		Peripheral - Rough	1.25 x D	.25 x D	90	72	.0006-.0007	.0010-.0013	.0016-.0020	.0022-.0027	.0026-.0033	.0032-.0040	.0040-.0053
		Peripheral - HEM	1.5 x D	.10 x D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	1.5 x D	.010 x D	125	100	.0006-.0008	.0013-.0016	.0018-.0023	.0025-.0031	.0031-.0039	.0038-.0047	.0050-.0060
Nickel Base	Inconel 625/718, Inco 700, 713C, 718 Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy Udimet 500 & 700	Slotting	.25 x D	1 x D	60	48	.0004-.0005	.0009-.0011	.0013-.0016	.0017-.0021	.0022-.0027	.0026-.0032	.0034-.0042
		Peripheral - Rough	1.25 x D	.25 x D	90	72	.0006-.0007	.0010-.0013	.0016-.0020	.0022-.0027	.0026-.0033	.0032-.0040	.0040-.0053
		Peripheral - HEM	1.5 x D	.10 x D	225	180	.0007-.0009	.0014-.0018	.0022-.0027	.0029-.0036	.0035-.0044	.0042-.0053	.0057-.0071
		Finish	1.5 x D	.010 x D	125	100	.0006-.0008	.0013-.0016	.0018-.0023	.0025-.0031	.0031-.0039	.0038-.0047	.0050-.0060
Titanium	Commercially Pure, 6Al-4V ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si Ti-8Al-1Mo, Ti-8Al-4Mo	Slotting	.5 x D	1 x D	250	200	.0004-.0005	.0008-.0010	.0012-.0015	.0016-.0020	.0020-.0025	.0024-.0030	.0032-.0040
		Peripheral - Rough	1.25 x D	.3 x D	300	240	.0005-.0006	.0010-.0013	.0015-.0019	.0020-.0025	.0025-.0031	.0030-.0038	.0040-.0050
		Peripheral - HEM	1.5 x D	.10 x D	400	320	.0010-.0012	.0019-.0024	.0029-.0036	.0038-.0048	.0048-.0060	.0058-.0072	.0077-.0096
		Finish	1.5 x D	.015 x D	375	300	.0005-.0006	.0010-.0013	.0015-.0019	.0020-.0026	.0026-.0032	.0030-.0038	.0040-.0050

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown.
NOTE: Speeds and Feeds listed are estimated and will vary by application.

4-Flute, High Performance Endmills, Square & Ball End, Roughers, Rougher/Finishers, 30 Degree Helix



- RedLine High Performance Roughers are designed to perform in hard to machine materials like stainless steel and titanium.
- Higher feed rates can be attained because of our radius chip breaker, without sacrificing finish.
- These High Performance tools can be found on pages 54-55 & 58.

Solid Carbide Roughers Tools Speeds & Feeds

Material	Grades	Stub/Reg SFM Uncoated	Stub/Reg SFM AlTiN	Long SFM Uncoated	Long SFM AlTiN	Feed by Endmill Diameter (IPT) 1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
S - Steels											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	200-230	250-320	140-160	180-210	.0003-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040
High Strength Tool Steel >32 HRC		180-220	240-280	130-150	170-190	.0003-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	210-345	350-575	165-275	280-460	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040	.0038-.0042	.0040-.0045
Low Carbon >32HRC		125-190	210-320	100-150	165-255	.0011-.0015	.0015-.0020	.0020-.0025	.0023-.0025	.0025-.0030	.0028-.0032
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	210-345	350-575	165-275	280-460	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040	.0038-.0042	.0040-.0045
Medium Carbon >32 HRC		180-220	240-280	130-150	170-190	.0003-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040
M - Stainless Steels											
Austenitic	301-304L, 310, 316L, 321, 347	150-300	250-500	120-240	200-400	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0035	.0035-.0040
Martensitic	403, 410, 416, 420, 430, 431, 440	135-255	225-430	110-200	180-340	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040	.0038-.0042	.0040-.0045
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8M0, PH14-8/M0	135-255	225-430	110-200	180-340	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040	.0038-.0042	.0040-.0045
K - Cast Irons											
Ductile	A536, J434, 60-40-18	200-250	300-350	140-175	210-250	.0005-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0035	.0035-.0040
Gray	A48, A436, A319, Class 20, G4000	250-300	450-500	175-210	315-350	.0005-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0035	.0035-.0040
Malleable	A220, A602, J158	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N - Non Ferrous											
Aluminum Alloys		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aluminum High Silicon		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Magnesium		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S - High Temp Alloys											
Cobalt Base	Stellite, HS-21, Haynes 25/188	25-45	45-75	20-35	35-60	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
Cobalt Base >32HRC	X40, L605	25-45	45-75	20-35	35-60	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
Iron Base	Incoloy 800-802, Multmet N-155	25-45	45-75	20-35	35-60	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
Iron Base >32HRC	Timkin 16-25-6, Carpenter 22-b3	25-45	45-75	20-35	35-60	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
Nickel Base	Inconel 625/718, Inco 700, 713C, 718	40-85	65-145	30-65	50-115	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
Nickel Base >32HRC	Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastel-loy, Waspoloy, Udimet 500 & 700	30-65	55-110	25-50	45-90	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	75-130	125-215	60-100	100-170	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027

NOTE: Speeds and Feeds listed are estimated and will vary by application.

5-Flute, High Performance Endmills, Square and Corner Radius, 38 Degree Helix



- RedLine HP Variable 5-Flute tools offer optimum metal removal rates. By controlling the vibration and chatter through a unique dampening geometry, and through the application of our advanced heat resistant coating over a fine micro-grain carbide substrate, our tools can handle faster speeds and feeds with excellent tool life in even the most difficult to machine materials like Stainless and Titanium.
- Used to Ramp, Plunge, Slot, Rough and Finish Profiles and can be found on pages 59-61.

HP Variable Index 5-Flute Tools Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	Stub/Regular SFM		Long/X-Long SFM		Feed by Endmill Diameter (IPT)						
					AlTiN	AlCrNX	AlTiN	AlCrNX	1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
P - Steels															
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.3 x D	350-550	420-660	200-385	240-460	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - HEM	2 x D	.15 x D	550-625	660-750	385-440	460-520	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	1.5 x D	.020 x D	550-625	660-750	385-440	460-520	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
High Strength Tool Steel > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.5 x D	350-550	420-660	200-385	240-460	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	550-625	660-750	385-440	460-520	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	1.5 x D	.020 x D	550-625	660-750	385-440	460-520	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
Medium Carbon	1040-1095, 1140-1151, 1330-1345,1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.5 x D	350-550	420-660	200-385	240-460	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	550-625	660-750	385-440	460-520	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	1.5 x D	.020 x D	550-625	660-750	385-440	460-520	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
M - Stainless Steels															
Austenitic	301-304L, 310, 316L, 321, 347	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.3 x D	350-550	420-660	200-385	240-460	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - HEM	2 x D	.10 x D	550-625	660-750	385-440	460-520	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	1.5 x D	.020 x D	550-625	660-750	385-440	460-520	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
Austenitic > 32 HRC	Reduce SFM by 20%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Martensitic	403, 410, 416, 420, 430, 431, 440	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.3 x D	350-550	420-660	200-385	240-460	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - HEM	2 x D	.15 x D	550-625	660-750	385-440	460-520	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	1.5 x D	.020 x D	550-625	660-750	385-440	460-520	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.3 x D	350-550	420-660	200-385	240-460	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - HEM	1.5 x D	.10 x D	550-625	660-750	385-440	460-520	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	1.5 x D	.020 x D	550-625	660-750	385-440	460-520	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
Precipitation Hardening > 32 HRC	Reduce SFM by 20%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
K - Cast Irons															
Ductile	A536, J434, 60-40-18	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.5 x D	600-800	720-960	425-600	510-720	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	800-850	960-1000	560-600	670-720	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	1.5 x D	.020 x D	800-850	960-1000	560-600	670-720	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
Gray	A48, A436, A319, Class 20, G4000	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.5 x D	600-800	720-960	425-600	510-720	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	800-850	960-1000	560-600	670-720	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	1.5 x D	.020 x D	800-850	960-1000	560-600	670-720	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
Malleable	A220, A602, J158	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.3 x D	400-800	480-960	325-600	390-720	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	800-850	960-1000	560-600	670-720	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	1.5 x D	.020 x D	800-850	960-1000	560-600	670-720	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
N - Non-Ferrous															
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.5 x D	600-800	720-960	425-600	510-720	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
		Peripheral - HEM	2 x D	.15 x D	800-850	960-1000	560-600	670-720	.0008-.0016	.0036-.0040	.0060-.0064	.0070-.0074	.0078-.0082	.0082-.0086	.0108-.0112
		Finish	1.5 x D	.020 x D	800-850	960-1000	560-600	670-720	.0004-.0008	.0018-.0020	.0030-.0032	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
Magnesium		Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S - High Temp Alloys															
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	Slotting	N/A	N/A	N/A		N/A								
		Peripheral - Rough	1.25 x D	.25 x D	100-175	120-210	80-125	100-150	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
		Peripheral - HEM	1.5 x D	.10 x D	200-225	240-270	140-160	170-200	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	1.5 x D	.020 x D	200-225	240-270	140-160	170-200	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
Cobalt Base > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.25 x D	100-175	120-210	80-125	100-150	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
		Peripheral - HEM	1.5 x D	.10 x D	200-225	240-270	140-160	170-200	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	1.5 x D	.020 x D	200-225	240-270	140-160	170-200	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
Iron Base > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.25 x D	100-175	120-210	80-125	100-150	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
		Peripheral - HEM	1.5 x D	.10 x D	200-225	240-270	140-160	170-200	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	1.5 x D	.020 x D	200-225	240-270	140-160	170-200	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
Nickel Base >32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Titanium	Commercially Pure, 6Al-4V ASTM 1/2/3, 6Al-2SN-4Zr-2Mo-Si Ti-8Al-1Mo, Ti-8Al-4Mo	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.3 x D	350-550	420-660	200-385	240-460	.0004-.0008	.0014-.0016	.0017-.0019	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
		Peripheral - HEM	1.5 x D	.10 x D	550-570	660-690	385-400	460-480	.0008-.0016	.0018-.0032	.0024-.0038	.0032-.0056	.0038-.0062	.0048-.0074	.0058-.0082
		Finish	1.5 x D	.020 x D	550-570	660-690	385-400	460-480	.0004-.0008	.0009-.0016	.0012-.0019	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown. Speeds and Feeds listed are estimated and will vary by application.

5-Flute, Standard, Neck Relief, Ball End & Chip Control, 40 Degree Helix, Extra High Performance Endmills



- RedLine XHP Variable 5-Flute tools offer optimum metal removal rates. By controlling the vibration and chatter through a unique dampening geometry, and through the application of our advanced heat resistant coating over a fine micro-grain carbide substrate, our tools can handle faster speeds and feeds with excellent tool life in even the most difficult to machine materials like Stainless and Titanium.
- These tools can be optimized by using High Efficiency Machining technology.
- Used to Ramp, Plunge, Slot, Rough and Finish Profiles and can be found on pages 62-78.

XHP Variable Index 5-Flute Tools Speeds & Feeds (Cont'd)

Material	Grades	Cut	Axial	Radial	Stub/ Reg SFM AlCrNX	Long/ X-Long SFM AlCrNX	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
P - Steels													
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	Slotting	.5 x D	1 x D	275	220	.0004-.0005	.0009-.0011	.0013-.0016	.0018-.0022	.0022-.0027	.0026-.0032	.0034-.0043
		Peripheral - Rough	1.25 x D	.3 x D	350	280	.0006-.0007	.0012-.0015	.0018-.0022	.0023-.0029	.0030-.0037	.0035-.0044	.0048-.0059
		Peripheral - HEM	2 x D	.15 x D	475	380	.0010-.0012	.0020-.0024	.0028-.0035	.0038-.0047	.0047-.0059	.0060-.0071	.0076-.0095
		Finish	2 x D	.010 x D	350	280	.0011-.0014	.0022-.0027	.0033-.0041	.0043-.0054	.0054-.0068	.0065-.0081	.0087-.0110
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	Slotting	.5 x D	1 x D	325	260	.0006-.0007	.0011-.0014	.0017-.0021	.0022-.0028	.0030-.0035	.0034-.0042	.0045-.0056
		Peripheral - Rough	1.25 x D	.3 x D	400	320	.0008-.0010	.0015-.0019	.0023-.0029	.0030-.0038	.0038-.0048	.0046-.0057	.0060-.0076
		Peripheral - HEM	2 x D	.15 x D	525	420	.0012-.0015	.0025-.0031	.0037-.0046	.0049-.0061	.0060-.0077	.0070-.0092	.0100-.0123
		Finish	2 x D	.010 x D	400	320	.0014-.0018	.0030-.0035	.0040-.0053	.0056-.0070	.0070-.0088	.0080-.0106	.0110-.0141
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	Slotting	.5 x D	1 x D	300	240	.0005-.0006	.0010-.0013	.0015-.0019	.0020-.0026	.0026-.0032	.0030-.0038	.0040-.0050
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0007-.0009	.0014-.0017	.0020-.0026	.0028-.0035	.0035-.0044	.0040-.0052	.0056-.0070
		Peripheral - HEM	2 x D	.15 x D	500	400	.0010-.0014	.0020-.0028	.0034-.0042	.0045-.0056	.0056-.0070	.0070-.0084	.0090-.0110
		Finish	2 x D	.010 x D	375	300	.0013-.0016	.0026-.0032	.0038-.0048	.0050-.0064	.0064-.0080	.0077-.0096	.0100-.0129
M - Stainless Steels													
Austenitic	301-304L, 310, 316L, 321, 347	Slotting	.5 x D	1 x D	275	220	.0008-.0010	.0010-.0012	.0014-.0018	.0020-.0024	.0024-.0030	.0030-.0036	.0038-.0048
		Peripheral - Rough	1.25 x D	.3 x D	350	280	.0001-.0012	.0013-.0016	.0020-.0025	.0026-.0033	.0033-.0041	.0039-.0049	.0050-.0065
		Peripheral - HEM	2 x D	.10 x D	475	380	.0012-.0015	.0025-.0031	.0038-.0047	.0050-.0063	.0062-.0078	.0075-.0094	.0100-.0125
		Finish	2 x D	.010 x D	350	280	.0016-.0020	.0024-.0030	.0036-.0045	.0048-.0060	.0060-.0075	.0070-.009	.0100-.0121
Martensitic	403, 410, 416, 420, 430, 431, 440	Slotting	.5 x D	1 x D	300	240	.0048-.0006	.0010-.0013	.0015-.0019	.0020-.0026	.0026-.0032	.0030-.0038	.0040-.0050
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0007-.0009	.0014-.0017	.0020-.0026	.0028-.0035	.0035-.0044	.0040-.0052	.0056-.0070
		Peripheral - HEM	2 x D	.15 x D	500	400	.0011-.0014	.0022-.0028	.0034-.0042	.0045-.0056	.0060-.0070	.0067-.0084	.0090-.0112
		Finish	2 x D	.010 x D	375	300	.0013-.0016	.0026-.0032	.0038-.0048	.0050-.0064	.0064-.0080	.0077-.0096	.0100-.0129
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	Slotting	.5 x D	1 x D	250	200	.0004-.0005	.0008-.0010	.0012-.0015	.0016-.0020	.0020-.0025	.0024-.0030	.0030-.0040
		Peripheral - Rough	1.25 x D	.3 x D	325	260	.0006-.0007	.0011-.0014	.0016-.0020	.0020-.0027	.0030-.0034	.0033-.0041	.0044-.0055
		Peripheral - HEM	1.5 x D	.10 x D	450	360	.0010-.0013	.0020-.0026	.0030-.0040	.0042-.0052	.0050-.0065	.0060-.0078	.0080-.0104
		Finish	1.5 x D	.010 x D	325	260	.0010-.0013	.0020-.0025	.0030-.0038	.0040-.00500	.0050-.0063	.0060-.0075	.0080-.0100
K - Cast Irons													
Ductile	A536, J434, 60-40-18	Slotting	1 x D	1 x D	300	240	.0005-.0006	.0010-.0012	.0014-.0018	.0019-.0024	.0024-.003	.0029-.0036	.0038-.0048
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0006-.0008	.0013-.0016	.0020-.0025	.0026-.0033	.0033-.0041	.0040-.0049	.0050-.0065
		Peripheral - HEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	375	300	.0012-.0015	.0024-.0030	.0036-.0045	.0048-.0060	.0060-.0075	.0072-.0090	.0100-.0121
Gray	A48, A436, A319, Class 20, G4000	Slotting	.5 x D	1 x D	300	240	.0005-.0006	.0010-.0012	.0014-.0018	.0019-.0024	.0024-.0030	.0029-.0036	.0038-.0048
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0006-.0008	.0013-.0016	.0020-.0025	.0026-.0033	.0033-.0041	.0040-.0049	.0050-.0065
		Peripheral - HEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	375	300	.0012-.0015	.0024-.0030	.0036-.0045	.0048-.0060	.0060-.0075	.0072-.0090	.0100-.0121
Malleable	A220, A602, J158	Slotting	.5 x D	1 x D	275	220	.0004-.0005	.0008-.0010	.0012-.0015	.0016-.0020	.0020-.0025	.0024-.0030	.0032-.0040
		Peripheral - Rough	1.25 x D	.3 x D	350	280	.0006-.0007	.0011-.0014	.0016-.0020	.0022-.0027	.0027-.0034	.0033-.0041	.0044-.0055
		Peripheral - HEM	2 x D	.15 x D	475	380	.0009-.0011	.0018-.0022	.0026-.0033	.0035-.0044	.0044-.0055	.0053-.0066	.0070-.0088
		Finish	2 x D	.01 x D	350	280	.0010-.0013	.0020-.0025	.0030-.0038	.0040-.0050	.0050-.0063	.0060-.0075	.0080-.0101

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown.
NOTE: Speeds and Feeds listed are estimated and will vary by application.

XHP Variable Index 5-Flute Tools Speeds & Feeds

Material	Grades	Cut	Axial	Radial	Stub/ Reg SFM AlCrNX	Long/ X-Long SFM AlCrNX	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
N - Non-Ferrous													
Brass/ Bronze	Aluminum Bronze, Low Silicon Bronze	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Composites	Fiberglass, Graphite, Graphite Epoxy	Slotting	.5 x D	1 x D	450	365	.0007	.0014	.0021	.0028	.0035	.0042	.0056
		Peripheral - Rough	1 x D	.5 x D	475	385	.0008	.0016	.0024	.0032	.0040	.0048	.0064
		Peripheral - HEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	1.5 x D	.01 x D	500	400	.0009	.0018	.0026	.0035	.0044	.0053	.0070
Copper		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Magnesium		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S - High Temp Alloys													
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	Slotting	.25 x D	1 x D	70	56	.0001-.0002	.0004-.0005	.0006-.0007	.0008-.0010	.0010-.0012	.0012-.0015	.0016-.0020
		Peripheral - Rough	1.25 x D	.2 x D	80	64	.0003-.0004	.0006-.0008	.0010-.0012	.0013-.0016	.0016-.0020	.0020-.0024	.0026-.0032
		Peripheral - HEM	1.5 x D	.05 x D	90	72	.0015 -.0020	.0035 -.0040	.0055-.0060	.0075-.0080	.0095-.0100	.0110-.0120	.0150-.0160
		Finish	1.5 x D	.015 x D	100	80	.0002-.0003	.0006-.0007	.0009-.0011	.0012-.0015	.0017-.0021	.0022-.0028	.0022-.0028
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	Slotting	.25 x D	1 x D	70	56	.0001-.0002	.0004-.0005	.0006-.0007	.0008-.0010	.0010-.0012	.0012-.0015	.0016-.0020
		Peripheral - Rough	1 x D	.2 x D	80	64	.0032-.0004	.0064-.0008	.0010-.0012	.0013-.0016	.0016-.0020	.0020-.0024	.0026-.0032
		Peripheral - HEM	1.5 x D	.05 x D	90	72	.0020	.0040	.0060	.0080	.0100	.0120	.0160
		Finish	1.5 x D	.015 x D	100	80	.0002-.0003	.0006-.0007	.0009-.0011	.0012-.0015	.0017-.0021	.0022-.0028	.0022-.0028
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	Slotting	.25 x D	1 x D	70	56	.0001-.0002	.0004-.0005	.0006-.0007	.0008-.0010	.0010-.0012	.0012-.0015	.0016-.0020
		Peripheral - Rough	1 x D	.2 x D	80	64	.0003-.0004	.0006-.0008	.0010-.0012	.0013-.0016	.0016-.0020	.0020-.0024	.0026-.0032
		Peripheral - HEM	1.5 x D	.05 x D	90	72	.0015-.0020	.0035 -.0040	.0055-.0066	.0075-.0080	.0095-.0100	.0011-.0012	.0150-.0160
		Finish	1.5 x D	.015 x D	100	80	.0002-.0003	.0006-.0007	.0009-.0011	.0012-.0015	.0017-.0021	.0022-.0028	.0022-.0028
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	Slotting	.5 x D	1 x D	250	200	.0004-.0005	.0007-.0009	.0011-.0014	.0014-.0018	.0018-.0023	.0022-.0037	.0030-.0037
		Peripheral - Rough	1 x D	.3 x D	300	240	.0005-.0006	.0010-.0013	.0015-.0019	.0020-.0025	.0025-.0031	.0030-.0038	.0040-.0050
		Peripheral - HEM	1.5 x D	.10 x D	425	340	.0010-.0012	.0020-.0024	.0029-.0036	.0038-.0048	.0048-.0060	.0058-.0072	.0077-.0096
		Finish	1.5 x D	.010 x D	300	240	.0010-.0012	.0018-.0023	.0028-.0035	.0037-.0046	.0046-.0058	.0055-.0069	.0074-.0092

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown.
NOTE: Speeds and Feeds listed are estimated and will vary by application.

XHP Tolerances Technical Information

XHP Endmills Tolerances (Inch)	
Size	**Shank (H6)**
.0000-.1181	+0/-.00024
.1182-.2362	+0/-.00031
.2363-.3937	+0/-.00035
.3938-.7087	+0/-.00043
.7088-1.1810	+0/-.00051
1.182-1.9680	+0/-.00063

XHP Endmills Tolerances (mm)	
Size	**Shank (H6)**
0-3.00	+0/-.006
3.01-6.00	+0/-.008
6.01-10.00	+0/-.009
10.01-18.00	+0/-.011
18.01-30.00	+0/-.013
30.01-50.00	+0/-.016

5 & 6-Flute, Finishing Endmills, Standard, Neck Relief & Chip Control, 45 Degree Helix, Extra High Performance Endmills



- RedLine 6-flute Finishers are the 1st choice for milling a wide variety of difficult to machine alloys. Our high performance AlTiNX coating allows you to run our tools wet or dry in many materials with excellent tool life.
- These Extra High Performance tools can be found on pages 81-83.

Note: For added tool life apply tools with a corner radius. Do not use tools with Weldon Flats in milling chucks or collet chucks for high speed applications.

6-Flute Finishers Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	SFM	Feed by Endmill Diameter (IPT) 1/8 (.1250)	3/16 (.1875)	1/4 (.2500)	5/16 (.3125)	3/8 (.3750)	1/2 (.5000)	5/8 (.6025)	3/4 (.7500)	1 (1.000)
P - Steels														
High Strength Tool Steel	Hardness < 36 HRC A2, D2, P20, H11, H13, S2, 01	Rough	1 x D	.1 x D	600	.0010	.0013	.0020	.0025	.0030	.0040	.0050	.0060	.0080
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
	Hardness 36 - 42 HRC A2, D2, P20, H11, H13, S2, 01	Rough	1 x D	.1 x D	600	.0010	.0013	.0020	.0025	.0030	.0040	.0050	.0060	.0080
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
	Hardness 43 - 50 HRC A2, D2, P20, H11, H13, S2, 01	Rough	1 x D	.08 x D	500	.0006	.0009	.0012	.0014	.0017	.0023	.0029	.0034	.0046
		Finish	2 x D	.015 X D	400	.0003	.0005	.0007	.0007	.0010	.0014	.0018	.0020	.0023
	Hardness 51 - 63 HRC A2, D2, S2, 01	Rough	1 x D	.08 x D	350	.0004	.0007	.0010	.0013	.0015	.0020	.0025	.0030	.0040
		Finish	2 x D	.015 X D	300	.0003	.0004	.0005	.0006	.0007	.0010	.0013	.0015	.0020
M - Stainless Steels														
Austenitic	301-304L, 310, 316L, 321, 347	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Martensitic	403, 410, 416, 420, 430, 431, 440	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 x D	400	.0003	.0005	.0007	.0007	.0010	.0014	.0018	.0020	.0023
K - Cast Irons														
Ductile	A536, J434, 60-40-18	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Gray	A48, A436, A319, Class 20, G4000	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Malleable	A220, A602, J158	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 X D	300	.0003	.0004	.0005	.0006	.0007	.0010	.0013	.0015	.0020
N - Non-Ferrous														
Brass/Bronze	Aluminum Bronze Low Silicon Bronze	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Copper		Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Magnesium		Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
S - High Temp Alloys														
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 X D	300	.0003	.0004	.0005	.0006	.0007	.0010	.0013	.0015	.0020
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 X D	300	.0003	.0004	.0005	.0006	.0007	.0010	.0013	.0015	.0020
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 X D	300	.0003	.0004	.0005	.0006	.0007	.0010	.0013	.0015	.0020
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 x D	400	.0003	.0005	.0007	.0007	.0010	.0014	.0018	.0020	.0023

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown.
NOTE: Speeds and Feeds listed are estimated and will vary by application.

6-Flute, Extra High Performance, Finisher Endmills for Inconel, Corner Radius & Neck Relief, 45 Degree Helix



- RedLine 6-flute Finishers are your first choice for finishing inconel.
- These Extra High Performance tools can be found on pages 79-80.

Note: For added tool life apply tools with a corner radius.
Do not use tools with Weldon Flats in milling chucks or collet chucks for high speed applications.

6-Flute Finishers for Inconel Speeds & Feeds

Material	Grades	Diameter	Cut Type	Axial DOC	Radial DOC	SFM AlCrNX	RPM
S - High Temp Alloys							
Nickel Base	Inconel 625/718, Inco 700, 713C, 718	1/4	Rough	.300	.050	80	1222
			Slot	.165	.250	80	1222
		5/16	Rough	.390	.062	80	978
			Slot	.205	.313	80	978
		3/8	Rough	.470	.075	80	815
			Slot	.250	.375	80	815
		1/2	Rough	.625	.100	80	611
			Slot	.330	.500	80	611
		5/8	Rough	.780	.125	80	489
			Slot	.415	.625	80	489
		3/4	Rough	.935	.150	80	407
			Slot	.500	.750	80	407
		1	Rough	1.250	.200	80	306
			Slot	.665	1.000	80	306

NOTE: Speeds and Feeds listed are estimated and will vary by application.



7-Flute, High Performance, Finisher Endmills, Square & Corner Radius, 45 Degree Helix.

- RedLine 7-flute Finishers are designed for increased feeds for finer finishes. For added tool life apply tools with a corner radius.
- These Extra High Performance tools can be found on pages 84-85.

7-Flute Finishers Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	Stub/Reg SFM AlTiN/AlCrNX	Long/X-Long SFM AlTiN/AlCrNX	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
P - Steels													
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	Slotting	.5 x D	1 x D	275	220	.0004	.0008	.0012	.0015	.0019	.0023	.0031
		Peripheral - Rough	1.25 x D	.3 x D	350	280	.0005	.0011	.0016	.0021	.0026	.0032	.0042
		Peripheral - HEM	3 x D	.05 x D	390	312	.0018	.0037	.0055	.0074	.0092	.0110	.0147
		Finish	2 x D	.015 x D	350	280	.0005	.0011	.0016	.0021	.0026	.0032	.0042
High Strength Tool Steel > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	Slotting	.5 x D	1 x D	325	260	.0005	.0010	.0015	.0020	.0025	.0030	.0040
		Peripheral - Rough	1.25 x D	.3 x D	400	320	.0007	.0014	.0020	.0027	.0034	.0041	.0055
		Peripheral - HEM	3 x D	.05 x D	450	360	.0022	.0044	.0066	.0088	.0109	.0131	.0175
		Finish	2 x D	.015 x D	400	320	.0007	.0014	.0021	.0028	.0035	.0042	.0056
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	Slotting	.5 x D	1 x D	300	240	.0005	.0009	.0014	.0018	.0023	.0027	.0037
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0006	.0012	.0019	.0025	.0031	.0037	.0050
		Peripheral - HEM	3 x D	.05 x D	415	332	.0021	.0043	.0064	.0085	.0107	.0129	.0170
		Finish	2 x D	.015 x D	375	300	.0006	.0013	.0019	.0025	.0032	.0038	.0051
M - Stainless Steels													
Austenitic	301-304L, 310, 316L, 321, 347	Slotting	.5 x D	1 x D	275	220	.0004	.0009	.0013	.0017	.0021	.0026	.0034
		Peripheral - Rough	1.25 x D	.3 x D	350	280	.0006	.0012	.0018	.0023	.0029	.0035	.0047
		Peripheral - HEM	3 x D	.05 x D	390	312	.0021	.0042	.0063	.0083	.0104	.0125	.0167
		Finish	2 x D	.015 x D	350	280	.0006	.0012	.0018	.0024	.0030	.0036	.0048
Austenitic > 32 HRC	Reduce SFM by 20%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Martensitic	403, 410, 416, 420, 430, 431, 440	Slotting	.5 x D	1 x D	300	240	.0005	.0009	.0014	.0018	.0023	.0027	.0037
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0006	.0012	.0019	.0025	.0031	.0037	.0050
		Peripheral - HEM	3 x D	.15 x D	415	332	.0021	.0043	.0064	.0086	.0107	.0129	.0172
		Finish	2 x D	.015 x D	375	300	.0006	.0013	.0019	.0025	.0032	.0038	.0051
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	Slotting	.5 x D	1 x D	250	200	.0004	.0007	.0011	.0014	.0018	.0021	.0029
		Peripheral - Rough	1.25 x D	.3 x D	325	260	.0005	.0010	.0015	.0019	.0024	.0029	.0039
		Peripheral - HEM	3 x D	.05 x D	360	288	.0017	.0033	.0050	.0067	.0083	.0100	.0133
		Finish	1.5 x D	.015 x D	325	260	.0005	.0010	.0015	.0020	.0025	.0030	.0040
Precipitation Hardening > 32 HRC	Reduce SFM by 20%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
K - Cast Irons													
Ductile	A536, J434, 60-40-18	Slotting	1 x D	1 x D	325	260	.0005	.0010	.0015	.0020	.0025	.0030	.0040
		Peripheral - Rough	1.25 x D	.5 x D	400	320	.0007	.0014	.0020	.0027	.0034	.0041	.0055
		Peripheral - HEM	2 x D	.15 x D	450	360	.0022	.0044	.0066	.0088	.0109	.0131	.0175
		Finish	1.5 x D	.015 x D	400	320	.0007	.0014	.0021	.0028	.0035	.0042	.0056
Gray	A48, A436, A319, Class 20, G4000	Slotting	.5 x D	1 x D	300	240	.0004	.0009	.0013	.0018	.0022	.0027	.0035
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0005	.0010	.0015	.0019	.0024	.0029	.0039
		Peripheral - HEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 x D	450	360	.0006	.0012	.0018	.0024	.0030	.0036	.0048
Malleable	A220, A602, J158	Slotting	.75 x D	1 x D	275	220	.0004	.0007	.0011	.0014	.0018	.0021	.0029
		Peripheral - Rough	1.25 x D	.3 x D	350	280	.0005	.0010	.0015	.0019	.0024	.0029	.0039
		Peripheral - HEM	2 x D	.15 x D	390	312	.0014	.0028	.0043	.0057	.0071	.0085	.0114
		Finish	1.5 x D	.015 x D	350	280	.0005	.0010	.0015	.0020	.0025	.0030	.0040
N - Non-Ferrous													
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.2 X D	250	200	.0003	.0006	.0009	.0012	.0015	.0021	.0024
		Peripheral - HEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	250	200	.0003	.0005	.0008	.0010	.0013	.0018	.0020
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	Slotting	.5 x D	1 x D	325	260	.0005	.0010	.0015	.0020	.0025	.0030	.0040
		Peripheral - Rough	1.25 x D	.3 x D	400	320	.0007	.0014	.0020	.0027	.0034	.0041	.0055
		Peripheral - HEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 x D	400	320	.0007	.0014	.0021	.0028	.0035	.0042	.0056
Copper		Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.2 X D	250	200	.0003	.0006	.0009	.0012	.0015	.0021	.0024
		Peripheral - HEM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	250	200	.0003	.0005	.0008	.0010	.0013	.0018	.0020
Magnesium		Slotting	.5 x D	1 x D	300	240	.0005	.0009	.0014	.0018	.0023	.0027	.0037
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0006	.0012	.0019	.0025	.0031	.0037	.0050
		Peripheral - HEM	3 x D	.05 x D	415	332	.0021	.0043	.0064	.0085	.0107	.0129	.0170
		Finish	2 x D	.015 x D	375	300	.0006	.0013	.0019	.0025	.0032	.0038	.0051
S - High Temp Alloys													
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	Slotting	.25 x D	1 x D	70	60	.0002	.0004	.0006	.0008	.0010	.0014	.0016
		Peripheral - Rough	1 x D	.15 x D	80	65	.0003	.0005	.0008	.0010	.0013	.0018	.0020
		Peripheral - HEM	1.25 x D	.05 x D	90	75	.0010	.0021	.0031	.0041	.0051	.0072	.0082
		Finish	1.5 x D	.010 x D	85	70	.0002	.0004	.0006	.0008	.0010	.0014	.0016
Cobalt Base > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	Slotting	.25 x D	1 x D	60	50	.0002	.0004	.0006	.0008	.0010	.0014	.0016
		Peripheral - Rough	1 x D	.15 x D	65	55	.0003	.0005	.0008	.0010	.0013	.0018	.0020
		Peripheral - HEM	1.25 x D	.05 x D	75	60	.0010	.0021	.0031	.0041	.0051	.0072	.0082
		Finish	1.5 x D	.010 x D	70	55	.0002	.0004	.0006	.0008	.0010	.0014	.0016
Iron Base > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	Slotting	.25 x D	1 x D	70	60	.0002	.0004	.0006	.0008	.0011	.0015	.0017
		Peripheral - Rough	1 x D	.15 x D	80	65	.0003	.0006	.0009	.0012	.0014	.0020	.0023
		Peripheral - HEM	1.25 x D	.05 x D	90	75	.0012	.0023	.0035	.0046	.0058	.0081	.0092
		Finish	1.5 x D	.010 x D	85	70	.0003	.0005	.0008	.0010	.0013	.0018	.0020
Nickel Base >32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	Slotting	.5 x D	1 x D	200	160	.0003	.0007	.0010	.0013	.0016	.0020	.0026
		Peripheral - Rough	1 x D	.3 x D	250	200	.0004	.0009	.0013	.0018	.0022	.0027	.0036
		Peripheral - HEM	3 x D	.05 x D	275	220	.0016	.0032	.0047	.0063	.0079	.0095	.0126
		Finish	1.5 x D	.015 x D	250	200	.0005	.0009	.0014	.0018	.0023	.0027	.0036

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown. Speeds and Feeds listed are estimated and will vary by application.



7-Flute, Extra High Performance, Finisher Endmills, Square, Corner Radius & Chip Control, 40 Degree Helix

- More Flutes in the cut means greater production. For added tool life select tools with a Corner Radius
- Use with High Efficiency Machining Technology for best results. See pages 208-212.
- These Extra High Performance tools can be found on pages 86-90.

7-Flute Finishers Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	# of Flutes	SFM	Feed by Endmill Diameter (IPT) 3/16 (.1875)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
Low Carbon Steels <= 38 Rc	1018, 1020, 12L14, 5120, 8620	Peripheral - HEM	<=3 x D	.08 x D	7	485	.0028	.0038	.0056	.0075	.0094	.0113	.0150
			>3xD-4xD	.08 x D	7	485	.0025	.0034	.0051	.0068	.0084	.0101	.0135
			>4xD-5xD	.08 x D	7	465	.0023	.0030	.0045	.0060	.0075	.0090	.0120
		Finish	3 x D	.015 x D	7	420	.0011	.0014	.0021	.0028	.0035	.0042	.0056
Medium Carbon Steels <= 48 HRC	1045, 4140, 4340, 5140	Peripheral - HEM	<=3 x D	.08 x D	7	450	.0027	.0036	.0053	.0071	.0089	.0107	.0142
			>3xD-4xD	.08 x D	7	450	.0024	.0032	.0048	.0064	.0080	.0096	.0128
			>4xD-5xD	.08 x D	7	425	.0021	.0028	.0043	.0057	.0071	.0085	.0114
		Finish	3 x D	.015 x D	7	390	.0009	.0013	.0019	.0025	.0031	.0038	.0050
Tool and Die Steels <= 48 Rc	A2, D2, 01, S7, P20, H13	Peripheral - HEM	<=3 x D	.08 x D	7	420	.0024	.0032	.0048	.0064	.0080	.0096	.0128
			>3xD-4xD	.08 x D	7	420	.0022	.0029	.0043	.0058	.0072	.0086	.0115
			>4xD-5xD	.08 x D	7	395	.0019	.0026	.0038	.0051	.0064	.0077	.0102
		Finish	3 x D	.015 x D	7	365	.0008	.0011	.0016	.0021	.0026	.0032	.0042
M - Stainless Steels													
Austenitic Stainless Steels, FeNi Alloys	303, 304, 316, Invar, Kovar	Peripheral - HEM	<=3 x D	.08 x D	7	450	.0024	.0032	.0048	.0064	.0080	.0096	.0128
			>3xD-4xD	.08 x D	7	440	.0022	.0029	.0043	.0058	.0072	.0086	.0115
			>4xD-5xD	.07 x D	7	425	.0019	.0026	.0038	.0051	.0064	.0077	.0102
		Finish	3 x D	.015 x D	7	390	.0009	.0012	.0018	.0024	.0030	.0036	.0048
Martensitic & Ferritic Stainless Steels	410, 416, 440	Peripheral - HEM	<=3 x D	.08 x D	7	450	.0028	.0038	.0056	.0075	.0094	.0113	.0150
			>3xD-4xD	.08 x D	7	450	.0025	.0034	.0051	.0068	.0084	.0101	.0135
			>4xD-5xD	.08 x D	7	425	.0023	.0030	.0045	.0060	.0075	.0090	.0120
		Finish	3 x D	.015 x D	7	390	.0009	.0013	.0019	.0025	.0031	.0038	.0050
Precipitation Hardening	17-4, 15-5, 13-8	Peripheral - HEM	<=3 x D	.08 x D	7	440	.0023	.0031	.0047	.0062	.0078	.0093	.0124
			>3xD-4xD	.08 x D	7	440	.0021	.0028	.0042	.0056	.0070	.0084	.0112
			>4xD-5xD	.07 x D	7	415	.0019	.0025	.0037	.0050	.0062	.0074	.0099
		Finish	3 x D	.015 x D	7	380	.0008	.0010	.0015	.0020	.0025	.0030	.0040
K - Cast Irons													
Gray	ASTM-A48 Class 20, 25, 30, 35 & 40	Peripheral - HEM	<=3 x D	.1 x D	7	400	.0027	.0036	.0054	.0072	.0090	.0108	.0144
			>3xD-4xD	.08 x D	7	400	.0024	.0032	.0049	.0065	.0081	.0097	.0130
			>4xD-5xD	.08 x D	7	390	.0022	.0029	.0043	.0058	.0072	.0086	.0115
		Finish	3 x D	.015 x D	7	450	.0010	.0013	.0020	.0026	.0033	.0039	.0052
Cast Iron	Malleable	Peripheral - HEM	<=3 x D	.08 x D	7	390	.0022	.0029	.0044	.0058	.0073	.0087	.0116
			>3xD-4xD	.08 x D	7	390	.0020	.0026	.0039	.0052	.0065	.0078	.0104
			>4xD-5xD	.08 x D	7	375	.0017	.0023	.0035	.0046	.0058	.0070	.0093
		Finish	3 x D	.015 x D	7	350	.0008	.0011	.0016	.0021	.0026	.0032	.0042
S - High Temp Alloys													
Titanium Alloys	6Al-4V, 6-2-4	Peripheral - HEM	<=3 x D	.1 x D	7	405	.0015	.0021	.0031	.0041	.0051	.0062	.0082
			>3xD-4xD	.08 x D	7	405	.0014	.0018	.0028	.0037	.0046	.0055	.0074
			>4xD-5xD	.08 x D	7	390	.0012	.0016	.0025	.0033	.0041	.0049	.0066
		Finish	3 x D	.015 x D	7	350	.0006	.0008	.0012	.0016	.0020	.0024	.0032
Difficult to Machine Titanium Alloys	10-2-3	Peripheral - HEM	<=2.5 x D	.08 x D	7	335	.0015	.0020	.0030	.0040	.0050	.0060	.0080
			>2.5xD-3.5xD	.07 x D	7	325	.0014	.0018	.0027	.0036	.0045	.0054	.0072
			>3.5xD-4xD	.06 x D	7	305	.0012	.0016	.0024	.0032	.0040	.0048	.0064
		Finish	3 x D	.01 x D	7	290	.0005	.0007	.0011	.0014	.0018	.0021	.0028
Hastalloy, Waspalloy		Peripheral - HEM	<=1.5 x D	.08 x D	7	100	.0035	.0047	.0071	.0094	.0118	.0141	.0188
			>1.5xD-2.5xD	.08 x D	7	95	.0032	.0042	.0063	.0085	.0106	.0127	.0169
			>2.5xD-3.5xD	.06 x D	7	85	.0028	.0038	.0056	.0075	.0094	.0113	.0150
		Finish	2 x D	.01 x D	7	90	.0019	.0025	.0038	.0050	.0063	.0075	.0100
Inconel 718, Rene 88		Peripheral - HEM	<=1.5 x D	.07 x D	7	95	.0035	.0047	.0070	.0093	.0116	.0140	.0186
			>1.5xD-2.5xD	.06 x D	7	90	.0031	.0042	.0063	.0084	.0105	.0126	.0167
			>2.5xD-3xD	.06 x D	7	85	.0028	.0037	.0056	.0074	.0093	.0112	.0149
		Finish	2 x D	.01 x D	7	85	.0018	.0024	.0036	.0048	.0060	.0072	.0096

D = Tool Diameter
HEM = Hight Efficiency Machining



9-Flute, Extra High Performance, Finisher Endmills, Corner Radius & Chip Control, 36 Degree Helix

- More Flutes in the cut means greater production. With an extra solid core get extra rigidity and extended tool life.
- Use with High Efficiency Machining Technology for best results. See pages 208-212.
- These Extra High Performance tools can be found on pages 91-93.

9-Flute Finishers Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	# of Flutes	SFM	Feed by Endmill Diameter (IPT) 1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)
Low Carbon Steels <= 38 Rc	1018, 1020, 12L14, 5120, 8620	Peripheral - HEM	<=3 x D	.08 x D	9	485	.0038	.0056	.0075	.0094	.0113	.0150
			>3xD-4xD	.08 x D	9	485	.0034	.0051	.0068	.0084	.0101	.0135
			>4xD-5xD	.08 x D	9	465	.0030	.0045	.0060	.0075	.0090	.0120
		Finish	3 x D	.015 x D	9	420	.0014	.0021	.0028	.0035	.0042	.0056
Medium Carbon Steels <= 48 HRC	1045, 4140, 4340, 5140	Peripheral - HEM	<=3 x D	.08 x D	9	450	.0036	.0053	.0071	.0089	.0107	.0142
			>3xD-4xD	.08 x D	9	450	.0032	.0048	.0064	.0080	.0096	.0128
			>4xD-5xD	.08 x D	9	425	.0028	.0043	.0057	.0071	.0085	.0114
		Finish	3 x D	.015 x D	9	390	.0013	.0019	.0025	.0031	.0038	.0050
Tool and Die Steels <= 48 Rc	A2, D2, O1, S7, P20, H13	Peripheral - HEM	<=3 x D	.08 x D	9	420	.0032	.0048	.0064	.0080	.0096	.0128
			>3xD-4xD	.08 x D	9	420	.0029	.0043	.0058	.0072	.0086	.0115
			>4xD-5xD	.08 x D	9	395	.0026	.0038	.0051	.0064	.0077	.0102
		Finish	3 x D	.015 x D	9	365	.0011	.0016	.0021	.0026	.0032	.0042
M - Stainless Steels												
Austenitic Stainless Steels, FeNi Alloys	303, 304, 316, Invar, Kovar	Peripheral - HEM	<=3 x D	.08 x D	9	450	.0032	.0048	.0064	.0080	.0096	.0128
			>3xD-4xD	.08 x D	9	440	.0029	.0043	.0058	.0072	.0086	.0115
			>4xD-5xD	.07 x D	9	425	.0026	.0038	.0051	.0064	.0077	.0102
		Finish	3 x D	.015 x D	9	390	.0012	.0018	.0024	.0030	.0036	.0048
Martensitic & Ferritic Stainless Steels	410, 416, 440	Peripheral - HEM	<=3 x D	.08 x D	9	450	.0038	.0056	.0075	.0094	.0113	.0150
			>3xD-4xD	.08 x D	9	450	.0034	.0051	.0068	.0084	.0101	.0135
			>4xD-5xD	.08 x D	9	425	.0030	.0045	.0060	.0075	.0090	.0120
		Finish	3 x D	.015 x D	9	390	.0013	.0019	.0025	.0031	.0038	.0050
Precipitation Hardening Stainless Steels	17-4, 15-5, 13-8	Peripheral - HEM	<=3 x D	.08 x D	9	440	.0031	.0047	.0062	.0078	.0093	.0124
			>3xD-4xD	.08 x D	9	440	.0028	.0042	.0056	.0070	.0084	.0112
			>4xD-5xD	.07 x D	9	415	.0025	.0037	.0050	.0062	.0074	.0099
		Finish	3 x D	.015 x D	9	380	.0010	.0015	.0020	.0025	.0030	.0040
K - Cast Irons												
Gray	ASTM-A48 Class 20, 25, 30, 35 & 40	Peripheral - HEM	<=3 x D	.1 x D	9	400	.0036	.0054	.0072	.0090	.0108	.0144
			>3xD-4xD	.08 x D	9	400	.0032	.0049	.0065	.0081	.0097	.0130
			>4xD-5xD	.08 x D	9	390	.0029	.0043	.0058	.0072	.0086	.0115
		Finish	3 x D	.015 x D	9	450	.0013	.0020	.0026	.0033	.0039	.0052
Cast Iron	Malleable	Peripheral - HEM	<=3 x D	.08 x D	9	390	.0029	.0044	.0058	.0073	.0087	.0116
			>3xD-4xD	.08 x D	9	390	.0026	.0039	.0052	.0065	.0078	.0104
			>4xD-5xD	.08 x D	9	375	.0023	.0035	.0046	.0058	.0070	.0093
		Finish	3 x D	.015 x D	9	350	.0011	.0016	.0021	.0026	.0032	.0042
S - High Temp Alloys												
Titanium Alloys	6Al-4V, 6-2-4	Peripheral - HEM	<=3 x D	.1 x D	9	405	.0021	.0031	.0041	.0051	.0062	.0082
			>3xD-4xD	.08 x D	9	405	.0018	.0028	.0037	.0046	.0055	.0074
			>4xD-5xD	.08 x D	9	390	.0016	.0025	.0033	.0041	.0049	.0066
		Finish	3 x D	.015 x D	9	350	.0008	.0012	.0016	.0020	.0024	.0032
Difficult to machine titanium alloys	10-2-3	Peripheral - HEM	<=2.5 x D	.08 x D	9	335	.0020	.0030	.0040	.0050	.0060	.0080
			>2.5xD-3.5xD	.07 x D	9	325	.0018	.0027	.0036	.0045	.0054	.0072
			>3.5xD-4xD	.06 x D	9	305	.0016	.0024	.0032	.0040	.0048	.0064
		Finish	3 x D	.01 x D	9	290	.0007	.0011	.0014	.0018	.0021	.0028
Hastalloy, Waspalloy		Peripheral - HEM	<=1.5 x D	.08 x D	9	100	.0045	.0068	.0090	.0113	.0135	.0180
			>1.5xD-2.5xD	.08 x D	9	95	.0041	.0061	.0081	.0101	.0122	.0162
			>2.5xD-3.5xD	.06 x D	9	85	.0036	.0054	.0072	.0090	.0108	.0144
		Finish	2 x D	.01 x D	9	90	.0024	.0036	.0048	.0060	.0072	.0096
Inconel 718, Rene 88		Peripheral - HEM	<=1.5 x D	.07 x D	9	95	.0046	.0068	.0091	.0114	.0137	.0182
			>1.5xD-2.5xD	.06 x D	9	90	.0041	.0061	.0082	.0102	.0123	.0164
			>2.5xD-3xD	.06 x D	9	85	.0036	.0055	.0073	.0091	.0109	.0146
		Finish	2 x D	.01 x D	9	85	.0023	.0035	.0046	.0058	.0069	.0092

D = Tool Diameter
HEM = Hight Efficiency Machining



11-Flute, Extra High Performance, Finisher Endmills, Corner Radius & Chip Control, 34 Degree Helix

- More Flutes in the cut means greater production. With an extra solid core get extra rigidity and extended tool life.
- Use with High Efficiency Machining Technology for best results. See pages 208-212.
- These Extra High Performance tools can be found on pages 94-97.

11-Flute Finishers Speeds & Feeds

Material	Grades	Cut	Axial	Radial	# of Flutes	SFM	Feed by Endmill Diameter (IPT) 3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)	1 1/4 (1.250)
P - Steels												
Low Carbon Steels <= 38 Rc	1018, 1020, 12L14, 5120, 8620	Peripheral - HEM	<2 x D	.07 x D	11	550	.0041	.0055	.0069	.0083	.0110	.0138
			2.5xD	.07 x D	11	530	.0036	.0048	.0060	.0072	.0096	.0120
			3xD	.07 x D	11	515	.0032	.0042	.0053	.0063	.0084	.0105
			3.5xD	.07 x D	11	505	.0027	.0036	.0045	.0054	.0072	.0090
		Finish	3 x D	.01 x D	11	475	.0015	.0020	.0025	.0030	.0040	.0050
Medium Carbon Steels <= 48 HRC	1045, 4140, 4340, 5140	Peripheral - HEM	<2 x D	.07 x D	11	530	.0041	.0054	.0068	.0081	.0108	.0135
			2.5xD	.07 x D	11	515	.0035	.0047	.0059	.0071	.0094	.0118
			3xD	.07 x D	11	500	.0031	.0041	.0051	.0062	.0082	.0103
			3.5xD	.07 x D	11	490	.0026	.0035	.0044	.0053	.0070	.0088
		Finish	3 x D	.01 x D	11	455	.0014	.0019	.0024	.0029	.0038	.0048
Tool and Die Steels <= 48 Rc	A2, D2, 01, S7, P20, H13	Peripheral - HEM	<2 x D	.06 x D	11	445	.0047	.0063	.0079	.0095	.0126	.0158
			2.5xD	.06 x D	11	430	.0041	.0055	.0069	.0083	.0110	.0138
			3xD	.06 x D	11	415	.0036	.0048	.0060	.0072	.0096	.0120
			3.5xD	.06 x D	11	410	.0031	.0041	.0051	.0062	.0082	.0103
		Finish	3 x D	.01 x D	11	385	.0015	.0020	.0025	.0030	.0040	.0050
M - Stainless Steels												
Austenitic Stainless Steels, FeNi Alloys	303, 304, 316, Invar, Kovar	Peripheral - HEM	<2 x D	.06 x D	11	445	.0050	.0067	.0084	.0101	.0134	.0168
			2.5xD	.06 x D	11	430	.0044	.0059	.0074	.0089	.0118	.0148
			3xD	.06 x D	11	415	.0039	.0052	.0065	.0078	.0104	.0130
			3.5xD	.06 x D	11	410	.0032	.0043	.0054	.0065	.0086	.0108
		Finish	3 x D	.01 x D	11	385	.0019	.0025	.0031	.0038	.0050	.0063
Martensitic & Ferritic Stainless Steels	410, 416, 440	Peripheral - HEM	<2 x D	.06 x D	11	450	.0051	.0068	.0085	.0102	.0136	.0170
			2.5xD	.06 x D	11	450	.0045	.0060	.0075	.0090	.0120	.0150
			3xD	.06 x D	11	425	.0041	.0054	.0068	.0081	.0108	.0135
			3.5xD	.06 x D	11	425	.0033	.0044	.0055	.0066	.0088	.0110
		Finish	3 x D	.01 x D	11	390	.0017	.0023	.0029	.0035	.0046	.0058
Precipitation Hardening Stainless Steels	17-4, 15-5, 13-8	Peripheral - HEM	<2 x D	.06 x D	11	435	.0051	.0068	.0085	.0102	.0136	.0170
			2.5xD	.06 x D	11	420	.0045	.0060	.0075	.0090	.0120	.0150
			3xD	.06 x D	11	405	.0039	.0052	.0065	.0078	.0104	.0130
			3.5xD	.06 x D	11	400	.0032	.0043	.0054	.0065	.0086	.0108
		Finish	3 x D	.01 x D	11	375	.0017	.0022	.0028	.0033	.0044	.0055
K - Cast Irons												
Gray	ASTM-A48 Class 20, 25, 30, 35 & 40	Peripheral - HEM	<2 x D	.08 x D	11	365	.0040	.0053	.0066	.0080	.0106	.0133
			2.5xD	.07 x D	11	365	.0035	.0046	.0058	.0069	.0092	.0115
			3xD	.07 x D	11	350	.0030	.0040	.0050	.0060	.0080	.0100
			3.5xD	.065 x D	11	350	.0026	.0034	.0043	.0051	.0068	.0085
		Finish	3 x D	.01 x D	11	370	.0017	.0022	.0028	.0033	.0044	.0055
Cast Iron	Malleable	Peripheral - HEM	<2 x D	.07 x D	11	375	.0047	.0063	.0079	.0095	.0126	.0158
			2.5xD	.07 x D	11	375	.0042	.0056	.0070	.0084	.0112	.0140
			3xD	.07 x D	11	360	.0036	.0048	.0060	.0072	.0096	.0120
			3.5xD	.07 x D	11	360	.0030	.0040	.0050	.0060	.0080	.0100
		Finish	3 x D	.01 x D	11	335	.0017	.0023	.0029	.0035	.0046	.0058
S - High Temp Alloys												
Titanium Alloys	6Al-4V, 6-2-4	Peripheral - HEM	<2 x D	.06 x D	11	425	.0045	.0060	.0075	.0090	.0120	.0150
			2.5xD	.06 x D	11	415	.0032	.0043	.0054	.0065	.0086	.0108
			3xD	.06 x D	11	395	.0032	.0042	.0053	.0063	.0084	.0105
			3.5xD	.06 x D	11	395	.0029	.0039	.0049	.0059	.0078	.0098
		Finish	**3 x D**	**.015 x D**	11	370	.0017	.0023	.0029	.0035	.0046	.0058
Difficult to machine titanium alloys	10-2-3	Peripheral - HEM	<2 x D	0.06	11	350	.0044	.0059	.0074	.0089	.0118	.0148
			2.5xD	0.06	11	330	.0032	.0042	.0053	.0063	.0084	.0105
			3xD	0.055	11	315	.0031	.0041	.0051	.0062	.0082	.0103
			3.5xD	0.05	11	310	.0029	.0038	.0048	.0057	.0076	.0095
		Finish	3 x D	.01 x D	11	300	.0015	.0020	.0025	.0030	.0040	.0050
Hastalloy, Waspalloy		Peripheral - HEM	<2 x D	.07 X D	11	105	.0068	.0090	.0113	.0135	.0180	.0225
			2.5xD	.065 x D	11	100	.0061	.0081	.0101	.0122	.0162	.0203
			3xD	.055 x D	11	90	.0054	.0072	.0090	.0108	.0144	.0180
			3.5xD	.055 x D	11	90	.0049	.0065	.0081	.0097	.0130	.0162
		Finish	3 x D	.01 x D	11	90	.0035	.0047	.0059	.0071	.0094	.0118
Inconel 718, Rene 88		Peripheral - HEM	<2 x D	.065 x D	11	100	.0047	.0062	.0078	.0093	.0124	.0155
			2.5xD	.06 x D	11	95	.0045	.0060	.0075	.0090	.0120	.0150
			3xD	.05 x D	11	95	.0045	.0060	.0075	.0090	.0120	.0150
			3.5xD	.05 x D	11	95	.0039	.0052	.0065	.0078	.0104	.0130
		Finish	3 x D	.01 x D	11	90	.0024	.0032	.0040	.0048	.0064	.0080

D = Tool Diameter
HEM = Hight Efficiency Machining



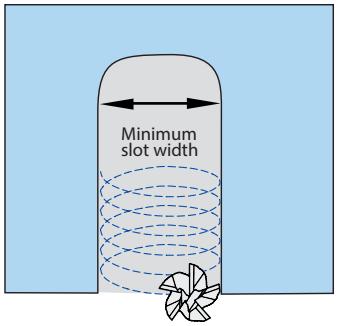
13-Flute, Extra High Performance, Finisher Endmills, Corner Radius & Chip Control, 30 Degree Helix

- More Flutes in the cut means greater production. With an extra solid core get extra rigidity and extended tool life.
- Use with High Efficiency Machining Technology for best results. See pages 208-212.
- These Extra High Performance tools can be found on pages 98-101.

13-Flute Finishers Speeds & Feeds

Material	Grades	Cut	Axial	Radial	# of Flutes	SFM	Feed by Endmill Diameter (IPT) 1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	1 (1.000)	1 1/4 (1.250)
P - Steels											
Low Carbon Steels <= 38 Rc	1018, 1020, 12L14, 5120, 8620	Peripheral - HEM	<2 x D	.07 x D	13	450	.0044	.0055	.0066	.0088	.0066
			2.5xD	.07 x D	13	430	.0039	.0049	.0059	.0078	.0059
			3xD	.07 x D	13	420	.0036	.0045	.0054	.0072	.0054
			3.5xD	.07 x D	13	410	.0034	.0043	.0051	.0068	.0051
		Finish	3 x D	.01 x D	13	395	.0017	.0021	.0026	.0034	.0026
Medium Carbon Steels <= 48 HRC	1045, 4140, 4340, 5140	Peripheral - HEM	<2 x D	.06 x D	13	405	.0044	.0055	.0066	.0088	.0066
			2.5xD	.06 x D	13	405	.0041	.0051	.0062	.0082	.0062
			3xD	.05 x D	13	405	.0039	.0049	.0059	.0078	.0059
			3.5xD	.05 x D	13	405	.0036	.0045	.0054	.0072	.0054
		Finish	3 x D	.01 x D	13	370	.0017	.0021	.0026	.0034	.0026
Tool and Die Steels <= 48 Rc	A2, D2, 01, S7, P20, H13	Peripheral - HEM	<2 x D	.06 x D	13	420	.0045	.0056	.0068	.0090	.0068
			2.5xD	.06 x D	13	420	.0040	.0050	.0060	.0080	.0060
			3xD	.05 x D	13	415	.0037	.0046	.0056	.0074	.0056
			3.5xD	.05 x D	13	415	.0035	.0044	.0053	.0070	.0053
		Finish	3 x D	.01 x D	13	385	.0015	.0019	.0023	.0030	.0023
M - Stainless Steels											
Austenitic Stainless Steels, FeNi Alloys	303, 304, 316, Invar, Kovar	Peripheral - HEM	<2 x D	.06 x D	13	450	.0041	.0051	.0062	.0082	.0062
			2.5xD	.06 x D	13	450	.0040	.0050	.0060	.0080	.0060
			3xD	.05 x D	13	450	.0037	.0046	.0056	.0074	.0056
			3.5xD	.05 x D	13	445	.0035	.0044	.0053	.0070	.0053
		Finish	3 x D	.01 x D	13	415	.0015	.0019	.0023	.0030	.0023
Martensitic & Ferritic Stainless Steels	410, 416, 440	Peripheral - HEM	<2 x D	.06 x D	13	460	.0050	.0063	.0075	.0100	.0075
			2.5xD	.06 x D	13	460	.0048	.0060	.0072	.0096	.0072
			3xD	.06 x D	13	450	.0040	.0050	.0060	.0080	.0060
			3.5xD	.06 x D	13	445	.0035	.0044	.0053	.0070	.0053
		Finish	3 x D	.01 x D	13	390	.0018	.0023	.0027	.0036	.0027
Precipitation Hardening Stainless Steels	17-4, 15-5, 13-8	Peripheral - HEM	<2 x D	.06 x D	13	440	.0045	.0056	.0068	.0090	.0068
			2.5xD	.06 x D	13	440	.0041	.0051	.0062	.0082	.0062
			3xD	.05 x D	13	435	.0038	.0048	.0057	.0076	.0057
			3.5xD	.05 x D	13	435	.0034	.0043	.0051	.0068	.0051
		Finish	3 x D	.01 x D	13	400	.0017	.0021	.0026	.0034	.0026
K - Cast Irons											
Gray	ASTM-A48 Class 20, 25, 30, 35 & 40	Peripheral - HEM	<2 x D	.07 x D	13	370	.0045	.0056	.0068	.0090	.0068
			2.5xD	.07 x D	13	370	.0040	.0050	.0060	.0080	.0060
			3xD	.07 x D	13	360	.0034	.0043	.0051	.0068	.0051
			3.5xD	.06 x D	13	360	.0030	.0038	.0045	.0060	.0045
		Finish	3 x D	.01 x D	13	365	.0020	.0025	.0030	.0040	.0030
Cast Iron	Malleable	Peripheral - HEM	<2 x D	.07 x D	13	380	.0048	.0060	.0072	.0096	.0072
			2.5xD	.07 x D	13	380	.0042	.0053	.0063	.0084	.0063
			3xD	.07 x D	13	365	.0039	.0049	.0059	.0078	.0059
			3.5xD	.07 x D	13	365	.0036	.0045	.0054	.0072	.0054
		Finish	3 x D	.01 x D	13	340	.0017	.0021	.0026	.0034	.0026
S - High Temp Alloys											
Titanium Alloys	6Al-4V, 6-2-4	Peripheral - HEM	<2 x D	.08 x D	13	395	.0050	.0063	.0075	.0100	.0075
			2.5xD	.07 x D	13	390	.0045	.0056	.0068	.0090	.0068
			3xD	.06 x D	13	380	.0041	.0051	.0062	.0082	.0062
			3.5xD	.06 x D	13	380	.0034	.0043	.0051	.0068	.0051
		Finish	3 x D	.015 x D	13	355	.0022	.0028	.0033	.0044	.0033
Difficult to machine titanium alloys	10-2-3	Peripheral - HEM	<2 x D	0.06	13	350	.0050	.0063	.0075	.0100	.0075
			2.5xD	0.06	13	330	.0036	.0045	.0054	.0072	.0054
			3xD	0.055	13	315	.0035	.0044	.0053	.0070	.0053
			3.5xD	0.05	13	310	.0032	.0040	.0048	.0064	.0048
		Finish	3 x D	.01 x D	13	300	.0017	.0021	.0026	.0034	.0026
Hastalloy, Waspalloy		Peripheral - HEM	<2 x D	.07 X D	13	105	.0071	.0089	.0107	.0142	.0107
			2.5xD	.065 x D	13	100	.0064	.0080	.0096	.0128	.0096
			3xD	.055 x D	13	90	.0062	.0078	.0093	.0124	.0093
			3.5xD	.05 x D	13	90	.0057	.0071	.0086	.0114	.0086
		Finish	3 x D	.01 x D	13	90	.0044	.0055	.0066	.0088	.0066
Inconel 718, Rene 88		Peripheral - HEM	<2 x D	.06 x D	13	100	.0052	.0065	.0078	.0104	.0078
			2.5xD	.05 x D	13	95	.0052	.0065	.0078	.0104	.0078
			3xD	.05 x D	13	95	.0048	.0060	.0072	.0096	.0072
			3.5xD	.04 x D	13	95	.0048	.0060	.0072	.0096	.0072
		Finish	3 x D	.01 x D	13	90	.0023	.0029	.0035	.0046	.0035

D = tool diameter.

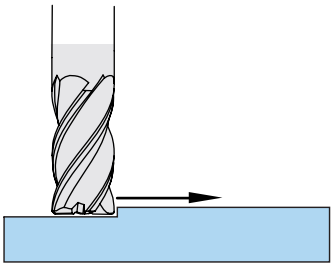


HEM Slotting Guides

The width of the desired slot will determine the number of flutes and endmill diameter that should be selected. The following guide shows the minimum slot width for each series of endmill.

Tool Series	Min. Slot Width	Max Slot Depth
XHP 7 Flute Finishers - Pg 86-90	2 x end mill diameter	Full length of cut
XHP 9 Flute Finishers - Pg 91-93	2 x end mill diameter	Full length of cut
XHP 11 Flute Finishers - Pg 94-96	2.25 x end mill diameter	Full length of cut
XHP 13 Flute Finishers Pg 98-100	2.5 x end mill diameter	Full length of cut
XHP 5 Flute Aluminum & Non Ferrous DLC Pg 26-32	1.75 x end mill diameter	Full length of cut
XHP 5 Flute Variable Index - Pg 59-78	1.75 x end mill diameter	.8 x length of cut
HP 7 Flute Finishers - Pg 84-85	2 x end mill diameter	.8 x length of cut

Speed and feed parameters for HEM slotting can be found marked as “Peripheral-HEM” in the speed and feed charts for those series.

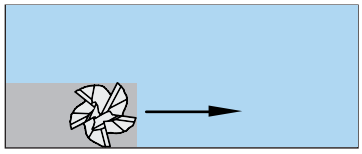


Facing

When facing, an endmill with a corner radius is suggested for the best finish. Apply the adjustments below to the Peripheral Rough values from the application guide below by tool category.

RDOC Formula

Step-over = (D - (2 x corner radius)) x .75



Tool Selection Guide:

Category 1: XHP 7, 9, 11 and 13 Flute Finishers

Category 2: XHP 5 Flute Aluminum & Non Ferrous DLC
XHP 5 Flute Variable Index
XHP 5 & 6 Flute Finishers

	Category 1					
	Rough Facing			Finish Facing		
Projection Length	SFM	IPT	ADOC	SFM	IPT	ADOC
0 to 3 x D	1.0 x chart value	.80 x chart value	.25 x D Max	1.0 x chart value	.70 x chart value	.07 x D Max
> 3 to 4 x D	1.0 x chart value	.80 x chart value	.25 x D Max	1.0 x chart value	.70 x chart value	.07 x D Max
> 4 to 5 x D	1.0 x chart value	.80 x chart value	.20 x D Max	1.0 x chart value	.70 x chart value	.05 x D Max
> 5 to 6 x D	1.0 x chart value	.80 x chart value	.20 x D Max	1.0 x chart value	.70 x chart value	.05 x D Max

	Category 2					
	Rough Facing			Finish Facing		
Projection Length	SFM	IPT	ADOC	SFM	IPT	ADOC
0 to 3 x D	1.2 x chart value	.85 x chart value	.25 x D Max	1.2 x chart value	.75 x chart value	.07 x D Max
> 3 to 4 x D	1.1 x chart value	.75 x chart value	.25 x D Max	1.1 x chart value	.65 x chart value	.07 x D Max
> 4 to 5 x D	1.0 x chart value	.65 x chart value	.25 x D Max	1.0 x chart value	.55 x chart value	.06 x D Max
> 5 to 6 x D	.9 x chart value	.55 x chart value	.25 x D Max	.9 x chart value	.45 x chart value	.05 x D Max

D = Tool Diameter

Helical Ramp to Create an Entry Hole

Using a helical ramp move to generate an entry hole is a preferred method to enter the middle of a part. The creation of the entry hole can be either a one-step or a two-step process depending on the number of flutes on the end mill. Tools with seven or fewer flutes only require one step; tools with more than seven flutes require two steps.

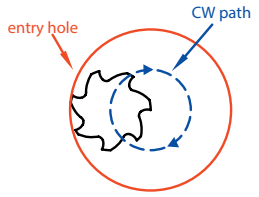
Step 1: Create helical ramp entry hole

The diameter of the starting hole will be: (tool diameter x 2) - (corner radius x 2)

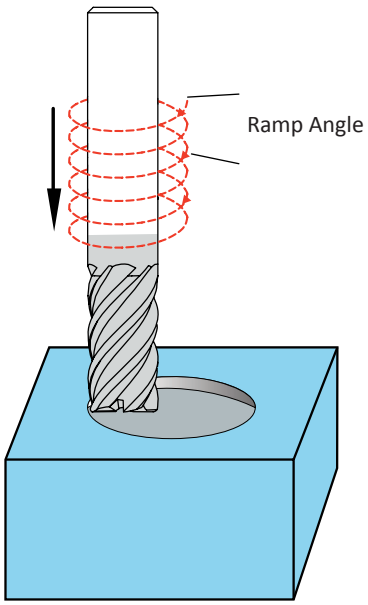
Use the following guide for speed, feed and ramp angle parameters. Note that the terms “Same as chart,” “Slotting speed in chart,” “Slotting feed in chart,” and IPT reference the data that is shown in the speed and feed charts located in each tool series section.

Tool Series	Speed	Feed Adjustment – with high-pressure coolant	Feed Adjustment – with standard flood coolant	Ramp Angle
XHP 2 Flute Aluminum and Non-Ferrous	Tools on page 16, use Slotting Speeds & Feeds on page 185.			3° - 5°
XHP 3 Flute Alum & Non-Ferrous ZRN	Tools on pages 18-22 and 24-25, use Slotting Speeds & Feeds page 186.			3° - 5°
XHP 3 Flute Roughers Alum & Non-Ferrous ZRN	Tools on page 23, use Slotting Speeds and Feeds page 187.			3° - 5°
XHP 5 Flute Alum & Non-Ferrous DLC	Tools on pages 26-32	IPT x 1.6	IPT x 1.25	3°
XHP 4 Flute Variable Index	Tools on pages 43-53 and 57, use Slotting Speeds & Feeds pages 192-193.			1° - 2.5°
XHP 5 Flute Variable Index	Tools on pages 62-78, use Slotting Speeds & Feeds pages 198-199.			1° - 2.5°
XHP 5 & 6 Flute Finishers	Tools on pages 81-83, use Slotting Speeds & Feeds page 201.			1° - 2.5°
XHP 6 Flute Finisher for Inconel	Tools on pages 79-80, use Slotting Speeds & Feeds page 202.			1° - 2.5°
HP 7 Flute Finishers	Tools on pages 84-85, use Slotting Speeds & Feeds page 201.			1° - 2.5°
XHP 7 Flute Finishers	Tools on pages 86-90	IPT x 1.6	IPT x 1.25	0.5°
XHP 9 Flute Finishers	Tools on pages 91-93	IPT x 1.6	IPT x 1.25	0.5°
XHP 11 Flute Finishers	Tools on pages 94-96	IPT x 1.6	IPT x 1.25	0.5°
XHP 13 Flute Finishers	Tools on pages 98-100	IPT x 1.6	IPT x 1.25	0.5°

IPT = Inch per tooth from the speed and feed charts
Speed = Surface feet per minute (SFM)



CW = Clockwise



Step 2: There are two common methods to enlarge an existing hole.

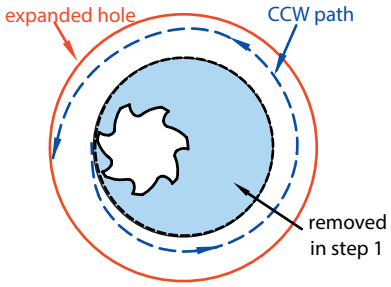
Method #1 – Expand the entry hole from inside out.

After reaching the desired entry hole depth in Step 1, and with the end mill still at depth, expand the hole outwards using the feed rate adjustment found in the chart below. Continue until the entry hole is enlarged to the expanded diameter shown at right.

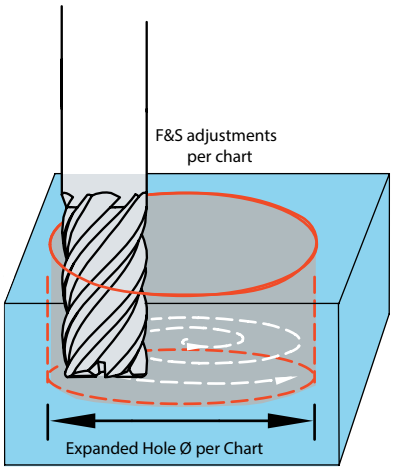
Once the expanded entry hole diameter is achieved, climb cut machining can begin at 100% of the Peripheral-HEM values in the feed and speed chart for the tool series you're using.

Tool Series	Expanded Hole ø	Feed Rate Adjustment	Step-Over Adjustment
XHP 9 Flute Finishers	3 x D	IPT x .75	RDOC x .5
XHP 11 Flute Finishers	3.75 x D	IPT x .75	RDOC x .5
XHP 13 Flute Finishers	3.75 x D	IPT x .75	RDOC x .5

D = Tool Diameter



CCW = Counter-Clockwise



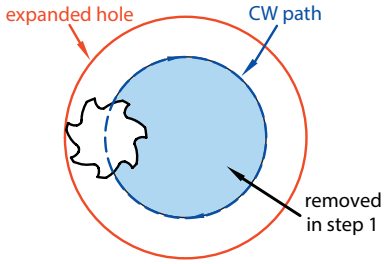
Method #2 – Expand the entry hole with a second helical ramp move.

Method B will expand the entry hole by doing a second helical ramp entry hole of a larger diameter than in Step 1. After completing Step 1, retract the end from the hole, and machine the second helical ramp entry hole using the same speed, feed and location as the first hole.

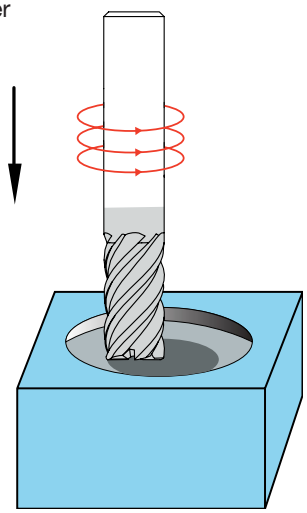
Once the expanded entry hole diameter is achieved, climb cut machining can begin at 100% of the Peripheral-HEM values in the feed and speed chart for the tool series you're using.

Tool Series	Expanded Hole ø	Feed Rate Adjustment	Ramp Angle
XHP 9 Flute Finishers	3 x D	IPT x 1.6	0.5°
XHP 11 Flute Finishers	3.75 x D	IPT x 1.6	0.5°
XHP 13 Flute Finishers	3.75 x D	IPT x 1.6	0.5°

D = Tool Diameter

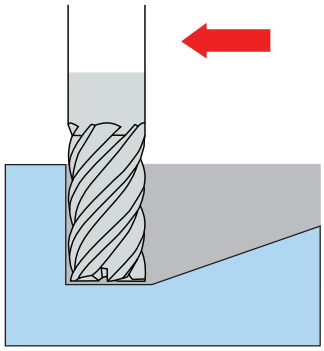


CW = Clockwise



Adjustments for Straight-Line Ramps

Straight-line ramp moves are an alternative method to enter the middle of a part. The following guide shows speed, feed and ramp angle data for different extra-high performance RedLine endmills.



Use the following guide for speed, feed and ramp angle parameters. Note that the terms “Same as chart,” “Slotting speed in chart,” and “Slotting IPT,” and “Helical ramp” reference the data shown in the speed and feed charts located in each tool series section. Not all tools are designed to allow the chip clearance required for straight-line ramping, as indicated in the guide.

Tool Series	Max Ramp Angle	SFM	Feed	Max Ramp Depth	Max Ramp Length
XHP 7 Flute Finishers	Not recommended	-	-	-	-
XHP 9 Flute Finishers	Not recommended	-	-	-	-
XHP 11 Flute Finishers	Not recommended	-	-	-	-
XHP 13 Flute Finishers	Not recommended	-	-	-	-
XHP 5 Flute Aluminum & Non Ferrous DLC	10°	Slotting speed	Slotting IPT x .65	75% of D	(.75 x D) / drop per inch
XHP 5 Flute Variable Index	2.5°	Slotting speed	Slotting IPT x .75	50% of D	(.5 x D) / drop per inch
HP 7 Flute Finishers	2.5°	Slotting speed	Slotting IPT x .75	50% of D	(.5 x D) / drop per inch
XHP 5 & 6 Flute Finishers	Not recommended	-	-	-	-
XHP 6 Flute Finisher for Inconel	Not recommended	-	-	-	-
XHP 4 Flute Variable Index	2.5°	Slotting speed	Slotting IPT x .75	50% of D	(.5 x D) / drop per inch
XHP 3 Flute Aluminum & Non Ferrous ZRN	Helical ramp x 5	Same as chart	Same as chart	100% of D	(.75 x D) / drop per inch
XHP 3 Flute Roughers Aluminum & Non Ferrous ZRN	Helical ramp x 5	Same as chart	Same as chart	100% of D	(.75 x D) / drop per inch
XHP 2 Flute Aluminum and Non Ferrous	15°	Slotting speed	Slotting IPT x .70	50% of D	(.5 x D) / drop per inch

D = Tool Diameter

Use this guide to determine the maximum ramp length. ▶

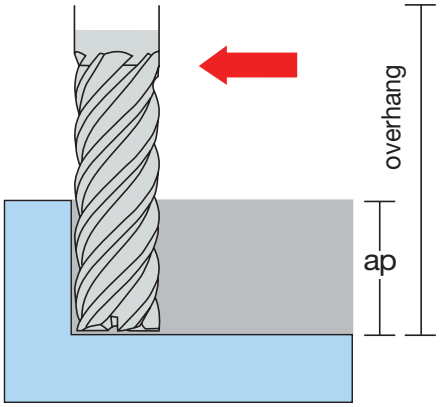
Ramp Angle	Drop (per inch)
0.5°	0.0088
1°	0.0175
2°	0.0375
2.5°	0.0438
3°	0.0525
5°	0.0875
10°	0.1750
15°	0.2625

Long Reach Application Adjustments

Adjustments must be made to reduce chatter and maximize tool life when using long length tools. The adjustments below are based on the total amount of tool projection and use the speed and feed data found in the application charts for each tool series.

Projection	SFM	Feed
> 1.25 to 3 x D	SFM x .95	IPT x .95
> 3 to 4 x D	SFM x .90	IPT x .90
> 4 to 5 x D	SFM x .80	IPT x .80
> 5 to 6 x D	SFM x .70	IPT x .70

D = Tool diameter
IPT = Inch per tooth
SFM = Surface feet per minute



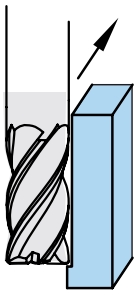
Tool Tip:
Eliminate Wall Taper When Finishing

STEP 1:
Run a climb cut finish pass using speed, feed and step-over values (RDOC) from the speed and feed charts. Adjust for tool projection if needed.

STEP 2:
Re-run the path using the same speeds and feeds but in a conventional cut direction. Simply retrace the prior finish pass; do not program to remove more stock. This skim pass, traveling in the opposite direction of the first pass, will help eliminate wall taper caused by tool deflection during the first pass.

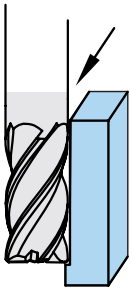
Step 1:

Climb cut
finish pass



Step 2:

Conventional cut
skim pass



Ball Nose Endmill Adjustments

Tools found on pages 16, 24-25, 56-57, 76-78.

The speeds and feeds of ball nose end mills must be adjusted to ensure proper tool life. Adjustments are based on the amount of tool engagement.

If the depth of cut (ADOC) is <50% of the tool diameter:

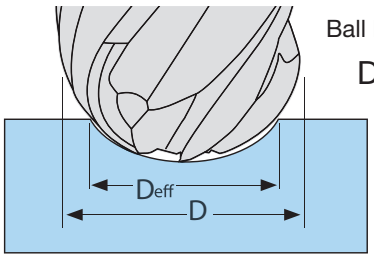
Adjustments must be made to determine the effective cutting diameter and to adjust for axial chip thinning. Follow these steps:

STEP 1:
Use speed and feed values for slot cuts from the speed and feed charts for the appropriate material and tool diameter.

Note: Make an additional adjustment using the chart below if the tool projection exceeds 2.5 x the tool diameter.

Projection	Speed Adj	Feed Adj
> 2.5 to 3 x D	SFM x .95	IPT x .95
> 3 to 4 x D	SFM x .90	IPT x .90
> 4 to 5 x D	SFM x .80	IPT x .80
> 5 to 6 x D	SFM x .70	IPT x .70

STEP 2:
Determine the effective cutting diameter (De) of the end mill based on the axial depth of cut. The effective cutting diameter will be used to make both speed and feed adjustments.



Use D when making shallow cuts with full radius

Ball Nose "Effective Diameter"

$$D = 2x \sqrt{R^2 - (R - ADOC)^2}$$

For easy reference, use the chart below.

Depth of Cut (ADOC)	1/8		1/4		3/8		1/2		3/4		1	
	Depth	De	Depth	De	Depth	De	Depth	De	Depth	De	Depth	De
10% of tool diameter	.013	.075	.025	.150	.038	.225	.050	.300	.075	.450	.100	.600
20% of tool diameter	.025	.100	.050	.200	.075	.300	.100	.400	.150	.600	.200	.800
30% of tool diameter	.038	.115	.075	.229	.113	.344	.150	.458	.225	.687	.300	.917
40% of tool diameter	.050	.123	.100	.245	.150	.367	.200	.490	.300	.73	.400	.980
50% of tool diameter	.063	.125	.125	.250	.186	.375	.250	.500	.375	.7500	.500	1.000

STEP 3:
Calculate speed based on using the effective cutting diameter. Use the standard SFM to RPM conversion formula. Substitute the effective cutting diameter (De) for the actual tool diameter (D).

RPM = (SFM x 3.82) / De

STEP 4:
Calculate the adjusted feed rate based on the effective cutting diameter and the axial chip thinning formula.

IPTadj = (D x IPT) / De

STEP 5: The new feed rate is calculated:

IPM = RPM x (Z x IPT adj)

Z = # of flutes
D = Actual tool diameter
De = Effective cutting diameter
IPM = Inches per minute
RPM = Rotations per minute
SFM = Surface feet per minute
IPT = Feed rate from chart for slot milling
IPT adj = Adjusted chip load per tooth fractional

If the axial depth of cut (ADOC) is ≥50% of the tool diameter:

- Use the speed and feed values shown for the slotting operation in the speed and feed charts for the series of end mill being used.

- If the tool projection exceeds 2.5 x the tool diameter, adjust the slotting speeds and feeds by the chart for long reach tool adjustments.

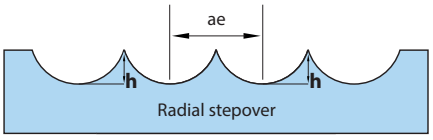
Surface Finish

Radial depth of cut (RDOC), or step-over, is based on the desired finish. The lighter the step-over, the lower the scallop height (material left uncut by the radius of the tool), and the better the finish.

This chart calculates approximate scallop height using the following formula:

Tool Diameter	Step-over % of OD	Step-over Actual	Approx Scallop Height
1/8	10%	.013	.0003
	20%	.025	.0013
	30%	.038	.0028
1/4	10%	.025	.0006
	20%	.050	.0025
	30%	.075	.0056
3/8	10%	.038	.0009
	20%	.075	.0038
	30%	.113	.0084
1/2	10%	.050	.0013
	20%	.100	.0050
	30%	.150	.0113
3/4	10%	.075	.0019
	20%	.150	.0075
	30%	.225	.0169
1	10%	.100	.0025
	20%	.200	.0100
	30%	.300	.0225

$h \sim (ae^2) / (8R)$



h = Scallop height
ae = Radial step-over
R = Radius of end mill
(tool diameter x .5)

General Purpose Micro Endmills Speeds & Feeds

Material	Grades	SFM Uncoated	SFM AlTiN	Feed by Endmill Diameter (IPT) (.0050)	(.0150)	(.0300)	(.0450)	(.0600)	(.0750)	(.1000)
P - Steels										
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	240	300	.00002	.00005	.00010	.00014	.00019	.00024	.00032
High Strength Tool Steel >32 HRC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	280	350	.00003	.00010	.00019	.00029	.00038	.00048	.00064
Low Carbon >32HRC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	200	250	.00002	.00005	.00010	.00014	.00019	.00024	.00032
Medium Carbon >32 HRC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M - Stainless Steels										
Austenitic	301-304L, 310, 316L, 321, 347	180-400	225-500	.00002	.00006	.00012	.00018	.00024	.00030	.00040
Austenitic >32 HRC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Martensitic	403, 410, 416, 420, 430, 431, 440	160	200	.00002	.00005	.00010	.00014	.00019	.00024	.00032
Martensitic >32 HRC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/ 363, PH13-8MO, PH14-8/MO	160	200	.00002	.00005	.00010	.00014	.00019	.00024	.00032
Precipitation Hardening >32 HRC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
K - Cast Irons										
Ductile	A536, J434, 60-40-18	280	350	.00005	.00014	.00029	.00043	.00058	.00072	.00096
Gray	A48, A436, A319, Class 20, G4000	400	500	.00006	.00019	.00038	.00058	.00077	.00096	.00128
Malleable	A220, A602, J158	270	330	.00005	.00014	.00029	.00043	.00058	.00072	.00096
N - Non-Ferrous										
Aluminum Alloys		Max RPM	Max RPM	.00013	.00038	.00077	.00115	.00154	.00192	.00256
Aluminum High Silicon		Max RPM	Max RPM	.00006	.00019	.00038	.00058	.00077	.00096	.00128
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	600	750	.00006	.00019	.00038	.00058	.00077	.00096	.00128
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	800	1000	.00013	.00038	.00075	.00113	.00150	.00188	.00250
Copper		480	600	.00006	.00019	.00038	.00058	.00077	.00096	.00128
Magnesium		Max RPM	Max RPM	.00013	.00038	.00077	.00115	.00154	.00192	.00256
S - High Temp Alloys										
Cobalt Base	Stellite, HS-21, Haynes 25/188,	80	100	.00002	.00005	.00011	.00016	.00022	.00027	.00036
Cobalt Base >32HRC	X40, L605	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron Base	Incoloy 800-802, Multmet N-155	80	100	.00002	.00005	.00011	.00016	.00022	.00027	.00036
Iron Base >32HRC	Timkin 16-25-6, Carpenter 22-b3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel Base	Inconel 625/718, Inco 700, 713C, 718	80	100	.00002	.00005	.00011	.00016	.00022	.00027	.00036
Nickel Base >32HRC	Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	200	250	.00002	.00007	.00014	.00022	.00029	.00036	.00048

NOTE: Speeds and Feeds listed are estimated and will vary by application.

These General Purpose tools can be found on pages 102-105, 110-113, 134-138, 160-164.

General Purpose Carbide Endmills Speeds & Feeds

Material	Grades	SFM			Feed by Endmill Diameter (IPT)						
					1/8	1/4	3/8	1/2	5/8	3/4	1
		Uncoated	AlTiN	TiCN	(.1250)	(.2500)	(.3750)	(.5000)	(.0625)	(.7500)	(1.000)
P - Steels											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	150-225	210-315	185-310	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
High Strength Tool Steel		60-125	85-175	75-155	.0003-.0005	.0004-.0005	.0005-.0008	.0008-.0015	.0015-.0022	.0020-.0025	.0025-.0035
>32 HRC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	200-250	280-350	250-310	.0007-.0015	.0010-.0015	.0015-.002	.0020-.0025	.0025-.0030	.0030-.0035	.0040-.0050
Low Carbon >32HRC		125-175	175-245	155-215	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	200-250	280-350	250-310	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0035	.0040-.0050
Medium Carbon >32 HRC		125-175	175-245	155-215	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
M - Stainless Steels											
Austenitic	301-304L, 310, 316L, 321, 347	200-250	280-350	250-310	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Austenitic >32 HRC		150-200	210-350	185-250	.0003-.0005	.0004-.0005	.0005-.0008	.008-.0015	.0015-.0022	.0020-.0025	.0025-.0035
Martensitic	403, 410, 416, 420, 430, 431, 440	150-250	210-350	185-310	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Martensitic >32 HRC		125-175	175-245	155-215	.0003-.0005	.0004-.0005	.0005-.0008	.008-.0015	.0015-.0022	.0020-.0025	.0025-.0035
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355 /363, PH13-8MO, PH14-8//MO	150-250	210-350	185-310	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Precipitation Hardening		125-175	175-245	155-215	.0003-.0005	.0004-.0005	.0005-.0008	.008-.0015	.0015-.0022	.0020-.0025	.0025-.0035
>32 HRC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
K - Cast Irons											
Ductile	A536, J434, 60-40-18	300-400	420-560	375-500	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0060	.0080-.0120	.0100-.0120
Gray	A48, A436, A319, Class 20, G4000	250-350	350-490	310-435	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
Malleable	A220, A602, J158	275-375	375-515	340-465	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
N - Non-Ferrous											
Aluminum Alloys		>500	>500	>500	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
Aluminum High Silicon		450	450	560	.0010-.0015	.0015-.002	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
Brass/Bronze	Aluminum Bronze , Low Silicon Bronze	250-350	350-490	310-435	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0050	.0050-.0080	.0080-.0100
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	250-1000	350-1400	310-435	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
Copper		300-400	420-560	375-500	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0050	.0050-.0080	.0080-.0100
Magnesium		>500	>500	>500	.0010-.0015	.0015-.002	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
S - High Temp Alloys											
Cobalt Base	Stellite, HS-21, Haynes 25/188,	175-225	245-315	215-280	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Cobalt Base >32HRC	X40, L605	125-175	175-245	155-215	.0003-.0005	.0004-.0005	.0005-.0008	.0080-.0015	.0015-.0022	.0020-.0025	.0025-.0035
Iron Base	Incoloy 800-802, Multmet N-155	175-225	245-315	215-280	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Iron Base >32HRC	Timkin 16-25-6, Carpenter 22-b3	125-175	175-245	155-215	.0003-.0005	.0004-.0005	.0005-.0008	.0080-.0015	.0015-.0022	.0020-.0025	.0025-.0035
Nickel Base	Inconel 625/718, Inco 700, 713C, 718	125-175	175-245	155-215	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Nickel Base >32HRC	Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	70-115	100-160	85-140	.0003-.0005	.0004-.0005	.0005-.0008	.0080-.0015	.0015-.0022	.0020-.0025	.0025-.0035
Titanium	Commercially Pure, 6Al-4V ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si Ti-8Al-1Mo, Ti-8Al-4Mo	200-300	280-420	250-375	.0007-.0015	.0010-.0015	.0015-.002	.0020-.0025	.0025-.0030	.0030-.0035	.0040-.0050

NOTES: **(1) Speeds and Feeds listed are estimated and will vary by application.**
(2) Maximize rigidity to reduce chatter and increase tool life by applying the following tips.
- **Choose the largest diameter possible**
- **Use the shortest LOC (Length of Cut) available**
- **Use the toolholder which offers the shortest gage length**

(3) To control chatter, increase feed or reduce speed.
(4) For extra long endmills, reduce SFM by 25%.
(5) Keep to a minimum at all times. As runout increases, the tools' performance decreases and tool life will be reduced.
(6) Use a coolant or air blast to evacuate chips to avoid premature damage to your carbide cutting tool, which may occur if chips are recut.

These General Purpose tools can be found on pages 106-109, 114-117, 150-159, 165-174, 180.

General Purpose 3 & 4-Flute Long Reach Micro Endmills Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	SFM Uncoated	SFM AlTiN	Feed by Endmill Diameter (IPT) .0150	.0300	.0450	.0600	.0750	.0900	.1000
P - Steels													
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	Slotting	.2 x D	.2 x D	130	195	.00004	.00008	.00008	.00012	.00016	.00020	.00024
		Finish	.2 x D	.3 x D	130	195	.00003	.00006	.00006	.00009	.00012	.00015	.00018
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012	Slotting	.2 x D	.2 x D	195	400	.00020	.00020	.00030	.00030	.00040	.00050	.00060
		Finish	.2 x D	.3 x D	195	400	.00015	.00015	.00023	.00023	.00030	.00038	.00045
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	Slotting	.2 x D	.2 x D	195	260	.00030	.00030	.00040	.00050	.00060	.00070	.00080
		Finish	.2 x D	.3 x D	195	260	.00023	.00023	.00030	.00038	.00045	.00053	.00060
M - Stainless Steels													
Austenitic	301-304L, 310, 316L, 321, 347	Slotting	.2 x D	.2 x D	80	145	.00004	.00008	.00008	.00012	.00016	.00020	.00024
		Finish	.2 x D	.3 x D	80	145	.00004	.00008	.00008	.00012	.00016	.00020	.00024
Martensitic	403, 410, 416, 420, 430, 431, 440	Slotting	.2 x D	.2 x D	80	145	.00004	.00008	.00008	.00012	.00016	.00020	.00024
		Finish	.2 x D	.3 x D	80	145	.00004	.00008	.00008	.00012	.00016	.00020	.00024
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	Slotting	.2 x D	.2 x D	80	145	.00004	.00008	.00008	.00012	.00016	.00020	.00024
		Finish	.2 x D	.3 x D	80	145	.00004	.00008	.00008	.00012	.00016	.00020	.00024
K - Cast Irons													
Ductile	A536, J434, 60-40-18	Slotting	.2 x D	.2 x D	195	260	.00040	.00080	.00100	.00120	.00160	.00200	.00230
		Finish	.2 x D	.3 x D	195	260	.00012	.00024	.00030	.00036	.00048	.00060	.00069
Gray	A48, A436, A319, Class 20, G4000	Slotting	.2 x D	.2 x D	195	260	.00040	.00080	.00100	.00120	.00160	.00200	.00230
		Finish	.2 x D	.3 x D	195	260	.00012	.00024	.00030	.00036	.00048	.00060	.00069
Malleable	A220, A602, J158	Slotting	.2 x D	.2 x D	195	260	.00040	.00080	.00100	.00120	.00160	.00200	.00230
		Finish	.2 x D	.3 x D	195	260	.00012	.00024	.00030	.00036	.00048	.00060	.00069
N - Non-Ferrous													
Aluminum Alloys	2014, 2024, 6061, 7075	Slotting	.2 x D	.2 x D	490	N/A	.00020	.00030	.00050	.00070	.00090	.00110	.00130
		Finish	.2 x D	.3 x D	490	N/A	.00003	.00005	.00009	.00012	.00015	.00019	.00022
Aluminum High Silicon	A380, A390	Slotting	.2 x D	.2 x D	490	N/A	.00020	.00030	.00050	.00070	.00090	.00110	.00130
		Finish	.2 x D	.3 x D	490	N/A	.00003	.00005	.00009	.00012	.00015	.00019	.00022
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	Slotting	.2 x D	.2 x D	365	400	.00020	.00030	.00040	.00050	.00060	.00070	.00080
		Finish	.2 x D	.3 x D	365	400	.00013	.00020	.00026	.00033	.00039	.00046	.00052
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	Slotting	.2 x D	.2 x D	260	N/A	.00010	.00020	.00030	.00040	.00040	.00050	.00050
		Finish	.2 x D	.3 x D	260	N/A	.00010	.00020	.00030	.00040	.00040	.00050	.00050
Copper		Slotting	.2 x D	.2 x D	400	500	.00020	.00030	.00040	.00050	.00060	.00070	.00080
		Finish	.2 x D	.3 x D	400	500	.00020	.00030	.00040	.00050	.00060	.00070	.00080
Magnesium		Slotting	.2 x D	.2 x D	800	800	.00020	.00030	.00040	.00050	.00060	.00070	.00080
		Finish	.2 x D	.3 x D	800	800	.00020	.00030	.00040	.00050	.00060	.00070	.00080
S - High Temp Alloys													
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	Slotting	.2 x D	.2 x D	N/A	80	.00006	.00008	.00008	.00012	.00012	.00015	.00024
		Finish	.2 x D	.3 x D	N/A	80	.00003	.00004	.00004	.00006	.00006	.00008	.00012
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	Slotting	.2 x D	.2 x D	N/A	300	.00010	.00020	.00030	.00040	.00050	.00060	.00070
		Finish	.2 x D	.3 x D	N/A	300	.00005	.00010	.00015	.00020	.00025	.00030	.00035
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	Slotting	.2 x D	.2 x D	N/A	80	.00006	.00008	.00008	.00012	.00012	.00015	.00024
		Finish	.2 x D	.3 x D	N/A	80	.00003	.00004	.00004	.00006	.00006	.00008	.00012
Titanium	Commercially Pure, 6Al-4V ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	Slotting	.2 x D	.2 x D	N/A	80	.00004	.00008	.00008	.00012	.00016	.00020	.00024
		Finish	.2 x D	.3 x D	N/A	80	.00003	.00006	.00006	.00009	.00012	.00015	.00018

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown.
NOTE: Speeds and Feeds listed are estimated and will vary by application.

These General Purpose tools can be found on pages 118-133, 139-140 & 180.

General Purpose Variable Index & Helix Endmills

Our General Purpose Variable index and Helix endmills are designed to offer a better performing tool at the same price as a general purpose tool. A special combination of an unequal index and variable helix angle helps you increase speeds and feeds, improve finish through reduced vibration while controlling harmonics. This Tool Is the Perfect Combination of Performance and Value!

General Purpose Variable Index & Helix Endmills Speeds & Feeds

Material	Grades	SFM Uncoated	SFM AlTiN	Feed by Endmill Diameter (IPT) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.0625)	3/4 (.7500)	1 (1.000)
P - Steels										
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	225-250	250-350	.0009	.0010	.0013	.0017	.0023	.0028	.0040
High Strength Tool Steel >32 HRC		170-225	225-325	.0009	.0010	.0013	.0017	.0023	.0028	.0040
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	400-500	500-600	.0006	.0012	.0023	.0035	.0045	.0055	.0065
Low Carbon >32HRC		250-325	325-350	.0006	.0012	.0023	.0035	.0045	.0055	.0065
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	225-300	350-425	.0006	.0012	.0023	.0035	.0045	.0055	.0065
Medium Carbon >32 HRC		200-250	275-325	.0006	.0012	.0023	.0035	.0045	.0055	.0065
M - Stainless Steels										
Austenitic	301-304L, 310, 316L, 321, 347	250-300	300-335	.0005	.0006	.0009	.0010	.0023	.0035	.0055
Austenitic >32 HRC		170-200	200-250	.0005	.0006	.0009	.0010	.0023	.0035	.0055
Martensitic	403, 410, 416, 420, 430, 431, 440	375-425	425-450	.0010	.0012	.0017	.0020	.0035	.0045	.0065
Martensitic >32 HRC		335-375	375-400	.0010	.0012	.0017	.0020	.0035	.0045	.0065
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355 /363, PH13-8MO, PH14-8/MO	375-425	425-450	.0010	.0012	.0017	.0020	.0035	.0045	.0065
Precipitation Hardening >32 HRC		335-375	375-400	.0010	.0012	.0017	.0020	.0035	.0045	.0065
K - Cast Irons										
Ductile	A536, J434, 60-40-18	250-400	375-550	.0007	.0012	.0020	.0035	.0045	.0055	.0090
Gray	A48, A436, A319, Class 20, G4000	250-400	375-550	.0007	.0012	.0020	.0035	.0045	.0055	.0090
Malleable	A220, A602, J158	170-250	250-335	.0010	.0012	.0017	.0020	.0035	.0045	.0065
N - Non -Ferrous										
Aluminum Alloys		1200-1450	N/A	.0020	.0023	.0035	.0045	.0055	.0065	.0090
Aluminum High Silicon		900-1200	N/A	.0010	.0015	.0025	.0035	.0045	.0055	.0075
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze									
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		450-800	750-1000	.0020	.0023	.0028	.0035	.0045	.0055	.0080
Magnesium		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S - High Temp Alloys										
Cobalt Base	Stellite, HS-21, Haynes 25/188,	300-350	325-375	.0007-.0009	.0008-.0010	.0013-.0017	.0018-.0023	.0023-.0028	.0030-.0034	.0040-.0045
Cobalt Base >32HRC	X40, L605	275-300	300-325	.0005-.0007	.0006-.0008	.0010-.0013	.0015-.0020	.0020-.0025	.0028-.0032	.0037-.0040
Iron Base	Incoloy 800-802, Multmet N-155	300-350	325-375	.0007-.0009	.0008-.0010	.0013-.0017	.0018-.0023	.0023-.0028	.0030-.0034	.0040-.0045
Iron Base >32HRC	Timkin 16-25-6, Carpenter 22-b3	275-300	300-325	.0005-.0007	.0006-.0008	.0010-.0013	.0015-.0020	.0020-.0025	.0028-.0032	.0037-.0040
Nickel Base	Inconel 625/718, Inco 700, 713C, 718	250-275	275-335	.0007-.0009	.0008-.0010	.0013-.0017	.0018-.0023	.0023-.0028	.0030-.0034	.0040-.0045
Nickel Base >32HRC	Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	110-150	150-200	.0005-.0007	.0006-.0008	.0010-.0013	.0015-.0020	.0020-.0025	.0028-.0032	.0037-.0040
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	70-150	150-275	.0005-.0009	.0006-.0012	.0010-.0015	.0012-.0020	.0020-.0035	.0025-.0045	.0045-.0065

NOTE: Speeds and Feeds listed are estimated and will vary by application.

These General Purpose tools can be found on pages 141-149.

Corner Rounding Endmills Speeds & Feeds

Material	Grades	SFM
P - Steels		
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	80-90
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012. 5015, 9310	180
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	170
M- Stainless Steels		
Austenitic	301-304L, 310, 316L, 321, 347	100
Martensitic	403, 410, 416, 420, 430, 431, 440	110
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	120
K - Cast Irons		
Ductile	A536, J434, 60-40-18	180
Gray	A48, A436, A319. Class 20, G4000	140
Malleable	A220, A602, J158	100
N - Non-Ferrous		
Aluminum Alloys	2014, 2024, 6061, 7075	300
Aluminum High Silicon	A380, A390	300
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	230-250
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	180-200
Copper		100-200
Magnesium		300
S - High Temp Alloys		
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	80
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	80
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	80
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	90

NOTE: Speeds and Feeds listed are estimated and will vary by application.

These General Purpose tools can be found on pages 175-179.

High Speed Steel and Cobalt Endmills Speeds & Feeds

Material	Grades	SFM		Feed by Endmill Diameter (IPT)						
		SFM	SFM	1/8	1/4	3/8	1/2	5/8	3/4	1
		Uncoated	AlTiN	(.1250)	(.2500)	(.3750)	(.5000)	(.0625)	(.7500)	(1.000)
P - Steels										
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	50-75	75-90	.0010	.0015	.0020	.0025	.0030	.0040	.0060
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012 5015, 9310	150-200	175-250	.0010	.0015	.0020	.0025	.0030	.0040	.0060
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	75-100	100-125	.0010	.0015	.0020	.0025	.0030	.0040	.0060
M - Stainless Steels										
Austenitic	301-304L, 310, 316L, 321, 347	115-150	120-170	.0010	.0015	.0020	.0025	.0030	.0035	.0040
Martensitic	403, 410, 416, 420, 430, 431, 440	20-50	30-60	.0010	.0015	.0020	.0025	.0030	.0035	.0040
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	90-110	100-120	.0010	.0015	.0020	.0025	.0030	.0035	.0040
K - Cast Irons										
Ductile	A536, J434, 60-40-18	75-100	90-120	.0010	.0020	.0030	.0035	.0040	.0045	.0050
Gray	A48, A436, A319, Class 20, G4000	90-130	100-150	.0010	.0020	.0030	.0040	.0050	.0060	.0080
Malleable	A220, A602, J158	100-150	115-170	.0010	.0020	.0030	.0040	.0050	.0060	.0080
N - Non-Ferrous										
Aluminum Alloys		600-800	800-1000	.0010	.0020	.0030	.0040	.0050	.0060	.0080
Aluminum High Silicon		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	300-400	400-500	.0010	.0020	.0030	.0035	.0040	.0045	.0050
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	800-1000	950-1200	.0010	.0020	.0030	.0035	.0040	.0045	.0050
Copper		150-250	200-300	.0010	.0020	.0030	.0040	.0050	.0060	.0080
Magnesium		150-250	200-300	.0010	.0020	.0030	.0040	.0050	.0060	.0080
Titanium	Commercially Pure, 6Al-4V ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si Ti-8Al-1Mo, Ti-8Al-4Mo	70-100	80-120	.0010	.0015	.0020	.0025	.0030	.0040	.0060
S - High Temp Alloys										
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	25-35	30-40	.0005	.0007	.0010	.0010	.0012	.0015	.0020
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	30-40	35-45	.0005	.0007	.0010	.0010	.0012	.0015	.0020
Nickel Base	Inconel 625/718, Inco 700, 713C, 718 Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy Udimet 500 & 700	20-30	25-35	.0005	.0007	.0010	.0010	.0012	.0015	.0020

NOTE: Speeds and Feeds listed are estimated and will vary by application.

These General Purpose tools can be found on pages 181-183.

Endmills Trouble Shooting Guide

Problem	Cause	Solution
Breakage	• Feed rate too aggressive • D.O.C. too aggressive • Excessive tool overhang • Chip packing • Excessive wear	• Reduce feed rate • Reduce axial and/or radial D.O.C. • Hold shank deeper, use shorter endmill • Adjust speed and/or feed, select endmill with fewe flutes, increase coolant pressure and/or air • Re-grind tool sooner
Burs	• Incorrect speed & feed • Helix angle is incorrect for application • Primary cutting edge(s) are dull	• Adjust speed & feed • Change to correct helix angle, use climb milling • Re-grind tool sooner
Chattering	• Speed and/or feed too aggressive • Tool rigidity • Work-piece rigidity • Machine tool rigidity • D.O.C. too aggressive • Wrong tool geometry	• Reduce speed and/or feed • Change tool holder, hold shank deeper and/or use shorter tool • Re-fixture work-piece and/or improve setup • Check spindle for run-out • Reduce axial and/or radial D.O.C.
Chip Packing	• Speed and/or feed too aggressive • Flute gullet too small for chips • Insufficient coolant volume and/or pressure	• Reduce speed and/or feed • Use endmill with less flutes • Increase coolant and/or air pressure, reposition nozzle to point of cut
Edge Chipping	• Feed rate too aggressive • Feed rate too aggressive on initial cut • D.O.C. too aggressive • Tool rigidity • Work-piece rigidity • Machine tool rigidity	• Reduce feed rate • Reduce feed rate on initial pass • Decrease axial and/or radial D.O.C. • Change tool holder, hold shank deeper and/or use shorter tool • Re-fixture work-piece and/or improve setup • Check spindle for run-out
Poor Dimensional Accuracy	• D.O.C. too aggressive • Tool Rigidity • Machine tool rigidity	• Reduce axial and/or radial D.O.C. • Use tool with more flutes • Check, inspect & repair machine tool, toolholder and fixtures
Poor Finish	• Feed rate too aggressive • Speed is too slow • D.O.C. too aggressive • Excessive wear	• Reduce feed rate • Increase spindle speed (RPM) • Reduce axial and/or radial D.O.C. • Re-grind tool sooner

Micro-Spotting



90° Point Uncoated



90° Point AlTiN Coated

Carbide Micro Spotting, 90° Point

Drill Size	Decimal Equiv	OAL	Length of Cut	Shank ø	Uncoated Part #	AlTiN Coated Part #
.0050	.0050	1-1/2	.025	1/8	RMS1000	RMS1001
.0100	.0100	1-1/2	.035	1/8	RMS1002	RMS1003
.0150	.0150	1-1/2	.045	1/8	RMS1004	RMS1005
.0200	.0200	1-1/2	.050	1/8	RMS1006	RMS1007
1/32	.0312	1-1/2	.090	1/8	RMS1008	RMS1009
1/16	.0625	1-1/2	.200	1/8	RMS1010	RMS1011
3/32	.0938	1-1/2	.200	1/8	RMS1012	RMS1013
1/8	.1250	1-1/2	.200	1/8	RMS1014	RMS1015



90° Point Uncoated



90° Point AlTiN Coated

Carbide Micro Spotting, 90° Point, Metric

Drill Size	Decimal Equiv	OAL	Length of Cut	Shank ø	Uncoated Part #	AlTiN Coated Part #
.15MM	.0059	38	.65MM	3	RMS1016	RMS1017
.25MM	.0098	38	.90MM	3	RMS1018	RMS1019
.40MM	.0157	38	1.15MM	3	RMS1020	RMS1021
.50MM	.0197	38	1.30MM	3	RMS1022	RMS1023
1.00MM	.0394	38	2.30MM	3	RMS1024	RMS1025
1.50MM	.0590	38	5.00MM	3	RMS1026	RMS1027
2.00MM	.0787	38	5.00MM	3	RMS1028	RMS1029
3.00MM	.1181	38	5.00MM	3	RMS1030	RMS1031

Speeds and Feeds page 323.

Tolerances	
Inches	Millimeters
+.0000, -.0003	+0.0000, -0.0080



130° Point Uncoated



130° Point AlTiN Coated

Carbide Micro Spotting, 130° Point

Drill Size	Decimal Equiv	OAL	Length of Cut	Shank ø	Uncoated Part #	AlTiN Coated Part #
.0050	.0050	1-1/2	.025	1/8	RMS2000	RMS2001
.0100	.0100	1-1/2	.035	1/8	RMS2002	RMS2003
.0150	.0150	1-1/2	.045	1/8	RMS2004	RMS2005
.0200	.0200	1-1/2	.050	1/8	RMS2006	RMS2007
1/32	.0312	1-1/2	.090	1/8	RMS2008	RMS2009
1/16	.0625	1-1/2	.200	1/8	RMS2010	RMS2011
3/32	.0938	1-1/2	.200	1/8	RMS2012	RMS2013
1/8	.1250	1-1/2	.200	1/8	RMS2014	RMS2015



130° Point Uncoated



130° Point AlTiN Coated

Carbide Micro Spotting, 130° Point, Metric

Drill Size	Decimal Equiv	OAL	Length of Cut	Shank ø	Uncoated Part #	AlTiN Coated Part #
.15MM	.0059	38	.65MM	3	RMS2016	RMS2017
.25MM	.0098	38	.90MM	3	RMS2018	RMS2019
.40MM	.0157	38	1.15MM	3	RMS2020	RMS2021
.50MM	.0197	38	1.30MM	3	RMS2022	RMS2023
1.00MM	.0394	38	2.30MM	3	RMS2024	RMS2025
1.50MM	.0590	38	5.00MM	3	RMS2026	RMS2027
2.00MM	.0787	38	5.00MM	3	RMS2028	RMS2029
3.00MM	.1181	38	5.00MM	3	RMS2030	RMS2031

Tolerances	
Inches	Millimeters
+.0000, -.0003	+0.0000, -0.0080

Speeds & Feeds page 323.

N/C Spotting



90° Point Uncoated



90° Point AlTiN Coated

Carbide N/C Spotting, 90° Point

Drill Size	Decimal Equiv	OAL	Length of Cut	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	2	1/4	1/8	RD21808	RD47308
3/16	.1875	2	3/8	3/16	RD21812	RD47312
1/4	.2500	3	3/8	1/4	RD21816	RD47316
3/8	.3750	4	1/2	3/8	RD21824	RD47324
1/2	.5000	4	3/4	1/2	RD21832	RD47332
5/8	.6250	4	1	5/8	RD21840	RD47340
3/4	.7500	4	1	3/4	RD21848	RD47348



120° Point Uncoated



120° Point AlTiN Coated

Carbide N/C Spotting, 120° Point

Drill Size	Decimal Equiv	OAL	Length of Cut	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	2	1/4	1/8	RD21908	RD47408
3/16	.1875	2	3/8	3/16	RD21912	RD47412
1/4	.2500	3	3/8	1/4	RD21916	RD47416
3/8	.3750	4	1/2	3/8	RD21924	RD47424
1/2	.5000	4	3/4	1/2	RD21932	RD47432
5/8	.6250	4	1	5/8	RD21940	RD47440
3/4	.7500	4	1	3/4	RD21948	RD47448

Speeds & Feeds page 324.

Tolerances
+.0000, -.0005



140° Point Uncoated



140° Point AlTiN Coated

Carbide N/C Spotting, 140° Point

Drill Size	Decimal Equiv	OAL	Length of Cut	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	2	1/4	1/8	RD22008	RD47508
3/16	.1875	2	3/8	3/16	RD22012	RD47512
1/4	.2500	3	3/8	1/4	RD22016	RD47516
3/8	.3750	4	1/2	3/8	RD22024	RD47524
1/2	.5000	4	3/4	1/2	RD22032	RD47532
5/8	.6250	4	1	5/8	RD22040	RD47540
3/4	.7500	4	1	3/4	RD22048	RD47548

Tolerances
+.0000, -.0005



145° Point AlTiN Coated

Carbide N/C Spotting, 145° Point

Drill Size	Decimal Equiv	OAL	Length of Cut	Shank ø	AlTiN Coated Part #
3.00MM	.1181	38	16	3.0	RDH5200
1/8	.1250	1-1/2	5/8	1/8	RDH5201
6.00MM	.2362	51	19	6.0	RDH5000
1/4	.2500	2	3/4	1/4	RDH5202
5/16	.3125	2-1/2	3/4	5/16	RDH5203
8.00MM	.3150	64	19	8.0	RDH5001
3/8	.3750	2-1/2	1	3/8	RDH5204
10.00MM	.3937	70	25	10.0	RDH5002
12.00MM	.4724	76	25	12.0	RDH5003
1/2	.5000	3	1	1/2	RDH5205
5/8	.6250	3-1/2	1-1/4	5/8	RDH5206
16.00MM	.6299	89	32	16.0	RDH5004

Tolerance in Inch		
Size	Drill ø (m7)	Shank ø (h6)
.1182-.2362	+0,-.00047	+0,-.00031
.2363-3937	+0,-.00059	+0,-.00035
.3938-.6250	+0,-.00071	+0,-.00043

Tolerance in Metric		
Size	Drill ø (m7)	Shank ø (h6)
3.01-6.0	+0,-.012	+0,-.008
6.01-10.0	+0,-.015	+0,-.009
10.01-16.0	+0,-.018	+0,-.011

Speeds & Feeds page 324.

Micro-Drills



Uncoated-Type 1

Uncoated-Type 2

Micro-Drills, Solid Carbide, 130° Point, 35° Helix (.0040-.0260)

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Drill Type	Uncoated Part #
.10MM	.0040	.060	1.5	1/8	Type 1	RMD0040
.13MM	.0050	.070	1.5	1/8	Type 1	RMD0050
#97	.0059	.100	1.5	1/8	Type 1	RMD0059
#96	.0063	.100	1.5	1/8	Type 1	RMD0063
#95	.0067	.100	1.5	1/8	Type 1	RMD0067
#94	.0071	.100	1.5	1/8	Type 1	RMD0071
#93	.0075	.100	1.5	1/8	Type 1	RMD0075
#92	.0079	.125	1.5	1/8	Type 1	RMD0079
#91	.0083	.125	1.5	1/8	Type 1	RMD0083
#90	.0087	.125	1.5	1/8	Type 1	RMD0087
#89	.0091	.125	1.5	1/8	Type 1	RMD0091
#88	.0095	.125	1.5	1/8	Type 1	RMD0095
.25MM	.0098	.150	1.5	1/8	Type 1	RMD0098
#87	.0100	.150	1.5	1/8	Type 1	RMD0100
#86	.0105	.150	1.5	1/8	Type 1	RMD0105
#85	.0110	.150	1.5	1/8	Type 1	RMD0110
#84	.0115	.150	1.5	1/8	Type 1	RMD0115
.30MM	.0118	.220	1.5	1/8	Type 1	RMD0118
#83	.0120	.220	1.5	1/8	Type 1	RMD0120
#82	.0125	.220	1.5	1/8	Type 1	RMD0125
#81	.0130	.220	1.5	1/8	Type 1	RMD0130
#80	.0135	.220	1.5	1/8	Type 1	RMD0135
.35MM	.0138	.220	1.5	1/8	Type 1	RMD0138
#79	.0145	.220	1.5	1/8	Type 1	RMD0145
1/64	.0156	.220	1.5	1/8	Type 1	RMD0156
.40MM	.0158	.220	1.5	1/8	Type 1	RMD0158
#78	.0160	.220	1.5	1/8	Type 1	RMD0160
.45MM	.0177	.250	1.5	1/8	Type 2	RMD0177
#77	.0180	.250	1.5	1/8	Type 2	RMD0180
.50MM	.0197	.250	1.5	1/8	Type 2	RMD0197
#76	.0200	.250	1.5	1/8	Type 2	RMD0200
#75	.0210	.250	1.5	1/8	Type 2	RMD0210
.55MM	.0217	.250	1.5	1/8	Type 2	RMD0217
#74	.0225	.250	1.5	1/8	Type 2	RMD0225
.60MM	.0236	.312	1.5	1/8	Type 2	RMD0236
#73	.0240	.312	1.5	1/8	Type 2	RMD0240
#72	.0250	.312	1.5	1/8	Type 2	RMD0250
.65MM	.0256	.312	1.5	1/8	Type 2	RMD0256
#71	.0260	.312	1.5	1/8	Type 2	RMD0260

Continued

Speeds & Feeds page 325.

Tolerances	Drill ø	Shank ø
All Sizes	+0.000, -.0005	+0.000, -.0003





Uncoated-Type 1



Uncoated-Type 2

Micro-Drills, Solid Carbide, 130° Point, 35° Helix (.0276-.0610)

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Drill Type	Uncoated Part #
.70MM	.0276	.420	1.5	1/8	Type 2	RMD0276
#70	.0280	.420	1.5	1/8	Type 2	RMD0280
#69	.0292	.420	1.5	1/8	Type 2	RMD0292
.75MM	.0295	.420	1.5	1/8	Type 2	RMD0295
#68	.0310	.420	1.5	1/8	Type 2	RMD0310
1/32	.0312	.420	1.5	1/8	Type 2	RMD0312
.80MM	.0315	.420	1.5	1/8	Type 2	RMD0315
#67	.0320	.420	1.5	1/8	Type 2	RMD0320
#66	.0330	.420	1.5	1/8	Type 2	RMD0330
.85MM	.0335	.420	1.5	1/8	Type 2	RMD0335
#65	.0350	.420	1.5	1/8	Type 2	RMD0350
.90MM	.0354	.420	1.5	1/8	Type 2	RMD0354
#64	.0360	.420	1.5	1/8	Type 2	RMD0360
#63	.0370	.420	1.5	1/8	Type 2	RMD0370
.95MM	.0374	.420	1.5	1/8	Type 2	RMD0374
#62	.0380	.420	1.5	1/8	Type 2	RMD0380
#61	.0390	.420	1.5	1/8	Type 2	RMD0390
1.00MM	.0394	.420	1.5	1/8	Type 2	RMD0394
#60	.0400	.420	1.5	1/8	Type 2	RMD0400
#59	.0410	.420	1.5	1/8	Type 2	RMD0410
1.05MM	.0413	.420	1.5	1/8	Type 2	RMD0413
#58	.0420	.420	1.5	1/8	Type 2	RMD0420
#57	.0430	.420	1.5	1/8	Type 2	RMD0430
1.10MM	.0433	.420	1.5	1/8	Type 2	RMD0433
1.125MM	.0443	.420	1.5	1/8	Type 2	RMD0443
1.15MM	.0453	.420	1.5	1/8	Type 2	RMD0453
#56	.0465	.420	1.5	1/8	Type 2	RMD0465
3/64	.0469	.420	1.5	1/8	Type 2	RMD0469
1.20MM	.0472	.420	1.5	1/8	Type 2	RMD0472
1.25MM	.0492	.420	1.5	1/8	Type 2	RMD0492
1.30MM	.0512	.420	1.5	1/8	Type 2	RMD0512
#55	.0520	.420	1.5	1/8	Type 2	RMD0520
1.35MM	.0531	.420	1.5	1/8	Type 2	RMD0531
#54	.0550	.420	1.5	1/8	Type 2	RMD0550
1.40MM	.0551	.420	1.5	1/8	Type 2	RMD0551
1.45MM	.0571	.420	1.5	1/8	Type 2	RMD0571
1.50MM	.0591	.420	1.5	1/8	Type 2	RMD0591
#53	.0595	.420	1.5	1/8	Type 2	RMD0595
1.55MM	.0610	.420	1.5	1/8	Type 2	RMD0610

Continued

Tolerances	Drill ø	Shank ø
All Sizes	+0.000, -.0005	+0.000, -.0003

Speeds & Feeds page 325.

Micro-Drills



Uncoated-Type 1



Uncoated-Type 2

Micro-Drills, Solid Carbide, 130° Point, 35° Helix (.0625-.1040)

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Drill Type	Uncoated Part #
1/16	.0625	.480	1.5	1/8	Type 2	RMD0625
1.60MM	.0630	.480	1.5	1/8	Type 2	RMD0630
#52	.0635	.480	1.5	1/8	Type 2	RMD0635
1.65MM	.0650	.480	1.5	1/8	Type 2	RMD0650
1.70MM	.0669	.480	1.5	1/8	Type 2	RMD0669
#51	.0670	.480	1.5	1/8	Type 2	RMD0670
1.75MM	.0689	.480	1.5	1/8	Type 2	RMD0689
#50	.0700	.480	1.5	1/8	Type 2	RMD0700
1.80MM	.0709	.480	1.5	1/8	Type 2	RMD0709
1.85MM	.0728	.480	1.5	1/8	Type 2	RMD0728
#49	.0730	.480	1.5	1/8	Type 2	RMD0730
1.90MM	.0748	.480	1.5	1/8	Type 2	RMD0748
#48	.0760	.480	1.5	1/8	Type 2	RMD0760
1.95MM	.0768	.480	1.5	1/8	Type 2	RMD0768
5/64	.0781	.480	1.5	1/8	Type 2	RMD0781
#47	.0785	.480	1.5	1/8	Type 2	RMD0785
2.00MM	.0787	.480	1.5	1/8	Type 2	RMD0787
2.05MM	.0807	.480	1.5	1/8	Type 2	RMD0807
#46	.0810	.480	1.5	1/8	Type 2	RMD0810
#45	.0820	.480	1.5	1/8	Type 2	RMD0820
2.10MM	.0827	.480	1.5	1/8	Type 2	RMD0827
2.15MM	.0846	.480	1.5	1/8	Type 2	RMD0846
#44	.0860	.480	1.5	1/8	Type 2	RMD0860
2.20MM	.0866	.480	1.5	1/8	Type 2	RMD0866
2.25MM	.0886	.480	1.5	1/8	Type 2	RMD0886
#43	.0890	.480	1.5	1/8	Type 2	RMD0890
2.30MM	.0906	.480	1.5	1/8	Type 2	RMD0906
2.35MM	.0925	.480	1.5	1/8	Type 2	RMD0925
#42	.0935	.480	1.5	1/8	Type 2	RMD0935
3/32	.0938	.480	1.5	1/8	Type 2	RMD0938
2.40MM	.0945	.480	1.5	1/8	Type 2	RMD0945
#41	.0960	.480	1.5	1/8	Type 2	RMD0960
2.45MM	.0965	.480	1.5	1/8	Type 2	RMD0965
#40	.0980	.480	1.5	1/8	Type 2	RMD0980
2.50MM	.0984	.480	1.5	1/8	Type 2	RMD0984
#39	.0995	.480	1.5	1/8	Type 2	RMD0995
2.55MM	.1004	.480	1.5	1/8	Type 2	RMD1004
#38	.1015	.480	1.5	1/8	Type 2	RMD1015
2.60MM	.1024	.480	1.5	1/8	Type 2	RMD1024
#37	.1040	.480	1.5	1/8	Type 2	RMD1040

Continued

Speeds & Feeds page 325.

Tolerances	Drill ø	Shank ø
All Sizes	+0.000, -.0005	+0.000, -.0003





Uncoated-Type 1

Uncoated-Type 2

Micro-Drills, Solid Carbide, 130° Point, 35° Helix (.1043-.1250)

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Drill Type	Uncoated Part #
2.65MM	.1043	.480	1.5	1/8	Type 2	RMD1043
2.70MM	.1063	.480	1.5	1/8	Type 2	RMD1063
#36	.1065	.480	1.5	1/8	Type 2	RMD1065
2.75MM	.1083	.480	1.5	1/8	Type 2	RMD1083
7/64	.1094	.480	1.5	1/8	Type 2	RMD1094
#35	.1100	.480	1.5	1/8	Type 2	RMD1100
2.80MM	.1102	.480	1.5	1/8	Type 2	RMD1102
#34	.1110	.480	1.5	1/8	Type 2	RMD1110
2.85MM	.1122	.480	1.5	1/8	Type 2	RMD1122
#33	.1130	.480	1.5	1/8	Type 2	RMD1130
2.90MM	.1142	.480	1.5	1/8	Type 2	RMD1142
#32	.1160	.480	1.5	1/8	Type 2	RMD1160
2.95MM	.1161	.480	1.5	1/8	Type 2	RMD1161
3.00MM	.1181	.480	1.5	1/8	Type 2	RMD1181
#31	.1200	.480	1.5	1/8	Type 2	RMD1200
3.05MM	.1201	.480	1.5	1/8	Type 2	RMD1201
3.10MM	.1220	.480	1.5	1/8	Type 2	RMD1220
3.15MM	.1240	.480	1.5	1/8	Type 2	RMD1240
1/8	.1250	.480	1.5	1/8	Type 2	RMD1250

Tolerances	Drill ø	Shank ø
All Sizes	+0.000, -.0005	+0.000, -.0003

Speeds & Feeds page 325.

RedLine Hole Shot HP



Uncoated



AlTiN Coated

Micro-Drills, Solid Carbide, 135° Point, 12° Helix (.0039-.0200)

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.10MM	.0039	1.700	38	3.0	RDH0503	–
#101	.0043	.065	1-1/2	1/8	RDH0504	–
#100	.0047	.065	1-1/2	1/8	RDH0505	–
#99	.0051	.065	1-1/2	1/8	RDH0506	–
#98	.0055	.065	1-1/2	1/8	RDH0507	–
.15MM	.0059	2.500	38	3.0	RDH0508	–
.0060	.0060	.100	1-1/2	1/8	RDH0509	–
#96	.0063	.100	1-1/2	1/8	RDH0510	–
#95	.0067	.100	1-1/2	1/8	RDH0511	–
.0070	.0070	.100	1-1/2	1/8	RDH0512	–
#94	.0071	.100	1-1/2	1/8	RDH0513	–
#93	.0075	.100	1-1/2	1/8	RDH0514	–
.20MM	.0078	2.500	38	3.0	RDH0515	–
#92	.0079	.125	1-1/2	1/8	RDH0516	–
.0080	.0080	.125	1-1/2	1/8	RDH0517	–
#91	.0083	.125	1-1/2	1/8	RDH0518	–
#90	.0087	.125	1-1/2	1/8	RDH0519	–
.0090	.0090	.125	1-1/2	1/8	RDH0520	–
#89	.0091	.125	1-1/2	1/8	RDH0521	–
#88	.0095	.125	1-1/2	1/8	RDH0522	–
.25MM	.0098	3.200	38	3.0	RDH0523	–
#87	.0100	.150	1-1/2	1/8	RDH0524	–
#86	.0105	.150	1-1/2	1/8	RDH0525	–
#85	.0110	.150	1-1/2	1/8	RDH0526	–
#84	.0115	.150	1-1/2	1/8	RDH0527	–
.30MM	.0118	4.800	38	3.0	RDH0528	RDH0728
#83	.0120	.190	1-1/2	1/8	RDH0529	RDH0729
#82	.0125	.190	1-1/2	1/8	RDH0530	RDH0730
#81	.0130	.190	1-1/2	1/8	RDH0531	RDH0731
#80	.0135	.190	1-1/2	1/8	RDH0532	RDH0732
.35MM	.0138	4.800	38	3.0	RDH0533	RDH0733
#79	.0145	.190	1-1/2	1/8	RDH0534	RDH0734
1/64	.0156	.190	1-1/2	1/8	RDH0535	RDH0735
.40MM	.0157	4.800	38	3.0	RDH0536	RDH0736
#78	.0160	.190	1-1/2	1/8	RDH0537	RDH0737
.45MM	.0177	6.350	38	3.0	RDH0538	RDH0738
#77	.0180	.250	1-1/2	1/8	RDH0539	RDH0739
.50MM	.0197	6.350	38	3.0	RDH0540	RDH0740
#76	.0200	.250	1-1/2	1/8	RDH0541	RDH0741

Continued

Speeds & Feeds page 326.

For detailed tolerance information, see page 327.

RedLine Hole Shot HP



Uncoated



AlTiN Coated

Micro-Drills, Solid Carbide, 135° Point, 12° Helix (.0210-.0520)

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
#75	.0210	.250	1-1/2	1/8	RDH0542	RDH0742
.55MM	.0217	6.350	38	3.0	RDH0543	RDH0743
#74	.0225	.250	1-1/2	1/8	RDH0544	RDH0744
.60MM	.0236	6.350	38	3.0	RDH0545	RDH0745
#73	.0240	.250	1-1/2	1/8	RDH0546	RDH0746
#72	.0250	.250	1-1/2	1/8	RDH0547	RDH0747
.65MM	.0256	6.350	38	3.0	RDH0548	RDH0748
#71	.0260	.250	1-1/2	1/8	RDH0549	RDH0749
.70MM	.0276	8.130	38	3.0	RDH0550	RDH0750
#70	.0280	.320	1-1/2	1/8	RDH0551	RDH0751
#69	.0292	.320	1-1/2	1/8	RDH0552	RDH0752
.75MM	.0295	8.130	38	3.0	RDH0553	RDH0753
#68	.0310	.400	1-1/2	1/8	RDH0554	RDH0754
1/32	.0312	.400	1-1/2	1/8	RDH0555	RDH0755
.80MM	.0315	10.160	38	3.0	RDH0556	RDH0756
#67	.0320	.400	1-1/2	1/8	RDH0557	RDH0757
#66	.0330	.400	1-1/2	1/8	RDH0558	RDH0758
.85MM	.0335	10.160	38	3.0	RDH0559	RDH0759
#65	.0350	.400	1-1/2	1/8	RDH0560	RDH0760
.90MM	.0354	10.160	38	3.0	RDH0561	RDH0761
#64	.0360	.400	1-1/2	1/8	RDH0562	RDH0762
#63	.0370	.400	1-1/2	1/8	RDH0563	RDH0763
.95MM	.0374	10.160	38	3.0	RDH0564	RDH0764
#62	.0380	.400	1-1/2	1/8	RDH0565	RDH0765
#61	.0390	.400	1-1/2	1/8	RDH0566	RDH0766
1.00MM	.0394	10.160	38	3.0	RDH0567	RDH0767
#60	.0400	.400	1-1/2	1/8	RDH0568	RDH0768
#59	.0410	.400	1-1/2	1/8	RDH0569	RDH0769
1.05MM	.0413	10.160	38	3.0	RDH0570	RDH0770
#58	.0420	.400	1-1/2	1/8	RDH0571	RDH0771
#57	.0430	.400	1-1/2	1/8	RDH0572	RDH0772
1.10MM	.0433	10.160	38	3.0	RDH0573	RDH0773
1.15MM	.0452	10.160	38	3.0	RDH0574	RDH0774
#56	.0465	.400	1-1/2	1/8	RDH0575	RDH0775
3/64	.0469	.400	1-1/2	1/8	RDH0576	RDH0776
1.20MM	.0472	10.160	38	3.0	RDH0577	RDH0777
1.25MM	.0492	10.160	38	3.0	RDH0578	RDH0778
1.30MM	.0511	10.160	38	3.0	RDH0579	RDH0779
#55	.0520	.400	1-1/2	1/8	RDH0580	RDH0780

Continued

For detailed tolerance information, see page 327.

Speeds & Feeds page 326.

Micro-Drills



Uncoated | AlTiN Coated

Micro-Drills, Solid Carbide, 135° Point, 12° Helix (.0531-.0960)

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1.35MM	.0531	10.160	38	3.0	RDH0581	RDH0781
#54	.0550	.400	1-1/2	1/8	RDH0582	RDH0782
1.40MM	.0551	10.160	38	3.0	RDH0583	RDH0783
1.45MM	.0571	10.160	38	3.0	RDH0584	RDH0784
1.50MM	.0590	10.160	38	3.0	RDH0585	RDH0785
#53	.0595	.400	1-1/2	1/8	RDH0586	RDH0786
1.55MM	.0610	10.160	38	3.0	RDH0587	RDH0787
1/16	.0625	.480	1-1/2	1/8	RDH0588	RDH0788
1.60MM	.0630	12.190	38	3.0	RDH0589	RDH0789
#52	.0635	.480	1-1/2	1/8	RDH0590	RDH0790
1.65MM	.0649	12.190	38	3.0	RDH0591	RDH0791
1.70MM	.0669	12.190	38	3.0	RDH0592	RDH0792
#51	.0670	.480	1-1/2	1/8	RDH0593	RDH0793
1.75MM	.0689	12.190	38	3.0	RDH0594	RDH0794
#50	.0700	.480	1-1/2	1/8	RDH0595	RDH0795
1.80MM	.0708	12.190	38	3.0	RDH0596	RDH0796
1.85MM	.0728	12.190	38	3.0	RDH0597	RDH0797
#49	.0730	.480	1-1/2	1/8	RDH0598	RDH0798
1.90MM	.0748	12.190	38	3.0	RDH0599	RDH0799
#48	.0760	.480	1-1/2	1/8	RDH0600	RDH0800
1.95MM	.0767	12.190	38	3.0	RDH0601	RDH0801
5/64	.0781	.480	1-1/2	1/8	RDH0602	RDH0802
#47	.0785	.480	1-1/2	1/8	RDH0603	RDH0803
2.00MM	.0787	12.190	38	3.0	RDH0604	RDH0804
2.05MM	.0807	12.190	38	3.0	RDH0605	RDH0805
#46	.0810	.480	1-1/2	1/8	RDH0606	RDH0806
#45	.0820	.480	1-1/2	1/8	RDH0607	RDH0807
2.10MM	.0827	12.190	38	3.0	RDH0608	RDH0808
2.15MM	.0846	12.190	38	3.0	RDH0609	RDH0809
#44	.0860	.480	1-1/2	1/8	RDH0610	RDH0810
2.20MM	.0866	12.190	38	3.0	RDH0611	RDH0811
2.25MM	.0886	12.190	38	3.0	RDH0612	RDH0812
#43	.0890	.480	1-1/2	1/8	RDH0613	RDH0813
2.30MM	.0906	12.190	38	3.0	RDH0614	RDH0814
2.35MM	.0925	12.190	38	3.0	RDH0615	RDH0815
#42	.0935	.480	1-1/2	1/8	RDH0616	RDH0816
3/32	.0938	.480	1-1/2	1/8	RDH0617	RDH0817
2.40MM	.0945	12.190	38	3.0	RDH0618	RDH0818
#41	.0960	.480	1-1/2	1/8	RDH0619	RDH0819

Continued

Speeds & Feeds page 326.

For detailed tolerance information, see page 327.



Uncoated | AlTiN Coated

Micro-Drills, Solid Carbide, 135° Point, 12° Helix (.0965-.1250)

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
2.45MM	.0965	12.190	38	3.0	RDH0620	RDH0820
#40	.0980	.480	1-1/2	1/8	RDH0621	RDH0821
2.50MM	.0984	12.190	38	3.0	RDH0622	RDH0822
#39	.0995	.480	1-1/2	1/8	RDH0623	RDH0823
2.55MM	.1004	12.190	38	3.0	RDH0624	RDH0824
#38	.1015	.480	1-1/2	1/8	RDH0625	RDH0825
2.60MM	.1024	12.190	38	3.0	RDH0626	RDH0826
#37	.1040	.480	1-1/2	1/8	RDH0627	RDH0827
2.65MM	.1043	12.190	38	3.0	RDH0628	RDH0828
2.70MM	.1063	12.190	38	3.0	RDH0629	RDH0829
#36	.1065	.480	1-1/2	1/8	RDH0630	RDH0830
2.75MM	.1083	12.190	38	3.0	RDH0631	RDH0831
7/64	.1094	.480	1-1/2	1/8	RDH0632	RDH0832
#35	.1100	.480	1-1/2	1/8	RDH0633	RDH0833
2.80MM	.1102	12.190	38	3.0	RDH0634	RDH0834
#34	.1110	.480	1-1/2	1/8	RDH0635	RDH0835
2.85MM	.1122	12.190	38	3.0	RDH0636	RDH0836
#33	.1130	.480	1-1/2	1/8	RDH0637	RDH0837
2.90MM	.1142	12.190	38	3.0	RDH0638	RDH0838
#32	.1160	.480	1-1/2	1/8	RDH0639	RDH0839
2.95MM	.1161	12.190	38	3.0	RDH0640	RDH0840
3.00MM	.1181	12.190	38	3.0	RDH0641	RDH0841
#31	.1200	.480	1-1/2	1/8	RDH0642	RDH0842
1/8	.1250	.480	1-1/2	1/8	RDH0643	RDH0843

For detailed tolerance information, see page 327.
Speeds & Feeds page 326.

Multi-Material - 3XD



AlTiN Coated

Multi-Material, Solid Carbide, 142° Point, 3X Dia., 30° Helix (.0984-.2165)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
2.50MM	.0984	14	11	43	2.5	RDH1021
2.90MM	.1142	16	12	46	2.9	RDH1024
3.00MM	.1181	16	13	57	3.0	RDH1026
#31	.1200	.750	.600	2.250	1/8	RDH1028
3.10MM	.1220	22	18	63	4.0	RDH1030
1/8	.1250	.750	.600	2.250	1/8	RDH1032
3.20MM	.1260	22	18	63	4.0	RDH1034
#30	.1285	.875	.700	2.500	5/32	RDH1036
3.30MM	.1299	22	18	63	4.0	RDH1038
3.40MM	.1339	22	18	63	4.0	RDH1040
#29	.1360	.875	.700	2.500	5/32	RDH1042
3.50MM	.1378	22	18	63	4.0	RDH1044
9/64	.1406	.875	.700	2.500	5/32	RDH1046
3.60MM	.1417	22	18	63	4.0	RDH1048
3.70MM	.1457	22	18	63	4.0	RDH1050
3.80MM	.1496	22	18	63	4.0	RDH1052
#24	.1520	.875	.700	2.5	5/32	RDH1054
3.90MM	.1535	22	18	63	4.0	RDH1056
5/32	.1562	.875	.700	2.500	5/32	RDH1058
4.00MM	.1575	22	18	63	4.0	RDH1060
#21	.1590	1.000	.800	2.500	3/16	RDH1062
4.10MM	.1614	26	21	63	5.0	RDH1064
4.20MM	.1654	26	21	63	5.0	RDH1066
4.30MM	.1693	26	21	63	5.0	RDH1068
11/64	.1719	1.000	.800	2.500	3/16	RDH1070
4.40MM	.1732	26	21	63	5.0	RDH1072
4.50MM	.1772	26	21	63	5.0	RDH1074
4.60MM	.1811	26	21	63	5.0	RDH1076
4.70MM	.1850	26	21	63	5.0	RDH1078
3/16	.1875	1.000	.800	2.500	3/16	RDH1080
4.80MM	.1890	26	21	63	5.0	RDH1082
4.90MM	.1929	26	21	63	5.0	RDH1084
5.00MM	.1968	26	21	63	5.0	RDH1086
5.10MM	.2008	30	24	76	6.0	RDH1088
13/64	.2031	1.125	.900	3.000	15/64	RDH1090
5.20MM	.2047	30	24	76	6.0	RDH1092
5.30MM	.2087	30	24	76	6.0	RDH1094
5.40MM	.2126	30	24	76	6.0	RDH1096
5.50MM	.2165	30	24	76	6.0	RDH1098

Continued

Speeds & Feeds page 327.

For detailed tolerance information, see page 327.



AlTiN Coated

Multi-Material, Solid Carbide, 142° Point, 3X Dia., 30° Helix (.2187-.3268)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
7/32	.2187	1.125	.900	3.000	15/64	RDH1100
#2	.2210	1.125	.900	3.000	15/64	RDH1102
5.70MM	.2244	30	24	76	6.0	RDH1104
5.80MM	.2283	30	24	76	6.0	RDH1106
5.90MM	.2323	30	24	76	6.0	RDH1108
15/64	.2344	1.125	.900	3.000	15/64	RDH1110
6.00MM	.2362	30	24	76	6.0	RDH1112
6.10MM	.2402	35	28	82	8.0	RDH1114
C	.2420	1.250	1.000	3.000	1/4	RDH1116
6.20MM	.2441	35	28	82	8.0	RDH1118
D	.2460	1.250	1.000	3.000	1/4	RDH1120
6.30MM	.2480	35	28	82	8.0	RDH1122
1/4	.2500	1.250	1.000	3.000	1/4	RDH1124
6.40MM	.2520	35	28	82	8.0	RDH1126
6.50MM	.2559	35	28	82	8.0	RDH1128
F	.2570	1.375	1.100	3.250	5/16	RDH1130
6.60MM	.2598	35	28	82	8.0	RDH1132
G	.2610	1.375	1.100	3.250	5/16	RDH1134
6.70MM	.2638	35	28	82	8.0	RDH1136
17/64	.2656	1.375	1.100	3.250	5/16	RDH1138
6.80MM	.2677	35	28	82	8.0	RDH1140
6.90MM	.2717	35	28	82	8.0	RDH1142
7.00MM	.2756	35	28	82	8.0	RDH1144
7.10MM	.2795	38	31	82	8.0	RDH1146
9/32	.2812	1.500	1.200	3.250	5/16	RDH1148
7.20MM	.2835	38	31	82	8.0	RDH1150
7.30MM	.2874	38	31	82	8.0	RDH1152
7.40MM	.2913	38	31	82	8.0	RDH1154
7.50MM	.2953	38	31	82	8.0	RDH1156
19/64	.2969	1.500	1.200	3.250	5/16	RDH1158
7.60MM	.2992	38	31	82	8.0	RDH1160
7.70MM	.3031	38	31	82	8.0	RDH1162
7.80MM	.3071	38	31	82	8.0	RDH1164
7.90MM	.3110	38	31	82	8.0	RDH1166
5/16	.3125	1.500	1.200	3.250	5/16	RDH1168
8.00MM	.3150	38	31	82	8.0	RDH1170
8.10MM	.3189	43	35	89	10.0	RDH1172
8.20MM	.3228	43	35	89	10.0	RDH1174
8.30MM	.3268	43	35	89	10.0	RDH1176

Continued

For detailed tolerance information, see page 327.

Speeds & Feeds page 327.

Multi-Material - 3XD



AlTiN Coated

Multi-Material, Solid Carbide, 142° Point, 3X Dia., 30° Helix (.3281-.4409)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
21/64	.3281	1.687	1.350	3.500	25/64	RDH1178
8.40MM	.3307	43	35	89	10.0	RDH1180
Q	.3320	1.687	1.350	3.500	25/64	RDH1182
8.50MM	.3346	43	35	89	10.0	RDH1184
8.60MM	.3386	43	35	89	10.0	RDH1186
8.70MM	.3425	43	35	89	10.0	RDH1188
11/32	.3438	1.687	1.350	3.500	25/64	RDH1190
8.80MM	.3465	43	35	89	10.0	RDH1192
8.90MM	.3504	43	35	89	10.0	RDH1194
9.00MM	.3543	43	35	89	10.0	RDH1196
9.10MM	.3583	43	35	89	10.0	RDH1198
23/64	.3594	1.687	1.350	3.500	25/64	RDH1200
9.20MM	.3622	43	35	89	10.0	RDH1202
9.25MM	.3642	43	35	89	10.0	RDH1204
9.30MM	.3661	43	35	89	10.0	RDH1206
9.40MM	.3701	43	35	89	10.0	RDH1208
9.50MM	.3740	43	35	89	10.0	RDH1210
3/8	.3750	1.687	1.350	3.500	25/64	RDH1212
9.60MM	.3780	43	35	89	10.0	RDH1214
9.70MM	.3819	43	35	89	10.0	RDH1216
9.80MM	.3858	43	35	89	10.0	RDH1218
9.90MM	.3898	43	35	89	10.0	RDH1220
25/64	.3906	1.687	1.350	3.500	25/64	RDH1222
10.00MM	.3937	43	35	89	10.0	RDH1224
10.10MM	.3976	51	41	101	12.0	RDH1226
10.20MM	.4016	51	41	101	12.0	RDH1228
10.30MM	.4055	51	41	101	12.0	RDH1230
13/32	.4062	2.000	1.600	4.000	15/32	RDH1232
10.40MM	.4094	51	41	101	12.0	RDH1234
10.50MM	.4134	51	41	101	12.0	RDH1236
10.60MM	.4173	51	41	101	12.0	RDH1238
10.70MM	.4213	51	41	101	12.0	RDH1240
27/64	.4219	2.000	1.600	4.000	15/32	RDH1242
10.80MM	.4252	51	41	101	12.0	RDH1244
10.90MM	.4291	51	41	101	12.0	RDH1246
11.00MM	.4331	51	41	101	12.0	RDH1248
11.10MM	.4370	51	41	101	12.0	RDH1250
7/16	.4375	2.000	1.600	4.000	15/32	RDH1252
11.20MM	.4409	51	41	101	12.0	RDH1254

Continued

Speeds & Feeds page 327.

For detailed tolerance information, see page 327.



AlTiN Coated

Multi-Material, Solid Carbide, 142° Point, 3X Dia., 30° Helix (.4449-.6875)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
11.30MM	.4449	51	41	101	12.0	RDH1256
11.40MM	.4488	51	41	101	12.0	RDH1258
11.50MM	.4527	51	41	101	12.0	RDH1260
11.60MM	.4567	51	41	101	12.0	RDH1262
11.70MM	.4606	51	41	101	12.0	RDH1264
11.80MM	.4646	51	41	101	12.0	RDH1266
11.90MM	.4685	51	41	101	12.0	RDH1268
15/32	.4688	2.000	1.600	4.000	15/32	RDH1270
12.00MM	.4724	51	41	101	12.0	RDH1272
12.10MM	.4764	54	43	107	14.0	RDH1274
31/64	.4844	2.000	1.600	4.000	1/2	RDH1276
12.50MM	.4921	54	43	107	14.0	RDH1278
1/2	.5000	2.000	1.600	4.000	1/2	RDH1280
12.80MM	.5039	54	43	107	14.0	RDH1282
12.83MM	.5051	54	43	107	14.0	RDH1284
12.90MM	.5079	54	43	107	14.0	RDH1286
13.00MM	.5118	54	43	107	14.0	RDH1288
33/64	.5156	2.125	1.700	4.250	35/64	RDH1290
17/32	.5312	2.125	1.700	4.250	35/64	RDH1292
13.50MM	.5315	54	43	107	14.0	RDH1294
13.70MM	.5394	54	43	107	14.0	RDH1296
35/64	.5469	2.125	1.700	4.250	35/64	RDH1298
14.00MM	.5512	54	43	107	14.0	RDH1300
9/16	.5625	2.375	1.900	4.625	5/8	RDH1302
14.50MM	.5709	60	48	117	16.0	RDH1304
14.70MM	.5787	60	48	117	16.0	RDH1306
15.00MM	.5905	60	48	117	16.0	RDH1308
19/32	.5938	2.375	1.900	4.625	5/8	RDH1310
15.30MM	.6024	60	48	117	16.0	RDH1312
15.50MM	.6102	60	48	117	16.0	RDH1314
15.70MM	.6181	60	48	117	16.0	RDH1316
5/8	.6250	2.375	1.900	4.625	5/8	RDH1318
16.00MM	.6299	60	48	117	16.0	RDH1320
16.08MM	.6331	63	51	122	18.0	RDH1322
16.30MM	.6417	63	51	122	18.0	RDH1323
16.50MM	.6496	63	51	122	18.0	RDH1324
21/32	.6562	2.500	2.000	4.810	45/64	RDH1325
17.00MM	.6693	63	51	122	18.0	RDH1326
11/16	.6875	2.500	2.000	4.810	45/64	RDH1327

Continued

For detailed tolerance information, see page 327.

Speeds & Feeds page 327.

Multi-Material - 3XD



AlTiN Coated

Multi-Material, Solid Carbide, 142° Point, 3X Dia., 30° Helix (.6890-.7874)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
17.50MM	.6890	63	51	122	18.0	RDH1328
18.00MM	.7087	63	51	122	18.0	RDH1329
18.50MM	.7283	70	56	133	20.0	RDH1330
3/4	.7500	2.750	2.200	5.250	3/4	RDH1331
19.16MM	.7543	70	56	133	20.0	RDH1332
19.25MM	.7579	70	56	133	20.0	RDH1333
19.30MM	.7598	70	56	133	20.0	RDH1334
19.50MM	.7677	70	56	133	20.0	RDH1335
20.00MM	.7874	70	56	133	20.0	RDH1336

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For detailed tolerance information, see page 327.



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 3X Dia., 30° Helix (.1181-.2210)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
3.00MM	.1181	16	13	57	3	RDH5147
#31	.1200	.750	.600	2.250	1/8	RDH5148
3.10MM	.1220	22	18	63	4	RDH5149
1/8	.1250	.750	.600	2.250	1/8	RDH5150
3.20MM	.1260	22	18	63	4	RDH5151
#30	.1285	.875	.700	2.500	5/32	RDH5005
3.30MM	.1299	22	18	63	4	RDH5006
3.40MM	.1339	22	18	63	4	RDH5007
#29	.1360	.875	.700	2.500	5/32	RDH5008
3.50MM	.1378	22	18	63	4	RDH5009
9/64	.1406	.875	.700	2.500	5/32	RDH5010
3.60MM	.1417	22	18	63	4	RDH5011
3.70MM	.1457	22	18	63	4	RDH5012
3.80MM	.1496	22	18	63	4	RDH5013
#24	.1520	.875	.700	2.500	5/32	RDH5014
3.90MM	.1535	22	18	63	4	RDH5015
5/32	.1562	.875	.700	2.500	5/32	RDH5016
4.00MM	.1575	22	18	63	4	RDH5017
#21	.1590	1.000	.800	2.500	3/16	RDH5018
4.10MM	.1614	26	21	63	5	RDH5019
4.20MM	.1654	26	21	63	5	RDH5020
4.30MM	.1693	26	21	63	5	RDH5021
11/64	.1719	1.000	.800	2.500	3/16	RDH5022
4.40MM	.1732	26	21	63	5	RDH5023
4.50MM	.1772	26	21	63	5	RDH5024
4.60MM	.1811	26	21	63	5	RDH5025
4.70MM	.1850	26	21	63	5	RDH5026
3/16	.1875	1.000	.800	2.500	3/16	RDH5027
4.80MM	.1890	26	21	63	5	RDH5028
4.90MM	.1929	26	21	63	5	RDH5029
5.00MM	.1968	26	21	63	5	RDH5030
5.10MM	.2008	28	20	66	6	RDH5031
13/64	.2031	1.102	.787	2.598	15/64	RDH5032
5.20MM	.2047	28	20	66	6	RDH5033
5.30MM	.2087	28	20	66	6	RDH5034
5.40MM	.2126	28	20	66	6	RDH5035
5.50MM	.2165	28	20	66	6	RDH5036
7/32	.2187	1.102	.787	2.598	15/64	RDH5037
#2	.2210	1.102	.787	2.598	15/64	RDH5038

Continued

For detailed tolerance information, see page 327.

Speed & Feeds page 328.



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 3X Dia., 30° Helix (.2244-.3307)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
5.70MM	.2244	28	20	66	6	RDH5039
5.80MM	.2283	28	20	66	6	RDH5040
5.90MM	.2323	28	20	66	6	RDH5041
15/64	.2344	1.102	.787	2.598	15/64	RDH5042
6.00MM	.2362	28	20	66	6	RDH5043
6.10MM	.2402	34	24	79	8	RDH5044
C	.2420	1.339	.945	3.110	1/4	RDH5045
6.20MM	.2441	34	24	79	8	RDH5046
D	.2460	1.339	.945	3.110	1/4	RDH5047
6.30MM	.2480	34	24	79	8	RDH5048
1/4	.2500	1.339	.945	3.110	1/4	RDH5049
6.40MM	.2520	34	24	79	8	RDH5050
6.50MM	.2559	34	24	79	8	RDH5051
F	.2570	1.339	.945	3.110	5/16	RDH5052
6.60MM	.2598	34	24	79	8	RDH5053
G	.2610	1.339	.945	3.110	5/16	RDH5054
6.70MM	.2638	34	24	79	8	RDH5055
17/64	.2656	1.339	.945	3.110	5/16	RDH5056
6.80MM	.2677	34	24	79	8	RDH5057
6.90MM	.2717	34	24	79	8	RDH5058
7.00MM	.2756	34	24	79	8	RDH5059
7.10MM	.2795	41	29	79	8	RDH5060
9/32	.2812	1.614	1.142	3.110	5/16	RDH5061
7.20MM	.2835	41	29	79	8	RDH5062
7.30MM	.2874	41	29	79	8	RDH5063
7.40MM	.2913	41	29	79	8	RDH5064
7.50MM	.2953	41	29	79	8	RDH5065
19/64	.2969	1.614	1.142	3.110	5/16	RDH5066
7.60MM	.2992	41	29	79	8	RDH5067
7.70MM	.3031	41	29	79	8	RDH5068
7.80MM	.3071	41	29	79	8	RDH5069
7.90MM	.3110	41	29	79	8	RDH5070
5/16	.3125	1.614	1.142	3.110	5/16	RDH5071
8.00MM	.3150	41	29	79	8	RDH5072
8.10MM	.3189	47	35	89	10	RDH5073
8.20MM	.3228	47	35	89	10	RDH5074
8.30MM	.3268	47	35	89	10	RDH5075
21/64	.3281	1.850	1.378	3.504	25/64	RDH5076
8.40MM	.3307	47	35	89	10	RDH5077

Continued

Speeds & Feeds page 328.

For detailed tolerance information, see page 327.



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 3X Dia., 30° Helix (.3320-.4488)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
Q	.3320	1.850	1.378	3.504	25/64	RDH5078
8.50MM	.3346	47	35	89	10	RDH5079
8.60MM	.3386	47	35	89	10	RDH5080
8.70MM	.3425	47	35	89	10	RDH5081
11/32	.3438	1.850	1.378	3.504	25/64	RDH5082
8.80MM	.3465	47	35	89	10	RDH5083
8.90MM	.3504	47	35	89	10	RDH5084
9.00MM	.3543	47	35	89	10	RDH5085
9.10MM	.3583	47	35	89	10	RDH5086
23/64	.3594	1.850	1.378	3.504	25/64	RDH5087
9.20MM	.3622	47	35	89	10	RDH5088
9.25MM	.3642	47	35	89	10	RDH5089
9.30MM	.3661	47	35	89	10	RDH5090
9.40MM	.3701	47	35	89	10	RDH5091
9.50MM	.3740	47	35	89	10	RDH5092
3/8	.3750	1.850	1.378	3.504	25/64	RDH5093
9.60MM	.3780	47	35	89	10	RDH5094
9.70MM	.3819	47	35	89	10	RDH5095
9.80MM	.3858	47	35	89	10	RDH5096
9.90MM	.3898	47	35	89	10	RDH5097
25/64	.3906	1.850	1.378	3.504	25/64	RDH5098
10.00MM	.3937	47	35	89	10	RDH5099
10.10MM	.3976	55	40	102	12	RDH5100
10.20MM	.4016	55	40	102	12	RDH5101
10.30MM	.4055	55	40	102	12	RDH5102
13/32	.4062	2.165	1.575	4.016	15/32	RDH5103
10.40MM	.4094	55	40	102	12	RDH5104
10.50MM	.4134	55	40	102	12	RDH5105
10.60MM	.4173	55	40	102	12	RDH5106
10.70MM	.4213	55	40	102	12	RDH5107
27/64	.4219	2.165	1.575	4.016	15/32	RDH5108
10.80MM	.4252	55	40	102	12	RDH5109
10.90MM	.4291	55	40	102	12	RDH5110
11.00MM	.4331	55	40	102	12	RDH5111
11.10MM	.4370	55	40	102	12	RDH5112
7/16	.4375	2.165	1.575	4.016	15/32	RDH5113
11.20MM	.4409	55	40	102	12	RDH5114
11.30MM	.4449	55	40	102	12	RDH5115
11.40MM	.4488	55	40	102	12	RDH5116

Continued

For detailed tolerance information, see page 327.

Speed & Feeds page 328.

Multi-Material - 3XD



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 3X Dia., 30° Helix (.4527-.6299)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
11.50MM	.4527	55	40	102	12	RDH5117
11.60MM	.4567	55	40	102	12	RDH5118
11.70MM	.4606	55	40	102	12	RDH5119
11.80MM	.4646	55	40	102	12	RDH5120
11.90MM	.4685	55	40	102	12	RDH5121
15/32	.4688	2.165	1.575	4.016	15/32	RDH5122
12.00MM	.4724	55	40	102	12	RDH5123
12.10MM	.4764	60	43	107	14	RDH5124
31/64	.4844	2.362	1.693	4.213	1/2	RDH5125
12.50MM	.4921	60	43	107	14	RDH5126
1/2	.5000	2.362	1.693	4.213	1/2	RDH5127
12.80MM	.5039	60	43	107	14	RDH5128
12.83MM	.5051	60	43	107	14	RDH5129
12.90MM	.5079	60	43	107	14	RDH5130
13.00MM	.5118	60	43	107	14	RDH5131
33/64	.5156	2.362	1.693	4.213	35/64	RDH5132
13.50MM	.5315	60	43	107	14	RDH5133
13.70MM	.5394	60	43	107	14	RDH5134
35/64	.5469	2.362	1.693	4.213	35/64	RDH5135
14.00MM	.5512	60	43	107	14	RDH5136
9/16	.5625	2.559	1.772	4.528	5/8	RDH5137
14.50MM	.5709	65	45	115	16	RDH5138
14.70MM	.5787	65	45	115	16	RDH5139
15.00MM	.5905	65	45	115	16	RDH5140
19/32	.5938	2.559	1.772	4.528	5/8	RDH5141
15.30MM	.6024	65	45	115	16	RDH5142
15.50MM	.6102	65	45	115	16	RDH5143
15.70MM	.6181	65	45	115	16	RDH5144
5/8	.6250	2.559	1.772	4.528	5/8	RDH5145
16.00MM	.6299	65	45	115	16	RDH5146

Speeds & Feeds page 328.

For detailed tolerance information, see page 327.

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, 142° Point, 3X Dia., 30° Helix (.1181-.2205)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
3.00MM	.1181	20	14	62	3	RDX3000
#31	.1200	.787	.551	2.440	1/8	RDX3001
3.10MM	.1220	20	14	62	4	RDX3002
1/8	.1250	.787	.551	2.440	1/8	RDX3003
3.20MM	.1260	20	14	62	4	RDX3004
#30	.1285	.787	.551	2.440	1/64	RDX3005
3.30MM	.1299	20	14	62	4	RDX3006
3.40MM	.1339	20	14	62	4	RDX3007
#29	.1360	.787	.551	2.440	1/64	RDX3008
3.50MM	.1378	20	14	62	4	RDX3009
9/64	.1406	.787	.551	2.440	1/64	RDX3010
3.60MM	.1417	20	14	62	4	RDX3011
3.70MM	.1457	20	14	62	4	RDX3012
3.80MM	.1496	24	17	66	4	RDX3013
#24	.1520	.945	.669	2.600	1/64	RDX3014
3.90MM	.1535	24	17	66	4	RDX3015
5/32	.1562	.945	.669	2.600	1/64	RDX3016
4.00MM	.1575	24	17	66	4	RDX3017
#21	.1590	.945	.669	2.600	3/16	RDX3018
4.10MM	.1614	24	17	66	5	RDX3019
4.20MM	.1654	24	17	66	5	RDX3020
4.30MM	.1693	24	17	66	5	RDX3021
11/64	.1719	.945	.669	2.600	3/16	RDX3022
4.40MM	.1732	24	17	66	5	RDX3023
4.50MM	.1772	24	17	66	5	RDX3024
4.60MM	.1811	24	17	66	5	RDX3025
4.70MM	.1850	24	17	66	5	RDX3026
3/16	.1875	1.102	.787	2.600	3/16	RDX3027
4.80MM	.1890	28	20	66	5	RDX3028
4.90MM	.1929	28	20	66	5	RDX3029
5.00MM	.1968	28	20	66	5	RDX3030
5.10MM	.2008	28	20	66	6	RDX3031
13/64	.2031	1.102	.787	2.598	1/4	RDX3032
5.20MM	.2047	28	20	66	6	RDX3033
5.30MM	.2087	28	20	66	6	RDX3034
5.40MM	.2126	28	20	66	6	RDX3035
5.50MM	.2165	28	20	66	6	RDX3036
7/32	.2187	1.102	.787	2.598	1/4	RDX3037
5.60MM	.2205	28	20	66	6	RDX3038

Continued

For detailed tolerance information, see page 329.

Speeds & Feeds page 329.

Double Margin - 3XD

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, 142° Point, 3X Dia., 30° Helix (.2210-.3268)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
#2	.2210	1.102	.787	2.598	1/4	RDX3039
5.70MM	.2244	28	20	66	6	RDX3040
5.80MM	.2283	28	20	66	6	RDX3041
5.90MM	.2323	28	20	66	6	RDX3042
15/64	.2344	1.102	.787	2.598	1/4	RDX3043
6.00MM	.2362	28	20	66	6	RDX3044
6.10MM	.2402	34	24	79	8	RDX3045
C	.2420	1.339	.945	3.110	1/4	RDX3046
6.20MM	.2441	34	24	79	8	RDX3047
D	.2460	1.339	.945	3.110	1/4	RDX3048
6.30MM	.2480	34	24	79	8	RDX3049
1/4	.2500	1.339	.945	3.110	1/4	RDX3050
6.40MM	.2520	34	24	79	8	RDX3051
6.50MM	.2559	34	24	79	8	RDX3052
F	.2570	1.339	.945	3.110	5/16	RDX3053
6.60MM	.2598	34	24	79	8	RDX3054
G	.2610	1.339	.945	3.110	5/16	RDX3055
6.70MM	.2638	34	24	79	8	RDX3056
17/64	.2656	1.339	.945	3.110	5/16	RDX3057
6.80MM	.2677	34	24	79	8	RDX3058
6.90MM	.2717	34	24	79	8	RDX3059
7.00MM	.2756	34	24	79	8	RDX3060
7.10MM	.2795	41	29	79	8	RDX3061
9/32	.2812	1.614	1.142	3.110	5/16	RDX3062
7.20MM	.2835	41	29	79	8	RDX3063
7.30MM	.2874	41	29	79	8	RDX3064
7.40MM	.2913	41	29	79	8	RDX3065
7.50MM	.2953	41	29	79	8	RDX3066
19/64	.2969	1.614	1.142	3.110	5/16	RDX3067
7.60MM	.2992	41	29	79	8	RDX3068
7.70MM	.3031	41	29	79	8	RDX3069
7.80MM	.3071	41	29	79	8	RDX3070
7.90MM	.3110	41	29	79	8	RDX3071
5/16	.3125	1.614	1.142	3.110	5/16	RDX3072
8.00MM	.3150	41	29	79	8	RDX3073
8.10MM	.3189	47	35	89	10	RDX3074
8.20MM	.3228	47	35	89	10	RDX3075
8.30MM	.3268	47	35	89	10	RDX3076

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For detailed tolerance information, see page 329.

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, 142° Point, 3X Dia., 30° Helix (.3281-.4375)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
21/64	.3281	1.850	1.378	3.504	3/8	RDX3077
8.40MM	.3307	47	35	89	10	RDX3078
Q	.3320	1.850	1.378	3.504	3/8	RDX3079
8.50MM	.3346	47	35	89	10	RDX3080
8.60MM	.3386	47	35	89	10	RDX3081
8.70MM	.3425	47	35	89	10	RDX3082
11/32	.3438	1.850	1.378	3.504	3/8	RDX3083
8.80MM	.3465	47	35	89	10	RDX3084
8.90MM	.3504	47	35	89	10	RDX3085
9.00MM	.3543	47	35	89	10	RDX3086
9.10MM	.3583	47	35	89	10	RDX3087
23/64	.3594	1.850	1.378	3.504	3/8	RDX3088
9.20MM	.3622	47	35	89	10	RDX3089
9.25MM	.3642	47	35	89	10	RDX3090
9.30MM	.3661	47	35	89	10	RDX3091
9.40MM	.3701	47	35	89	10	RDX3092
9.50MM	.3740	47	35	89	10	RDX3093
3/8	.3750	1.850	1.378	3.504	3/8	RDX3094
9.60MM	.3780	47	35	89	10	RDX3095
9.70MM	.3819	47	35	89	10	RDX3096
9.80MM	.3858	47	35	89	10	RDX3097
9.90MM	.3898	47	35	89	10	RDX3098
25/64	.3906	1.850	1.378	3.504	7/16	RDX3099
10.00MM	.3937	47	35	89	10	RDX3100
10.10MM	.3976	55	40	102	12	RDX3101
10.20MM	.4016	55	40	102	12	RDX3102
10.30MM	.4055	55	40	102	12	RDX3103
13/32	.4062	2.165	1.575	4.016	7/16	RDX3104
10.40MM	.4094	55	40	102	12	RDX3105
10.50MM	.4134	55	40	102	12	RDX3106
10.60MM	.4173	55	40	102	12	RDX3107
10.70MM	.4213	55	40	102	12	RDX3108
27/64	.4219	2.165	1.575	4.016	7/16	RDX3109
10.80MM	.4252	55	40	102	12	RDX3110
10.90MM	.4291	55	40	102	12	RDX3111
11.00MM	.4331	55	40	102	12	RDX3112
11.10MM	.4370	55	40	102	12	RDX3113
7/16	.4375	2.165	1.575	4.016	7/16	RDX3114

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For detailed tolerance information, see page 329.

Speeds & Feeds page 329.

Double Margin - 3XD

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, 142° Point, 3X Dia., 30° Helix (.4409-6562)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
11.20MM	.4409	55	40	102	12	RDX3115
11.30MM	.4449	55	40	102	12	RDX3116
11.40MM	.4488	55	40	102	12	RDX3117
11.50MM	.4527	55	40	102	12	RDX3118
11.60MM	.4567	55	40	102	12	RDX3119
11.70MM	.4606	55	40	102	12	RDX3120
11.80MM	.4646	55	40	102	12	RDX3121
11.90MM	.4685	55	40	102	12	RDX3122
15/32	.4688	2.165	1.575	4.016	1/2	RDX3123
12.00MM	.4724	55	40	102	12	RDX3124
12.10MM	.4764	60	43	107	14	RDX3125
31/64	.4844	2.362	1.693	4.213	1/2	RDX3126
12.50MM	.4921	60	43	107	14	RDX3127
1/2	.5000	2.362	1.693	4.213	1/2	RDX3128
12.80MM	.5039	60	43	107	14	RDX3129
12.83MM	.5051	60	43	107	14	RDX3130
12.90MM	.5079	60	43	107	14	RDX3131
13.00MM	.5118	60	43	107	14	RDX3132
33/64	.5156	2.362	1.693	4.213	9/16	RDX3133
17/32	.5312	2.362	1.693	4.213	9/16	RDX3134
13.50MM	.5315	60	43	107	14	RDX3135
13.70MM	.5394	60	43	107	14	RDX3136
35/64	.5469	2.362	1.693	4.213	9/16	RDX3137
14.00MM	.5512	60	43	107	14	RDX3138
9/16	.5625	2.559	1.772	4.528	9/16	RDX3139
14.50MM	.5709	65	45	115	16	RDX3140
14.70MM	.5787	65	45	115	16	RDX3141
15.00MM	.5905	65	45	115	16	RDX3142
19/32	.5938	2.559	1.772	4.528	5/8	RDX3143
15.30MM	.6024	65	45	115	16	RDX3144
15.50MM	.6102	65	45	115	16	RDX3145
15.70MM	.6181	65	45	115	16	RDX3146
5/8	.6250	2.559	1.772	4.528	5/8	RDX3147
16.00MM	.6299	65	45	115	16	RDX3148
16.08MM	.6331	73	51	123	18	RDX3149
16.30MM	.6417	73	51	123	18	RDX3150
16.50MM	.6496	73	51	123	18	RDX3151
21/32	.6562	2.874	2.008	4.840	11/16	RDX3152

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For detailed tolerance information, see page 329.

NEW Product

RedLine HOLE SHOT XHP



AlTiNX Coated

Double Margin, Solid Carbide, 142° Point, 3X Dia., 30° Helix (.6693-.7874)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
17.00MM	.6693	73	51	123	18	RDX3153
11/16	.6875	2.874	2.008	4.840	11/16	RDX3154
17.50MM	.6890	73	51	123	18	RDX3155
18.00MM	.7087	73	51	123	18	RDX3156
18.50MM	.7283	79	55	131	20	RDX3157
3/4	.7500	3.110	2.165	5.160	3/4	RDX3158
19.16MM	.7543	79	55	131	20	RDX3159
19.25MM	.7579	79	55	131	20	RDX3160
19.30MM	.7598	79	55	131	20	RDX3161
19.50MM	.7677	79	55	131	20	RDX3162
20.00MM	.7874	79	55	131	20	RDX3163

For detailed tolerance information, see page 329.
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Double Margin - 3XD

NEW Product

RedLine HOLE SHOT XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 3X Dia., 30° Helix (.1181-.2205)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
3.00MM	.1181	20	14	62	3.0	RDX3200
#31	.1200	.787	.551	2.440	1/8	RDX3201
3.10MM	.1220	20	14	62	4.0	RDX3202
1/8	.1250	.787	.551	2.440	1/8	RDX3203
3.20MM	.1260	20	14	62	4.0	RDX3204
#30	.1285	.787	.551	2.440	5/32	RDX3205
3.30MM	.1299	20	14	62	4.0	RDX3206
3.40MM	.1339	20	14	62	4.0	RDX3207
#29	.1360	.787	.551	2.440	5/32	RDX3208
3.50MM	.1378	20	14	62	4.0	RDX3209
9/64	.1406	.787	.551	2.440	5/32	RDX3210
3.60MM	.1417	20	14	62	4.0	RDX3211
3.70MM	.1457	20	14	62	4.0	RDX3212
3.80MM	.1496	24	17	66	4.0	RDX3213
#24	.1520	.945	.669	2.600	5/32	RDX3214
3.90MM	.1535	24	17	66	4.0	RDX3215
5/32	.1562	.945	.669	2.600	5/32	RDX3216
4.00MM	.1575	24	17	66	4.0	RDX3217
#21	.1590	.945	.669	2.600	3/16	RDX3218
4.10MM	.1614	24	17	66	5.0	RDX3219
4.20MM	.1654	24	17	66	5.0	RDX3220
4.30MM	.1693	24	17	66	5.0	RDX3221
11/64	.1719	.945	.669	2.600	3/16	RDX3222
4.40MM	.1732	24	17	66	5.0	RDX3223
4.50MM	.1772	24	17	66	5.0	RDX3224
4.60MM	.1811	24	17	66	5.0	RDX3225
4.70MM	.1850	24	17	66	5.0	RDX3226
3/16	.1875	1.102	.787	2.600	3/16	RDX3227
4.80MM	.1890	28	20	66	5.0	RDX3228
4.90MM	.1929	28	20	66	5.0	RDX3229
5.00MM	.1968	28	20	66	5.0	RDX3230
5.10MM	.2008	28	20	66	6.0	RDX3231
13/64	.2031	1.102	.787	2.598	1/4	RDX3232
5.20MM	.2047	28	20	66	6.0	RDX3233
5.30MM	.2087	28	20	66	6.0	RDX3234
5.40MM	.2126	28	20	66	6.0	RDX3235
5.50MM	.2165	28	20	66	6.0	RDX3236
7/32	.2187	1.102	.787	2.598	1/4	RDX3237
5.60MM	.2205	28	20	66	6.0	RDX3238

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Speeds & Feeds page 330.

For detailed tolerance information, see page 329.

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 3X Dia., 30° Helix (.2210-.3281)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
#2	.2210	1.102	.787	2.598	1/4	RDX3239
5.70MM	.2244	28	20	66	6.0	RDX3240
5.80MM	.2283	28	20	66	6.0	RDX3241
5.90MM	.2323	28	20	66	6.0	RDX3242
15/64	.2344	1.102	.787	2.598	1/4	RDX3243
6.00MM	.2362	28	20	66	6.0	RDX3244
6.10MM	.2402	34	24	79	8.0	RDX3245
C	.2420	1.339	.945	3.110	1/4	RDX3246
6.20MM	.2441	34	24	79	8.0	RDX3247
D	.2460	1.339	.945	3.110	1/4	RDX3248
6.30MM	.2480	34	24	79	8.0	RDX3249
1/4	.2500	1.339	.945	3.110	1/4	RDX3250
6.40MM	.2520	34	24	79	8.0	RDX3251
6.50MM	.2559	34	24	79	8.0	RDX3252
F	.2570	1.339	.945	3.110	5/16	RDX3253
6.60MM	.2598	34	24	79	8.0	RDX3254
G	.2610	1.339	.945	3.110	5/16	RDX3255
6.70MM	.2638	34	24	79	8.0	RDX3256
17/64	.2656	1.339	.945	3.110	5/16	RDX3257
6.80MM	.2677	34	24	79	8.0	RDX3258
6.90MM	.2717	34	24	79	8.0	RDX3259
7.00MM	.2756	34	24	79	8.0	RDX3260
7.10MM	.2795	41	29	79	8.0	RDX3261
9/32	.2812	1.614	1.142	3.110	5/16	RDX3262
7.20MM	.2835	41	29	79	8.0	RDX3263
7.30MM	.2874	41	29	79	8.0	RDX3264
7.40MM	.2913	41	29	79	8.0	RDX3265
7.50MM	.2953	41	29	79	8.0	RDX3266
19/64	.2969	1.614	1.142	3.110	5/16	RDX3267
7.60MM	.2992	41	29	79	8.0	RDX3268
7.70MM	.3031	41	29	79	8.0	RDX3269
7.80MM	.3071	41	29	79	8.0	RDX3270
7.90MM	.3110	41	29	79	8.0	RDX3271
5/16	.3125	1.614	1.142	3.110	5/16	RDX3272
8.00MM	.3150	41	29	79	8.0	RDX3273
8.10MM	.3189	47	35	89	10.0	RDX3274
8.20MM	.3228	47	35	89	10.0	RDX3275
8.30MM	.3268	47	35	89	10.0	RDX3276
21/64	.3281	1.850	1.378	3.504	3/8	RDX3277

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For detailed tolerance information, see page 329.

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Double Margin - 3XD

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 3X Dia., 30° Helix (.3307-.4375)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
8.40MM	.3307	47	35	89	10.0	RDX3278
Q	.3320	1.850	1.378	3.504	3/8	RDX3279
8.50MM	.3346	47	35	89	10.0	RDX3280
8.60MM	.3386	47	35	89	10.0	RDX3281
8.70MM	.3425	47	35	89	10.0	RDX3282
11/32	.3438	1.850	1.378	3.504	3/8	RDX3283
8.80MM	.3465	47	35	89	10.0	RDX3284
8.90MM	.3504	47	35	89	10.0	RDX3285
9.00MM	.3543	47	35	89	10.0	RDX3286
9.10MM	.3583	47	35	89	10.0	RDX3287
23/64	.3594	1.850	1.378	3.504	3/8	RDX3288
9.20MM	.3622	47	35	89	10.0	RDX3289
9.25MM	.3642	47	35	89	10.0	RDX3290
9.30MM	.3661	47	35	89	10.0	RDX3291
9.40MM	.3701	47	35	89	10.0	RDX3292
9.50MM	.3740	47	35	89	10.0	RDX3293
3/8	.3750	1.850	1.378	3.504	3/8	RDX3294
9.60MM	.3780	47	35	89	10.0	RDX3295
9.70MM	.3819	47	35	89	10.0	RDX3296
9.80MM	.3858	47	35	89	10.0	RDX3297
9.90MM	.3898	47	35	89	10.0	RDX3298
25/64	.3906	1.850	1.378	3.504	7/16	RDX3299
10.00MM	.3937	47	35	89	10.0	RDX3300
10.10MM	.3976	55	40	102	12.0	RDX3301
10.15MM	.3996	55	40	102	12.0	RDX3302
10.20MM	.4016	55	40	102	12.0	RDX3303
10.30MM	.4055	55	40	102	12.0	RDX3304
13/32	.4062	2.165	1.575	4.016	7/16	RDX3305
10.40MM	.4094	55	40	102	12.0	RDX3306
10.50MM	.4134	55	40	102	12.0	RDX3307
10.60MM	.4173	55	40	102	12.0	RDX3308
10.70MM	.4213	55	40	102	12.0	RDX3309
27/64	.4219	2.165	1.575	4.016	7/16	RDX3310
10.80MM	.4252	55	40	102	12.0	RDX3311
10.90MM	.4291	55	40	102	12.0	RDX3312
11.00MM	.4331	55	40	102	12.0	RDX3313
11.10MM	.4370	55	40	102	12.0	RDX3314
7/16	.4375	2.165	1.575	4.016	7/16	RDX3315

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Speeds & Feeds page 330.

For detailed tolerance information, see page 329.

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 3X Dia., 30° Helix (.4409-.6299)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
11.20MM	.4409	55	40	102	12.0	RDX3316
11.30MM	.4449	55	40	102	12.0	RDX3317
11.40MM	.4488	55	40	102	12.0	RDX3318
11.50MM	.4527	55	40	102	12.0	RDX3319
11.55MM	.4547	55	40	102	12.0	RDX3320
11.60MM	.4567	55	40	102	12.0	RDX3321
11.70MM	.4606	55	40	102	12.0	RDX3322
11.80MM	.4646	55	40	102	12.0	RDX3323
11.90MM	.4685	55	40	102	12.0	RDX3324
15/32	.4688	2.165	1.575	4.016	1/2	RDX3325
12.00MM	.4724	55	40	102	12.0	RDX3326
12.10MM	.4764	60	43	107	14.0	RDX3327
31/64	.4844	2.362	1.693	4.213	1/2	RDX3328
12.50MM	.4921	60	43	107	14.0	RDX3329
1/2	.5000	2.362	1.693	4.213	1/2	RDX3330
12.80MM	.5039	60	43	107	14.0	RDX3331
12.83MM	.5051	60	43	107	14.0	RDX3332
12.90MM	.5079	60	43	107	14.0	RDX3333
13.00MM	.5118	60	43	107	14.0	RDX3334
33/64	.5156	2.362	1.693	4.213	9/16	RDX3335
13.20MM	.5197	60	43	107	14.0	RDX3336
17/32	.5312	2.362	1.693	4.213	9/16	RDX3337
13.50MM	.5315	60	43	107	14.0	RDX3338
13.70MM	.5394	60	43	107	14.0	RDX3339
35/64	.5469	2.362	1.693	4.213	9/16	RDX3340
14.00MM	.5512	60	43	107	14.0	RDX3341
9/16	.5625	2.559	1.772	4.528	9/16	RDX3342
14.50MM	.5709	65	45	115	16.0	RDX3343
14.70MM	.5787	65	45	115	16.0	RDX3344
14.75MM	.5807	65	45	115	16.0	RDX3345
15.00MM	.5905	65	45	115	16.0	RDX3346
19/32	.5938	2.559	1.772	4.528	5/8	RDX3347
15.30MM	.6024	65	45	115	16.0	RDX3348
15.50MM	.6102	65	45	115	16.0	RDX3349
15.70MM	.6181	65	45	115	16.0	RDX3350
5/8	.6250	2.559	1.772	4.528	5/8	RDX3351
16.00MM	.6299	65	45	115	16.0	RDX3352

For detailed tolerance information, see page 329.
Speeds & Feeds page 330.

Multi-Material - 5XD



AlTiN Coated

Multi-Material, Solid Carbide, 142° Point, 5X Dia., 30° Helix (.0156-.1535)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
1/64	.0156	3/16	.1406	1.500	1/64	RDH1000
.50MM	.0197	6	5	26	.5	RDH1001
.60MM	.0236	7	5	26	.6	RDH1002
.65MM	.0256	8	6	26	.65	RDH1003
1/32	.0312	0.375	.2812	1.500	1/32	RDH1004
.95MM	.0374	11	8	32	.95	RDH1005
1.00MM	.0394	12	9	34	1.0	RDH1006
1.05MM	.0413	12	9	34	1.05	RDH1007
3/64	.0469	0.750	.5625	1.500	3/64	RDH1008
1.25MM	.0492	16	12	38	1.25	RDH1009
1.50MM	.0590	18	14	40	1.5	RDH1010
1/16	.0625	0.750	.5625	1.500	1/16	RDH1011
1.60MM	.0630	20	15	43	1.6	RDH1012
1.80MM	.0708	22	17	46	1.8	RDH1013
1.90MM	.0748	22	17	46	1.9	RDH1014
5/64	.0781	0.875	.6562	1.750	5/64	RDH1015
2.00MM	.0787	24	18	49	2.0	RDH1016
2.05MM	.0807	24	18	49	2.05	RDH1017
2.30MM	.0906	27	20	53	2.3	RDH1018
3/32	.0938	1	.7500	2	3/32	RDH1019
2.40MM	.0945	30	23	57	2.4	RDH1020
2.50MM	.0984	30	23	57	2.5	RDH1022
7/64	.1094	1.250	.9375	2.250	7/64	RDH1023
2.90MM	.1142	33	25	61	2.9	RDH1025
3.00MM	.1181	24	19	63	3.0	RDH1027
#31	.1200	1.125	.900	2.500	1/8	RDH1029
3.10MM	.1220	32	26	69	4.0	RDH1031
1/8	.1250	1.125	.900	2.500	1/8	RDH1033
3.20MM	.1260	32	26	69	4.0	RDH1035
#30	.1285	1.260	1.000	2.750	5/32	RDH1037
3.30MM	.1299	32	26	69	4.0	RDH1039
3.40MM	.1339	32	26	69	4.0	RDH1041
#29	.1360	1.260	1.000	2.750	5/32	RDH1043
3.50MM	.1378	32	26	69	4.0	RDH1045
9/64	.1406	1.260	1.000	2.750	5/32	RDH1047
3.60MM	.1417	32	26	69	4.0	RDH1049
3.70MM	.1457	32	26	69	4.0	RDH1051
3.80MM	.1496	32	26	69	4.0	RDH1053
#24	.1520	1.260	1.000	2.750	5/32	RDH1055
3.90MM	.1535	32	26	69	4.0	RDH1057

Continued

Speeds & Feeds page 327.

For detailed tolerance information, see page 327.



AlTiN Coated

Multi-Material, Solid Carbide, 142° Point, 5X Dia., 30° Helix (.1562-.2610)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
5/32	.1562	1.260	1.000	2.750	5/32	RDH1059
4.00MM	.1575	32	26	69	4.0	RDH1061
#21	.1590	1.500	1.200	3.150	3/16	RDH1063
4.10MM	.1614	38	30	80	5.0	RDH1065
4.20MM	.1654	38	30	80	5.0	RDH1067
4.30MM	.1693	38	30	80	5.0	RDH1069
11/64	.1719	1.500	1.200	3.150	3/16	RDH1071
4.40MM	.1732	38	30	80	5.0	RDH1073
4.50MM	.1772	38	30	80	5.0	RDH1075
4.60MM	.1811	38	30	80	5.0	RDH1077
4.70MM	.1850	38	30	80	5.0	RDH1079
3/16	.1875	1.500	1.200	3.150	3/16	RDH1081
4.80MM	.1890	38	30	80	5.0	RDH1083
4.90MM	.1929	38	30	80	5.0	RDH1085
5.00MM	.1968	38	30	80	5.0	RDH1087
5.10MM	.2008	40	32	82	6.0	RDH1089
13/64	.2031	1.580	1.260	3.230	15/64	RDH1091
5.20MM	.2047	40	32	82	6.0	RDH1093
5.30MM	.2087	40	32	82	6.0	RDH1095
5.40MM	.2126	40	32	82	6.0	RDH1097
5.50MM	.2165	40	32	82	6.0	RDH1099
7/32	.2187	1.580	1.260	3.230	15/64	RDH1101
#2	.2210	1.580	1.260	3.230	15/64	RDH1103
5.70MM	.2244	40	32	82	6.0	RDH1105
5.80MM	.2283	40	32	82	6.0	RDH1107
5.90MM	.2323	40	32	82	6.0	RDH1109
15/64	.2344	1.580	1.260	3.230	15/64	RDH1111
6.00MM	.2362	40	32	82	6.0	RDH1113
6.10MM	.2402	48	38	91	8.0	RDH1115
C	.2420	1.740	1.390	3.250	1/4	RDH1117
6.20MM	.2441	48	38	91	8.0	RDH1119
D	.2460	1.740	1.390	3.250	1/4	RDH1121
6.30MM	.2480	48	38	91	8.0	RDH1123
1/4	.2500	1.740	1.390	3.250	1/4	RDH1125
6.40MM	.2520	48	38	91	8.0	RDH1127
6.50MM	.2559	48	38	91	8.0	RDH1129
F	.2570	1.890	1.510	3.580	5/16	RDH1131
6.60MM	.2598	48	38	91	8.0	RDH1133
G	.2610	1.890	1.510	3.580	5/16	RDH1135

Continued

For detailed tolerance information, see page 327.

Speeds & Feeds page 327.

Multi-Material - 5XD



AlTiN Coated

Multi-Material, Solid Carbide, 142° Point, 5X Dia., 30° Helix (.2638-.3750)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
6.70MM	.2638	48	38	91	8.0	RDH1137
17/64	.2656	1.890	1.510	3.580	5/16	RDH1139
6.80MM	.2677	48	38	91	8.0	RDH1141
6.90MM	.2717	48	38	91	8.0	RDH1143
7.00MM	.2756	48	38	91	8.0	RDH1145
7.10MM	.2795	48	38	91	8.0	RDH1147
9/32	.2812	1.890	1.510	3.580	5/16	RDH1149
7.20MM	.2835	48	38	91	8.0	RDH1151
7.30MM	.2874	48	38	91	8.0	RDH1153
7.40MM	.2913	48	38	91	8.0	RDH1155
7.50MM	.2953	48	38	91	8.0	RDH1157
19/64	.2969	1.890	1.510	3.580	5/16	RDH1159
7.60MM	.2992	48	38	91	8.0	RDH1161
7.70MM	.3031	48	38	91	8.0	RDH1163
7.80MM	.3071	48	38	91	8.0	RDH1165
7.90MM	.3110	48	38	91	8.0	RDH1167
5/16	.3125	1.890	1.510	3.580	5/16	RDH1169
8.00MM	.3150	48	38	91	8.0	RDH1171
8.10MM	.3189	55	44	103	10.0	RDH1173
8.20MM	.3228	55	44	103	10.0	RDH1175
8.30MM	.3268	55	44	103	10.0	RDH1177
21/64	.3281	2.170	1.740	4.060	25/64	RDH1179
8.40MM	.3307	55	44	103	10.0	RDH1181
Q	.3320	2.170	1.740	4.060	25/64	RDH1183
8.50MM	.3346	55	44	103	10.0	RDH1185
8.60MM	.3386	55	44	103	10.0	RDH1187
8.70MM	.3425	55	44	103	10.0	RDH1189
11/32	.3438	2.170	1.740	4.060	25/64	RDH1191
8.80MM	.3465	55	44	103	10.0	RDH1193
8.90MM	.3504	55	44	103	10.0	RDH1195
9.00MM	.3543	55	44	103	10.0	RDH1197
9.10MM	.3583	55	44	103	10.0	RDH1199
23/64	.3594	2.170	1.740	4.060	25/64	RDH1201
9.20MM	.3622	55	44	103	10.0	RDH1203
9.25MM	.3642	55	44	103	10.0	RDH1205
9.30MM	.3661	55	44	103	10.0	RDH1207
9.40MM	.3701	55	44	103	10.0	RDH1209
9.50MM	.3740	55	44	103	10.0	RDH1211
3/8	.3750	2.170	1.740	4.060	25/64	RDH1213

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Speeds & Feeds page 327.

For detailed tolerance information, see page 327.

RedLine Hole Shot HP



AlTiN Coated

Multi-Material, Solid Carbide, 142° Point, 5X Dia., 30° Helix (.3780-.5156)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
9.60MM	.3780	55	44	103	10.0	RDH1215
9.70MM	.3819	55	44	103	10.0	RDH1217
9.80MM	.3858	55	44	103	10.0	RDH1219
9.90MM	.3898	55	44	103	10.0	RDH1221
25/64	.3906	2.170	1.740	4.060	25/64	RDH1223
10.00MM	.3937	55	44	103	10.0	RDH1225
10.10MM	.3976	60	48	120	12.0	RDH1227
10.20MM	.4016	60	48	120	12.0	RDH1229
10.30MM	.4055	60	48	120	12.0	RDH1231
13/32	.4062	2.360	1.890	4.720	15/32	RDH1233
10.40MM	.4094	60	48	120	12.0	RDH1235
10.50MM	.4134	60	48	120	12.0	RDH1237
10.60MM	.4173	60	48	120	12.0	RDH1239
10.70MM	.4213	60	48	120	12.0	RDH1241
27/64	.4219	2.360	1.890	4.720	15/32	RDH1243
10.80MM	.4252	60	48	120	12.0	RDH1245
10.90MM	.4291	60	48	120	12.0	RDH1247
11.00MM	.4331	60	48	120	12.0	RDH1249
11.10MM	.4370	66	53	120	12.0	RDH1251
7/16	.4375	2.600	2.080	4.720	15/32	RDH1253
11.20MM	.4409	66	53	120	12.0	RDH1255
11.30MM	.4449	66	53	120	12.0	RDH1257
11.40MM	.4488	66	53	120	12.0	RDH1259
11.50MM	.4527	66	53	120	12.0	RDH1261
11.60MM	.4567	66	53	120	12.0	RDH1263
11.70MM	.4606	66	53	120	12.0	RDH1265
11.80MM	.4646	66	53	120	12.0	RDH1267
11.90MM	.4685	66	53	120	12.0	RDH1269
15/32	.4688	2.600	2.080	4.720	15/32	RDH1271
12.00MM	.4724	66	53	120	12.0	RDH1273
12.10MM	.4764	72	58	126	14.0	RDH1275
31/64	.4844	2.830	2.260	4.750	1/2	RDH1277
12.50MM	.4921	72	58	126	14.0	RDH1279
1/2	.5000	2.830	2.260	4.750	1/2	RDH1281
12.80MM	.5039	72	58	126	14.0	RDH1283
12.83MM	.5051	72	58	126	14.0	RDH1285
12.90MM	.5079	72	58	126	14.0	RDH1287
13.00MM	.5118	72	58	126	14.0	RDH1289
33/64	.5156	3.030	2.420	5.280	35/64	RDH1291

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For detailed tolerance information, see page 327.

Speeds & Feeds page 327.

Multi-Material - 5XD



AlTiN Coated

Multi-Material, Solid Carbide, 142° Point, 5X Dia., 30° Helix (.5312-.6299)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
17/32	.5312	3.030	2.420	5.280	35/64	RDH1293
13.50MM	.5315	77	62	134	14.0	RDH1295
13.70MM	.5394	77	62	134	14.0	RDH1297
35/64	.5469	3.030	2.420	5.280	35/64	RDH1299
14.00MM	.5512	77	62	134	14.0	RDH1301
9/16	.5625	3.150	2.520	5.510	5/8	RDH1303
14.50MM	.5709	80	64	140	16.0	RDH1305
14.70MM	.5787	80	64	140	16.0	RDH1307
15.00MM	.5905	80	64	140	16.0	RDH1309
19/32	.5938	3.230	2.580	5.750	5/8	RDH1311
15.30MM	.6024	82	66	146	16.0	RDH1313
15.50MM	.6102	82	66	146	16.0	RDH1315
15.70MM	.6181	82	66	146	16.0	RDH1317
5/8	.6250	3.230	2.580	5.750	5/8	RDH1319
16.00MM	.6299	82	66	146	16.0	RDH1321

Speeds & Feeds page 327.

For detailed tolerance information, see page 327.

RedLine Hole Shot HP



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 5X Dia., 30° Helix (.1181-.2210)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
3.00MM	.1181	24	19	75	3.0	RDH2020
#31	.1200	1.125	.900	3.000	1/8	RDH2022
3.10MM	.1220	32	26	80	4.0	RDH2024
1/8	.1250	1.125	.900	3.000	1/8	RDH2026
3.20MM	.1260	32	26	80	4.0	RDH2028
#30	.1285	1.260	1.000	3.150	5/32	RDH2030
3.30MM	.1299	32	26	80	4.0	RDH2032
3.40MM	.1339	32	26	80	4.0	RDH2034
#29	.1360	1.260	1.000	3.150	5/32	RDH2036
3.50MM	.1378	32	26	80	4.0	RDH2038
9/64	.1406	1.260	1.000	3.150	5/32	RDH2040
3.60MM	.1417	32	26	80	4.0	RDH2042
3.70MM	.1457	32	26	80	4.0	RDH2044
3.80MM	.1496	32	26	80	4.0	RDH2046
#24	.1520	1.260	1.000	3.150	5/32	RDH2048
3.90MM	.1535	32	26	80	4.0	RDH2050
5/32	.1562	1.260	1.000	3.150	5/32	RDH2052
4.00MM	.1575	32	26	80	4.0	RDH2054
#21	.1590	1.500	1.200	3.230	3/16	RDH2056
4.10MM	.1614	38	30	82	5.0	RDH2058
4.20MM	.1654	38	30	82	5.0	RDH2060
4.30MM	.1693	38	30	82	5.0	RDH2062
11/64	.1719	1.500	1.200	3.230	3/16	RDH2064
4.40MM	.1732	38	30	82	5.0	RDH2066
4.50MM	.1772	38	30	82	5.0	RDH2068
4.60MM	.1811	38	30	82	5.0	RDH2070
4.70MM	.1850	38	30	82	5.0	RDH2072
3/16	.1875	1.500	1.200	3.230	3/16	RDH2074
4.80MM	.1890	38	30	82	5.0	RDH2076
4.90MM	.1929	38	30	82	5.0	RDH2078
5.00MM	.1968	38	30	82	5.0	RDH2080
5.10MM	.2008	40	32	82	6.0	RDH2082
13/64	.2031	1.580	1.260	3.230	15/64	RDH2084
5.20MM	.2047	40	32	82	6.0	RDH2086
5.30MM	.2087	40	32	82	6.0	RDH2088
5.40MM	.2126	40	32	82	6.0	RDH2090
5.50MM	.2165	40	32	82	6.0	RDH2092
7/32	.2187	1.580	1.260	3.230	15/64	RDH2094
#2	.2210	1.580	1.260	3.230	15/64	RDH2096

Continued

For detailed tolerance information, see page 327.
Speed & Feeds page 328.

RedLine Hole Shot HP



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 5X Dia., 30° Helix (.2244-.3307)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
5.70MM	.2244	40	32	82	6.0	RDH2098
5.80MM	.2283	40	32	82	6.0	RDH2100
5.90MM	.2323	40	32	82	6.0	RDH2102
15/64	.2344	1.580	1.260	3.230	15/64	RDH2104
6.00MM	.2362	40	32	82	6.0	RDH2106
6.10MM	.2402	48	38	91	8.0	RDH2108
C	.2420	1.740	1.390	3.300	1/4	RDH2110
6.20MM	.2441	48	38	91	8.0	RDH2112
D	.2460	1.740	1.390	3.300	1/4	RDH2114
6.30MM	.2480	48	38	91	8.0	RDH2116
1/4	.2500	1.740	1.390	3.300	1/4	RDH2118
6.40MM	.2520	48	38	91	8.0	RDH2120
6.50MM	.2559	48	38	91	8.0	RDH2122
F	.2570	1.890	1.510	3.580	5/16	RDH2124
6.60MM	.2598	48	38	91	8.0	RDH2126
G	.2610	1.890	1.510	3.580	5/16	RDH2128
6.70MM	.2638	48	38	91	8.0	RDH2130
17/64	.2656	1.890	1.510	3.580	5/16	RDH2132
6.80MM	.2677	48	38	91	8.0	RDH2134
6.90MM	.2717	48	38	91	8.0	RDH2136
7.00MM	.2756	48	38	91	8.0	RDH2138
7.10MM	.2795	48	38	91	8.0	RDH2140
9/32	.2812	1.890	1.510	3.580	5/16	RDH2142
7.20MM	.2835	48	38	91	8.0	RDH2144
7.30MM	.2874	48	38	91	8.0	RDH2146
7.40MM	.2913	48	38	91	8.0	RDH2148
7.50MM	.2953	48	38	91	8.0	RDH2150
19/64	.2969	1.890	1.510	3.580	5/16	RDH2152
7.60MM	.2992	48	38	91	8.0	RDH2154
7.70MM	.3031	48	38	91	8.0	RDH2156
7.80MM	.3071	48	38	91	8.0	RDH2158
7.90MM	.3110	48	38	91	8.0	RDH2160
5/16	.3125	1.890	1.510	3.580	5/16	RDH2162
8.00MM	.3150	48	38	91	8.0	RDH2164
8.10MM	.3189	55	44	103	10.0	RDH2166
8.20MM	.3228	55	44	103	10.0	RDH2168
8.30MM	.3268	55	44	103	10.0	RDH2170
21/64	.3281	2.170	1.740	4.060	25/64	RDH2172
8.40MM	.3307	55	44	103	10.0	RDH2174

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Speeds & Feeds page 328.

For detailed tolerance information, see page 327.

RedLine Hole Shot HP



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 5X Dia., 30° Helix (.3320-.4488)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
Q	.3320	2.170	1.740	4.060	25/64	RDH2176
8.50MM	.3346	55	44	103	10.0	RDH2178
8.60MM	.3386	55	44	103	10.0	RDH2180
8.70MM	.3425	55	44	103	10.0	RDH2182
11/32	.3438	2.170	1.740	4.060	25/64	RDH2184
8.80MM	.3465	55	44	103	10.0	RDH2186
8.90MM	.3504	55	44	103	10.0	RDH2188
9.00MM	.3543	55	44	103	10.0	RDH2190
9.10MM	.3583	55	44	103	10.0	RDH2192
23/64	.3594	2.170	1.740	4.060	25/64	RDH2194
9.20MM	.3622	55	44	103	10.0	RDH2196
9.25MM	.3642	55	44	103	10.0	RDH2198
9.30MM	.3661	55	44	103	10.0	RDH2200
9.40MM	.3701	55	44	103	10.0	RDH2202
9.50MM	.3740	55	44	103	10.0	RDH2204
3/8	.3750	2.170	1.740	4.060	25/64	RDH2206
9.60MM	.3780	55	44	103	10.0	RDH2208
9.70MM	.3819	55	44	103	10.0	RDH2210
9.80MM	.3858	55	44	103	10.0	RDH2212
9.90MM	.3898	55	44	103	10.0	RDH2214
25/64	.3906	2.170	1.740	4.060	25/64	RDH2216
10.00MM	.3937	55	44	103	10.0	RDH2218
10.10MM	.3976	60	48	120	12.0	RDH2220
10.20MM	.4016	60	48	120	12.0	RDH2222
10.30MM	.4055	60	48	120	12.0	RDH2224
13/32	.4062	2.360	1.890	4.720	15/32	RDH2226
10.40MM	.4094	60	48	120	12.0	RDH2228
10.50MM	.4134	60	48	120	12.0	RDH2230
10.60MM	.4173	60	48	120	12.0	RDH2232
10.70MM	.4213	60	48	120	12.0	RDH2234
27/64	.4219	2.360	1.890	4.720	15/32	RDH2236
10.80MM	.4252	60	48	120	12.0	RDH2238
10.90MM	.4291	60	48	120	12.0	RDH2240
11.00MM	.4331	60	48	120	12.0	RDH2242
11.10MM	.4370	66	53	120	12.0	RDH2244
7/16	.4375	2.600	2.080	4.720	15/32	RDH2246
11.20MM	.4409	66	53	120	12.0	RDH2248
11.30MM	.4449	66	53	120	12.0	RDH2250
11.40MM	.4488	66	53	120	12.0	RDH2252

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For detailed tolerance information, see page 327.

Speed & Feeds page 328.

RedLine Hole Shot HP



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 5X Dia., 30° Helix (.4527-.7087)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
11.50MM	.4527	66	53	120	12.0	RDH2254
11.60MM	.4567	66	53	120	12.0	RDH2256
11.70MM	.4606	66	53	120	12.0	RDH2258
11.80MM	.4646	66	53	120	12.0	RDH2260
11.90MM	.4685	66	53	120	12.0	RDH2262
15/32	.4688	2.600	2.080	4.720	15/32	RDH2264
12.00MM	.4724	66	53	120	12.0	RDH2266
12.10MM	.4764	72	58	126	14.0	RDH2268
31/64	.4844	2.830	2.260	4.750	1/2	RDH2269
12.50MM	.4921	72	58	126	14.0	RDH2273
1/2	.5000	2.830	2.260	4.750	1/2	RDH2271
12.80MM	.5039	72	58	126	14.0	RDH2274
12.83MM	.5051	72	58	126	14.0	RDH2275
12.90MM	.5079	72	58	126	14.0	RDH2276
13.00MM	.5118	72	58	126	14.0	RDH2277
33/64	.5156	3.030	2.420	5.280	35/64	RDH2278
17/32	.5312	3.030	2.420	5.280	35/64	RDH2279
13.50MM	.5315	77	62	134	14.0	RDH2280
13.70MM	.5394	77	62	134	14.0	RDH2281
35/64	.5469	3.030	2.420	5.280	35/64	RDH2282
14.00MM	.5512	77	62	134	14.0	RDH2283
9/16	.5625	3.150	2.520	5.510	5/8	RDH2284
14.50MM	.5709	80	64	140	16.0	RDH2285
14.70MM	.5787	80	64	140	16.0	RDH2286
15.00MM	.5905	80	64	140	16.0	RDH2287
19/32	.5938	3.230	2.580	5.750	5/8	RDH2288
15.30MM	.6024	82	66	146	16.0	RDH2289
15.50MM	.6102	82	66	146	16.0	RDH2290
15.70MM	.6181	82	66	146	16.0	RDH2291
5/8	.6250	3.230	2.580	5.750	5/8	RDH2292
16.00MM	.6299	82	66	146	16.0	RDH2293
16.08MM	.6331	90	72	158	18.0	RDH2294
16.30MM	.6417	90	72	158	18.0	RDH2295
16.50MM	.6496	90	72	158	18.0	RDH2296
21/32	.6562	3.540	2.830	6.220	45/64	RDH2297
17.00MM	.6693	90	72	158	18.0	RDH2298
11/16	.6875	3.740	3.000	6.220	45/64	RDH2299
17.50MM	.6890	95	76	158	18.0	RDH2300
18.00MM	.7087	95	76	158	18.0	RDH2301

Continued

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For detailed tolerance information, see page 327.



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 5X Dia., 30° Helix (.7283-.7874)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
18.50MM	.7283	100	80	160	20.0	RDH2302
3/4	.7500	3.940	3.150	6.300	3/4	RDH2303
19.16MM	.7543	100	80	160	20.0	RDH2304
19.25MM	.7579	100	80	160	20.0	RDH2305
19.30MM	.7598	100	80	160	20.0	RDH2306
19.50MM	.7677	100	80	160	20.0	RDH2307
20.00MM	.7874	100	80	160	20.0	RDH2308

For detailed tolerance information, see page 327.
Speed & Feeds page 328.

Double Margin - 5XD

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, 142° Point, 5X Dia., 30° Helix (.1181-.2210)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
3.00MM	.1181	28	23	66	3.0	RDX5000
#31	.1200	1.102	.906	2.600	1/8	RDX5001
3.10MM	.1220	28	23	66	4.0	RDX5002
1/8	.1250	1.102	.906	2.600	1/8	RDX5003
3.20MM	.1260	28	23	66	4.0	RDX5004
#30	.1285	1.102	.906	2.600	1/64	RDX5005
3.30MM	.1299	28	23	66	4.0	RDX5006
3.40MM	.1339	28	23	66	4.0	RDX5007
#29	.1360	1.102	.906	2.600	1/64	RDX5008
3.50MM	.1378	28	23	66	4.0	RDX5009
9/64	.1406	1.102	.906	2.600	1/64	RDX5010
3.60MM	.1417	28	23	66	4.0	RDX5011
3.70MM	.1457	28	23	66	4.0	RDX5012
3.80MM	.1496	36	29	74	4.0	RDX5013
#24	.1520	1.417	1.142	2.910	1/64	RDX5014
3.90MM	.1535	36	29	74	4.0	RDX5015
5/32	.1562	1.417	1.142	2.910	1/64	RDX5016
4.00MM	.1575	36	29	74	4.0	RDX5017
#21	.1590	1.417	1.142	2.910	3/16	RDX5018
4.10MM	.1614	36	29	74	5.0	RDX5019
4.20MM	.1654	36	29	74	5.0	RDX5020
4.30MM	.1693	36	29	74	5.0	RDX5021
11/64	.1719	1.417	1.142	2.910	3/16	RDX5022
4.40MM	.1732	36	29	74	5.0	RDX5023
4.50MM	.1772	36	29	74	5.0	RDX5024
4.60MM	.1811	36	29	74	5.0	RDX5025
4.70MM	.1850	36	29	74	5.0	RDX5026
3/16	.1875	1.732	1.378	3.230	3/16	RDX5027
4.80MM	.1890	44	35	82	5.0	RDX5028
4.90MM	.1929	44	35	82	5.0	RDX5029
5.00MM	.1968	44	35	82	5.0	RDX5030
5.10MM	.2008	44	35	82	6.0	RDX5031
13/64	.2031	1.732	1.378	3.230	1/4	RDX5032
5.20MM	.2047	44	35	82	6.0	RDX5033
5.30MM	.2087	44	35	82	6.0	RDX5034
5.40MM	.2126	44	35	82	6.0	RDX5035
5.50MM	.2165	44	35	82	6.0	RDX5036
7/32	.2187	1.732	1.378	3.230	1/4	RDX5037
5.60MM	.2205	44	35	82	6.0	RDX5038
#2	.2210	1.732	1.378	3.230	1/4	RDX5039

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Speeds & Feeds page 329.

For detailed tolerance information, see page 329.

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, 142° Point, 5X Dia., 30° Helix (.2244-.3307)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
5.70MM	.2244	44	35	82	6.0	RDX5040
5.80MM	.2283	44	35	82	6.0	RDX5041
5.90MM	.2323	44	35	82	6.0	RDX5042
15/64	.2344	1.732	1.378	3.230	1/4	RDX5043
6.00MM	.2362	44	35	82	6.0	RDX5044
6.10MM	.2402	53	43	91	8.0	RDX5045
C	.2420	2.087	1.693	3.580	1/4	RDX5046
6.20MM	.2441	53	43	91	8.0	RDX5047
D	.2460	2.087	1.693	3.580	1/4	RDX5048
6.30MM	.2480	53	43	91	8.0	RDX5049
1/4	.2500	2.087	1.693	3.580	1/4	RDX5050
6.40MM	.2520	53	43	91	8.0	RDX5051
6.50MM	.2559	53	43	91	8.0	RDX5052
F	.2570	2.087	1.693	3.580	5/16	RDX5053
6.60MM	.2598	53	43	91	8.0	RDX5054
G	.2610	2.087	1.693	3.580	5/16	RDX5055
6.70MM	.2638	53	43	91	8.0	RDX5056
17/64	.2656	2.087	1.693	3.580	5/16	RDX5057
6.80MM	.2677	53	43	91	8.0	RDX5058
6.90MM	.2717	53	43	91	8.0	RDX5059
7.00MM	.2756	53	43	91	8.0	RDX5060
7.10MM	.2795	53	43	91	8.0	RDX5061
9/32	.2812	2.087	1.693	3.580	5/16	RDX5062
7.20MM	.2835	53	43	91	8.0	RDX5063
7.30MM	.2874	53	43	91	8.0	RDX5064
7.40MM	.2913	53	43	91	8.0	RDX5065
7.50MM	.2953	53	43	91	8.0	RDX5066
19/64	.2969	2.087	1.693	3.580	5/16	RDX5067
7.60MM	.2992	53	43	91	8.0	RDX5068
7.70MM	.3031	53	43	91	8.0	RDX5069
7.80MM	.3071	53	43	91	8.0	RDX5070
7.90MM	.3110	53	43	91	8.0	RDX5071
5/16	.3125	2.087	1.693	3.580	5/16	RDX5072
8.00MM	.3150	53	43	91	8.0	RDX5073
8.10MM	.3189	61	49	103	10.0	RDX5074
8.20MM	.3228	61	49	103	10.0	RDX5075
8.30MM	.3268	61	49	103	10.0	RDX5076
21/64	.3281	2.402	1.929	4.060	3/8	RDX5077
8.40MM	.3307	61	49	103	10.0	RDX5078

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For detailed tolerance information, see page 329.

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Double Margin - 5XD

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, 142° Point, 5X Dia., 30° Helix (.3320-.4409)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
Q	.3320	2.402	1.929	4.060	3/8	RDX5079
8.50MM	.3346	61	49	103	10.0	RDX5080
8.60MM	.3386	61	49	103	10.0	RDX5081
8.70MM	.3425	61	49	103	10.0	RDX5082
11/32	.3438	2.402	1.929	4.060	3/8	RDX5083
8.80MM	.3465	61	49	103	10.0	RDX5084
8.90MM	.3504	61	49	103	10.0	RDX5085
9.00MM	.3543	61	49	103	10.0	RDX5086
9.10MM	.3583	61	49	103	10.0	RDX5087
23/64	.3594	2.402	1.929	4.060	3/8	RDX5088
9.20MM	.3622	61	49	103	10.0	RDX5089
9.25MM	.3642	61	49	103	10.0	RDX5090
9.30MM	.3661	61	49	103	10.0	RDX5091
9.40MM	.3701	61	49	103	10.0	RDX5092
9.50MM	.3740	61	49	103	10.0	RDX5093
3/8	.3750	2.402	1.929	4.060	3/8	RDX5094
9.60MM	.3780	61	49	103	10.0	RDX5095
9.70MM	.3819	61	49	103	10.0	RDX5096
9.80MM	.3858	61	49	103	10.0	RDX5097
9.90MM	.3898	61	49	103	10.0	RDX5098
25/64	.3906	2.402	1.929	4.060	7/16	RDX5099
10.00MM	.3937	61	49	103	10.0	RDX5100
10.10MM	.3976	71	56	118	12.0	RDX5101
10.20MM	.4016	71	56	118	12.0	RDX5102
10.30MM	.4055	71	56	118	12.0	RDX5103
13/32	.4062	2.795	2.205	4.650	7/16	RDX5104
10.40MM	.4094	71	56	118	12.0	RDX5105
10.50MM	.4134	71	56	118	12.0	RDX5106
10.60MM	.4173	71	56	118	12.0	RDX5107
10.70MM	.4213	71	56	118	12.0	RDX5108
27/64	.4219	2.795	2.205	4.650	7/16	RDX5109
10.80MM	.4252	71	56	118	12.0	RDX5110
10.90MM	.4291	71	56	118	12.0	RDX5111
11.00MM	.4331	71	56	118	12.0	RDX5112
11.10MM	.4370	71	56	118	12.0	RDX5113
7/16	.4375	2.795	2.205	4.650	7/16	RDX5114
11.20MM	.4409	71	56	118	12.0	RDX5115

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Speeds & Feeds page 329.

For detailed tolerance information, see page 329.

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, 142° Point, 5X Dia., 30° Helix (.4449-.6299)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
11.30MM	.4449	71	56	118	12.0	RDX5116
11.40MM	.4488	71	56	118	12.0	RDX5117
11.50MM	.4527	71	56	118	12.0	RDX5118
11.60MM	.4567	71	56	118	12.0	RDX5119
11.70MM	.4606	71	56	118	12.0	RDX5120
11.80MM	.4646	71	56	118	12.0	RDX5121
11.90MM	.4685	71	56	118	12.0	RDX5122
15/32	.4688	2.795	2.205	4.650	1/2	RDX5123
12.00MM	.4724	71	56	118	12.0	RDX5124
12.10MM	.4764	77	60	124	14.0	RDX5125
31/64	.4844	3.031	2.362	4.880	1/2	RDX5126
12.50MM	.4921	77	60	124	14.0	RDX5127
1/2	.5000	3.031	2.362	4.880	1/2	RDX5128
12.80MM	.5039	77	60	124	14.0	RDX5129
12.83MM	.5051	77	60	124	14.0	RDX5130
12.90MM	.5079	77	60	124	14.0	RDX5131
13.00MM	.5118	77	60	124	14.0	RDX5132
33/64	.5156	3.031	2.362	4.880	9/16	RDX5133
17/32	.5312	3.031	2.362	4.880	9/16	RDX5134
13.50MM	.5315	77	60	124	14.0	RDX5135
13.70MM	.5394	77	60	124	14.0	RDX5136
35/64	.5469	3.031	2.362	4.880	9/16	RDX5137
14.00MM	.5512	77	60	124	14.0	RDX5138
9/16	.5625	3.268	2.480	5.240	9/16	RDX5139
14.50MM	.5709	83	63	133	16.0	RDX5140
14.70MM	.5787	83	63	133	16.0	RDX5141
15.00MM	.5905	83	63	133	16.0	RDX5142
19/32	.5938	3.268	2.480	5.240	5/8	RDX5143
15.30MM	.6024	83	63	133	16.0	RDX5144
15.50MM	.6102	83	63	133	16.0	RDX5145
15.70MM	.6181	83	63	133	16.0	RDX5146
5/8	.6250	3.268	2.480	5.240	5/8	RDX5147
16.00MM	.6299	83	63	133	16.0	RDX5148

For detailed tolerance information, see page 329.
Speeds & Feeds page 329.

Double Margin - 5XD

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 5X Dia., 30° Helix (.1181-.2205)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
3.00MM	.1181	28	23	66	3.0	RDX5200
#31	.1200	1.102	.906	2.600	1/8	RDX5201
3.10MM	.1220	28	23	66	4.0	RDX5202
1/8	.1250	1.102	.906	2.600	1/8	RDX5203
3.20MM	.1260	28	23	66	4.0	RDX5204
#30	.1285	1.102	.906	2.600	5/32	RDX5205
3.30MM	.1299	28	23	66	4.0	RDX5206
3.40MM	.1339	28	23	66	4.0	RDX5207
#29	.1360	1.102	.906	2.600	5/32	RDX5208
3.50MM	.1378	28	23	66	4.0	RDX5209
9/64	.1406	1.102	.906	2.600	5/32	RDX5210
3.60MM	.1417	28	23	66	4.0	RDX5211
3.70MM	.1457	28	23	66	4.0	RDX5212
3.80MM	.1496	36	29	74	4.0	RDX5213
#24	.1520	1.417	1.142	2.910	5/32	RDX5214
3.90MM	.1535	36	29	74	4.0	RDX5215
5/32	.1562	1.417	1.142	2.910	5/32	RDX5216
4.00MM	.1575	36	29	74	4.0	RDX5217
#21	.1590	1.417	1.142	2.910	3/16	RDX5218
4.10MM	.1614	36	29	74	5.0	RDX5219
4.20MM	.1654	36	29	74	5.0	RDX5220
4.30MM	.1693	36	29	74	5.0	RDX5221
11/64	.1719	1.417	1.142	2.910	3/16	RDX5222
4.40MM	.1732	36	29	74	5.0	RDX5223
4.50MM	.1772	36	29	74	5.0	RDX5224
4.60MM	.1811	36	29	74	5.0	RDX5225
4.70MM	.1850	36	29	74	5.0	RDX5226
3/16	.1875	1.732	1.378	3.230	3/16	RDX5227
4.80MM	.1890	44	35	82	5.0	RDX5228
4.90MM	.1929	44	35	82	5.0	RDX5229
5.00MM	.1968	44	35	82	5.0	RDX5230
5.10MM	.2008	44	35	82	6.0	RDX5231
13/64	.2031	1.732	1.378	3.230	1/4	RDX5232
5.20MM	.2047	44	35	82	6.0	RDX5233
5.30MM	.2087	44	35	82	6.0	RDX5234
5.40MM	.2126	44	35	82	6.0	RDX5235
5.50MM	.2165	44	35	82	6.0	RDX5236
7/32	.2187	1.732	1.378	3.230	1/4	RDX5237
5.60MM	.2205	44	35	82	6.0	RDX5238

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Speeds & Feeds page 330.

For detailed tolerance information, see page 329.

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 5X Dia., 30° Helix (.2210-.3228)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
#2	.2210	1.732	1.378	3.230	1/4	RDX5239
5.70MM	.2244	44	35	82	6.0	RDX5240
5.80MM	.2283	44	35	82	6.0	RDX5241
5.90MM	.2323	44	35	82	6.0	RDX5242
15/64	.2344	1.732	1.378	3.230	1/4	RDX5243
6.00MM	.2362	44	35	82	6.0	RDX5244
6.10MM	.2402	53	43	91	8.0	RDX5245
C	.2420	2.087	1.693	3.580	1/4	RDX5246
6.20MM	.2441	53	43	91	8.0	RDX5247
D	.2460	2.087	1.693	3.580	1/4	RDX5248
6.30MM	.2480	53	43	91	8.0	RDX5249
1/4	.2500	2.087	1.693	3.580	1/4	RDX5250
6.40MM	.2520	53	43	91	8.0	RDX5251
6.50MM	.2559	53	43	91	8.0	RDX5252
F	.2570	2.087	1.693	3.580	5/16	RDX5253
6.60MM	.2598	53	43	91	8.0	RDX5254
G	.2610	2.087	1.693	3.580	5/16	RDX5255
6.70MM	.2638	53	43	91	8.0	RDX5256
17/64	.2656	2.087	1.693	3.580	5/16	RDX5257
6.80MM	.2677	53	43	91	8.0	RDX5258
6.90MM	.2717	53	43	91	8.0	RDX5259
7.00MM	.2756	53	43	91	8.0	RDX5260
7.10MM	.2795	53	43	91	8.0	RDX5261
9/32	.2812	2.087	1.693	3.580	5/16	RDX5262
7.20MM	.2835	53	43	91	8.0	RDX5263
7.30MM	.2874	53	43	91	8.0	RDX5264
7.40MM	.2913	53	43	91	8.0	RDX5265
7.50MM	.2953	53	43	91	8.0	RDX5266
19/64	.2969	2.087	1.693	3.580	5/16	RDX5267
7.60MM	.2992	53	43	91	8.0	RDX5268
7.70MM	.3031	53	43	91	8.0	RDX5269
7.80MM	.3071	53	43	91	8.0	RDX5270
7.90MM	.3110	53	43	91	8.0	RDX5271
5/16	.3125	2.087	1.693	3.580	5/16	RDX5272
8.00MM	.3150	53	43	91	8.0	RDX5273
8.10MM	.3189	61	49	103	10.0	RDX5274
8.20MM	.3228	61	49	103	10.0	RDX5275

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For detailed tolerance information, see page 329.

Speeds & Feeds page 330.

Double Margin - 5XD

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 5X Dia., 30° Helix (.3268-.4331)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
8.30MM	.3268	61	49	103	10.0	RDX5276
21/64	.3281	2.402	1.929	4.060	3/8	RDX5277
8.40MM	.3307	61	49	103	10.0	RDX5278
Q	.3320	2.402	1.929	4.060	3/8	RDX5279
8.50MM	.3346	61	49	103	10.0	RDX5280
8.60MM	.3386	61	49	103	10.0	RDX5281
8.70MM	.3425	61	49	103	10.0	RDX5282
11/32	.3438	2.402	1.929	4.060	3/8	RDX5283
8.80MM	.3465	61	49	103	10.0	RDX5284
8.90MM	.3504	61	49	103	10.0	RDX5285
9.00MM	.3543	61	49	103	10.0	RDX5286
9.10MM	.3583	61	49	103	10.0	RDX5287
23/64	.3594	2.402	1.929	4.060	3/8	RDX5288
9.20MM	.3622	61	49	103	10.0	RDX5289
9.25MM	.3642	61	49	103	10.0	RDX5290
9.30MM	.3661	61	49	103	10.0	RDX5291
9.40MM	.3701	61	49	103	10.0	RDX5292
9.50MM	.3740	61	49	103	10.0	RDX5293
3/8	.3750	2.402	1.929	4.060	3/8	RDX5294
9.60MM	.3780	61	49	103	10.0	RDX5295
9.70MM	.3819	61	49	103	10.0	RDX5296
9.80MM	.3858	61	49	103	10.0	RDX5297
9.90MM	.3898	61	49	103	10.0	RDX5298
25/64	.3906	2.402	1.929	4.060	7/16	RDX5299
10.00MM	.3937	61	49	103	10.0	RDX5300
10.10MM	.3976	71	56	118	12.0	RDX5301
10.20MM	.4016	71	56	118	12.0	RDX5302
10.30MM	.4055	71	56	118	12.0	RDX5303
13/32	.4062	2.795	2.205	4.650	7/16	RDX5304
10.40MM	.4094	71	56	118	12.0	RDX5305
10.50MM	.4134	71	56	118	12.0	RDX5306
10.60MM	.4173	71	56	118	12.0	RDX5307
10.70MM	.4213	71	56	118	12.0	RDX5308
27/64	.4219	2.795	2.205	4.650	7/16	RDX5309
10.80MM	.4252	71	56	118	12.0	RDX5310
10.90MM	.4291	71	56	118	12.0	RDX5311
11.00MM	.4331	71	56	118	12.0	RDX5312

Continued

Speeds & Feeds page 330.

For detailed tolerance information, see page 329.

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 5X Dia., 30° Helix (.4370-.6496)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
11.10MM	.4370	71	56	118	12.0	RDX5313
7/16	.4375	2.795	2.205	4.650	7/16	RDX5314
11.20MM	.4409	71	56	118	12.0	RDX5315
11.30MM	.4449	71	56	118	12.0	RDX5316
11.40MM	.4488	71	56	118	12.0	RDX5317
11.50MM	.4527	71	56	118	12.0	RDX5318
11.60MM	.4567	71	56	118	12.0	RDX5319
11.70MM	.4606	71	56	118	12.0	RDX5320
11.80MM	.4646	71	56	118	12.0	RDX5321
11.90MM	.4685	71	56	118	12.0	RDX5322
15/32	.4688	2.795	2.205	4.650	1/2	RDX5323
12.00MM	.4724	71	56	118	12.0	RDX5324
12.10MM	.4764	77	60	124	14.0	RDX5325
31/64	.4844	3.031	2.362	4.880	1/2	RDX5326
12.50MM	.4921	77	60	124	14.0	RDX5327
1/2	.5000	3.031	2.362	4.880	1/2	RDX5328
12.80MM	.5039	77	60	124	14.0	RDX5329
12.83MM	.5051	77	60	124	14.0	RDX5330
12.90MM	.5079	77	60	124	14.0	RDX5331
13.00MM	.5118	77	60	124	14.0	RDX5332
33/64	.5156	3.031	2.362	4.880	9/16	RDX5333
17/32	.5312	3.031	2.362	4.880	9/16	RDX5334
13.50MM	.5315	77	60	124	14.0	RDX5335
13.70MM	.5394	77	60	124	14.0	RDX5336
35/64	.5469	3.031	2.362	4.880	9/16	RDX5337
14.00MM	.5512	77	60	124	14.0	RDX5338
9/16	.5625	3.268	2.480	5.240	9/16	RDX5339
14.50MM	.5709	83	63	133	16.0	RDX5340
14.70MM	.5787	83	63	133	16.0	RDX5341
15.00MM	.5905	83	63	133	16.0	RDX5342
19/32	.5938	3.268	2.480	5.240	5/8	RDX5343
15.30MM	.6024	83	63	133	16.0	RDX5344
15.50MM	.6102	83	63	133	16.0	RDX5345
15.70MM	.6181	83	63	133	16.0	RDX5346
5/8	.6250	3.268	2.480	5.240	5/8	RDX5347
16.00MM	.6299	83	63	133	16.0	RDX5348
16.08MM	.6331	93	71	143	18.0	RDX5349
16.30MM	.6417	93	71	143	18.0	RDX5350
16.50MM	.6496	93	71	143	18.0	RDX5351

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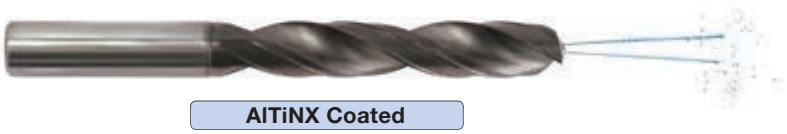
For detailed tolerance information, see page 329.

Speeds & Feeds page 330.

Double Margin - 5XD

NEW Product

RedLine HOLE SHOT XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 5X Dia., 30° Helix (.6562-.7874)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
21/32	.6562	3.661	2.795	5.630	11/16	RDX5352
17.00MM	.6693	93	71	143	18.0	RDX5353
11/16	.6875	3.661	2.795	5.630	11/16	RDX5354
17.50MM	.6890	93	71	143	18.0	RDX5355
18.00MM	.7087	93	71	143	18.0	RDX5356
18.50MM	.7283	101	77	153	20.0	RDX5357
3/4	.7500	3.976	3.031	6.024	3/4	RDX5358
19.16MM	.7543	101	77	153	20.0	RDX5359
19.25MM	.7579	101	77	153	20.0	RDX5360
19.30MM	.7598	101	77	153	20.0	RDX5361
19.50MM	.7677	101	77	153	20.0	RDX5362
20.00MM	.7874	101	77	153	20.0	RDX5363

Speeds & Feeds page 330.

For detailed tolerance information, see page 329.



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 7+X Dia., 30° Helix (.1181-.2210)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
3.00MM	.1181	33	26	81	3.0	RDH2021
#31	.1200	1.500	1.200	3.500	1/8	RDH2023
3.10MM	.1220	44	35	92	4.0	RDH2025
1/8	.1250	1.500	1.200	3.500	1/8	RDH2027
3.20MM	.1260	44	35	92	4.0	RDH2029
#30	.1285	1.750	1.400	3.625	5/32	RDH2031
3.30MM	.1299	44	35	92	4.0	RDH2033
3.40MM	.1339	44	35	92	4.0	RDH2035
#29	.1360	1.750	1.400	3.625	5/32	RDH2037
3.50MM	.1378	44	35	92	4.0	RDH2039
9/64	.1406	1.750	1.400	3.625	5/32	RDH2041
3.60MM	.1417	44	35	92	4.0	RDH2043
3.70MM	.1457	44	35	92	4.0	RDH2045
3.80MM	.1496	44	35	92	4.0	RDH2047
#24	.1520	1.750	1.400	3.625	5/32	RDH2049
3.90MM	.1535	44	35	92	4.0	RDH2051
5/32	.1562	1.750	1.400	3.625	5/32	RDH2053
4.00MM	.1575	44	35	92	4.0	RDH2055
#21	.1590	1.750	1.400	3.940	3/16	RDH2057
4.10MM	.1614	45	36	100	5.0	RDH2059
4.20MM	.1654	45	36	100	5.0	RDH2061
4.30MM	.1693	45	36	100	5.0	RDH2063
11/64	.1719	1.750	1.400	3.940	3/16	RDH2065
4.40MM	.1732	45	36	100	5.0	RDH2067
4.50MM	.1772	45	36	100	5.0	RDH2069
4.60MM	.1811	45	36	100	5.0	RDH2071
4.70MM	.1850	45	36	100	5.0	RDH2073
3/16	.1875	1.750	1.400	3.940	3/16	RDH2075
4.80MM	.1890	45	36	100	5.0	RDH2077
4.90MM	.1929	45	36	100	5.0	RDH2079
5.00MM	.1968	45	36	100	5.0	RDH2081
5.10MM	.2008	51	41	100	6.0	RDH2083
13/64	.2031	2.000	1.600	3.940	15/64	RDH2085
5.20MM	.2047	51	41	100	6.0	RDH2087
5.30MM	.2087	51	41	100	6.0	RDH2089
5.40MM	.2126	51	41	100	6.0	RDH2091
5.50MM	.2165	51	41	100	6.0	RDH2093
7/32	.2187	2.000	1.600	3.940	15/64	RDH2095
#2	.2210	2.000	1.600	3.940	15/64	RDH2097

Continued

For detailed tolerance information, see page 327.

Speeds & Feeds page 331.



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 7+X Dia., 30° Helix (.2244-.3307)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
5.70MM	.2244	51	41	100	6.0	RDH2099
5.80MM	.2283	51	41	100	6.0	RDH2101
5.90MM	.2323	51	41	100	6.0	RDH2103
15/64	.2344	2.000	1.600	3.940	15/64	RDH2105
6.00MM	.2362	51	41	100	6.0	RDH2107
6.10MM	.2402	60	48	109	8.0	RDH2109
C	.2420	2.250	1.800	4.310	1/4	RDH2111
6.20MM	.2441	60	48	109	8.0	RDH2113
D	.2460	2.250	1.800	4.310	1/4	RDH2115
6.30MM	.2480	60	48	109	8.0	RDH2117
1/4	.2500	2.250	1.800	4.310	1/4	RDH2119
6.40MM	.2520	60	48	109	8.0	RDH2121
6.50MM	.2559	60	48	109	8.0	RDH2123
F	.2570	2.375	1.900	4.310	5/16	RDH2125
6.60MM	.2598	60	48	109	8.0	RDH2127
G	.2610	2.375	1.900	4.310	5/16	RDH2129
6.70MM	.2638	60	48	109	8.0	RDH2131
17/64	.2656	2.375	1.900	4.310	5/16	RDH2133
6.80MM	.2677	60	48	109	8.0	RDH2135
6.90MM	.2717	60	48	109	8.0	RDH2137
7.00MM	.2756	60	48	109	8.0	RDH2139
7.10MM	.2795	70	56	118	8.0	RDH2141
9/32	.2812	2.750	2.200	4.625	5/16	RDH2143
7.20MM	.2835	70	56	118	8.0	RDH2145
7.30MM	.2874	70	56	118	8.0	RDH2147
7.40MM	.2913	70	56	118	8.0	RDH2149
7.50MM	.2953	70	56	118	8.0	RDH2151
19/64	.2969	2.750	2.200	4.625	5/16	RDH2153
7.60MM	.2992	70	56	118	8.0	RDH2155
7.70MM	.3031	70	56	118	8.0	RDH2157
7.80MM	.3071	70	56	118	8.0	RDH2159
7.90MM	.3110	70	56	118	8.0	RDH2161
5/16	.3125	2.750	2.200	4.625	5/16	RDH2163
8.00MM	.3150	70	56	118	8.0	RDH2165
8.10MM	.3189	80	64	127	10.0	RDH2167
8.20MM	.3228	80	64	127	10.0	RDH2169
8.30MM	.3268	80	64	127	10.0	RDH2171
21/64	.3281	3.150	2.520	5.000	25/64	RDH2173
8.40MM	.3307	80	64	127	10.0	RDH2175

Continued

Speeds & Feeds page 331.

For detailed tolerance information, see page 327.



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 7+X Dia., 30° Helix (.3320-.4488)

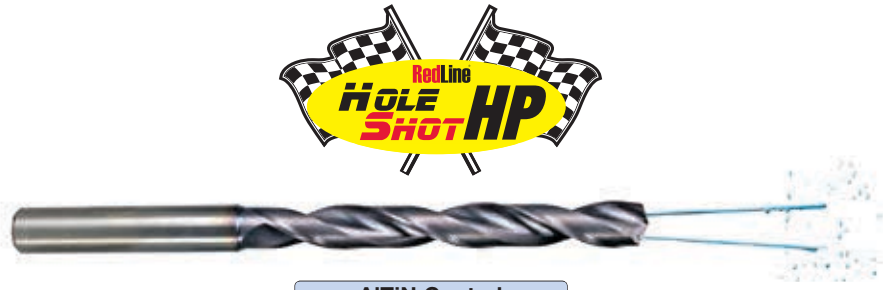
Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
Q	.3320	3.150	2.520	5.000	25/64	RDH2177
8.50MM	.3346	80	64	127	10.0	RDH2179
8.60MM	.3386	80	64	127	10.0	RDH2181
8.70MM	.3425	80	64	127	10.0	RDH2183
11/32	.3438	3.150	2.520	5.000	25/64	RDH2185
8.80MM	.3465	80	64	127	10.0	RDH2187
8.90MM	.3504	80	64	127	10.0	RDH2189
9.00MM	.3543	80	64	127	10.0	RDH2191
9.10MM	.3583	85	68	136	10.0	RDH2193
23/64	.3594	3.340	2.670	5.312	25/64	RDH2195
9.20MM	.3622	85	68	136	10.0	RDH2197
9.25MM	.3642	85	68	136	10.0	RDH2199
9.30MM	.3661	85	68	136	10.0	RDH2201
9.40MM	.3701	85	68	136	10.0	RDH2203
9.50MM	.3740	85	68	136	10.0	RDH2205
3/8	.3750	3.340	2.670	5.312	25/64	RDH2207
9.60MM	.3780	85	68	136	10.0	RDH2209
9.70MM	.3819	85	68	136	10.0	RDH2211
9.80MM	.3858	85	68	136	10.0	RDH2213
9.90MM	.3898	85	68	136	10.0	RDH2215
25/64	.3906	3.340	2.670	5.312	25/64	RDH2217
10.00MM	.3937	85	68	136	10.0	RDH2219
10.10MM	.3976	93	74	149	12.0	RDH2221
10.20MM	.4016	93	74	149	12.0	RDH2223
10.30MM	.4055	93	74	149	12.0	RDH2225
13/32	.4062	3.625	2.900	5.875	15/32	RDH2227
10.40MM	.4094	93	74	149	12.0	RDH2229
10.50MM	.4134	93	74	149	12.0	RDH2231
10.60MM	.4173	93	74	149	12.0	RDH2233
10.70MM	.4213	93	74	149	12.0	RDH2235
27/64	.4219	3.625	2.900	5.875	15/32	RDH2237
10.80MM	.4252	93	74	149	12.0	RDH2239
10.90MM	.4291	93	74	149	12.0	RDH2241
11.00MM	.4331	93	74	149	12.0	RDH2243
11.10MM	.4370	102	82	155	12.0	RDH2245
7/16	.4375	4.000	3.200	6.100	15/32	RDH2247
11.20MM	.4409	102	82	155	12.0	RDH2249
11.30MM	.4449	102	82	155	12.0	RDH2251
11.40MM	.4488	102	82	155	12.0	RDH2253

Continued

For detailed tolerance information, see page 327.

Speeds & Feeds page 331.

Multi-Material - 7+XD



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 7+X Dia., 30° Helix (.4527-.5000)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
11.50MM	.4527	102	82	155	12.0	RDH2255
11.60MM	.4567	102	82	155	12.0	RDH2257
11.70MM	.4606	102	82	155	12.0	RDH2259
11.80MM	.4646	102	82	155	12.0	RDH2261
11.90MM	.4685	102	82	155	12.0	RDH2263
15/32	.4688	4.000	3.200	6.100	15/32	RDH2265
12.00MM	.4724	102	82	155	12.0	RDH2267
31/64	.4844	4.312	3.450	6.299	1/2	RDH2270
1/2	.5000	4.312	3.450	6.299	1/2	RDH2272

Speeds & Feeds page 331.

For detailed tolerance information, see page 327.

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 8+X Dia., 30° Helix (.1181-.2087)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
3.00MM	.1181	33	25	81	3.0	RDX8000
#31	.1200	1.732	1.299	3.622	.1789	RDX8001
3.10MM	.1220	44	33	92	4.0	RDX8002
1/8	.1250	1.732	1.299	3.622	.1789	RDX8003
3.20MM	.1260	44	33	92	4.0	RDX8004
3.25MM	.1280	44	33	92	4.0	RDX8005
#30	.1285	1.732	1.299	3.622	.1789	RDX8006
3.30MM	.1299	44	33	92	4.0	RDX8007
3.40MM	.1339	44	33	92	4.0	RDX8008
#29	.1360	1.732	1.299	3.622	.1789	RDX8009
3.50MM	.1378	44	33	92	4.0	RDX8010
9/64	.1406	1.732	1.299	3.622	.1789	RDX8011
3.60MM	.1417	44	33	92	4.0	RDX8012
3.70MM	.1457	44	33	92	4.0	RDX8013
#25	.1496	1.732	1.299	3.622	.1789	RDX8014
#24	.1520	1.732	1.299	3.622	.1789	RDX8015
3.90MM	.1535	44	33	92	4.0	RDX8016
5/32	.1562	1.732	1.299	3.622	.1789	RDX8017
4.00MM	.1575	44	33	92	4.0	RDX8018
#21	.1590	1.772	1.339	3.937	.1969	RDX8019
4.10MM	.1614	45	34	100	5.0	RDX8020
4.20MM	.1654	45	34	100	5.0	RDX8021
4.30MM	.1693	45	34	100	5.0	RDX8022
11/64	.1719	1.772	1.339	3.937	.1969	RDX8023
4.40MM	.1732	45	34	100	5.0	RDX8024
4.50MM	.1772	45	34	100	5.0	RDX8025
4.60MM	.1811	45	34	100	5.0	RDX8026
4.65MM	.1831	45	34	100	5.0	RDX8027
4.70MM	.1850	45	34	100	5.0	RDX8028
3/16	.1875	1.772	1.339	3.937	.1969	RDX8029
4.80MM	.1890	50	38	100	5.0	RDX8030
4.90MM	.1929	50	38	100	5.0	RDX8031
5.00MM	.1968	50	38	100	5.0	RDX8032
5.10MM	.2008	57	43	100	6.0	RDX8033
13/64	.2031	2.545	1.920	3.937	.2362	RDX8034
5.20MM	.2047	57	43	100	6.0	RDX8035
5.30MM	.2087	57	43	100	6.0	RDX8036

Continued

For detailed tolerance information, see page 329.

Speeds & Feeds pages 332.

Double Margin - 8+XD

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 8+X Dia., 30° Helix (.2126-.3110)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
5.40MM	.2126	57	43	100	6.0	RDX8037
5.50MM	.2165	57	43	100	6.0	RDX8038
7/32	.2187	2.224	1.692	3.937	.2362	RDX8039
5.60MM	.2205	57	43	100	6.0	RDX8040
#2	.2210	2.224	1.692	3.937	.2362	RDX8041
5.70MM	.2244	57	43	100	6.0	RDX8042
5.80MM	.2283	57	43	100	6.0	RDX8043
5.90MM	.2323	57	43	100	6.0	RDX8044
15/64	.2344	2.224	1.692	3.937	.2362	RDX8045
6.00MM	.2362	57	43	100	6.0	RDX8046
6.10MM	.2402	76	57	118	8.0	RDX8047
C	.2420	2.992	2.244	4.645	.2362	RDX8048
6.20MM	.2441	76	57	118	8.0	RDX8049
D	.2460	2.992	2.244	4.645	.3149	RDX8050
6.30MM	.2480	76	57	118	8.0	RDX8051
1/4	.2500	2.992	2.244	4.645	.3149	RDX8052
6.40MM	.2520	76	57	118	8.0	RDX8053
6.50MM	.2559	76	57	118	8.0	RDX8054
F	.2570	2.992	2.244	4.645	.3149	RDX8055
6.60MM	.2598	76	57	118	8.0	RDX8056
G	.2610	2.992	2.244	4.645	.3149	RDX8057
6.70MM	.2638	76	57	118	8.0	RDX8058
17/64	.2656	2.992	2.244	4.645	.3149	RDX8059
6.80MM	.2677	76	57	118	8.0	RDX8060
6.90MM	.2717	76	57	118	8.0	RDX8061
7.00MM	.2756	76	57	118	8.0	RDX8062
7.10MM	.2795	76	57	118	8.0	RDX8063
9/32	.2812	2.992	2.244	4.645	.3149	RDX8064
7.20MM	.2835	76	57	118	8.0	RDX8065
7.30MM	.2874	76	57	118	8.0	RDX8066
7.40MM	.2913	76	57	118	8.0	RDX8067
7.50MM	.2953	76	57	118	8.0	RDX8068
19/64	.2969	2.992	2.244	4.645	.3149	RDX8069
7.60MM	.2992	76	57	118	8.0	RDX8070
7.70MM	.3031	76	57	118	8.0	RDX8071
7.80MM	.3071	76	57	118	8.0	RDX8072
7.90MM	.3110	76	57	118	8.0	RDX8073

Continued

Speeds & Feeds pages 332.

For detailed tolerance information, see page 329.

NEW Product

RedLine Hole Shot XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 8+X Dia., 30° Helix (.3125-.4173)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
5/16	.3125	2.992	2.244	4.645	.3149	RDX8074
8.00MM	.3150	76	57	118	8.0	RDX8075
8.10MM	.3189	87	65	139	10.0	RDX8076
8.20MM	.3228	87	65	139	10.0	RDX8077
8.30MM	.3268	87	65	139	10.0	RDX8078
21/64	.3281	3.425	2.559	5.472	.3937	RDX8079
8.40MM	.3307	87	65	139	10.0	RDX8080
Q	.3320	3.425	2.559	5.472	.3937	RDX8081
8.50MM	.3346	87	65	139	10.0	RDX8082
8.60MM	.3386	87	65	139	10.0	RDX8083
8.70MM	.3425	87	65	139	10.0	RDX8084
11/32	.3438	3.425	2.559	5.472	.3937	RDX8085
8.80MM	.3465	87	65	139	10.0	RDX8086
8.90MM	.3504	87	65	139	10.0	RDX8087
9.00MM	.3543	87	65	139	10.0	RDX8088
9.10MM	.3583	95	71	139	10.0	RDX8089
23/64	.3594	3.740	2.795	5.472	.3937	RDX8090
9.20MM	.3622	95	71	139	10.0	RDX8091
9.25MM	.3642	95	71	139	10.0	RDX8092
9.30MM	.3661	95	71	139	10.0	RDX8093
U	.3680	3.740	2.795	5.472	.3937	RDX8094
9.40MM	.3701	95	71	139	10.0	RDX8095
9.50MM	.3740	95	71	139	10.0	RDX8096
3/8	.3750	3.740	2.795	5.472	.3937	RDX8097
9.60MM	.3780	95	71	139	10.0	RDX8098
9.70MM	.3819	95	71	139	10.0	RDX8099
W	.3858	3.740	2.795	5.472	.3937	RDX8100
9.90MM	.3898	95	71	139	10.0	RDX8101
25/64	.3906	3.740	2.795	5.472	.3937	RDX8102
10.00MM	.3937	95	71	139	10.0	RDX8103
10.10MM	.3976	106	80	155	12.0	RDX8104
10.20MM	.4016	106	80	155	12.0	RDX8105
10.30MM	.4055	106	80	155	12.0	RDX8106
13/32	.4062	4.173	3.149	6.102	.4724	RDX8107
10.40MM	.4094	106	80	155	12.0	RDX8108
10.50MM	.4134	106	80	155	12.0	RDX8109
10.60MM	.4173	106	80	155	12.0	RDX8110

Continued

For detailed tolerance information, see page 329.
Speeds & Feeds pages 332

Double Margin - 8+XD

NEW Product

RedLine HOLE SHOT XHP



AlTiNX Coated

Double Margin, Solid Carbide, Coolant Fed, 142° Point, 8+X Dia., 30° Helix (.4213-.5000)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiNX Coated Part #
10.70MM	.4213	106	80	155	12.0	RDX8111
27/64	.4219	4.173	3.149	6.102	.4724	RDX8112
10.80MM	.4252	106	80	155	12.0	RDX8113
10.90MM	.4291	106	80	155	12.0	RDX8114
11.00MM	.4331	106	80	155	12.0	RDX8115
11.10MM	.4370	114	86	163	12.0	RDX8116
7/16	.4375	4.488	3.385	6.102	.4724	RDX8117
11.20MM	.4409	114	86	163	12.0	RDX8118
11.30MM	.4449	114	86	163	12.0	RDX8119
11.40MM	.4488	114	86	163	12.0	RDX8120
11.50MM	.4527	114	86	163	12.0	RDX8121
11.60MM	.4567	114	86	163	12.0	RDX8122
11.70MM	.4606	114	86	163	12.0	RDX8123
11.80MM	.4646	114	86	163	12.0	RDX8124
11.90MM	.4685	114	86	163	12.0	RDX8125
15/32	.4688	4.488	3.385	6.102	.4724	RDX8126
12.00MM	.4724	114	86	163	12.0	RDX8127
31/64	.4844	5.236	3.937	7.165	.4724	RDX8128
1/2	.5000	5.236	3.937	7.165	.4724	RDX8129

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For detailed tolerance information, see page 329.

RedLine Hole Shot HP



AlTiN Coated

Multi-Material, Solid Carbide, Coolant Fed, 142° Point, 12+X Dia., 30° Helix (.1968-.5000)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	AlTiN Coated Part #
5.00MM	.1968	105	84	163	5.0	RDH4016
5.20MM	.2050	110	88	163	6.0	RDH4017
5.40MM	.2125	110	88	163	6.0	RDH4018
5.60MM	.2204	110	88	163	6.0	RDH4019
5.80MM	.2283	110	88	163	6.0	RDH4020
6.00MM	.2362	110	88	163	6.0	RDH4021
6.20MM	.2440	110	88	163	8.0	RDH4022
6.30MM	.2480	110	88	163	8.0	RDH4023
1/4	.2500	4.330	3.460	6.417	.3150	RDH4024
6.80MM	.2677	110	88	163	8.0	RDH4025
7.00MM	.2755	110	88	163	8.0	RDH4026
7.60MM	.2992	120	96	163	8.0	RDH4027
7.80MM	.3070	120	96	163	8.0	RDH4028
5/16	.3125	4.720	3.780	6.417	.3150	RDH4029
8.00MM	.3149	120	96	163	8.0	RDH4030
8.20MM	.3228	135	108	180	10.0	RDH4031
8.50MM	.3346	135	108	180	10.0	RDH4032
8.70MM	.3425	135	108	180	10.0	RDH4033
9.00MM	.3543	135	108	180	10.0	RDH4034
9.40MM	.3700	150	120	195	10.0	RDH4035
3/8	.3750	5.900	4.720	7.677	.3937	RDH4036
9.80MM	.3858	150	120	195	10.0	RDH4037
10.00MM	.3937	150	120	195	10.0	RDH4038
10.30MM	.4055	160	128	210	12.0	RDH4039
10.50MM	.4133	160	128	210	12.0	RDH4040
10.80MM	.4251	160	128	210	12.0	RDH4041
11.00MM	.4330	160	128	210	12.0	RDH4042
7/16	.4375	6.300	5.040	8.268	.4724	RDH4043
11.50MM	.4527	160	128	210	12.0	RDH4044
11.80MM	.4645	160	128	210	12.0	RDH4045
12.00MM	.4724	160	128	210	12.0	RDH4046
1/2	.5000	7.090	5.670	9.055	.5512	RDH4047

For detailed tolerance information, see page 327.
Speeds & Feeds pages 333-334.

Aluminum & Non-Ferrous





Uncoated

Aluminum & Non-Ferrous, Solid Carbide, 3-Flute, Parabolic, 150° Point, 5X Dia., 30° Helix (.0469-.1520)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	Uncoated Part #
3/64	.0469	3/4	9/16	1-1/2	.0469	RDH3000
#54	.0550	3/4	9/16	1-1/2	.0550	RDH3001
#53	.0595	3/4	9/16	1-1/2	.0595	RDH3002
1/16	.0625	3/4	9/16	1-1/2	1/16	RDH3003
#51	.0670	3/4	9/16	1-1/2	.0670	RDH3004
#50	.0700	7/8	11/16	1-3/4	.0700	RDH3005
#49	.0730	7/8	11/16	1-3/4	.0730	RDH3006
2.00MM	.0787	16	12	38	2.0	RDH3007
#45	.0820	7/8	11/16	1-3/4	.0820	RDH3008
#43	.0890	1	3/4	2	.0890	RDH3009
2.30MM	.0906	20.5	15	43	2.3	RDH3010
3/32	.0938	1	3/4	2	3/32	RDH3011
#41	.0960	1	3/4	2	.0960	RDH3012
#40	.0980	1	3/4	2	.0980	RDH3013
2.50MM	.0984	20.5	15	43	2.5	RDH3014
#39	.0995	1-1/4	15/16	2-1/4	.0995	RDH3015
#38	.1015	1-1/4	15/16	2-1/4	.1015	RDH3016
#37	.1040	1-1/4	15/16	2-1/4	.1040	RDH3017
#36	.1065	1-1/4	15/16	2-1/4	.1065	RDH3018
#35	.1100	1-1/4	15/16	2-1/4	.1100	RDH3019
#33	.1130	1-1/4	15/16	2-1/4	.1130	RDH3020
2.90MM	.1142	25	19	46	2.9	RDH3021
3.00MM	.1181	28	23	66	6	RDH3022
#31	.1200	1-1/4	15/16	2-1/4	.1200	RDH3023
3.10MM	.1220	28	23	66	6	RDH3024
1/8	.1250	1-1/4	15/16	2-1/4	1/8	RDH3025
3.20MM	.1260	28	23	66	6	RDH3026
#30	.1285	1-1/4	15/16	2-1/4	.1285	RDH3027
3.30MM	.1299	28	23	66	6	RDH3028
3.40MM	.1339	28	23	66	6	RDH3029
#29	.1360	1-3/8	1-1/32	2-1/2	.1360	RDH3030
3.50MM	.1378	28	23	66	6	RDH3031
9/64	.1406	1-3/8	1-1/32	2-1/2	9/64	RDH3032
3.60MM	.1417	28	23	66	6	RDH3033
#27	.1440	1-3/8	1-1/32	2-1/2	.1440	RDH3034
3.70MM	.1457	28	23	66	6	RDH3035
#25	.1495	1-3/8	1-1/32	2-1/2	.1495	RDH3036
3.80MM	.1496	36	29	74	6	RDH3037
#24	.1520	1-3/8	1-1/32	2-1/2	.1520	RDH3038

Continued

Speeds & Feeds page 337.

For detailed tolerance information, see page 337.





Uncoated

Aluminum & Non-Ferrous, Solid Carbide, 3-Flute, Parabolic, 150° Point, 5X Dia., 30° Helix (.1535-.2677)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	Uncoated Part #
3.90MM	.1535	36	29	74	6	RDH3039
5/32	.1562	1-3/8	1-1/32	2-1/2	5/32	RDH3040
4.00MM	.1575	36	29	74	6	RDH3041
#21	.1590	1-3/8	1-1/32	2-1/2	.1590	RDH3042
#20	.1610	1-3/8	1-1/32	2-1/2	.1610	RDH3043
4.10MM	.1614	36	29	74	6	RDH3044
4.20MM	.1654	36	29	74	6	RDH3045
#19	.1660	1-3/8	1-1/32	2-1/2	.1660	RDH3046
#18	.1695	1-5/8	1-7/32	2-3/4	.1695	RDH3047
11/64	.1719	1-5/8	1-7/32	2-3/4	11/64	RDH3048
#17	.1730	1-5/8	1-7/32	2-3/4	.1730	RDH3049
4.40MM	.1732	36	29	74	6	RDH3050
#16	.1770	1-5/8	1-7/32	2-3/4	.1770	RDH3051
4.50MM	.1772	36	29	74	6	RDH3052
4.60MM	.1811	36	29	74	6	RDH3053
#13	.1850	1-5/8	1-7/32	2-3/4	.1850	RDH3054
3/16	.1875	1-5/8	1-7/32	2-3/4	3/16	RDH3055
4.80MM	.1889	44	35	82	6	RDH3056
#12	.1890	1-5/8	1-7/32	2-3/4	.1890	RDH3057
#11	.1910	1-5/8	1-7/32	2-3/4	.1910	RDH3058
4.90MM	.1929	44	35	82	6	RDH3059
#10	.1935	1-5/8	1-7/32	2-3/4	.1935	RDH3060
5.00MM	.1968	44	35	82	6	RDH3061
#7	.2010	1-3/4	1-5/16	3	.2010	RDH3062
5.20MM	.2047	44	35	82	6	RDH3063
#3	.2130	1-3/4	1-5/16	3	.2130	RDH3064
5.50MM	.2165	44	35	82	6	RDH3065
7/32	.2187	1-3/4	1-5/16	3	7/32	RDH3066
5.60MM	.2205	44	35	82	6	RDH3067
#1	.2280	1-3/4	1-5/16	3	.2280	RDH3068
A	.2340	2	1-1/2	3-1/4	.2340	RDH3069
6.00MM	.2362	44	35	82	6	RDH3070
6.20MM	.2441	53	43	91	8	RDH3071
1/4	.2500	2	1-1/2	3-1/4	1/4	RDH3072
6.50MM	.2559	53	43	91	8	RDH3073
F	.2570	2	1-1/2	3-1/4	.2570	RDH3074
6.70MM	.2638	53	43	91	8	RDH3075
17/64	.2656	2-1/8	1-19/32	3-1/2	17/64	RDH3076
6.80MM	.2677	53	43	91	8	RDH3077

Continued

For detailed tolerance information, see page 337.

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Aluminum & Non-Ferrous



Uncoated

Aluminum & Non-Ferrous, Solid Carbide, 3-Flute, Parabolic, 150° Point, 5X Dia., 30° Helix (.2720-.4921)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	Uncoated Part #
I	.2720	2-1/8	1-19/32	3-1/2	.2720	RDH3078
7.00MM	.2756	53	43	91	8	RDH3079
9/32	.2812	2-1/8	1-19/32	3-1/2	9/32	RDH3080
7.20MM	.2835	53	43	91	8	RDH3081
7.30MM	.2874	53	43	91	8	RDH3082
7.40MM	.2913	53	43	91	8	RDH3083
7.50MM	.2953	53	43	91	8	RDH3084
19/64	.2969	2-3/8	1-25/32	3-3/4	19/64	RDH3085
7.80MM	.3071	53	43	91	8	RDH3086
5/16	.3125	2-3/8	1-25/32	3-3/4	5/16	RDH3087
8.00MM	.3150	53	43	91	8	RDH3088
8.10MM	.3189	61	49	103	10	RDH3089
21/64	.3281	2-1/2	1-7/8	4	21/64	RDH3090
8.40MM	.3307	61	49	103	10	RDH3091
Q	.3320	2-1/2	1-7/8	4	.3320	RDH3092
8.50MM	.3346	61	49	103	10	RDH3093
11/32	.3438	2-1/2	1-7/8	4	11/32	RDH3094
9.00MM	.3543	61	49	103	10	RDH3095
23/64	.3594	2-3/4	2-1/16	4-1/4	23/64	RDH3096
U	.3680	2-3/4	2-1/16	4-1/4	.3680	RDH3097
9.50MM	.3740	61	49	103	10	RDH3098
3/8	.3750	2-3/4	2-1/16	4-1/4	3/8	RDH3099
9.70MM	.3819	61	49	103	10	RDH3100
25/64	.3906	2-7/8	2-5/32	4-1/2	25/64	RDH3101
10.00MM	.3937	61	49	103	10	RDH3102
10.20MM	.4016	71	56	118	12	RDH3103
13/32	.4062	2-7/8	2-5/32	4-1/2	13/32	RDH3104
10.40MM	.4094	71	56	118	12	RDH3105
10.50MM	.4134	71	56	118	12	RDH3106
10.60MM	.4173	71	56	118	12	RDH3107
27/64	.4219	2-7/8	2-5/32	4-1/2	27/64	RDH3108
11.00MM	.4331	71	56	118	12	RDH3109
7/16	.4375	2-7/8	2-5/32	4-1/2	7/16	RDH3110
11.50MM	.4528	71	56	118	12	RDH3111
29/64	.4531	3	2-1/4	4-3/4	29/64	RDH3112
15/32	.4688	3	2-1/4	4-3/4	15/32	RDH3113
12.00MM	.4724	71	56	118	12	RDH3114
31/64	.4844	3	2-1/4	4-3/4	31/64	RDH3115
12.50MM	.4921	77	60	124	14	RDH3116

Continued

Speeds & Feeds page 337.

For detailed tolerance information, see page 337.



Uncoated

Aluminum & Non-Ferrous, Solid Carbide, 3-Flute, Parabolic, 150° Point, 5X Dia., 30° Helix (.5000-.7500)

Drill Size	Decimal Equiv	Flute Length	Drill Depth	OAL	Shank ø	Uncoated Part #
1/2	.5000	3	2-1/4	4-3/4	1/2	RDH3117
13.00MM	.5118	77	60	124	14	RDH3118
33/64	.5156	3-1/4	2-7/16	5	33/64	RDH3119
17/32	.5312	3-1/4	2-7/16	5	17/32	RDH3120
13.50MM	.5315	77	60	124	14	RDH3121
35/64	.5469	3-1/4	2-7/16	5	35/64	RDH3122
14.00MM	.5512	77	60	124	14	RDH3123
9/16	.5625	3-1/4	2-7/16	5	9/16	RDH3124
14.50MM	.5709	83	63	133	16	RDH3125
15.00MM	.5906	83	63	133	16	RDH3126
15.50MM	.6102	83	63	133	16	RDH3127
15.80MM	.6220	83	63	133	16	RDH3128
5/8	.6250	3-1/2	2-5/8	5-1/4	5/8	RDH3129
16.00MM	.6299	83	63	133	16	RDH3130
21/32	.6562	3-5/8	2-23/32	5-1/2	21/32	RDH3131
11/16	.6875	3-5/8	2-23/32	5-1/2	11/16	RDH3132
3/4	.7500	3-7/8	2-29/32	5-3/4	3/4	RDH3133

For detailed tolerance information, see page 337.
Speeds & Feeds page 337.

Stub Length



Uncoated



AlTiN Coated

Carbide, Stub Length, 135° Split Point, 15° Helix (.0312-.1440)

Drill Size	Decimal Equiv	Flute Length	OAL	Uncoated Part #	AlTiN Coated Part #
1/32	.0312	3/8	1-1/2	RD21102	RD22102
#60	.0400	3/8	1-1/2	RD20960	RD22960
#59	.0410	3/8	1-1/2	RD20959	RD22959
#58	.0420	3/8	1-1/2	RD20958	RD22958
#57	.0430	3/8	1-1/2	RD20957	RD22957
#56	.0465	3/8	1-1/2	RD20956	RD22956
3/64	.0469	3/8	1-1/2	RD21103	RD22103
#55	.0520	13/32	1-1/2	RD20955	RD22955
#54	.0550	13/32	1-1/2	RD20954	RD22954
#53	.0595	13/32	1-1/2	RD20953	RD22953
1/16	.0625	13/32	1-1/2	RD21104	RD22104
#52	.0635	7/16	1-1/2	RD20952	RD22952
#51	.0670	7/16	1-1/2	RD20951	RD22951
#50	.0700	7/16	1-1/2	RD20950	RD22950
#49	.0730	7/16	1-1/2	RD20949	RD22949
#48	.0760	7/16	1-1/2	RD20948	RD22948
5/64	.0781	7/16	1-1/2	RD21105	RD22105
#47	.0785	1/2	1-1/2	RD20947	RD22947
#46	.0810	1/2	1-1/2	RD20946	RD22946
#45	.0820	1/2	1-1/2	RD20945	RD22945
#44	.0860	1/2	1-1/2	RD20944	RD22944
#43	.0890	1/2	1-1/2	RD20943	RD22943
#42	.0935	1/2	1-1/2	RD20942	RD22942
3/32	.0938	1/2	1-1/2	RD21106	RD22106
#41	.0960	5/8	2	RD20941	RD22941
#40	.0980	5/8	2	RD20940	RD22940
#39	.0995	5/8	2	RD20939	RD22939
#38	.1015	5/8	2	RD20938	RD22938
#37	.1040	5/8	2	RD20937	RD22937
#36	.1065	5/8	2	RD20936	RD22936
7/64	.1094	5/8	2	RD21107	RD22107
#35	.1100	3/4	2	RD20935	RD22935
#34	.1110	3/4	2	RD20934	RD22934
#33	.1130	3/4	2	RD20933	RD22933
#32	.1160	3/4	2	RD20932	RD22932
#31	.1200	3/4	2	RD20931	RD22931
1/8	.1250	3/4	2	RD21108	RD22108
#30	.1285	3/4	2	RD20930	RD22930
#29	.1360	3/4	2	RD20929	RD22929
#28	.1405	3/4	2	RD20928	RD22928
9/64	.1406	3/4	2	RD21109	RD22109
#27	.1440	7/8	2	RD20927	RD22927

Continued

NOTE: Sizes under 1/8" diameter are not split point.

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Tolerances
+.0000, -.0005



Uncoated



AlTiN Coated

Carbide, Stub Length, 135° Split Point, 15° Helix (.1470-.2660)

Drill Size	Decimal Equiv	Flute Length	OAL	Uncoated Part #	AlTiN Coated Part #
#26	.1470	7/8	2	RD20926	RD22926
#25	.1495	7/8	2	RD20925	RD22925
#24	.1520	7/8	2	RD20924	RD22924
#23	.1540	7/8	2	RD20923	RD22923
5/32	.1562	7/8	2	RD21110	RD22110
#22	.1570	7/8	2	RD20922	RD22922
#21	.1590	7/8	2	RD20921	RD22921
#20	.1610	7/8	2	RD20920	RD22920
#19	.1660	7/8	2	RD20919	RD22919
#18	.1695	7/8	2	RD20918	RD22918
11/64	.1719	7/8	2	RD21111	RD22111
#17	.1730	7/8	2	RD20917	RD22917
#16	.1770	7/8	2	RD20916	RD22916
#15	.1800	7/8	2	RD20915	RD22915
#14	.1820	7/8	2	RD20914	RD22914
#13	.1850	7/8	2	RD20913	RD22913
3/16	.1875	7/8	2	RD21112	RD22112
#12	.1890	1-1/8	2-1/2	RD20912	RD22912
#11	.1910	1-1/8	2-1/2	RD20911	RD22911
#10	.1935	1-1/8	2-1/2	RD20910	RD22910
#9	.1960	1-1/8	2-1/2	RD20909	RD22909
#8	.1990	1-1/8	2-1/2	RD20908	RD22908
#7	.2010	1-1/8	2-1/2	RD20907	RD22907
13/64	.2031	1-1/8	2-1/2	RD21113	RD22113
#6	.2040	1-1/8	2-1/2	RD20906	RD22906
#5	.2055	1-1/8	2-1/2	RD20905	RD22905
#4	.2090	1-1/8	2-1/2	RD20904	RD22904
#3	.2130	1-1/8	2-1/2	RD20903	RD22903
7/32	.2188	1-1/8	2-1/2	RD21114	RD22114
#2	.2210	1-1/4	2-1/2	RD20902	RD22902
#1	.2280	1-1/4	2-1/2	RD20901	RD22901
A	.2340	1-1/4	2-1/2	RD21001	RD23001
15/64	.2344	1-1/4	2-1/2	RD21115	RD22115
B	.2380	1-1/4	2-1/2	RD21002	RD23002
C	.2420	1-1/4	2-1/2	RD21003	RD23003
D	.2460	1-1/4	2-1/2	RD21004	RD23004
1/4	.2500	1-1/4	2-1/2	RD21116	RD22116
E	.2500	1-1/4	2-1/2	RD21005	RD23005
F	.2570	1-1/4	2-1/2	RD21006	RD23006
G	.2610	1-1/4	2-1/2	RD21007	RD23007
17/64	.2656	1-1/4	2-1/2	RD21117	RD22117
H	.2660	1-1/4	2-1/2	RD21008	RD23008

Continued

NOTE: Sizes under 1/8" diameter are not split point.

Tolerances
+.0000, -.0005

Speeds & Feeds page 338.

Stub Length



Uncoated



AlTiN Coated

Carbide, Stub Length, 135° Split Point, 15° Helix (.2720-.5000)

Drill Size	Decimal Equiv	Flute Length	OAL	Uncoated Part #	AlTiN Coated Part #
I	.2720	1-1/4	2-1/2	RD21009	RD23009
J	.2770	1-1/4	2-1/2	RD21010	RD23010
K	.2810	1-1/4	2-1/2	RD21011	RD23011
9/32	.2812	1-1/4	2-1/2	RD21118	RD22118
L	.2900	1-1/4	2-1/2	RD21012	RD23012
M	.2950	1-1/4	2-1/2	RD21013	RD23013
19/64	.2969	1-1/4	2-1/2	RD21119	RD22119
N	.3020	1-1/4	2-1/2	RD21014	RD23014
5/16	.3125	1-1/4	2-1/2	RD21120	RD22120
O	.3160	1-3/8	3	RD21015	RD23015
P	.3230	1-3/8	3	RD21016	RD23016
21/64	.3281	1-3/8	3	RD21121	RD22121
Q	.3320	1-3/8	3	RD21017	RD23017
R	.3390	1-3/8	3	RD21018	RD23018
11/32	.3438	1-3/8	3	RD21122	RD22122
S	.3480	1-3/8	3	RD21019	RD23019
T	.3580	1-3/8	3	RD21020	RD23020
23/64	.3594	1-3/8	3	RD21123	RD22123
U	.3680	1-3/8	3	RD21021	RD23021
3/8	.3750	1-3/8	3	RD21124	RD22124
V	.3770	1-3/8	3	RD21022	RD23022
W	.3860	1-3/8	3	RD21023	RD23023
25/64	.3906	1-3/8	3	RD21125	RD22125
X	.3970	1-3/8	3	RD21024	RD23024
Y	.4040	1-3/8	3	RD21025	RD23025
13/32	.4062	1-3/8	3	RD21126	RD22126
Z	.4130	1-3/8	3	RD21026	RD23026
27/64	.4219	1-3/8	3	RD21127	RD22127
7/16	.4375	1-3/8	3	RD21128	RD22128
29/64	.4531	1-3/8	3	RD21129	RD22129
15/32	.4688	1-3/8	3	RD21130	RD22130
31/64	.4844	1-3/8	3	RD21131	RD22131
1/2	.5000	1-3/8	3	RD21132	RD22132

NOTE: Sizes under 1/8" diameter are not split point.

Speeds & Feeds page 338.

Tolerances
+.0000, -.0005



Uncoated | AlTiN Coated

Carbide, Jobber Length, 118° Split Point, 25° Helix (.0276-.0945)

Drill Size	Decimal Equiv	Flute Length	OAL	Uncoated Part #	AlTiN Coated Part #
.70MM	.0276	12	31	RD22507	RD22707
1/32	.0312	5/16	1-1/4	RD21402	RD22402
.80MM	.0315	12	31	RD22508	RD22708
.90MM	.0354	16	38	RD22509	RD22709
1.00MM	.0394	16	38	RD22510	RD22710
#60	.0400	3/4	1-1/2	RD21260	RD22260
#59	.0410	3/4	1-1/2	RD21259	RD22259
#58	.0420	3/4	1-1/2	RD21258	RD22258
#57	.0430	3/4	1-1/2	RD21257	RD22257
1.10MM	.0433	19	38	RD22511	RD22711
#56	.0465	3/4	1-1/2	RD21256	RD22256
3/64	.0469	3/4	1-1/2	RD21403	RD22403
1.20MM	.0472	19	38	RD22512	RD22712
1.30MM	.0512	19	38	RD22513	RD22713
#55	.0520	3/4	1-1/2	RD21255	RD22255
#54	.0550	3/4	1-1/2	RD21254	RD22254
1.40MM	.0551	19	38	RD22514	RD22714
1.50MM	.0591	19	38	RD22515	RD22715
#53	.0595	3/4	1-1/2	RD21253	RD22253
1/16	.0625	3/4	1-1/2	RD21404	RD22404
1.60MM	.0630	19	38	RD22516	RD22716
#52	.0635	3/4	1-1/2	RD21252	RD22252
1.70MM	.0669	19	38	RD22517	RD22717
#51	.0670	3/4	1-1/2	RD21251	RD22251
#50	.0700	7/8	1-3/4	RD21250	RD22250
1.80MM	.0709	22	38	RD22518	RD22718
#49	.0730	7/8	1-3/4	RD21249	RD22249
1.90MM	.0748	22	38	RD22519	RD22719
#48	.0760	7/8	1-3/4	RD21248	RD22248
5/64	.0781	7/8	1-3/4	RD21405	RD22405
#47	.0785	7/8	1-3/4	RD21247	RD22247
2.00MM	.0787	22	44	RD22520	RD22720
#46	.0810	7/8	1-3/4	RD21246	RD22246
#45	.0820	7/8	1-3/4	RD21245	RD22245
2.10MM	.0827	22	44	RD22521	RD22721
#44	.0860	1	2	RD21244	RD22244
2.20MM	.0866	25	50	RD22522	RD22722
#43	.0890	1	2	RD21243	RD22243
2.30MM	.0906	25	50	RD22523	RD22723
#42	.0935	1	2	RD21242	RD22242
3/32	.0938	1	2	RD21406	RD22406
2.40MM	.0945	25	50	RD22524	RD22724

Continued

NOTE: Sizes under 1/8" diameter are not split point.

Tolerances
+.0000, -.0005

Speeds & Feeds page 338.

Jobber Length



Uncoated | AlTiN Coated

Carbide, Jobber Length, 118° Split Point, 25° Helix (.0960-.1730)

Drill Size	Decimal Equiv	Flute Length	OAL	Uncoated Part #	AlTiN Coated Part #
#41	.0960	1	2	RD21241	RD22241
#40	.0980	1	2	RD21240	RD22240
2.50MM	.0984	25	50	RD22525	RD22725
#39	.0995	1-1/4	2-1/4	RD21239	RD22239
#38	.1015	1-1/4	2-1/4	RD21238	RD22238
2.60MM	.1024	32	57	RD22526	RD22726
#37	.1040	1-1/4	2-1/4	RD21237	RD22237
2.70MM	.1063	32	57	RD22527	RD22727
#36	.1065	1-1/4	2-1/4	RD21236	RD22236
7/64	.1094	1-1/4	2-1/4	RD21407	RD22407
#35	.1100	1-1/4	2-1/4	RD21235	RD22235
2.80MM	.1102	32	57	RD22528	RD22728
#34	.1110	1-1/4	2-1/4	RD21234	RD22234
#33	.1130	1-1/4	2-1/4	RD21233	RD22233
2.90MM	.1142	32	57	RD22529	RD22729
#32	.1160	1-1/4	2-1/4	RD21232	RD22232
3.00MM	.1181	32	57	RD22530	RD22730
#31	.1200	1-1/4	2-1/4	RD21231	RD22231
3.10MM	.1220	32	57	RD22531	RD22731
1/8	.1250	1-1/4	2-1/4	RD21408	RD22408
3.20MM	.1260	32	57	RD22532	RD22732
#30	.1285	1-1/4	2-1/4	RD21230	RD22230
3.30MM	.1299	32	57	RD22533	RD22733
3.40MM	.1339	35	63	RD22534	RD22734
#29	.1360	1-3/8	2-1/2	RD21229	RD22229
3.50MM	.1378	35	63	RD22535	RD22735
#28	.1405	1-3/8	2-1/2	RD21228	RD22228
9/64	.1406	1-3/8	2-1/2	RD21409	RD22409
#27	.1440	1-3/8	2-1/2	RD21227	RD22227
#26	.1470	1-3/8	2-1/2	RD21226	RD22226
#25	.1495	1-3/8	2-1/2	RD21225	RD22225
#24	.1520	1-3/8	2-1/2	RD21224	RD22224
#23	.1540	1-3/8	2-1/2	RD21223	RD22223
5/32	.1562	1-3/8	2-1/2	RD21410	RD22410
#22	.1570	1-3/8	2-1/2	RD21222	RD22222
4.00MM	.1575	35	63	RD22540	RD22740
#21	.1590	1-3/8	2-1/2	RD21221	RD22221
#20	.1610	1-3/8	2-1/2	RD21220	RD22220
#19	.1660	1-5/8	2-3/4	RD21219	RD22219
#18	.1695	1-5/8	2-3/4	RD21218	RD22218
11/64	.1719	1-5/8	2-3/4	RD21411	RD22411
#17	.1730	1-5/8	2-3/4	RD21217	RD22217

Continued

NOTE: Sizes under 1/8" diameter are not split point.

Speeds & Feeds page 338.

Tolerances
+.0000, -.0005



Uncoated | AlTiN Coated

Carbide, Jobber Length, 118° Split Point, 25° Helix (.1770-.2950)

Drill Size	Decimal Equiv	Flute Length	OAL	Uncoated Part #	AlTiN Coated Part #
#16	.1770	1-5/8	2-3/4	RD21216	RD22216
4.50MM	.1772	41	70	RD22545	RD22745
#15	.1800	1-5/8	2-3/4	RD21215	RD22215
#14	.1820	1-5/8	2-3/4	RD21214	RD22214
#13	.1850	1-5/8	2-3/4	RD21213	RD22213
3/16	.1875	1-5/8	2-3/4	RD21412	RD22412
#12	.1890	1-5/8	2-3/4	RD21212	RD22212
#11	.1910	1-5/8	2-3/4	RD21211	RD22211
#10	.1935	1-5/8	2-3/4	RD21210	RD22210
#9	.1960	1-3/4	3	RD21209	RD22209
5.00MM	.1969	44	75	RD22550	RD22750
#8	.1990	1-3/4	3	RD21208	RD22208
#7	.2010	1-3/4	3	RD21207	RD22207
13/64	.2031	1-3/4	3	RD21413	RD22413
#6	.2040	1-3/4	3	RD21206	RD22206
#5	.2055	1-3/4	3	RD21205	RD22205
#4	.2090	1-3/4	3	RD21204	RD22204
#3	.2130	1-3/4	3	RD21203	RD22203
5.50MM	.2165	44	75	RD22555	RD22755
7/32	.2188	1-3/4	3	RD21414	RD22414
#2	.2210	1-3/4	3	RD21202	RD22202
#1	.2280	1-3/4	3	RD21201	RD22201
A	.2340	2	3-1/4	RD21301	RD22301
15/64	.2344	2	3-1/4	RD21415	RD22415
6.00MM	.2362	50	82	RD22560	RD22760
B	.2380	2	3-1/4	RD21302	RD22302
C	.2420	2	3-1/4	RD21303	RD22303
D	.2460	2	3-1/4	RD21304	RD22304
1/4	.2500	2	3-1/4	RD21416	RD22416
E	.2500	2	3-1/4	RD21305	RD22305
6.50MM	.2559	50	82	RD22565	RD22765
F	.2570	2	3-1/4	RD21306	RD22306
G	.2610	2-1/8	3-1/2	RD21307	RD22307
17/64	.2656	2-1/8	3-1/2	RD21417	RD22417
H	.2660	2-1/8	3-1/2	RD21308	RD22308
I	.2720	2-1/8	3-1/2	RD21309	RD22309
7.00MM	.2756	54	89	RD22570	RD22770
J	.2770	2-1/8	3-1/2	RD21310	RD22310
K	.2810	2-1/8	3-1/2	RD21311	RD22311
9/32	.2812	2-1/8	3-1/2	RD21418	RD22418
L	.2900	2-1/8	3-1/2	RD21312	RD22312
M	.2950	2-3/8	3-3/4	RD21313	RD22313

Continued

NOTE: Sizes under 1/8" diameter are not split point.

Tolerances
+.0000, -.0005

Speeds & Feeds page 338.

Jobber Length



Uncoated | AlTiN Coated

Carbide, Jobber Length, 118° Split Point, 25° Helix (.2953-.5000)

Drill Size	Decimal Equiv	Flute Length	OAL	Uncoated Part #	AlTiN Coated Part #
7.50MM	.2953	60	95	RD22575	RD22775
19/64	.2969	2-3/8	3-3/4	RD21419	RD22419
N	.3020	2-3/8	3-3/4	RD21314	RD22314
5/16	.3125	2-3/8	3-3/4	RD21420	RD22420
8.00MM	.3150	60	95	RD22580	RD22780
O	.3160	2-3/8	3-3/4	RD21315	RD22315
P	.3230	2-3/8	3-3/4	RD21316	RD22316
21/64	.3281	2-1/2	4	RD21421	RD22421
Q	.3320	2-1/2	4	RD21317	RD22317
8.50MM	.3346	63	100	RD22585	RD22785
R	.3390	2-1/2	4	RD21318	RD22318
11/32	.3438	2-1/2	4	RD21422	RD22422
S	.3480	2-1/2	4	RD21319	RD22319
9.00MM	.3543	70	100	RD22590	RD22790
T	.3580	2-3/4	4-1/4	RD21320	RD22320
23/64	.3594	2-3/4	4-1/4	RD21423	RD22423
U	.3680	2-3/4	4-1/4	RD21321	RD22321
9.50MM	.3740	70	108	RD22595	RD22795
3/8	.3750	2-3/4	4-1/4	RD21424	RD22424
V	.3770	2-3/4	4-1/4	RD21322	RD22322
W	.3860	2-7/8	4-1/2	RD21323	RD22323
25/64	.3906	2-7/8	4-1/2	RD21425	RD22425
10.00MM	.3937	73	114	RD22600	RD22800
X	.3970	2-7/8	4-1/2	RD21324	RD22324
Y	.4040	2-7/8	4-1/2	RD21325	RD22325
13/32	.4062	2-7/8	4-1/2	RD21426	RD22426
Z	.4130	2-7/8	4-1/2	RD21326	RD22326
10.50MM	.4134	73	114	RD22605	RD22805
27/64	.4219	2-7/8	4-1/2	RD21427	RD22427
11.00MM	.4331	73	114	RD22610	RD22810
7/16	.4375	2-7/8	4-1/2	RD21428	RD22428
11.50MM	.4528	76	120	RD22615	RD22815
29/64	.4531	3	4-3/4	RD21429	RD22429
15/32	.4688	3	4-3/4	RD21430	RD22430
12.00MM	.4724	76	120	RD22620	RD22820
31/64	.4844	3	4-3/4	RD21431	RD22431
1/2	.5000	3	4-3/4	RD21432	RD22432

NOTE: Sizes under 1/8" diameter are not split point.

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Tolerances
+.0000, -.0005



Uncoated



AlTiN Coated

Carbide, Straight Flute, 140° Split Point (.1250-.2460)

Drill Size	Decimal Equiv	Flute Length	OAL	Uncoated Part #	AlTiN Coated Part #
1/8	.1250	3/4	2	RD21708	RD47808
#30	.1285	3/4	2	RD21530	RD48130
#29	.1360	3/4	2	RD21529	RD48129
#28	.1405	3/4	2	RD21528	RD48128
9/64	.1406	3/4	2	RD21709	RD47809
#27	.1440	7/8	2	RD21527	RD48127
#26	.1470	7/8	2	RD21526	RD48126
#25	.1495	7/8	2	RD21525	RD48125
#24	.1520	7/8	2	RD21524	RD48124
#23	.1540	7/8	2	RD21523	RD48123
5/32	.1562	7/8	2	RD21710	RD47810
#22	.1570	7/8	2	RD21522	RD48122
#21	.1590	7/8	2	RD21521	RD48121
#20	.1610	7/8	2	RD21520	RD48120
#19	.1660	7/8	2	RD21519	RD48119
#18	.1695	7/8	2	RD21518	RD48118
11/64	.1719	7/8	2	RD21711	RD47811
#17	.1730	7/8	2	RD21517	RD48117
#16	.1770	7/8	2	RD21516	RD48116
#15	.1800	7/8	2	RD21515	RD48115
#14	.1820	7/8	2	RD21514	RD48114
#13	.1850	7/8	2	RD21513	RD48113
3/16	.1875	7/8	2	RD21712	RD47812
#12	.1890	1-1/8	2-1/2	RD21512	RD48112
#11	.1910	1-1/8	2-1/2	RD21511	RD48111
#10	.1935	1-1/8	2-1/2	RD21510	RD48110
#9	.1960	1-1/8	2-1/2	RD21509	RD48109
#8	.1990	1-1/8	2-1/2	RD21508	RD48108
#7	.2010	1-1/8	2-1/2	RD21507	RD48107
13/64	.2031	1-1/8	2-1/2	RD21713	RD47813
#6	.2040	1-1/8	2-1/2	RD21506	RD48106
#5	.2055	1-1/8	2-1/2	RD21505	RD48105
#4	.2090	1-1/8	2-1/2	RD21504	RD48104
#3	.2130	1-1/8	2-1/2	RD21503	RD48103
7/32	.2188	1-1/8	2-1/2	RD21714	RD47814
#2	.2210	1-1/4	2-1/2	RD21502	RD48102
#1	.2280	1-1/4	2-1/2	RD21501	RD48101
A	.2340	1-1/4	2-1/2	RD21601	RD47901
15/64	.2344	1-1/4	2-1/2	RD21715	RD47815
B	.2380	1-1/4	2-1/2	RD21602	RD47902
C	.2420	1-1/4	2-1/2	RD21603	RD47903
D	.2460	1-1/4	2-1/2	RD21604	RD47904

Continued

Tolerances
+.0000, -.0005

Speeds & Feeds page 339.

Straight Flute



Uncoated



AlTiN Coated

Carbide, Straight Flute, 140° Split Point (.2500-.5000)

Drill Size	Decimal Equiv	Flute Length	OAL	Uncoated Part #	AlTiN Coated Part #
1/4	.2500	1-1/4	2-1/2	RD21716	RD47816
E	.2500	1-1/4	2-1/2	RD21605	RD47905
F	.2570	1-1/4	2-1/2	RD21606	RD47906
G	.2610	1-1/4	2-1/2	RD21607	RD47907
17/64	.2656	1-1/4	2-1/2	RD21717	RD47817
H	.2660	1-1/4	2-1/2	RD21608	RD47908
I	.2720	1-1/4	2-1/2	RD21609	RD47909
J	.2770	1-1/4	2-1/2	RD21610	RD47910
K	.2810	1-1/4	2-1/2	RD21611	RD47911
9/32	.2812	1-1/4	2-1/2	RD21718	RD47818
L	.2900	1-1/4	2-1/2	RD21612	RD47912
M	.2950	1-1/4	2-1/2	RD21613	RD47913
19/64	.2969	1-1/4	2-1/2	RD21719	RD47819
N	.3020	1-1/4	2-1/2	RD21614	RD47914
5/16	.3125	1-1/4	2-1/2	RD21720	RD47820
O	.3160	1-3/8	3	RD21615	RD47915
P	.3230	1-3/8	3	RD21616	RD47916
21/64	.3281	1-3/8	3	RD21721	RD47821
Q	.3320	1-3/8	3	RD21617	RD47917
R	.3390	1-3/8	3	RD21618	RD47918
11/32	.3438	1-3/8	3	RD21722	RD47822
S	.3480	1-3/8	3	RD21619	RD47919
T	.3580	1-3/8	3	RD21620	RD47920
23/64	.3594	1-3/8	3	RD21723	RD47823
U	.3680	1-3/8	3	RD21621	RD47921
3/8	.3750	1-3/8	3	RD21724	RD47824
V	.3770	1-3/8	3	RD21622	RD47922
W	.3860	1-3/8	3	RD21623	RD47923
25/64	.3906	1-3/8	3	RD21725	RD47825
X	.3970	1-3/8	3	RD21624	RD47924
Y	.4040	1-3/8	3	RD21625	RD47925
13/32	.4062	1-3/8	3	RD21726	RD47826
Z	.4130	1-3/8	3	RD21626	RD47926
27/64	.4219	1-3/8	3	RD21727	RD47827
7/16	.4375	1-3/8	3	RD21728	RD47828
15/32	.4688	1-3/8	3	RD21730	RD47830
1/2	.5000	1-3/8	3	RD21732	RD47832

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Tolerances
+.0000, -.0005



Cobalt - AlTiN Coated



Cobalt - Straw Finish



HSS - Oxide

HSS & Cobalt, Screw Machine Length, 135° Split Point
(.0400-.1440)

	Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Cobalt - AlTiN Coated Part #	Cobalt - Straw Finish Part #	HSS - Oxide Part #
*	#60	.0400	1/2	1-3/8	12	RD45760	RD42060	RD41860
*	#59	.0410	1/2	1-3/8	12	RD45759	RD42059	RD41859
*	#58	.0420	1/2	1-3/8	12	RD45758	RD42058	RD41858
*	#57	.0430	1/2	1-3/8	12	RD45757	RD42057	RD41857
*	#56	.0465	1/2	1-3/8	12	RD45756	RD42056	RD41856
*	#55	.0520	5/8	1-5/8	12	RD45755	RD42055	RD41855
*	#54	.0550	5/8	1-5/8	12	RD45754	RD42054	RD41854
*	#53	.0595	5/8	1-5/8	12	RD45753	RD42053	RD41853
	1/16	.0625	5/8	1-5/8	12	RD45504	RD42204	RD41904
	#52	.0635	11/16	1-11/16	12	RD45752	RD42052	RD41852
	#51	.0670	11/16	1-11/16	12	RD45751	RD42051	RD41851
	#50	.0700	11/16	1-11/16	12	RD45750	RD42050	RD41850
	#49	.0730	11/16	1-11/16	12	RD45749	RD42049	RD41849
	#48	.0760	11/16	1-11/16	12	RD45748	RD42048	RD41848
	5/64	.0781	11/16	1-11/16	12	RD45505	RD42205	RD41905
	#47	.0785	11/16	1-11/16	12	RD45747	RD42047	RD41847
	#46	.0810	3/4	1-3/4	12	RD45746	RD42046	RD41846
	#45	.0820	3/4	1-3/4	12	RD45745	RD42045	RD41845
	#44	.0860	3/4	1-3/4	12	RD45744	RD42044	RD41844
	#43	.0890	3/4	1-3/4	12	RD45743	RD42043	RD41843
	#42	.0935	3/4	1-3/4	12	RD45742	RD42042	RD41842
	3/32	.0938	3/4	1-3/4	12	RD45506	RD42206	RD41906
	#41	.0960	13/16	1-13/16	12	RD45741	RD42041	RD41841
	#40	.0980	13/16	1-13/16	12	RD45740	RD42040	RD41840
	#39	.0995	13/16	1-13/16	12	RD45739	RD42039	RD41839
	#38	.1015	13/16	1-13/16	12	RD45738	RD42038	RD41838
	#37	.1040	13/16	1-13/16	12	RD45737	RD42037	RD41837
	#36	.1065	13/16	1-13/16	12	RD45736	RD42036	RD41836
	7/64	.1094	13/16	1-13/16	12	RD45507	RD42207	RD41907
	#35	.1100	7/8	1-7/8	12	RD45735	RD42035	RD41835
	#34	.1110	7/8	1-7/8	12	RD45734	RD42034	RD41834
	#33	.1130	7/8	1-7/8	12	RD45733	RD42033	RD41833
	#32	.1160	7/8	1-7/8	12	RD45732	RD42032	RD41832
	#31	.1200	7/8	1-7/8	12	RD45731	RD42031	RD41831
	1/8	.1250	7/8	1-7/8	12	RD45508	RD42208	RD41908
	#30	.1285	15/16	1-15/16	12	RD45730	RD42030	RD41830
	#29	.1360	15/16	1-15/16	12	RD45729	RD42029	RD41829
	#28	.1405	15/16	1-15/16	12	RD45728	RD42028	RD41828
	9/64	.1406	15/16	1-15/16	12	RD45509	RD42209	RD41909
	#27	.1440	1	2-1/16	12	RD45727	RD42027	RD41827

Continued

* These items do not have a split point.

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Screw Machine Length



Cobalt - AlTiN Coated



Cobalt - Straw Finish



HSS - Oxide

HSS & Cobalt, Screw Machine Length, 135° Split Point
(.1470-.2610)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Cobalt - AlTiN Coated Part #	Cobalt - Straw Finish Part #	HSS - Oxide Part #
#26	.1470	1	2-1/16	12	RD45726	RD42026	RD41826
#25	.1495	1	2-1/16	12	RD45725	RD42025	RD41825
#24	.1520	1	2-1/16	12	RD45724	RD42024	RD41824
#23	.1540	1	2-1/16	12	RD45723	RD42023	RD41823
5/32	.1562	1	2-1/16	12	RD45510	RD42210	RD41910
#22	.1570	1-1/16	2-1/8	12	RD45722	RD42022	RD41822
#21	.1590	1-1/16	2-1/8	12	RD45721	RD42021	RD41821
#20	.1610	1-1/16	2-1/8	12	RD45720	RD42020	RD41820
#19	.1660	1-1/16	2-1/8	12	RD45719	RD42019	RD41819
#18	.1695	1-1/16	2-1/8	12	RD45718	RD42018	RD41818
11/64	.1719	1-1/16	2-1/8	12	RD45511	RD42211	RD41911
#17	.1730	1-1/8	2-3/16	12	RD45717	RD42017	RD41817
#16	.1770	1-1/8	2-3/16	12	RD45716	RD42016	RD41816
#15	.1800	1-1/8	2-3/16	12	RD45715	RD42015	RD41815
#14	.1820	1-1/8	2-3/16	12	RD45714	RD42014	RD41814
#13	.1850	1-1/8	2-3/16	12	RD45713	RD42013	RD41813
3/16	.1875	1-1/8	2-3/16	12	RD45512	RD42212	RD41912
#12	.1890	1-3/16	2-1/4	12	RD45712	RD42012	RD41812
#11	.1910	1-3/16	2-1/4	12	RD45711	RD42011	RD41811
#10	.1935	1-3/16	2-1/4	12	RD45710	RD42010	RD41810
#9	.1960	1-3/16	2-1/4	12	RD45709	RD42009	RD41809
#8	.1990	1-3/16	2-1/4	12	RD45708	RD42008	RD41808
#7	.2010	1-3/16	2-1/4	12	RD45707	RD42007	RD41807
13/64	.2031	1-3/16	2-1/4	12	RD45513	RD42213	RD41913
#6	.2040	1-1/4	2-3/8	12	RD45706	RD42006	RD41806
#5	.2055	1-1/4	2-3/8	12	RD45705	RD42005	RD41805
#4	.2090	1-1/4	2-3/8	12	RD45704	RD42004	RD41804
#3	.2130	1-1/4	2-3/8	12	RD45703	RD42003	RD41803
7/32	.2188	1-1/4	2-3/8	12	RD45514	RD42214	RD41914
#2	.2210	1-5/16	2-7/16	12	RD45702	RD42002	RD41802
#1	.2280	1-5/16	2-7/16	12	RD45701	RD42001	RD41801
A	.2340	1-5/16	2-7/16	12	RD45601	RD42101	RD44501
15/64	.2344	1-5/16	2-7/16	12	RD45515	RD42215	RD41915
B	.2380	1-3/8	2-1/2	12	RD45602	RD42102	RD44502
C	.2420	1-3/8	2-1/2	12	RD45603	RD42103	RD44503
D	.2460	1-3/8	2-1/2	12	RD45604	RD42104	RD44504
1/4	.2500	1-3/8	2-1/2	12	RD45516	RD42216	RD41916
E	.2500	1-3/8	2-1/2	12	RD45605	RD42105	RD44505
F	.2570	1-7/16	2-5/8	6	RD45606	RD42106	RD44506
G	.2610	1-7/16	2-5/8	6	RD45607	RD42107	RD44507

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Speeds & Feeds page 340.



Cobalt - AlTiN Coated



Cobalt - Straw Finish



HSS - Oxide

HSS & Cobalt, Screw Machine Length, 135° Split Point
(.2656-.5000)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Cobalt - AlTiN Coated Part #	Cobalt - Straw Finish Part #	HSS - Oxide Part #
17/64	.2656	1-7/16	2-5/8	6	RD45517	RD42217	RD41917
H	.2660	1-1/2	2-11/16	6	RD45608	RD42108	RD44508
I	.2720	1-1/2	2-11/16	6	RD45609	RD42109	RD44509
J	.2770	1-1/2	2-11/16	6	RD45610	RD42110	RD44510
K	.2810	1-1/2	2-11/16	6	RD45611	RD42111	RD44511
9/32	.2813	1-1/2	2-11/16	6	RD45518	RD42218	RD41918
L	.2900	1-9/16	2-3/4	6	RD45612	RD42112	RD44512
M	.2950	1-9/16	2-3/4	6	RD45613	RD42113	RD44513
19/64	.2969	1-9/16	2-3/4	6	RD45519	RD42219	RD41919
N	.3020	1-5/8	2-13/16	6	RD45614	RD42114	RD44514
5/16	.3125	1-5/8	2-13/16	6	RD45520	RD42220	RD41920
O	.3160	1-11/16	2-15/16	6	RD45615	RD42115	RD44515
P	.3230	1-11/16	2-15/16	6	RD45616	RD42116	RD44516
21/64	.3281	1-11/16	2-15/16	6	RD45521	RD42221	RD41921
Q	.3320	1-11/16	3	6	RD45617	RD42117	RD44517
R	.3390	1-11/16	3	6	RD45618	RD42118	RD44518
11/32	.3438	1-11/16	3	6	RD45522	RD42222	RD41922
S	.3480	1-3/4	3-1/16	6	RD45619	RD42119	RD44519
T	.3580	1-3/4	3-1/16	6	RD45620	RD42120	RD44520
23/64	.3594	1-3/4	3-1/16	6	RD45523	RD42223	RD41923
U	.3680	1-13/16	3-1/8	6	RD45621	RD42121	RD44521
3/8	.3750	1-13/16	3-1/8	6	RD45524	RD42224	RD41924
V	.3770	1-7/8	3-1/4	6	RD45622	RD42122	RD44522
W	.3860	1-7/8	3-1/4	6	RD45623	RD42123	RD44523
25/64	.3906	1-7/8	3-1/4	6	RD45525	RD42225	RD41925
X	.3970	1-15/16	3-5/16	6	RD45624	RD42124	RD44524
Y	.4040	1-15/16	3-5/16	6	RD45625	RD42125	RD44525
13/32	.4062	1-15/16	3-5/16	6	RD45526	RD42226	RD41926
Z	.4130	2	3-3/8	6	RD45626	RD42126	RD44526
27/64	.4219	2	3-3/8	6	RD45527	RD42227	RD41927
7/16	.4375	2	3-7/16	6	RD45528	RD42228	RD41928
29/64	.4531	2-1/8	3-9/16	6	RD45529	RD42229	RD41929
15/32	.4688	2-1/8	3-5/8	6	RD45530	RD42230	RD41930
31/64	.4844	2-3/16	3-11/16	6	RD45531	RD42231	RD41931
1/2	.5000	2-1/4	3-3/4	6	RD45532	RD42232	RD41932

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Jobber Length



Oxide



Bright



TiN Coated

HSS, Jobber Length, 118° Point
(.0394-.0860)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #	Bright Part #	TiN Coated Part #
1.00MM	.0394	18	41	12	RD46300	—	—
#60	.0400	11/16	1-5/8	12	RD40060	RD40360	RD41260
#59	.0410	11/16	1-5/8	12	RD40059	RD40359	RD41259
1.05MM	.0413	18	41	12	RD46305	—	—
#58	.0420	11/16	1-5/8	12	RD40058	RD40358	RD41258
#57	.0430	3/4	1-3/4	12	RD40057	RD40357	RD41257
1.10MM	.0433	19	44	12	RD46310	—	—
1.15MM	.0453	19	44	12	RD46315	—	—
#56	.0465	3/4	1-3/4	12	RD40056	RD40356	RD41256
1.20MM	.0472	22	48	12	RD46320	—	—
1.25MM	.0492	22	48	12	RD46325	—	—
1.30MM	.0512	22	48	12	RD46330	—	—
#55	.0520	7/8	1-7/8	12	RD40055	RD40355	RD41255
#54	.0550	7/8	1-7/8	12	RD40054	RD40354	RD41254
1.40MM	.0551	22	48	12	RD46340	—	—
1.50MM	.0591	22	48	12	RD46350	—	—
#53	.0595	7/8	1-7/8	12	RD40053	RD40353	RD41253
1/16	.0625	7/8	1-7/8	12	RD40204	RD40504	RD41404
1.60MM	.0630	22	48	12	RD46360	—	—
#52	.0635	7/8	1-7/8	12	RD40052	RD40352	RD41252
1.70MM	.0669	25	51	12	RD46370	—	—
#51	.0670	1	2	12	RD40051	RD40351	RD41251
#50	.0700	1	2	12	RD40050	RD40350	RD41250
1.80MM	.0709	25	51	12	RD46380	—	—
#49	.0730	1	2	12	RD40049	RD40349	RD41249
1.90MM	.0748	25	51	12	RD46390	—	—
#48	.0760	1	2	12	RD40048	RD40348	RD41248
5/64	.0781	1	2	12	RD40205	RD40505	RD41405
#47	.0785	1	2	12	RD40047	RD40347	RD41247
2.00MM	.0787	25	51	12	RD46400	—	—
#46	.0810	1-1/8	2-1/8	12	RD40046	RD40346	RD41246
#45	.0820	1-1/8	2-1/8	12	RD40045	RD40345	RD41245
#44	.0860	1-1/8	2-1/8	12	RD40044	RD40344	RD41244

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Oxide



Bright



TiN Coated

HSS, Jobber Length, 118° Point
(.0890-.1610)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #	Bright Part #	TiN Coated Part #
#43	.0890	1-1/4	2-1/4	12	RD40043	RD40343	RD41243
#42	.0935	1-1/4	2-1/4	12	RD40042	RD40342	RD41242
3/32	.0938	1-1/4	2-1/4	12	RD40206	RD40506	RD41406
#41	.0960	1-3/8	2-3/8	12	RD40041	RD40341	RD41241
#40	.0980	1-3/8	2-3/8	12	RD40040	RD40340	RD41240
2.50MM	.0984	35	60	12	RD46450	–	–
#39	.0995	1-3/8	2-3/8	12	RD40039	RD40339	RD41239
#38	.1015	1-7/16	2-1/2	12	RD40038	RD40338	RD41238
#37	.1040	1-7/16	2-1/2	12	RD40037	RD40337	RD41237
#36	.1065	1-7/16	2-1/2	12	RD40036	RD40336	RD41236
7/64	.1094	1-1/2	2-5/8	12	RD40207	RD40507	RD41407
#35	.1100	1-1/2	2-5/8	12	RD40035	RD40335	RD41235
#34	.1110	1-1/2	2-5/8	12	RD40034	RD40334	RD41234
#33	.1130	1-1/2	2-5/8	12	RD40033	RD40333	RD41233
#32	.1160	1-5/8	2-3/4	12	RD40032	RD40332	RD41232
3.00MM	.1181	41	70	12	RD46500	–	–
#31	.1200	1-5/8	2-3/4	12	RD40031	RD40331	RD41231
1/8	.1250	1-5/8	2-3/4	12	RD40208	RD40508	RD41408
#30	.1285	1-5/8	2-3/4	12	RD40030	RD40330	RD41230
#29	.1360	1-3/4	2-7/8	12	RD40029	RD40329	RD41229
3.50MM	.1378	45	73	12	RD46550	–	–
#28	.1405	1-3/4	2-7/8	12	RD40028	RD40328	RD41228
9/64	.1406	1-3/4	2-7/8	12	RD40209	RD40509	RD41409
#27	.1440	1-7/8	3	12	RD40027	RD40327	RD41227
#26	.1470	1-7/8	3	12	RD40026	RD40326	RD41226
#25	.1495	1-7/8	3	12	RD40025	RD40325	RD41225
#24	.1520	2	3-1/8	12	RD40024	RD40324	RD41224
#23	.1540	2	3-1/8	12	RD40023	RD40323	RD41223
5/32	.1562	2	3-1/8	12	RD40210	RD40510	RD41410
#22	.1570	2	3-1/8	12	RD40022	RD40322	RD41222
4.00MM	.1575	54	83	12	RD46600	–	–
#21	.1590	2-1/8	3-1/4	12	RD40021	RD40321	RD41221
#20	.1610	2-1/8	3-1/4	12	RD40020	RD40320	RD41220

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Jobber Length



Oxide



Bright



TiN Coated

HSS, Jobber Length, 118° Point
(.1660-.2500)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #	Bright Part #	TiN Coated Part #
#19	.1660	2-1/8	3-1/4	12	RD40019	RD40319	RD41219
#18	.1695	2-1/8	3-1/4	12	RD40018	RD40318	RD41218
11/64	.1719	2-1/8	3-1/4	12	RD40211	RD40511	RD41411
#17	.1730	2-3/16	3-3/8	12	RD40017	RD40317	RD41217
#16	.1770	2-3/16	3-3/8	12	RD40016	RD40316	RD41216
4.50MM	.1772	56	86	12	RD46650	–	–
#15	.1800	2-3/16	3-3/8	12	RD40015	RD40315	RD41215
#14	.1820	2-3/16	3-3/8	12	RD40014	RD40314	RD41214
#13	.1850	2-5/16	3-1/2	12	RD40013	RD40313	RD41213
3/16	.1875	2-5/16	3-1/2	12	RD40212	RD40512	RD41412
#12	.1890	2-5/16	3-1/2	12	RD40012	RD40312	RD41212
#11	.1910	2-5/16	3-1/2	12	RD40011	RD40311	RD41211
#10	.1935	2-7/16	3-5/8	12	RD40010	RD40310	RD41210
#9	.1960	2-7/16	3-5/8	12	RD40009	RD40309	RD41209
5.00MM	.1969	62	92	12	RD46700	–	–
#8	.1990	2-7/16	3-5/8	12	RD40008	RD40308	RD41208
#7	.2010	2-7/16	3-5/8	12	RD40007	RD40307	RD41207
13/64	.2031	2-7/16	3-5/8	12	RD40213	RD40513	RD41413
#6	.2040	2-1/2	3-3/4	12	RD40006	RD40306	RD41206
#5	.2055	2-1/2	3-3/4	12	RD40005	RD40305	RD41205
#4	.2090	2-1/2	3-3/4	12	RD40004	RD40304	RD41204
#3	.2130	2-1/2	3-3/4	12	RD40003	RD40303	RD41203
5.50MM	.2165	64	95	12	RD46750	–	–
7/32	.2188	2-1/2	3-3/4	12	RD40214	RD40514	RD41414
#2	.2210	2-5/8	3-7/8	12	RD40002	RD40302	RD41202
#1	.2280	2-5/8	3-7/8	12	RD40001	RD40301	RD41201
A	.2340	2-5/8	3-7/8	12	RD40101	RD40401	RD41301
15/64	.2344	2-5/8	3-7/8	12	RD40215	RD40515	RD41415
6.00MM	.2362	70	102	12	RD46800	–	–
B	.2380	2-3/4	4	12	RD40102	RD40402	RD41302
C	.2420	2-3/4	4	12	RD40103	RD40403	RD41303
D	.2460	2-3/4	4	12	RD40104	RD40404	RD41304
1/4	.2500	2-3/4	4	12	RD40216	RD40516	RD41416

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Oxide



Bright



TiN Coated

HSS, Jobber Length, 118° Point
(.2500-.3770)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #	Bright Part #	TiN Coated Part #
E	.2500	2-3/4	4	12	RD40105	RD40405	RD41305
6.50MM	.2559	73	105	6	RD46850	—	—
F	.2570	2-7/8	4-1/8	6	RD40106	RD40406	RD41306
G	.2610	2-7/8	4-1/8	6	RD40107	RD40407	RD41307
17/64	.2656	2-7/8	4-1/8	6	RD40217	RD40517	RD41417
H	.2660	2-7/8	4-1/8	6	RD40108	RD40408	RD41308
I	.2720	2-7/8	4-1/8	6	RD40109	RD40409	RD41309
7.00MM	.2756	73	105	6	RD46900	—	—
J	.2770	2-7/8	4-1/8	6	RD40110	RD40410	RD41310
K	.2810	2-15/16	4-1/4	6	RD40111	RD40411	RD41311
9/32	.2812	2-15/16	4-1/4	6	RD40218	RD40518	RD41418
L	.2900	2-15/16	4-1/4	6	RD40112	RD40412	RD41312
M	.2950	3-1/16	4-3/8	6	RD40113	RD40413	RD41313
7.50MM	.2953	78	111	6	RD46950	—	—
19/64	.2969	3-1/16	4-3/8	6	RD40219	RD40519	RD41419
N	.3020	3-1/16	4-3/8	6	RD40114	RD40414	RD41314
5/16	.3125	3-3/16	4-1/2	6	RD40220	RD40520	RD41420
8.00MM	.3150	81	114	6	RD47000	—	—
O	.3160	3-3/16	4-1/2	6	RD40115	RD40415	RD41315
P	.3230	3-5/16	4-5/8	6	RD40116	RD40416	RD41316
21/64	.3281	3-5/16	4-5/8	6	RD40221	RD40521	RD41421
Q	.3320	3-7/16	4-3/4	6	RD40117	RD40417	RD41317
8.50MM	.3346	87	121	6	RD47050	—	—
R	.3390	3-7/16	4-3/4	6	RD40118	RD40418	RD41318
11/32	.3438	3-7/16	4-3/4	6	RD40222	RD40522	RD41422
S	.3480	3-1/2	4-7/8	6	RD40119	RD40419	RD41319
9.00MM	.3543	89	124	6	RD47100	—	—
T	.3580	3-1/2	4-7/8	6	RD40120	RD40420	RD41320
23/64	.3594	3-1/2	4-7/8	6	RD40223	RD40523	RD41423
U	.3680	3-5/8	5	6	RD40121	RD40421	RD41321
9.50MM	.3740	92	127	6	RD47150	—	—
3/8	.3750	3-5/8	5	6	RD40224	RD40524	RD41424
V	.3770	3-5/8	5	6	RD40122	RD40422	RD41322

Continued

Speeds & Feeds page 340.

Jobber Length



Oxide



Bright



TiN Coated

HSS, Jobber Length, 118° Point
(.3860-.6875)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #	Bright Part #	TiN Coated Part #
W	.3860	3-3/4	5-1/8	6	RD40123	RD40423	RD41323
25/64	.3906	3-3/4	5-1/8	6	RD40225	RD40525	RD41425
10.00MM	.3937	95	130	6	RD47200	–	–
X	.3970	3-3/4	5-1/8	6	RD40124	RD40424	RD41324
Y	.4040	3-7/8	5-1/4	6	RD40125	RD40425	RD41325
13/32	.4062	3-7/8	5-1/4	6	RD40226	RD40526	RD41426
Z	.4130	3-7/8	5-1/4	6	RD40126	RD40426	RD41326
10.50MM	.4134	98	133	6	RD47205	–	–
27/64	.4219	3-15/16	5-3/8	6	RD40227	RD40527	RD41427
11.00MM	.4331	103	140	6	RD47210	–	–
7/16	.4375	4-1/16	5-1/2	6	RD40228	RD40528	RD41428
11.50MM	.4528	106	143	6	RD47215	–	–
29/64	.4531	4-3/16	5-5/8	6	RD40229	RD40529	RD41429
15/32	.4688	4-5/16	5-3/4	6	RD40230	RD40530	RD41430
12.00MM	.4724	111	150	6	RD47220	–	–
31/64	.4844	4-3/8	5-7/8	6	RD40231	RD40531	RD41431
12.50MM	.4921	114	152	6	RD47225	–	–
1/2	.5000	4-1/2	6	6	RD40232	RD40532	RD41432
13.00MM	.5118	114	152	6	RD47230	–	–
33/64	.5156	4-13/16	6-5/8	1	RD40233	–	–
17/32	.5312	4-13/16	6-5/8	1	RD40234	–	–
35/64	.5469	4-13/16	6-5/8	1	RD40235	–	–
9/16	.5625	4-13/16	6-5/8	1	RD40236	–	–
37/64	.5781	4-13/16	6-5/8	1	RD40237	–	–
19/32	.5938	5-3/16	7-1/8	1	RD40238	–	–
39/64	.6094	5-3/16	7-1/8	1	RD40239	–	–
5/8	.6250	5-3/16	7-1/8	1	RD40240	–	–
41/64	.6406	5-3/16	7-1/8	1	RD40241	–	–
21/32	.6562	5-3/16	7-1/8	1	RD40242	–	–
43/64	.6719	5-5/8	7-5/8	1	RD40243	–	–
11/16	.6875	5-5/8	7-5/8	1	RD40244	–	–

Speeds & Feeds page 340.



Oxide



Black & Gold Finish

HSS, Heavy Duty, Jobber Length, 135° Split Point
(.0400-.1405)

	Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #	Black & Gold Finish Part #
† *	#60	.0400	11/16	1-5/8	12	RD40660	RD40960
† *	#59	.0410	11/16	1-5/8	12	RD40659	RD40959
† *	#58	.0420	11/16	1-5/8	12	RD40658	RD40958
† *	#57	.0430	3/4	1-3/4	12	RD40657	RD40957
† *	#56	.0465	3/4	1-3/4	12	RD40656	RD40956
† *	#55	.0520	7/8	1-7/8	12	RD40655	RD40955
† *	#54	.0550	7/8	1-7/8	12	RD40654	RD40954
† *	#53	.0595	7/8	1-7/8	12	RD40653	RD40953
† *	1/16	.0625	7/8	1-7/8	12	RD40804	RD41104
	#52	.0635	7/8	1-7/8	12	RD40652	RD40952
	#51	.0670	1	2	12	RD40651	RD40951
	#50	.0700	1	2	12	RD40650	RD40950
	#49	.0730	1	2	12	RD40649	RD40949
	#48	.0760	1	2	12	RD40648	RD40948
	5/64	.0781	1	2	12	RD40805	RD41105
	#47	.0785	1	2	12	RD40647	RD40947
	#46	.0810	1-1/8	2-1/8	12	RD40646	RD40946
	#45	.0820	1-1/8	2-1/8	12	RD40645	RD40945
	#44	.0860	1-1/8	2-1/8	12	RD40644	RD40944
	#43	.0890	1-1/4	2-1/4	12	RD40643	RD40943
	#42	.0935	1-1/4	2-1/4	12	RD40642	RD40942
	3/32	.0938	1-1/4	2-1/4	12	RD40806	RD41106
	#41	.0960	1-3/8	2-3/8	12	RD40641	RD40941
	#40	.0980	1-3/8	2-3/8	12	RD40640	RD40940
	#39	.0995	1-3/8	2-3/8	12	RD40639	RD40939
	#38	.1015	1-7/16	2-1/2	12	RD40638	RD40938
	#37	.1040	1-7/16	2-1/2	12	RD40637	RD40937
	#36	.1065	1-7/16	2-1/2	12	RD40636	RD40936
	7/64	.1094	1-1/2	2-5/8	12	RD40807	RD41107
	#35	.1100	1-1/2	2-5/8	12	RD40635	RD40935
	#34	.1110	1-1/2	2-5/8	12	RD40634	RD40934
	#33	.1130	1-1/2	2-5/8	12	RD40633	RD40933
	#32	.1160	1-5/8	2-3/4	12	RD40632	RD40932
	#31	.1200	1-5/8	2-3/4	12	RD40631	RD40931
	1/8	.1250	1-5/8	2-3/4	12	RD40808	RD41108
	#30	.1285	1-5/8	2-3/4	12	RD40630	RD40930
	#29	.1360	1-3/4	2-7/8	12	RD40629	RD40929
	#28	.1405	1-3/4	2-7/8	12	RD40628	RD40928

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* These items do not have a split point. † Black & Gold models are in Gold Finish only.

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Jobber Length



Oxide



Black & Gold Finish

HSS, Heavy Duty, Jobber Length, 135° Split Point
(.1406-.2460)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #	Black & Gold Finish Part #
9/64	.1406	1-3/4	2-7/8	12	RD40809	RD41109
#27	.1440	1-7/8	3	12	RD40627	RD40927
#26	.1470	1-7/8	3	12	RD40626	RD40926
#25	.1495	1-7/8	3	12	RD40625	RD40925
#24	.1520	2	3-1/8	12	RD40624	RD40924
#23	.1540	2	3-1/8	12	RD40623	RD40923
5/32	.1562	2	3-1/8	12	RD40810	RD41110
#22	.1570	2	3-1/8	12	RD40622	RD40922
#21	.1590	2-1/8	3-1/4	12	RD40621	RD40921
#20	.1610	2-1/8	3-1/4	12	RD40620	RD40920
#19	.1660	2-1/8	3-1/4	12	RD40619	RD40919
#18	.1695	2-1/8	3-1/4	12	RD40618	RD40918
11/64	.1719	2-1/8	3-1/4	12	RD40811	RD41111
#17	.1730	2-3/16	3-3/8	12	RD40617	RD40917
#16	.1770	2-3/16	3-3/8	12	RD40616	RD40916
#15	.1800	2-3/16	3-3/8	12	RD40615	RD40915
#14	.1820	2-3/16	3-3/8	12	RD40614	RD40914
#13	.1850	2-5/16	3-1/2	12	RD40613	RD40913
3/16	.1875	2-5/16	3-1/2	12	RD40812	RD41112
#12	.1890	2-5/16	3-1/2	12	RD40612	RD40912
#11	.1910	2-5/16	3-1/2	12	RD40611	RD40911
#10	.1935	2-7/16	3-5/8	12	RD40610	RD40910
#9	.1960	2-7/16	3-5/8	12	RD40609	RD40909
#8	.1990	2-7/16	3-5/8	12	RD40608	RD40908
#7	.2010	2-7/16	3-5/8	12	RD40607	RD40907
13/64	.2031	2-7/16	3-5/8	12	RD40813	RD41113
#6	.2040	2-1/2	3-3/4	12	RD40606	RD40906
#5	.2055	2-1/2	3-3/4	12	RD40605	RD40905
#4	.2090	2-1/2	3-3/4	12	RD40604	RD40904
#3	.2130	2-1/2	3-3/4	12	RD40603	RD40903
7/32	.2188	2-1/2	3-3/4	12	RD40814	RD41114
#2	.2210	2-5/8	3-7/8	12	RD40602	RD40902
#1	.2280	2-5/8	3-7/8	12	RD40601	RD40901
A	.2340	2-5/8	3-7/8	12	RD40701	RD41001
15/64	.2344	2-5/8	3-7/8	12	RD40815	RD41115
B	.2380	2-3/4	4	12	RD40702	RD41002
C	.2420	2-3/4	4	12	RD40703	RD41003
D	.2460	2-3/4	4	12	RD40704	RD41004

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Speeds & Feeds page 340.



Oxide



Black & Gold Finish

HSS, Heavy Duty, Jobber Length, 135° Split Point
(.2500-.5000)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #	Black & Gold Finish Part #
1/4	.2500	2-3/4	4	12	RD40816	RD41116
E	.2500	2-3/4	4	12	RD40705	RD41005
F	.2570	2-7/8	4-1/8	6	RD40706	RD41006
G	.2610	2-7/8	4-1/8	6	RD40707	RD41007
17/64	.2656	2-7/8	4-1/8	6	RD40817	RD41117
H	.2660	2-7/8	4-1/8	6	RD40708	RD41008
I	.2720	2-7/8	4-1/8	6	RD40709	RD41009
J	.2770	2-7/8	4-1/8	6	RD40710	RD41010
K	.2810	2-15/16	4-1/4	6	RD40711	RD41011
9/32	.2812	2-15/16	4-1/4	6	RD40818	RD41118
L	.2900	2-15/16	4-1/4	6	RD40712	RD41012
M	.2950	3-1/16	4-3/8	6	RD40713	RD41013
19/64	.2969	3-1/16	4-3/8	6	RD40819	RD41119
N	.3020	3-1/16	4-3/8	6	RD40714	RD41014
5/16	.3125	3-3/16	4-1/2	6	RD40820	RD41120
O	.3160	3-3/16	4-1/2	6	RD40715	RD41015
P	.3230	3-5/16	4-5/8	6	RD40716	RD41016
21/64	.3281	3-5/16	4-5/8	6	RD40821	RD41121
Q	.3320	3-7/16	4-3/4	6	RD40717	RD41017
R	.3390	3-7/16	4-3/4	6	RD40718	RD41018
11/32	.3438	3-7/16	4-3/4	6	RD40822	RD41122
S	.3480	3-1/2	4-7/8	6	RD40719	RD41019
T	.3580	3-1/2	4-7/8	6	RD40720	RD41020
23/64	.3594	3-1/2	4-7/8	6	RD40823	RD41123
U	.3680	3-5/8	5	6	RD40721	RD41021
3/8	.3750	3-5/8	5	6	RD40824	RD41124
V	.3770	3-5/8	5	6	RD40722	RD41022
W	.3860	3-3/4	5-1/8	6	RD40723	RD41023
25/64	.3906	3-3/4	5-1/8	6	RD40825	RD41125
X	.3970	3-3/4	5-1/8	6	RD40724	RD41024
Y	.4040	3-7/8	5-1/4	6	RD40725	RD41025
13/32	.4062	3-7/8	5-1/4	6	RD40826	RD41126
Z	.4130	3-7/8	5-1/4	6	RD40726	RD41026
27/64	.4219	3-15/16	5-3/8	6	RD40827	RD41127
7/16	.4375	4-1/16	5-1/2	6	RD40828	RD41128
29/64	.4531	4-3/16	5-5/8	6	RD40829	RD41129
15/32	.4688	4-5/16	5-3/4	6	RD40830	RD41130
31/64	.4844	4-3/8	5-7/8	6	RD40831	RD41131
1/2	.5000	4-1/2	6	6	RD40832	RD41132

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Jobber Length



Straw Finish



AlTiN Coated

Cobalt, Jobber Length, 135° Split Point (.0400-.1406)

	Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	AlTiN Coated Part #	Straw Finish Part #
*	#60	.0400	11/16	1-5/8	12	RD45460	RD42360
*	#59	.0410	11/16	1-5/8	12	RD45459	RD42359
*	#58	.0420	11/16	1-5/8	12	RD45458	RD42358
*	#57	.0430	3/4	1-3/4	12	RD45457	RD42357
*	#56	.0465	3/4	1-3/4	12	RD45456	RD42356
*	#55	.0520	7/8	1-7/8	12	RD45455	RD42355
*	#54	.0550	7/8	1-7/8	12	RD45454	RD42354
*	#53	.0595	7/8	1-7/8	12	RD45453	RD42353
	1/16	.0625	7/8	1-7/8	12	RD45204	RD42504
	#52	.0635	7/8	1-7/8	12	RD45452	RD42352
	#51	.0670	1	2	12	RD45451	RD42351
	#50	.0700	1	2	12	RD45450	RD42350
	#49	.0730	1	2	12	RD45449	RD42349
	#48	.0760	1	2	12	RD45448	RD42348
	5/64	.0781	1	2	12	RD45205	RD42505
	#47	.0785	1	2	12	RD45447	RD42347
	#46	.0810	1-1/8	2-1/8	12	RD45446	RD42346
	#45	.0820	1-1/8	2-1/8	12	RD45445	RD42345
	#44	.0860	1-1/8	2-1/8	12	RD45444	RD42344
	#43	.0890	1-1/4	2-1/4	12	RD45443	RD42343
	#42	.0935	1-1/4	2-1/4	12	RD45442	RD42342
	3/32	.0938	1-1/4	2-1/4	12	RD45206	RD42506
	#41	.0960	1-3/8	2-3/8	12	RD45441	RD42341
	#40	.0980	1-3/8	2-3/8	12	RD45440	RD42340
	#39	.0995	1-3/8	2-3/8	12	RD45439	RD42339
	#38	.1015	1-7/16	2-1/2	12	RD45438	RD42338
	#37	.1040	1-7/16	2-1/2	12	RD45437	RD42337
	#36	.1065	1-7/16	2-1/2	12	RD45436	RD42336
	7/64	.1094	1-1/2	2-5/8	12	RD45207	RD42507
	#35	.1100	1-1/2	2-5/8	12	RD45435	RD42335
	#34	.1110	1-1/2	2-5/8	12	RD45434	RD42334
	#33	.1130	1-1/2	2-5/8	12	RD45433	RD42333
	#32	.1160	1-5/8	2-3/4	12	RD45432	RD42332
	#31	.1200	1-5/8	2-3/4	12	RD45431	RD42331
	1/8	.1250	1-5/8	2-3/4	12	RD45208	RD42508
	#30	.1285	1-5/8	2-3/4	12	RD45430	RD42330
	#29	.1360	1-3/4	2-7/8	12	RD45429	RD42329
	#28	.1405	1-3/4	2-7/8	12	RD45428	RD42328
	9/64	.1406	1-3/4	2-7/8	12	RD45209	RD42509

Continued

*** These items do not have a split point.**

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Straw Finish



AlTiN Coated

Cobalt, Jobber Length, 135° Split Point (.1440-.2570)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	AlTiN Coated Part #	Straw Finish Part #
#27	.1440	1-7/8	3	12	RD45427	RD42327
#26	.1470	1-7/8	3	12	RD45426	RD42326
#25	.1495	1-7/8	3	12	RD45425	RD42325
#24	.1520	2	3-1/8	12	RD45424	RD42324
#23	.1540	2	3-1/8	12	RD45423	RD42323
5/32	.1562	2	3-1/8	12	RD45210	RD42510
#22	.1570	2	3-1/8	12	RD45422	RD42322
#21	.1590	2-1/8	3-1/4	12	RD45421	RD42321
#20	.1610	2-1/8	3-1/4	12	RD45420	RD42320
#19	.1660	2-1/8	3-1/4	12	RD45419	RD42319
#18	.1695	2-1/8	3-1/4	12	RD45418	RD42318
11/64	.1719	2-1/8	3-1/4	12	RD45211	RD42511
#17	.1730	2-3/16	3-3/8	12	RD45417	RD42317
#16	.1770	2-3/16	3-3/8	12	RD45416	RD42316
#15	.1800	2-3/16	3-3/8	12	RD45415	RD42315
#14	.1820	2-3/16	3-3/8	12	RD45414	RD42314
#13	.1850	2-5/16	3-1/2	12	RD45413	RD42313
3/16	.1875	2-5/16	3-1/2	12	RD45212	RD42512
#12	.1890	2-5/16	3-1/2	12	RD45412	RD42312
#11	.1910	2-5/16	3-1/2	12	RD45411	RD42311
#10	.1935	2-7/16	3-5/8	12	RD45410	RD42310
#9	.1960	2-7/16	3-5/8	12	RD45409	RD42309
#8	.1990	2-7/16	3-5/8	12	RD45408	RD42308
#7	.2010	2-7/16	3-5/8	12	RD45407	RD42307
13/64	.2031	2-7/16	3-5/8	12	RD45213	RD42513
#6	.2040	2-1/2	3-3/4	12	RD45406	RD42306
#5	.2055	2-1/2	3-3/4	12	RD45405	RD42305
#4	.2090	2-1/2	3-3/4	12	RD45404	RD42304
#3	.2130	2-1/2	3-3/4	12	RD45403	RD42303
7/32	.2188	2-1/2	3-3/4	12	RD45214	RD42514
#2	.2210	2-5/8	3-7/8	12	RD45402	RD42302
#1	.2280	2-5/8	3-7/8	12	RD45401	RD42301
A	.2340	2-5/8	3-7/8	12	RD45301	RD42401
15/64	.2344	2-5/8	3-7/8	12	RD45215	RD42515
B	.2380	2-3/4	4	12	RD45302	RD42402
C	.2420	2-3/4	4	12	RD45303	RD42403
D	.2460	2-3/4	4	12	RD45304	RD42404
1/4	.2500	2-3/4	4	12	RD45216	RD42516
E	.2500	2-3/4	4	12	RD45305	RD42405
F	.2570	2-7/8	4-1/8	6	RD45306	RD42406

Continued

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Jobber Length



Straw Finish



AlTiN Coated

Cobalt, Jobber Length, 135° Split Point (.2610-.5000)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	AlTiN Coated Part #	Straw Finish Part #
G	.2610	2-7/8	4-1/8	6	RD45307	RD42407
17/64	.2656	2-7/8	4-1/8	6	RD45217	RD42517
H	.2660	2-7/8	4-1/8	6	RD45308	RD42408
I	.2720	2-7/8	4-1/8	6	RD45309	RD42409
J	.2770	2-7/8	4-1/8	6	RD45310	RD42410
K	.2810	2-15/16	4-1/4	6	RD45311	RD42411
9/32	.2812	2-15/16	4-1/4	6	RD45218	RD42518
L	.2900	2-15/16	4-1/4	6	RD45312	RD42412
M	.2950	3-1/16	4-3/8	6	RD45313	RD42413
19/64	.2969	3-1/16	4-3/8	6	RD45219	RD42519
N	.3020	3-1/16	4-3/8	6	RD45314	RD42414
5/16	.3125	3-3/16	4-1/2	6	RD45220	RD42520
O	.3160	3-3/16	4-1/2	6	RD45315	RD42415
P	.3230	3-5/16	4-5/8	6	RD45316	RD42416
21/64	.3281	3-5/16	4-5/8	6	RD45221	RD42521
Q	.3320	3-7/16	4-3/4	6	RD45317	RD42417
R	.3390	3-7/16	4-3/4	6	RD45318	RD42418
11/32	.3438	3-7/16	4-3/4	6	RD45222	RD42522
S	.3480	3-1/2	4-7/8	6	RD45319	RD42419
T	.3580	3-1/2	4-7/8	6	RD45320	RD42420
23/64	.3594	3-1/2	4-7/8	6	RD45223	RD42523
U	.3680	3-5/8	5	6	RD45321	RD42421
3/8	.3750	3-5/8	5	6	RD45224	RD42524
V	.3770	3-5/8	5	6	RD45322	RD42422
W	.3860	3-3/4	5-1/8	6	RD45323	RD42423
25/64	.3906	3-3/4	5-1/8	6	RD45225	RD42525
X	.3970	3-3/4	5-1/8	6	RD45324	RD42424
Y	.4040	3-7/8	5-1/4	6	RD45325	RD42425
13/32	.4062	3-7/8	5-1/4	6	RD45226	RD42526
Z	.4130	3-7/8	5-1/4	6	RD45326	RD42426
27/64	.4219	3-15/16	5-3/8	6	RD45227	RD42527
7/16	.4375	4-1/16	5-1/2	6	RD45228	RD42528
29/64	.4531	4-3/16	5-5/8	6	RD45229	RD42529
15/32	.4688	4-5/16	5-3/4	6	RD45230	RD42530
31/64	.4844	4-3/8	5-7/8	6	RD45231	RD42531
1/2	.5000	4-1/2	6	6	RD45232	RD42532

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Oxide

HSS, Taper Length, 118° Point
(.0469-.1990)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #
3/64	.0469	1-1/8	2-1/4	12	RD41603
1/16	.0625	1-3/4	3-3/4	12	RD41604
5/64	.0781	2	3-3/4	12	RD41605
3/32	.0938	2-1/4	4-1/4	12	RD41606
#40	.0980	2-1/2	4-5/8	12	RD41540
#39	.0995	2-1/2	4-5/8	12	RD41539
#38	.1015	2-1/2	4-5/8	12	RD41538
#37	.1040	2-1/2	4-5/8	12	RD41537
#36	.1065	2-1/2	4-5/8	12	RD41536
7/64	.1094	2-1/2	4-5/8	12	RD41607
#35	.1100	2-3/4	5-1/8	12	RD41535
#34	.1110	2-3/4	5-1/8	12	RD41534
#33	.1130	2-3/4	5-1/8	12	RD41533
#32	.1160	2-3/4	5-1/8	12	RD41532
#31	.1200	2-3/4	5-1/8	12	RD41531
1/8	.1250	2-3/4	5-1/8	12	RD41608
#30	.1285	3	5-3/8	12	RD41530
#29	.1360	3	5-3/8	12	RD41529
#28	.1405	3	5-3/8	12	RD41528
9/64	.1406	3	5-3/8	12	RD41609
#27	.1440	3	5-3/8	12	RD41527
#26	.1470	3	5-3/8	12	RD41526
#25	.1495	3	5-3/8	12	RD41525
#24	.1520	3	5-3/8	12	RD41524
#23	.1540	3	5-3/8	12	RD41523
5/32	.1562	3	5-3/8	12	RD41610
#22	.1570	3-3/8	5-3/4	12	RD41522
#21	.1590	3-3/8	5-3/4	12	RD41521
#20	.1610	3-3/8	5-3/4	12	RD41520
#19	.1660	3-3/8	5-3/4	12	RD41519
#18	.1695	3-3/8	5-3/4	12	RD41518
11/64	.1719	3-3/8	5-3/4	12	RD41611
#17	.1730	3-3/8	5-3/4	12	RD41517
#16	.1770	3-3/8	5-3/4	12	RD41516
#15	.1800	3-3/8	5-3/4	12	RD41515
#14	.1820	3-3/8	5-3/4	12	RD41514
#13	.1850	3-3/8	5-3/4	12	RD41513
3/16	.1875	3-3/8	5-3/4	12	RD41612
#12	.1890	3-5/8	6	12	RD41512
#11	.1910	3-5/8	6	12	RD41511
#10	.1935	3-5/8	6	12	RD41510
#9	.1960	3-5/8	6	12	RD41509
#8	.1990	3-5/8	6	12	RD41508

Continued

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Taper Length



Oxide

HSS, Taper Length, 118° Point (.2010-.7500)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #
#7	.2010	3-5/8	6	12	RD41507
13/64	.2031	3-5/8	6	12	RD41613
#6	.2040	3-5/8	6	12	RD41506
#5	.2055	3-5/8	6	12	RD41505
#4	.2090	3-5/8	6	12	RD41504
#3	.2130	3-5/8	6	12	RD41503
7/32	.2188	3-5/8	6	12	RD41614
#2	.2210	3-3/4	6-1/8	12	RD41502
#1	.2280	3-3/4	6-1/8	12	RD41501
15/64	.2344	3-3/4	6-1/8	12	RD41615
1/4	.2500	3-3/4	6-1/8	12	RD41616
17/64	.2656	3-7/8	6-1/4	6	RD41617
9/32	.2812	3-7/8	6-1/4	6	RD41618
19/64	.2969	4	6-3/8	6	RD41619
5/16	.3125	4	6-3/8	6	RD41620
21/64	.3281	4-1/8	6-1/2	6	RD41621
11/32	.3438	4-1/8	6-1/2	6	RD41622
23/64	.3594	4-1/4	6-3/4	6	RD41623
3/8	.3750	4-1/4	6-3/4	6	RD41624
25/64	.3906	4-3/8	6-3/4	6	RD41625
13/32	.4062	4-3/8	7	6	RD41626
27/64	.4219	4-5/8	7-1/4	6	RD41627
7/16	.4375	4-5/8	7-1/4	6	RD41628
29/64	.4531	4-3/4	7-1/2	6	RD41629
15/32	.4688	4-3/4	7-1/2	6	RD41630
31/64	.4844	4-3/4	7-3/4	6	RD41631
1/2	.5000	4-3/4	7-3/4	6	RD41632
33/64	.5156	4-3/4	8	1	RD41633
17/32	.5312	4-3/4	8	1	RD41634
35/64	.5469	4-7/8	8-1/4	1	RD41635
9/16	.5625	4-7/8	8-1/4	1	RD41636
37/64	.5781	4-7/8	8-3/4	1	RD41637
19/32	.5938	4-7/8	8-3/4	1	RD41638
39/64	.6094	4-7/8	8-3/4	1	RD41639
5/8	.6250	4-7/8	8-3/4	1	RD41640
41/64	.6406	5-1/8	9	1	RD41641
21/32	.6562	5-1/8	9	1	RD41642
43/64	.6719	5-3/8	9-1/4	1	RD41643
11/16	.6875	5-3/8	9-1/4	1	RD41644
45/64	.7031	5-5/8	9-1/2	1	RD41645
23/32	.7188	5-5/8	9-1/2	1	RD41646
47/64	.7344	5-7/8	9-3/4	1	RD41647
3/4	.7500	5-7/8	9-3/4	1	RD41648

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Oxide

HSS, Taper Length, 118° Point
(.7656-1.3750)

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #
49/64	.7656	6	9-7/8	1	RD41649
25/32	.7812	6	9-7/8	1	RD41650
51/64	.7969	6-1/8	10	1	RD41651
13/16	.8125	6-1/8	10	1	RD41652
53/64	.8281	6-1/8	10	1	RD41653
27/32	.8438	6-1/8	10	1	RD41654
55/64	.8594	6-1/8	10	1	RD41655
7/8	.8750	6-1/8	10	1	RD41656
57/64	.8906	6-1/8	10	1	RD41657
29/32	.9062	6-1/8	10	1	RD41658
59/64	.9219	6-1/8	10-3/4	1	RD41659
15/16	.9375	6-1/8	10-3/4	1	RD41660
61/64	.9531	6-3/8	11	1	RD41661
31/32	.9688	6-3/8	11	1	RD41662
63/64	.9844	6-3/8	11	1	RD41663
1	1.000	6-3/8	11	1	RD41664
1-1/16	1.0625	6-5/8	11-1/4	1	RD41668
1-1/8	1.1250	7-1/8	11-3/4	1	RD41672
1-3/16	1.1875	7-3/8	12	1	RD41676
1-1/4	1.2500	7-7/8	12-1/2	1	RD41680
1-5/16	1.3125	8-5/8	14-1/4	1	RD41684
1-3/8	1.3750	8-7/8	14-1/2	1	RD41688

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Aircraft Extension



Oxide

HSS, Aircraft Extension Drills, 135° Point, 6" Long

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Oxide Part #
3/32	.0938	1-1/4	6	12	RD43406
#40	.0960	1-5/8	6	12	RD44640
7/64	.1094	1-1/2	6	12	RD43407
1/8	.1250	1-5/8	6	12	RD43408
#30	.1285	1-5/8	6	12	RD44630
#29	.1360	1-3/4	6	12	RD44629
9/64	.1406	1-3/4	6	12	RD43409
5/32	.1562	2	6	12	RD43410
#21	.1590	2-1/8	6	12	RD44621
#20	.1610	2-1/8	6	12	RD44620
11/64	.1719	2-1/8	6	12	RD43411
3/16	.1875	2-5/16	6	12	RD43412
#11	.1910	2-5/16	6	12	RD44611
#10	.1935	2-7/16	6	12	RD44610
13/64	.2031	2-7/16	6	12	RD43413
7/32	.2188	2-1/2	6	12	RD43414
#2	.2210	2-5/8	6	12	RD44602
#1	.2280	2-5/8	6	12	RD44601
15/64	.2344	2-5/8	6	12	RD43415
1/4	.2500	2-3/4	6	12	RD43416
17/64	.2656	2-7/8	6	6	RD43417
9/32	.2812	2-15/16	6	6	RD43418
19/64	.2969	3-1/16	6	6	RD43419
5/16	.3125	3-3/16	6	6	RD43420
21/64	.3281	3-5/16	6	6	RD43421
11/32	.3438	3-7/16	6	6	RD43422
23/64	.3594	3-1/2	6	6	RD43423
3/8	.3750	3-5/8	6	6	RD43424

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Cobalt

Cobalt, Aircraft Extension Drills, 135° Point, 6" Long

Drill Size	Decimal Equiv	Flute Length	OAL	Pkg Qty	Cobalt Part #
3/32	.0938	1-1/4	6	12	RD44706
#40	.0960	1-5/8	6	12	RD44840
7/64	.1094	1-1/2	6	12	RD44707
1/8	.1250	1-5/8	6	12	RD44708
#30	.1285	1-5/8	6	12	RD44830
#29	.1360	1-3/4	6	12	RD44829
9/64	.1406	1-3/4	6	12	RD44709
5/32	.1562	2	6	12	RD44710
#21	.1590	2-1/8	6	12	RD44821
#20	.1610	2-1/8	6	12	RD44820
11/64	.1719	2-1/8	6	12	RD44711
3/16	.1875	2-5/16	6	12	RD44712
#11	.1910	2-5/16	6	12	RD44811
#10	.1935	2-7/16	6	12	RD44810
13/64	.2031	2-7/16	6	12	RD44713
7/32	.2188	2-1/2	6	12	RD44714
#2	.2210	2-5/8	6	12	RD44802
#1	.2280	2-5/8	6	12	RD44801
15/64	.2344	2-5/8	6	12	RD44715
1/4	.2500	2-3/4	6	12	RD44716

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Silver & Deming



Round Shank, No Flats - Oxide



Shank with 3 Flats - Oxide

HSS, Silver & Deming Drills, 118° Point

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Round Shank, No Flats Part #	Shank with 3 Flats Part #
33/64	.5156	3	6	1/2	RD42833	RD42933
17/32	.5312	3	6	1/2	RD42834	RD42934
35/64	.5469	3	6	1/2	RD42835	RD42935
9/16	.5625	3	6	1/2	RD42836	RD42936
37/64	.5781	3	6	1/2	RD42837	RD42937
19/32	.5938	3	6	1/2	RD42838	RD42938
39/64	.6094	3	6	1/2	RD42839	RD42939
5/8	.6250	3	6	1/2	RD42840	RD42940
41/64	.6406	3	6	1/2	RD42841	RD42941
21/32	.6562	3	6	1/2	RD42842	RD42942
43/64	.6719	3	6	1/2	RD42843	RD42943
11/16	.6875	3	6	1/2	RD42844	RD42944
45/64	.7031	3	6	1/2	RD42845	RD42945
23/32	.7188	3	6	1/2	RD42846	RD42946
47/64	.7344	3	6	1/2	RD42847	RD42947
3/4	.7500	3	6	1/2	RD42848	RD42948
49/64	.7656	3	6	1/2	RD42849	RD42949
25/32	.7812	3	6	1/2	RD42850	RD42950
51/64	.7969	3	6	1/2	RD42851	RD42951
13/16	.8125	3	6	1/2	RD42852	RD42952
53/64	.8281	3	6	1/2	RD42853	RD42953
27/32	.8438	3	6	1/2	RD42854	RD42954
55/64	.8594	3	6	1/2	RD42855	RD42955
7/8	.8750	3	6	1/2	RD42856	RD42956
57/64	.8906	3	6	1/2	RD42857	RD42957
29/32	.9062	3	6	1/2	RD42858	RD42958
59/64	.9219	3	6	1/2	RD42859	RD42959
15/16	.9375	3	6	1/2	RD42860	RD42960
61/64	.9531	3	6	1/2	RD42861	RD42961
31/32	.9688	3	6	1/2	RD42862	RD42962
63/64	.9844	3	6	1/2	RD42863	RD42963
1	1.0000	3	6	1/2	RD42864	RD42964
1-1/32	1.0312	3	6	1/2	RD42866	–
1-1/16	1.0625	3	6	1/2	RD42868	–
1-3/32	1.0938	3	6	1/2	RD42870	–
1-1/8	1.1250	3	6	1/2	RD42872	–
1-5/32	1.1562	3	6	1/2	RD42874	–
1-3/16	1.1875	3	6	1/2	RD42876	–
1-7/32	1.2188	3	6	1/2	RD42878	–
1-1/4	1.2500	3	6	1/2	RD42880	–
1-5/16	1.3125	3	6	1/2	RD42884	–
1-3/8	1.3750	3	6	1/2	RD42888	–
1-7/16	1.4375	3	6	1/2	RD42892	–
1-1/2	1.5000	3	6	1/2	RD42896	–

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Round Shank, No Flats - Straw Finish

Shank with 3 Flats - Black & Gold Finish

HSS & Cobalt, Silver & Deming Drills, 118° Point

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Cobalt, Straw Finish Round Shank, No Flats Part #	HSS, Black & Gold Finish with 3 Flats Part #
33/64	.5156	3	6	1/2	RD43033	RD43133
17/32	.5312	3	6	1/2	RD43034	RD43134
35/64	.5469	3	6	1/2	RD43035	RD43135
9/16	.5625	3	6	1/2	RD43036	RD43136
37/64	.5781	3	6	1/2	RD43037	RD43137
19/32	.5938	3	6	1/2	RD43038	RD43138
39/64	.6094	3	6	1/2	RD43039	RD43139
5/8	.6250	3	6	1/2	RD43040	RD43140
41/64	.6406	3	6	1/2	RD43041	RD43141
21/32	.6562	3	6	1/2	RD43042	RD43142
43/64	.6719	3	6	1/2	RD43043	RD43143
11/16	.6875	3	6	1/2	RD43044	RD43144
45/64	.7031	3	6	1/2	RD43045	RD43145
23/32	.7188	3	6	1/2	RD43046	RD43146
47/64	.7344	3	6	1/2	RD43047	RD43147
3/4	.7500	3	6	1/2	RD43048	RD43148
49/64	.7656	3	6	1/2	RD43049	RD43149
25/32	.7812	3	6	1/2	RD43050	RD43150
51/64	.7969	3	6	1/2	RD43051	RD43151
13/16	.8125	3	6	1/2	RD43052	RD43152
53/64	.8281	3	6	1/2	RD43053	RD43153
27/32	.8438	3	6	1/2	RD43054	RD43154
55/64	.8594	3	6	1/2	RD43055	RD43155
7/8	.8750	3	6	1/2	RD43056	RD43156
57/64	.8906	3	6	1/2	RD43057	RD43157
29/32	.9062	3	6	1/2	RD43058	RD43158
59/64	.9219	3	6	1/2	RD43059	RD43159
15/16	.9375	3	6	1/2	RD43060	RD43160
61/64	.9531	3	6	1/2	RD43061	RD43161
31/32	.9688	3	6	1/2	RD43062	RD43162
63/64	.9844	3	6	1/2	RD43063	RD43163
1	1.0000	3	6	1/2	RD43064	RD43164

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Taper Shank



Oxide

HSS, Taper Shank, 118° Point
(.1875-.8438)

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Oxide Part #
3/16	.1875	2-1/2	5-3/4	#1	RD42612
13/64	.2031	2-3/4	6	#1	RD42613
7/32	.2188	2-3/4	6	#1	RD42614
15/64	.2344	2-7/8	6-1/8	#1	RD42615
1/4	.2500	2-7/8	6-1/8	#1	RD42616
17/64	.2656	3	6-1/4	#1	RD42617
9/32	.2812	3	6-1/4	#1	RD42618
19/64	.2969	3-1/8	6-3/8	#1	RD42619
5/16	.3125	3-1/8	6-3/8	#1	RD42620
21/64	.3281	3-1/4	6-1/2	#1	RD42621
11/32	.3438	3-1/4	6-1/2	#1	RD42622
23/64	.3594	3-1/2	6-3/4	#1	RD42623
3/8	.3750	3-1/2	6-3/4	#1	RD42624
25/64	.3906	3-5/8	7	#1	RD42625
13/32	.4062	3-5/8	7	#1	RD42626
27/64	.4219	3-7/8	7-1/4	#1	RD42627
7/16	.4375	3-7/8	7-1/4	#1	RD42628
29/64	.4531	4-1/8	7-1/2	#1	RD42629
15/32	.4688	4-1/8	7-1/2	#2	RD42630
31/64	.4844	4-3/8	8-1/4	#2	RD42631
1/2	.5000	4-3/8	8-1/4	#2	RD42632
33/64	.5156	4-5/8	8-1/2	#2	RD42633
17/32	.5312	4-5/8	8-1/2	#2	RD42634
35/64	.5469	4-7/8	8-3/4	#2	RD42635
9/16	.5625	4-7/8	8-3/4	#2	RD42636
37/64	.5781	4-7/8	8-3/4	#2	RD42637
19/32	.5938	4-7/8	8-3/4	#2	RD42638
39/64	.6094	4-7/8	8-3/4	#2	RD42639
5/8	.6250	4-7/8	8-3/4	#2	RD42640
41/64	.6406	5-1/8	9	#2	RD42641
21/32	.6562	5-1/8	9	#2	RD42642
43/64	.6719	5-3/8	9-1/4	#2	RD42643
11/16	.6875	5-3/8	9-1/4	#2	RD42644
45/64	.7031	5-5/8	9-1/2	#2	RD42645
23/32	.7188	5-5/8	9-1/2	#2	RD42646
47/64	.7344	5-7/8	9-3/4	#2	RD42647
3/4	.7500	5-7/8	9-3/4	#2	RD42648
49/64	.7656	6	9-7/8	#2	RD42649
25/32	.7812	6	9-7/8	#2	RD42650
51/64	.7969	6-1/8	10-3/4	#3	RD42651
13/16	.8125	6-1/8	10-3/4	#3	RD42652
53/64	.8281	6-1/8	10-3/4	#3	RD42653
27/32	.8438	6-1/8	10-3/4	#3	RD42654

Continued

Speeds & Feeds page 340.



Oxide

HSS, Taper Shank, 118° Point
(.8594-2.0000)

Drill Size	Decimal Equiv	Flute Length	OAL	Shank ø	Oxide Part #
55/64	.8594	6-1/8	10-3/4	#3	RD42655
7/8	.8750	6-1/8	10-3/4	#3	RD42656
57/64	.8906	6-1/8	10-3/4	#3	RD42657
29/32	.9062	6-1/8	10-3/4	#3	RD42658
59/64	.9219	6-1/8	10-3/4	#3	RD42659
15/16	.9375	6-1/8	10-3/4	#3	RD42660
61/64	.9531	6-3/8	11	#3	RD42661
31/32	.9688	6-3/8	11	#3	RD42662
63/64	.9844	6-3/8	11	#3	RD42663
1	1.0000	6-3/8	11	#3	RD42664
1-1/64	1.0156	6-1/2	11-1/8	#3	RD42665
1-1/32	1.0312	6-1/2	11-1/8	#3	RD42666
1-3/64	1.0469	6-5/8	11-1/4	#3	RD42667
1-1/16	1.0625	6-5/8	11-1/4	#3	RD42668
1-5/64	1.0781	6-7/8	12-1/2	#4	RD42669
1-3/32	1.0938	6-7/8	12-1/2	#4	RD42670
1-7/64	1.1094	7-1/8	12-3/4	#4	RD42671
1-1/8	1.1250	7-1/8	12-3/4	#4	RD42672
1-9/64	1.1406	7-1/4	12-7/8	#4	RD42673
1-5/32	1.1562	7-1/4	12-7/8	#4	RD42674
1-11/64	1.1719	7-3/8	13	#4	RD42675
1-3/16	1.1875	7-3/8	13	#4	RD42676
1-13/64	1.2031	7-1/2	13-1/8	#4	RD42677
1-7/32	1.2187	7-1/2	13-1/8	#4	RD42678
1-1/4	1.2500	7-7/8	13-1/2	#4	RD42680
1-5/16	1.3125	8-5/8	14-1/4	#4	RD42684
1-3/8	1.3750	8-7/8	14-1/2	#4	RD42688
1-7/16	1.4375	9-1/8	14-3/4	#4	RD42692
1-1/2	1.5000	9-3/8	15	#4	RD42696
1-9/16	1.5625	9-5/8	16-5/8	#5	RD42702
1-5/8	1.6250	10	17	#5	RD42706
1-11/16	1.6875	10-1/8	17-1/8	#5	RD42710
1-3/4	1.7500	10-1/8	17-1/8	#5	RD42714
1-13/16	1.8125	10-1/8	17-1/8	#5	RD42718
1-7/8	1.8750	10-3/8	17-3/8	#5	RD42722
1-15/16	1.9375	10-3/8	17-3/8	#5	RD42726
2	2.0000	10-3/8	17-3/8	#5	RD42730

Speeds & Feeds page 340.

Drill Sets

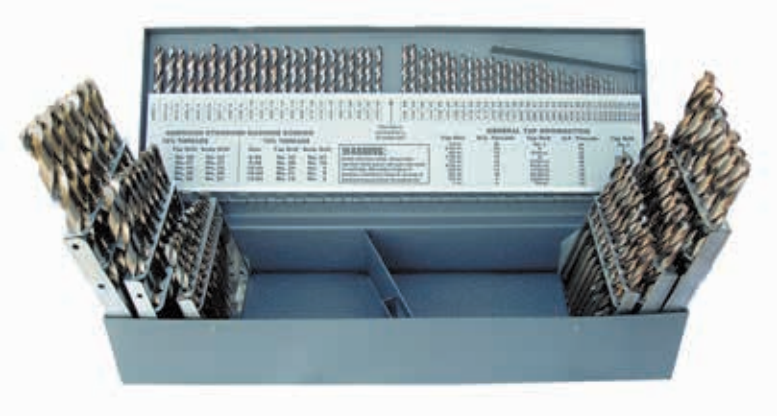


29-Piece HSS Drill Set shown
All sets are 118° Point unless otherwise noted.

HSS Drill Sets, Jobber Length

Drill Size Range	Description	# Pieces	Part #
1/16" - 1/4" x 64ths	Oxided	13	RD44010
1/16" - 1/4" x 64ths	Bright	13	RD44011
1/16" - 1/4" x 64ths	Black/Gold Finish, H.D. 135° Split Point	13	RD44012
1/16" - 1/2" x 32nds	Oxided	15	RD44014
1/16" - 1/2" x 32nds	Black/Gold Finish, H.D. 135° Split Point	15	RD44015
1/16" - 1/2" x 32nds	Bright	15	RD44016
1/16" - 1/2" x 32nds	H.D. 135° Split Point	15	RD44017
1/16" - 3/8" x 64ths	Oxided	21	RD44018
1/16" - 3/8" x 64ths	Bright	21	RD44020
1/16" - 3/8" x 64ths	Black/Gold Finish	21	RD44021
A-Z	Oxided	26	RD44022
A-Z	Bright	26	RD44024
1/16" - 1/2" x 64ths	Oxided	29	RD44026
1/16" - 1/2" x 64ths	Bright	29	RD44028
1/16" - 1/2" x 64ths	Black/Gold Finish, H.D. 135° Split Point	29	RD44030
1/16" - 1/2" x 64ths	Black/Gold Finish, H.D. 135° Split Point	29	RD44431
1/16" - 1/2" x 64ths	H.D. 135° Split Point	29	RD44032
1/16" - 1/2" x 64ths	Titanium Finish, H.D. 135° Split Point	29	RD44036
#1 - #60	Oxided	60	RD44038
#1 - #60	Bright	60	RD44040
1/16" - 1/2" x 64ths & #1 - #60 & A-Z	Oxided	115	RD44042
1/16" - 1/2" x 64ths & #1 - #60 & A-Z	Bright	115	RD44044
1/16" - 1/2" x 64ths	Black/Gold Finish, H.D. 135° Split Point	115	RD44046

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115-Piece Cobalt Drill Set shown

Cobalt Drill Sets, Jobber Length

Drill Size Range	Description	# Pieces	Part #
1/16" - 1/4" x 64ths	Straw Finish	13	RD44151
1/16" - 1/2" x 32nds	Straw Finish	15	RD44153
1/16" - 1/4" x 64ths & 9/32" - 1/2" x 32nds & 13/32" & 7/16" & 15/32" & 1/2"	Straw Finish, 3/8" Shank	21	RD44155
A-Z	Straw Finish	26	RD44157
1/16" - 1/2" x 64ths	Straw Finish	29	RD44159
#1 - #60	Straw Finish	60	RD44161
1/16" - 1/2" x 64ths & #1 - #60 & A-Z	Straw Finish	115	RD44163

Drill Index Cases

Drill Size Range	Part #
1/16" - 3/8" x 64ths	RD44320
A-Z	RD44323
1/16" - 1/2" x 64ths	RD44326
#1 - #60	RD44329
1/16" - 1/2" x 64ths & #1 - #60 & A-Z	RD44332

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Single Flute Uncoated



Three Flute Uncoated



Six Flute Uncoated

Carbide Countersinks, Single Flute

Drill Size	Decimal Equiv	OAL	Shank ø	60° Part #	82° Part #	90° Part #	100° Part #
1/8	.1250	1-1/2	1/8	RC26008	RC26308	RC26608	RC36908
3/16	.1875	2	3/16	RC26012	RC26312	RC26612	RC36912
1/4	.2500	2	1/4	RC26016	RC26316	RC26616	RC36916
3/8	.3750	2-5/8	1/4	RC26024	RC26324	RC26624	RC36924
1/2	.5000	2-5/8	1/4	RC26032	RC26332	RC26632	RC36932
5/8	.6250	2-3/4	3/8	RC26040	RC26340	RC26640	RC36940
3/4	.7500	2-3/4	3/8	RC26048	RC26348	RC26648	RC36948
1	1.0000	3	1/2	RC26064	RC26364	RC26664	RC36964

Carbide Countersinks, Three Flute

Drill Size	Decimal Equiv	OAL	Shank ø	60° Part #	82° Part #	90° Part #	100° Part #
1/8	.1250	1-1/2	1/8	RC26108	RC26408	RC26708	RC37008
3/16	.1875	2	3/16	RC26112	RC26412	RC26712	RC37012
1/4	.2500	2	1/4	RC26116	RC26416	RC26716	RC37016
3/8	.3750	2-5/8	1/4	RC26124	RC26424	RC26724	RC37024
1/2	.5000	2-5/8	1/4	RC26132	RC26432	RC26732	RC37032
5/8	.6250	2-3/4	3/8	RC26140	RC26440	RC26740	RC37040
3/4	.7500	2-3/4	3/8	RC26148	RC26448	RC26748	RC37048
1	1.0000	3	1/2	RC26164	RC26464	RC26764	RC37064

Carbide Countersinks, Six Flute

Drill Size	Decimal Equiv	OAL	Shank ø	60° Part #	82° Part #	90° Part #	100° Part #
1/8	.1250	1-1/2	1/8	RC26208	RC26508	RC26808	RC37108
3/16	.1875	2	3/16	RC26212	RC26512	RC26812	RC37112
1/4	.2500	2	1/4	RC26216	RC26516	RC26816	RC37116
3/8	.3750	2-5/8	1/4	RC26224	RC26524	RC26824	RC37124
1/2	.5000	2-5/8	1/4	RC26232	RC26532	RC26832	RC37132
5/8	.6250	2-3/4	3/8	RC26240	RC26540	RC26840	RC37140
3/4	.7500	2-3/4	3/8	RC26248	RC26548	RC26848	RC37148
1	1.0000	3	1/2	RC26264	RC26564	RC26864	RC37164

Speeds & Feeds page 341.



Single Flute Uncoated

HSS, Countersinks, Single Flute

Drill Size	Decimal Equiv	OAL	Shank ø	60° Part #	82° Part #	90° Part #
1/4	.2500	1-7/16	3/16	RC27601	RC27714	RC27823
3/8	.3750	1-21/32	1/4	RC27602	RC27715	RC27824
1/2	.5000	1-13/32	1/4	RC27603	RC27716	RC27825
3/4	.7500	1-27/32	1/2	RC27604	RC27717	RC27826
1	1.0000	2-13/16	1/2	RC27605	RC27718	RC27827



Four Flute Uncoated

HSS, Countersinks, Four Flute

Drill Size	Decimal Equiv	OAL	Shank ø	60° Part #	82° Part #
1/2	.5000	3-7/8	1/2	RC27932	RC28032
5/8	.6250	4	1/2	RC27940	RC28040
3/4	.7500	4-1/8	1/2	RC27948	RC28048
7/8	.8750	4-1/4	1/2	RC27956	RC28056
1	1.0000	4-3/8	1/2	RC27964	RC28064

Speeds & Feeds page 341.



Uncoated



AlTiN Coated

Carbide Combined Drill & Countersinks, 60°

Drill Size	OAL	Drill ø	Body ø	Pkg Qty	Uncoated Part #	AlTiN Coated Part #
00	1-1/2	.025	1/8	1	RC27320	RC37220
0	1-1/2	1/32	1/8	1	RC27300	RC37210
1	1-1/2	3/64	1/8	1	RC27301	RC37201
2	2	5/64	3/16	1	RC27302	RC37202
3	2	7/64	1/4	1	RC27303	RC37203
4	2-1/8	1/8	5/16	1	RC27304	RC37204
5	2-3/4	3/16	7/16	1	RC27305	RC37205
6	3	7/32	1/2	1	RC27306	RC37206



Uncoated



TiN Coated

HSS & Cobalt Combined Drill & Countersink, 60°

Drill Size	OAL	Drill ø	Body ø	Pkg Qty	Uncoated Part #	TiN Coated Part #	Cobalt Part #
00000	1-1/4	.010	1/8	12	RC27150	–	–
0000	1-1/4	.015	1/8	12	RC27140	–	–
000	1-1/4	.020	1/8	12	RC27130	–	–
00	1-1/4	.025	1/8	12	RC27120	RC27020	–
0	1-1/4	1/32	1/8	12	RC26910	RC27010	–
1	1-1/4	3/64	1/8	12	RC26901	RC27001	RC27201
2	1-7/8	5/64	3/16	12	RC26902	RC27002	RC27202
3	2	7/64	1/4	12	RC26903	RC27003	RC27203
4	2-1/8	1/8	5/16	12	RC26904	RC27004	RC27204
5	2-3/4	3/16	7/16	12	RC26905	RC27005	–
6	3	7/32	1/2	12	RC26906	RC27006	–
7	3-1/4	1/4	5/8	6	RC26907	RC27007	–
8	3-1/2	5/16	3/4	3	RC26908	RC27008	–

Speeds & Feeds page 341.



Uncoated

HSS & Cobalt, Combined Drill & Countersink, Long Length, 60°

Drill Size	OAL	Drill ø	Body ø	Pkg Qty	Uncoated Part #
#1X3	3	3/64	1/8	1	RC27513
#1X4	4	3/64	1/8	1	RC27514
#1X5	5	3/64	1/8	1	RC27515
#1X6	6	3/64	1/8	1	RC27516
#2X3	3	5/64	3/16	1	RC27523
#2X4	4	5/64	3/16	1	RC27524
#2X5	5	5/64	3/16	1	RC27525
#2X6	6	5/64	3/16	1	RC27526
#3X3	3	7/64	1/4	1	RC27533
#3X4	4	7/64	1/4	1	RC27534
#3X5	5	7/64	1/4	1	RC27535
#3X6	6	7/64	1/4	1	RC27536
#4X4	4	1/8	5/16	1	RC27544
#4X5	5	1/8	5/16	1	RC27545
#4X6	6	1/8	5/16	1	RC27546
#4-1/2X4	4	9/64	3/8	1	RC27540
#4-1/2X5	5	9/64	3/8	1	RC27550
#4-1/2X6	6	9/64	3/8	1	RC27560
#5X4	4	3/16	7/16	1	RC27554
#5X5	5	3/16	7/16	1	RC27555
#5X6	6	3/16	7/16	1	RC27556
#6X5	5	7/32	1/2	1	RC27565
#6X6	6	7/32	1/2	1	RC27566
#7X6	6	1/4	5/8	1	RC27576
#8X6	6	5/16	3/4	1	RC27586

Speeds & Feeds page 341.

Drill Troubleshooting

	Solutions	Tool Failure													Chip Formation			Tool Life	Workpiece								Process						
		Flank Wear	Margin Wear	Breakage	Flaking	Creater Wear	Chisel Edge Wear	Corner Chipping	Flute Chiping	Cutting Edge Chipping	Cutting Edge Wear	Point Center Chipping	Rake Face	Scoring on Tool Body	Long Stringy	Varied Chip Form	Blue/Brown Chips	Tool Life	Undersized Hole	Oversized Hole	Poor Alignment	Poor Surface Finish	Heavy Burr Breakout	Retract Marks	Hole Location	Hole Straightness	Deflection	Point Deflection	Galling	Vibration	Abnormal Noise	Chip Packing	No Drill Penetration
Speed & Feed	Reduce Feed or Reduce at Exit	x		x			x	x	x	x		x	x	x				x	x	x		x	x			x						x	
	Reduce Feed at Entrance			x															x			x			x		x					x	
	Consistent Feed Rate			x											x	x															x		x	
	Increase Feed	x					x				x				x				x	x														
	Reduce Speed	x	x			x		x			x							x	x											x		x	x	
	Increase Speed																					x												
Coolant	Coolant Mix		x	x	x					x				x				x	x			x	x										x	
	Coolant Increase Flow	x		x			x	x		x							x	x	x			x	x										x	
	Coolant Filter	x		x	x					x								x	x			x	x										x	
Setup	Workpiece Clamp Rigid		x	x			x	x		x								x		x	x	x	x	x	x	x							x
	Collet Accuracy			x						x										x					x	x				x				
	Toolholder Fit .0008			x						x										x					x	x				x				
	Alignment			x						x										x													x	
	Peck Drill			x																														
	Concentricity		x	x	x			x	x					x							x	x		x	x	x		x		x				
	Do Not Extract Tool During Peck							x																										

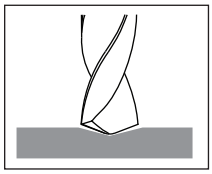
Carbide Micro Spotting Speeds & Feeds

Material	Grades	SFM		Tool Diameter (IPR)							
		Uncoated	AlTiN	(.0050)	(.0100)	(.0150)	(.0200)	(.0312)	(.0625)	(.0938)	(.1250)
P - Steels											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	295-390	360-460	.00015	.0003	.0006	.0008	.0010	.0019	.0025	.0030
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	260-325	325-390	.00015	.0003	.0006	.0008	.0010	.0019	.0025	.0030
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	195-300	260-360	.00015	.0003	.0006	.0008	.0010	.0019	.0025	.0030
M - Stainless Steels											
Austenitic	301-304L, 310, 316L, 321, 347	80-165	95-195	.0001	.0005	.0008	.0011	.0017	.0020	.0027	.0033
Martensitic	403, 410, 416, 420, 430, 431, 440	80-165	95-195	.0001	.0005	.0008	.0011	.0017	.0020	.0027	.0033
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355 /363, PH13-8MO, PH14-8/MO	80-165	95-195	.0001	.0005	.0008	.0011	.0017	.0020	.0027	.0033
K - Cast Irons											
Ductile	A536, J434, 60-40-18	195-295	230-295	.0001	.0004	.0008	.0011	.0019	.0028	.0032	.0040
Gray	A48, A436, A319, Class 20, G4000	165-250	260-295	.0001	.0004	.0008	.0011	.0019	.0028	.0032	.0040
Malleable	A220, A602, J158	290-350	330-390	.0001	.0004	.0008	.0011	.0019	.0028	.0032	.0040
N- Non-Ferrouis											
Aluminum Alloys	2014, 2024, 6061, 7075	325-590	490-655	.0003	.0010	.0015	.0025	.0025	.0040	.0050	.0060
Aluminum High Silicon	A380, A390	325-590	490-655	.0003	.0010	.0015	.0025	.0025	.0040	.0050	.0060
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	190-300	225-375	.0003	.0010	.0015	.0025	.0025	.0040	.0050	.0060
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	325-590	490-655	.0003	.0010	.0015	.0025	.0025	.0040	.0050	.0060
Copper		190-300	225-375	.0003	.0010	.0015	.0025	.0025	.0040	.0050	.0060
Magnesium		260-325	260-295	.0003	.0010	.0015	.0025	.0025	.0040	.0050	.0060
S - High Temp Alloys											
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	80-115	95-130	.0001	.0003	.0009	.0011	.0017	.0020	.0025	.0030
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	60-80	80-100	.0001	.0003	.0009	.0011	.0017	.0020	.0025	.0030
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	60-80	80-100	.0001	.0003	.0009	.0011	.0017	.0020	.0025	.0030
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si,v Ti-8Al-1Mo, Ti-8Al-4Mo	80-115	95-130	.0001	.0003	.0009	.0011	.0017	.0020	.0025	.0025

NOTE: Speeds and Feeds listed are estimated and will vary by application.
These tools can be found on pages 222-223.

Selecting the Correct Spotting Drill

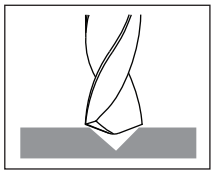
Spotting for Carbide Drills



Select a spotting drill with a point angle = to or > Greater than the final drill point angle.

The spot drill diameter should be 30% less than your drill diameter.

Spotting for HSS/Cobalt Drills



Select a spotting drill with a point angle < Less than the final drill point angle.

The spot drill diameter should be 30% less than your drill diameter.

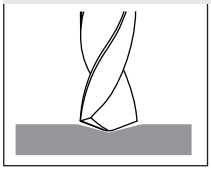
N/C Spotting Drills Speeds & Feeds

Material	Grades	SFM	Tool Diameter (IPR) 1/8 (.1250)	3/16 (.1875)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)
P - Steels									
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	80-175	.0008-.0.0030	.0020-.0040	.0020-.0050	.0030-.0060	.0030-.0060	.0040-.0080	.0050-.0100
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	100-175	.0010-.0030	.0020-.0040	.0025-.0050	.0030-.0080	.0040-.0100	.0050-.0120	.0060-.0130
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	100-175	.0010-.0030	.0020-.0040	.0025-.0050	.0030-.0080	.0040-.0100	.0050-.0120	.0060-.0130
M - Stainless Steels									
Austenitic	301-304L, 310, 316L, 321, 347	80-175	.0008-.0030	.0020-.0040	.0020-.0070	.0030-.0070	.0040-.0080	.0040-.0100	.0050-.0110
Martensitic	403, 410, 416, 420, 430, 431, 440	80-150	.0008-.0030	.0016-.0040	.0020-.0040	.0020-.0070	.0030-.0080	.0040-.0100	.0050-.0110
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	80-175	.0008-.0030	.0016-.0040	.0020-.0040	.0020-.0070	.0030-.0080	.0040-.0100	.0050-.0110
K - Cast Irons									
Ductile	A536, J434, 60-40-18	125-200	.0020-.0040	.0020-.0050	.0030-.0060	.0040-.0060	.0050-.0080	.0060-.0100	.0070-0120
Gray	A48, A436, A319, Class 20, G4000	100-200	.0020-.0040	.0020-.0050	.0030-.0060	.0040-.0060	.0050-.0080	.0060-.0100	.0070-0120
Malleable	A220, A602, J158	125-175	.0016-.0030	.0020-.0040	.0020-.0040	.0030-.0060	.0040-.0080	.0050-.0100	.0060-.0120
N - Non-Ferrous									
Aluminum Alloys	2014, 2024, 6061, 7075	250-500	.0020-.0040	.0030-.0060	.0035-.0080	.0040-.0100	.0060-.0120	.0070-.0140	.0080-.0150
Aluminum High Silicon	A380, A390	175-300	.0015-.0030	.0020-.0050	.0030-.0070	.0030-.0080	.0050-.0100	.0060-.0120	.0070-.0130
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	125-300	.0016-.0040	.0020-.0050	.0025-.0060	.0030-.0070	.0040-.0080	.0050-.0100	.0060-.0110
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	150-300	.0020-.0040	.0020-.0050	.0020-.0060	.0030-.0070	.0050-.0080	.0060-.0100	.0070-.0120
Copper		150-300	.0020-.0040	.0020-.0050	.0020-.0060	.0030-.0070	.0050-.0080	.0060-.0100	.0070-.0120
Magnesium		200-500	.0020-.0040	.0020-.0050	.0020-.0060	.0030-.0070	.0050-.0080	.0060-.0100	.0070-.0120
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	150-200	.0016-.0030	.0018-.0032	.0020-.0040	.0030-.0060	.0040-.0080	.0050-.0100	.0060-.0110
S - High Temp Alloys									
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	80-150	.0008-.0020	.0009-.0025	.0010-.0040	.0020-.0050	.0030-.0080	.0040-.0100	.0050-.0120
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	150-200	.0010-.0030	.0020-.0040	.0025-.0050	.0030-.0080	.0040-.0100	.0050-.0120	.0060-.0130
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	100-150	.0016-.0030	.0018-.0035	.0020-.0040	.0030-.0070	.0040-.0100	.0050-.0120	.0060-.0130

NOTE: Speeds and Feeds listed are estimated and will vary by application.
These tools can be found on pages 224-225.

Selecting the Correct Spotting Drill

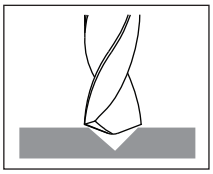
Spotting for Carbide Drills



Select a spotting drill with a point angle = to or > Greater than the final drill point angle.

The spot drill diameter should be 30% less than your drill diameter.

Spotting for HSS/Cobalt Drills



Select a spotting drill with a point angle < Less than the final drill point angle.

The spot drill diameter should be 30% less than your drill diameter.



Micro-Drills 130° Point, 35° Helix Technical Information

- RedLine Hole Shot High Performance Drills are designed to give optimal performance in a wide range of materials. Our 130° point is designed to reduce thrust and our flute design stabilizes our drills for better positioning and for a more accurate hole.
- High Performance Micro-Drills found on pages 226-229.

Micro-Drills, Solid Carbide, 130° Point Speeds & Feeds

Material	Grades	Tool Diameter in Decimal																									
		(.0080)		(.0100)		(.0200)		(.0310)		(.0390)		(.0490)		(.0590)		(.0690)		(.0790)		(.0890)		(.0980)		(.1080)		(.1180)	
		RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
P - Steels																											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	80000	.0002	69970	.0004	34990	.0004	21870	.0008	17490	.0010	13990	.0014	11660	.0015	10000	.0015	8750	.0015	7770	.0015	7000	.0015	6360	.0015	5830	.0015
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	80000	.0002	80000	.0004	57520	.0004	35780	.0008	28630	.0010	22900	.0014	19080	.0015	16360	.0015	14310	.0015	12720	.0015	11450	.0015	10410	.0015	9540	.0015
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	80000	.0002	80000	.0004	44530	.0004	27830	.0008	22260	.0010	17810	.0014	14840	.0015	12720	.0015	11130	.0015	9900	.0015	8910	.0015	8100	.0015	7420	.0015
M - Stainless Steels																											
Austenitic	301-304L, 310, 316L, 321, 347	80000	.0002	76330	.0003	38170	.0003	23850	.0006	19080	.0008	15270	.0010	12720	.0015	10900	.0015	9540	.0015	8480	.0015	7630	.0015	6940	.0015	6360	.0015
Martensitic	403, 410, 416, 420, 430, 431, 440	47710	.0002	38170	.0004	19080	.0004	11930	.0008	9540	.0010	7630	.0014	6360	.0015	5450	.0015	4770	.0015	4240	.0015	3820	.0015	3470	.0015	3180	.0015
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363 PH13-8MO, PH14-8/MO	39760	.0002	31810	.0004	15900	.0004	9940	.0008	7950	.0010	6360	.0014	5300	.0015	4540	.0015	3980	.0015	3530	.0015	3180	.0015	2890	.0015	2650	.0015
K - Cast Irons																											
Ductile	A536, J434, 60-40-18	80000	.0002	79800	.0004	69270	.0004	44832	.0008	35401	.0010	29635	.0013	23169	.0015	19710	.0015	17551	.0015	15484	.0015	14057	.0015	12598	.0015	11638	.0015
Gray	A48, A436, A319, Class 20, G4000	80000	.0002	80000	.0004	76330	.0004	47710	.0008	38170	.0010	30530	.0014	25440	.0015	21810	.0015	19080	.0015	16960	.0015	15270	.0015	13880	.0015	12720	.0015
Malleable	A220, A602, J158	80000	.0002	80000	.0004	69970	.0004	43730	.0008	34990	.0010	27990	.0014	23320	.0015	19990	.0015	17490	.0015	15550	.0015	13990	.0015	12720	.0015	11660	.0015
N - Non-Ferrous																											
Aluminum Alloys	2014, 2024, 6061, 7075	80000	.0002	80,000	.0004	80,000	.0004	55660	.0008	44530	.0010	35620	.0014	29690	.0015	25440	.0015	22260	.0015	19790	.0015	17810	.0015	16190	.0015	14840	.0015
Aluminum High Silicon	A380, A390	80000	.0002	80,000	.0004	63,610	.0004	39760	.0008	31810	.0010	25440	.0014	21200	.0015	18170	.0015	15900	.0015	14140	.0015	12720	.0015	11570	.0015	10600	.0015
Brass/Bronze	Aluminum Bronze,	80000	.0002	80,000	.0004	80,000	.0004	55660	.0008	44530	.0010	35620	.0014	29690	.0015	25440	.0015	22260	.0015	19790	.0015	17810	.0015	16190	.0015	14840	.0015
	Low Silicon Bronze	80000	.0002	80,000	.0004	63,610	.0004	39760	.0008	31810	.0010	25440	.0014	21200	.0015	18170	.0015	15900	.0015	14140	.0015	12720	.0015	11570	.0015	10600	.0015
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	80000	.0005	80000	.0010	80000	.0010	79520	.0020	63610	.0030	50890	.0040	42410	.0050	36350	.0050	31810	.0050	28270	.0050	25440	.0050	23130	.0050	21200	.0050
Copper		80000	.0002	80,000	.0004	80,000	.0004	55660	.0008	44530	.0010	35620	.0014	29690	.0015	25440	.0015	22260	.0015	19790	.0015	17810	.0015	16190	.0015	14840	.0015
Magnesium		80000	.0002	80,000	.0004	80,000	.0004	55660	.0008	44530	.0010	35620	.0014	29690	.0015	25440	.0015	22260	.0015	19790	.0015	17810	.0015	16190	.0015	14840	.0015
S - High Temp Alloys																											
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	23850	.0002	19080	.0003	9540	.0003	5960	.0006	4770	.0008	3820	.0010	3180	.0012	2730	.0012	2390	.0012	2120	.0012	1910	.0012	1730	.0012	1590	.0012
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	23850	.0002	19080	.0003	9540	.0003	5960	.0006	4770	.0008	3820	.0010	3180	.0012	2730	.0012	2390	.0012	2120	.0012	1910	.0012	1730	.0012	1590	.0012
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	23850	.0002	19080	.0003	9540	.0003	5960	.0006	4770	.0008	3820	.0010	3180	.0012	2730	.0012	2390	.0012	2120	.0012	1910	.0012	1730	.0012	1590	.0012
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	23850	.0002	19080	.0003	9540	.0003	5960	.0006	4770	.0008	3820	.0010	3180	.0012	2730	.0012	2390	.0012	2120	.0012	1910	.0012	1730	.0012	1590	.0012

NOTE: Speeds and Feeds listed are estimated and will vary by application.



Micro-Drills 135° Point, 12° Helix Technical Information

- RedLine Hole Shot High Performance Drills are designed to give optimal performance in a wide range of materials. Our 135° point is designed to reduce thrust and our flute design stabilizes our drills for better positioning and for a more accurate hole.
- High Performance Micro-Drills found on pages 230-233.

Micro-Drills, Solid Carbide, 135° Point Speeds & Feeds

Material	Grades	SFM	Tool Diameter (IPR)						
					1/64	1/32	1/16	3/32	1/8
			(.0040)	(.0100)	(.0156)	(.0312)	(.0625)	(.0937)	(.1250)
P - Steels									
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	85-120	.00010	.00026	.0004	.0008	.0015	.0023	.0030
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	110-150	.00010	.00026	.0004	.0008	.0015	.0023	.0030
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	90-130	.00010	.00026	.0004	.0008	.0015	.0023	.0030
M - Stainless Steels									
Austenitic	301-304L, 310, 316L, 321, 347	90-125	.00010	.00026	.0004	.0008	.0015	.0023	.0030
Martensitic	403, 410, 416, 420, 430, 431, 440	80-110	.00010	.00026	.0004	.0008	.0015	.0023	.0030
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	45-60	.00010	.00013	.0002	.0004	.0007	.0011	.0014
K - Cast Irons									
Ductile	A536, J434, 60-40-18	110-150	.00010	.00026	.0004	.0008	.0015	.0023	.0030
Gray	A48, A436, A319, Class 20, G4000	110-150	.00010	.00026	.0004	.0008	.0015	.0023	.0030
Malleable	A220, A602, J158	110-150	.00010	.00026	.0004	.0008	.0015	.0023	.0030
N - Non-Ferrous									
Aluminum Alloys	2014, 2024, 6061, 7075	**175**	**.00010**	**.00030**	**.0005**	**.0010**	**.0020**	**.0030**	**.0040**
Aluminum High Silicon	A380, A390	175	.00010	.00030	.0005	.0010	.0020	.0030	.0040
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	100	.00010	.00030	.0005	.0010	.0020	.0030	.0040
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	175	.00010	.00030	.0005	.0010	.0020	.0030	.0040
Copper		175	.00010	.00030	.0005	.0010	.0020	.0030	.0040
Magnesium		175	.00010	.00030	.0005	.0010	.0020	.0030	.0040
S - High Temp Alloys									
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	45-60	.00010	.00015	.0002	.0004	.0007	.0011	.0014
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	45-60	.00010	.00015	.0002	.0004	.0007	.0011	.0014
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	45-60	.00010	.00015	.0002	.0004	.0007	.0011	.0014
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	50-70	.00020	.00030	.0004	.0008	.0015	.0023	.0030

NOTE: Speeds and Feeds listed are estimated and will vary by application.

Recommended Peck Depths by Diameter* (Inch)

Diameter	Peck Depth
1/64	.5 x Diameter
1/32	1 x Diameter
1/16	1.5 x Diameter
3/32	2 x Diameter
1/8	3 x Diameter

Recommended Peck Depths by Diameter* (mm)

Diameter	Peck Depth
0.5 mm	.5 x Diameter
1.0 mm	1 x Diameter
1.5 mm	1.5 x Diameter
2.0 mm	2 x Diameter
3.0 mm	3 x Diameter

High Performance Drills Tolerances

Inches			Millimeters		
Size	Drill ø (m7)	Shank ø (h6)	Size	Drill ø (m7)	Shank ø (h6)
.0000-.1250	+0/-.0003	+0/-.0002	0-3.00	+0/-.008	+0/-.005

*** Peck depths can vary by material type.**

Multi-Material (Non-Coolant Fed) Stub & Regular Length Drills Technical Information



- RedLine Hole Shot High Performance Drills are designed to give optimal performance in a wide range of materials. Our 142° point is designed to reduce thrust and our flute design stabilizes our drills for better positioning and for a more accurate hole.
- All shanks are manufactured to h6 tolerance, suitable for use in shrink-fit holders.
- Multi-Material, Non-Coolant Fed, High Performance Drills found on pages 234-238 & 252-256.

Multi-Material, Solid Carbide, Speeds & Feeds

Materials	Grades	SFM	Tool Diameter (IPR) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)
P - Steels								
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	170-200	.0014-.0030	.0035-.0060	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	265-390	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	260-330	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
M - Stainless Steels								
Austenitic	301-304L, 310, 316L, 321, 347	100-130	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Martensitic	403, 410, 416, 420, 430, 431, 440	200-300	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	100-130	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
K - Cast Irons								
Ductile	A536, J434, 60-40-18	190-280	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Gray	A48, A436, A319, Class 20, G4000	350-480	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Malleable	A220, A602, J158	190-280	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Magnesium		N/A						
N - Non-Ferrous								
Aluminum Alloys	2014, 2024, 6061, 7075	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aluminum High Silicon	A380, A390	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		N/A	N/A	N/A	N/A	N/A	N/A	N/A
S - High Temp Alloys								
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	40	.0014	.0023	.0040	.0050	.0060	.0090
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	70	.0014	.0023	.0040	.0050	.0060	.0090
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	45-80	.0014	.0043	.0060	.0070	.0080	.0100
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	90-130	.0040	.0080	.0100	.0110	.0140	.0150

NOTE: Speeds and Feeds listed are estimated and will vary by application.

High Performance Drills Tolerances (Inch)

Size	Drill ø (m7)	Shank ø (h6)
.0000-.1181	+0/-.00008	+0/-.00044
.1182-.2362	+0/-.00015	+0/-.00063
.2363-.3937	+0/-.00023	+0/-.00083
.3938-.7087	+0/-.00027	+0/-.00098
.7088-1.181	+0/-.00031	+0/-.00114

High Performance Drills Tolerances (mm)

Size	Drill ø (m7)	Shank ø (h6)
.0000-3mm	+0/-.002mm	+0/-.012mm
3.01-6mm	+0/-.004mm	+0/-.016mm
6.01-10mm	+0/-.006mm	+0/-.021mm
10.01-18mm	+0/-.007mm	+0/-.025mm
18.01-20mm	+0/-.008mm	+0/-.029mm



Multi-Material, Coolant Fed, Stub & Regular Length Drills Technical Information



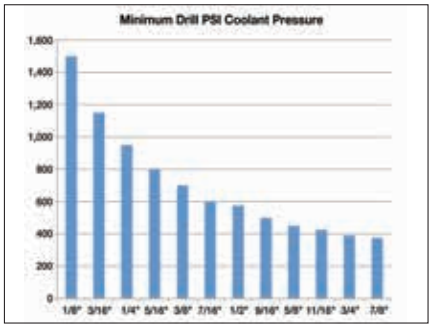
- RedLine Hole Shot High Performance Drills are designed to give optimal performance in a wide range of materials. Our 142° point is designed to reduce thrust and our flute design stabilizes our drills for better positioning and for a more accurate hole.
- All shanks are manufactured to h6 tolerance, suitable for use in shrink-fit holders.
- Multi-Material, Coolant-Fed, High Performance Drills found on pages 239-242 & 257-261.

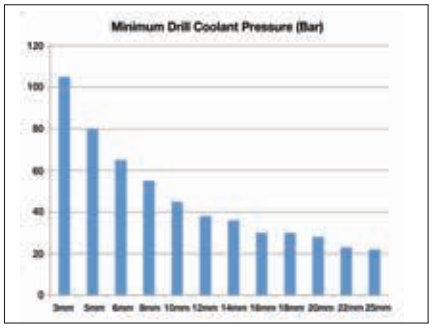
Multi-Material, Solid Carbide, Coolant Fed, Stub & Regular Length Speeds & Feeds

Material	Grades	SFM	Tool Diameter (IPR) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)
P - Steels								
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	190-250	.0014-.0030	.0035-.0060	.0070-.0100	.0090-.0110	.0100-.0140	.0100-.0150
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	500-660	.0030-.0050	.0055-.0080	.0070-.0100	.0090-.0110	.0100-.0140	.0100-.0150
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	315-575	.0030-.0050	.0055-.0080	.0070-.0100	.0090-.0110	.0100-.0140	.0100-.0150
M - Stainless Steels								
Austenitic	301-304L, 310, 316L, 321, 347	230-300	.0030-.0050	.0055-.0080	.0070-.0100	.0060-.0110	.0100-.0140	.0100-.0150
Martensitic	403, 410, 416, 420, 430, 431, 440	330-550	.0030-.0050	.0055-.0080	.0070-.0100	.0060-.0110	.0100-.0140	.0100-.0150
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	230-300	.0030-.0050	.0055-.0080	.0070-.0100	.0060-.0110	.0100-.0140	.0100-.0150
K - Cast Irons								
Ductile	A536, J434, 60-40-18	200-320	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0100-.0150
Gray	A48, A436, A319, Class 20, G4000	500-660	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0100-.0150
Malleable	A220, A602, J158	200-280	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0100-.0150
N - Non-Ferrous								
Aluminum Alloys	2014, 2024, 6061, 7075	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aluminum High Silicon	A380, A390	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Magnesium		N/A	N/A	N/A	N/A	N/A	N/A	N/A
S - High Temp Alloys								
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	50	.0014	.0023	.0040	.0050	.0060	.0090
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	85	.0014	.0023	.0040	.0050	.0060	.0090
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	75-115	.0014	.0023	.0040	.0050	.0060	.0090
Titanium	Commercially Pure, 6Al-4V,ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	150-230	.0030-.0040	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0100-.0150

NOTE: Speeds and Feeds listed are estimated and will vary by application.

Coolant Pressure Requirements





Double Margin (Non-Coolant Fed) Stub & Regular Length Drills Technical Information



- RedLine Pro Line Extra High Performance drills reduce cutting forces and provides additional stability for Heavier Feed Rates in most materials and gives increased performance when drilling Stainless Steel, Titanium, Carbon Steels and Cast Iron. Our Double Margin design provides improved hole finishes, quicker hole engagement and better location accuracy when drilling through cross holes.
- All shanks are manufactured to h6 tolerance, suitable for use in shrink-fit holders.
- Multi-Material, Non-Coolant Fed, High Performance Drills found on pages 243-247 & 262-265.

Double Margin, Solid Carbide, Speeds & Feeds

Materials	Grades	SFM	Starting SFM	Tool Diameter (IPR) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)
P - Steels									
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01		170-200	.0014-.0030	.0035-.0060	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310		265-390	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100		260-330	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
M - Stainless Steels									
Austenitic	301-304L, 310, 316L, 321, 347		100-130	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Martensitic	403, 410, 416, 420, 430, 431, 440		200-300	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO		100-130	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
K - Cast Irons									
Ductile	A536, J434, 60-40-18		190-280	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Gray	A48, A436, A319, Class 20, G4000		350-480	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Malleable	A220, A602, J158		190-280	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Magnesium			N/A						
N - Non-Ferrous									
Aluminum & Wrought Aluminum Alloys	600-100 Brinell HB	390-1480	750	.005-.010	.007-.014	.011-.020	.013-.022	.014-.023	.015-.025
Cast Aluminum Alloys	75-90 Brinell HB	390-1150	720	.006-.009	.007-.013	.011-.018	.013-.021	.015-.023	.017-.025
Aluminum Alloys Cast	13-22 SI	330-1310	590	.005-.007	.006-.010	.011-.015	.013-.017	.015-.019	.017-.021
Copper & Copper Alloys, Brass, Bronze	90-110 Brinell HB	330-980	430	.004-.006	.006-.009	.007-.013	.008-.014	.009-.015	.010-.016
S - High Temp Alloys									
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605		40	.0014	.0023	.0040	.0050	.0060	.0090
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3		70	.0014	.0023	.0040	.0050	.0060	.0090
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700		45-80	.0014	.0043	.0060	.0070	.0080	.0100
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo		90-130	.0040	.0080	.0100	.0110	.0140	.0150

NOTE: Speeds and Feeds listed are estimated and will vary by application.

High Performance Drills Tolerances (Inch)

Drill Size	Tolerance by Drill ø (m7)	Shank ø (h6)
.0000-.1181	+0/-.00008	+0/-.00044
.1182-.2362	+0/-.00015	+0/-.00063
.2363-.3937	+0/-.00023	+0/-.00083
.3938-.7087	+0/-.00027	+0/-.00098
.7088-1.181	+0/-.00031	+0/-.00114

High Performance Drills Tolerances (mm)

Drill Size	Tolerance by Drill ø (m7)	Shank ø (h6)
.0000-3mm	+0/-.002mm	+0/-.012mm
3.01-6mm	+0/-.004mm	+0/-.016mm
6.01-10mm	+0/-.006mm	+0/-.021mm
10.01-18mm	+0/-.007mm	+0/-.025mm
18.01-20mm	+0/-.008mm	+0/-.029mm



Double Margin, Coolant Fed, Stub & Regular Length Drills Technical Information

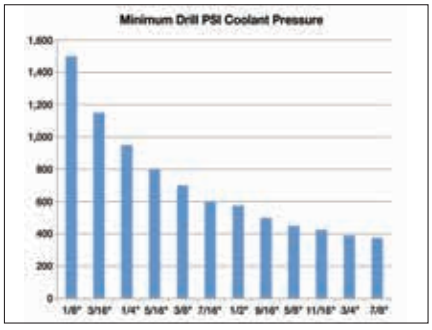
- RedLine Pro Line Extra High Performance drills reduce cutting forces and provides additional stability for Heavier Feed Rates in most materials and gives increased performance when drilling Stainless Steel, Titanium, Carbon Steels and Cast Iron. Our Double Margin design provides improved hole finishes, quicker hole engagement and better location accuracy when drilling through cross holes.
- All shanks are manufactured to h6 tolerance, suitable for use in shrink-fit holders.
- Multi-Material, Coolant-Fed, High Performance Drills found on pages 248-251 & 266-270.

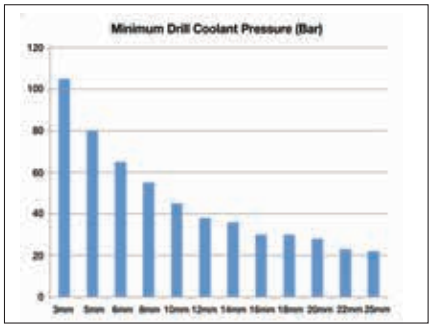
Double Margin, Solid Carbide, Coolant Fed, Stub & Regular Length Speeds & Feeds

Material	Grades	SFM	Starting SFM	Tool Diameter (IPR) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)
P - Steels									
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01		190-250	.0014-.0030	.0035-.0060	.0070-.0100	.0090-.0110	.0100-.0140	.0100-.0150
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310		500-660	.0030-.0050	.0055-.0080	.0070-.0100	.0090-.0110	.0100-.0140	.0100-.0150
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100		315-575	.0030-.0050	.0055-.0080	.0070-.0100	.0090-.0110	.0100-.0140	.0100-.0150
M - Stainless Steels									
Austenitic	301-304L, 310, 316L, 321, 347		230-300	.0030-.0050	.0055-.0080	.0070-.0100	.0060-.0110	.0100-.0140	.0100-.0150
Martensitic	403, 410, 416, 420, 430, 431, 440		330-550	.0030-.0050	.0055-.0080	.0070-.0100	.0060-.0110	.0100-.0140	.0100-.0150
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO		230-300	.0030-.0050	.0055-.0080	.0070-.0100	.0060-.0110	.0100-.0140	.0100-.0150
K - Cast Irons									
Ductile	A536, J434, 60-40-18		200-320	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0100-.0150
Gray	A48, A436, A319, Class 20, G4000		500-660	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0100-.0150
Malleable	A220, A602, J158		200-280	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0100-.0150
N - Non-Ferrous									
Aluminum & Wrought Aluminum Alloys	600-100 Brinell HB	390-1480	750	.005-.010	.007-.014	.011-.020	.013-.022	.014-.023	.015-.025
Cast Aluminum Alloys	75-90 Brinell HB	390-1150	720	.006-.009	.007-.013	.011-.018	.013-.021	.015-.023	.017-.025
Aluminum Alloys Cast	13-22 SI	330-1310	590	.005-.007	.006-.010	.011-.015	.013-.017	.015-.019	.017-.021
Copper & Copper Alloys, Brass, Bronze	90-110 Brinell HB	330-980	430	.004-.006	.006-.009	.007-.013	.008-.014	.009-.015	.010-.016
S - High Temp Alloys									
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605		50	.0014	.0023	.0040	.0050	.0060	.0090
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3		85	.0014	.0023	.0040	.0050	.0060	.0090
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700		75-115	.0014	.0023	.0040	.0050	.0060	.0090
Titanium	Commercially Pure, 6Al-4V,ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo		150-230	.0030-.0040	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0100-.0150

NOTE: Speeds and Feeds listed are estimated and will vary by application.

Coolant Pressure Requirements





Multi-Material, Coolant Fed, Long Length Drills Technical Information



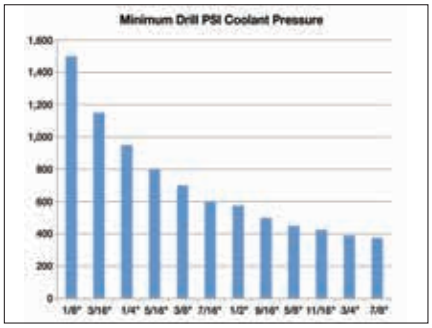
- RedLine Hole Shot High Performance Drills are designed to give optimal performance in a wide range of materials. Our 142° point is designed to reduce thrust and our flute design stabilizes our drills for better positioning and for a more accurate hole.
- All shanks are manufactured to h6 tolerance, suitable for use in shrink-fit holders.
- Multi-Material, Coolant-Fed, High Performance Drills found on pages 271-274.

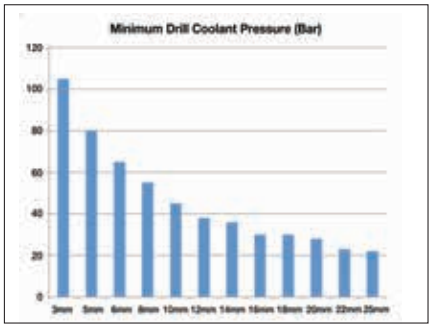
Multi-Material, Solid Carbide, Coolant Fed, Long Length Speeds & Feeds

Material	Grades	SFM	Tool Diameter (IPR) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)
P - Steels								
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	170-225	.0019-.0031	.0038-.0063	.0050-.0088	.0063-.0100	.0088-.0120	.0100-.0140
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	530-595	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
Medium Carbon	1040-1095, 1140-1151, 1330-1345 1520-1572, 4023-4063, 4120-4161. 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	280-375	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
M - Stainless Steels								
Austenitic	301-304L, 310, 316L, 321, 347	185-280	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
Martensitic	403, 410, 416, 420, 430, 431, 440	280-350	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	125-190	.0019-.0031	.0038-.0063	.0050-.0088	.0063-.010	.0088-.0120	.0100-.0140
K - Cast Irons								
Ductile	A536, J434, 60-40-18	475-590	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
Gray	A48, A436, A319, Class 20, G4000	530-590	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
Malleable	A220, A602, J158	250-320	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
N - Non-Ferrous								
Aluminum Alloys	2014, 2024, 6061, 7075	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aluminum High Silicon	A380, A390	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Magnesium		N/A	N/A	N/A	N/A	N/A	N/A	N/A
S - High Temp Alloys								
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	50	.0010	.0025	.0040	.0050	.0060	.0075
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	95	.0010	.0025	.0040	.0050	.0060	.0075
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	120	.0010	.0025	.0040	.0050	.0060	.0075
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	180	.0010	.0025	.0040	.0050	.0060	.0075

NOTE: Speeds and Feeds listed are estimated and will vary by application.

Coolant Pressure Requirements







Double Margin, Coolant Fed, Long Length Drills Technical Information

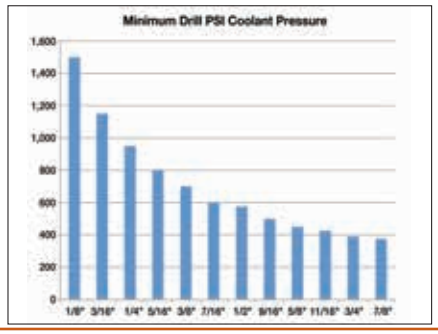
- RedLine Pro Line Extra High Performance drills reduce cutting forces and provides additional stability for Heavier Feed Rates in most materials and gives increased performance when drilling Stainless Steel, Titanium, Carbon Steels and Cast Iron. Our Double Margin design provides improved hole finishes, quicker hole engagement and better location accuracy when drilling through cross holes.
- All shanks are manufactured to h6 tolerance, suitable for use in shrink-fit holders.
- Multi-Material, Coolant-Fed, High Performance Drills found on pages 275-278.

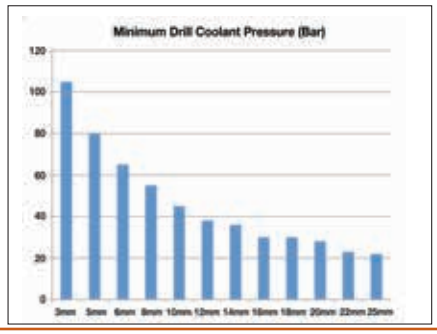
Double Margin, Solid Carbide, Coolant Fed, Long Length Speeds & Feeds

Material	Grades	SFM	Starting SFM	Tool Diameter (IPR) 1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)
P - Steels									
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01		170-225	.0019-.0031	.0038-.0063	.0050-.0088	.0063-.0100	.0088-.0120	.0100-.0140
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310		530-595	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
Medium Carbon	1040-1095, 1140-1151, 1330-1345 1520-1572, 4023-4063, 4120-4161. 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100		280-375	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
M - Stainless Steels									
Austenitic	301-304L, 310, 316L, 321, 347		185-280	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
Martensitic	403, 410, 416, 420, 430, 431, 440		280-350	.0030-.0050	.0055-.0080	.0070-.0100	.0080-.0110	.0100-.0140	.0110-.0150
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO		125-190	.0019-.0031	.0038-.0063	.0050-.0088	.0063-.010	.0088-.0120	.0100-.0140
K - Cast Irons									
Ductile	A536, J434, 60-40-18		475-590	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
Gray	A48, A436, A319, Class 20, G4000		530-590	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
Malleable	A220, A602, J158		250-320	.0038-.0063	.0063-.0088	.0088-.0110	.0100-.0125	.0110-.0150	.0120-.0170
N - Non-Ferrous									
Aluminum & Wrought Aluminum Alloys	600-100 Brinell HB	390-1480	750	.005-.010	.007-.014	.011-.020	.013-.022	.014-.023	.015-.025
Cast Aluminum Alloys	75-90 Brinell HB	390-1150	720	.006-.009	.007-.013	.011-.018	.013-.021	.015-.023	.017-.025
Aluminum Alloys Cast	13-22 SI	330-1310	590	.005-.007	.006-.010	.011-.015	.013-.017	.015-.019	.017-.021
Copper & Copper Alloys, Brass, Bronze	90-110 Brinell HB	330-980	430	.004-.006	.006-.009	.007-.013	.008-.014	.009-.015	.010-.016
S - High Temp Alloys									
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605		50	.0010	.0025	.0040	.0050	.0060	.0075
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3		95	.0010	.0025	.0040	.0050	.0060	.0075
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700		120	.0010	.0025	.0040	.0050	.0060	.0075
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo		180	.0010	.0025	.0040	.0050	.0060	.0075

NOTE: Speeds and Feeds listed are estimated and will vary by application.

Coolant Pressure Requirements







Multi-Material, Coolant Fed, X-Long Length Drills Technical Information

- RedLine Hole Shot High Performance Drills are designed to give optimal performance in a wide range of materials. Our 142° point is designed to reduce thrust and our flute design stabilizes our drills for better positioning and for a more accurate hole.
- All shanks are manufactured to h6 tolerance, suitable for use in shrink-fit holders.
- Multi-Material, Coolant-Fed, High Performance Drills found on pages 271-274 & 279.

Multi-Material, Solid Carbide, Coolant Fed, X-Long Length Speeds & Feeds

Material	Grades	SFM	Tool Diameter (IPR) 5MM (.1968)	1/4 (.2500)	5/16 (.0312)	3/8 (.3750)	7/16 (.0437)	1/2 (.5000)
P - Steels								
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	260	.0010-.0035	.0010-.0045	.0020-.0076	.0023-.009	.0025-.0096	.0026-.0100
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	350	.0035	.0042	.0076	.0090	.0096	.0100
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	260	.0035	.0045	.0076	.0090	.0096	.0100
M - Stainless Steels								
Austenitic	301-304L, 310, 316L, 321, 347	180	.0035	.0046	.0076	.0090	.0096	.0100
Martensitic	403, 410, 416, 420, 430, 431, 440	125	.0035	.0046	.0076	.0090	.0096	.0100
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	125	.0035	.0046	.0076	.0090	.0096	.0100
K - Cast Irons								
Ductile	A536, J434, 60-40-18	260	.0039	.0047	.0076	.0094	.0100	.0110
Gray	A48, A436, A319, Class 20, G4000	400	.0039	.0047	.0076	.0094	.0100	.0110
Malleable	A220, A602, J158	260	.0039	.0047	.0076	.0094	.0100	.0110
N - Non-Ferrous								
Aluminum Alloys	2014, 2024, 6061, 7075	500	.0030	.0066	.0110	.0120	.0130	.0140
Aluminum High Silicon	A380, A390	350	.0030	.0066	.0110	.0120	.0130	.0140
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	400	.0035	.0042	.0110	.0130	.0150	.0160
Composites	G-10, Fiberglass, Graphite,Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		300	.0035	.0046	.0110	.0130	.0140	.0150
Magnesium		300	.0035	.0046	.0110	.0130	.0140	.0150
S - High Temp Alloys								
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	80	.0007	.0014	.0025	.0028	.0034	.0040
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	60	.0007	.0014	.0025	.0028	.0034	.0040
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	80	.0007	.0014	.0025	.0028	.0034	.0040
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	160	.0020	.0024	.0040	.0050	.0060	.0070

NOTE: Speeds and Feeds listed are estimated and will vary by application.

Multi-Material, Coolant Fed, X-Long Length Drills
Deep Hole Drilling Techniques



Step 1

Using a coolant or non-coolant pilot drill, start by producing a hole 1.5 x to 3 x diameter deep. Make sure the pilot drill has a point angle the same as or greater than the deep hole drill. You should run this drill at 100% of the final drill speed and 1/2 the normal feed.

Step 2

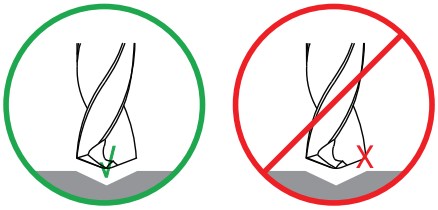
Retract, then tool change to the final deep hole drill.

Step 3

Ensuring not to exceed 400 to 500 RPM, rapid to clearance plane and enter the pilot hole at 25% of the final speed and 1 to 2 IPM—this helps with true position by eliminating drill whip. Once into the hole, turn on the coolant and advance to the material start. It is here that you can add a dwell to clear any chips that have been left from the previous drill and let the spindle get to full speed. Increase the speed and feed to final drilling parameters.

Step 4

Drill one shot to the final hole depth or through.



CORRECT
Make contact here with drill

INCORRECT
Do not make contact here with drill

Machine Requirements:
High Pressure Pump System (1,000 PSI)
Tool runout of .0003" (.008 mm) Max.

Step 5

If you experience any squeaking, this could mean that chip packing is occurring. As a result, you may need to retract the drill and increase your feed.

Step 6

Once through the material, reducing the RPM may be required to eliminate breakage of the drill due to drill whip. Now retract to the clearance plane.



Multi-Material, Coolant Fed, X-Long Length Drills Technical Information

- RedLine Hole Shot High Performance Drills are designed to give optimal performance in a wide range of materials. Our 142° point is designed to reduce thrust and our flute design stabilizes our drills for better positioning and for a more accurate hole.
- All shanks are manufactured to h6 tolerance, suitable for use in shrink-fit holders.
- Multi-Material, Coolant-Fed, High Performance Drills found on pages 271-274 & 279.

Multi-Material, Solid Carbide, Coolant Fed, X-Long Length Speeds & Feeds

Material	Grades	SFM	Tool Diameter (IPR)					
			5MM (.1968)	1/4 (.2500)	5/16 (.0312)	3/8 (.3750)	7/16 (.0437)	1/2 (.5000)
P - Steels								
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	260	.0010-.0035	.0010-.0045	.0020-.0076	.0023-.009	.0025-.0096	.0026-.0100
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	350	.0035	.0042	.0076	.0090	.0096	.0100
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	260	.0035	.0045	.0076	.0090	.0096	.0100
M - Stainless Steels								
Austenitic	301-304L, 310, 316L, 321, 347	180	.0035	.0046	.0076	.0090	.0096	.0100
Martensitic	403, 410, 416, 420, 430, 431, 440	125	.0035	.0046	.0076	.0090	.0096	.0100
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	125	.0035	.0046	.0076	.0090	.0096	.0100
K - Cast Irons								
Ductile	A536, J434, 60-40-18	260	.0039	.0047	.0076	.0094	.0100	.0110
Gray	A48, A436, A319, Class 20, G4000	400	.0039	.0047	.0076	.0094	.0100	.0110
Malleable	A220, A602, J158	260	.0039	.0047	.0076	.0094	.0100	.0110
N - Non-Ferrous								
Aluminum Alloys	2014, 2024, 6061, 7075	500	.0030	.0066	.0110	.0120	.0130	.0140
Aluminum High Silicon	A380, A390	350	.0030	.0066	.0110	.0120	.0130	.0140
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	400	.0035	.0042	.0110	.0130	.0150	.0160
Composites	G-10, Fiberglass, Graphite,Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		300	.0035	.0046	.0110	.0130	.0140	.0150
Magnesium		300	.0035	.0046	.0110	.0130	.0140	.0150
S - High Temp Alloys								
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	80	.0007	.0014	.0025	.0028	.0034	.0040
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	60	.0007	.0014	.0025	.0028	.0034	.0040
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	80	.0007	.0014	.0025	.0028	.0034	.0040
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	160	.0020	.0024	.0040	.0050	.0060	.0070

NOTE: Speeds and Feeds listed are estimated and will vary by application.

Multi-Material, Coolant Fed, X-Long Length Drills
Deep Hole Drilling Techniques



Step 1

Using a coolant or non-coolant pilot drill, start by producing a hole 1.5 x to 3 x diameter deep. Make sure the pilot drill has a point angle the same as or greater than the deep hole drill. You should run this drill at 100% of the final drill speed and 1/2 the normal feed.

Step 2

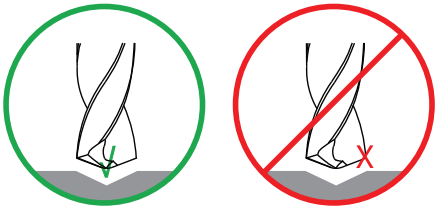
Retract, then tool change to the final deep hole drill.

Step 3

Ensuring not to exceed 400 to 500 RPM, rapid to clearance plane and enter the pilot hole at 25% of the final speed and 1 to 2 IPM—this helps with true position by eliminating drill whip. Once into the hole, turn on the coolant and advance to the material start. It is here that you can add a dwell to clear any chips that have been left from the previous drill and let the spindle get to full speed. Increase the speed and feed to final drilling parameters.

Step 4

Drill one shot to the final hole depth or through.



CORRECT
Make contact here with drill

INCORRECT
Do not make contact here with drill

Machine Requirements:
High Pressure Pump System (1,000 PSI)
Tool runout of .0003" (.008 mm) Max.

Step 5

If you experience any squeaking, this could mean that chip packing is occurring. As a result, you may need to retract the drill and increase your feed.

Step 6

Once through the material, reducing the RPM may be required to eliminate breakage of the drill due to drill whip. Now retract to the clearance plane.



Aluminum & Non-Ferrous Drills Technical Information

- RedLine Aluminum & Non-Ferrous High Performance Drills have been specifically designed for high penetration rates, great chip evacuation, and improved hole quality, speed and performance for lower hole costs!
- All shanks are manufactured to h6 tolerance, suitable for use in shrink-fit holders.
- Aluminum & Non-Ferrous, High Performance Drills found on pages 280-283.

Aluminum & Non-Ferrous, Speeds & Feeds

Material	Grades	SFM	Tool Diameter (IPR) 1/32 (.0312)	1/16 (.0625)	1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)
N - Non-Ferrous										
Aluminum Alloys	2014, 2024, 6061, 7075	750	.0020	.0030	.0080	.0120	.0140	.0180	.0220	.0240
Aluminum High Silicon	A380, A390	500	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	225	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	300	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120
Copper		225	.0010	.0020	.0030	.0060	.0080	.0100	.0110	.0120

NOTE: Speeds and Feeds listed are estimated and will vary by application.

Aluminum & Non-Ferrous Tolerances (Inch)

Drill Size	Tolerance by Drill ø (m7)	Tolerance by Shank ø (h6)
.0000-.1181	+.00008/+.00047	+0/-.00024
.1182-.2362	+.00016/+.00063	+0/-.00031
.2363-.3937	+.00024/+.00083	+0/-.00035
.3938-.7087	+.00027/+.00098	+0/-.00043
.7088-.7500	+.00031/+.00114	+0/-.00051

Aluminum & Non-Ferrous Tolerances (Metric)

Drill Size	Tolerance by Drill ø (m7)	Shank ø (h6)
0-3.0	+.002/+.012	+0/-.006
3.01-6.00	+.004/+.016	+0/-.008
6.01-10.00	+.006/+.021	+0/-.009
10.01-18.00	+.007/+.025	+0/-.011
18.01-20.0	+.008/+.029	+0/-.013

General Purpose Carbide Drills Speeds & Feeds

Material	Grades	SFM		1/8	1/4	3/8	1/2
		Uncoated	AlTiN	(.1250)	(.2500)	(.3750)	(.5000)
P - Steels							
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	100-175	140-210	.0004-.0015	.0010-.0020	.0010-.0025	.0015-.0030
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	100-175	140-210	.0005-.0015	.0010-.0025	.0010-.0030	.0015-.0040
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	125-175	175-245	.0005-.0015	.0010-.0025	.0010-.0030	.0015-.0040
M - Stainless Steels							
Austenitic	301-304L, 310, 316L, 321, 347	100-175	140-210	.0004-.0015	.0005-.0015	.0010-.0015	.0010-.0030
Martensitic	403, 410, 416, 420, 430, 431, 440	100-150	140-210	.0004-.0015	.0008-.0020	.0010-.0035	.0015-.0040
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	125-175	175-245	.0004-.0015	.0008-.0020	.0010-.0035	.0015-.0040
K - Cast Irons							
Ductile	A536, J434, 60-40-18	125-250	175-350	.0010-.0030	.0010-.0030	.0015-.0035	.0025-.0040
Gray	A48, A436, A319, Class 20, G4000	125-250	175-350	.0010-.0030	.0010-.0030	.0015-.0035	.0025-.0040
Malleable	A220, A602, J158	125-250	175-350	.0010-.0030	.0010-.0030	.0015-.0035	.0025-.0040
N - Non-Ferrous							
Aluminum Alloys	2014, 2024, 6061, 7075	150-300	210-420	.0010-.0020	.0015-.0040	.0020-.0045	.0030-.0060
Aluminum High Silicon	A380, A390	100-200	140-280	.0008-.0015	.0010-.0030	.0015-.0035	.0020-.0050
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	125-300	175-420	.0010-.0020	.0010-.0030	.0015-.0035	.0025-.0040
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	150-300	210-420	.0010-.0020	.0010-.0030	.0015-.0035	.0025-.0040
Copper		150-300	210-420	.0010-.0020	.0010-.0030	.0015-.0035	.0025-.0040
Magnesium		200-500	280-700	.0010-.0020	.0010-.0030	.0015-.0035	.0025-.0040
S - High Temp Alloys							
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	80-150	110-210	.0004-.0010	.0005-.0020	.0010-.0025	.0010-.0040
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	150-200	210-280	.0008-.0015	.0010-.0020	.0015-.0035	.0020-.0040
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	100-150	140-210	.0004-.0015	.0008-.0015	.0010-.0025	.0015-.0040
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	150-200	210-280	.0008-.0015	.0010-.0020	.0015-.0030	.0020-.0040

NOTES: **(1) Speeds and Feeds listed are estimated and will vary by application.**
(2) Reduce Speeds by 20-30% when exceeding 2x length to diameter.

These tools can be found on pages 284-290.

Straight Flute Carbide Drills Speeds & Feeds

Material	Grades	SFM		1/8	1/4	3/8	1/2
		Uncoated	AlTiN	(.1250)	(.2500)	(.3750)	(.5000)
P - Steels							
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	125-175	175-245	.0004-.0015	.0010-.0020	.0010-.0025	.0015-.0030
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	150-200	210-280	.0005-.0015	.0010-.0025	.0010-.0030	.0015-.0040
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	125-175	175-245	.0005-.0015	.0010-.0025	.0010-.0030	.0015-.0040
M - Stainless Steels							
Austenitic	301-304L, 310, 316L, 321, 347	150-200	210-280	.0004-.0015	.0005-.0015	.0010-.0015	.0010-.0030
Martensitic	403, 410, 416, 420, 430, 431, 440	125-175	175-245	.0004-.0015	.0008-.0020	.0010-.0035	.0015-.0040
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	150-200	210-280	.0004-.0015	.0008-.0020	.0010-.0035	.0015-.0040
K - Cast Irons							
Ductile	A536, J434, 60-40-18	150-250	210-350	.0010-.0030	.0010-.0030	.0015-.0035	.0025-.0040
Gray	A48, A436, A319, Class 20, G4000	150-250	210-350	.0010-.0030	.0010-.0030	.0015-.0035	.0025-.0040
Malleable	A220, A602, J158	N/A	N/A	.0010-.0030	.0010-.0030	.0015-.0035	.0025-.0040
N - Non-Ferrous							
Aluminum Alloys	2014, 2024, 6061, 7075	N/A	N/A	.0010-.0020	.0015-.0040	.0020-.0045	.0030-.0060
Aluminum High Silicon	A380, A390	N/A	N/A	.0008-.0015	.0010-.0030	.0015-.0035	.0020-.0050
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	N/A	N/A	.0010-.0020	.0010-.0030	.0015-.0035	.0025-.0040
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	150-300	210-420	.0010-.0020	.0010-.0030	.0015-.0035	.0025-.0040
Copper		N/A	N/A	.0010-.0020	.0010-.0030	.0015-.0035	.0025-.0040
Magnesium		N/A	N/A	.0010-.0020	.0010-.0030	.0015-.0035	.0025-.0040
S - High Temp Alloys							
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	100-150	140-210	.0004-.0010	.0005-.0020	.0010-.0025	.0010-.0040
Iron Base	Incoloy 800-802, Multmet N-155,Timkin 16-25-6, Carpenter 22-b3	175-200	245-280	.0008-.0015	.0010-.0020	.0015-.0035	.0020-.0040
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	125-175	175-245	.0004-.0015	.0008-.0015	.0010-.0025	.0015-.0040
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	150-200	210-280	.0008-.0015	.0010-.0020	.0015-.0030	.0020-.0040

NOTES: **(1) Speeds and Feeds listed are estimated and will vary by application.**
(2) Reduce Speeds by 20-30% when exceeding 2x length to diameter.

These tools can be found on pages 291-292.

Cobalt & HSS Drills Speeds & Feeds

Material	Grades	SFM			Tool Diameter (IPR)						
					<=1/8	1/4	3/8	1/2	3/4	1	1-1/2+
		HSS	HSS-HD	Cobalt	(.1250)	(.2500)	(.3750)	(.5000)	(.7500)	(1.000)	(1.500)+
P - Steels											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	30-65	33-75	33-75	.0007-.0020	.0030-.0040	.0040-.0065	.0060-.0070	.0065-.0075	.0070-.0080	.0075-.0085
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	95	95	95	.0009-.0050	.0060-.0070	.0090-.0100	.0100-.0110	.0110-.0120	.0120-.0130	.0130-.0140
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	115	115	115	.0009-.0050	.0060-.0070	.0090-.0120	.0110-.0120	.0110-.0130	.0120-.0140	.0130-.0150
M - Stainless Steels											
Austenitic	301-304L, 310, 316L, 321, 347	26	36	36	.0010-.0030	.0035-.0050	.0050-.0075	.0080-.0090	.0009-.0100	.0100-.0110	.0110-.0120
Martensitic	403, 410, 416, 420, 430, 431, 440	50	70	72	.0010-.0024	.0025-.0037	.0040-.0055	.0050-.0060	.0060-.0070	.0070-.0080	.0080-.0090
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	20	30	30	.0020-.0030	.0030-.0040	.0040-.0050	.0050-.0060	.0060-.0070	.0070-.0080	.0080-.0090
K - Cast Irons											
Ductile	A536, J434, 60-40-18	45	55	55	.0007-.0025	.0025-.0035	.0040-.0060	.0060-.0070	.0065-.0075	.0070-.0080	.0075-.0085
Gray	A48, A436, A319, Class 20, G4000	80-100	90-115	90-115	.0006-.0030	.0030-.0060	.0040-.0090	.0070-.0100	.0080-.0120	.0009-.0130	.0100-.0140
Malleable	A220, A602, J158	80-100	90-115	90-115	.0006-.0030	.0030-.0060	.0040-.0090	.0070-.0100	.0080-.0120	.0009-.0130	.0100-.0140
N - Non-Ferrous											
Aluminum Alloys	2014, 2024, 6061, 7075	300	300	300	.0007-.0050	.0004-.0080	.0060-.0110	.0080-.0120	.0090-.0130	.0120-.0140	.0130-.0150
High Silicon	A380, A390	60-80	80-95	80-95	.0007-.0050	.0004-.0080	.0060-.0110	.0080-.0120	.0090-.0130	.0120-.0140	.0130-.0150
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	90-115	90-130	90-130	.0008-.0040	.0035-.0070	.0050-.0075	.0075-.0090	.0080-.0100	.0090-.0110	.0100-.0120
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	100-125	125-175	125-175	.0040-.0060	.0030-.0050	.0040-.0060	.0050-.0070	.0060-.0080	.0070-.0090	.0080-.0100
Copper		108	125	125	.0010-.0035	.0038-.0065	.0070-.0090	.0080-.0110	.0100-.0120	.0110-.0130	.0110-.0130
Magnesium		90-115	90-130	90-130	.0008-.0040	.0035-.0070	.0050-.0075	.0075-.0090	.0100-.0120	.0110-.0130	.0110-.0130
S - High Temp Alloys											
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	10-20	20-23	20-23	.0004-.0013	.0013-.0020	.0020-.0030	.0030-.0035	.0003-.0040	.0035-.0045	.0040-.0050
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	20-75	35-90	35-90	.0006-.0025	.0020-.0040	.0030-.0055	.0040-.0060	.0045-.0065	.0005-.0070	.0006-.0065

NOTE: Speeds and Feeds listed are estimated and will vary by application. These tools can be found on pages 293-317.

High Speed Steel Drills Feed Rate Per Revolution Based on Cut

Drill Size	Light	Medium	Heavy
1/16"-1/8"	.0005-.0010	.0010-.0020	.0020-.0030
1/8"-1/4"	.0010-.0030	.0030-.0050	.0050-.0070
1/4"-1/2"	.0030-.0050	.0050-.0070	.0070-.0090
1/2"-3/4"	.0050-.0080	.0080-.0110	.0110-.0140
3/4"-1"	.0080-.0110	.0110-.0140	.0140-.0170
>1"	.0120-.0150	.0150-.0200	.0200-.0250

Cobalt Drills Feed Rate Per Revolution Based on Cut

Drill Size	Cobalt			AlTiN Coated Cobalt		
	Light	Medium	Heavy	Light	Medium	Heavy
1/16"-1/8"	.0006-.0011	.0011-.0022	.0022-.0033	.0007-.0013	.0013-.0026	.0026-.0040
1/8"-1/4"	.0011-.0033	.0033-.0055	.0055-.0077	.0013-.0040	.0040-.0066	.0066-.0092
1/4"-1/2"	.0033-.0055	.0055-.0077	.0077-.0099	.0040-.0066	.0066-.0092	.0092-.0119
1/2"-3/4"	.0055-.0088	.0088-.0121	.0121-.0154	.0066-.0106	.0106-.0145	.0145-.0185
3/4"-1"	.0088-.0121	.0121-.0154	.0154-.0187	.0106-.0145	.0145-.0185	.0185-.0224
>1"	.0132-.0165	.0165-.0220	.0220-.0275	.0158-.0198	.0198-.0264	.0264-.0330

Countersink Speeds

Material	Grades	SFM		
		HSS	Cobalt	Carbide
P - Steels				
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	20-30	30-60	50-100
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	60-90	70-100	125-300
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	30-70	40-80	100-180
M - Stainless Steels				
Austenitic	301-304L, 310, 316L, 321, 347	20-50	30-60	100-300
Martensitic	403, 410, 416, 420, 430, 431, 440	30-70	35-75	50-100
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	15-50	25-70	50-100
K - Cast Irons				
Ductile	A536, J434, 60-40-18	30-70	40-80	75-180
Gray	A48, A436, A319, Class 20, G4000	60-90	70-100	150-225
Malleable	A220, A602, J158	80-120	85-120	100-180
N - Non-Ferrous				
Aluminum Alloys	2014, 2024, 6061, 7075	150-200	175-250	350-500
Aluminum High Silicon	A380, A390	125-170	130-175	300-425
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	100-300	100-300	200-400
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	100-225	150-300	250-350
Copper		70-100	80-110	150-300
Magnesium		200-400	210-400	300-500
S - High Temp Alloys				
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	15-30	20-40	60-80
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	15-30	20-40	60-80
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	20-50	25-50	75-180
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si. Ti-8Al-1Mo, Ti-8Al-4Mo	20-50	30-60	30-100

NOTE : Speeds listed are estimated and will vary by application.
These tools can be found on pages 318-321.

UN Thread





AlTiN Coated

UN Thread Internal & External

Size & Pitch	Cutting ø	Length of Cut	OAL	# of Flutes	Shank ø	AlTiN Coated Part #
2-56	.065	.125	2	3	1/8	RM20099
4-40	.085	.180	2	3	1/8	RM20100
6-32	.100	.218	2	3	1/8	RM20101
8-32	.115	.250	2	3	1/8	RM20103
8-36	.115	.250	2	3	1/8	RM20105
10-24	.120	.312	2	3	3/16	RM20107
10-32	.120	.312	2	3	3/16	RM20109
1/4-20	.180	.500	2-1/2	3	3/16	RM20111
1/4-28	.180	.500	2-1/2	3	3/16	RM20113
5/16-18	.240	.625	2-1/2	3	1/4	RM20115
5/16-24	.240	.625	2-1/2	3	1/4	RM20117
3/8-16	.290	.750	3	4	5/16	RM20119
3/8-24	.290	.750	3	4	5/16	RM20121
7/16-14	.340	.875	3	4	3/8	RM20123
7/16-20	.340	.875	3	4	3/8	RM20125
1/2-13	.350	.875	3-1/2	4	3/8	RM20127
1/2-20	.350	.875	3-1/2	4	3/8	RM20129
9/16-12	.370	.875	3-1/2	4	1/2	RM20131
9/16-18	.370	.875	3-1/2	4	1/2	RM20133
5/8-11	.470	1.250	3-1/2	5	1/2	RM20135
5/8-18	.470	1.250	3-1/2	5	1/2	RM20137
3/4-10	.495	1.250	3-1/2	5	1/2	RM20139
3/4-16	.495	1.250	3-1/2	5	1/2	RM20141
7/8-9	.620	1.250	3-1/2	5	5/8	RM20143
7/8-14	.620	1.250	3-1/2	5	5/8	RM20145
1-8	.620	1.375	4	5	3/4	RM20147
1-12	.620	1.375	4	5	3/4	RM20149

Speeds & Feeds page 353.

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.002	h6



AlTiN Coated

UN Thread Internal & External End or Side Coolant

Tool Size	Cutting ø	Length of Cut	OAL	# of Flutes	Shank ø	AlTiN Coated End Coolant Part #	AlTiN Coated Side Coolant Part #
1/4-20	.180	.500	2-1/2	3	3/16	RM20111EC	–
1/4-20	.180	.500	2-1/2	4	3/16	–	RM20111SC
1/4-28	.180	.500	2-1/2	3	3/16	RM20113EC	–
1/4-28	.180	.500	2-1/2	4	3/16	–	RM20113SC
5/16-18	.240	.625	2-1/2	3	1/4	RM20115EC	–
5/16-18	.240	.625	2-1/2	4	1/4	–	RM20115SC
5/16-24	.240	.625	2-1/2	3	1/4	RM20117EC	–
5/16-24	.240	.625	2-1/2	4	1/4	–	RM20117SC
3/8-16	.290	.750	3	4	5/16	RM20119EC	RM20119SC
3/8-24	.290	.750	3	4	5/16	RM20121EC	RM20121SC
7/16-14	.340	.875	3	4	3/8	RM20123EC	RM20123SC
7/16-20	.340	.875	3	4	3/8	RM20125EC	RM20125SC
1/2-13	.350	.875	3-1/2	4	3/8	RM20127EC	RM20127SC
9/16-12	.370	.875	3-1/2	4	1/2	RM20131EC	RM20131SC
9/16-18	.370	.875	3-1/2	4	1/2	RM20133EC	RM20133SC
5/8-11	.470	1.250	3-1/2	5	1/2	RM20135EC	–
5/8-11	.470	1.250	3-1/2	4	1/2	–	RM20135SC
5/8-18	.470	1.250	3-1/2	5	1/2	RM20137EC	–
5/8-18	.470	1.250	3-1/2	4	1/2	–	RM20137SC
3/4-10	.495	1.250	3-1/2	5	1/2	RM20139EC	–
3/4-10	.495	1.250	3-1/2	4	1/2	–	RM20139SC
3/4-12	.495	1.250	3-1/2	5	1/2	RM20140EC	–
3/4-12	.495	1.250	3-1/2	4	1/2	–	RM20140SC
3/4-16	.495	1.250	3-1/2	5	1/2	RM20141EC	–
3/4-16	.495	1.250	3-1/2	4	1/2	–	RM20141SC
7/8-9	.495	1.250	3-1/2	5	1/2	RM20143EC	–
7/8-9	.495	1.250	3-1/2	4	1/2	–	RM20143SC
7/8-14	.495	1.250	3-1/2	5	1/2	RM20145EC	–
7/8-14	.495	1.250	3-1/2	4	1/2	–	RM20145SC
1-8	.620	1.375	4	5	3/4	RM20147EC	
1-8	.620	1.375	4	4	3/4		RM20147SC
1-12	.620	1.375	4	5	3/4	RM20149EC	
1-12	.620	1.375	4	4	3/4		RM20149SC

Note: Threadmills with End Coolant have one hole, threadmills with Side Coolant have a hole for each Flute.

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.0001	+0.000, -0.0005

Speeds & Feeds page 354.

UN Thread



AlTiN Coated

UN Thread Internal & External Extended Length

Size & Pitch	Cutting ø	Length of Cut	Length Below Shank	OAL	# of Flutes	Shank ø	AlTiN Coated Part #
4-40	.085	.175	.224	2	3	1/8	RM40000
4-40	.085	.175	.336	2	3	1/8	RM41000
6-32	.095	.218	.250	2	3	1/8	RM40001
6-32	.095	.218	.375	2	3	1/8	RM41001
8-32	.115	.250	.328	2	3	1/8	RM40002
8-32	.115	.250	.500	2	3	1/8	RM41002
8-36	.115	.250	.328	2	3	1/8	RM40003
8-36	.115	.250	.500	2	3	1/8	RM41003
10-24	.120	.312	.500	2	3	3/16	RM40004
10-24	.120	.312	.625	2	3	3/16	RM41004
10-32	.120	.312	.500	2	3	3/16	RM40005
10-32	.120	.312	.625	2	3	3/16	RM41005
1/4-20	.180	.500	.650	2-1/2	3	3/16	RM40006
1/4-20	.180	.500	.750	2-1/2	3	3/16	RM41006
1/4-28	.180	.500	.650	2-1/2	3	3/16	RM40007
1/4-28	.180	.500	.750	2-1/2	3	3/16	RM41007
5/16-18	.240	.625	.833	2-1/2	3	1/4	RM40008
5/16-18	.240	.625	1.000	2-1/2	3	1/4	RM41008
5/16-24	.240	.625	.833	2-1/2	3	1/4	RM40009
5/16-24	.240	.625	1.000	2-1/2	3	1/4	RM41009
3/8-16	.290	.750	.875	3	4	5/16	RM40010
3/8-16	.290	.750	1.000	3	4	5/16	RM41010
3/8-24	.290	.750	.875	3	4	5/16	RM40011
3/8-24	.290	.750	1.000	3	4	5/16	RM41011
7/16-14	.340	.875	1.000	3	4	3/8	RM40012
7/16-14	.340	.875	1.300	3	4	3/8	RM41012
7/16-20	.340	.875	1.000	3	4	3/8	RM40013
7/16-20	.340	.875	1.300	3	4	3/8	RM41013
1/2-13	.350	.875	1.000	3-1/2	4	3/8	RM40014
1/2-13	.350	.875	1.300	3-1/2	4	3/8	RM41014
1/2-20	.350	.875	1.000	3-1/2	4	3/8	RM40015
1/2-20	.350	.875	1.300	3-1/2	4	3/8	RM41015
9/16-12	.370	.875	1.125	3-1/2	4	1/2	RM40016
9/16-12	.370	.875	1.500	3-1/2	4	1/2	RM41016
9/16-18	.370	.875	1.125	3-1/2	4	1/2	RM40017
9/16-18	.370	.875	1.500	3-1/2	4	1/2	RM41017
5/8-11	.470	1.250	1.500	3-1/2	5	1/2	RM40018
5/8-11	.470	1.250	1.900	3-1/2	5	1/2	RM41018
5/8-18	.470	1.250	1.500	3-1/2	5	1/2	RM40019

Continued

Speeds & Feeds page 353.

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.0001	+0.000, -0.0005



AlTiN Coated

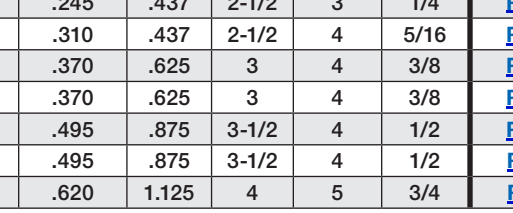
UN Thread Internal & External Extended Length

Size & Pitch	Cutting ø	Length of Cut	Length Below Shank	OAL	# of Flutes	Shank ø	AlTiN Coated Part #
5/8-18	.470	1.250	1.900	3-1/2	5	1/2	RM41019
3/4-10	.495	1.250	1.500	3-1/2	5	1/2	RM40020
3/4-10	.495	1.250	1.900	3-1/2	5	1/2	RM41020
3/4-12	.495	1.250	1.500	3-1/2	5	1/2	RM40021
3/4-12	.495	1.250	1.900	3-1/2	5	1/2	RM41021
3/4-16	.495	1.250	1.500	3-1/2	5	1/2	RM40022
3/4-16	.495	1.250	1.900	3-1/2	5	1/2	RM41022
7/8-9	.495	1.250	1.750	4	5	1/2	RM40023
7/8-9	.495	1.250	2.500	4	5	1/2	RM41023
7/8-14	.495	1.250	1.750	4	5	1/2	RM40024
7/8-14	.495	1.250	2.500	4	5	1/2	RM41024
1-8	.620	1.375	2.000	4-1/2	5	3/4	RM40025
1-8	.620	1.375	2.500	4-1/2	5	3/4	RM41025
1-12	.620	1.375	2.000	4-1/2	5	3/4	RM40026
1-12	.620	1.375	2.500	4-1/2	5	3/4	RM41026

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.0001	+0.000, -0.0005

Speeds & Feeds page 353.

NPT & NPTF Thread



AlTiN Coated

NPT Pipe Thread Internal & External

Size & Pitch	Cutting ø	Length of Cut	OAL	# of Flutes	Shank ø	AlTiN Coated Part #
1/16-27	.245	.437	2-1/2	3	1/4	RM20200
1/8-27	.310	.437	2-1/2	4	5/16	RM20202
1/4-18	.370	.625	3	4	3/8	RM20205
3/8-18	.370	.625	3	4	3/8	RM20207
1/2-14	.495	.875	3-1/2	4	1/2	RM20208
3/4-14	.495	.875	3-1/2	4	1/2	RM20210
1-11-1/2	.620	1.125	4	5	3/4	RM20212



AlTiN Coated

NPTF Pipe Thread Internal & External

Size & Pitch	Cutting ø	Length of Cut	OAL	# of Flutes	Shank ø	AlTiN Coated Part #
1/16-27	.245	.437	2-1/2	3	1/4	RM20301
1/8-27	.310	.437	2-1/2	4	5/16	RM20303
1/4-18	.370	.625	3	4	3/8	RM20306
3/8-18	.370	.625	3	4	3/8	RM20308
1/2-14	.495	.875	3-1/2	4	1/2	RM20309
3/4-14	.495	.875	3-1/2	4	1/2	RM20311
1-11-1/2	.620	1.125	4	5	3/4	RM20313

Speeds & Feeds page 353.

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.0001	+0.000, -0.0005



AlTiN Coated

NPT, NPTF Pipe Thread Internal & External End or Side Coolant

Size & Pitch	Cutting ø	Length of Cut	OAL	# of Flutes	Shank ø	AlTiN Coated End Coolant Part #	AlTiN Coated Side Coolant Part #
1/16-27	.245	.437	2-1/2	3	1/4	RM20200EC	
1/16-27	.245	.437	2-1/2	4	1/4	–	RM20200SC
1/8-27	.310	.437	2-1/2	4	5/16	RM20202EC	–
1/8-27	.310	.437	2-1/2	4	3/8	–	RM20202SC
1/4 & 3/8-18	.305	.625	3	4	3/8	RM20207EC	RM20207SC
1/2 & 3/4-14	.495	.875	3-1/2	4	1/2	RM20210EC	RM20210SC
1-11.5	.620	1.125	4	5	3/4	RM20212EC	–
1-11.5	.620	1.125	4	4	3/4	–	RM20212SC

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.0001	+0.000, -0.0005

Speeds & Feeds page 354.

Metric Thread



AlTiN Coated

Metric Thread Internal & External

Size & Pitch	Cutting ø	Length of Cut	OAL	# of Flutes	Shank ø	AlTiN Coated Part #
M4 X .70	.115	.250	2	3	1/8	RM20420
M4.5 X .75	.120	.250	2	3	1/8	RM20422
M5 X .80	.120	.312	2	3	3/16	RM20424
M6 X 1.00	.170	.500	2-1/2	3	3/16	RM20426
M8 X .75	.235	.625	2-1/2	3	1/4	RM20428
M8 X 1.00	.235	.625	2-1/2	3	1/4	RM20430
M8 X 1.25	.235	.625	2-1/2	3	1/4	RM20432
M10 X 1.25	.300	.750	3	4	5/16	RM20434
M10 X 1.50	.300	.750	3	4	5/16	RM20436
M12 X 1.00	.360	.875	3-1/2	4	3/8	RM20438
M12 X 1.25	.360	.875	3-1/2	4	3/8	RM20440
M12 X 1.75	.360	.875	3-1/2	4	3/8	RM20442
M14 X 1.50	.360	.875	3-1/2	4	3/8	RM20444
M16 X 2.00	.470	1.250	3-1/2	5	1/2	RM20446
M18 X 2.50	.470	1.250	3-1/2	5	1/2	RM20448
M20 X 3.00	.470	1.250	3-1/2	5	5/8	RM20450

Speeds & Feeds page 353.

Tolerances	Diameter	Shank
.0000-.1181	+0.000, -0.002	h6



AlTiN Coated

Metric Thread Internal & External End or Side Coolant

Tool Size	Cutting ø	Length of Cut	OAL	# of Flutes	Shank ø	AlTiN Coated End Coolant Part #	AlTiN Coated Side Coolant Part #
M5 X .80	.120	.312	2	3	3/16	RM20424EC	–
M5 X .80	.120	.312	2	4	3/16	–	RM20424SC
M6 X 1.00	.170	.500	2-1/2	3	3/16	RM20426EC	–
M6 X 1.00	.170	.500	2-1/2	4	3/16	–	RM20426SC
M8 X .75	.235	.625	2-1/2	3	1/4	RM20428EC	–
M8 X .75	.235	.625	2-1/2	4	1/4	–	RM20428SC
M8 X 1.00	.235	.625	2-1/2	3	1/4	RM20430EC	–
M8 X 1.00	.235	.625	2-1/2	4	1/4	–	RM20430SC
M8 X 1.25	.235	.625	2-1/2	3	1/4	RM20432EC	–
M8 X 1.25	.235	.625	2-1/2	4	1/4	–	RM20432SC
M10 X 1.25	.300	.750	3	4	5/16	RM20434EC	RM20434SC
M10 X 1.50	.300	.750	3	4	5/16	RM20436EC	RM20436SC
M12 X 1.00	.360	.875	3-1/2	4	3/8	RM20438EC	RM20438SC
M12 X 1.25	.360	.875	3-1/2	4	3/8	RM20440EC	RM20440SC
M12 X 1.75	.360	.875	3-1/2	4	3/8	RM20442EC	RM20442SC
M14 X 1.50	.360	.875	3-1/2	4	3/8	RM20444EC	RM20444SC
M16 X 2.00	.470	1.250	3-1/2	5	1/2	RM20446EC	–
M16 X 2.00	.470	1.250	3-1/2	4	1/2	–	RM20446SC
M18 X 2.50	.470	1.250	3-1/2	5	1/2	RM20448EC	–
M18 X 2.50	.470	1.250	3-1/2	4	1/2	–	RM20448SC
M20 X 3.00	.470	1.250	3-1/2	5	1/2	RM20450EC	–
M20 X 3.00	.470	1.250	3-1/2	4	1/2	–	RM20450SC

Note: Threadmills with End Coolant have one hole, threadmills with Side Coolant have a hole for each Flute.

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.0001	+0.000, -0.0005

Speeds & Feeds page 354.

Single Profile



AlTiN Coated

Single Profile Threadmills

Size & Pitch	Cutting ø	Length Below Shank	Undercut ø	OAL	# of Flutes	Shank ø	STI Sizes	AlTiN Coated Part #
0-80	.045	.250	.030	1-1/2	1	1/8	—	RM1000
2-56, 2-64, M2.5 x .45	.064	.250	.030	1-1/2	3	1/8	—	RM1001
4-40, 4-48	.081	.250	.035	1-1/2	3	1/8	STI 2-56	RM1002
5-40, 5-44, M3 X .5	.095	.250	.050	1-1/2	3	1/8	—	RM1003
6-32, 6-40	.095	.375	.050	1-1/2	3	1/8	STI 4-40	RM1004
8-32, 8-36, M4 X .7	.115	.375	.070	1-1/2	3	1/8	STI 4-40, STI 4-48, STI 6-32	RM1005
M5 X .8	.140	.375	.100	2	3	3/16	STI 6-32, STI 6-40	RM1006
—	.165	.500	.100	2	3	3/16	STI 8-32, STI 8-36	RM1007
10-24, 10-32	.130	.500	.100	2	3	3/16	STI 10-24, STI 10-32	RM1008
1/4-20, 1/4-28, M6 X 1.0	.180	.600	.100	2	3	3/16	STI 1/4-20, STI 1/4-28	RM1009
18-56	.240	1.000	.115	2-1/2	4	1/4	—	RM1010
12-32	.300	1.000	.230	3-1/2	4	3/8	—	RM1011
11-32	.490	1.250	.300	3-1/2	5	1/2	—	RM1012
4-12	.720	2.000	.420	4	6	3/4	—	RM1013

Speeds & Feeds page 355.

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.0001	+0.000, -0.0005

NEW Product

RedLine Thread Injector HP



AlCrN Coated

3 Form Threadmills

Size & Pitch	Cutting ø	Length of Cut	Length Below Shank	Undercut ø	OAL	# of Flutes	Shank ø	AlCrN Coated Part #
1-72	.057	.042	.154	.037	2-1/2	3	1/4	RM3000
1-72	.057	.042	.240	.047	2-1/2	3	1/4	RM3001
1-64, 2-64	.057	.047	.165	.035	2-1/2	3	1/4	RM3002
2-56, 3-56	.065	.054	.197	.040	2-1/2	3	1/4	RM3003
2-56, 3-56	.065	.054	.260	.039	2-1/2	3	1/4	RM3004
3-48, 4-48	.075	.063	.236	.045	2-1/2	3	1/4	RM3005
4-40, 6-40	.085	.075	.236	.050	2-1/2	3	1/4	RM3006
4-40, 6-40	.085	.075	.310	.049	2-1/2	3	1/4	RM3007
8-36	.115	.083	.343	.075	2-1/2	3	1/4	RM3008
6-32, 8-32, 10-32	.100	.094	.292	.056	2-1/2	3	1/4	RM3009
8-32, 10-32	.120	.094	.394	.098	2-1/2	3	1/4	RM3010
6-32, 8-32, 10-32	.100	.094	.400	.056	2-1/2	3	1/4	RM3011
8-32, 10-32	.120	.094	.500	.098	2-1/2	3	1/4	RM3012
1/4-28	.180	.107	.520	.130	2-1/2	3	1/4	RM3013
1/4-28	.180	.107	.750	.130	2-1/2	3	1/4	RM3014
10-24, 5/16-24	.130	.125	.400	.100	2-1/2	3	1/4	RM3015
5/16-24	.240	.125	.650	.210	2-1/2	3	1/4	RM3016
5/16-24	.240	.125	.940	.180	2-1/2	3	1/4	RM3017
1/4-20	.185	.150	.530	.115	2-1/2	3	1/4	RM3018
1/4-20	.185	.150	.750	.115	2-1/2	3	1/4	RM3019
7/16-20	.340	.150	.900	.270	3	4	3/8	RM3020
5/16-18	.240	.167	.900	.200	2-1/2	3	1/4	RM3021
3/8-16	.290	.188	.750	.202	3	4	3/8	RM3022
7/16-14	.340	.214	.900	.240	3	4	3/8	RM3023
1/2-13	.350	.231	1.100	.240	3	4	3/8	RM3024
9/16-12	.370	.250	1.250	.250	3-1/2	4	1/2	RM3025
5/8-11	.470	.273	1.350	.340	3-1/2	4	1/2	RM3026
3/4-10	.495	.300	1.600	.360	3-1/2	4	1/2	RM3027

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.0001	+0.000, -0.0005

Speeds & Feeds page 356.

Metric 3 Form

NEW Product

RedLine Thread Injector HP



AlTiN Coated

Metric 3 Form Threadmills

Size & Pitch	Cutting ø	Length of Cut	Length Below Shank	Undercut ø	OAL	# of Flutes	Shank ø	AlCrN Coated Part #
M1.6 X .35	.047	.041	.140	.027	2-1/2	3	1/8	RM3050
M1.6 X .35	.047	.041	.197	.027	2-1/2	3	1/8	RM3051
M2 X .40	.060	.047	.165	.038	2-1/2	3	1/4	RM3052
M2 X .40	.060	.047	.245	.038	2-1/2	3	1/4	RM3053
M2.2 X .45	.065	.053	.180	.040	2-1/2	3	1/4	RM3054
M2.2 X .45	.075	.053	.275	.050	2-1/2	3	1/4	RM3055
M2.5 X .45	.075	.053	.200	.050	2-1/2	3	1/4	RM3056
M3 X .50	.090	.059	.245	.062	2-1/2	3	1/4	RM3057
M3 X .50	.090	.059	.360	.062	2-1/2	3	1/4	RM3058
M3.5 X .60	.105	.059	.285	.075	2-1/2	3	1/4	RM3059
M4 X .70	.120	.083	.325	.100	2-1/2	3	1/4	RM3060
M4 X .70	.120	.083	.490	.080	2-1/2	3	1/4	RM3061
M5 X .80	.155	.094	.400	.110	2-1/2	3	1/4	RM3062
M5 X .80	.155	.094	.610	.110	2-1/2	3	1/4	RM3063
M6 X 1.00	.185	.118	.500	.130	2-1/2	3	1/4	RM3064
M6 X 1.00	.185	.118	.725	.132	2-1/2	3	1/4	RM3065
M8 X 1.25	.245	.148	.650	.210	2-1/2	3	1/4	RM3066
M8 X 1.25	.245	.148	.970	.175	2-1/2	3	1/4	RM3067
M10 X 1.50	.330	.177	.800	.250	3	4	3/8	RM3068
M12 X 1.75	.360	.207	1.000	.300	3	4	3/8	RM3069
M16 X 2.00	.470	.236	1.400	.360	3-1/2	4	1/2	RM3070
M20 X 2.50	.495	.295	1.700	.350	3-1/2	4	1/2	RM3071

Speeds & Feeds page 356.

Tolerances	Diameter	Shank
All Sizes	+0.000, -0.0001	+0.000, -0.0005



Thread Injector High Performance Threadmills Technical Information

- RedLine Thread Injector High Performance Threadmills are geared for top performance in a variety of different materials
- Designed to cut internal and external threads for greater versatility.
- With our free cutting geometry and AlTiN coating, you can count on RedLine threadmills to give you high performance, and long tool life at an extremely attractive price.
- Thread Injector High Performance Threadmills found on pages 342, 344-346 & 348.

Threadmills Speeds & Feeds

Material	Grades	SFM	Threadmill Diameter (IPT) 1/16 (.0625)	1/8 (.1250)	3/16 (.1875)	1/4 (.2500)	5/16 (.3125)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)
P - Steels											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	250-400	.00015-.00030	.00030-.00060	.00050-.00100	.00080-.00150	.00100-.00200	.00150-.00250	.00200-.00300	.00300-.00400	.00350-.00500
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	350-500	.00020-.00040	.00050-.00100	.00100-.00150	.00150-.00250	.00200-.00300	.00300-.00450	.00350-.00550	.00500-.00700	.00600-.00800
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	300-450	.00020-.00040	.00050-.00100	.00100-.00150	.00150-.00250	.00200-.00300	.00300-.00450	.00350-.00550	.00500-.00700	.00600-.00800
M - Stainless Steels											
Austenitic	301-304L, 310, 316L, 321, 347	100-250	.00015-.00025	.00025-.00055	.00050-.00100	.00080-.00150	.00100-.00200	.00150-.00250	.00200-.00300	.00300-.00400	.00350-.00500
Martensitic	403, 410, 416, 420, 430, 431, 440	150-250	.00020-.00030	.00040-.00080	.00060-.00100	.00100-.00150	.00150-.00200	.00150-.00300	.00200-.00350	.00300-.00400	.00300-.00400
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	100-250	.00015-.00025	.00025-.00055	.00050-.00100	.00080-.00150	.00100-.00200	.00150-.00250	.00200-.00300	.00300-.00400	.00350-.00500
K - Cast Irons											
Ductile	A536, J434, 60-40-18	200-300	.00025-.00035	.00030-.00060	.00050-.00100	.00080-.00150	.00100-.00200	.00150-.00250	.00200-.00300	.00300-.00400	.00300-.00500
Gray	A48, A436, A319, Class 20, G4000	250-350	.00025-.00035	.00040-.00080	.00070-.00130	.00070-.00130	.00150-.00200	.00200-.00300	.00200-.00400	.00300-.00500	.00400-.00600
Malleable	A220, A602, J158	200-300	.00025-.00035	.00030-.00060	.00050-.00100	.00080-.00150	.00100-.00200	.00150-.00250	.00200-.00300	.00300-.00400	.00300-.00500
N - Non-Ferrous											
Aluminum Alloys	2014, 2024, 6061, 7075	800-1400	.00020-.00040	.00050-.00100	.00100-.00150	.00150-.00250	.00200-.00300	.00300-.00450	.00350-.00550	.00500-.00700	.00600-.01000
Aluminum High Silicon	A380, A390	475-750	.00015-.00022	.00035-.00040	.00075-.00080	.00100-.00200	.00150-.00250	.00180-.00280	.00200-.00300	.00280-.00310	.00350-.00500
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	550-800	.00020-.00050	.00050-.00100	.00100-.00150	.00150-.00250	.00200-.00300	.00300-.00450	.00350-.00550	.00500-.00700	.00600-.01000
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	800-1400	.00030-.00050	.00050-.00100	.00100-.00150	.00150-.00250	.00200-.00300	.00300-.00450	.00350-.00550	.00500-.00700	.00600-.01000
Copper		450-1000	.00025-.00035	.00030-.00060	.00050-.00100	.00080-.00150	.00100-.00200	.00150-.00250	.00200-.00300	.00300-.00400	.00350-.00500
Magnesium		800-1400	.00030-.00050	.00050-.00100	.00100-.00150	.00150-.00250	.00200-.00300	.00300-.00450	.00350-.00550	.00500-.00700	.00600-.01000
S - High Temp Alloys											
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	50-90	.00015-.00025	.00020-.00050	.00030-.00050	.00040-.00060	.00060-.00090	.00080-.00150	.00100-.00200	.00140-.00280	.00180-.00300
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	50-90	.00015-.00025	.00020-.00050	.00030-.00050	.00040-.00060	.00060-.00090	.00080-.00150	.00100-.00200	.00140-.00280	.00180-.00300
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	60-100	.00020-.00030	.00030-.00060	.00050-.00100	.00080-.00150	.00100-.00200	.00150-.00250	.00150-.00250	.00200-.00300	.00250-.00400
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	80-150	.00020-.00050	.00030-.00060	.00050-.00100	.00080-.00150	.00100-.00200	.00150-.00250	.00150-.00250	.00250-.00350	.00300-.00450

NOTE: Speeds and Feeds listed are estimated and will vary by application.

Threadmill Calculation Formulas

Feedrate Adjustment	$\frac{\text{(Thread Major Diameter) - (Threadmill Diameter)}}{\text{(Thread Major Diameter)}}$ **X** Linear Feedrate
RPM	$\frac{3.8}{\text{(Threadmill Diameter)}}$ **X** SFM
Linear IPM	(Inches per Tooth) **X** (Number of Flutes) **X** RPM



Thread Injector High Performance End or Side Coolant Threadmills Technical Information

- RedLine Thread Injector High Performance Coolant Fed Threadmills are geared for top performance in a variety of different materials
- Coolant Fed Threadmills found on pages 343, 347 & 349.

End or Side Coolant Threadmills Speeds & Feeds

Material	Grades	SFM	Threadmill Diameter (IPT) 1/16 (.0625)	1/8 (.1250)	3/16 (.1875)	1/4 (.2500)	5/16 (.3125)	3/8 (.3750)	1/2 (.5000)	5/8 (.0625)	3/4 (.7500)
P - Steels											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	400	.0001	.0001	.0001	.0002	.0004	.0010	.0012	.0015	.0020
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	600	.0025	.0030	.0030	.0040	.0050	.0050	.0060	.0060	.0060
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	525-575	.0010	.0003-.0010	.0003-.0030	.0005-.0020	.0006-.0030	.0007-.0030	.0010-.0040	.0015-.0040	.0015-.0040
M - Stainless Steels											
Austenitic	301-304L, 310, 316L, 321, 347	525	.0008	.0010	.0010	.0015	.0015	.0020	.0030	.0030	.0040
Martensitic	403, 410, 416, 420, 430, 431, 440	550	.0008	.0010	.0010	.0015	.0015	.0020	.0030	.0030	.0040
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	300	.0008	.0010	.0010	.0010	.0015	.0015	.0020	.0020	.0020
K - Cast Irons											
Ductile	A536, J434, 60-40-18	600	.0010	.0010	.0015	.0015	.0020	.0030	.0040	.0040	.0040
Gray	A48, A436, A319, Class 20, G4000	600	.0010	.0010	.0015	.0015	.0020	.0030	.0040	.0040	.0040
Malleable	A220, A602, J158	600	.0010	.0010	.0015	.0015	.0020	.0030	.0040	.0040	.0040
N - Non-Ferrous											
Aluminum Alloys	2014, 2024, 6061, 7075	1700	.0015	.0020	.0020	.0030	.0030	.0040	.0050	.0050	.0050
Aluminum High Silicon	A380, A390	450	.0004	.0005	.0010	.0015	.0020	.0020	.0025	.0030	.0050
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	1700	.0010	.0020	.0020	.0030	.0030	.0040	.0050	.0050	.0050
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		1000	.0004	.0004	.0005	.0006	.0006	.0008	.0010	.0012	.0012
Magnesium		1000	.0004	.0010	.0010	.0020	.0020	.0020	.0030	.0050	.0050
S - High Temp Alloys											
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	150	.0001	.0002	.0004	.0005	.0005	.0007	.0008	.0010	.0012
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	150	.0001	.0002	.0004	.0005	.0005	.0007	.0008	.0010	.0012
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	120	.0005	.0005	.0005	.0010	.0010	.0015	.0020	.0020	.0020
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	100	.0005	.0005	.0005	.0010	.0010	.0015	.0020	.0020	.0020

NOTE: Speeds and Feeds listed are estimated and will vary by application.



Thread Injector High Performance Single Profile Threadmills Technical Information

- RedLine Thread Injector High Performance Single Profile Threadmills are geared for top performance in a variety of different materials
- Single Profile Threadmills found on page 350.

Single Profile Threadmills Speeds & Feeds

Material	Grades	SFM	Threadmill Diameter (IPT) 1/16 (.0625)	1/8 (.1250)	3/16 (.1875)	1/4 (.2500)	5/16 (.3125)	3/8 (.3750)	1/2 (.5000)	5/8 (.0625)	3/4 (.7500)
P - Steels											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	300	.0001	.0001	.0001	.0002	.0004	.0010	.0012	.0015	.0020
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	450	.0025	.0030	.0030	.0040	.0050	.0050	.0060	.0060	.0060
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	395-430	.0010	.0003-.0010	.0003-.0030	.0005-.0020	.0006-.0030	.0007-.0030	.0010-.0040	.0015-.0040	.0015-.0040
M - Stainless Steels											
Austenitic	301-304L, 310, 316L, 321, 347	395	.0008	.0010	.0010	.0015	.0015	.0020	.0030	.0030	.0040
Martensitic	403, 410, 416, 420, 430, 431, 440	415	.0008	.0010	.0010	.0015	.0015	.0020	.0030	.0030	.0040
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	225	.0008	.0010	.0010	.0010	.0015	.0015	.0020	.0020	.0020
K - Cast Irons											
Ductile	A536, J434, 60-40-18	450	.0010	.0010	.0015	.0015	.0020	.0030	.0040	.0040	.0040
Gray	A48, A436, A319, Class 20, G4000	450	.0010	.0010	.0015	.0015	.0020	.0030	.0040	.0040	.0040
Malleable	A220, A602, J158	450	.0010	.0010	.0015	.0015	.0020	.0030	.0040	.0040	.0040
N - Non-Ferrous											
Aluminum Alloys	2014, 2024, 6061, 7075	1275	.0015	.0020	.0020	.0030	.0030	.0040	.0050	.0050	.0050
Aluminum High Silicon	A380, A390	335	.0004	.0005	.0010	.0015	.0020	.0020	.0025	.0030	.0050
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	1275	.0010	.0020	.0020	.0030	.0030	.0040	.0050	.0050	.0050
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		750	.0004	.0004	.0005	.0006	.0006	.0008	.0010	.0012	.0012
Magnesium		750	.0004	.0010	.0010	.0020	.0020	.0020	.0030	.0050	.0050
S - High Temp Alloys											
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	115	.0001	.0002	.0004	.0005	.0005	.0007	.0008	.0010	.0012
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	115	.0001	.0002	.0004	.0005	.0005	.0007	.0008	.0010	.0012
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	90	.0005	.0005	.0005	.0010	.0010	.0015	.0020	.0020	.0020
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	75	.0005	.0005	.0005	.0010	.0010	.0015	.0020	.0020	.0020

NOTE: Speeds and Feeds listed are estimated and will vary by application.



Thread Injector High Performance 3 Form Threadmills Technical Information

- RedLine Thread Injector High Performance 3 Form Threadmills are geared for top performance in a variety of different materials
- 3 Form Threadmills are found on pages 351-352.

3 Form Threadmills Speeds & Feeds

Material	Grades	SFM	Threadmill Diameter (IPT) 1/16 (.0625)	1/8 (.1250)	3/16 (.1875)	1/4 (.2500)	5/16 (.3125)	3/8 (.3750)	1/2 (.5000)	5/8 (.0625)	3/4 (.7500)
P - Steels											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	300	.0001	.0001	.0001	.0002	.0004	.0010	.0012	.0015	.0020
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	450	.0025	.0030	.0030	.0040	.0050	.0050	.0060	.0060	.0060
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	395-430	.0010	.0003-.0010	.0003-.0030	.0005-.0020	.0006-.0030	.0007-.0030	.0010-.0040	.0015-.0040	.0015-.0040
M - Stainless Steels											
Austenitic	301-304L, 310, 316L, 321, 347	395	.0008	.0010	.0010	.0015	.0015	.0020	.0030	.0030	.0040
Martensitic	403, 410, 416, 420, 430, 431, 440	415	.0008	.0010	.0010	.0015	.0015	.0020	.0030	.0030	.0040
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	225	.0008	.0010	.0010	.0010	.0015	.0015	.0020	.0020	.0020
K - Cast Irons											
Ductile	A536, J434, 60-40-18	450	.0010	.0010	.0015	.0015	.0020	.0030	.0040	.0040	.0040
Gray	A48, A436, A319, Class 20, G4000	450	.0010	.0010	.0015	.0015	.0020	.0030	.0040	.0040	.0040
Malleable	A220, A602, J158	450	.0010	.0010	.0015	.0015	.0020	.0030	.0040	.0040	.0040
N - Non-Ferrous											
Aluminum Alloys	2014, 2024, 6061, 7075	1275	.0015	.0020	.0020	.0030	.0030	.0040	.0050	.0050	.0050
Aluminum High Silicon	A380, A390	335	.0004	.0005	.0010	.0015	.0020	.0020	.0025	.0030	.0050
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	1275	.0010	.0020	.0020	.0030	.0030	.0040	.0050	.0050	.0050
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper		750	.0004	.0004	.0005	.0006	.0006	.0008	.0010	.0012	.0012
Magnesium		750	.0004	.0010	.0010	.0020	.0020	.0020	.0030	.0050	.0050
S - High Temp Alloys											
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	115	.0001	.0002	.0004	.0005	.0005	.0007	.0008	.0010	.0012
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	115	.0001	.0002	.0004	.0005	.0005	.0007	.0008	.0010	.0012
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	90	.0005	.0005	.0005	.0010	.0010	.0015	.0020	.0020	.0020
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	75	.0005	.0005	.0005	.0010	.0010	.0015	.0020	.0020	.0020

NOTE: Speeds and Feeds listed are estimated and will vary by application.

Spiral Point Plug



Oxide

Spiral Point Plug Taps, HSSE, Color-Ring, Fractional

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Coating	Yellow Ring Steel (Low, Med. & High Carbon) Part #	Red Ring Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Alloy Steel Part #	Blue Ring Stainless (300), High Nickel & Titanium Alloy Part #
2-56	H2	2	1	Oxide	RTY1000	RTR2000	RTG3000	RTB4000
4-40	H2	2	1	Oxide	RTY1001	RTR2001	RTG3001	RTB4003
4-40	H3	2	1	Oxide	RTY1002	RTR2002	RTG3002	RTB4006
4-40	H4	2	1	Oxide	RTY1003	RTR2003	RTG3003	RTB4009
4-40	H5	2	1	Oxide	RTY1004	RTR2004	RTG3004	RTB4010
6-32	H2	2	1	Oxide	RTY1005	RTR2005	RTG3005	RTB4011
6-32	H3	2	1	Oxide	RTY1006	RTR2006	RTG3006	RTB4014
6-32	H4	2	1	Oxide	RTY1007	RTR2007	RTG3007	RTB4017
6-32	H5	2	1	Oxide	RTY1008	RTR2008	RTG3008	RTB4018
6-32	H6	2	1	Oxide	RTY1009	RTR2009	RTG3009	RTB4021
6-32	H7	2	1	Oxide	RTY1010	RTR2010	RTG3010	RTB4022
8-32	H2	3	1	Oxide	RTY1011	RTR2011	RTG3011	RTB4023
8-32	H3	3	1	Oxide	RTY1012	RTR2012	RTG3012	RTB4025
8-32	H4	3	1	Oxide	RTY1013	RTR2013	RTG3013	RTB4028
8-32	H5	3	1	Oxide	RTY1014	RTR2014	RTG3014	RTB4029
8-32	H6	3	1	Oxide	RTY1015	RTR2015	RTG3015	RTB4032
8-32	H7	3	1	Oxide	RTY1016	RTR2016	RTG3016	RTB4033
10-24	H3	3	1	Oxide	RTY1017	RTR2017	RTG3017	RTB4034
10-24	H4	3	1	Oxide	RTY1018	RTR2018	RTG3018	RTB4037
10-24	H5	3	1	Oxide	RTY1019	RTR2019	RTG3019	RTB4038
10-24	H7	3	1	Oxide	RTY1020	RTR2020	RTG3020	RTB4041
10-32	H2	3	1	Oxide	RTY1021	RTR2021	RTG3021	RTB4042
10-32	H3	3	1	Oxide	RTY1022	RTR2022	RTG3022	RTB4044
10-32	H4	3	1	Oxide	RTY1023	RTR2023	RTG3023	RTB4047
10-32	H5	3	1	Oxide	RTY1024	RTR2024	RTG3024	RTB4048
10-32	H6	3	1	Oxide	RTY1025	RTR2025	RTG3025	RTB4051
10-32	H7	3	1	Oxide	RTY1026	RTR2026	RTG3026	RTB4052
1/4-20	H3	3	1	Oxide	RTY1027	RTR2027	RTG3027	RTB4053
1/4-20	H5	3	1	Oxide	RTY1028	RTR2028	RTG3028	RTB4056

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Tech data pages 406-416.

Spiral Point Plug



Oxide

Spiral Point Plug Taps, HSSE, Color-Ring, Fractional

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Coating	Yellow Ring: Steel (Low, Med. & High Carbon) Part #	Red Ring: Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring: Alloy Steel Part #	Blue Ring: Stainless (300), High Nickel & Titanium Alloy Part #
1/4-20	H7	3	1	Oxide	RTY1029	RTR2029	RTG3029	RTB4059
1/4-28	H3	3	1	Oxide	RTY1030	RTR2030	RTG3030	RTB4061
1/4-28	H4	3	1	Oxide	RTY1031	RTR2031	RTG3031	RTB4064
1/4-28	H5	3	1	Oxide	RTY1032	RTR2032	RTG3032	RTB4066
1/4-28	H6	3	1	Oxide	RTY1033	RTR2033	RTG3033	RTB4069
1/4-28	H7	3	1	Oxide	RTY1034	RTR2034	RTG3034	RTB4070
5/16-18	H3	3	1	Oxide	RTY1035	RTR2035	RTG3035	RTB4072
5/16-18	H5	3	1	Oxide	RTY1036	RTR2036	RTG3036	RTB4075
5/16-18	H7	3	1	Oxide	RTY1037	RTR2037	RTG3037	RTB4078
5/16-24	H3	3	1	Oxide	RTY1038	RTR2038	RTG3038	RTB4080
5/16-24	H4	3	1	Oxide	RTY1039	RTR2039	RTG3039	RTB4083
5/16-24	H5	3	1	Oxide	RTY1040	RTR2040	RTG3040	RTB4085
5/16-24	H6	3	1	Oxide	RTY1041	RTR2041	RTG3041	RTB4088
5/16-24	H7	3	1	Oxide	RTY1042	RTR2042	RTG3042	RTB4089
3/8-16	H3	3	1	Oxide	RTY1043	RTR2043	RTG3043	RTB4091
3/8-16	H5	3	1	Oxide	RTY1044	RTR2044	RTG3044	RTB4095
3/8-16	H7	3	1	Oxide	RTY1045	RTR2045	RTG3045	RTB4098
3/8-24	H3	3	1	Oxide	RTY1046	RTR2046	RTG3046	RTB4100
3/8-24	H4	3	1	Oxide	RTY1047	RTR2047	RTG3047	RTB4103
3/8-24	H5	3	1	Oxide	RTY1048	RTR2048	RTG3048	RTB4105
3/8-24	H6	3	1	Oxide	RTY1049	RTR2049	RTG3049	RTB4108
3/8-24	H7	3	1	Oxide	RTY1050	RTR2050	RTG3050	RTB4109
7/16-14	H3	3	1	Oxide	RTY1051	RTR2051	RTG3051	RTB4111
7/16-14	H5	3	1	Oxide	RTY1052	RTR2052	RTG3052	RTB4114
7/16-14	H7	3	1	Oxide	RTY1053	RTR2053	RTG3053	RTB4117
7/16-20	H3	3	1	Oxide	RTY1054	RTR2054	RTG3054	RTB4119
7/16-20	H5	3	1	Oxide	RTY1055	RTR2055	RTG3055	RTB4122
7/16-20	H7	3	1	Oxide	RTY1056	RTR2056	RTG3056	RTB4125

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Spiral Point Plug



Oxide

Spiral Point Plug Taps, HSSE, Color-Ring, Fractional

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Coating	Yellow Ring Steel (Low, Med. & High Carbon) Part #	Red Ring Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Alloy Steel Part #	Blue Ring Stainless (300), High Nickel & Titanium Alloy Part #
1/2-13	H3	3	1	Oxide	RTY1057	RTR2057	RTG3057	RTB4127
1/2-13	H5	3	1	Oxide	RTY1058	RTR2058	RTG3058	RTB4130
1/2-13	H7	3	1	Oxide	RTY1059	RTR2059	RTG3059	RTB4133
1/2-20	H3	3	1	Oxide	RTY1060	RTR2060	RTG3060	RTB4135
1/2-20	H5	3	1	Oxide	RTY1061	RTR2061	RTG3061	RTB4138
1/2-20	H7	3	1	Oxide	RTY1062	RTR2062	RTG3062	RTB4141
9/16-12	H3	3	1	Oxide	RTY1063	RTR2063	RTG3063	RTB4143
9/16-18	H3	3	1	Oxide	RTY1064	RTR2064	RTG3064	RTB4145
5/8-11	H3	3	1	Oxide	RTY1065	RTR2065	RTG3065	RTB4147
5/8-11	H5	3	1	Oxide	RTY1066	RTR2066	RTG3066	RTB4149
5/8-11	H7	3	1	Oxide	RTY1067	RTR2067	RTG3067	RTB4151
5/8-18	H3	3	1	Oxide	RTY1068	RTR2068	RTG3068	RTB4153
5/8-18	H5	3	1	Oxide	RTY1069	RTR2069	RTG3069	RTB4155
5/8-18	H7	3	1	Oxide	RTY1070	RTR2070	RTG3070	RTB4157
3/4-10	H3	3	1	Oxide	RTY1071	RTR2071	RTG3071	RTB4159
3/4-10	H5	3	1	Oxide	RTY1072	RTR2072	RTG3072	RTB4161
3/4-10	H7	3	1	Oxide	RTY1073	RTR2073	RTG3073	RTB4163
3/4-16	H3	3	1	Oxide	RTY1074	RTR2074	RTG3074	RTB4165
3/4-16	H5	3	1	Oxide	RTY1075	RTR2075	RTG3075	RTB4167
3/4-16	H7	3	1	Oxide	RTY1076	RTR2076	RTG3076	RTB4169
7/8-9	H4	4	1	Oxide	RTY1077	RTR2077	RTG3077	RTB4171
7/8-14	H4	4	1	Oxide	RTY1078	RTR2078	RTG3078	RTB4172
1-8	H4	4	1	Oxide	RTY1079	RTR2079	RTG3079	RTB4173

Continued

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Spiral Point Plug



Oxide

Spiral Point Plug Taps, HSSE, Color-Ring, Metric

Size & Pitch	D Limit	# of Flutes	Pkg Qty	Coating	Yellow Ring Steel (Low, Med. & High Carbon) Part #	Red Ring Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Alloy Steel Part #	Blue Ring Stainless (300), High Nickel & Titanium Alloy Part #
M3 X .50	D3	2	1	Oxide	RTY1500	RTR2400	RTG3400	RTB4602
M3.5 X .60	D4	2	1	Oxide	RTY1501	RTR2401	RTG3401	RTB4605
M4 X .70	D4	3	1	Oxide	RTY1502	RTR2402	RTG3402	RTB4608
M5 X .80	D4	3	1	Oxide	RTY1503	RTR2403	RTG3403	RTB4611
M6 X 1.00	D5	3	1	Oxide	RTY1504	RTR2404	RTG3404	RTB4614
M7 X 1.00	D5	3	1	Oxide	RTY1505	RTR2405	RTG3405	RTB4617
M8 X 1.00	D5	3	1	Oxide	RTY1506	RTR2406	RTG3406	RTB4620
M8 X 1.25	D5	3	1	Oxide	RTY1507	RTR2407	RTG3407	RTB4623
M10 X 1.25	D5	3	1	Oxide	RTY1508	RTR2408	RTG3408	RTB4626
M10 X 1.50	D6	3	1	Oxide	RTY1509	RTR2409	RTG3409	RTB4629
M12 X 1.25	D5	3	1	Oxide	RTY1510	RTR2410	RTG3410	RTB4632
M12 X 1.75	D6	3	1	Oxide	RTY1511	RTR2411	RTG3411	RTB4635
M14 X 1.50	D6	3	1	Oxide	RTY1512	RTR2412	RTG3412	RTB4638
M14 X 2.00	D7	3	1	Oxide	RTY1513	RTR2413	RTG3413	RTB4639
M16 X 1.50	D6	3	1	Oxide	RTY1514	RTR2414	RTG3414	RTB4640
M16 X 2.00	D7	3	1	Oxide	RTY1515	RTR2415	RTG3415	RTB4641
M18 X 1.50	D6	3	1	Oxide	RTY1516	RTR2416	RTG3416	RTB4642
M18 X 2.50	D7	3	1	Oxide	RTY1517	RTR2417	RTG3417	RTB4643
M20 X 2.50	D7	3	1	Oxide	RTY1518	RTR2418	RTG3418	RTB4644

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Oxide

Spiral Flute Taps, HSSE, Color-Ring, Modified Bottom, Fractional

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Coating	Yellow Ring Steel (Low, Med. & High Carbon) Part #	Red Ring Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Alloy Steel Part #	Blue Ring Stainless (300), High Nickel & Titanium Alloy Part #
2-56	H2	2	1	Oxide	RTY1100	RTR2100	RTG3100	RTB4200
4-40	H2	3	1	Oxide	RTY1101	RTR2101	RTG3101	RTB4203
4-40	H3	3	1	Oxide	RTY1102	RTR2102	RTG3102	RTB4206
4-40	H4	3	1	Oxide	RTY1103	RTR2103	RTG3103	RTB4209
4-40	H5	3	1	Oxide	RTY1104	RTR2104	RTG3104	RTB4210
6-32	H2	3	1	Oxide	RTY1105	RTR2105	RTG3105	RTB4211
6-32	H3	3	1	Oxide	RTY1106	RTR2106	RTG3106	RTB4214
6-32	H4	3	1	Oxide	RTY1107	RTR2107	RTG3107	RTB4217
6-32	H5	2	1	Oxide	RTY1108	RTR2108	RTG3108	RTB4218
6-32	H6	3	1	Oxide	RTY1109	RTR2109	RTG3109	RTB4221
6-32	H7	3	1	Oxide	RTY1110	RTR2110	RTG3110	RTB4222
8-32	H2	3	1	Oxide	RTY1111	RTR2111	RTG3111	RTB4223
8-32	H3	3	1	Oxide	RTY1112	RTR2112	RTG3112	RTB4225
8-32	H4	3	1	Oxide	RTY1113	RTR2113	RTG3113	RTB4228
8-32	H5	3	1	Oxide	RTY1114	RTR2114	RTG3114	RTB4229
8-32	H6	3	1	Oxide	RTY1115	RTR2115	RTG3115	RTB4232
8-32	H7	3	1	Oxide	RTY1116	RTR2116	RTG3116	RTB4233
10-24	H3	3	1	Oxide	RTY1117	RTR2117	RTG3117	RTB4234
10-24	H4	3	1	Oxide	RTY1118	RTR2118	RTG3118	RTB4237
10-24	H5	3	1	Oxide	RTY1119	RTR2119	RTG3119	RTB4238
10-24	H7	3	1	Oxide	RTY1120	RTR2120	RTG3120	RTB4241
10-32	H2	3	1	Oxide	RTY1121	RTR2121	RTG3121	RTB4242
10-32	H3	3	1	Oxide	RTY1122	RTR2122	RTG3122	RTB4245
10-32	H4	3	1	Oxide	RTY1123	RTR2123	RTG3123	RTB4247
10-32	H5	3	1	Oxide	RTY1124	RTR2124	RTG3124	RTB4248
10-32	H6	3	1	Oxide	RTY1125	RTR2125	RTG3125	RTB4251
10-32	H7	3	1	Oxide	RTY1126	RTR2126	RTG3126	RTB4252
1/4-20	H3	3	1	Oxide	RTY1127	RTR2127	RTG3127	RTB4253

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Spiral Flute

RedLine Torque Cut HP



Oxide

Spiral Flute Taps, HSSE, Color-Ring, Modified Bottom, Fractional

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Coating	Yellow Ring Steel (Low, Med. & High Carbon) Part #	Red Ring Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Alloy Steel Part #	Blue Ring Stainless (300), High Nickel & Titanium Alloy Part #
1/4-20	H5	3	1	Oxide	RTY1128	RTR2128	RTG3128	RTB4256
1/4-20	H7	3	1	Oxide	RTY1129	RTR2129	RTG3129	RTB4259
1/4-28	H3	3	1	Oxide	RTY1130	RTR2130	RTG3130	RTB4261
1/4-28	H4	3	1	Oxide	RTY1131	RTR2131	RTG3131	RTB4264
1/4-28	H5	3	1	Oxide	RTY1132	RTR2132	RTG3132	RTB4266
1/4-28	H6	3	1	Oxide	RTY1133	RTR2133	RTG3133	RTB4269
1/4-28	H7	3	1	Oxide	RTY1134	RTR2134	RTG3134	RTB4270
5/16-18	H3	3	1	Oxide	RTY1135	RTR2135	RTG3135	RTB4272
5/16-18	H5	3	1	Oxide	RTY1136	RTR2136	RTG3136	RTB4275
5/16-18	H7	3	1	Oxide	RTY1137	RTR2137	RTG3137	RTB4278
5/16-24	H3	3	1	Oxide	RTY1138	RTR2138	RTG3138	RTB4280
5/16-24	H4	3	1	Oxide	RTY1139	RTR2139	RTG3139	RTB4283
5/16-24	H5	3	1	Oxide	RTY1140	RTR2140	RTG3140	RTB4285
5/16-24	H6	3	1	Oxide	RTY1141	RTR2141	RTG3141	RTB4288
5/16-24	H7	3	1	Oxide	RTY1142	RTR2142	RTG3142	RTB4289
3/8-16	H3	3	1	Oxide	RTY1143	RTR2143	RTG3143	RTB4291
3/8-16	H5	3	1	Oxide	RTY1144	RTR2144	RTG3144	RTB4295
3/8-16	H7	3	1	Oxide	RTY1145	RTR2145	RTG3145	RTB4298
3/8-24	H3	3	1	Oxide	RTY1146	RTR2146	RTG3146	RTB4300
3/8-24	H4	3	1	Oxide	RTY1147	RTR2147	RTG3147	RTB4303
3/8-24	H5	3	1	Oxide	RTY1148	RTR2148	RTG3148	RTB4305
3/8-24	H6	3	1	Oxide	RTY1149	RTR2149	RTG3149	RTB4308
3/8-24	H7	3	1	Oxide	RTY1150	RTR2150	RTG3150	RTB4309
7/16-14	H3	3	1	Oxide	RTY1151	RTR2151	RTG3151	RTB4311
7/16-14	H5	3	1	Oxide	RTY1152	RTR2152	RTG3152	RTB4314
7/16-14	H7	3	1	Oxide	RTY1153	RTR2153	RTG3153	RTB4317
7/16-20	H3	3	1	Oxide	RTY1154	RTR2154	RTG3154	RTB4319

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Oxide

Spiral Flute Taps, HSSE, Color-Ring, Modified Bottom, Fractional

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Coating	Yellow Ring Steel (Low, Med. & High Carbon) Part #	Red Ring Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Alloy Steel Part #	Blue Ring Stainless (300), High Nickel & Titanium Alloy Part #
7/16-20	H5	3	1	Oxide	RTY1155	RTR2155	RTG3155	RTB4322
7/16-20	H7	3	1	Oxide	RTY1156	RTR2156	RTG3156	RTB4325
1/2-13	H3	3	1	Oxide	RTY1157	RTR2157	RTG3157	RTB4327
1/2-13	H5	3	1	Oxide	RTY1158	RTR2158	RTG3158	RTB4330
1/2-13	H7	3	1	Oxide	RTY1159	RTR2159	RTG3159	RTB4333
1/2-20	H3	3	1	Oxide	RTY1160	RTR2160	RTG3160	RTB4335
1/2-20	H5	3	1	Oxide	RTY1161	RTR2161	RTG3161	RTB4338
1/2-20	H7	3	1	Oxide	RTY1162	RTR2162	RTG3162	RTB4341
9/16-12	H3	4	1	Oxide	RTY1163	RTR2163	RTG3163	RTB4343
9/16-18	H3	4	1	Oxide	RTY1164	RTR2164	RTG3164	RTB4345
5/8-11	H3	3	1	Oxide	RTY1165	RTR2165	RTG3165	RTB4347
5/8-11	H5	3	1	Oxide	RTY1166	RTR2166	RTG3166	RTB4349
5/8-11	H7	3	1	Oxide	RTY1167	RTR2167	RTG3167	RTB4351
5/8-18	H3	3	1	Oxide	RTY1168	RTR2168	RTG3168	RTB4353
5/8-18	H5	3	1	Oxide	RTY1169	RTR2169	RTG3169	RTB4355
5/8-18	H7	3	1	Oxide	RTY1170	RTR2170	RTG3170	RTB4357
3/4-10	H3	3	1	Oxide	RTY1171	RTR2171	RTG3171	RTB4359
3/4-10	H5	3	1	Oxide	RTY1172	RTR2172	RTG3172	RTB4361
3/4-10	H7	3	1	Oxide	RTY1173	RTR2173	RTG3173	RTB4363
3/4-16	H3	3	1	Oxide	RTY1174	RTR2174	RTG3174	RTB4365
3/4-16	H5	3	1	Oxide	RTY1175	RTR2175	RTG3175	RTB4367
3/4-16	H7	3	1	Oxide	RTY1176	RTR2176	RTG3176	RTB4369
7/8-9	H4	4	1	Oxide	RTY1177	RTR2177	RTG3177	RTB4371
7/8-14	H4	4	1	Oxide	RTY1178	RTR2178	RTG3178	RTB4372
1-8	H4	4	1	Oxide	RTY1179	RTR2179	RTG3179	RTB4373

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Spiral Flute



Oxide

Spiral Flute Taps, HSSE, Color-Ring, Modified Bottom, Metric

Size & Pitch	D Limit	# of Flutes	Pkg Qty	Coating	Yellow Ring Steel (Low, Med. & High Carbon) Part #	Red Ring Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Alloy Steel Part #	Blue Ring Stainless (300), High Nickel & Titanium Alloy Part #
M3 X .50	D3	3	1	Oxide	RTY1550	RTR2450	RTG3500	RTB4702
M3.5 X .60	D4	3	1	Oxide	RTY1551	RTR2451	RTG3501	RTB4705
M4 X .70	D4	3	1	Oxide	RTY1552	RTR2452	RTG3502	RTB4708
M5 X .80	D4	3	1	Oxide	RTY1553	RTR2453	RTG3503	RTB4711
M6 X 1.00	D5	3	1	Oxide	RTY1554	RTR2454	RTG3504	RTB4714
M7 X 1.00	D5	3	1	Oxide	RTY1555	RTR2455	RTG3505	RTB4717
M8 X 1.25	D5	3	1	Oxide	RTY1557	RTR2457	RTG3507	RTB4723
M10 X 1.25	D5	3	1	Oxide	RTY1558	RTR2458	RTG3508	RTB4726
M10 X 1.50	D6	3	1	Oxide	RTY1559	RTR2459	RTG3509	RTB4729
M12 X 1.25	D5	3	1	Oxide	RTY1560	RTR2460	RTG3510	RTB4732
M12 X 1.75	D6	3	1	Oxide	RTY1561	RTR2461	RTG3511	RTB4735
M14 X 1.50	D6	4	1	Oxide	RTY1562	RTR2462	RTG3512	RTB4738
M14 X 2.00	D7	4	1	Oxide	RTY1563	RTR2463	RTG3513	RTB4739
M16 X 1.50	D6	4	1	Oxide	RTY1564	RTR2464	RTG3514	RTB4740
M16 X 2.00	D7	4	1	Oxide	RTY1565	RTR2465	RTG3515	RTB4741
M18 X 1.50	D6	4	1	Oxide	RTY1566	RTR2466	RTG3516	RTB4742
M18 X 2.50	D7	4	1	Oxide	RTY1567	RTR2467	RTG3517	RTB4743
M20 X 2.50	D7	4	1	Oxide	RTY1568	RTR2468	RTG3518	RTB4744

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RedLine Torque Cut HP



Nitride Coated



Nitride+Oxide Coated

Straight Flute Taps, HSSE, Color-Ring, Plug & Bottom, Fractional

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Coating	Style		Black Ring Aluminum (Wrought & Cast) Part #	White Ring Cast Iron (Gray, Ductile, Malleable) Part #
4-40	H2	3	1	Nitride	PLG	—	RTK5298	—
4-40	H2	3	1	Nitride	—	BTM	RTK5299	—
6-32	H3	3	1	Nitride	PLG	—	RTK5300	—
6-32	H3	3	1	Nitride	—	BTM	RTK5301	—
8-32	H3	3	1	Nitride	PLG	—	RTK5302	—
8-32	H3	3	1	Nitride	—	BTM	RTK5303	—
10-24	H3	3	1	Nitride	PLG	—	RTK5304	—
10-24	H3	3	1	Nitride	—	BTM	RTK5305	—
10-32	H3	3	1	Nitride	PLG	—	RTK5306	—
10-32	H3	3	1	Nitride	—	BTM	RTK5307	—
1/4-20	H3	3	1	Nitride	PLG	—	RTK5308	—
1/4-20	H3	3	1	Nitride	—	BTM	RTK5309	—
1/4-20	H3	4	1	Nitride+Ox	PLG	—	—	RTW6000
1/4-20	H3	4	1	Nitride+Ox	—	BTM	—	RTW6001
1/4-20	H5	3	1	Nitride	PLG	—	RTK5310	—
1/4-20	H5	3	1	Nitride	—	BTM	RTK5311	—
1/4-20	H5	4	1	Nitride+Ox	PLG	—	—	RTW6002
1/4-20	H5	4	1	Nitride+Ox	—	BTM	—	RTW6003
1/4-28	H3	3	1	Nitride	PLG	—	RTK5312	—
1/4-28	H3	3	1	Nitride	—	BTM	RTK5313	—
1/4-28	H3	4	1	Nitride+Ox	PLG	—	—	RTW6004
1/4-28	H3	4	1	Nitride+Ox	—	BTM	—	RTW6005
5/16-18	H3	4	1	Nitride	PLG	—	RTK5314	—
5/16-18	H3	4	1	Nitride	—	BTM	RTK5315	—
5/16-18	H3	4	1	Nitride+Ox	PLG	—	—	RTW6006
5/16-18	H3	4	1	Nitride+Ox	—	BTM	—	RTW6007
5/16-18	H5	4	1	Nitride	PLG	—	RTK5316	—

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Straight Flute

RedLine TorqueCut HP



Nitride Coated



Nitride+Oxide Coated

Straight Flute Taps, HSSE, Color-Ring, Plug & Bottom, Fractional

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Coating	Style		Black Ring Aluminum (Wrought & Cast) Part #	White Ring Cast Iron (Gray, Ductile, Malleable) Part #
5/16-18	H5	4	1	Nitride	—	BTM	RTK5317	—
5/16-18	H5	4	1	Nitride+Ox	PLG	—	—	RTW6008
5/16-18	H5	4	1	Nitride+Ox	—	BTM	—	RTW6009
5/16-24	H3	4	1	Nitride	PLG	—	RTK5318	—
5/16-24	H3	4	1	Nitride	—	BTM	RTK5319	—
5/16-24	H3	4	1	Nitride+Ox	PLG	—	—	RTW6010
5/16-24	H3	4	1	Nitride+Ox	—	BTM	—	RTW6011
3/8-16	H3	4	1	Nitride	PLG	—	RTK5320	—
3/8-16	H3	4	1	Nitride	—	BTM	RTK5321	—
3/8-16	H3	4	1	Nitride+Ox	PLG	—	—	RTW6012
3/8-16	H3	4	1	Nitride+Ox	—	BTM	—	RTW6013
3/8-16	H5	4	1	Nitride	PLG	—	RTK5322	—
3/8-16	H5	4	1	Nitride	—	BTM	RTK5323	—
3/8-16	H5	4	1	Nitride+Ox	PLG	—	—	RTW6014
3/8-16	H5	4	1	Nitride+Ox	—	BTM	—	RTW6015
3/8-24	H3	4	1	Nitride	PLG	—	RTK5324	—
3/8-24	H3	4	1	Nitride	—	BTM	RTK5325	—
3/8-24	H3	4	1	Nitride+Ox	PLG	—	—	RTW6016
3/8-24	H3	4	1	Nitride+Ox	—	BTM	—	RTW6017
7/16-14	H3	4	1	Nitride	PLG	—	RTK5326	—
7/16-14	H3	4	1	Nitride	—	BTM	RTK5327	—
7/16-14	H3	4	1	Nitride+Ox	PLG	—	—	RTW6018
7/16-14	H3	4	1	Nitride+Ox	—	BTM	—	RTW6019
7/16-14	H5	4	1	Nitride+Ox	PLG	—	—	RTW6020
7/16-14	H5	4	1	Nitride+Ox	—	BTM	—	RTW6021
7/16-20	H3	4	1	Nitride	PLG	—	RTK5328	—
7/16-20	H3	4	1	Nitride	—	BTM	RTK5329	—
7/16-20	H3	4	1	Nitride+Ox	PLG	—	—	RTW6022
7/16-20	H3	4	1	Nitride+Ox	—	BTM	—	RTW6023

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RedLine Torque Cut HP



Nitride Coated



Nitride+Oxide Coated

Straight Flute Taps, HSSE, Color-Ring, Plug & Bottom, Fractional

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Coating	Style		Black Ring Aluminum (Wrought & Cast) Part #	White Ring Cast Iron (Gray, Ductile, Malleable) Part #
1/2-13	H3	4	1	Nitride	PLG	—	RTK5330	—
1/2-13	H3	4	1	Nitride	—	BTM	RTK5331	—
1/2-13	H3	4	1	Nitride+Ox	PLG	—	—	RTW6024
1/2-13	H3	4	1	Nitride+Ox	—	BTM	—	RTW6025
1/2-13	H5	4	1	Nitride+Ox	PLG	—	—	RTW6026
1/2-13	H5	4	1	Nitride+Ox	—	BTM	—	RTW6027
1/2-20	H3	4	1	Nitride	PLG	—	RTK5332	—
1/2-20	H3	4	1	Nitride	—	BTM	RTK5333	—
1/2-20	H3	4	1	Nitride+Ox	PLG	—	—	RTW6028
1/2-20	H3	4	1	Nitride+Ox	—	BTM	—	RTW6029
9/16-12	H3	4	1	Nitride+Ox	PLG	—	—	RTW6030
9/16-12	H3	4	1	Nitride+Ox	—	BTM	—	RTW6031
9/16-18	H3	4	1	Nitride+Ox	PLG	—	—	RTW6032
9/16-18	H3	4	1	Nitride+Ox	—	BTM	—	RTW6033
5/8-11	H3	4	1	Nitride+Ox	PLG	—	—	RTW6034
5/8-11	H3	4	1	Nitride+Ox	—	BTM	—	RTW6035
5/8-11	H5	4	1	Nitride+Ox	PLG	—	—	RTW6036
5/8-11	H5	4	1	Nitride+Ox	—	BTM	—	RTW6037
5/8-18	H3	4	1	Nitride+Ox	PLG	—	—	RTW6038
5/8-18	H3	4	1	Nitride+Ox	—	BTM	—	RTW6039
3/4-10	H3	4	1	Nitride+Ox	PLG	—	—	RTW6040
3/4-10	H3	4	1	Nitride+Ox	—	BTM	—	RTW6041
3/4-10	H5	4	1	Nitride+Ox	PLG	—	—	RTW6042
3/4-10	H5	4	1	Nitride+Ox	—	BTM	—	RTW6043
3/4-16	H3	4	1	Nitride+Ox	PLG	—	—	RTW6044
3/4-16	H3	4	1	Nitride+Ox	—	BTM	—	RTW6045

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Straight Flute



Nitride Coated



Nitride+Oxide Coated

Straight Flute Taps, HSSE, Color-Ring, Plug & Bottom, Metric

Size & Pitch	D Limit	# of Flutes	Pkg Qty	Coating	Style		Black Ring Aluminum (Wrought & Cast) Part #	White Ring Cast Iron (Gray, Ductile, Malleable) Part #
M3 X .50	D3	3	1	Nitride	PLG	–	RTK5450	–
M3 X .50	D3	3	1	Nitride	–	BTM	RTK5451	–
M4 X .70	D4	3	1	Nitride	PLG	–	RTK5452	–
M4 X .70	D4	3	1	Nitride	–	BTM	RTK5453	–
M5 X .80	D5	3	1	Nitride	PLG	–	RTK5454	–
M5 X .80	D5	3	1	Nitride	–	BTM	RTK5455	–
M6 X 1.00	D5	3	1	Nitride	PLG	–	RTK5456	–
M6 X 1.00	D5	3	1	Nitride	–	BTM	RTK5457	–
M6 X 1.00	D5	4	1	Nitride+Ox	PLG	–	–	RTW6050
M6 X 1.00	D5	4	1	Nitride+Ox	–	BTM	–	RTW6051
M8 X 1.25	D5	4	1	Nitride	PLG	–	RTK5458	–
M8 X 1.25	D5	4	1	Nitride	–	BTM	RTK5459	–
M8 X 1.25	D5	4	1	Nitride+Ox	PLG	–	–	RTW6052
M8 X 1.25	D5	4	1	Nitride+Ox	–	BTM	–	RTW6053
M10 X 1.25	D5	4	1	Nitride	PLG	–	RTK5460	–
M10 X 1.25	D5	4	1	Nitride	–	BTM	RTK5461	–
M10 X 1.50	D6	4	1	Nitride	PLG	–	RTK5462	–
M10 X 1.50	D6	4	1	Nitride	–	BTM	RTK5463	–
M10 X 1.50	D6	4	1	Nitride+Ox	PLG	–	–	RTW6054
M10 X 1.50	D6	4	1	Nitride+Ox	–	BTM	–	RTW6055
M12 X 1.75	D6	4	1	Nitride	PLG	–	RTK5464	–
M12 X 1.75	D6	4	1	Nitride	–	BTM	RTK5465	–
M12 X 1.75	D6	4	1	Nitride+Ox	PLG	–	–	RTW6056
M12 X 1.75	D6	4	1	Nitride+Ox	–	BTM	–	RTW6057

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Uncoated | Oxide Coated

Form Taps, HSSE, Color-Ring, Plug & Bottom, Fractional

Size & Pitch	GH Limit	# of Lube Grooves	Pkg Qty	Style		Black Ring Uncoated Aluminum (Wrought & Cast) Part #	Yellow Ring Oxide Coated Steel (Low, Med. & High Carbon) Part #	Red Ring Oxide Coated Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Oxide Coated Alloy Steel Part #	Blue Ring Oxide Coated Stainless (300), High Nickel & Titanium Alloy Part #
0-80	H2	0	1	PLG	—	RTK5000	RTY1200	RTR2200	RTG3200	RTB4400
0-80	H2	0	1	—	BTM	—	RTY1201	RTR2201	RTG3201	RTB4401
0-80	H3	0	1	PLG	—	RTK5002	RTY1202	RTR2202	RTG3202	RTB4402
0-80	H3	0	1	—	BTM	RTK5003	RTY1203	RTR2203	RTG3203	RTB4403
0-80	H5	0	1	PLG	—	RTK5004	RTY1204	RTR2204	RTG3204	RTB4404
0-80	H7	0	1	PLG	—	RTK5005	RTY1205	RTR2205	RTG3205	RTB4405
2-56	H2	0	1	PLG	—	RTK5006	RTY1206	RTR2206	RTG3206	RTB4406
2-56	H2	0	1	—	BTM	RTK5007	RTY1207	RTR2207	RTG3207	RTB4407
2-56	H3	0	1	PLG	—	RTK5008	RTY1208	RTR2208	RTG3208	RTB4408
2-56	H3	0	1	—	BTM	RTK5009	RTY1209	RTR2209	RTG3209	RTB4409
2-56	H5	0	1	PLG	—	RTK5010	RTY1210	RTR2210	RTG3210	RTB4410
2-56	H7	0	1	PLG	—	RTK5011	RTY1211	RTR2211	RTG3211	RTB4411
4-40	H3	0	1	PLG	—	RTK5012	RTY1212	RTR2212	RTG3212	RTB4412
4-40	H3	0	1	—	BTM	RTK5013	RTY1213	RTR2213	RTG3213	RTB4413
4-40	H5	0	1	PLG	—	RTK5014	RTY1214	RTR2214	RTG3214	RTB4414
4-40	H5	0	1	—	BTM	RTK5015	RTY1215	RTR2215	RTG3215	RTB4415
4-40	H7	0	1	PLG	—	RTK5016	RTY1216	RTR2216	RTG3216	RTB4416
4-40	H7	0	1	—	BTM	RTK5017	RTY1217	RTR2217	RTG3217	RTB4417
5-40	H3	0	1	PLG	—	RTK5018	RTY1218	RTR2218	RTG3218	RTB4418
5-40	H3	0	1	—	BTM	RTK5019	RTY1219	RTR2219	RTG3219	RTB4419
5-40	H5	0	1	PLG	—	RTK5020	RTY1220	RTR2220	RTG3220	RTB4420
5-40	H5	0	1	—	BTM	RTK5021	RTY1221	RTR2221	RTG3221	RTB4421
5-40	H7	0	1	PLG	—	RTK5022	RTY1222	RTR2222	RTG3222	RTB4422
5-40	H7	0	1	—	BTM	RTK5023	RTY1223	RTR2223	RTG3223	RTB4423
6-32	H3	2	1	PLG	—	RTK5024	RTY1224	RTR2224	RTG3224	RTB4424
6-32	H3	2	1	—	BTM	RTK5025	RTY1225	RTR2225	RTG3225	RTB4425
6-32	H5	2	1	PLG	—	RTK5026	RTY1226	RTR2226	RTG3226	RTB4426
6-32	H5	2	1	—	BTM	RTK5027	RTY1227	RTR2227	RTG3227	RTB4427

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Thread Forming

RedLine Torque Cut HP



Uncoated | Oxide Coated

Form Taps, HSSE, Color-Ring, Plug & Bottom, Fractional

Size & Pitch	GH Limit	# of Lube Grooves	Pkg Qty	Style		Black Ring Uncoated Aluminum (Wrought & Cast) Part #	Yellow Ring Oxide Coated Steel (Low, Med. & High Carbon) Part #	Red Ring Oxide Coated Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Oxide Coated Alloy Steel Part #	Blue Ring Oxide Coated Stainless (300), High Nickel & Titanium Alloy Part #
6-32	H7	2	1	PLG	—	RTK5028	RTY1228	RTR2228	RTG3228	RTB4428
6-32	H7	2	1	—	BTM	RTK5029	RTY1229	RTR2229	RTG3229	RTB4429
6-32	H9	2	1	PLG	—	RTK5030	RTY1230	RTR2230	RTG3230	RTB4430
6-32	H9	2	1	—	BTM	RTK5031	RTY1231	RTR2231	RTG3231	RTB4431
8-32	H3	2	1	PLG	—	RTK5032	RTY1232	RTR2232	RTG3232	RTB4432
8-32	H3	2	1	—	BTM	RTK5033	RTY1233	RTR2233	RTG3233	RTB4433
8-32	H5	2	1	PLG	—	RTK5034	RTY1234	RTR2234	RTG3234	RTB4434
8-32	H5	2	1	—	BTM	RTK5035	RTY1235	RTR2235	RTG3235	RTB4435
8-32	H7	2	1	PLG	—	RTK5036	RTY1236	RTR2236	RTG3236	RTB4436
8-32	H7	2	1	—	BTM	RTK5037	RTY1237	RTR2237	RTG3237	RTB4437
8-32	H9	2	1	PLG	—	RTK5038	RTY1238	RTR2238	RTG3238	RTB4438
8-32	H9	2	1	—	BTM	RTK5039	RTY1239	RTR2239	RTG3239	RTB4439
10-24	H3	2	1	PLG	—	RTK5040	RTY1240	RTR2240	RTG3240	RTB4440
10-24	H3	2	1	—	BTM	RTK5041	RTY1241	RTR2241	RTG3241	RTB4441
10-24	H4	2	1	PLG	—	RTK5042	RTY1242	RTR2242	RTG3242	RTB4442
10-24	H4	2	1	—	BTM	RTK5043	RTY1243	RTR2243	RTG3243	RTB4443
10-24	H5	2	1	PLG	—	RTK5044	RTY1244	RTR2244	RTG3244	RTB4444
10-24	H5	2	1		BTM	RTK5045	RTY1245	RTR2245	RTG3245	RTB4445
10-24	H6	2	1	PLG	—	RTK5046	RTY1246	RTR2246	RTG3246	RTB4446
10-24	H6	2	1	—	BTM	RTK5047	RTY1247	RTR2247	RTG3247	RTB4447
10-24	H7	2	1	PLG	—	RTK5048	RTY1248	RTR2248	RTG3248	RTB4448
10-24	H7	2	1	—	BTM	RTK5049	RTY1249	RTR2249	RTG3249	RTB4449
10-24	H9	2	1	PLG	—	RTK5050	RTY1250	RTR2250	RTG3250	RTB4450
10-24	H9	2	1	—	BTM	RTK5051	RTY1251	RTR2251	RTG3251	RTB4451
10-32	H3	2	1	PLG	—	RTK5052	RTY1252	RTR2252	RTG3252	RTB4452
10-32	H3	2	1	—	BTM	RTK5053	RTY1253	RTR2253	RTG3253	RTB4453
10-32	H4	2	1	PLG	—	RTK5054	RTY1254	RTR2254	RTG3254	RTB4454
10-32	H4	2	1	—	BTM	RTK5055	RTY1255	RTR2255	RTG3255	RTB4455

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Uncoated



Oxide Coated

Form Taps, HSSE, Color-Ring, Plug & Bottom, Fractional

Size & Pitch	GH Limit	# of Lube Grooves	Pkg Qty	Style		Black Ring Uncoated Aluminum (Wrought & Cast) Part #	Yellow Ring Oxide Coated Steel (Low, Med. & High Carbon) Part #	Red Ring Oxide Coated Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Oxide Coated Alloy Steel Part #	Blue Ring Oxide Coated Stainless (300), High Nickel & Titanium Alloy Part #
10-32	H5	2	1	PLG	—	RTK5056	RTY1256	RTR2256	RTG3256	RTB4456
10-32	H5	2	1	—	BTM	RTK5057	RTY1257	RTR2257	RTG3257	RTB4457
10-32	H6	2	1	PLG	—	RTK5058	RTY1258	RTR2258	RTG3258	RTB4458
10-32	H6	2	1	—	BTM	RTK5059	RTY1259	RTR2259	RTG3259	RTB4459
10-32	H7	2	1	PLG	—	RTK5060	RTY1260	RTR2260	RTG3260	RTB4460
10-32	H7	2	1	—	BTM	RTK5061	RTY1261	RTR2261	RTG3261	RTB4461
10-32	H9	2	1	PLG	—	RTK5062	RTY1262	RTR2262	RTG3262	RTB4462
10-32	H9	2	1	—	BTM	RTK5063	RTY1263	RTR2263	RTG3263	RTB4463
1/4-20	H3	4	1	PLG	—	RTK5064	RTY1264	RTR2264	RTG3264	RTB4464
1/4-20	H3	4	1	—	BTM	RTK5065	RTY1265	RTR2265	RTG3265	RTB4465
1/4-20	H4	4	1	PLG	—	RTK5066	RTY1266	RTR2266	RTG3266	RTB4466
1/4-20	H4	4	1	—	BTM	RTK5067	RTY1267	RTR2267	RTG3267	RTB4467
1/4-20	H5	4	1	PLG	—	RTK5068	RTY1268	RTR2268	RTG3268	RTB4468
1/4-20	H5	4	1	—	BTM	RTK5069	RTY1269	RTR2269	RTG3269	RTB4469
1/4-20	H6	4	1	PLG	—	RTK5070	RTY1270	RTR2270	RTG3270	RTB4470
1/4-20	H6	4	1	—	BTM	RTK5071	RTY1271	RTR2271	RTG3271	RTB4471
1/4-20	H7	4	1	PLG	—	RTK5072	RTY1272	RTR2272	RTG3272	RTB4472
1/4-20	H7	4	1	—	BTM	RTK5073	RTY1273	RTR2273	RTG3273	RTB4473
1/4-20	H9	4	1	PLG	—	RTK5074	RTY1274	RTR2274	RTG3274	RTB4474
1/4-20	H9	4	1	—	BTM	RTK5075	RTY1275	RTR2275	RTG3275	RTB4475
1/4-28	H3	4	1	PLG	—	RTK5076	RTY1276	RTR2276	RTG3276	RTB4476
1/4-28	H3	4	1	—	BTM	RTK5077	RTY1277	RTR2277	RTG3277	RTB4477
1/4-28	H4	4	1	PLG	—	RTK5078	RTY1278	RTR2278	RTG3278	RTB4478
1/4-28	H4	4	1	—	BTM	RTK5079	RTY1279	RTR2279	RTG3279	RTB4479
1/4-28	H5	4	1	PLG	—	RTK5080	RTY1280	RTR2280	RTG3280	RTB4480
1/4-28	H5	4	1	—	BTM	RTK5081	RTY1281	RTR2281	RTG3281	RTB4481
1/4-28	H6	4	1	PLG	—	RTK5082	RTY1282	RTR2282	RTG3282	RTB4482
1/4-28	H6	4	1	—	BTM	RTK5083	RTY1283	RTR2283	RTG3283	RTB4483
1/4-28	H7	4	1	PLG	—	RTK5084	RTY1284	RTR2284	RTG3284	RTB4484

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Thread Forming

RedLine Torque Cut HP



Uncoated | Oxide Coated

Form Taps, HSSE, Color-Ring, Plug & Bottom, Fractional

Size & Pitch	GH Limit	# of Lube Grooves	Pkg Qty	Style		Black Ring Uncoated Aluminum (Wrought & Cast) Part #	Yellow Ring Oxide Coated Steel (Low, Med. & High Carbon) Part #	Red Ring Oxide Coated Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Oxide Coated Alloy Steel Part #	Blue Ring Oxide Coated Stainless (300), High Nickel & Titanium Alloy Part #
1/4-28	H7	4	1	—	BTM	RTK5085	RTY1285	RTR2285	RTG3285	RTB4485
1/4-28	H9	4	1	PLG	—	RTK5086	RTY1286	RTR2286	RTG3286	RTB4486
1/4-28	H9	4	1	—	BTM	RTK5087	RTY1287	RTR2287	RTG3287	RTB4487
5/16-18	H3	4	1	PLG	—	RTK5088	RTY1288	RTR2288	RTG3288	RTB4488
5/16-18	H3	4	1	—	BTM	RTK5089	RTY1289	RTR2289	RTG3289	RTB4489
5/16-18	H5	4	1	PLG	—	RTK5090	RTY1290	RTR2290	RTG3290	RTB4490
5/16-18	H5	4	1	—	BTM	RTK5091	RTY1291	RTR2291	RTG3291	RTB4491
5/16-18	H7	4	1	PLG	—	RTK5092	RTY1292	RTR2292	RTG3292	RTB4492
5/16-18	H7	4	1	—	BTM	RTK5093	RTY1293	RTR2293	RTG3293	RTB4493
5/16-18	H9	4	1	PLG	—	RTK5094	RTY1294	RTR2294	RTG3294	RTB4494
5/16-18	H9	4	1	—	BTM	RTK5095	RTY1295	RTR2295	RTG3295	RTB4495
5/16-24	H3	4	1	PLG	—	RTK5096	RTY1296	RTR2296	RTG3296	RTB4496
5/16-24	H3	4	1	—	BTM	RTK5097	RTY1297	RTR2297	RTG3297	RTB4497
5/16-24	H5	4	1	PLG	—	RTK5098	RTY1298	RTR2298	RTG3298	RTB4498
5/16-24	H5	4	1	—	BTM	RTK5099	RTY1299	RTR2299	RTG3299	RTB4499
5/16-24	H7	4	1	PLG	—	RTK5100	RTY1300	RTR2300	RTG3300	RTB4500
5/16-24	H7	4	1	—	BTM	RTK5101	RTY1301	RTR2301	RTG3301	RTB4501
5/16-24	H9	4	1	PLG	—	RTK5102	RTY1302	RTR2302	RTG3302	RTB4502
5/16-24	H9	4	1	—	BTM	RTK5103	RTY1303	RTR2303	RTG3303	RTB4503
3/8-16	H3	4	1	PLG	—	RTK5104	RTY1304	RTR2304	RTG3304	RTB4504
3/8-16	H3	4	1	—	BTM	RTK5105	RTY1305	RTR2305	RTG3305	RTB4505
3/8-16	H5	4	1	PLG	—	RTK5106	RTY1306	RTR2306	RTG3306	RTB4506
3/8-16	H5	4	1	—	BTM	RTK5107	RTY1307	RTR2307	RTG3307	RTB4507
3/8-16	H7	4	1	PLG	—	RTK5108	RTY1308	RTR2308	RTG3308	RTB4508
3/8-16	H7	4	1	—	BTM	RTK5109	RTY1309	RTR2309	RTG3309	RTB4509
3/8-16	H9	4	1	PLG	—	RTK5110	RTY1310	RTR2310	RTG3310	RTB4510
3/8-16	H9	4	1	—	BTM	RTK5111	RTY1311	RTR2311	RTG3311	RTB4511
3/8-24	H3	4	1	PLG	—	RTK5112	RTY1312	RTR2312	RTG3312	RTB4512
3/8-24	H3	4	1	—	BTM	RTK5113	RTY1313	RTR2313	RTG3313	RTB4513

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Uncoated | Oxide Coated

Form Taps, HSSE, Color-Ring, Plug & Bottom, Fractional

Size & Pitch	GH Limit	# of Lube Grooves	Pkg Qty	Style		Black Ring Uncoated Aluminum (Wrought & Cast) Part #	Yellow Ring Oxide Coated Steel (Low, Med. & High Carbon) Part #	Red Ring Oxide Coated Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Oxide Coated Alloy Steel Part #	Blue Ring Oxide Coated Stainless (300), High Nickel & Titanium Alloy Part #
3/8-24	H5	4	1	PLG	—	RTK5114	RTY1314	RTR2314	RTG3314	RTB4514
3/8-24	H5	4	1	—	BTM	RTK5115	RTY1315	RTR2315	RTG3315	RTB4515
3/8-24	H7	4	1	PLG	—	RTK5116	RTY1316	RTR2316	RTG3316	RTB4516
3/8-24	H7	4	1	—	BTM	RTK5117	RTY1317	RTR2317	RTG3317	RTB4517
3/8-24	H9	4	1	PLG	—	RTK5118	RTY1318	RTR2318	RTG3318	RTB4518
3/8-24	H9	4	1	—	BTM	RTK5119	RTY1319	RTR2319	RTG3319	RTB4519
7/16-14	H5	6	1	PLG	—	RTK5120	RTY1320	RTR2320	RTG3320	RTB4520
7/16-14	H5	6	1	—	BTM	RTK5121	RTY1321	RTR2321	RTG3321	RTB4521
7/16-14	H7	6	1	PLG	—	RTK5122	RTY1322	RTR2322	RTG3322	RTB4522
7/16-14	H7	6	1	—	BTM	RTK5123	RTY1323	RTR2323	RTG3323	RTB4523
7/16-14	H8	6	1	PLG	—	RTK5124	RTY1324	RTR2324	RTG3324	RTB4524
7/16-14	H8	6	1	—	BTM	RTK5125	RTY1325	RTR2325	RTG3325	RTB4525
7/16-14	H9	6	1	PLG	—	RTK5126	RTY1326	RTR2326	RTG3326	RTB4526
7/16-14	H9	6	1	—	BTM	RTK5127	RTY1327	RTR2327	RTG3327	RTB4527
7/16-20	H5	6	1	PLG	—	RTK5128	RTY1328	RTR2328	RTG3328	RTB4528
7/16-20	H5	6	1	—	BTM	RTK5129	RTY1329	RTR2329	RTG3329	RTB4529
7/16-20	H7	6	1	PLG	—	RTK5130	RTY1330	RTR2330	RTG3330	RTB4530
7/16-20	H7	6	1	—	BTM	RTK5131	RTY1331	RTR2331	RTG3331	RTB4531
7/16-20	H8	6	1	PLG	—	RTK5132	RTY1332	RTR2332	RTG3332	RTB4532
7/16-20	H8	6	1	—	BTM	RTK5133	RTY1333	RTR2333	RTG3333	RTB4533
7/16-20	H9	6	1	PLG	—	RTK5134	RTY1334	RTR2334	RTG3334	RTB4534
7/16-20	H9	6	1	—	BTM	RTK5135	RTY1335	RTR2335	RTG3335	RTB4535
1/2-13	H5	6	1	PLG	—	RTK5136	RTY1336	RTR2336	RTG3336	RTB4536
1/2-13	H5	6	1	—	BTM	RTK5137	RTY1337	RTR2337	RTG3337	RTB4537
1/2-13	H7	6	1	PLG	—	RTK5138	RTY1338	RTR2338	RTG3338	RTB4538
1/2-13	H7	6	1	—	BTM	RTK5139	RTY1339	RTR2339	RTG3339	RTB4539
1/2-13	H8	6	1	PLG	—	RTK5140	RTY1340	RTR2340	RTG3340	RTB4540
1/2-13	H8	6	1	—	BTM	RTK5141	RTY1341	RTR2341	RTG3341	RTB4541
1/2-13	H9	6	1	PLG	—	RTK5142	RTY1342	RTR2342	RTG3342	RTB4542

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Thread Forming

RedLine Torque Cut HP



Uncoated | Oxide Coated

Form Taps, HSSE, Color-Ring, Plug & Bottom, Fractional

Size & Pitch	GH Limit	# of Lube Grooves	Pkg Qty	Style		Black Ring Uncoated Aluminum (Wrought & Cast) Part #	Yellow Ring Oxide Coated Steel (Low, Med. & High Carbon) Part #	Red Ring Oxide Coated Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Oxide Coated Alloy Steel Part #	Blue Ring Oxide Coated Stainless (300), High Nickel & Titanium Alloy Part #
1/2-13	H9	6	1	—	BTM	RTK5143	RTY1343	RTR2343	RTG3343	RTB4543
1/2-20	H5	6	1	PLG	—	RTK5144	RTY1344	RTR2344	RTG3344	RTB4544
1/2-20	H5	6	1	—	BTM	RTK5145	RTY1345	RTR2345	RTG3345	RTB4545
1/2-20	H7	6	1	PLG	—	RTK5146	RTY1346	RTR2346	RTG3346	RTB4546
1/2-20	H7	6	1	—	BTM	RTK5147	RTY1347	RTR2347	RTG3347	RTB4547
1/2-20	H8	6	1	PLG	—	RTK5148	RTY1348	RTR2348	RTG3348	RTB4548
1/2-20	H8	6	1	—	BTM	RTK5149	RTY1349	RTR2349	RTG3349	RTB4549
1/2-20	H9	6	1	PLG	—	RTK5150	RTY1350	RTR2350	RTG3350	RTB4550
1/2-20	H9	6	1	—	BTM	RTK5151	RTY1351	RTR2351	RTG3351	RTB4551
9/16-12	H7	6	1	PLG	—	RTK5152	RTY1352	RTR2352	RTG3352	RTB4552
9/16-12	H7	6	1	—	BTM	RTK5153	RTY1353	RTR2353	RTG3353	RTB4553
9/16-18	H7	6	1	PLG	—	RTK5154	RTY1354	RTR2354	RTG3354	RTB4554
9/16-18	H7	6	1	—	BTM	RTK5155	RTY1355	RTR2355	RTG3355	RTB4555
5/8-11	H5	6	1	PLG	—	RTK5156	RTY1356	RTR2356	RTG3356	RTB4556
5/8-11	H5	6	1	—	BTM	RTK5157	RTY1357	RTR2357	RTG3357	RTB4557
5/8-11	H7	6	1	PLG	—	RTK5158	RTY1358	RTR2358	RTG3358	RTB4558
5/8-11	H7	6	1	—	BTM	RTK5159	RTY1359	RTR2359	RTG3359	RTB4559
5/8-11	H9	6	1	PLG	—	RTK5160	RTY1360	RTR2360	RTG3360	RTB4560
5/8-11	H9	6	1	—	BTM	RTK5161	RTY1361	RTR2361	RTG3361	RTB4561
5/8-11	H10	6	1	PLG	—	RTK5162	RTY1362	RTR2362	RTG3362	RTB4562
5/8-11	H10	6	1	—	BTM	RTK5163	RTY1363	RTR2363	RTG3363	RTB4563
5/8-18	H5	6	1	PLG	—	RTK5164	RTY1364	RTR2364	RTG3364	RTB4564
5/8-18	H5	6	1	—	BTM	RTK5165	RTY1365	RTR2365	RTG3365	RTB4565
5/8-18	H7	6	1	PLG	—	RTK5166	RTY1366	RTR2366	RTG3366	RTB4566
5/8-18	H7	6	1	—	BTM	RTK5167	RTY1367	RTR2367	RTG3367	RTB4567
5/8-18	H9	6	1	PLG	—	RTK5168	RTY1368	RTR2368	RTG3368	RTB4568
5/8-18	H9	6	1	—	BTM	RTK5169	RTY1369	RTR2369	RTG3369	RTB4569

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Uncoated | Oxide Coated

Form Taps, HSSE, Color-Ring, Plug & Bottom, Fractional

Size & Pitch	GH Limit	# of Lube Grooves	Pkg Qty	Style		Black Ring Uncoated Aluminum (Wrought & Cast) Part #	Yellow Ring Oxide Coated Steel (Low, Med. & High Carbon) Part #	Red Ring Oxide Coated Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Oxide Coated Alloy Steel Part #	Blue Ring Oxide Coated Stainless (300), High Nickel & Titanium Alloy Part #
5/8-18	H10	6	1	PLG	—	RTK5170	RTY1370	RTR2370	RTG3370	RTB4570
5/8-18	H10	6	1	—	BTM	RTK5171	RTY1371	RTR2371	RTG3371	RTB4571
3/4-10	H5	6	1	PLG	—	RTK5172	RTY1372	RTR2372	RTG3372	RTB4572
3/4-10	H5	6	1	—	BTM	RTK5173	RTY1373	RTR2373	RTG3373	RTB4573
3/4-10	H7	6	1	PLG	—	RTK5174	RTY1374	RTR2374	RTG3374	RTB4574
3/4-10	H7	6	1	—	BTM	RTK5175	RTY1375	RTR2375	RTG3375	RTB4575
3/4-10	H9	6	1	PLG	—	RTK5176	RTY1376	RTR2376	RTG3376	RTB4576
3/4-10	H9	6	1	—	BTM	RTK5177	RTY1377	RTR2377	RTG3377	RTB4577
3/4-10	H10	6	1	PLG	—	RTK5178	RTY1378	RTR2378	RTG3378	RTB4578
3/4-10	H10	6	1	—	BTM	RTK5179	RTY1379	RTR2379	RTG3379	RTB4579
3/4-16	H5	6	1	PLG	—	RTK5180	RTY1380	RTR2380	RTG3380	RTB4580
3/4-16	H5	6	1	—	BTM	RTK5181	RTY1381	RTR2381	RTG3381	RTB4581
3/4-16	H7	6	1	PLG	—	RTK5182	RTY1382	RTR2382	RTG3382	RTB4582
3/4-16	H7	6	1	—	BTM	RTK5183	RTY1383	RTR2383	RTG3383	RTB4583
3/4-16	H9	6	1	PLG	—	RTK5184	RTY1384	RTR2384	RTG3384	RTB4584
3/4-16	H9	6	1	—	BTM	RTK5185	RTY1385	RTR2385	RTG3385	RTB4585
3/4-16	H10	6	1	PLG	—	RTK5186	RTY1386	RTR2386	RTG3386	RTB4586
3/4-16	H10	6	1	—	BTM	RTK5187	RTY1387	RTR2387	RTG3387	RTB4587

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Thread Forming

RedLine Torque Cut HP



Uncoated | Oxide Coated

Form Taps, HSSE, Color-Ring, Plug & Bottom, Metric

Size & Pitch	D Limit	# of Lube Grooves	Pkg Qty	Style		Black Ring Uncoated Aluminum (Wrought & Cast) Part #	Yellow Ring Oxide Coated Steel (Low, Med. & High Carbon) Part #	Red Ring Oxide Coated Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Oxide Coated Alloy Steel Part #	Blue Ring Oxide Coated Stainless (300), High Nickel & Titanium Alloy Part #
M3 X .50	D3	0	1	—	BTM	RTK5400	RTY1600	RTR2550	RTG3600	RTB4800
M3 X .50	D3	0	1	PLG	—	RTK5401	RTY1601	RTR2551	RTG3601	RTB4801
M3 X .50	D5	0	1	—	BTM	RTK5402	RTY1602	RTR2552	RTG3602	RTB4802
M3 X .50	D5	0	1	PLG	—	RTK5403	RTY1603	RTR2553	RTG3603	RTB4803
M3.5 X .60	D4	2	1	—	BTM	RTK5404	RTY1604	RTR2554	RTG3604	RTB4804
M3.5 X .60	D4	2	1	PLG	—	RTK5405	RTY1605	RTR2555	RTG3605	RTB4805
M3.5 X .60	D6	2	1	—	BTM	RTK5406	RTY1606	RTR2556	RTG3606	RTB4806
M3.5 X .60	D6	2	1	PLG	—	RTK5407	RTY1607	RTR2557	RTG3607	RTB4807
M4 X .70	D4	2	1	—	BTM	RTK5408	RTY1608	RTR2558	RTG3608	RTB4808
M4 X .70	D4	2	1	PLG	—	RTK5409	RTY1609	RTR2559	RTG3609	RTB4809
M4 X .70	D6	2	1	—	BTM	RTK5410	RTY1610	RTR2560	RTG3610	RTB4810
M4 X .70	D6	2	1	PLG	—	RTK5411	RTY1611	RTR2561	RTG3611	RTB4811
M5 X .80	D4	2	1	—	BTM	RTK5412	RTY1612	RTR2562	RTG3612	RTB4812
M5 X .80	D4	2	1	PLG	—	RTK5413	RTY1613	RTR2563	RTG3613	RTB4813
M5 X .80	D7	2	1	—	BTM	RTK5414	RTY1614	RTR2564	RTG3614	RTB4814
M5 X .80	D7	2	1	PLG	—	RTK5415	RTY1615	RTR2565	RTG3615	RTB4815
M6 X 1.00	D5	4	1	—	BTM	RTK5416	RTY1616	RTR2566	RTG3616	RTB4816
M6 X 1.00	D5	4	1	PLG	—	RTK5417	RTY1617	RTR2567	RTG3617	RTB4817
M6 X 1.00	D8	4	1	—	BTM	RTK5418	RTY1618	RTR2568	RTG3618	RTB4818
M6 X 1.00	D8	4	1	PLG	—	RTK5419	RTY1619	RTR2569	RTG3619	RTB4819
M8 X 1.25	D6	4	1	—	BTM	RTK5420	RTY1620	RTR2570	RTG3620	RTB4820
M8 X 1.25	D6	4	1	PLG	—	RTK5421	RTY1621	RTR2571	RTG3621	RTB4821
M8 X 1.25	D9	4	1	—	BTM	RTK5422	RTY1622	RTR2572	RTG3622	RTB4822
M8 X 1.25	D9	4	1	PLG	—	RTK5423	RTY1623	RTR2573	RTG3623	RTB4823

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Uncoated | Oxide Coated

Form Taps, HSSE, Color-Ring, Plug & Bottom, Metric

Size & Pitch	D Limit	# of Lube Grooves	Pkg Qty	Style		Black Ring Uncoated Aluminum (Wrought & Cast) Part #	Yellow Ring Oxide Coated Steel (Low, Med. & High Carbon) Part #	Red Ring Oxide Coated Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Oxide Coated Alloy Steel Part #	Blue Ring Oxide Coated Stainless (300), High Nickel & Titanium Alloy Part #
M10 X 1.50	D6	4	1	—	BTM	RTK5424	RTY1624	RTR2574	RTG3624	RTB4824
M10 X 1.50	D6	4	1	PLG	—	RTK5425	RTY1625	RTR2575	RTG3625	RTB4825
M10 X 1.50	D9	4	1	—	BTM	RTK5426	RTY1626	RTR2576	RTG3626	RTB4826
M10 X 1.50	D9	4	1	PLG	—	RTK5427	RTY1627	RTR2577	RTG3627	RTB4827
M12 X 1.75	D7	6	1	—	BTM	RTK5428	RTY1628	RTR2578	RTG3628	RTB4828
M12 X 1.75	D7	6	1	PLG	—	RTK5429	RTY1629	RTR2579	RTG3629	RTB4829
M12 X 1.75	D10	6	1	—	BTM	RTK5430	RTY1630	RTR2580	RTG3630	RTB4830
M12 X 1.75	D10	6	1	PLG	—	RTK5431	RTY1631	RTR2581	RTG3631	RTB4831

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NPT Taper Pipe

RedLine Torque Cut HP



Oxide

Spiral Flute Pipe Taps, HSSE, Color-Ring, NPT, Fractional

Size & Pitch	Rec. Hole Size	# of Flutes	Coating	Yellow Ring Steel (Low, Med. & High Carbon) Part #	Red Ring Stainless (400 & PH), Die & Hardened Steel Part #	Green Ring Alloy Steel Part #	Blue Ring Stainless 300 Series Part #	Recommended Pipe Reamer Part #
1/16-27	.2460	4	Oxide	RTY7001	RTR7001	RTG7001	RTB7001	RR61849
1/8-27	.3320	4	Oxide	RTY7003	RTR7003	RTG7003	RTB7003	RR61850
1/8-27*	.3320	4	Oxide	RTY7005	RTR7005	RTG7005	RTB7005	RR61850
1/4-18	.4375	4	Oxide	RTY7007	RTR7007	RTG7007	RTB7007	RR61851
3/8-18	.5781	4	Oxide	RTY7009	RTR7009	RTG7009	RTB7009	RR61852
1/2-14	.7030	4	Oxide	RTY7011	RTR7011	RTG7011	RTB7011	RR61853
3/4-14	.9063	5	Oxide	RTY7013	RTR7013	RTG7013	RTB7013	RR61854
1-11-1/2	1.1406	5	Oxide	RTY7015	RTR7015	RTG7015	RTB7015	RR61855

* Small Shank

Notes: Reaming is recommended prior to tapping; See the recommended reamer part number in the charts to the right. Threadmilling is recommended for producing pipe threads in High Nickel and Titanium Alloys. Carbide Pipe Taps are recommended for Cast and High Silicone Aluminums.

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Oxide

Spiral Flute Pipe Taps, HSSE, Color-Ring, NPTF, Fractional

Size & Pitch	Rec. Hole Size	# of Flutes	Coating	Yellow Ring	Red Ring	Green Ring	Blue Ring	Recommended Pipe Reamer
				Steel (Low, Med. & High Carbon)	Stainless (400 & PH), Die & Hardened Steel	Alloy Steel	Stainless 300 Series	
				Part #	Part #	Part #	Part #	Part #
1/16-27	.2460	4	Oxide	RTY7002	RTR7002	RTG7002	RTB7002	RR61849
1/8-27	.3320	4	Oxide	RTY7004	RTR7004	RTG7004	RTB7004	RR61850
1/8-27*	.3320	4	Oxide	RTY7006	RTR7006	RTG7006	RTB7006	RR61850
1/4-18	.4375	4	Oxide	RTY7008	RTR7008	RTG7008	RTB7008	RR61851
3/8-18	.5781	4	Oxide	RTY7010	RTR7010	RTG7010	RTB7010	RR61852
1/2-14	.7030	4	Oxide	RTY7012	RTR7012	RTG7012	RTB7012	RR61853
3/4-14	.9219	5	Oxide	RTY7014	RTR7014	RTG7014	RTB7014	RR61854
1-11-1/2	1.1563	5	Oxide	RTY7016	RTR7016	RTG7016	RTB7016	RR61855

* Small Shank

Notes: Reaming is recommended prior to tapping; See the recommended reamer part number in the charts to the right. Threadmilling is recommended for producing pipe threads in High Nickel and Titanium Alloys. Carbide Pipe Taps are recommended for Cast and High Silicone Aluminums.

Speeds page 404.
Tech data pages 406-416.

Spiral Point Plug



Uncoated



AlTiN Coated



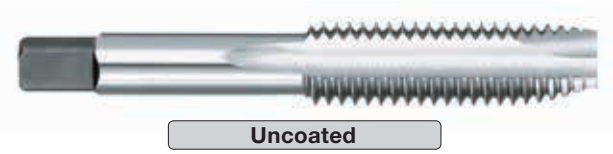
TiN Coated

HSS, Spiral Point Plug Taps, Ground Thread

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Uncoated Part #	AlTiN Coated Part #	TiN Coated Part #
0-80	H1	2	1	RT30800	—	—
0-80	H2	2	1	RT30801	RT31001	RT30901
1-64	H1	2	1	RT30802	—	—
1-64	H2	2	1	RT30803	—	—
1-72	H1	2	1	RT30804	—	—
1-72	H2	2	1	RT30805	—	—
2-56	H1	2	1	RT30806	—	—
2-56	H2	2	1	RT30807	RT31002	RT30907
2-64	H1	2	1	RT30808	—	—
2-64	H2	2	1	RT30809	—	—
3-48	H1	2	1	RT30810	—	—
3-48	H2	2	1	RT30811	—	—
3-56	H1	2	1	RT30812	—	—
3-56	H2	2	1	RT30813	—	—
4-40	H1	2	1	RT30814	—	—
4-40	H2	2	1	RT30815	RT31003	RT30915
4-48	H1	2	1	RT30816	—	—
4-48	H2	2	1	RT30817	—	—
4-36	H2	2	1	RT30818	—	—
5-40	H1	2	1	RT30819	—	—
5-40	H2	2	1	RT30820	RT31004	RT30920
5-44	H2	2	1	RT30821	—	—
6-32	H1	2	1	RT30822	—	—
6-32	H2	2	1	RT30823	—	—
6-32	H3	2	1	RT30824	RT31005	RT30924
6-32	H7	2	1	RT30825	—	—

Continued

Speeds & other tech data pages 405-416.



Uncoated



AlTiN Coated



TiN Coated

HSS, Spiral Point Plug Taps, Ground Thread

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Uncoated Part #	AlTiN Coated Part #	TiN Coated Part #
6-40	H1	2	1	RT30826	–	–
6-40	H2	2	1	RT30827	–	–
8-32	H1	2	1	RT30828	–	–
8-32	H2	2	1	RT30829	–	–
8-32	H3	2	1	RT30830	RT31006	RT30930
8-32	H7	2	1	RT30831	–	–
8-36	H1	2	1	RT30832	–	–
8-36	H2	2	1	RT30833	–	–
10-24	H1	2	1	RT30834	–	–
10-24	H2	2	1	RT30835	–	–
10-24	H3	2	1	RT30836	RT31007	RT30936
10-24	H7	2	1	RT30837	–	–
10-32	H1	2	1	RT30838	–	–
10-32	H2	2	1	RT30839	–	–
10-32	H3	2	1	RT30840	RT31008	RT30940
10-32	H7	2	1	RT30841	–	–
12-24	H1	2	1	RT30842	–	–
12-24	H3	2	1	RT30843	RT31009	RT30943
12-28	H3	2	1	RT30844	RT31010	RT30944
1/4-20	H1	2	1	RT30845	–	–
1/4-20	H2	2	1	RT30846	–	–
1/4-20	H3	2	1	RT30847	RT31011	RT30947
1/4-20	H3	3	1	RT30848	–	–
1/4-20	H5	2	1	RT30849	–	–
1/4-20	H5	3	1	RT30850	–	–
1/4-28	H1	2	1	RT30851	–	–
1/4-28	H2	2	1	RT30852	–	–
1/4-28	H2	3	1	RT30853	–	–
1/4-28	H3	2	1	RT30854	RT31012	RT30954
1/4-28	H4	2	1	RT30855	–	–

Continued

Speeds & other tech data pages 405-416.

Spiral Point Plug



Uncoated



AlTiN Coated



TiN Coated

HSS, Spiral Point Plug Taps, Ground Thread

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Uncoated Part #	AlTiN Coated Part #	TiN Coated Part #
1/4-28	H4	3	1	RT30856	—	—
5/16-18	H1	2	1	RT30857	—	—
5/16-18	H2	2	1	RT30858	—	—
5/16-18	H3	2	1	RT30859	RT31013	RT30959
5/16-18	H3	3	1	RT30860	—	—
5/16-18	H5	2	1	RT30861	—	—
5/16-18	H5	3	1	RT30862	—	—
5/16-24	H1	2	1	RT30863	—	—
5/16-24	H2	2	1	RT30864	—	—
5/16-24	H2	3	1	RT30865	—	—
5/16-24	H3	2	1	RT30866	RT31014	RT30966
5/16-24	H4	2	1	RT30867	—	—
5/16-24	H4	3	1	RT30868	—	—
3/8-16	H1	3	1	RT30869	—	—
3/8-16	H2	3	1	RT30870	—	—
3/8-16	H3	3	1	RT30871	RT31015	RT30971
3/8-16	H5	3	1	RT30872	—	—
3/8-24	H1	3	1	RT30873	—	—
3/8-24	H2	3	1	RT30874	—	—
3/8-24	H3	3	1	RT30875	RT31016	RT30975
3/8-24	H4	3	1	RT30876	—	—
7/16-14	H2	3	1	RT30877	—	—
7/16-14	H3	3	1	RT30878	RT31017	RT30978
7/16-14	H5	3	1	RT30879	—	—
7/16-20	H2	3	1	RT30880	—	—
7/16-20	H3	3	1	RT30881	RT31018	RT30981
7/16-20	H5	3	1	RT30882	—	—
1/2-13	H1	3	1	RT30883	—	—
1/2-13	H2	3	1	RT30884	—	—
1/2-13	H3	3	1	RT30885	RT31019	RT30985
1/2-13	H5	3	1	RT30886	—	—

Speeds & other tech data pages 405-416.



Uncoated



AlTiN Coated



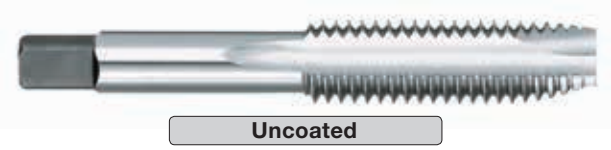
TiN Coated

HSS, Spiral Point Plug Taps, Ground Thread

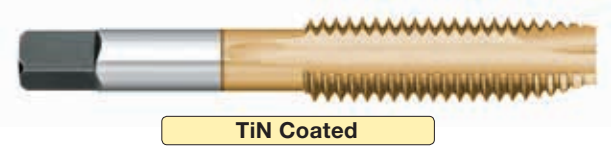
Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Uncoated Part #	AlTiN Coated Part #	TiN Coated Part #
1/2-20	H1	3	1	RT30887	—	—
1/2-20	H2	3	1	RT30888	—	—
1/2-20	H3	3	1	RT30889	RT31020	RT30989
1/2-20	H5	3	1	RT30890	—	—
9/16-12	H3	3	1	RT30891	—	—
9/16-18	H3	3	1	RT30892	—	—
5/8-11	H3	3	1	RT30893	RT31021	RT30993
5/8-11	H5	3	1	RT30894	—	—
5/8-18	H3	3	1	RT30895	RT31022	RT30995
3/4-10	H3	3	1	RT30896	RT31023	RT30996
3/4-10	H5	3	1	RT30897	—	—
3/4-16	H3	3	1	RT30898	RT31024	RT30998

Speeds & other tech data pages 405-416.

Spiral Point Plug



Uncoated



TiN Coated

HSS, Spiral Point Plug Taps, Metric

Size & Pitch	D Limit	# of Flutes	Pkg Qty	Uncoated Part #	TiN Coated Part #
M2 X .40	D3	2	1	RT31908	RT35308
M2.5 X .45	D3	2	1	RT31914	RT35314
M3 X .50	D3	2	1	RT31917	RT35317
M3.5 X .60	D4	2	1	RT31920	RT35320
M4 X .70	D4	2	1	RT31923	RT35323
M4.5 X .75	D4	2	1	RT31926	RT35326
M5 X .80	D4	2	1	RT31929	RT35329
M6 X 1.00	D5	2	1	RT31932	RT35332
M7 X 1.00	D5	2	1	RT31938	RT35338
M8 X 1.25	D5	2	1	RT31944	RT35344
M10 X 1.50	D6	3	1	RT31950	RT35350
M12 X 1.75	D6	3	1	RT31956	RT35356
M14 X 2.00	D7	3	1	RT31962	RT35362
M16 X 2.00	D7	3	1	RT31968	RT35368
M18 X 2.50	D7	3	1	RT31974	RT35374
M20 X 2.50	D7	4	1	RT31977	RT35377

Speeds & other tech data pages 405-416.



Uncoated

HSS, Fast Spiral Fluted Bottoming Taps for Non-Ferrous Materials, 52° Helix

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Uncoated Part #
3-48	H2	2	1	RT34701
3-56	H2	2	1	RT34703
4-40	H2	2	1	RT34705
4-48	H2	2	1	RT34707
5-40	H3	2	1	RT34709
5-44	H3	2	1	RT34711
6-32	H3	2	1	RT34713
6-40	H3	2	1	RT34715
8-32	H3	3	1	RT34717
8-36	H3	3	1	RT34719
10-24	H3	3	1	RT34721
10-32	H3	3	1	RT34723
12-24	H3	3	1	RT34725
12-28	H3	3	1	RT34727
1/4-20	H3	3	1	RT34729
1/4-28	H3	3	1	RT34731
5/16-18	H3	3	1	RT34733
5/16-24	H3	3	1	RT34735
3/8-16	H3	3	1	RT34737
3/8-24	H3	3	1	RT34739
7/16-14	H3	3	1	RT34741
7/16-20	H3	3	1	RT34743

Continued

Speeds & other tech data pages 405-416.

Fast Spiral



Uncoated

HSS, Fast Spiral Fluted Bottoming Taps for Non-Ferrous Materials, 52° Helix

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Uncoated Part #
1/2-13	H3	3	1	RT34745
1/2-20	H3	3	1	RT34747
9/16-12	H3	4	1	RT34749
9/16-18	H3	4	1	RT34751
5/8-11	H3	4	1	RT34753
5/8-18	H3	4	1	RT34755
3/4-10	H3	4	1	RT34757
3/4-16	H3	4	1	RT34759

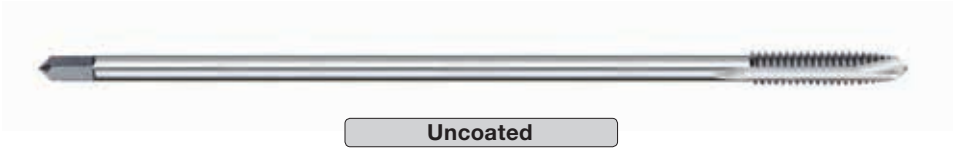


Uncoated

HSS, Fast Spiral Fluted Bottoming Taps for Non-Ferrous Materials, 52° Helix

Size & Pitch	D Limit	# of Flutes	Pkg Qty	Uncoated Part #
M3 X .50	D3	2	1	RT34849
M3.5 X .60	D4	3	1	RT34851
M4 X .70	D4	3	1	RT34853
M4.5 X .75	D4	3	1	RT34855
M5 X .80	D4	3	1	RT34857
M6 X 1.00	D5	3	1	RT34859
M8 X 1.25	D5	3	1	RT34861
M10 X 1.50	D6	3	1	RT34863
M12 X 1.75	D6	3	1	RT34865

Speeds & other tech data pages 405-416.



Uncoated

Small Shank Extension Taps, Spiral Point Plug

Size & Pitch	GH Limit	OAL	NC/NF	Thread Length	Square Length	Shank ø	Square	# of Flutes	Pkg Qty	Uncoated Part #
6-32	H3	6	NC	11/16	3/16	.097	.073	2	1	RT33001
8-32	H3	6	NC	3/4	1/4	.123	.092	2	1	RT33002
10-24	H3	6	NC	7/8	1/4	.136	.102	2	1	RT33003
10-32	H3	6	NF	7/8	1/4	.136	.102	2	1	RT33004
1/4-20	H3	6	NC	1	5/16	.185	.139	2	1	RT33005
1/4-28	H3	6	NF	1	5/16	.185	.139	2	1	RT33006
5/16-18	H3	6	NC	1-1/8	3/8	.240	.180	2	1	RT33007
5/16-24	H3	6	NF	1-1/8	3/8	.240	.180	2	1	RT33008
3/8-16	H3	6	NC	1-1/4	7/16	.275	.206	3	1	RT33009
3/8-24	H3	6	NF	1-1/4	7/16	.275	.206	3	1	RT33010
7/16-14	H3	6	NC	1-7/16	13/32	.323	.242	3	1	RT33011
7/16-20	H3	6	NF	1-7/16	13/32	.323	.242	3	1	RT33012
1/2-13	H3	6	NC	1-21/32	7/16	.367	.275	3	1	RT33013
1/2-20	H3	6	NF	1-21/32	7/16	.367	.275	3	1	RT33014
5/8-11	H3	6	NC	1-13/16	9/16	.480	.360	3	1	RT33015
5/8-18	H3	6	NF	1-13/16	9/16	.480	.360	3	1	RT33016
3/4-10	H3	6	NC	2	11/16	.590	.442	3	1	RT33017
3/4-16	H3	6	NF	2	11/16	.590	.442	3	1	RT33018

Speeds & other tech data pages 405-416.

Pulley Taps

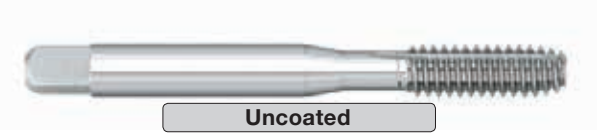


Uncoated

Pulley Taps, National Coarse Plug

Size & Pitch	GH Limit	FL	OAL	Pkg Qty	Uncoated Part #
1/4-20	H3	4	6	1	RT32522
1/4-20	H3	4	8	1	RT32523
5/16-18	H3	4	6	1	RT32530
5/16-18	H3	4	8	1	RT32531
3/8-16	H3	4	6	1	RT32538
3/8-16	H3	4	8	1	RT32539
3/8-16	H3	4	10	1	RT32540
7/16-14	H3	4	6	1	RT32546
7/16-14	H3	4	8	1	RT32547
1/2-13	H3	4	6	1	RT32554
1/2-13	H3	4	8	1	RT32555
1/2-13	H3	4	10	1	RT32556
1/2-13	H3	4	12	1	RT32557
5/8-11	H3	4	6	1	RT32562
5/8-11	H3	4	8	1	RT32563
5/8-11	H3	4	10	1	RT32564
5/8-11	H3	4	12	1	RT32565
3/4-10	H3	4	10	1	RT32572
3/4-10	H3	4	12	1	RT32573

Speeds & other tech data pages 405-416.


Uncoated


TiN Coated

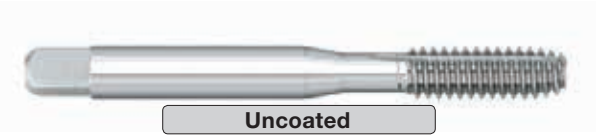
Thread Forming Taps, Plug & Bottom

Size & Pitch	GH Limit	# of Lube Grooves	Pkg Qty	Plug Uncoated Part #	Plug TiN Coated Part #	Bottom Uncoated Part #	Bottom TiN Coated Part #
0-80	H2	1	1	–	–	RT35800	RT35100
0-80	H3	1	1	–	–	RT35802	RT35102
1-64	H3	1	1	–	–	RT35804	RT35104
1-72	H3	1	1	–	–	RT35806	RT35106
2-56	H3	1	1	–	–	RT35808	RT35108
2-56	H4	1	1	–	–	RT35810	RT35110
2-64	H3	1	1	–	–	RT35812	RT35112
2-64	H3	1	1	–	–	RT35814	RT35114
3-48	H3	1	1	–	–	RT35816	RT35116
3-48	H3	1	1	–	–	RT35818	RT35118
3-56	H3	1	1	–	–	RT35820	RT35120
3-56	H5	1	1	–	–	RT35822	RT35122
4-40	H3	1	1	RT35823	RT35123	RT35824	RT35124
4-40	H5	1	1	RT35825	RT35125	RT35826	RT35126
4-48	H4	1	1	RT35827	RT35127	RT35828	RT35128
5-40	H4	1	1	RT35831	RT35131	RT35832	RT35132
5-40	H5	1	1	–	RT35133	RT35834	–
5-44	H4	1	1	RT35835	RT35135	RT35836	RT35136
6-32	H3	1	1	RT35839	RT35139	RT35840	RT35140
6-32	H5	1	1	RT35841	RT35141	RT35842	RT35142
6-32	H7	1	1	RT35843	RT35143	RT35844	–
6-40	H4	1	1	RT35845	RT35145	RT35846	RT35146
8-32	H3	1	1	RT35849	RT35149	RT35850	RT35150
8-32	H5	1	1	RT35851	RT35151	RT35852	RT35152
8-32	H7	1	1	RT35853	RT35153	RT35854	RT35154
8-36	H4	1	1	RT35855	RT35155	RT35856	RT35156
10-24	H5	1	1	RT35857	RT35157	RT35858	RT35158
10-24	H7	1	1	RT35859	RT35159	RT35860	RT35160

Continued

Speeds & other tech data pages 405-416.

Thread Forming

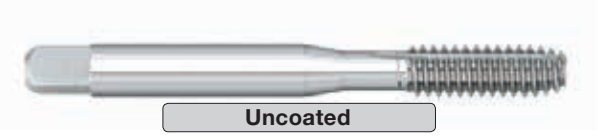

Uncoated


TiN Coated

Thread Forming Taps, Plug & Bottom

Size & Pitch	GH Limit	# of Lube Grooves	Pkg Qty	Plug Uncoated Part #	Plug TiN Coated Part #	Bottom Uncoated Part #	Bottom TiN Coated Part #
10-32	H3	1	1	RT35861	RT35161	RT35862	RT35162
10-32	H5	1	1	RT35863	RT35163	RT35864	RT35164
12-28	H4	2	1	RT35869	RT35169	RT35870	RT35170
1/4-20	H5	2	1	RT35871	RT35171	RT35872	RT35172
1/4-20	H8	2	1	RT35873	RT35173	RT35874	RT35174
1/4-28	H4	2	1	RT35877	RT35177	RT35878	RT35178
1/4-28	H6	2	1	RT35879	RT35179	RT35880	RT35180
5/16-18	H5	2	1	RT35881	RT35181	RT35882	RT35182
5/16-18	H8	2	1	RT35883	RT35183	RT35884	RT35184
5/16-24	H5	2	1	RT35885	RT35185	RT35886	RT35186
5/16-24	H7	2	1	RT35887	RT35187	RT35888	RT35188
3/8-16	H6	2	1	RT35889	RT35189	RT35890	RT35190
3/8-16	H8	2	1	RT35891	RT35191	RT35892	RT35192
3/8-24	H5	2	1	RT35893	RT35193	RT35894	RT35194
3/8-24	H7	2	1	RT35895	RT35195	RT35896	RT35196
7/16-14	H7	2	1	RT35897	RT35197	RT35898	RT35198
7/16-14	H9	2	1	RT35899	RT35201	RT35900	RT35202
7/16-20	H5	2	1	RT35901	RT35203	RT35902	RT35204
7/16-20	H8	2	1	RT35903	RT35205	RT35904	RT35206
1/2-13	H7	2	1	RT35905	RT35207	RT35906	RT35208
1/2-13	H10	2	1	RT35907	RT35209	RT35908	RT35210
1/2-20	H5	2	1	RT35909	RT35211	RT35910	RT35212
1/2-20	H8	2	1	RT35911	RT35213	RT35912	RT35214

Speeds & other tech data pages 405-416.


Uncoated


TiN Coated

Thread Forming Taps, Metric, Plug & Bottom

Size & Pitch	D Limit	# of Lube Grooves	Pkg Qty	Plug Uncoated Part #	Plug TiN Coated Part #	Bottom Uncoated Part #	Bottom TiN Coated Part #
M1.6 X .35	D5	0	1	—	—	RT36090	RT35090
M1.7 X .35	D5	0	1	—	—	RT36092	RT35092
M2 X .40	D5	0	1	—	—	RT36094	RT35094
M2.5 X .45	D6	0	1	—	—	RT36096	RT35096
M3 X .50	D5	1	1	RT36001	—	RT36002	RT35002
M3.5 X .60	D7	1	1	RT36097	RT35097	RT36098	RT35098
M4 X .70	D6	1	1	RT36003	RT35003	RT36004	RT35004
M5 X .80	D7	1	1	RT36005	RT35005	RT36006	RT35006
M6 X 1.00	D8	2	1	RT36007	RT35007	RT36008	RT35008
M8 X 1.25	D9	2	1	RT36009	RT35009	RT36010	RT35010
M10 X 1.50	D10	2	1	RT36011	RT35011	RT36012	RT35012
M12 X 1.75	D11	2	1	RT36013	RT35013	RT36014	RT35014

Speeds & other tech data pages 405-416.

NPT Taper Pipe


Uncoated


Steam Oxide


TiN Coated

Taper Pipe Taps, NPT, Regular

Size & Pitch	# of Flutes	Pkg Qty	Uncoated Part #	Steam Oxide Part #	TiN Coated Part #
1/16-27	4	1	RT32200	RT34200	RT34400
1/8-27*	4	1	RT32201	RT34201	RT34401
1/8-27	4	1	RT32202	RT34202	RT34402
1/4-18	4	1	RT32206	RT34206	RT34406
3/8-18	4	1	RT32208	RT34208	RT34408
1/2-14	4	1	RT32210	RT34210	RT34410
3/4-14	5	1	RT32212	RT34212	RT34412
1-11-1/2	5	1	RT32214	RT34214	RT34414
1-1/4-11-1/2	5	1	RT32216	RT34216	RT34416
1-1/2-11-1/2	7	1	RT32218	RT34218	RT34418
2-11-1/2	7	1	RT32220	RT34220	RT34420

* Small Shank

Speeds & other tech data pages 405-416.



Uncoated



TiN Coated

Taper Pipe Taps, NPTF, Regular

Size & Pitch	# of Flutes	Pkg Qty	Uncoated Part #	TiN Coated Part #
1/16-27	4	1	RT32800	RT35400
1/8-27*	4	1	RT32801	RT35401
1/8-27	4	1	RT32802	RT35402
1/4-18	4	1	RT32806	RT35406
3/8-18	4	1	RT32808	RT35408
1/2-14	4	1	RT32810	RT35410
3/4-14	5	1	RT32812	RT35412
1-11-1/2	5	1	RT32814	RT35414
1-1/4-11-1/2	5	1	RT32816	RT35416
1-1/2-11-1/2	7	1	RT32818	RT35418
2-11-1/2	7	1	RT32820	RT35420

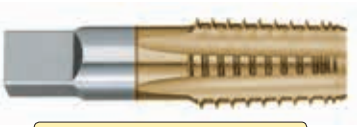
* Small Shank

Speeds & other tech data pages 405-416.

NPT Interrupted


Uncoated


Steam Oxide

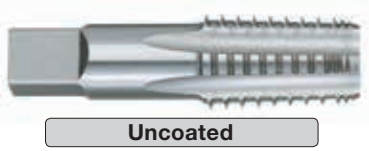

TiN Coated

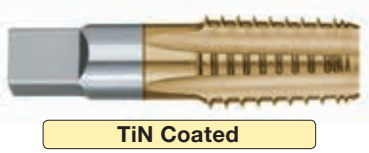
Taper Pipe Taps, NPT, Interrupted

Size & Pitch	# of Flutes	Pkg Qty	Uncoated Part #	Steam Oxide Part #	TiN Coated Part #
1/8-27*	5	1	RT32301	RT34301	RT34501
1/8-27	5	1	RT32302	RT34302	RT34502
1/4-18	5	1	RT32306	RT34306	RT34506
3/8-18	5	1	RT32308	RT34308	RT34508
1/2-14	5	1	RT32310	RT34310	RT34510
3/4-14	5	1	RT32312	RT34312	RT34512
1-11-1/2	5	1	RT32314	RT34314	RT34514
1-1/4-11-1/2	5	1	RT32316	RT34316	RT34516
1-1/2-11-1/2	7	1	RT32318	RT34318	RT34518
2-11-1/2	7	1	RT32320	RT34320	RT34520

* Small Shank

Speeds & other tech data pages 405-416.


Uncoated


TiN Coated

Taper Pipe Taps, NPTF, Interrupted

Size & Pitch	# of Flutes	Pkg Qty	Uncoated Part #	TiN Coated Part #
1/8-27*	5	1	RT32901	RT35501
1/8-27	5	1	RT32902	RT35502
1/4-18	5	1	RT32906	RT35506
3/8-18	5	1	RT32908	RT35508
1/2-14	5	1	RT32910	RT35510
3/4-14	5	1	RT32912	RT35512
1-11-1/2	5	1	RT32914	RT35514
1-1/4-11-1/2	5	1	RT32916	RT35516
1-1/2-11-1/2	7	1	RT32918	RT35518
2-11-1/2	7	1	RT32920	RT35520

* Small Shank

Speeds & other tech data pages 405-416.

Pipe Taps



Uncoated



TiN Coated

Taper Pipe Taps, NPT Extension

Size & Pitch	# of Flutes	OAL	Pkg Qty	Uncoated Part #	TiN Coated Part #
1/8-27	4	6	1	RT33121	RT35721
1/4-18	4	6	1	RT33123	RT35723
3/8-18	4	6	1	RT33125	RT35725
1/2-14	4	6	1	RT33127	RT35727



Uncoated



TiN Coated

Straight Pipe Taps, NPS

Size & Pitch	# of Flutes	Pkg Qty	Uncoated Part #	TiN Coated Part #
1/8-27	4	1	RT33101	RT35601
1/4-18	4	1	RT33102	RT35602
3/8-18	4	1	RT33103	RT35603
1/2-14	4	1	RT33104	RT35604
3/4-14	5	1	RT33105	RT35605
1-11-1/2	5	1	RT33106	RT35606

Speeds & other tech data pages 405-416.



Uncoated

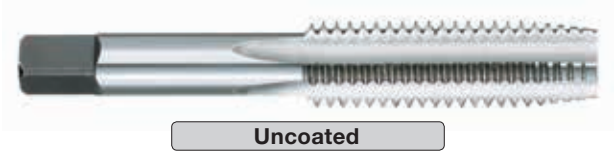
HSS Hand Taps, Plug & Bottom

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Plug Uncoated Part #	Bottom Uncoated Part #
0-80	H1	2	1	RT30001	RT30002
0-80	H2	2	1	RT30005	RT30006
1-64	H1	2	1	RT30009	RT30010
1-72	H1	2	1	RT30017	RT30018
1-72	H2	2	1	RT30021	RT30022
2-56	H1	3	1	RT30029	RT30030
2-56	H2	2	1	RT30033	RT30034
2-56	H2	3	1	RT30037	RT30038
2-64	H2	3	1	RT30045	RT30046
3-48	H2	2	1	RT30053	–
3-48	H2	3	1	RT30057	RT30058
3-56	H2	3	1	RT30061	RT30062
4-36	H2	3	1	RT30089	–
4-40	H1	2	1	RT30065	–
4-40	H1	3	1	RT30069	RT30070
4-40	H2	2	1	RT30073	RT30074
4-40	H2	3	1	RT30077	RT30078
4-48	H2	3	1	RT30085	RT30086
5-40	H1	3	1	RT30093	RT30094
5-40	H2	2	1	RT30097	RT30098
5-40	H2	3	1	RT30101	RT30102
5-44	H2	3	1	RT30109	RT30110
6-32	H1	3	1	RT30117	RT30118
6-32	H2	2	1	RT30121	RT30122
6-32	H2	3	1	RT30125	RT30126
6-32	H3	2	1	RT30129	RT30130
6-32	H3	3	1	RT30133	RT30134
6-32	H7	3	1	RT30137	RT30138

Continued

Speeds & other tech data pages 405-416.

Plug & Bottom



Uncoated

HSS Hand Taps, Plug & Bottom

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Plug Uncoated Part #	Bottom Uncoated Part #
6-40	H2	2	1	RT30145	–
6-40	H2	3	1	RT30149	RT30150
8-32	H1	3	1	RT30157	RT30158
8-32	H1	4	1	RT30161	RT30162
8-32	H2	2	1	RT30165	RT30166
8-32	H2	3	1	RT30169	RT30170
8-32	H2	4	1	RT30173	RT30174
8-32	H3	2	1	RT30177	RT30178
8-32	H3	3	1	RT30181	RT30182
8-32	H3	4	1	RT30185	RT30186
8-32	H7	3	1	RT30189	RT30190
8-36	H1	4	1	RT30197	–
8-36	H2	4	1	RT30201	RT30202
10-24	H1	3	1	RT30205	–
10-24	H1	4	1	RT30209	RT30210
10-24	H2	2	1	RT30213	RT30214
10-24	H2	3	1	RT30217	–
10-24	H2	4	1	RT30221	RT30222
10-24	H3	2	1	RT30225	RT30226
10-24	H3	3	1	RT30229	RT30230
10-24	H3	4	1	RT30233	RT30234
10-24	H7	3	1	RT30237	RT30238
10-24	H7	4	1	RT30241	RT30242
10-32	H1	2	1	RT30245	RT30246
10-32	H1	3	1	RT30249	–
10-32	H1	4	1	RT30253	RT30254
10-32	H2	2	1	RT30257	RT30258
10-32	H2	3	1	RT30261	RT30262
10-32	H2	4	1	RT30265	RT30266
10-32	H3	2	1	RT30269	RT30270
10-32	H3	3	1	RT30273	RT30274
10-32	H3	4	1	RT30277	RT30278
12-24	H3	4	1	RT30289	RT30290
12-28	H3	4	1	RT30297	RT30298

Continued

Speeds & other tech data pages 405-416.



Uncoated

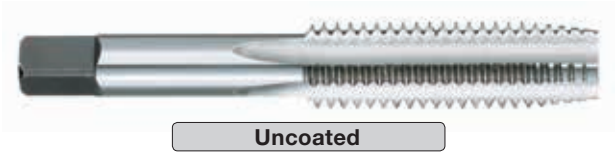
HSS Hand Taps, Plug & Bottom

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Plug Uncoated Part #	Bottom Uncoated Part #
1/4-20	H1	3	1	RT30301	–
1/4-20	H1	4	1	RT30305	RT30306
1/4-20	H2	3	1	RT30309	–
1/4-20	H2	4	1	RT30312	RT30313
1/4-20	H3	2	1	RT30316	RT30317
1/4-20	H3	3	1	RT30320	RT30321
1/4-20	H3	4	1	RT30324	RT30325
1/4-20	H5	3	1	RT30328	RT30329
1/4-20	H5	4	1	RT30332	RT30333
1/4-28	H1	4	1	RT30336	RT30337
1/4-28	H2	4	1	RT30340	RT30341
1/4-28	H3	2	1	RT30344	RT30345
1/4-28	H3	3	1	RT30348	RT30349
1/4-28	H3	4	1	RT30352	RT30353
1/4-28	H4	4	1	RT30356	RT30357
5/16-18	H1	4	1	RT30360	RT30361
5/16-18	H2	4	1	RT30364	RT30365
5/16-18	H3	2	1	RT30368	RT30369
5/16-18	H3	3	1	RT30372	RT30373
5/16-18	H3	4	1	RT30376	RT30377
5/16-18	H5	3	1	RT30380	RT30381
5/16-18	H5	4	1	RT30384	RT30385
5/16-24	H1	4	1	RT30388	RT30389
5/16-24	H2	4	1	RT30392	–
5/16-24	H3	3	1	RT30396	RT30397
5/16-24	H3	4	1	RT30400	RT30401
5/16-24	H4	4	1	RT30404	RT30405
3/8-16	H1	3	1	RT30408	–
3/8-16	H2	4	1	RT30415	RT30416
3/8-16	H3	3	1	RT30419	RT30420
3/8-16	H3	4	1	RT30423	RT30424
3/8-16	H5	3	1	RT30427	RT30428
3/8-16	H5	4	1	RT30431	RT30432
3/8-24	H3	3	1	RT30443	RT30444

Continued

Speeds & other tech data pages 405-416.

Plug & Bottom

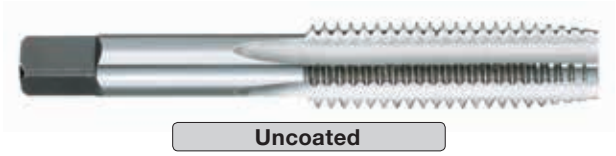


Uncoated

HSS Hand Taps, Plug & Bottom

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Plug Uncoated Part #	Bottom Uncoated Part #
3/8-24	H3	4	1	RT30447	RT30448
3/8-24	H4	4	1	RT30451	RT30452
7/16-14	H2	4	1	RT30459	RT30460
7/16-14	H3	3	1	RT30463	–
7/16-14	H3	4	1	RT30466	RT30467
7/16-14	H5	4	1	RT30470	RT30471
7/16-20	H2	4	1	RT30478	RT30479
7/16-20	H3	3	1	RT30482	–
7/16-20	H3	4	1	RT30485	RT30486
7/16-20	H5	4	1	RT30489	RT30490
1/2-13	H1	4	1	RT30493	RT30494
1/2-13	H2	4	1	RT30497	RT30498
1/2-13	H3	3	1	RT30501	RT30502
1/2-13	H3	4	1	RT30505	RT30506
1/2-13	H5	4	1	RT30509	RT30510
1/2-20	H1	4	1	RT30513	RT30514
1/2-20	H3	3	1	RT30521	–
1/2-20	H3	4	1	RT30524	RT30525
1/2-20	H5	4	1	RT30528	RT30529
9/16-12	H2	4	1	RT30532	–
9/16-12	H3	4	1	RT30536	RT30537
9/16-12	H5	4	1	RT30540	RT30541
9/16-18	H2	4	1	RT30544	–
9/16-18	H3	4	1	RT30547	RT30548
9/16-18	H5	4	1	RT30551	RT30552
5/8-11	H3	4	1	RT30562	RT30563
5/8-11	H5	4	1	RT30566	RT30567
5/8-18	H2	4	1	RT30574	RT30575
5/8-18	H3	4	1	RT30578	RT30579
11/16-11	H3	4	1	RT30586	RT30587
11/16-16	H3	4	1	RT30590	RT30591

Speeds & other tech data pages 405-416.



Uncoated

HSS Hand Taps, Plug & Bottom

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Plug Uncoated Part #	Bottom Uncoated Part #
3/4-10	H2	4	1	RT30597	–
3/4-10	H3	4	1	RT30601	RT30602
3/4-10	H5	4	1	RT30605	RT30606
3/4-16	H2	4	1	RT30612	–
3/4-16	H3	4	1	RT30616	RT30617
3/4-16	H5	4	1	RT30620	RT30621
7/8-9	H4	4	1	RT30627	RT30628
7/8-9	H6	4	1	RT30631	–
7/8-14	H2	4	1	RT30634	–
7/8-14	H4	4	1	RT30637	RT30638
7/8-14	H6	4	1	RT30641	–
1-8	H2	4	1	RT30644	–
1-8	H4	4	1	RT30647	RT30648
1-8	H6	4	1	RT30651	–
1-12	H4	4	1	RT30654	RT30655
1-14	H2	4	1	RT30658	–
1-14	H4	4	1	RT30661	RT30662
1-14	H6	4	1	RT30665	RT30666
1-1/8-7	H4	4	1	RT30669	RT30670
1-1/8-12	H4	4	1	RT30673	RT30674
1-1/4-7	H4	4	1	RT30677	RT30678
1-1/4-12	H4	6	1	RT30681	RT30682
1-3/8-6	H4	4	1	RT30685	RT30686
1-3/8-12	H4	6	1	RT30689	RT30690
1-1/2-6	H4	4	1	RT30693	RT30694
1-1/2-12	H4	6	1	RT30697	RT30698

Speeds & other tech data pages 405-416.

Plug & Bottom



Uncoated

HHS Hand Taps, Metric, Plug & Bottom

Size & Pitch	D Limit	# of Flutes	Pkg Qty	Plug Uncoated Part #	Bottom Uncoated Part #
M1.6 X .35	D3	2	1	RT30702	—
M2 X .40	D3	3	1	RT30708	RT30709
M2.5 X .45	D3	3	1	RT30714	—
M3 X .50	D3	3	1	RT30717	RT30718
M3.5 X .60	D4	3	1	RT30720	—
M4 X .70	D4	4	1	RT30723	RT30724
M4.5 X .75	D4	4	1	RT30726	—
M5 X .80	D4	4	1	RT30729	RT30730
M6 X 1.00	D5	4	1	RT30732	RT30733
M7 X 1.00	D5	4	1	RT30738	RT30739
M8 X 1.25	D5	4	1	RT30744	RT30745
M10 X 1.25	D5	4	1	RT30747	RT30748
M10 X 1.50	D6	4	1	RT30750	RT30751
M12 X 1.25	D5	4	1	RT30753	RT30754
M12 X 1.75	D6	4	1	RT30756	RT30757
M14 X 1.50	D6	4	1	RT30759	RT30760
M14 X 2.00	D7	4	1	RT30762	RT30763
M16 X 1.50	D6	4	1	RT30765	RT30766
M16 X 2.00	D7	4	1	RT30768	RT30769
M18 X 1.50	D6	4	1	RT30771	RT30772
M18 X 2.50	D7	4	1	RT30774	RT30775
M20 X 2.50	D7	4	1	RT30777	RT30778
M24 X 3.00	D8	4	1	RT30783	RT30784
M27 X 3.00	D8	4	1	RT30786	RT30787
M30 X 3.50	D9	4	1	RT30789	RT30790
M33 X 3.50	D9	4	1	RT30792	RT30793
M36 X 4.00	D9	4	1	RT30795	RT30796

Speeds & other tech data pages 405-416.



Uncoated

Screw Thread Insert (STI) Spiral Point Plug Taps

Size & Pitch	GH Limit	# of Flutes	Pkg Qty	Uncoated Part #
4-40	H1	2	1	RT31815
5-40	H1	2	1	RT31820
6-32	H2	2	1	RT31824
6-40	H2	2	1	RT31827
8-32	H2	2	1	RT31830
10-24	H2	2	1	RT31836
10-32	H2	2	1	RT31840
12-24	H2	2	1	RT31843
1/4-20	H2	2	1	RT31847
1/4-28	H2	2	1	RT31854
5/16-18	H3	3	1	RT31860
5/16-24	H2	3	1	RT31868
3/8-16	H3	3	1	RT31871
3/8-24	H2	3	1	RT31875
7/16-14	H3	3	1	RT31878
7/16-20	H3	3	1	RT31881
1/2-13	H3	3	1	RT31885
1/2-20	H3	3	1	RT31889

Speeds & other tech data pages 405-416.

Torque Cut High Performance HSSE Color Ring Taps



- RedLine Torque Cut High Performance Taps give you greater performance when tapping Steel Alloys, Stainless Steels, Titanium and a variety of other Steels with a maximum Rc of 32.
- Made from High Vanadium Powdered Metal, Torque Cut Taps provide the right combination of strength and abrasion resistance. The benefit to this is increased speeds, while achieving longer tool life and a lower cost per thread.
- High Performance Taps found on pages 357-379.

High Performance HSSE Color Ring Tap Speeds

Material	Grades	SFM Torque Cut HP	SFM Pipe Taps	Ring Color
P - Steels				
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	30-60	10-30	Green
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	40-90	15-35	Yellow
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	40-90	15-35	Yellow
M - Stainless Steels				
Austenitic	301-304L, 310, 316L, 321, 347	10-30	15-35	Blue
Martensitic	403, 410, 416, 420, 430, 431, 440	20-40	10-30	Red
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	8-20	6-15	Red
K - Cast Irons				
Ductile	A536, J434, 60-40-18	30-50	N/A	White
Gray	A48, A436, A319, Class 20, G4000	20-80	N/A	White
Malleable	A220, A602, J158	30-50	20-35	White
N - Non-Ferrous				
Aluminum Alloys	2014, 2024, 6061, 7075	90-150	65-110	Black
Aluminum High Silicon	A380, A390	65-75	50-55	Black
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	N/A	N/A	N/A
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	N/A	N/A	N/A
Copper		N/A	N/A	N/A
Magnesium		N/A	N/A	N/A
S - High Temp Alloys				
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	N/A	N/A	N/A
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	8-20	6-15	Blue
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	8-20	6-15	Blue
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	20-50	15-35	Blue

NOTE: Speeds and Feeds listed are estimated and will vary by application.

General Purpose & Other Tap Speeds

Material	Grades	SFM
P - Steels		
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	15-25
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	20-40
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	20-30
M - Stainless Steels		
Austenitic	301-304L, 310, 316L, 321, 347	10-20
Martensitic	403, 410, 416, 420, 430, 431, 440	10-20
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	10-20
K - Cast Irons		
Ductile	A536, J434, 60-40-18	15-30
Gray	A48, A436, A319, Class 20, G4000	15-30
Malleable	A220, A602, J158	30-60
N - Non-Ferrous		
Aluminum Alloys	2014, 2024, 6061, 7075	70-90
Aluminum High Silicon	A380, A390	60-80
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	60-100
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	50-70
Copper		60-80
Magnesium		60-80
S - High Temp Alloys		
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	10-25
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	10-25
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	10-25
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	5-15

NOTE: Speeds listed are estimated and will vary by application.

These tools can be found on pages 380-403.

Tap Drill Chart

Metric Tap Drill Size
(Recommended Drill Sizes Suitable for 6H Tolerance)

Tap Size	Cutting Tap Drill Size	Roll Form Tap Drill Size	Tap Size	Cutting Tap Drill Size	Roll Form Tap Drill Size	Tap Size	Cutting Tap Drill Size
M1.6 x 0.35	1.25MM	—	M10 x 1.5	8.5MM	9.20MM	M24 x 3	53/64
M1.8 X 0.35	1.45 MM	—	M10 x 1.25	8.75MM	U	M24 x 2	22MM
M2 x 0.4	1.60MM	—	M12 x 1.75	13/32	7/16	M27 x 3	24MM
M2.2 x 0.45	1.75MM	—	M12 x 1.25	10.75MM	.447*	M27 x 2	63/64
M2.5 x 0.45	2.05MM	—	M14 x 2	12MM	13MM	M30 x 3.5	1-3/64*
M3 x 0.5	2.5MM	7/64	M14 x 1.5	12.5MM	13.20MM	M30 x 2	1-7/64*
M3.5 x .06	2.9MM	3.2MM	M16 x 2	14MM	15MM	M33 x 3.5	1-11/64*
M4 x 0.7	3.3MM	#27	M16 x 1.5	14.5MM	15.25MM	M33 x 2	31MM*
M4.5 x 0.75	3.75MM	4.10MM	M18 x 1.5	15.5MM	16.25MM	M36 x 4	32MM*
M5 x 0.8	#19	4.60MM	M18 x 1.5	16.5MM	17.25MM	M36 x 3	33MM*
M6 x 1	5MM	5.50MM	M20 x 2.5	17.5MM	47/64	M39 x 4	35MM*
M7 x 1	6MM	6.50MM	M20 x 1.5	18.5MM	.757*	M39 x 3	36MM*
M8 x 1.25	H	L	M22 x 2.5	19.5MM	—	—	—
M8 x 1	J	7.50MM	M22 x 1.5	20.5MM	—	* Reaming Recommended	

Machine Screw Sizes NC & NF

Nom. Size Tap	Recommended Tap Drill		Probable Hole Size	Actual % Thread
	Drill	Decimal		
0 - 80	3/64	.0469	.0484	71
1 - 64	53	.0595	.0610	59
1 - 72	53	.0595	.0610	67
2 - 56	50	.0700	.0717	62
2 - 64	50	.0700	.0717	70
3 - 48	47	.0785	.0804	69
3 - 56	46	.0810	.0829	69
4 - 40	43	.0890	.0910	65
4 - 48	42	.0935	.0955	61
5 - 40	39	.0995	.1018	71
5 - 44	38	.1015	.1038	72
6 - 32	36	.1065	.1091	71
6 - 40	33	.1130	.1156	69
8 - 32	29	.1360	.1389	62
8 - 36	29	.1360	.1389	70
10 - 24	25	.1495	.1527	69
10 - 32	21	.1590	.1622	68
12 - 24	17	.1730	.1765	73
12 - 28	15	.1800	.1835	70
1/4 - 20	7	.2010	.2048	70

Fractional Sizes NC & NF

Nom. Size Tap	Recommended Tap Drill		Probable Hole Size	Actual % Thread
	Drill	Decimal		
1/4 - 28	3	.2130	.2168	72
5/16 - 18	F	.2570	.2608	72
5/16 - 24	I	.2720	.2761	67
3/8 - 16	5/16	.3125	.3169	72
3/8 - 24	Q	.3320	.3364	71
7/16 - 14	U	.3680	.3726	70
7/16 - 20	W	.3860	.3906	72
1/2 - 13	27/64	.4219	.4266	73
1/2 - 20	29/64	.4531	.4578	65
9/16 - 12	31/64	.4844	.4892	68
9/16 - 18	33/64	.5156	.5204	58
5/8 - 11	17/32	.5313	.53620	75
5/8 - 18	37/64	.5781	.5831	58
3/4 - 10	21/32	.6562	.6613	68
3/4 - 16	11/16	.6875	.69250	71
7/8 - 9	49/64	.7656	.7708	72
7/8 - 14	13/16	.8125	.8177	62
1 - 8	7/8	.8750	.8809	73
1 - 12	59/64	.9219	.9279	67
1 - 14	15/16	.9375	.9435	61

Taper Pipe Taps

Nom. Size	Tap Drill	
	NPT	NPTF
1/16 - 27	D	C
1/8 - 27	Q	Q
1/4 - 18	7/16	7/16
3/8 - 18	9/16	9/16
1/2 - 14	45/64	45/64
3/4 - 14	29/32	29/32
1 - 11-1/2	1-9/64	1-9/64
1-1/4 - 11-1/2	1-31/64	1-31/64
1-1/2 - 11-1/2	1-47/64	1-23/32
2 - 1-1/2	2-13/64	2-3/16
2-1/2 - 8	2-5/8	2-39/64
3 - 8	3-1/4	3-15/64
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—

Roll Form Taps - App. 65% Thread

Tap	Drill	Tap	Drill
0 - 80	54	12-28	8
1 - 64	1.65MM	1/4-20	1
1 - 72	1.7MM	1/4-28	A
2 - 56	5/64	5/16-18	7.3MM
2 - 64	2MM	5/16-24	M
3 - 48	43	3/8-16	8.8MM
3 - 56	2.3MM	3/8-24	T
4 - 40	39	7/16-14	Y
4 - 48	2.6MM	7/16-20	10.5MM
5 - 40	33	1/2-13	11.8MM
5 - 44	2.9MM	1/2-20	12.0MM
6 - 32	1/8	9/16-12	17/32
6 - 40	3.2MM	9/16-18	13.5MM
8 - 32	25	5/8-11	14.75MM
8 - 36	24	5/8-18	15.25MM
10 - 24	11/64	3/4-10	45/64
10 - 32	16	3/4-16	23/32
12 - 24	5MM	—	—

Machine Screw Tap (NC & NF) Dimensions

Size	OAL	Thread Length	Square Length	Shk ø	Square
#0 (.060)	1-5/8	5/16	3/16	.141	.110
#1 (.073)	1-11/16	3/8	3/16	.141	.110
#2 (.066)	1-3/4	7/16	3/16	.141	.110
#3 (.099)	1-13/16	1/2	3/16	.141	.110
#4 (.112)	1-7/8	9/16	3/16	.141	.110
#5 (.125)	1-15/16	5/8	3/16	.141	.110
#6 (.138)	2	11/16	3/16	.141	.110
#8 (.164)	2-1/8	3/4	1/4	.168	.131
#10 (.190)	2-3/8	7/8	1/4	.194	.152
#12 (.216)	2-3/8	15/16	9/32	.220	.165

Fractional Size Tap (NC & NF) Dimensions

Size	OAL	Thread Length	Square Length	Shk ø	Square
1/4	2-1/2	1	5/16	.255	.191
5/16	2-23/32	1-1/8	3/8	.318	.238
3/8	2-15/16	1-1/4	7/16	.381	.286
7/16	3-5/32	1-7/16	13/32	.323	.242
1/2	3-3/8	1-21/32	7/16	.367	.275
9/16	3-19/32	1-21/32	1/2	.429	.322
5/8	3-13/16	1-13/16	9/16	.480	.360
11/16	4-1/32	1-13/16	5/8	.542	.406
3/4	4-1/4	2	11/16	.590	.442
7/8	4-11/16	2-7/32	3/4	.697	.523
1	5-1/8	2-1/2	13/16	.800	.600
1-1/8	5-7/16	2-9/16	7/8	.896	.672
1-1/4	5-3/4	2-9/16	1	1.021	.766
1-3/8	6-1/16	3	1-1/16	1.108	.831
1-1/2	6-3/8	3	1-1/8	1.233	.925

Small Shank Extension Tap Dimensions

Size	NC/NF	Thread Length	Square Length	Shk ø	Square
6 – 32	NC	11/16	3/16	.097	.073
8 – 32	NC	3/4	1/4	.123	.092
10 – 24	NC	7/8	1/4	.136	.102
10 – 32	NF	7/8	1/4	.136	.102
1/4 – 20	NC	1	5/16	.185	.139
1/4 – 28	NF	1	5/16	.185	.139
5/16 – 18	NC	1-1/8	3/8	.240	.180
5/16 – 24	NF	1-1/8	3/8	.240	.180
3/8 – 16	NC	1-1/4	7/16	.275	.206
3/8 – 24	NF	1-1/4	7/16	.275	.206
7/16 – 14	NC	1-7/16	13/32	.323	.242
7/16 – 20	NF	1-7/16	13/32	.323	.242
1/2 – 13	NC	1-21/32	7/16	.367	.275
1/2 – 20	NF	1-21/32	7/16	.367	.275
5/8 – 11	NC	1-13/16	9/16	.480	.360
5/8 – 18	NF	1-13/16	9/16	.480	.360
3/4 – 10	NC	2	11/16	.590	.442
3/4 – 16	NF	2	11/16	.590	.442

Pulley Tap Dimensions

Size	Thread Length	Square Length	Shk ø	Square	Neck Length	Ground Length
1/4	1	5/16	.255	.191	3/8	1-1/2
5/16	1-1/8	3/8	.318	.238	3/8	1-9/16
3/8	1-1/4	7/16	.381	.286	3/8	1-5/8
7/16	1-7/16	1/2	.444	.333	7/16	1-11/16
1/2	1-21/32	9/16	.507	.380	1/2	1-11/16
5/8	1-13/16	11/16	.633	.475	5/8	2
3/4	2	3/4	.759	.569	3/4	2-1/4

See page 346 for overall lengths available.

Pipe Tap, Straight & Taper (NC & NF) Dimensions

Size	OAL	Thread Length	Square Length	Shk ø	Square
1/16 – 27	2-1/8	11/16	3/8	.3125	.234
1/8 – 27	2-1/8	3/4	3/8	.3125(SS)	.234
1/8 – 27	2-1/8	3/4	3/8	.4375(LS)	.328
1/4 – 18	2-7/16	1-1/16	7/16	.5625	.421
3/8 – 18	2-9/16	1-1/16	1/2	.7000	.531
1/2 – 14	3-1/8	1-3/8	5/8	.6875	.515
3/4 – 14	3-1/4	1-3/8	11/16	.9063	.679
1 – 11-1/2	3-3/4	1-3/4	13/16	1.1250	.843
1-1/4 – 11-1/2	4	1-3/4	15/16	1.3125	.984
1-1/2 – 11-1/2	4-1/4	1-3/4	1	1.5000	1.125
2 – 11-1/2	4-1/2	1-3/4	1-1/8	1.8750	1.406

Metric Tap Dimensions

Size	OAL	Thread Length	Square Length	Shk ø	Square	Inch Blank
M1.6 x .35	1-5/8	5/16	3/16	.141	.110	#0
M2 x .40	1-3/4	7/16	3/16	.141	.110	#2
M2.5 x .45	1-13/16	1/2	3/16	.141	.110	#3
M3 x .50	1-15/16	5/8	3/16	.141	.110	#5
M3.5 x .60	2	11/16	3/16	.141	.110	#6
M4 x .70	2-1/8	3/4	1/4	.168	.131	#8
M4.5 x .75	2-3/8	7/8	1/4	.194	.152	#10
M5 x .80	2-3/8	7/8	1/4	.194	.152	#10
M6 x 1	2-1/2	1	5/16	.255	.191	1/4
M6.3 x 1	2-1/2	1	5/16	.255	.191	1/4
M7 x 1	2-23/32	1-1/8	3/8	.318	.238	5/16
M8 x 1.25	2-23/32	1-1/8	3/8	.318	.238	5/16
M10 x 1.50	2-15/16	1-1/4	7/16	.381	.286	3/8
M12 x 1.75	3-3/8	1-21/32	7/16	.367	.275	1/2
M14 x 2	3-19/32	1-21/32	1/2	.429	.322	9/16
M16 x 2	3-13/16	1-13/16	9/16	.480	.360	5/8
M18 x 2.50	4-1/32	1-13/16	5/8	.542	.406	11/16
M20 x 2.50	4-15/32	2	11/16	.652	.489	13/16
M24 x 3	4-29/32	2-7/32	3/4	.760	.570	15/16
M30 x 3.50	5-7/16	2-9/16	1	1.021	.766	1-3/16
M36 x 4	6-1/16	3	1-1/8	1.233	.925	1-7/16

Styles of Taps

The type of hole to be tapped has much to do with the chamfer style of that tap that's best suited. Some holes go all the way through. Some, while not through-holes, are relatively deep; some are quite shallow (a little deeper than diameter). Each of these three kinds of holes - through, deep-bottoming blind, and shallow bottoming has a tap best suited to threading requirements.

Taper Taps

This style with a 7-10 thread chamfer, has the longest chamfer of the three to distribute action over the maximum number of teeth. The taper also acts as a guide in starting the cutting action in the hole.

Plug Taps

This style, with a 4-6 thread chamfer, is most widely used in through holes and where there is sufficient room at the bottom in blind holes.

Bottoming Taps

This style, with a 1-2 thread chamfer, is made with just enough chamfer for starting in the hole. As the name implies, it is designed to thread blind holes to the bottom.

Tap Sizes

Tap sizes have been standardized to conform with those of standard screws, bolts and studs. Machine Screw tap size range from No. 0 through No. 14; No. 0 being .0600" outside diameter; No. 1 being .0730"; No. 2 being .0860, etc all in .0130" increments.

Threads per Inch

A measurement shown for various tooth forms. The Unified Series adopted by Great Britain during the war and the corresponding American National Standard. NC and UNC mean coarse thread. NF and UNF mean fine thread. NS means special thread.

Pitch Diameter

This is the basic dimension of a screw, threaded hole or a tap — the diameter of an imaginary cylinder, the surface of which passes through the thread where width of thread and space between threads are identical. This cylinder would be a cone for tapered taps. It is upon Pitch Diameter that tolerance limits are based to establish Class of Thread.

Class of Thread

There are three established Classes of Thread, designated in the Unified series by adding "A" for screws and "B" for nuts (or other internal threads) to show definite limits and tolerances.

Class 1B Thread

The hole is classified as 1B when a 1A screw can be run in readily for quick and easy assembly. The fit is 1B Thread and is rarely used in today's metalworking.

Class 2B Thread

This is a 2A screw in a 2B hole. This 2B Thread has wide application, accommodates plating, finishes and coating to a limited extent and therefore has fair tolerance allowances.

Class 3B Thread

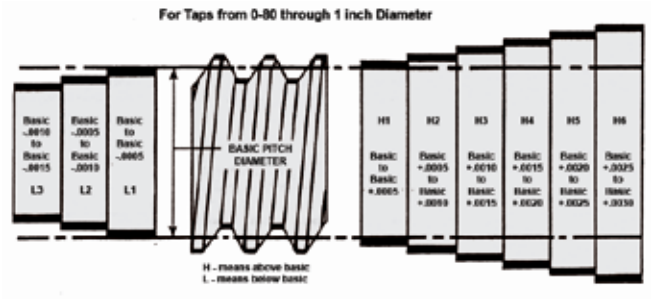
This is a 3A screw in a 3B nut or threaded hole for applications where tolerance limits are close.

GH Numbers

In the tables that follow, tap selections are shown for the Class of Thread desired and under the Class of Thread heading, applicable GH Numbers are listed. "G" means Ground Thread and "H" means that pitch diameter is on the high side of basic. These two letters are followed by a numeral showing the tolerance of pitch diameter oversize as follows:

H1 = Basic to Basic plus .0005"
H2 = Basic plus .0005" to Basic plus .0010"
H3 = Basic plus .0010" to Basic plus .0015"
H4 = Basic plus .0015" to Basic plus .0020"
H5 = Basic plus .0020" to Basic plus .0025"
H6 = Basic plus .0025" to Basic plus .0030"
H7 = Basic plus .0030" to Basic plus .0035"

The diagram below, exaggerated for clarity, illustrates these several selectives in Pitch Diameter tolerance—including "L" (undersize tolerance), although no "L" taps are shown in this book. Pitch Diameter varies with the number of threads per inch because the number of threads of Pitch of screw determines the height of thread. Since Basic Pitch Diameter is measured from points half the height of the fully formed thread, a hole drilled to provide theoretical 50% thread engagement would be of the same diameter as the pitch diameter of the tap.



The Basic Point in Thread Measurement

All measurements must have a controlling point or base from which to start. In the case of a screw thread, this control point is called the BASIC or theoretically correct size, which is calculated on the basis of a full form thread. Thus, on a given screw thread, we have the Basic Major Diameter, the Basic Pitch Diameter and Basic Minor Diameter.

While it is impossible in practice to form screw threads to their precise theoretical or BASIC Sizes, it is possible and practical to establish limits which the deviation must not exceed. These are called the "Maximum" and "Minimum" Limits. If the product is no smaller than the "Minimum Limit" and no larger than the "Maximum Limit," then it is within the size limits required. This difference between the Maximum and Minimum Limits is the TOLERANCE.

In actual practice the Basic Size is not necessarily between the Maximum and Minimum Limits. In most cases, the Basic Size is one of the Limits. In general, tolerances for internal threads will be above Basic and for external threads, below Basic. See drawing below.

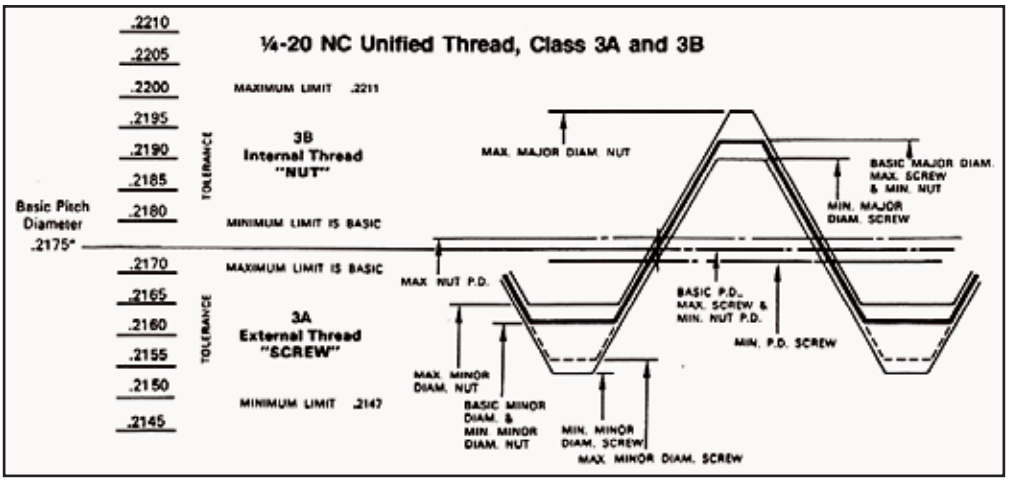
For graphic representation, the Basic Pitch Diameter is commonly designated by a line with variations from it indicated by shorter lines spaced to represent a numerical scale, as shown on the left half of the drawing below.

On an actual screw thread, the Basic Dimensions would follow the contour of the theoretically perfect thread, as on the right half of the drawing below.

To find the basic pitch diameter or basic minor diameter of any screw thread, subtract the constant for the number of threads per inch from the basic major diameter.

Constants For Finding Pitch Diameter And Minor Diameter Of Screw Threads

Threads Per Inch	Pitch In Inches	Constants for Finding Basic Pitch Diameter			Constants for Finding Basic Minor Diameter		
		National Thread	Whitworth Thread	Theoretical V	National Thread	Whitworth Thread	Theoretical V
80	0.012500	0.00812	0.00800	0.01083	0.01624	0.01601	0.02165
72	0.013888	0.00902	0.00889	0.01203	0.01804	0.01786	0.02406
64	0.015625	0.01015	0.01000	0.01353	0.02030	0.02001	0.02706
60	0.016666	0.01083	0.01067	0.01443	0.02165	0.02134	0.02887
56	0.017857	0.01160	0.01144	0.01546	0.02320	0.02286	0.03093
50	0.020000	0.01299	0.01281	0.01732	0.02598	0.02562	0.03464
48	0.020833	0.01353	0.01334	0.01804	0.02706	0.02668	0.03608
44	0.022727	0.01476	0.01455	0.01968	0.02952	0.02910	0.03936
40	0.025000	0.01624	0.01601	0.02165	0.03248	0.03202	0.04330
36	0.027777	0.01804	0.01779	0.02406	0.03608	0.03558	0.04811
32	0.031250	0.02030	0.02001	0.02706	0.04059	0.04002	0.05413
30	0.033333	0.02165	0.02134	0.02887	0.04330	0.04268	0.05773
28	0.035714	0.02320	0.02287	0.03093	0.04639	0.04574	0.06186
27	0.035461	0.02406	0.02372	0.03208	0.04812	0.04742	0.06416
26	0.037037	0.02498	0.02463	0.03331	0.04996	0.04926	0.06662
24	0.041666	0.02706	0.02668	0.03608	0.05413	0.05336	0.07217
22	0.045454	0.02952	0.02911	0.03936	0.05905	0.05821	0.07873
20	0.050000	0.03248	0.03202	0.04330	0.06495	0.06403	0.08660
18	0.055555	0.03608	0.03557	0.04811	0.07217	0.07114	0.09623
16	0.062500	0.04059	0.04002	0.05413	0.08119	0.08004	0.10825
14	0.071428	0.04639	0.04574	0.06186	0.09279	0.09147	0.12372
13	0.076923	0.04996	0.04926	0.06662	0.09993	0.09851	0.13323
12	0.083333	0.05413	0.05336	0.07217	0.10825	0.10672	0.14434
11-1/2	0.086956	0.05648	0.05568	0.07531	0.11296	0.11132	0.15062
11	0.090909	0.05905	0.05821	0.07873	0.11809	0.11642	0.15746
10	0.010000	0.06495	0.06403	0.08660	0.12990	0.12806	0.17321
9	0.111111	0.07217	0.07115	0.09623	0.14434	0.14230	0.19245
8	0.125000	0.08119	0.08004	0.10825	0.16238	0.16008	0.21651
7	0.142857	0.09279	0.09148	0.12372	0.18558	0.18295	0.24744
6	0.166666	0.10825	0.10672	0.14434	0.21651	0.21344	0.28868
5-1/2	0.181818	0.11809	0.11642	0.15746	0.23619	0.23284	0.31492
5	0.200000	0.12990	0.12807	0.17321	0.25981	0.25613	0.34641
4-1/2	0.222222	0.14434	0.14230	0.19245	0.28868	0.28458	0.38490
4	0.250000	0.16238	0.16008	0.21651	0.32479	0.32017	0.43301
3-1/2	0.285711	0.18558	0.18295	0.24744	0.37115	0.36590	0.49487
3-1/4	0.307692	0.19985	0.19702	0.26647	0.39970	0.39404	0.53294
3	0.333333	0.21651	0.21344	0.28868	0.43301	0.42689	0.57733



Thread Constants For Various Percentages

Formula for Obtaining Tap Drill Sizes (Select nearest commercial stock drill)

$$\text{(Outside Diameter of Thread)} - \left(\frac{0.01299 \times \text{Amount of Percentage of Full Thread}}{\text{Number of Threads per Inch}}\right) = \text{Drilled Hole Size}$$

$$\text{(Number of Threads per Inch)} \times \left(\frac{\text{Outisde Diameter of Thread - Selected Drill Diameter}}{0.01299}\right) = \text{Percentage of Full Thread}$$

Figures in table show amount to subtract from O.D. of screw to obtain specific percentages of thread.

Example:

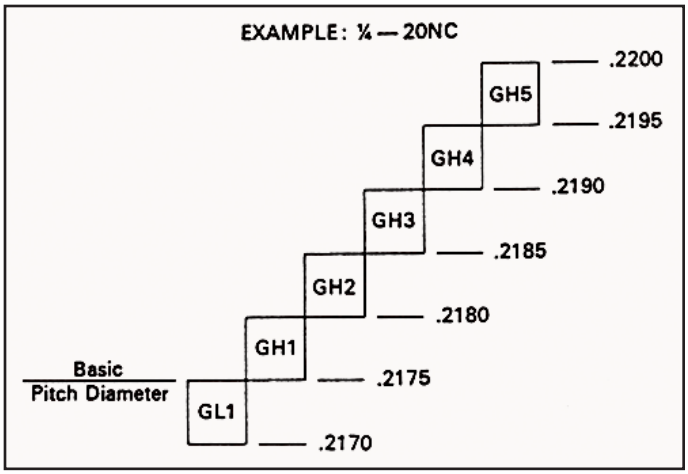
Find the hole size for obtaining 75% of thread in a 1/4-20 tapped hole, follow first column to 20 threads, then across to 75% of thread. This figure (.0485) when subtracted from the .250 diameter leaves .2015, which is the required diameter of the hole for a 1/4-20 thread.

Thread Constants For Various Percentages

Threads per Inch	Double Depth	60% Thread	65% Thread	70% Thread	75% Thread	80% Thread	85% Thread
6	0.21651	0.1300	0.1408	0.1517	0.1625	0.1733	0.1842
7	0.18558	0.1114	0.1207	0.1300	0.1393	0.1486	0.1579
8	0.16238	0.0975	0.1056	0.1138	0.1219	0.1300	0.1381
9	0.14434	0.0866	0.0939	0.1011	0.1083	0.1156	0.1228
10	0.12990	0.0779	0.0844	0.0909	0.0974	0.1039	0.1105
11	0.11809	0.0708	0.0767	0.0826	0.0885	0.0944	0.1005
12	0.10825	0.0649	0.0702	0.0755	0.0808	0.0861	0.0921
13	0.09992	0.0599	0.0649	0.0699	0.0749	0.0799	0.0850
14	0.09278	0.0556	0.0602	0.0648	0.0694	0.0740	0.0789
16	0.08119	0.0486	0.0526	0.0566	0.0606	0.0646	0.0691
18	0.07217	0.0431	0.0466	0.0501	0.0536	0.0571	0.0614
20	0.06495	0.0389	0.0421	0.0453	0.0485	0.0517	0.0553
24	0.05412	0.0326	0.0354	0.0382	0.0410	0.0438	0.0460
27	0.04811	0.0288	0.0312	0.0336	0.0360	0.0384	0.0409
28	0.04639	0.0276	0.0298	0.0324	0.0347	0.0370	0.0395
30	0.04330	0.0260	0.0282	0.0304	0.0326	0.0348	0.0368
32	0.04059	0.0243	0.0263	0.0283	0.0303	0.0323	0.0345
36	0.03608	0.0216	0.0234	0.0252	0.0270	0.0288	0.0307
40	0.03247	0.0194	0.0210	0.0226	0.0242	0.0258	0.0276
44	0.02952	0.0177	0.0192	0.0207	0.0222	0.0237	0.0251
48	0.02706	0.0161	0.0174	0.0187	0.0200	0.0213	0.0230
56	0.02319	0.0138	0.0149	0.0160	0.0171	0.0182	0.0197
64	0.02029	0.0121	0.0131	0.0141	0.0151	0.0161	0.0173
72	0.01804	0.0107	0.0115	0.0123	0.0131	0.0139	0.0153
80	0.01623	0.0097	0.0105	0.0113	0.0121	0.0129	0.0138

Relation of Tap Pitch Diameter to Basic Pitch Diameter

American tap manufacturers use a series of tap pitch diameter limits. These limits feature a .0005" tolerance in tap sizes #0 through 1 inch, and a .001 inch or greater tolerance in tap sizes above 1 inch through 1-1/2 inch diameter, inclusive. The chart shows the relationship between tap pitch diameter limits and basic (nominal) pitch diameter.



Recommendations for Classes 2, 2B, 3B & Oversize Unified & American Screw Threads

Machine Screw Sizes

Machine Screw Size	Basic Pitch Diameter	Tap Recommendations For Class 2 Thread		Tap Recommendations For Class 2B Thread		Tap Recommendations For Class 3B Thread		Oversize X-Press® Taps
		Styles Available	Max. P.D. Limits Thread	Styles Available	Max. P.D. Limits Thread	Styles Available	Max. P.D. Limits Thread	Styles Available
0-80 NF, UNF	.0519	B-2	.0536	B-3	.0542	B-2	.0536	
1-64 NC, UNC	.0629	B-2	.0648	B-3	.0655	B-2	.0648	
1-72 NF, UNF	.0640	B-2	.0658	B-3	.0665	B-2	.0659	
2-56 NC, UNC	.0744	B-2	.0764	B-3	.0772	B-2	.0765	
2-64 NF, UNF	.0759	B-2	.0778	B-3	.0786	B-2	.0779	
3-48 NC, UNC	.0855	B-2	.0877	B-3	.0885	B-2	.0877	
3-56 NF, UNF	.0874	B-2	.0894	B-3	.0902	B-2	.0895	
4-40 NC, UNC	.0958	P-3, B-3	.0982	P-5, B-5	.0991	P-3, B-3	.0982	
4-48 NF, UNF	.0985	P-3, B-3	.1007	P-5, B-5	.1016	P-3, B-3	.1008	
5-40 NC, UNC	.1088	P-3, B-3	.1112	P-5, B-5	.1121	P-3, B-3	.1113	
5-44 NF, UNF	.1102	P-3, B-3	.1125	P-5, B-5	.1134	P-3, B-3	.1126	
6-32 NC, UNC	.1177	P-3, B-3	.1204	P-5, B-5	.1214	P-3, B-3	.1204	P-10, B-10
6-40 NF, UNF	.1218	P-3, B-3	.1242	P-5, B-5	.1252	P-3, B-3	.1243	
8-32 NC, UNC	.1437	P-3, B-3	.1464	P-5, B-5	.1475	P-3, B-3	.1465	P-10, B-10
8-36 NF, UNF	.1460	P-3, B-3	.1485	P-5, B-5	.1496	P-3, B-3	.1487	
10-24 NC, UNC	.1629	P-4, B-4	.1662	P-6, B-6	.1672	P-4, B-4	.1661	P-10, B-10
10-32 NF, UNF	.1697	P-4, B-4	.1724	P-6, B-6	.1736	P-4, B-4	.1726	P-10, B-10
12-24 NC, UNC	.1889	P-4, B-4	.1922	P-6, B-6	.1933	P-4, B-4	.1922	
12-28 NF, UNF	.1928	P-4, B-4	.1959	P-6, B-6	.1970	P-4, B-4	.1959	

Fractional Sizes

¼-20 NC, UNC	.2175	P-4, B-4	.2211	P-6, B-6	.2223	P-4, B-4	.2211	P-10, B-10
¼-28 NF, UNF	.2268	P-4, B-4	.2299	P-6, B-6	.2311	P-4, B-4	.2300	P-10, B-10
5/16-18 NC, UNC	.2764	P-5, B-5	.2805	P-7, B-7	.2817	P-5, B-5	.2803	P-10, B-10
5/16-24 NF, UNF	.2854	P-5, B-5	.2887	P-7, B-7	.2902	P-5, B-5	.2890	P-10, B-10
⅜-16 NC, UNC	.3344	P-5, B-5	.3389	P-7, B-7	.3401	P-5, B-5	.3387	P-10, B-10
⅜-24 NF, UNF	.3479	P-5, B-5	.3512	P-7, B-7	.3528	P-5, B-5	.3516	P-10, B-10
7/16-14 NC, UNC	.3911	P-5, B-5	.3960	P-8, B-8	.3972	P-5, B-5	.3957	P-10, B-10
7/16-20 NF, UNF	.4050	P-5, B-5	.4086	P-8, B-8	.4104	P-5, B-5	.4091	P-10, B-10
½-13 NC, UNC	.4500	P-5, B-5	.4552	P-8, B-8	.4565	P-5, B-5	.4548	P-10, B-10
½-20 NF, UNF	.4675	P-5, B-5	.4711	P-8, B-8	.4731	P-5, B-5	.4717	P-10, B-10
9/16-12 NC, UNC	.5084	P-7, B-7	.5140	P-10, B-10	.5152	P-7, B-7	.5135	
9/16-18 NF, UNF	.5264	P-7, B-7	.5305	P-10, B-10	.5323	P-7, B-7	.5308	
⅝-11 NC, UNC	.5660	P-7, B-7	.5719	P-10, B-10	.5732	P-7, B-7	.5714	
⅝-18 NF, UNF	.5889	P-7, B-7	.5930	P-10, B-10	.5949	P-7, B-7	.5934	
¾-10 NC, UNC	.6850	P-7, B-7	.6914	P-10, B-10	.6927	P-7, B-7	.6907	
¾-16 NF, UNF	.7094	P-7, B-7	.7139	P-10, B-10	.7159	P-7, B-7	.7143	

The above recommended taps will normally produce the class of thread indicated in most materials. However, if the tap specified does not give a satisfactory gage fit in the work, a choice of some other limit tap will be necessary.

Standard Taps - Recommendations & Gaging Limits for Classes 2, 3, 2B & 3B Unified & American Screw Threads

Machine Screw Sizes

	Threads per Inch		Recommended Tap For Class of Thread				Pitch Diameter Gaging Limits For Class of Thread				
Tap Size	NC UNC	NF UNF	Class 2	Class 3	Class 2B	Class 3B	GO All Classes (Basic)	Hi Class 2	Hi Class 3	Hi Class 2B	Hi Class 3B
0		80	G H1	G H1	G H2	G H1	.0519	.0536	.0532	.0542	.0536
1	64		G H1	G H1	G H2	G H1	.0629	.0648	.0643	.0655	.0648
1		72	G H1	G H1	G H2	G H1	.0640	.0658	.0653	.0665	.0659
2	56		G H1	G H1	G H2	G H1	.0744	.0764	.0759	.0772	.0765
2		64	G H1	G H1	G H2	G H1	.0759	.0778	.0773	.0786	.0779
3	48		G H1	G H1	G H2	G H1	.0855	.0877	.0871	.0885	.0877
3		56	G H1	G H1	G H2	G H1	.0874	.0894	.0889	.0902	.0895
4	40		G H2	G H1	G H2	G H2	.0958	.0982	.0975	.0991	.0982
4		48	G H1	G H1	G H2	G H1	.0985	.1007	.1001	.1016	.1008
5	40		G H2	G H1	G H2	G H2	.1088	.1112	.1105	.1121	.1113
5		44	G H1	G H1	G H2	G H1	.1102	.1125	.1118	.1134	.1126
6	32		G H2	G H1	G H3	G H2	.1177	.1204	.1196	.1214	.1204
6		40	G H2	G H1	G H2	G H2	.1218	.1242	.1235	.1252	.1243
8	32		G H2	G H1	G H3	G H2	.1437	.1464	.1456	.1475	.1465
8		36	G H2	G H1	G H2	G H2	.1460	.1485	.1478	.1496	.1487
10	24		G H3	G H1	G H3	G H3	.1629	.1662	.1653	.1672	.1661
10		32	G H2	G H1	G H3	G H2	.1697	.1724	.1716	.1736	.1726
12	24		G H3	G H1	G H3	G H3	.1889	.1922	.1913	.1933	.1922
12		28	G H3	G H1	G H3	G H3	.1928	.1959	.1950	.1970	.1959

Fractional Sizes

¼	20		G H3	G H2	G H5	G H3	.2175	.2211	.2201	.2223	.2211
¼		28	G H3	G H1	G H4	G H3	.2268	.2299	.2290	.2311	.2300
5/16	18		G H3	G H2	G H5	G H3	.2764	.2805	.2794	.2817	.2803
5/16		24	G H3	G H1	G H4	G H3	.2854	.2887	.2878	.2902	.2890
⅜	16		G H3	G H2	G H5	G H3	.3344	.3389	.3376	.3401	.3387
⅜		24	G H3	G H1	G H4	G H3	.3479	.3512	.3503	.3528	.3516
7/16	14		G H5	G H3	G H5	G H3	.3911	.3960	.3947	.3972	.3957
7/16		20	G H3	G H1	G H5	G H3	.4050	.4086	.4076	.4104	.4091
½	13		G H5	G H3	G H5	G H3	.4500	.4552	.4537	.4565	.4548
½		20	G H3	G H1	G H5	G H3	.4675	.4711	.4701	.4731	.4717
9/16	12		G H5	G H3	G H5	G H3	.5084	.5140	.5124	.5152	.5135
9/16		18	G H3	G H2	G H5	G H3	.5264	.5305	.5294	.5323	.5308
⅝	11		G H5	G H3	G H5	G H3	.5660	.5719	.5702	.5732	.5714
⅝		18	G H3	G H2	G H5	G H3	.5889	.5930	.5919	.5949	.5934
¾	10		G H5	G H3	G H5	G H5	.6850	.6914	.6895	.6927	.6907
¾		16	G H3	G H2	G H5	G H3	.7094	.7139	.7126	.7159	.7143
⅞	9		G H6	G H4	G H6	G H4	.8028	.8098	.8077	.8110	.8089
⅞		14	G H4	G H2	G H6	G H4	.8286	.8335	.8322	.8356	.8339
1	8		G H6	G H4	G H6	G H4	.9188	.9264	.9242	.9276	.9254
1		12	G H4	G H2	G H6	G H4	.9459	.9515	.9499	.9535	.9516
1	14 NS		G H4	G H2	G H6	G H4	.9536	.9585	.9572	.9609	.9590
1⅛	7		G H8	G H4	G H8	G H4	1.0322	1.0407	1.0381	1.0416	1.0393
1⅛		12	G H4	G H4	G H6	G H4	1.0709	1.0765	1.0749	1.0787	1.0768
1¼	7		G H8	G H4	G H8	G H4	1.1572	1.1657	1.1631	1.1668	1.1644
1¼		12	G H4	G H4	G H6	G H4	1.1959	1.2015	1.1999	1.2039	1.2019
1⅜	6		G H8	G H4	G H8	G H4	1.2667	1.2768	1.2738	1.2771	1.2745
1⅜		12	G H4	G H4	G H6	G H4	1.3209	1.3265	1.3249	1.3291	1.3270
1½	6		G H8	G H4	G H8	G H4	1.3917	1.4018	1.3988	1.4022	1.3996
1½		12	G H4	G H4	G H6	G H4	1.4459	1.4515	1.4499	1.4542	1.4522

Standard Taps - Recommendations for Classes 2, 2B, 3B & Oversize Unified & American Screw Threads

Machine Screw Sizes

Tap Size	Threads per Inch NC UNC	NF UNF	NS	Major Diameter* in Inches Basic	Min.	Max.	Basic Pitch Diam.	Pitch Diameter Limits in inches H1 Limit Min.	H1 Limit Max.	H2 Limit Min.	H2 Limit Max.	H3 Limit Min.	H3 Limit Max.	H7 Limit* Min.	H7 Limit* Max.
0		80		.0600	.0605	.0615	.0519	.0519	.0524	.0524	.0529				
1	64			.0730	.0735	.0745	.0629	.0629	.0634	.0634	.0639				
1		72		.0730	.0735	.0745	.0640	.0640	.0645	.0645	.0650				
2	56			.0860	.0865	.0875	.0744	.0744	.0749	.0749	.0754				
2		64		.0860	.0865	.0875	.0759	.0759	.0764	.0764	.0769				
3	48			.0990	.1000	.1010	.0855	.0855	.0860	.0860	.0865				
3		56		.0990	.0995	.1005	.0874	.0874	.0879	.0879	.0884				
4			36	.1120	.1135	.1145	.0940			.0945	.0950				
4	40			.1120	.1135	.1145	.0958	.0958	.0963	.0963	.0968				
4		48		.1120	.1130	.1140	.0985	.0985	.0990	.0990	.0995				
5	40			.1250	.1265	.1275	.1088	.1088	.1093	.1093	.1098				
5		44		.1250	.1260	.1270	.1102	.1102	.1107	.1107	.1112				
6	32			.1380	.1400	.1410	.1177			.1182	.1187	.1187	.1192	.1207	.1212
6		40		.1380	.1395	.1405	.1218	.1218	.1223	.1223	.1228				
8	32			.1640	.1660	.1670	.1437	.1437	.1442	.1442	.1447	.1447	.1452	.1467	.1472
8		36		.1640	.1655	.1665	.1460	.1460	.1465	.1465	.1470				
10	24			.1900	.1930	.1940	.1629	.1629	.1634	.1634	.1639	.1639	.1644	.1659	.1664
10		32		.1900	.1920	.1930	.1697	.1697	.1702	.1702	.1707	.1707	.1712	.1727	.1732
12	24			.2160	.2190	.2200	.1889	.1889	.1894			.1899	.1904		
12		28		.2160	.2185	.2195	.1928	.1928	.1933			.1938	.1943		

Fractional Sizes

Tap Size	Threads per Inch NC UNC	NF UNF	NS	Major Diameter in Inches Basic	Min.	Max.	Basic Pitch Diam.	Pitch Diameter Limits in Inches H1 Limit Min.	H1 Limit Max.	H2 Limit Min.	H2 Limit Max.	H3 Limit Min.	H3 Limit Max.	H4 Limit Min.	H4 Limit Max.	H5 Limit Min.	H5 Limit Max.	H6 Limit Min.	H6 Limit Max.
¼	20			.2500	.2540	.2550	.2175	.2175	.2180	.2180	.2185	.2185	.2190			.2195	.2200		
¼		28		.2500	.2525	.2535	.2268	.2268	.2273	.2273	.2278	.2278	.2283	.2283	.2288				
5/16	18			.3125	.3170	.3180	.2764	.2764	.2769	.2769	.2774	.2774	.2779			.2784	.2789		
5/16		24		.3125	.3155	.3165	.2854	.2854	.2859	.2859	.2864	.2864	.2869	.2869	.2874				
⅜	16			.3750	.3800	.3810	.3344	.3344	.3349	.3349	.3354	.3354	.3359			.3364	.3369		
⅜		24		.3750	.3780	.3790	.3479	.3479	.3484	.3484	.3489	.3489	.3494	.3494	.3499				
7/16	14			.4375	.4435	.4445	.3911	.3911	.3916	.3916	.3921	.3921	.3926			.3931	.3936		
7/16		20		.4375	.4415	.4425	.4050	.4050	.4055	.4055	.4060	.4060	.4065			.4070	.4075		
½	13			.5000	.5065	.5075	.4500	.4500	.4505	.4505	.4510	.4510	.4515			.4520	.4525		
½		20		.5000	.5040	.5050	.4675	.4675	.4680	.4680	.4685	.4685	.4690			.4695	.4700		
9/16	12			.5625	.5690	.5700	.5084			.5089	.5094	.5094	.5099			.5104	.5109		
9/16		18		.5625	.5670	.5680	.5264			.5269	.5274	.5274	.5279			.5284	.5289		
⅝	11			.6250	.6320	.6330	.5660	.5660	.5665	.5665	.5670	.5670	.5675			.5680	.5685		
⅝		18		.6250	.6295	.6305	.5889	.5889	.5894	.5894	.5899	.5899	.5904			.5909	.5914		
11/16			11	.6875	.6945	.6955	.6285					.6295	.6300						
11/16			16	.6875	.6925	.6935	.6469					.6479	.6484						
¾	10			.7500	.7575	.7590	.6850	.6850	.6855	.6855	.6860	.6860	.6865			.6870	.6875		
¾		16		.7500	.7550	.7560	.7094	.7094	.7099	.7099	.7104	.7104	.7109			.7114	.7119		
⅞	9			.8750	.8835	.8850	.8028			.8033	.8038			.8043	.8048			.8053	.8058
⅞		14		.8750	.8810	.8820	.8286			.8291	.8296			.8301	.8306			.8311	.8316
1	8			1.0000	1.0095	1.0110	.9188			.9193	.9198			.9203	.9208			.9213	.9218
1		12		1.0000	1.0065	1.0075	.9459							.9474	.9479				
1			14	1.0000	1.0060	1.0070	.9536			.9541	.9546			.9551	.9556				
1⅛	7			1.1250	1.1350	1.1370	1.0322							1.0332	1.0342				
1⅛		12		1.1250	1.1315	1.1325	1.0709							1.0719	1.0729				
1¼	7			1.2500	1.2600	1.2620	1.1572							1.1582	1.1592				
1¼		12		1.2500	1.2565	1.2575	1.1959							1.1969	1.1979				
1⅜	6			1.3750	1.3870	1.3890	1.2667							1.2677	1.2687				
1⅜		12		1.3750	1.3815	1.3825	1.3209							1.3219	1.3229				
1½	6			1.5000	1.5120	1.5140	1.3917							1.3927	1.3937				
1½		12		1.5000	1.5065	1.5075	1.4459							1.4469	1.4479				

* Major Diameter for H7 Limit Tap is .002" larger than values shown in column 6 and 7.

Straight Pipe Taps
Ground Thread Limits

American National Standard Straight Pipe Thread Form (NPS) (NPSC) (NPSM)

Nominal Size in Inches	Threads per Inch	Major Diameter in Inches: Plug at Gaging Notch	Major Diameter in Inches: Minimum G	Major Diameter in Inches: Maximum H	Pitch Diameter in Inches: Plug at Gaging Notch E	Pitch Diameter in Inches: Minimum K	Pitch Diameter in Inches: Maximum L
⅛	27	.3983	.4022	.4032	.3736	.3746	.3751
¼	18	.5286	.5347	.5357	.4916	.4933	.4938
⅜	18	.6640	.6701	.6711	.6270	.6287	.6292
½	14	.8260	.8374	.8357	.7784	.7806	.7811
¾	14	1.0364	1.0447	1.0457	.9889	.9906	.9916
1	11½	1.2966	1.3062	1.3077	1.2386	1.2402	1.2412
1¼	11½	1.6413	1.6507	1.6522	1.5834	1.5847	1.5862
1½	11½	1.8803	1.8897	1.8912	1.8223	1.8237	1.8252
2	11½	2.3542	2.3639	2.3654	2.2963	2.2979	2.2994
2½	8	2.8454	2.8604	2.8619	2.7622	2.7640	2.7660
3	8	3.4718	3.4868	3.4883	3.3885	3.3904	3.3924
3½	8	3.9721	3.9872	3.9887	3.8888	3.8908	3.8928
4	8	4.4704	4.4855	4.4870	4.3871	4.3891	4.3911

Lead Tolerance
A maximum lead deviation of plus or minus .0005" within any two threads not farther apart than 1" is permitted.

Angle Tolerance

Threads per Inch	Deviation in Half Angle
8	25' Plus or Minus
11½ to 27 Inclusive	30' Plus or Minus

Dryseal American National Standard Straight Pipe Thread Form (NPSF)

Nominal Size M Inches	Threads per Inch	Major Diameter: Minimum G	Major Diameter: Maximum H	Pitch Diameter: Plug at Gaging Notch E	Pitch Diameter: Minimum K	Pitch Diameter: Maximum L	Minor* Diam. Flat Max.
1/16	27	.3008	.3018	.2812	.2772	.2777	.004
⅛	27	.3932	.3942	.3736	.3696	.3701	.004
¼	18	.5239	.5249	.4916	.4859	.4864	.005
⅜	18	.6593	.6603	.6270	.6213	.6218	.005
½	14	.8230	.8240	.7784	.7712	.7717	.005
¾	14	1.0335	1.0345	.9889	.9817	.9822	.005
1	11½	1.2933	1.2943	1.2386	1.2295	1.2305	.006

* As specified or sharper.

Lead Tolerance
A maximum lead deviation of plus or minus .0005" within any two threads not farther apart than 1" is permitted.

Angle Tolerance

Threads per Inch	Deviation in Half Angle
11½ to 27 inclusive	30' Plus or Minus

Taper Pipe Taps
Ground & Cut Thread Limits

American National Standard Taper Pipe Thread Form (NPT)

Nominal Size in Inches	Threads per Inch	**Gage Measurement in Inches: Projection	Tolerance Plus or Minus: Cut Thread*	Tolerance Plus or Minus: Ground Thread	Taper per Foot in Inches: Cut Thread* Minimum	Taper per Foot in Inches: Cut Thread* Maximum	Taper per Foot in Inches: Ground Thread Minimum	Taper per Foot in Inches: Ground Thread Maximum
1/16	27	.312	1/16	1/16	23/32	27/32	23/32	25/32
1/8	27	.312	1/16	1/16	23/32	27/32	23/32	25/32
1/4	18	.459	1/16	1/16	23/32	27/32	23/32	25/32
3/8	18	.454	1/16	1/16	23/32	27/32	23/32	25/32
1/2	14	.579	1/16	1/16	23/32	13/16	23/32	25/32
3/4	14	.565	1/16	1/16	23/32	13/16	23/32	25/32
1	11 1/2	.678	3/32	3/32	23/32	13/16	23/32	25/32
1 1/4	11 1/2	.686	3/32	3/32	23/32	13/16	23/32	25/32
1 1/2	11 1/2	.699	3/32	3/32	23/32	13/16	23/32	25/32
2	11 1/2	.667	3/32	3/32	23/32	13/16	23/32	25/32
2 1/2	8	.925	3/32	3/32	47/64	51/64	47/64	25/32
3	8	.925	3/32	3/32	47/64	51/64	47/64	25/32
3 1/2	8	.938	1/8	1/8	47/64	51/64	47/64	25/32
4	8	.950	1/8	1/8	47/64	51/64	47/64	25/32

** Distance small end of tap projects through Taper Thread Ring Gage L1.

Lead Tolerance

Cut Thread* = A maximum lead deviation of plus or minus .003" within any two threads not farther apart than 1" is permitted.

Ground Thread = A maximum lead deviation of plus or minus .0005" within any two threads not farther apart than 1" is permitted.

Angle Tolerance

Threads per Inch	Tolerance: Half Angle: Cut Thread*	Tolerance: Half Angle: Ground Thread	Tolerance: Full Angle: Cut Thread*
8	40' Plus or Minus	25' Plus or Minus	60'
11 1/2 to 27 Inclusive	45' Plus or Minus	30' Plus or Minus	68'

* Cut thread tolerances apply only to NPT taps.

Widths of Flats at Tap Crests and Roots

Threads Per Inch	Tap Flat Width at	Column I NPT – Cut & Ground Thread ANPT – Ground Thread: Minimum	Column I: Maximum	Column II NPTF – Ground Thread: Minimum	Column II: Maximum
27	Major Dia.	.0014	.0041	.0040	.0055
	Minor Dia.		.0041		.0040
18	Major Dia.	.0021	.0057	.0050	.0065
	Minor Dia.		.0057		.0050
14	Major Dia.	.0027	.0064	.0050	.0065
	Minor Dia.		.0064		.0050
11 1/2	Major Dia.	.0033	.0073	.0060	.0083
	Minor Dia.		.0073		.0060
8	Major Dia.	.0048	.0090	.0080	.0103
	Minor Dia.		.0090		.0080

Minimum minor diameter flats are not specified. May be as sharp as practicable.

Note: Cut thread taps made to Column I are marked NPT but are not recommended for ANPT application. Ground thread taps made to Column I may be used for NPT and ANPT applications and are so marked. Ground thread taps made to Column II are marked NPTF and used for Dry-seal application.

Pipe Taps
Drill Selector (NPS) (NPT) (NPSF) (NPTF)

Straight and Taper Piper Taps

The drill diameters listed for NPT (not reamed) are the diameters of standard drills which are the closest to minor diameters at small end of the pipe.

They represent the diameters of the holes which would be cut with a twist drill correctly ground when drilling a material without tearing or flow of metal. This is approximately the condition that exists when a correctly sharpened twist drill is cutting a hole in a homogeneous block of cast iron.

When nonferrous metals and other similar materials are to be drilled and tapped, it may be found necessary to use a drill of slightly larger or smaller diameter to produce a hole of a size that will make it possible for the tap to cut an acceptable pipe thread with the required thread height.

It should be understood that this table of twist drill diameters is intended to help only the occasional user of drills in the application of this standard.

When internal pipe threads are produced in larger quantities in a particular type of material and with specially designed machinery it may be found to be more advantageous to use a drill size not given in the table, even one having non-standard diameter.

	Straight Pipe (NPS)		Taper Pipe (NPT)			
Nominal Pipe Size	Tap Drill Size	Decimal Equivalent	Tap Drill Size With Reamer	Decimal Equivalent	Tap Drill Size Without Reamer	Decimal Equivalent
1/16–27	1/4	0.250	6.1 mm	0.240	"D"	0.246
1/8 –27	11/32	0.344	21/64	0.328	"Q"	0.332
1/4 –18	7/16	0.438	27/64	0.422	7/16	0.438
3/8 –18	37/64	0.578	9/16	0.562	9/16	0.562
1/2 –14	23/32	0.719	11/16	0.688	45/64	0.703
3/4 –14	59/64	0.922	57/64	0.891	29/32	0.906
1 –11 1/2	1 9/32	1.156	1 1/8	1.125	1 9/64	1.141
1 1/4 –11 1/2	1 1/2	1.500	1 15/32	1.469	1 31/64	1.484
1 1/2 –11 1/2	1 3/4	1.750	1 23/32	1.719	1 47/64	1.734
2 –11 1/2	2 7/32	2.219	2 3/16	2.188	2 13/64	2.203
2 1/2 – 8	2 21/32	2.656	2 19/32	2.594	2 5/8	2.625

Straight and Taper Pipe Taps - Dryseal

The drill diameters given are for taper and straight internal pipe threads and will usually permit the tapping of acceptable threads in free-machining brass or steel provided the drill is correctly sharpened. When hard metals or other similar materials are to be drilled and tapped, it may be necessary to use a drill of slightly larger diameter whereas some soft materials may require a smaller size.

Taper pipe threads of improved quality are obtained when the holes are taper reamed after drilling and before tapping. Standard taper pipe reamers are used and, as in drilling, the actual size of the hole depends upon the material and is best determined by a trial.

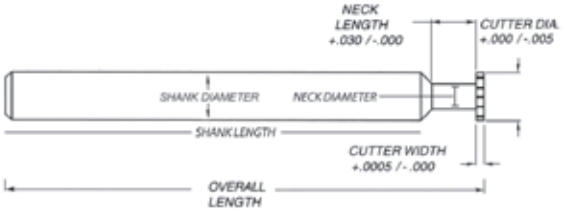
	Straight Pipe (NPSF)		Taper Pipe (NPTF)			
Nominal Pipe Size	Tap Drill Size	Decimal Equivalent	Tap Drill Size With Reamer	Decimal Equivalent	Tap Drill Size Without Reamer	Decimal Equivalent
1/16–27	D	.246	A	.234	C	.242
1/8 –27	R	.339	21/64	.328	Q	.332
1/4 –18	7/16	.438	27/64	.422	7/16	.438
3/8 –18	37/64	.578	9/16	.563	9/16	.562
1/2 –14	23/32	.719	11/16	.688	45/64	.703
3/4 –14	59/64	.922	57/64	.891	29/32	.906
1 –11 1/2	1 5/32	1.156	1 1/8	1.125	1 9/64	1.141
1 1/4–11 1/2			1 15/32	1.469	1 31/64	1.484
1 1/2 –11 1/2			1 45/64	1.703	1 23/32	1.719
2 –11 1/2			2 11/64	2.172	2 3/16	2.188
2 1/2 – 8			2 37/64	2.578	2 39/64	2.609
3 – 8			3 13/64	3.203	3 15/64	3.234



Uncoated



AlTiN Coated



Solid Carbide Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/32	.0100	.046	1/8	4	1.865	.024	2	1/8	RKC760795	RKC760795A
	.0150	.046	1/8	4	1.860	.024	2	1/8	RKC760800	RKC760800A
	.0200	.046	1/8	4	1.855	.024	2	1/8	RKC760802	RKC760802A
	.0250	.046	1/8	4	1.850	.024	2	1/8	RKC760804	RKC760804A
	.0312 (1/32)	.046	1/8	4	1.844	.024	2	1/8	RKC760810	RKC760810A
	.0394 (1MM)	.046	1/8	4	1.836	.024	2	1/8	RKC760812	RKC760812A
	.0469 (3/64)	.046	1/8	4	1.828	.024	2	1/8	RKC760815	RKC760815A
	.0625 (1/16)	.046	1/8	4	1.813	.024	2	1/8	RKC760820	RKC760820A
1/8	.0100	.060	1/8	6	1.865	.032	2	1/8	RKC760825	RKC760825A
	.0150	.060	1/8	6	1.860	.032	2	1/8	RKC760900	RKC760900A
	.0200	.060	1/8	6	1.855	.032	2	1/8	RKC760902	RKC760902A
	.0250	.060	1/8	6	1.850	.032	2	1/8	RKC760904	RKC760904A
	.0300	.060	1/8	6	1.845	.032	2	1/8	RKC760906	RKC760906A
	.0312 (1/32)	.060	1/8	6	1.844	.032	2	1/8	RKC760910	RKC760910A
	.0350	.060	1/8	6	1.840	.032	2	1/8	RKC760912	RKC760912A
	.0394 (1MM)	.060	1/8	6	1.836	.032	2	1/8	RKC760914	RKC760914A
	.0469 (3/64)	.060	1/8	6	1.828	.032	2	1/8	RKC760920	RKC760920A
	.0500	.060	1/8	6	1.825	.032	2	1/8	RKC760922	RKC760922A
	.0550	.060	1/8	6	1.820	.032	2	1/8	RKC760924	RKC760924A
	.0625 (1/16)	.060	1/8	6	1.813	.032	2	1/8	RKC760926	RKC760926A
	.0781 (5/64)	.060	1/8	6	1.797	.032	2	1/8	RKC760928	RKC760928A
	.0938 (3/32)	.060	1/8	6	1.781	.032	2	1/8	RKC760930	RKC760930A
5/32	.0100	.078	3/16	6	2.303	.039	2-1/2	3/16	RKC760932	RKC760932A
	.0150	.078	3/16	6	2.298	.039	2-1/2	3/16	RKC760950	RKC760950A
	.0200	.078	3/16	6	2.293	.039	2-1/2	3/16	RKC760952	RKC760952A
	.0250	.078	3/16	6	2.288	.039	2-1/2	3/16	RKC760954	RKC760954A
	.0312 (1/32)	.078	3/16	6	2.281	.039	2-1/2	3/16	RKC760955	RKC760955A
	.0394 (1MM)	.078	3/16	6	2.273	.039	2-1/2	3/16	RKC760957	RKC760957A
	.0469 (3/64)	.078	3/16	6	2.266	.039	2-1/2	3/16	RKC760960	RKC760960A
	.0625 (1/16)	.078	3/16	6	2.250	.039	2-1/2	3/16	RKC760962	RKC760962A
	.0781 (5/64)	.078	3/16	6	2.234	.039	2-1/2	3/16	RKC760963	RKC760963A
	.0938 (3/32)	.078	3/16	6	2.219	.039	2-1/2	3/16	RKC760964	RKC760964A
3/16	.0100	.094	3/16	6	2.303	.046	2-1/2	3/16	RKC760965	RKC760965A
	.0150	.094	3/16	6	2.298	.046	2-1/2	3/16	RKC761050	RKC761050A
	.0200	.094	3/16	6	2.293	.046	2-1/2	3/16	RKC761052	RKC761052A
	.0300	.094	3/16	6	2.283	.046	2-1/2	3/16	RKC761054	RKC761054A
	.0312 (1/32)	.094	3/16	6	2.281	.046	2-1/2	3/16	RKC761055	RKC761055A
	.0394 (1MM)	.094	3/16	6	2.273	.046	2-1/2	3/16	RKC761057	RKC761057A

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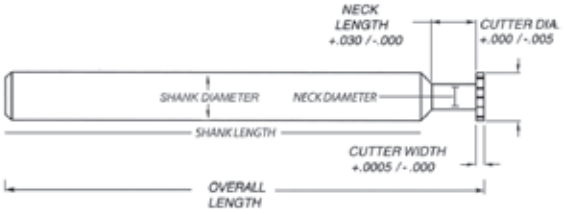
Solid Carbide



Uncoated



AlTiN Coated



Solid Carbide Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/16	.0400	.094	3/16	6	2.273	.046	2-1/2	3/16	RKC761059	RKC761059A
	.0469 (3/64)	.094	3/16	6	2.266	.046	2-1/2	3/16	RKC761060	RKC761060A
	.0500	.094	3/16	6	2.263	.046	2-1/2	3/16	RKC761062	RKC761062A
	.0625 (1/16)	.094	3/16	6	2.250	.046	2-1/2	3/16	RKC761065	RKC761065A
	.0781 (5/64)	.094	3/16	6	2.234	.046	2-1/2	3/16	RKC761067	RKC761067A
	.0787 (2MM)	.094	3/16	6	2.234	.046	2-1/2	3/16	RKC761068	RKC761068A
	.0934 (3/32)	.094	3/16	6	2.219	.046	2-1/2	3/16	RKC761069	RKC761069A
	.1250 (1/8)	.094	3/16	6	2.188	.046	2-1/2	3/16	RKC761075	RKC761075A
1/4	.0100	.125	1/4	6	2.240	.062	2-1/2	1/4	RKC761095	RKC761095A
	.0150	.125	1/4	6	2.235	.062	2-1/2	1/4	RKC761100	RKC761100A
	.0180	.125	1/4	6	2.232	.062	2-1/2	1/4	RKC761105	RKC761105A
	.0200	.125	1/4	6	2.230	.062	2-1/2	1/4	RKC761110	RKC761110A
	.0230	.125	1/4	6	2.227	.062	2-1/2	1/4	RKC761115	RKC761115A
	.0250	.125	1/4	6	2.225	.062	2-1/2	1/4	RKC761120	RKC761120A
	.0280	.125	1/4	6	2.222	.062	2-1/2	1/4	RKC761125	RKC761125A
	.0300	.125	1/4	6	2.220	.062	2-1/2	1/4	RKC761130	RKC761130A
	.0312 (1/32)	.125	1/4	6	2.219	.062	2-1/2	1/4	RKC761135	RKC761135A
	.0350	.125	1/4	6	2.215	.062	2-1/2	1/4	RKC761140	RKC761140A
	.0380	.125	1/4	6	2.212	.062	2-1/2	1/4	RKC761145	RKC761145A
	.0394 (1MM)	.125	1/4	6	2.211	.062	2-1/2	1/4	RKC761147	RKC761147A
	.0400	.125	1/4	6	2.210	.062	2-1/2	1/4	RKC761150	RKC761150A
	.0469 (3/64)	.125	1/4	6	2.203	.062	2-1/2	1/4	RKC761151	RKC761151A
	.0500	.125	1/4	6	2.200	.062	2-1/2	1/4	RKC761153	RKC761153A
	.0600	.125	1/4	6	2.190	.062	2-1/2	1/4	RKC761154	RKC761154A
	.0625 (1/16)	.125	1/4	6	2.188	.062	2-1/2	1/4	RKC761155	RKC761155A
	.0781 (5/64)	.125	1/4	6	2.172	.062	2-1/2	1/4	RKC761157	RKC761157A
	.0787 (2MM)	.125	1/4	6	2.171	.062	2-1/2	1/4	RKC761158	RKC761158A
	.0937 (3/32)	.125	1/4	6	2.156	.062	2-1/2	1/4	RKC761159	RKC761159A
5/16	.0150	.150	5/16	8	2.173	.081	2-1/2	5/16	RKC761160	RKC761160A
	.0200	.150	5/16	8	2.168	.081	2-1/2	5/16	RKC761165	RKC761165A
	.0312 (1/32)	.150	5/16	8	2.156	.081	2-1/2	5/16	RKC761170	RKC761170A
	.0394 (1MM)	.150	5/16	8	2.148	.081	2-1/2	5/16	RKC761172	RKC761172A
	.0469 (3/64)	.150	5/16	8	2.141	.081	2-1/2	5/16	RKC761175	RKC761175A
	.0625 (1/16)	.150	5/16	8	2.125	.081	2-1/2	5/16	RKC761180	RKC761180A
	.0781 (5/64)	.150	5/16	8	2.109	.081	2-1/2	5/16	RKC761182	RKC761182A
	.0787 (2MM)	.150	5/16	8	2.109	.081	2-1/2	5/16	RKC761184	RKC761184A
	.0938 (3/32)	.150	5/16	8	2.094	.081	2-1/2	5/16	RKC761185	RKC761185A
	.1250 (1/8)	.150	5/16	8	2.063	.081	2-1/2	5/16	RKC761190	RKC761190A
	.1562 (5/32)	.150	5/16	8	2.031	.081	2-1/2	5/16	RKC761195	RKC761195A

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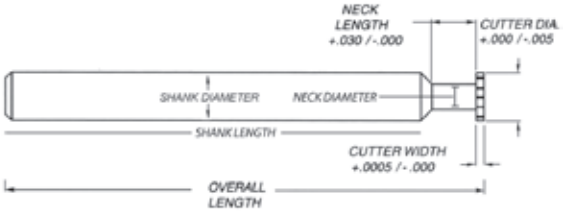
Speeds & Feeds page 463.



Uncoated



AlTiN Coated



Solid Carbide Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/8	.0100	.200	3/8	8	2.115	.087	2-1/2	3/8	RKC761197	RKC761197A
	.0150	.200	3/8	8	2.110	.087	2-1/2	3/8	RKC761198	RKC761198A
	.0200	.200	3/8	8	2.105	.087	2-1/2	3/8	RKC761199	RKC761199A
	.0312 (1/32)	.200	3/8	8	2.094	.087	2-1/2	3/8	RKC761200	RKC761200A
	.0394 (1MM)	.200	3/8	8	2.086	.087	2-1/2	3/8	RKC761202	RKC761202A
	.0469 (3/64)	.200	3/8	8	2.078	.087	2-1/2	3/8	RKC761205	RKC761205A
	.0625 (1/16)	.200	3/8	8	2.063	.087	2-1/2	3/8	RKC761210	RKC761210A
	.0781 (5/64)	.200	3/8	8	2.047	.087	2-1/2	3/8	RKC761212	RKC761212A
	.0787 (2MM)	.200	3/8	8	2.046	.087	2-1/2	3/8	RKC761213	RKC761213A
	.0938 (3/32)	.200	3/8	8	2.031	.087	2-1/2	3/8	RKC761215	RKC761215A
	.1250 (1/8)	.200	3/8	8	2.000	.087	2-1/2	3/8	RKC761220	RKC761220A
	.1562 (5/32)	.200	3/8	8	1.969	.087	2-1/2	3/8	RKC761225	RKC761225A
	.1875 (3/16)	.200	3/8	8	1.938	.087	2-1/2	3/8	RKC761230	RKC761230A
1/2	.0150	.250	3/8	10	2.610	.125	3	1/2	RKC761232	RKC761232A
	.0312 (1/32)	.250	3/8	10	2.594	.125	3	1/2	RKC761235	RKC761235A
	.0394 (1MM)	.250	3/8	10	2.586	.125	3	1/2	RKC761237	RKC761237A
	.0468 (3/64)	.250	3/8	10	2.578	.125	3	1/2	RKC761240	RKC761240A
	.0625 (1/16)	.250	3/8	10	2.563	.125	3	1/2	RKC761245	RKC761245A
	.0781 (5/64)	.250	3/8	10	2.547	.125	3	1/2	RKC761247	RKC761247A
	.0787 (2MM)	.250	3/8	10	2.546	.125	3	1/2	RKC761248	RKC761248A
	.0938 (3/32)	.250	3/8	10	2.531	.125	3	1/2	RKC761250	RKC761250A
	.1181 (3MM)	.250	3/8	10	2.507	.125	3	1/2	RKC761252	RKC761252A
	.1250 (1/8)	.250	3/8	10	2.500	.125	3	1/2	RKC761255	RKC761255A
	.1406 (9/64)	.250	3/8	10	2.484	.125	3	1/2	RKC761257	RKC761257A
	.1562 (5/32)	.250	3/8	10	2.469	.125	3	1/2	RKC761260	RKC761260A
	.1575 (4MM)	.250	3/8	10	2.468	.125	3	1/2	RKC761262	RKC761262A
	.1875 (3/16)	.250	3/8	10	2.438	.125	3	1/2	RKC761265	RKC761265A
	.1969 (5MM)	.250	3/8	10	2.428	.125	3	1/2	RKC761267	RKC761267A
	.2344 (15/64)	.250	3/8	10	2.391	.125	3	1/2	RKC761268	RKC761268A
	.2362 (6MM)	.250	3/8	10	2.389	.125	3	1/2	RKC761269	RKC761269A
	.2500 (1/4)	.250	3/8	10	2.375	.125	3	1/2	RKC761270	RKC761270A
5/8	.0625 (1/16)	.300	1/2	10	2.938	.162	3-1/2	5/8	RKC761280	RKC761280A
	.0938 (3/32)	.300	1/2	10	2.906	.162	3-1/2	5/8	RKC761290	RKC761290A
	.1250 (1/8)	.300	1/2	10	2.875	.162	3-1/2	5/8	RKC761300	RKC761300A
	.1875 (3/16	.300	1/2	10	2.813	.162	3-1/2	5/8	RKC761310	RKC761310A
	.2500 (1/4)	.300	1/2	10	2.750	.162	3-1/2	5/8	RKC761320	RKC761320A

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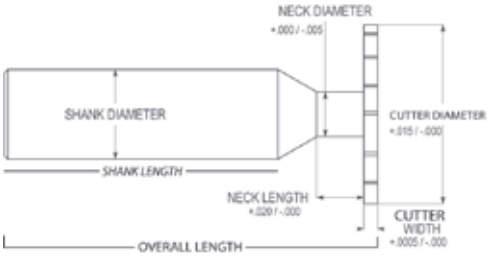
Carbide Head



Uncoated



AlTiN Coated



Carbide Head Key Cutters 1/2" Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/8	.0156 (1/64)	.200	1/4	8	2-3/4	.087	3.016	1/2	RKC781090	RKC781090A
	.0312 (1/32)	.200	1/4	8	2-3/4	.087	3.031	1/2	RKC781095	RKC781095A
	.0469 (3/64)	.200	1/4	8	2-3/4	.087	3.047	1/2	RKC781100	RKC781100A
	.0625 (1/16)	.200	1/4	8	2-3/4	.087	3.063	1/2	RKC781105	RKC781105A
	.0781 (5/64)	.200	1/4	8	2-3/4	.087	3.078	1/2	RKC781106	RKC781106A
	.0938 (3/32)	.200	1/4	8	2-3/4	.087	3.094	1/2	RKC781110	RKC781110A
	.1250 (1/8)	.200	1/4	8	2-3/4	.087	3.125	1/2	RKC781115	RKC781115A
7/16	.0312 (1/32)	.250	1/4	8	2-3/4	.093	3.031	1/2	RKC781116	RKC781116A
	.0625 (1/16)	.250	1/4	8	2-3/4	.093	3.063	1/2	RKC781117	RKC781117A
	.1250 (1/8)	.250	1/4	8	2-3/4	.093	3.125	1/2	RKC781118	RKC781118A
1/2	.0156 (1/64)	.250	1/4	10	2-3/4	.125	3.016	1/2	RKC781119	RKC781119A
	.0312 (1/32)	.250	1/8	10	2-3/4	.125	3.031	1/2	RKC781120	RKC781120A
	.0469 (3/64)	.250	1/4	10	2-3/4	.125	3.047	1/2	RKC781125	RKC781125A
	.0625 (1/16)	.135	1/8	10	2-3/4	.182	3.063	1/2	RKC781130	RKC781130A
	.0781 (5/64)	.250	1/4	10	2-3/4	.125	3.078	1/2	RKC781135	RKC781135A
	.0938 (3/32)	.165	1/8	10	2-3/4	.167	3.094	1/2	RKC781140	RKC781140A
	.1094 (7/64)	.250	1/4	10	2-3/4	.125	3.109	1/2	RKC781145	RKC781145A
	.1250 (1/8)	.190	1/4	10	2-3/4	.155	3.125	1/2	RKC781150	RKC781150A
	.1562 (5/32)	.250	1/4	10	2-3/4	.125	3.156	1/2	RKC781155	RKC781155A
9/16	.0312 (1/32)	.250	1/4	10	2-3/4	.156	3.031	1/2	RKC781156	RKC781156A
	.0625 (1/16)	.250	1/4	10	2-3/4	.156	3.063	1/2	RKC781157	RKC781157A
	.1250 (1/8)	.250	1/4	10	2-3/4	.156	3.125	1/2	RKC781158	RKC781158A
5/8	.0156 (1/64)	.280	1/4	10	2-3/4	.172	3.016	1/2	RKC781159	RKC781159A
	.0312 (1/32)	.280	1/4	10	2-3/4	.172	3.031	1/2	RKC781160	RKC781160A
	.0469 (3/64)	.280	1/4	10	2-3/4	.172	3.047	1/2	RKC781165	RKC781165A
	.0625 (1/16)	.280	1/8	10	2-3/4	.172	3.063	1/2	RKC781170	RKC781170A
	.0781 (5/64)	.280	1/4	10	2-3/4	.172	3.078	1/2	RKC781175	RKC781175A
	.0938 (3/32)	.195	1/4	10	2-3/4	.215	3.094	1/2	RKC781180	RKC781180A
	.1094 (7/64)	.280	1/4	10	2-3/4	.172	3.109	1/2	RKC781185	RKC781185A
	.1250 (1/8)	.225	1/4	10	2-3/4	.200	3.125	1/2	RKC781190	RKC781190A
	.1406 (9/64)	.280	1/4	10	2-3/4	.172	3.141	1/2	RKC781195	RKC781195A
	.1562 (5/32)	.250	1/4	10	2-3/4	.187	3.156	1/2	RKC781200	RKC781200A
	.1875 (3/16)	.250	1/4	10	2-3/4	.187	3.188	1/2	RKC781205	RKC781205A
	.2031 (13/64)	.280	1/4	10	2-3/4	.172	3.203	1/2	RKC781210	RKC781210A
	.2188 (7/32)	.280	1/4	10	2-3/4	.172	3.219	1/2	RKC781215	RKC781215A
	.2500 (1/4)	.280	1/4	10	2-3/4	.172	3.250	1/2	RKC781220	RKC781220A
	.2812 (9/32)	.280	1/4	10	2-3/4	.172	3.281	1/2	RKC781225	RKC781225A

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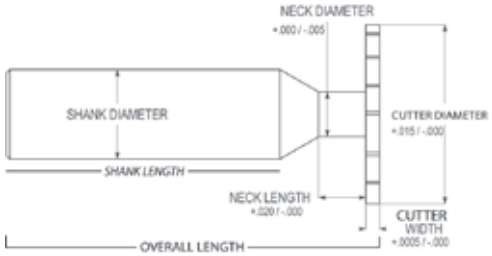
Speeds & Feeds page 463.



Uncoated



AlTiN Coated



Carbide Head Key Cutters 1/2" Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
11/16	.0625 (1/16)	.280	1/4	10	2-3/4	.203	3.063	1/2	RKC781226	RKC781226A
	.1250 (1/8)	.280	1/4	10	2-3/4	.203	3.125	1/2	RKC781227	RKC781227A
3/4	.0312 (1/32)	.280	1/4	10	2-3/4	.235	3.031	1/2	RKC781228	RKC781228A
	.0469 (3/64)	.280	1/4	10	2-3/4	.235	3.047	1/2	RKC781229	RKC781229A
	.0625 (1/16)	.280	1/4	10	2-3/4	.235	3.063	1/2	RKC781230	RKC781230A
	.0781 (5/64)	.280	1/4	10	2-3/4	.235	3.078	1/2	RKC781235	RKC781235A
	.0938 (3/32)	.280	1/4	10	2-3/4	.235	3.094	1/2	RKC781240	RKC781240A
	.1094 (7/64)	.280	1/4	10	2-3/4	.235	3.109	1/2	RKC781245	RKC781245A
	.1250 (1/8)	.230	1/4	10	2-3/4	.260	3.125	1/2	RKC781250	RKC781250A
	.1406 (9/64)	.280	1/4	10	2-3/4	.235	3.141	1/2	RKC781255	RKC781255A
	.1562 (5/32)	.250	1/4	10	2-3/4	.250	3.156	1/2	RKC781260	RKC781260A
	.1875 (3/16)	.280	1/4	10	2-3/4	.235	3.188	1/2	RKC781265	RKC781265A
	.2031 (13/64)	.280	1/4	10	2-3/4	.235	3.203	1/2	RKC781270	RKC781270A
	.2188 (7/32)	.280	1/4	10	2-3/4	.235	3.219	1/2	RKC781275	RKC781275A
	.2344 (15/64)	.280	1/4	10	2-3/4	.235	3.234	1/2	RKC781280	RKC781280A
	.2500 (1/4)	.280	1/4	10	2-3/4	.235	3.250	1/2	RKC781285	RKC781285A
	.2656 (17/64)	.490	1/4	10	2-1/2	.130	3.266	1/2	RKC781290	RKC781290A
	.2812 (9/32)	.490	1/4	10	2-1/2	.130	3.281	1/2	RKC781295	RKC781295A
	.3125 (5/16)	.490	1/4	10	2-1/2	.130	3.313	1/2	RKC781300	RKC781300A
	.3438 (11/32)	.490	1/4	10	2-1/2	.130	3.344	1/2	RKC781305	RKC781305A
	.3750 (3/8)	.490	1/4	10	2-1/2	.130	3.375	1/2	RKC781310	RKC781310A
7/8	.0312 (1/32)	.280	1/4	12	2-3/4	.297	3.031	1/2	RKC781311	RKC781311A
	.0469 (3/64)	.280	1/4	12	2-3/4	.297	3.047	1/2	RKC781312	RKC781312A
	.0625 (1/16)	.280	1/4	12	2-3/4	.297	3.063	1/2	RKC781313	RKC781313A
	.0938 (3/32)	.280	1/4	12	2-3/4	.297	3.094	1/2	RKC781314	RKC781314A
	.1250 (1/8)	.280	1/4	12	2-3/4	.297	3.125	1/2	RKC781315	RKC781315A
	.1562 (5/32)	.250	1/4	12	2-3/4	.312	3.156	1/2	RKC781320	RKC781320A
	.1875 (3/16)	.280	1/4	12	2-3/4	.297	3.188	1/2	RKC781325	RKC781325A
	.2188 (7/32)	.280	1/4	12	2-3/4	.297	3.219	1/2	RKC781330	RKC781330A
	.2500 (1/4)	.345	1/4	12	2-1/2	.265	3.250	1/2	RKC781335	RKC781335A
	.3125 (5/16)	.490	1/4	12	2-1/2	.192	3.313	1/2	RKC781340	RKC781340A
	.3750 (3/8)	.490	1/4	12	2-1/2	.192	3.375	1/2	RKC781345	RKC781345A

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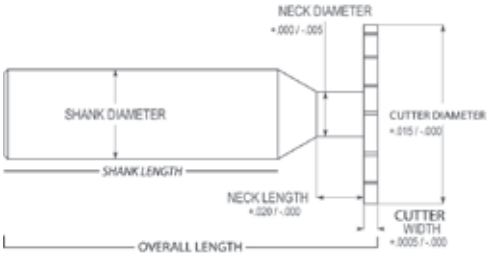
Carbide Head



Uncoated



AlTiN Coated



Carbide Head Key Cutters 1/2" Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1	.0312 (1/32)	.280	1/4	12	2-3/4	.360	3.031	1/2	RKC781346	RKC781346A
	.0469 (3/64)	.280	1/4	12	2-3/4	.360	3.047	1/2	RKC781348	RKC781348A
	.0625 (1/16)	.280	1/4	12	2-3/4	.360	3.063	1/2	RKC781350	RKC781350A
	.0781 (5/64)	.280	1/4	12	2-3/4	.360	3.078	1/2	RKC781352	RKC781352A
	.0938 (3/32)	.280	1/4	12	2-3/4	.360	3.094	1/2	RKC781355	RKC781355A
	.1250 (1/8)	.280	1/4	12	2-3/4	.360	3.125	1/2	RKC781360	RKC781360A
	.1562 (5/32)	.280	1/4	12	2-3/4	.360	3.156	1/2	RKC781362	RKC781362A
	.1875 (3/16)	.280	1/4	12	2-3/4	.360	3.188	1/2	RKC781365	RKC781365A
	.2188 (7/32)	.340	1/4	12	2-1/2	.330	3.219	1/2	RKC781370	RKC781370A
	.2500 (1/4)	.345	1/4	12	2-1/2	.327	3.250	1/2	RKC781375	RKC781375A
	.2812 (9/32)	.490	1/4	12	2-1/2	.220	3.281	1/2	RKC781380	RKC781380A
	.3125 (5/16)	.400	1/4	12	2-1/2	.300	3.313	1/2	RKC781385	RKC781385A
	.3750 (3/8)	.400	1/4	12	2-1/2	.300	3.375	1/2	RKC781390	RKC781390A
1-1/8	.0625 (1/16)	.280	1/4	12	2-3/4	.422	3.063	1/2	RKC781392	RKC781392A
	.0938 (3/32)	.280	1/4	12	2-3/4	.422	3.094	1/2	RKC781394	RKC781394A
	.1250 (1/8)	.280	1/4	12	2-3/4	.422	3.125	1/2	RKC781395	RKC781395A
	.1875 (3/16)	.280	1/4	12	2-3/4	.422	3.188	1/2	RKC781400	RKC781400A
	.2188 (7/32)	.490	1/4	12	2-3/4	.317	3.219	1/2	RKC781405	RKC781405A
	.2500 (1/4)	.490	1/4	12	2-3/4	.317	3.250	1/2	RKC781410	RKC781410A
1-1/4	.0312 (1/32)	.280	1/4	14	2-3/4	.485	3.031	1/2	RKC781412	RKC781412A
	.0469 (3/64)	.280	1/4	14	2-3/4	.485	3.047	1/2	RKC781413	RKC781413A
	.0625 (1/16)	.280	1/4	14	2-3/4	.485	3.063	1/2	RKC781415	RKC781415A
	.0781 (5/64)	.280	1/4	14	2-3/4	.485	3.078	1/2	RKC781417	RKC781417A
	.0938 (3/32)	.280	1/4	14	2-3/4	.485	3.094	1/2	RKC781420	RKC781420A
	.1250 (1/8)	.280	1/4	14	2-3/4	.485	3.125	1/2	RKC781425	RKC781425A
	.1562 (5/32)	.280	1/4	14	2-3/4	.485	3.156	1/2	RKC781427	RKC781427A
	.1875 (3/16)	.320	1/4	14	2-1/2	.465	3.188	1/2	RKC781430	RKC781430A
	.2188 (7/32)	.380	1/4	14	2-1/2	.435	3.219	1/2	RKC781435	RKC781435A
	.2500 (1/4)	.379	1/4	14	2-1/2	.435	3.250	1/2	RKC781440	RKC781440A
	.3125 (5/16)	.437	1/4	14	2-1/2	.406	3.313	1/2	RKC781445	RKC781445A
	.3750 (3/8)	.430	1/4	14	2-1/2	.410	3.375	1/2	RKC781450	RKC781450A

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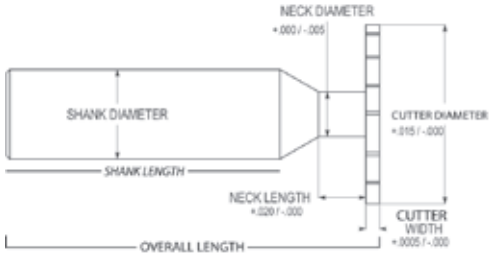
Speeds & Feeds page 463.



Uncoated



AlTiN Coated



Carbide Head Key Cutters 1/2" Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1-3/8	.0625 (1/16)	.280	1/4	14	2-3/4	.547	3.063	1/2	RKC781555	RKC781555A
	.0781 (5/64)	.280	1/4	14	2-3/4	.547	3.078	1/2	RKC781557	RKC781557A
	.0938 (3/32)	.280	1/4	14	2-3/4	.547	3.094	1/2	RKC781560	RKC781560A
	.1250 (1/8)	.280	1/4	14	2-3/4	.547	3.125	1/2	RKC781565	RKC781565A
	.1562 (5/32)	.280	1/4	14	2-3/4	.547	3.156	1/2	RKC781570	RKC781570A
	.1875 (3/16)	.490	1/4	14	2-3/4	.442	3.188	1/2	RKC781572	RKC781572A
	.2500 (1/4)	.400	1/4	14	2	.487	2.500	1/2	RKC781475	RKC781475A
	.3125 (5/16)	.470	1/4	14	2	.452	2.563	1/2	RKC781480	RKC781480A
	.3750 (3/8)	.470	1/4	14	2	.452	2.625	1/2	RKC781485	RKC781485A
1-1/2	.0312 (1/32)	.280	1/4	16	2-3/4	.610	3.031	1/2	RKC781452	RKC781452A
	.0469 (3/64)	.280	1/4	16	2-3/4	.610	3.047	1/2	RKC781453	RKC781453A
	.0625 (1/16)	.280	1/4	16	2-3/4	.610	3.063	1/2	RKC781455	RKC781455A
	.0781 (5/64)	.280	1/4	16	2-3/4	.610	3.078	1/2	RKC781457	RKC781457A
	.0938 (3/32)	.280	1/4	16	2-3/4	.610	3.094	1/2	RKC781460	RKC781460A
	.1250 (1/8)	.280	1/4	16	2-3/4	.610	3.125	1/2	RKC781465	RKC781465A
	.1875 (3/16)	.490	1/4	16	2-1/2	.505	3.188	1/2	RKC781470	RKC781470A
	.2500 (1/4)	.430	1/4	16	2	.535	2.500	1/2	RKC781490	RKC781490A
	.3125 (5/16)	.460	1/4	16	2	.520	2.563	1/2	RKC781495	RKC781495A
	.3750 (3/8)	.490	1/4	16	2	.505	2.625	1/2	RKC781500	RKC781500A
1-3/4	.0625 (1/16)	.490	1/4	16	2-1/2	.630	3.063	1/2	RKC781505	RKC781505A
	.0781 (5/64)	.490	1/4	16	2-1/2	.630	3.078	1/2	RKC781507	RKC781507A
	.0938 (3/32)	.490	1/4	16	2-1/2	.630	3.094	1/2	RKC781508	RKC781508A
	.1250 (1/8)	.490	1/4	16	2-1/2	.630	3.125	1/2	RKC781510	RKC781510A
	.1562 (5/32)	.490	1/4	16	2-1/2	.630	3.156	1/2	RKC781512	RKC781512A
	.1875 (3/16)	.490	1/4	16	2-1/2	.630	3.188	1/2	RKC781515	RKC781515A
2	.0625 (1/16)	.490	1/4	18	2-1/2	.755	3.063	1/2	RKC781520	RKC781520A
	.0781 (5/64)	.490	1/4	18	2-1/2	.755	3.078	1/2	RKC781522	RKC781522A
	.0938 (3/32)	.490	1/4	18	2-1/2	.755	3.094	1/2	RKC781523	RKC781523A
	.1250 (1/8)	.490	1/4	18	2-1/2	.755	3.125	1/2	RKC781525	RKC781525A
	.1562 (5/32)	.490	1/4	18	2-1/2	.755	3.156	1/2	RKC781527	RKC781527A
	.1875 (3/16)	.490	1/4	18	2-1/2	.755	3.188	1/2	RKC781530	RKC781530A

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Staggered Tooth

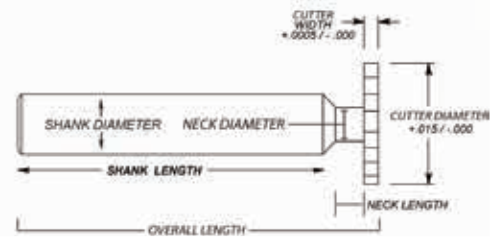
NEW Product



Uncoated



AlTiN Coated



Staggered Tooth Carbide Head Key Cutters With Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/2	.0625 (1/16)	.135	1/8	8	2-3/4	2.9375	1/2	RKC1031000	RKC1031000A
	.0938 (3/32)	.165	1/8	8	2-3/4	2.9688	1/2	RKC1031010	RKC1031010A
	.1250 (1/8)	.190	1/8	8	2-3/4	3.0000	1/2	RKC1031020	RKC1031020A
5/8	.0938 (3/32)	.195	1/4	8	2-3/4	3.0938	1/2	RKC1031030	RKC1031030A
	.1250 (1/8)	.225	1/4	8	2-3/4	3.1250	1/2	RKC1031040	RKC1031040A
	.1562 (5/32)	.250	1/4	8	2-3/4	3.1562	1/2	RKC1031050	RKC1031050A
	.1875 (3/16)	.250	1/4	8	2-3/4	3.1875	1/2	RKC1031060	RKC1031060A
	.2500 (1/4)	.280	1/4	8	2-3/4	3.2500	1/2	RKC1031070	RKC1031070A
3/4	.1250 (1/8)	.230	1/4	8	2-3/4	3.1250	1/2	RKC1031080	RKC1031080A
	.1562 (5/32)	.250	1/4	8	2-3/4	3.1562	1/2	RKC1031090	RKC1031090A
	.1875 (3/16)	.280	1/4	8	2-3/4	3.1875	1/2	RKC1031100	RKC1031100A
	.2500 (1/4)	.280	1/4	8	2-3/4	3.2500	1/2	RKC1031110	RKC1031110A
	.3125 (5/16)	.490	1/4	8	2-1/2	3.0625	1/2	RKC1031120	RKC1031120A
7/8	.1250 (1/8)	.280	1/4	10	2-3/4	3.1250	1/2	RKC1031130	RKC1031130A
	.1562 (5/32)	.250	1/4	10	2-3/4	3.1562	1/2	RKC1031140	RKC1031140A
	.1875 (3/16)	.280	1/4	10	2-3/4	3.1375	1/2	RKC1031150	RKC1031150A
	.2188 (7/32)	.280	1/4	10	2-3/4	3.2188	1/2	RKC1031160	RKC1031160A
	.2500 (1/4)	.345	1/4	10	2-1/2	3.0000	1/2	RKC1031170	RKC1031170A
	.3125 (5/16)	.490	1/4	10	2-1/2	3.0625	1/2	RKC1031180	RKC1031180A
	.3750 (3/8)	.490	1/4	10	2-1/2	3.1250	1/2	RKC1031190	RKC1031190A
1	.1250 (1/8)	.280	1/4	10	2-3/4	3.1250	1/2	RKC1031200	RKC1031200A
	.1875 (3/16)	.280	1/4	10	2-3/4	3.1875	1/2	RKC1031210	RKC1031210A
	.2188 (7/32)	.340	1/4	10	2-1/2	2.9688	1/2	RKC1031220	RKC1031220A
	.2500 (1/4)	.345	1/4	10	2-1/2	3.0000	1/2	RKC1031230	RKC1031230A
	.3125 (5/16)	.400	1/4	10	2-1/2	3.0625	1/2	RKC1031240	RKC1031240A
	.3750 (3/8)	.400	1/4	10	2-1/2	3.1250	1/2	RKC1031250	RKC1031250A
1-1/8	.1250 (1/8)	.280	1/4	10	2-3/4	3.1250	1/2	RKC1031260	RKC1031260A
	.1875 (3/16)	.280	1/4	10	2-3/4	3.1875	1/2	RKC1031270	RKC1031270A
	.2500 (1/4)	.490	1/4	10	2-1/2	3.0000	1/2	RKC1031280	RKC1031280A
	.3125 (5/16)	.490	1/4	10	2-1/2	3.0625	1/2	RKC1031290	RKC1031290A
	.3750 (3/8)	.490	1/4	10	2-1/2	3.1250	1/2	RKC1031300	RKC1031300A
1-1/4	.1250 (1/8)	.280	1/4	12	2-3/4	3.1250	1/2	RKC1031310	RKC1031310A
	.1875 (3/16)	.320	1/4	12	2-1/2	2.9375	1/2	RKC1031320	RKC1031320A
	.2188 (7/32)	.380	1/4	12	2-1/2	2.9688	1/2	RKC1031330	RKC1031330A
	.2500 (1/4)	.379	1/4	12	2-1/2	3.0000	1/2	RKC1031340	RKC1031340A
	.3125 (5/16)	.437	1/4	12	2-1/2	3.0625	1/2	RKC1031350	RKC1031350A
	.3750 (3/8)	.430	1/4	12	2-1/2	3.1250	1/2	RKC1031360	RKC1031360A

Continued

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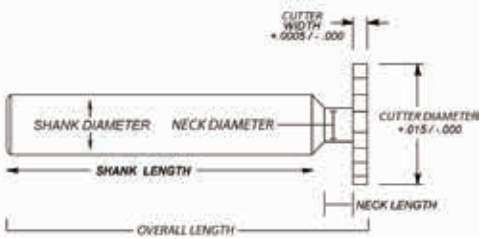
NEW Product



Uncoated



AlTiN Coated



Staggered Tooth Carbide Head Key Cutters With Steel Shank

Cutter ø	Cutter Width		Neck ø	Neck Length	# of Teeth	Shank Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1-3/8	.1250	(1/8)	.280	1/4	12	2.375	2-3/4	1/2	RKC1031370	RKC1031370A
	.1875	(3/16)	.400	1/4	12	2.062	2-1/2	1/2	RKC1031380	RKC1031380A
	.2500	(1/4)	.400	1/4	12	2.000	2-1/2	1/2	RKC1031390	RKC1031390A
	.3125	(5/16)	.470	1/4	12	1.437	2	1/2	RKC1031400	RKC1031400A
	.3750	(3/8)	.470	1/4	12	1.375	2	1/2	RKC1031410	RKC1031410A
1-1/2	.2500	(1/4)	.430	1/4	14	1.500	2	1/2	RKC1031420	RKC1031420A
	.3125	(5/16)	.460	1/4	14	1.437	2	1/2	RKC1031430	RKC1031430A
	.3750	(3/8)	.490	1/4	14	1.375	2	1/2	RKC1031440	RKC1031440A

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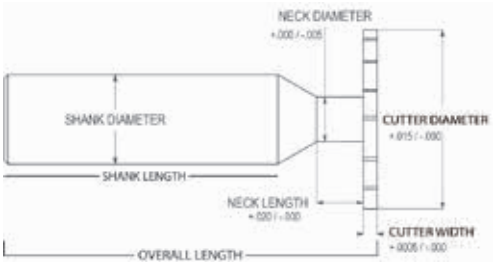
Fine Tooth



Uncoated



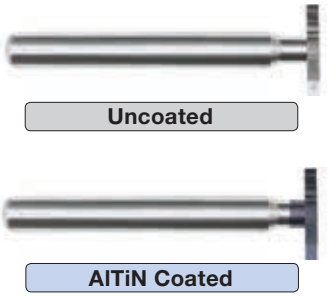
AlTiN Coated

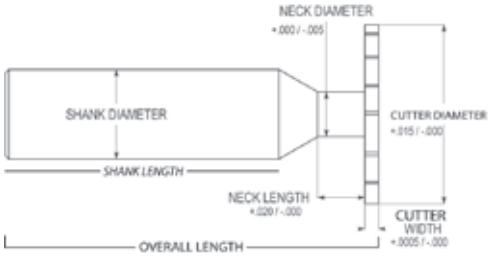


Fine Tooth Carbide Head Key Cutters 1/2" Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/2	.0312 (1/32)	.250	.250	14	2-3/4	.125	3.031	1/2	RKC1071000	RKC1071000A
	.0625 (1/16)	.250	.250	14	2-3/4	.125	3.063	1/2	RKC1071010	RKC1071010A
	.0938 (3/32)	.250	.250	14	2-3/4	.125	3.094	1/2	RKC1071020	RKC1071020A
	.1250 (1/8)	.250	.250	14	2-3/4	.125	3.125	1/2	RKC1071030	RKC1071030A
5/8	.0312 (1/32)	.280	.250	16	2-3/4	.172	3.031	1/2	RKC1071040	RKC1071040A
	.0625 (1/16)	.280	.250	16	2-3/4	.172	3.063	1/2	RKC1071050	RKC1071050A
	.0938 (3/32)	.280	.250	16	2-3/4	.172	3.094	1/2	RKC1071060	RKC1071060A
	.1250 (1/8)	.280	.250	16	2-3/4	.172	3.125	1/2	RKC1071070	RKC1071070A
3/4	.0312 (1/32)	.280	.250	20	2-3/4	.235	3.031	1/2	RKC1071080	RKC1071080A
	.0625 (1/16)	.280	.250	20	2-3/4	.235	3.063	1/2	RKC1071090	RKC1071090A
	.0938 (3/32)	.280	.250	20	2-3/4	.235	3.094	1/2	RKC1071100	RKC1071100A
	.1250 (1/8)	.280	.250	20	2-3/4	.235	3.125	1/2	RKC1071110	RKC1071110A
	.1875 (3/16)	.280	.250	20	2-3/4	.235	3.188	1/2	RKC1071120	RKC1071120A
	.2500 (1/4)	.280	.250	20	2-3/4	.235	3.250	1/2	RKC1071130	RKC1071130A
7/8	.0625 (1/16)	.280	.250	22	2-3/4	.297	3.063	1/2	RKC1071140	RKC1071140A
	.0938 (3/32)	.280	.250	22	2-3/4	.297	3.094	1/2	RKC1071150	RKC1071150A
	.1250 (1/8)	.280	.250	22	2-3/4	.297	3.125	1/2	RKC1071160	RKC1071160A
	.1875 (3/16)	.280	.250	22	2-3/4	.297	3.188	1/2	RKC1071170	RKC1071170A
1	.0312 (1/32)	.280	.250	24	2-3/4	.360	3.031	1/2	RKC1071180	RKC1071180A
	.0625 (1/16)	.280	.250	24	2-3/4	.360	3.063	1/2	RKC1071190	RKC1071190A
	.0938 (3/32)	.280	.250	24	2-3/4	.360	3.094	1/2	RKC1071200	RKC1071200A
	.1250 (1/8)	.280	.250	24	2-3/4	.360	3.125	1/2	RKC1071210	RKC1071210A
	.1875 (3/16)	.280	.250	24	2-3/4	.360	3.188	1/2	RKC1071220	RKC1071220A
	.2500 (1/4)	.280	.250	24	2-3/4	.360	3.250	1/2	RKC1071230	RKC1071230A
1-1/8	.0625 (1/16)	.280	.250	28	2-3/4	.422	3.063	1/2	RKC1071240	RKC1071240A
	.0938 (3/32)	.280	.250	28	2-3/4	.422	3.094	1/2	RKC1071250	RKC1071250A
	.1250 (1/8)	.280	.250	28	2-3/4	.422	3.125	1/2	RKC1071260	RKC1071260A
	.1875 (3/16)	.280	.250	28	2-3/4	.422	3.188	1/2	RKC1071270	RKC1071270A
1-1/4	.0625 (1/16)	.280	.250	36	2-3/4	.485	3.063	1/2	RKC1071280	RKC1071280A
	.0938 (3/32)	.280	.250	36	2-3/4	.485	3.094	1/2	RKC1071290	RKC1071290A
	.1250 (1/8)	.280	.250	36	2-3/4	.485	3.125	1/2	RKC1071300	RKC1071300A
	.1562 (5/32)	.280	.250	36	2-3/4	.485	3.156	1/2	RKC1071310	RKC1071310A
	.1875 (3/16)	.490	.250	36	2-3/4	.380	3.188	1/2	RKC1071320	RKC1071320A
	.2500 (1/4)	.490	.250	36	2-3/4	.380	3.250	1/2	RKC1071330	RKC1071330A
1-1/2	.0625 (1/16)	.280	.250	36	2-3/4	.610	3.063	1/2	RKC1071340	RKC1071340A
	.0938 (3/32)	.280	.250	36	2-3/4	.610	3.094	1/2	RKC1071350	RKC1071350A
	.1250 (1/8)	.280	.250	36	2-3/4	.610	3.125	1/2	RKC1071360	RKC1071360A
	.1562 (5/32)	.490	.250	36	2-3/4	.505	3.156	1/2	RKC1071370	RKC1071370A
	.1875 (3/16)	.490	.250	36	2-3/4	.505	3.188	1/2	RKC1071380	RKC1071380A

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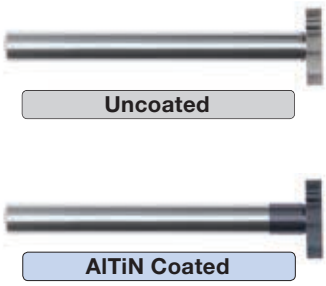


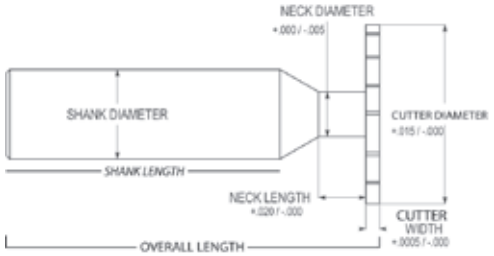
Carbide Head Key Cutters 3/8" Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/2	.0312 (1/32)	.250	1/4	10	2-3/4	.125	3.031	3/8	RKC780870	RKC780870A
	.0469 (3/64)	.250	1/4	10	2-3/4	.125	3.047	3/8	RKC780875	RKC780875A
	.0625 (1/16)	.250	1/4	10	2-3/4	.125	3.063	3/8	RKC780880	RKC780880A
	.0781 (5/64)	.250	1/4	10	2-3/4	.125	3.078	3/8	RKC780885	RKC780885A
	.0938 (3/32)	.250	1/4	10	2-3/4	.125	3.094	3/8	RKC780890	RKC780890A
	.1250 (1/8)	.250	1/4	10	2-3/4	.125	3.125	3/8	RKC780895	RKC780895A
	.1562 (5/32)	.250	1/4	10	2-3/4	.125	3.156	3/8	RKC780897	RKC780897A
5/8	.0312 (1/32)	.250	1/4	10	2-3/4	.187	3.031	3/8	RKC780900	RKC780900A
	.0469 (3/64)	.250	1/4	10	2-3/4	.187	3.047	3/8	RKC780902	RKC780902A
	.0625 (1/16)	.250	1/4	10	2-3/4	.187	3.063	3/8	RKC780905	RKC780905A
	.0781 (5/64)	.250	1/4	10	2-3/4	.187	3.078	3/8	RKC780907	RKC780907A
	.0938 (3/32)	.250	1/4	10	2-3/4	.187	3.094	3/8	RKC780910	RKC780910A
	.1250 (1/8)	.250	1/4	10	2-3/4	.187	3.125	3/8	RKC780915	RKC780915A
	.1562 (5/32)	.250	1/4	10	2-3/4	.187	3.156	3/8	RKC780917	RKC780917A
	.1875 (3/16)	.250	1/4	10	2-3/4	.187	3.188	3/8	RKC780918	RKC780918A
3/4	.0312 (1/32)	.250	1/4	10	2-3/4	.250	3.031	3/8	RKC780920	RKC780920A
	.0469 (3/64)	.250	1/4	10	2-3/4	.250	3.047	3/8	RKC780922	RKC780922A
	.0625 (1/16)	.250	1/4	10	2-3/4	.250	3.063	3/8	RKC780925	RKC780925A
	.0781 (5/64)	.250	1/4	10	2-3/4	.250	3.078	3/8	RKC780927	RKC780927A
	.0938 (3/32)	.250	1/4	10	2-3/4	.250	3.094	3/8	RKC780930	RKC780930A
	.1250 (1/8)	.250	1/4	10	2-3/4	.250	3.125	3/8	RKC780935	RKC780935A
	.1562 (5/32)	.250	1/4	10	2-3/4	.250	3.156	3/8	RKC780937	RKC780937A
	.1875 (3/16)	.250	1/4	10	2-3/4	.250	3.188	3/8	RKC780939	RKC780939A
1	.0312 (1/32)	.250	1/4	12	2-3/4	.375	3.031	3/8	RKC780945	RKC780945A
	.0469 (3/64)	.250	1/4	12	2-3/4	.375	3.047	3/8	RKC780950	RKC780950A
	.0625 (1/16)	.250	1/4	12	2-3/4	.375	3.063	3/8	RKC780955	RKC780955A
	.0781 (5/64)	.250	1/4	12	2-3/4	.375	3.078	3/8	RKC780960	RKC780960A
	.0938 (3/32)	.250	1/4	12	2-3/4	.375	3.094	3/8	RKC780965	RKC780965A
	.1250 (1/8)	.250	1/4	12	2-3/4	.375	3.125	3/8	RKC780970	RKC780970A

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Carbide Head





Carbide Head Key Cutters 1/4" Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #
3/8	.0312 (1/32)	.240	1/4	8	2	.067	2.281	1/4	RKC769000
	.0625 (1/16)	.240	1/4	8	2	.067	2.313	1/4	RKC769010
	.0938 (3/32)	.240	1/4	8	2	.067	2.344	1/4	RKC769015
	.1250 (1/8)	.240	1/4	8	2	.067	2.375	1/4	RKC769020
1/2	.0312 (1/32)	.240	1/4	10	2	.130	2.281	1/4	RKC769025
	.0625 (1/16)	.240	1/4	10	2	.130	2.313	1/4	RKC769030
	.0938 (3/32)	.240	1/4	10	2	.130	2.344	1/4	RKC769035
	.1250 (1/8)	.240	1/4	10	2	.130	2.375	1/4	RKC769040
5/8	.0312 (1/32)	.240	1/4	10	2	.192	2.281	1/4	RKC769045
	.0625 (1/16)	.240	1/4	10	2	.192	2.313	1/4	RKC769050
	.0938 (3/32)	.240	1/4	10	2	.192	2.344	1/4	RKC769055
	.1250 (1/8)	.240	1/4	10	2	.192	2.375	1/4	RKC769060

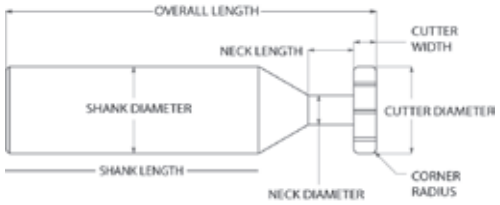
Speeds & Feeds page 463.



Uncoated



AlTiN Coated



Corner Radius Solid Carbide Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Corner Radius	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/4	.0625 (1/16)	.125	1/4	6	2.188	.005	.062	2-1/2	1/4	RKC1011000	RKC1011000A
	.0625 (1/16)	.125	1/4	6	2.188	.010	.062	2-1/2	1/4	RKC1011020	RKC1011020A
	.0625 (1/16)	.125	1/4	6	2.188	.015	.062	2-1/2	1/4	RKC1011030	RKC1011030A
	.0938 (3/32)	.125	1/4	6	2.156	.005	.062	2-1/2	1/4	RKC1011040	RKC1011040A
	.0938 (3/32)	.125	1/4	6	2.156	.010	.062	2-1/2	1/4	RKC1011050	RKC1011050A
	.0938 (3/32)	.125	1/4	6	2.156	.015	.062	2-1/2	1/4	RKC1011060	RKC1011060A
	.1250 (1/8)	.125	1/4	6	2.125	.005	.062	2-1/2	1/4	RKC1011070	RKC1011070A
	.1250 (1/8)	.125	1/4	6	2.125	.010	.062	2-1/2	1/4	RKC1011080	RKC1011080A
	.1250 (1/8)	.125	1/4	6	2.125	.015	.062	2-1/2	1/4	RKC1011090	RKC1011090A
	.1250 (1/8)	.125	1/4	6	2.125	.030	.062	2-1/2	1/4	RKC1011100	RKC1011100A
5/16	.0625 (1/16)	.150	5/16	8	2.125	.005	.081	2-1/2	5/16	RKC1011110	RKC1011110A
	.0625 (1/16)	.150	5/16	8	2.125	.010	.081	2-1/2	5/16	RKC1011120	RKC1011120A
	.0625 (1/16)	.150	5/16	8	2.125	.015	.081	2-1/2	5/16	RKC1011130	RKC1011130A
	.0938 (3/32)	.150	5/16	8	2.094	.005	.081	2-1/2	5/16	RKC1011140	RKC1011140A
	.0938 (3/32)	.150	5/16	8	2.094	.010	.081	2-1/2	5/16	RKC1011150	RKC1011150A
	.0938 (3/32)	.150	5/16	8	2.094	.015	.081	2-1/2	5/16	RKC1011160	RKC1011160A
	.1250 (1/8)	.150	5/16	8	2.063	.005	.081	2-1/2	5/16	RKC1011170	RKC1011170A
	.1250 (1/8)	.150	5/16	8	2.063	.010	.081	2-1/2	5/16	RKC1011180	RKC1011180A
	.1250 (1/8)	.150	5/16	8	2.063	.015	.081	2-1/2	5/16	RKC1011190	RKC1011190A
	.1250 (1/8)	.150	5/16	8	2.063	.030	.081	2-1/2	5/16	RKC1011200	RKC1011200A
3/8	.0625 (1/16)	.200	3/8	8	2.063	.005	.087	2-1/2	3/8	RKC1011210	RKC1011210A
	.0625 (1/16)	.200	3/8	8	2.063	.010	.087	2-1/2	3/8	RKC1011220	RKC1011220A
	.0625 (1/16)	.200	3/8	8	2.063	.015	.087	2-1/2	3/8	RKC1011230	RKC1011230A
	.0938 (3/32)	.200	3/8	8	2.031	.005	.087	2-1/2	3/8	RKC1011240	RKC1011240A
	.0938 (3/32)	.200	3/8	8	2.031	.010	.087	2-1/2	3/8	RKC1011250	RKC1011250A
	.0938 (3/32)	.200	3/8	8	2.031	.015	.087	2-1/2	3/8	RKC1011260	RKC1011260A
	.1250 (1/8)	.200	3/8	8	2.000	.005	.087	2-1/2	3/8	RKC1011270	RKC1011270A
	.1250 (1/8)	.200	3/8	8	2.000	.010	.087	2-1/2	3/8	RKC1011280	RKC1011280A
	.1250 (1/8)	.200	3/8	8	2.000	.015	.087	2-1/2	3/8	RKC1011290	RKC1011290A
	.1250 (1/8)	.200	3/8	8	2.000	.030	.087	2-1/2	3/8	RKC1011300	RKC1011300A

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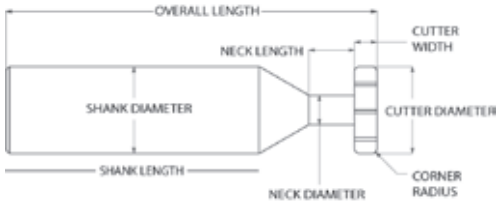
Corner Radius



Uncoated



AlTiN Coated



Corner Radius Solid Carbide Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Corner Radius	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/2	.0625 (1/16)	.250	3/8	10	2.563	.005	.125	3	1/2	RKC1011310	RKC1011310A
	.0625 (1/16)	.250	3/8	10	2.563	.010	.125	3	1/2	RKC1011320	RKC1011320A
	.0625 (1/16)	.250	3/8	10	2.563	.015	.125	3	1/2	RKC1011330	RKC1011330A
	.0938 (3/32)	.250	3/8	10	2.531	.005	.125	3	1/2	RKC1011340	RKC1011340A
	.0938 (3/32)	.250	3/8	10	2.531	.010	.125	3	1/2	RKC1011350	RKC1011350A
	.0938 (3/32)	.250	3/8	10	2.531	.015	.125	3	1/2	RKC1011360	RKC1011360A
	.1250 (1/8)	.250	3/8	10	2.500	.005	.125	3	1/2	RKC1011370	RKC1011370A
	.1250 (1/8)	.250	3/8	10	2.500	.010	.125	3	1/2	RKC1011380	RKC1011380A
	.1250 (1/8)	.250	3/8	10	2.500	.015	.125	3	1/2	RKC1011390	RKC1011390A
	.1250 (1/8)	.250	3/8	10	2.500	.030	.125	3	1/2	RKC1011400	RKC1011400A
	.2500 (1/4)	.250	3/8	10	2.375	.005	.125	3	1/2	RKC1011410	RKC1011410A
	.2500 (1/4)	.250	3/8	10	2.375	.010	.125	3	1/2	RKC1011420	RKC1011420A
	.2500 (1/4)	.250	3/8	10	2.375	.015	.125	3	1/2	RKC1011430	RKC1011430A
	.2500 (1/4)	.250	3/8	10	2.375	.030	.125	3	1/2	RKC1011440	RKC1011440A

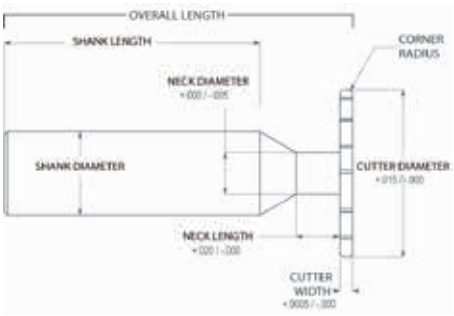
Speeds & Feeds page 463.



Uncoated



AlTiN Coated



Corner Radius Carbide Head Key Cutters with Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Corner Radius	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
5/8	.0625 (1/16)	.280	1/4	10	2-3/4	.005	.172	3.063	1/2	RKC1021000	RKC1021000A
	.0625 (1/16)	.280	1/4	10	2-3/4	.010	.172	3.063	1/2	RKC1021020	RKC1021020A
	.0625 (1/16)	.280	1/4	10	2-3/4	.015	.172	3.063	1/2	RKC1021030	RKC1021030A
	.0938 (3/32)	.280	1/4	10	2-3/4	.005	.172	3.094	1/2	RKC1021040	RKC1021040A
	.0938 (3/32)	.280	1/4	10	2-3/4	.010	.172	3.094	1/2	RKC1021050	RKC1021050A
	.0938 (3/32)	.280	1/4	10	2-3/4	.015	.172	3.094	1/2	RKC1021060	RKC1021060A
	.1250 (1/8)	.280	1/4	10	2-3/4	.005	.172	3.125	1/2	RKC1021070	RKC1021070A
	.1250 (1/8)	.280	1/4	10	2-3/4	.010	.172	3.125	1/2	RKC1021080	RKC1021080A
	.1250 (1/8)	.280	1/4	10	2-3/4	.015	.172	3.125	1/2	RKC1021090	RKC1021090A
	.1250 (1/8)	.280	1/4	10	2-3/4	.030	.172	3.125	1/2	RKC1021100	RKC1021100A
3/4	.0625 (1/16)	.280	1/4	10	2-3/4	.005	.235	3.063	1/2	RKC1021110	RKC1021110A
	.0625 (1/16)	.280	1/4	10	2-3/4	.010	.235	3.063	1/2	RKC1021120	RKC1021120A
	.0625 (1/16)	.280	1/4	10	2-3/4	.015	.235	3.063	1/2	RKC1021130	RKC1021130A
	.0938 (3/32)	.280	1/4	10	2-3/4	.005	.235	3.094	1/2	RKC1021140	RKC1021140A
	.0938 (3/32)	.280	1/4	10	2-3/4	.010	.235	3.094	1/2	RKC1021150	RKC1021150A
	.0938 (3/32)	.280	1/4	10	2-3/4	.015	.235	3.094	1/2	RKC1021160	RKC1021160A
	.1250 (1/8)	.280	1/4	10	2-3/4	.005	.235	3.125	1/2	RKC1021170	RKC1021170A
	.1250 (1/8)	.280	1/4	10	2-3/4	.010	.235	3.125	1/2	RKC1021180	RKC1021180A
	.1250 (1/8)	.280	1/4	10	2-3/4	.015	.235	3.125	1/2	RKC1021190	RKC1021190A
	.1250 (1/8)	.280	1/4	10	2-3/4	.030	.235	3.125	1/2	RKC1021200	RKC1021200A
1	.0625 (1/16)	.280	1/4	12	2-3/4	.005	.360	3.063	1/2	RKC1021210	RKC1021210A
	.0625 (1/16)	.280	1/4	12	2-3/4	.010	.360	3.063	1/2	RKC1021220	RKC1021220A
	.0625 (1/16)	.280	1/4	12	2-3/4	.015	.360	3.063	1/2	RKC1021230	RKC1021230A
	.0938 (3/32)	.280	1/4	12	2-3/4	.005	.360	3.094	1/2	RKC1021240	RKC1021240A
	.0938 (3/32)	.280	1/4	12	2-3/4	.010	.360	3.094	1/2	RKC1021250	RKC1021250A
	.0938 (3/32)	.280	1/4	12	2-3/4	.015	.360	3.094	1/2	RKC1021260	RKC1021260A
	.1250 (1/8)	.280	1/4	12	2-3/4	.005	.360	3.125	1/2	RKC1021270	RKC1021270A
	.1250 (1/8)	.280	1/4	12	2-3/4	.010	.360	3.125	1/2	RKC1021280	RKC1021280A
	.1250 (1/8)	.280	1/4	12	2-3/4	.015	.360	3.125	1/2	RKC1021290	RKC1021290A
	.1250 (1/8)	.280	1/4	12	2-3/4	.030	.360	3.125	1/2	RKC1021300	RKC1021300A

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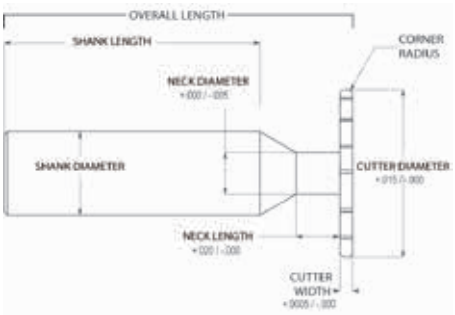
Corner Radius



Uncoated



AlTiN Coated



Corner Radius Carbide Head Key Cutters with Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Corner Radius	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1-1/4	.0625 (1/16)	.280	1/4	14	2-3/4	.005	.485	3.063	1/2	RKC1021310	RKC1021310A
	.0625 (1/16)	.280	1/4	14	2-3/4	.010	.485	3.063	1/2	RKC1021320	RKC1021320A
	.0625 (1/16)	.280	1/4	14	2-3/4	.015	.485	3.063	1/2	RKC1021330	RKC1021330A
	.0938 (3/32)	.280	1/4	14	2-3/4	.005	.485	3.094	1/2	RKC1021340	RKC1021340A
	.0938 (3/32)	.280	1/4	14	2-3/4	.010	.485	3.094	1/2	RKC1021350	RKC1021350A
	.0938 (3/32)	.280	1/4	14	2-3/4	.015	.485	3.094	1/2	RKC1021360	RKC1021360A
	.1250 (1/8)	.280	1/4	14	2-3/4	.005	.485	3.125	1/2	RKC1021370	RKC1021370A
	.1250 (1/8)	.280	1/4	14	2-3/4	.010	.485	3.125	1/2	RKC1021380	RKC1021380A
	.1250 (1/8)	.280	1/4	14	2-3/4	.015	.485	3.125	1/2	RKC1021390	RKC1021390A
	.1250 (1/8)	.280	1/4	14	2-3/4	.030	.485	3.125	1/2	RKC1021400	RKC1021400A
	.2500 (1/4)	.380	1/4	14	2-3/4	.005	.435	3.250	1/2	RKC1021410	RKC1021410A
	.2500 (1/4)	.380	1/4	14	2-3/4	.010	.435	3.250	1/2	RKC1021420	RKC1021420A
	.2500 (1/4)	.380	1/4	14	2-3/4	.015	.435	3.250	1/2	RKC1021430	RKC1021430A
	.2500 (1/4)	.380	1/4	14	2-3/4	.030	.435	3.250	1/2	RKC1021440	RKC1021440A

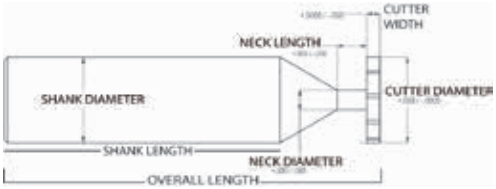
Speeds & Feeds page 463.



Uncoated



AlTiN Coated



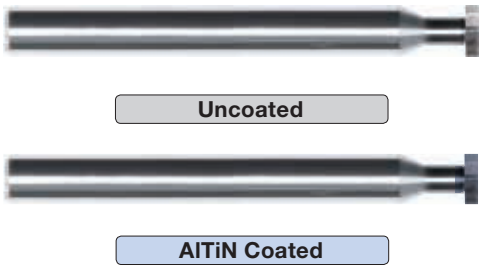
Deep Slotting Carbide Head Key Cutters

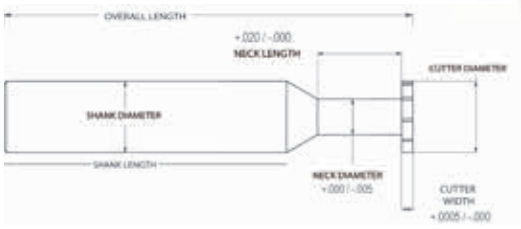
Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	Coated Part #
1/4	.0156 (1/64)	.070	1/8	6	2.359	.090	2-1/2	1/4	RKC571000	RKC571000A
	.0312 (1/32)	.070	1/8	6	2.344	.090	2-1/2	1/4	RKC571010	RKC571010A
	.0469 (3/64)	.070	1/8	6	2.328	.090	2-1/2	1/4	RKC571020	RKC571020A
	.0625 (1/16)	.070	1/8	6	2.313	.090	2-1/2	1/4	RKC571030	RKC571030A
	.0781 (5/64)	.070	1/8	6	2.297	.090	2-1/2	1/4	RKC571040	RKC571040A
	.0938 (3/32)	.070	1/8	6	2.281	.090	2-1/2	1/4	RKC571050	RKC571050A
	.1250 (1/8)	.070	1/8	6	2.250	.090	2-1/2	1/4	RKC571060	RKC571060A
5/16	.0156 (1/64)	.090	1/8	8	2.359	.110	2-1/2	5/16	RKC571070	RKC571070A
	.0312 (1/32)	.090	1/8	8	2.344	.110	2-1/2	5/16	RKC571080	RKC571080A
	.0469 (3/64)	.090	1/8	8	2.328	.110	2-1/2	5/16	RKC571090	RKC571090A
	.0625 (1/16)	.090	1/8	8	2.313	.110	2-1/2	5/16	RKC571100	RKC571100A
	.0781 (5/64)	.090	1/8	8	2.297	.110	2-1/2	5/16	RKC571110	RKC571110A
	.0938 (3/32)	.090	1/8	8	2.281	.110	2-1/2	5/16	RKC571120	RKC571120A
	.1250 (1/8)	.090	1/8	8	2.250	.110	2-1/2	5/16	RKC571130	RKC571130A
3/8	.0156 (1/64)	.120	3/16	8	2.297	.125	2-1/2	3/8	RKC571140	RKC571140A
	.0312 (1/32)	.120	3/16	8	2.281	.125	2-1/2	3/8	RKC571150	RKC571150A
	.0469 (3/64)	.120	3/16	8	2.266	.125	2-1/2	3/8	RKC571160	RKC571160A
	.0625 (1/16)	.120	3/16	8	2.250	.125	2-1/2	3/8	RKC571170	RKC571170A
	.0781 (5/64)	.120	3/16	8	2.234	.125	2-1/2	3/8	RKC571180	RKC571180A
	.0938 (3/32)	.120	3/16	8	2.219	.125	2-1/2	3/8	RKC571190	RKC571190A
	.1250 (1/8)	.120	3/16	8	2.188	.125	2-1/2	3/8	RKC571200	RKC571200A
1/2	.0156 (1/64)	.150	1/4	10	2.734	.175	3	1/2	RKC571210	RKC571210A
	.0312 (1/32)	.150	1/4	10	2.719	.175	3	1/2	RKC571220	RKC571220A
	.0469 (3/64)	.150	1/4	10	2.703	.175	3	1/2	RKC571230	RKC571230A
	.0625 (1/16)	.150	1/4	10	2.688	.175	3	1/2	RKC571240	RKC571240A
	.0781 (5/64)	.150	1/4	10	2.672	.175	3	1/2	RKC571250	RKC571250A
	.0938 (3/32)	.150	1/4	10	2.656	.175	3	1/2	RKC571260	RKC571260A
	.1250 (1/8)	.150	1/4	10	2.625	.175	3	1/2	RKC571270	RKC571270A
5/8	.0625 (1/16)	.180	1/4	10	3.188	.220	3-1/2	5/8	RKC571280	RKC571280A
	.0938 (3/32)	.180	1/4	10	3.156	.220	3-1/2	5/8	RKC571290	RKC571290A
	.1250 (1/8)	.180	1/4	10	3.125	.220	3-1/2	5/8	RKC571300	RKC571300A
	.1875 (3/16)	.180	1/4	10	3.063	.220	3-1/2	5/8	RKC571310	RKC571310A

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Long Shank

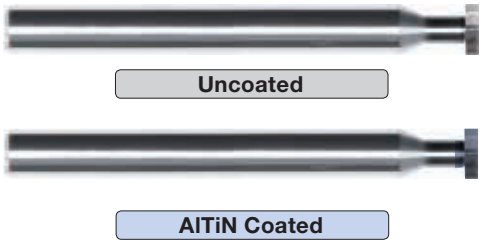
NEW Product

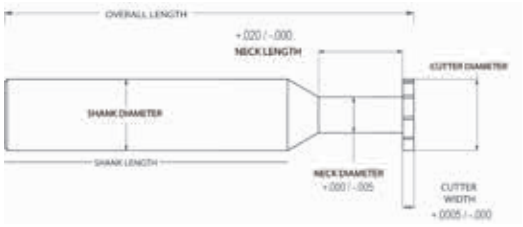




Long Shank Solid Carbide Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/16	.0469 (3/64)	.094	1/4	6	3.7031	.047	4	3/16	RKC740100	RKC740100A
	.0938 (3/32)	.094	1/4	6	3.6562	.047	4	3/16	RKC740105	RKC740105A
1/4	.0625 (1/16)	.125	3/8	6	3.5625	.063	4	1/4	RKC740110	RKC740110A
	.1250 (1/8)	.125	3/8	6	3.5000	.063	4	1/4	RKC740115	RKC740115A
5/16	.0625 (1/16)	.150	1/2	8	3.4375	.083	4	5/16	RKC740120	RKC740120A
	.1250 (1/8)	.150	1/2	8	3.3750	.083	4	5/16	RKC740125	RKC740125A
3/8	.0625 (1/16)	.200	5/8	8	3.3125	.083	4	3/8	RKC740130	RKC740130A
	.1250 (1/8)	.200	5/8	8	3.2500	.083	4	3/8	RKC740135	RKC740135A
1/2	.0625 (1/16)	.250	3/4	10	5.1875	.125	6	1/2	RKC740140	RKC740140A
	.1250 (1/8)	.250	3/4	10	5.1250	.125	6	1/2	RKC740145	RKC740145A





Long Shank Carbide Head Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
5/8	.0625 (1/16)	.280	1/4	10	5.6875	.173	6	1/2	RKC740200	RKC740200A
	.1250 (1/8)	.280	1/4	10	5.6250	.173	6	1/2	RKC740205	RKC740205A
3/4	.0625 (1/16)	.250	1/4	10	5.6875	.235	6	1/2	RKC740210	RKC740210A
	.1250 (1/8)	.250	1/4	10	5.6250	.235	6	1/2	RKC740215	RKC740215A
7/8	.0625 (1/16)	.280	1/4	12	5.6875	.282	6	1/2	RKC740220	RKC740220A
	.1250 (1/8)	.280	1/4	12	5.6250	.282	6	1/2	RKC740225	RKC740225A
1	.0625 (1/16)	.280	1/4	12	5.6875	.360	6	1/2	RKC740230	RKC740230A
	.1250 (1/8)	.280	1/4	12	5.6250	.360	6	1/2	RKC740235	RKC740235A
1-1/2	.0625 (1/16)	.280	1/4	14	5.6875	.485	6	1/2	RKC740240	RKC740240A
	.1250 (1/8)	.280	1/4	14	5.6250	.485	6	1/2	RKC740245	RKC740245A

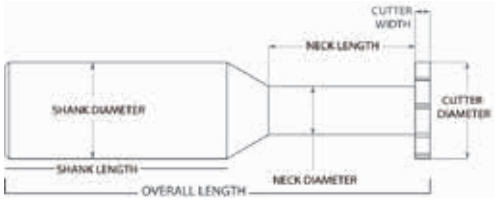
Speeds & Feeds page 463.



Uncoated



AlTiN Coated



Long Reach Solid Carbide Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/16	.0156 (1/64)	.093	9/16	6	1.922	.047	2-1/2	3/16	RKC831000	RKC831000A
	.0312 (1/32)	.093	9/16	6	1.906	.047	2-1/2	3/16	RKC831010	RKC831010A
	.0469 (3/64)	.093	9/16	6	1.891	.047	2-1/2	3/16	RKC831020	RKC831020A
	.0625 (1/16)	.093	9/16	6	1.875	.047	2-1/2	3/16	RKC831030	RKC831030A
	.0781 (5/64)	.093	9/16	6	1.859	.047	2-1/2	3/16	RKC831040	RKC831040A
	.0938 (3/32)	.093	9/16	6	1.844	.047	2-1/2	3/16	RKC831050	RKC831050A
	.1250 (1/8)	.093	9/16	6	1.813	.047	2-1/2	3/16	RKC831060	RKC831060A
1/4	.0156 (1/64)	.125	3/4	6	1.734	.062	2-1/2	1/4	RKC831070	RKC831070A
	.0312 (1/32)	.125	3/4	6	1.719	.062	2-1/2	1/4	RKC831080	RKC831080A
	.0469 (3/64)	.125	3/4	6	1.703	.062	2-1/2	1/4	RKC831090	RKC831090A
	.0625 (1/16)	.125	3/4	6	1.688	.062	2-1/2	1/4	RKC831100	RKC831100A
	.0781 (5/64)	.125	3/4	6	1.672	.062	2-1/2	1/4	RKC831110	RKC831110A
	.0938 (3/32)	.125	3/4	6	1.656	.062	2-1/2	1/4	RKC831120	RKC831120A
	.1250 (1/8)	.125	3/4	6	1.625	.062	2-1/2	1/4	RKC831130	RKC831130A
5/16	.0156 (1/64)	.156	1	8	1.484	.078	2-1/2	5/16	RKC831140	RKC831140A
	.0312 (1/32)	.156	1	8	1.469	.078	2-1/2	5/16	RKC831150	RKC831150A
	.0469 (3/64)	.156	1	8	1.453	.078	2-1/2	5/16	RKC831160	RKC831160A
	.0625 (1/16)	.156	1	8	1.438	.078	2-1/2	5/16	RKC831170	RKC831170A
	.0781 (5/64)	.156	1	8	1.422	.078	2-1/2	5/16	RKC831180	RKC831180A
	.0938 (3/32)	.156	1	8	1.406	.078	2-1/2	5/16	RKC831190	RKC831190A
	.1250 (1/8)	.156	1	8	1.375	.078	2-1/2	5/16	RKC831200	RKC831200A
3/8	.0156 (1/64)	.187	1-1/8	8	1.359	.094	2-1/2	3/8	RKC831210	RKC831210A
	.0312 (1/32)	.187	1-1/8	8	1.344	.094	2-1/2	3/8	RKC831220	RKC831220A
	.0469 (3/64)	.187	1-1/8	8	1.328	.094	2-1/2	3/8	RKC831230	RKC831230A
	.0625 (1/16)	.187	1-1/8	8	1.313	.094	2-1/2	3/8	RKC831240	RKC831240A
	.0781 (5/64)	.187	1-1/8	8	1.297	.094	2-1/2	3/8	RKC831250	RKC831250A
	.0938 (3/32)	.187	1-1/8	8	1.281	.094	2-1/2	3/8	RKC831260	RKC831260A
	.1250 (1/8)	.187	1-1/8	8	1.250	.094	2-1/2	3/8	RKC831270	RKC831270A
1/2	.0156 (1/64)	.250	1-1/2	10	1.484	.125	3	1/2	RKC831280	RKC831280A
	.0312 (1/32)	.250	1-1/2	10	1.469	.125	3	1/2	RKC831290	RKC831290A
	.0469 (3/64)	.250	1-1/2	10	1.453	.125	3	1/2	RKC831300	RKC831300A
	.0625 (1/16)	.250	1-1/2	10	1.438	.125	3	1/2	RKC831310	RKC831310A
	.0781 (5/64)	.250	1-1/2	10	1.422	.125	3	1/2	RKC831320	RKC831320A
	.0938 (3/32)	.250	1-1/2	10	1.406	.125	3	1/2	RKC831330	RKC831330A
	.1250 (1/8)	.250	1-1/2	10	1.375	.125	3	1/2	RKC831340	RKC831340A
5/8	.0625 (1/16)	.300	1-5/8	10	1.813	.162	3-1/2	5/8	RKC831350	RKC831350A
	.0938 (3/32)	.300	1-5/8	10	1.781	.162	3-1/2	5/8	RKC831360	RKC831360A
	.1250 (1/8)	.300	1-5/8	10	1.750	.162	3-1/2	5/8	RKC831370	RKC831370A
	.1875 (3/16)	.300	1-5/8	10	1.688	.162	3-1/2	5/8	RKC831380	RKC831380A

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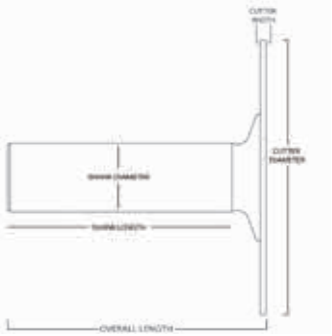
Large Diameter



Uncoated



AlTiN Coated



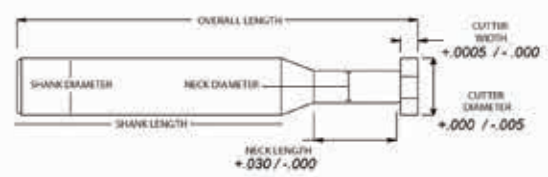
Large Diameter Carbide Head Key Cutters 3/4" Steel Shank

Cutter ø	Cutter Width	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
2	.0312 (1/32)	24	2-1/2	.550	2.531	3/4	RKC231000	RKC231000A
	.0625 (1/16)	24	2-1/2	.550	2.563	3/4	RKC231010	RKC231010A
	.0938 (3/32)	24	2-1/2	.550	2.594	3/4	RKC231020	RKC231020A
	.1250 (1/8)	24	2-1/2	.550	2.625	3/4	RKC231030	RKC231030A
	.1875 (3/16)	24	2-1/2	.550	2.688	3/4	RKC231040	RKC231040A
	.2500 (1/4)	24	2-1/2	.550	2.750	3/4	RKC231050	RKC231050A
2-1/4	.0312 (1/32)	28	2-1/2	.600	2.531	3/4	RKC231060	RKC231060A
	.0625 (1/16)	28	2-1/2	.600	2.563	3/4	RKC231070	RKC231070A
	.0938 (3/32)	28	2-1/2	.600	2.594	3/4	RKC231080	RKC231080A
	.1250 (1/8)	28	2-1/2	.600	2.625	3/4	RKC231090	RKC231090A
	.1875 (3/16)	28	2-1/2	.600	2.688	3/4	RKC231100	RKC231100A
	.2500 (1/4)	28	2-1/2	.600	2.750	3/4	RKC231110	RKC231110A
2-1/2	.0312 (1/32)	28	2-1/2	.550	2.531	3/4	RKC231120	RKC231120A
	.0625 (1/16)	28	2-1/2	.550	2.563	3/4	RKC231130	RKC231130A
	.0938 (3/32)	28	2-1/2	.550	2.594	3/4	RKC231140	RKC231140A
	.1250 (1/8)	28	2-1/2	.550	2.625	3/4	RKC231150	RKC231150A
	.1875 (3/16)	28	2-1/2	.550	2.688	3/4	RKC231160	RKC231160A
	.2500 (1/4)	28	2-1/2	.550	2.750	3/4	RKC231170	RKC231170A
2-3/4	.0312 (1/32)	30	2-1/2	.650	2.531	3/4	RKC231180	RKC231180A
	.0625 (1/16)	30	2-1/2	.650	2.563	3/4	RKC231190	RKC231190A
	.0938 (3/32)	30	2-1/2	.650	2.594	3/4	RKC231200	RKC231200A
	.1250 (1/8)	30	2-1/2	.650	2.625	3/4	RKC231210	RKC231210A
	.1875 (3/16)	30	2-1/2	.650	2.688	3/4	RKC231220	RKC231220A
	.2500 (1/4)	30	2-1/2	.650	2.750	3/4	RKC231230	RKC231230A
3	.0312 (1/32)	30	2-1/2	.800	2.531	3/4	RKC231240	RKC231240A
	.0625 (1/16)	30	2-1/2	.800	2.563	3/4	RKC231250	RKC231250A
	.0938 (3/32)	30	2-1/2	.800	2.594	3/4	RKC231260	RKC231260A
	.1250 (1/8)	30	2-1/2	.800	2.625	3/4	RKC231270	RKC231270A
	.1875 (3/16)	30	2-1/2	.800	2.688	3/4	RKC231280	RKC231280A
	.2500 (1/4)	30	2-1/2	.800	2.750	3/4	RKC231290	RKC231290A

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Uncoated



Soft Material Cutting Solid Carbide Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	OAL	Depth of Cut	Shank ø	Uncoated Part #
1/4	.0150	.125	1/4	4	2.235	2-1/2	.0625	1/4	RKC761400
	.0312 (1/32)	.125	1/4	4	2.219	2-1/2	.0625	1/4	RKC761435
	.0625 (1/16)	.125	1/4	4	2.188	2-1/2	.0625	1/4	RKC761455
5/16	.0150	.150	5/16	4	2.173	2-1/2	.0810	5/16	RKC761460
	.0312 (1/32)	.150	5/16	4	2.156	2-1/2	.0810	5/16	RKC761470
	.0625 (1/16)	.150	5/16	4	2.125	2-1/2	.0810	5/16	RKC761480
	.0938 (3/32)	.150	5/16	4	2.094	2-1/2	.0810	5/16	RKC761485
	.1250 (1/8)	.150	5/16	4	2.063	2-1/2	.0810	5/16	RKC761490
3/8	.0312 (1/32)	.200	3/8	4	2.094	2-1/2	.0875	3/8	RKC761500
	.0625 (1/16)	.200	3/8	4	2.063	2-1/2	.0875	3/8	RKC761510
	.0938 (3/32)	.200	3/8	4	2.031	2-1/2	.0875	3/8	RKC761515
	.1250 (1/8)	.200	3/8	4	2.000	2-1/2	.0875	3/8	RKC761520
	.1875 (3/16)	.200	3/8	4	1.938	2-1/2	.0875	3/8	RKC761530
1/2	.0312 (1/32)	.250	3/8	6	2.594	3	.1250	1/2	RKC761535
	.0625 (1/16)	.250	3/8	6	2.563	3	.1250	1/2	RKC761545
	.0938 (3/32)	.250	3/8	6	2.531	3	.1250	1/2	RKC761550
	.1250 (1/8)	.250	3/8	6	2.500	3	.1250	1/2	RKC761555
	.1562 (5/32)	.250	3/8	6	2.469	3	.1250	1/2	RKC761560
	.1875 (3/16)	.250	3/8	6	2.438	3	.1250	1/2	RKC761565
	.2500 (1/4)	.250	3/8	6	2.375	3	.1250	1/2	RKC761570

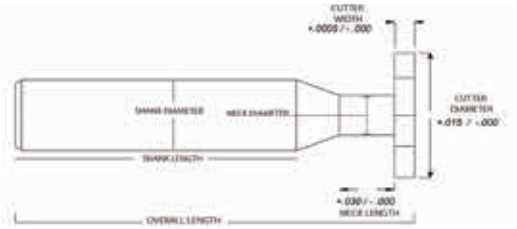
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Soft Materials

NEW Product



Uncoated



Soft Material Cutting Steel Shank Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	OAL	Depth of Cut	Shank ø	Uncoated Part #
5/8	.0312 (1/32)	.280	1/4	6	2.469	2-3/4	.1725	1/2	RKC781660
	.0625 (1/16)	.280	1/4	6	2.438	2-3/4	.1725	1/2	RKC781670
	.0938 (3/32)	.280	1/4	6	2.406	2-3/4	.1725	1/2	RKC781680
	.1250 (1/8)	.280	1/4	6	2.375	2-3/4	.1725	1/2	RKC781690
	.1562 (5/32)	.280	1/4	6	2.344	2-3/4	.1725	1/2	RKC781700
	.1875 (3/16)	.280	1/4	6	2.313	2-3/4	.1725	1/2	RKC781705
	.2500 (1/4)	.280	1/4	6	2.250	2-3/4	.1725	1/2	RKC781720
3/4	.0312 (1/32)	.280	1/4	6	2.469	2-3/4	.2350	1/2	RKC781728
	.0625 (1/16)	.280	1/4	6	2.438	2-3/4	.2350	1/2	RKC781730
	.0938 (3/32)	.280	1/4	6	2.406	2-3/4	.2350	1/2	RKC781740
	.1250 (1/8)	.280	1/4	6	2.375	2-3/4	.2350	1/2	RKC781750
	.1562 (5/32)	.280	1/4	6	2.344	2-3/4	.2350	1/2	RKC781760
	.1875 (3/16)	.280	1/4	6	2.313	2-3/4	.2350	1/2	RKC781765
	.2500 (1/4)	.280	1/4	6	2.250	2-3/4	.2350	1/2	RKC781785
	.3125 (5/16)	.490	1/4	6	2.188	2-3/4	.1300	1/2	RKC781800
	.3750 (3/8)	.490	1/4	6	2.125	2-3/4	.1300	1/2	RKC781810
7/8	.0625 (1/16)	.280	1/4	6	2.438	2-3/4	.2975	1/2	RKC781813
	.1250 (1/8)	.280	1/4	6	2.375	2-3/4	.2975	1/2	RKC781815
	.1875 (3/16)	.280	1/4	6	2.313	2-3/4	.2975	1/2	RKC781825
	.2500 (1/4)	.280	1/4	6	2.250	2-3/4	.2975	1/2	RKC781835
1	.0312 (1/32)	.280	1/4	6	2.469	2-3/4	.3600	1/2	RKC781846
	.0625 (1/16)	.280	1/4	6	2.438	2-3/4	.3600	1/2	RKC781850
	.0938 (3/32)	.280	1/4	6	2.406	2-3/4	.3600	1/2	RKC781855
	.1250 (1/8)	.280	1/4	6	2.375	2-3/4	.3600	1/2	RKC781860
	.1562 (5/32)	.280	1/4	6	2.344	2-3/4	.3600	1/2	RKC781862
	.1875 (3/16)	.490	1/4	6	2.313	2-3/4	.2550	1/2	RKC781865
	.2500 (1/4)	.490	1/4	6	2.250	2-3/4	.2550	1/2	RKC781875
	.3125 (5/16)	.490	1/4	6	2.188	2-3/4	.2550	1/2	RKC781885
	.3750 (3/8)	.490	1/4	6	2.125	2-3/4	.2550	1/2	RKC781890
1-1/4	.0312 (1/32)	.280	1/4	6	2.469	2-3/4	.4850	1/2	RKC781912
	.0625 (1/16)	.280	1/4	6	2.438	2-3/4	.4850	1/2	RKC781915
	.0938 (3/32)	.280	1/4	6	2.406	2-3/4	.4850	1/2	RKC781920
	.1250 (1/8)	.280	1/4	6	2.375	2-3/4	.4850	1/2	RKC781925
	.1875 (3/16)	.490	1/4	6	2.313	2-3/4	.3800	1/2	RKC781932
	.2500 (1/4)	.490	1/4	6	2.250	2-3/4	.3800	1/2	RKC781940
	.3125 (5/16)	.490	1/4	6	2.188	2-3/4	.3800	1/2	RKC781945
	.3750 (3/8)	.490	1/4	6	2.125	2-3/4	.3800	1/2	RKC781950

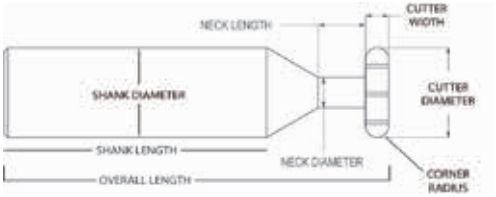
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Uncoated



AlTiN Coated



Full Radius Solid Carbide Key Cutters

Cutter ø	Cutter Width	Neck ø	Neck Length	# of Teeth	Shank Length	Corner Radius	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/16	.0312 (1/32)	.094	3/16	4	2.281	.0156	.046	2-1/2	3/16	RKC805000	RKC805000A
	.0469 (3/64)	.094	3/16	4	2.266	.0234	.046	2-1/2	3/16	RKC805010	RKC805010A
	.0625 (1/16)	.094	3/16	4	2.250	.0312	.046	2-1/2	3/16	RKC805020	RKC805020A
1/4	.0312 (1/32)	.125	1/4	4	2.219	.0156	.062	2-1/2	1/4	RKC805030	RKC805030A
	.0469 (3/64)	.125	1/4	4	2.203	.0234	.062	2-1/2	1/4	RKC805040	RKC805040A
	.0625 (1/16)	.125	1/4	4	2.188	.0312	.062	2-1/2	1/4	RKC805050	RKC805050A
	.0781 (5/64)	.125	1/4	4	2.172	.0390	.062	2-1/2	1/4	RKC805060	RKC805060A
	.0938 (3/32)	.125	1/4	4	2.156	.0469	.062	2-1/2	1/4	RKC805070	RKC805070A
5/16	.0312 (1/32)	.150	5/16	6	2.156	.0156	.081	2-1/2	5/16	RKC805080	RKC805080A
	.0469 (3/64)	.150	5/16	6	2.141	.0234	.081	2-1/2	5/16	RKC805090	RKC805090A
	.0625 (1/16)	.150	5/16	6	2.125	.0312	.081	2-1/2	5/16	RKC806000	RKC806000A
	.0781 (5/64)	.150	5/16	6	2.109	.0390	.081	2-1/2	5/16	RKC806010	RKC806010A
	.0938 (3/32)	.150	5/16	6	2.094	.0469	.081	2-1/2	5/16	RKC806020	RKC806020A
	.1250 (1/8)	.150	5/16	6	2.063	.0625	.081	2-1/2	5/16	RKC806030	RKC806030A
3/8	.0312 (1/32)	.200	3/8	6	2.094	.0156	.087	2-1/2	3/8	RKC806040	RKC806040A
	.0469 (3/64)	.200	3/8	6	2.078	.0234	.087	2-1/2	3/8	RKC806050	RKC806050A
	.0625 (1/16)	.200	3/8	6	2.063	.0312	.087	2-1/2	3/8	RKC806060	RKC806060A
	.0938 (3/32)	.200	3/8	6	2.031	.0469	.087	2-1/2	3/8	RKC806070	RKC806070A
	.1250 (1/8)	.200	3/8	6	2.000	.0625	.087	2-1/2	3/8	RKC806080	RKC806080A
1/2	.0625 (1/16)	.250	3/8	6	2.563	.0312	.125	3	1/2	RKC806090	RKC806090A
	.0938 (3/32)	.250	3/8	6	2.531	.0469	.125	3	1/2	RKC807000	RKC807000A
	.1250 (1/8)	.250	3/8	6	2.500	.0625	.125	3	1/2	RKC807010	RKC807010A

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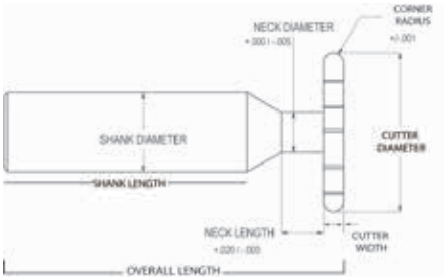
Full Radius



Uncoated



AlTiN Coated



Full Radius Carbide Head Key Cutters with Steel Shank

Cutter ø	Cutter Width	Neck ø	Neck Length	# Teeth	Shank Length	Corner Radius	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/2	.0312 (1/32)	.250	1/4	6	2-3/4	.0156	.125	3.031	1/2	RKC801090	RKC801090A
	.0469 (3/64)	.250	1/4	6	2-3/4	.0234	.125	3.047	1/2	RKC801095	RKC801095A
	.0625 (1/16)	.250	1/4	6	2-3/4	.0312	.125	3.063	1/2	RKC801100	RKC801100A
	.0781 (5/64)	.250	1/4	6	2-3/4	.0395	.125	3.078	1/2	RKC801104	RKC801104A
	.0938 (3/32)	.250	1/4	6	2-3/4	.0469	.125	3.094	1/2	RKC801105	RKC801105A
	.1250 (1/8)	.280	1/4	6	2-3/4	.0625	.187	3.125	1/2	RKC801110	RKC801110A
5/8	.0312 (1/32)	.280	1/4	6	2-3/4	.0156	.187	3.031	1/2	RKC801112	RKC801112A
	.0469 (3/64)	.280	1/4	6	2-3/4	.0234	.187	3.047	1/2	RKC801114	RKC801114A
	.0625 (1/16)	.280	1/4	6	2-3/4	.0312	.187	3.063	1/2	RKC801115	RKC801115A
	.0781 (5/64)	.280	1/4	6	2-3/4	.0395	.187	3.078	1/2	RKC801117	RKC801117A
	.0938 (3/32)	.280	1/4	6	2-3/4	.0469	.187	3.094	1/2	RKC801120	RKC801120A
	.1250 (1/8)	.280	1/4	6	2-3/4	.0625	.187	3.125	1/2	RKC801125	RKC801125A
3/4	.0312 (1/32)	.280	1/4	8	2-3/4	.0156	.235	3.031	1/2	RKC801127	RKC801127A
	.0469 (3/64)	.280	1/4	8	2-3/4	.0234	.235	3.047	1/2	RKC801128	RKC801128A
	.0625 (1/16)	.280	1/4	8	2-3/4	.0312	.235	3.063	1/2	RKC801130	RKC801130A
	.0781 (5/64)	.280	1/4	8	2-3/4	.0395	.235	3.078	1/2	RKC801132	RKC801132A
	.0938 (3/32)	.280	1/4	8	2-3/4	.0469	.235	3.094	1/2	RKC801135	RKC801135A
	.1250 (1/8)	.280	1/4	8	2-3/4	.0625	.235	3.125	1/2	RKC801140	RKC801140A
1	.0312 (1/32)	.280	1/4	8	2-3/4	.0156	.360	3.031	1/2	RKC801142	RKC801142A
	.0469 (3/64)	.280	1/4	8	2-3/4	.0234	.360	3.047	1/2	RKC801144	RKC801144A
	.0625 (1/16)	.280	1/4	8	2-3/4	.0312	.360	3.063	1/2	RKC801145	RKC801145A
	.0938 (3/32)	.280	1/4	8	2-3/4	.0469	.360	3.094	1/2	RKC801150	RKC801150A
	.1250 (1/8)	.280	1/4	8	2-3/4	.0625	.360	3.125	1/2	RKC801155	RKC801155A
1-1/4	.0625 (1/16)	.280	1/4	10	2-3/4	.0312	.485	3.063	1/2	RKC801160	RKC801160A
	.0938 (3/32)	.280	1/4	10	2-3/4	.0469	.485	3.094	1/2	RKC801165	RKC801165A
	.1250 (1/8)	.280	1/4	10	2-3/4	.0625	.485	3.125	1/2	RKC801170	RKC801170A
1-1/2	.0625 (1/16)	.280	1/4	10	2-3/4	.0312	.610	3.062	1/2	RKC801180	RKC801180A
	.0938 (1/32)	.280	1/4	10	2-3/4	.0469	.610	3.094	1/2	RKC801185	RKC801185A
	.1250 (1/8)	.280	1/4	10	2-3/4	.0625	.610	3.125	1/2	RKC801190	RKC801190A

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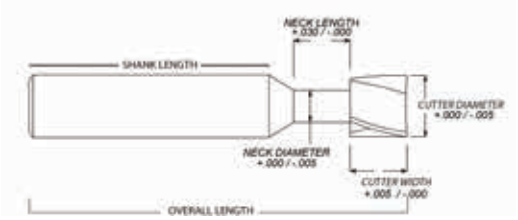
NEW Product



Uncoated



AlTiN Coated



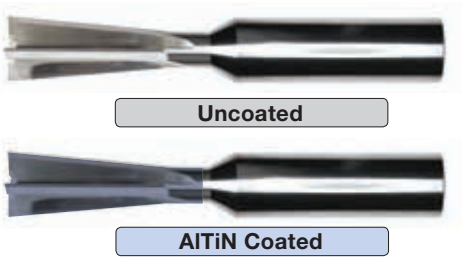
Note: Cuts on top, bottom, and diameter.

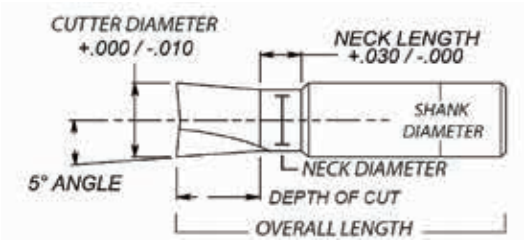
Push-Pull Solid Carbide Cutters

Cutter ø	Cutter Width		Neck ø	Neck Length	# of Teeth	Shank Length	Depth of Cut	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/2	.2500	(1/4)	.250	1/2	4	3.250	.125	4	1/2	RKC1061000	RKC1061000A
	.3750	(3/8)	.250	1/2	4	3.125	.125	4	1/2	RKC1061020	RKC1061020A
	.5000	(1/2)	.250	1/2	4	3.000	.125	4	1/2	RKC1061040	RKC1061040A
	.6250	(5/8)	.250	1/2	4	2.875	.125	4	1/2	RKC1061060	RKC1061060A
	.7500	(3/4)	.250	1/2	4	2.750	.125	4	1/2	RKC1061080	RKC1061080A
5/8	.2500	(1/4)	.312	1/2	4	3.250	.157	4	5/8	RKC1061100	RKC1061100A
	.3750	(3/8)	.312	1/2	4	3.125	.157	4	5/8	RKC1061120	RKC1061120A
	.5000	(1/2)	.312	1/2	4	3.000	.157	4	5/8	RKC1061140	RKC1061140A
	.6250	(5/8)	.312	1/2	4	2.875	.157	4	5/8	RKC1061160	RKC1061160A
	.7500	(3/4)	.312	1/2	4	2.750	.157	4	5/8	RKC1061180	RKC1061180A
3/4	.2500	(1/4)	.375	3/4	4	3.000	.188	4	3/4	RKC1061200	RKC1061200A
	.3750	(3/8)	.375	3/4	4	2.875	.188	4	3/4	RKC1061220	RKC1061220A
	.5000	(1/2)	.375	3/4	4	2.750	.188	4	3/4	RKC1061240	RKC1061240A
	.6250	(5/8)	.375	3/4	4	2.625	.188	4	3/4	RKC1061260	RKC1061260A
	.7500	(3/4)	.375	3/4	4	2.500	.188	4	3/4	RKC1061280	RKC1061280A
1	.2500	(1/4)	.500	3/4	6	5.000	.250	6	1	RKC1061300	RKC1061300A
	.3750	(3/8)	.500	3/4	6	4.875	.250	6	1	RKC1061320	RKC1061320A
	.5000	(1/2)	.500	3/4	6	4.750	.250	6	1	RKC1061340	RKC1061340A
	.6250	(5/8)	.500	3/4	6	4.625	.250	6	1	RKC1061360	RKC1061360A
	.7500	(3/4)	.500	3/4	6	4.500	.250	6	1	RKC1061380	RKC1061380A
	1.0000	(1)	.500	3/4	6	4.250	.250	6	1	RKC1061400	RKC1061400A

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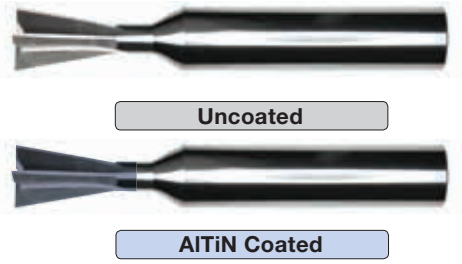
Carbide

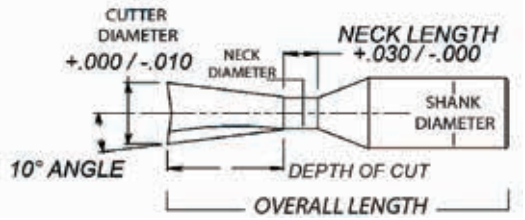




Carbide 10° Dovetail Cutters

Cutter ø	Angle per Side	Depth of Cut	# of Teeth	Neck ø	Neck Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/16	5°	.5000	4	.100	1/4	2-1/2	3/16	RDC860100	RDC860100A
1/4	5°	.6250	4	.135	1/4	2-1/2	1/4	RDC860105	RDC860105A
5/16	5°	.7500	4	.175	1/4	2-1/2	5/16	RDC860110	RDC860110A
3/8	5°	.8750	4	.210	1/4	2-1/2	3/8	RDC860115	RDC860115A
1/2	5°	1.000	6	.300	1/4	3	1/2	RDC860120	RDC860120A
5/8	5°	1.250	6	.405	1/4	3-1/2	5/8	RDC860125	RDC860125A





Carbide 20° Dovetail Cutters

Cutter ø	Angle per Side	Depth of Cut	# Teeth	Neck ø	Neck Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/16	10°	.2500	4	.090	1/4	2-1/2	3/16	RDC860200	RDC860200A
1/4	10°	.3500	4	.120	1/4	2-1/2	1/4	RDC860205	RDC860205A
5/16	10°	.4500	4	.140	1/4	2-1/2	5/16	RDC860210	RDC860210A
3/8	10°	.5500	4	.175	1/4	2-1/2	3/8	RDC860215	RDC860215A
1/2	10°	.6500	6	.250	1/4	3	1/2	RDC860220	RDC860220A
5/8	10°	.7500	6	.350	1/4	3-1/2	5/8	RDC860225	RDC860225A

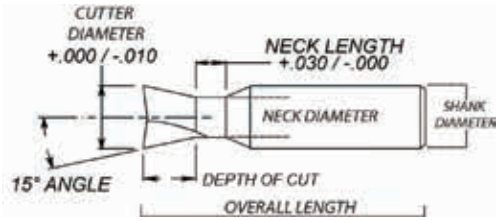
Speeds & Feeds page 464.



Uncoated



AlTiN Coated



Carbide 30° Dovetail Cutters

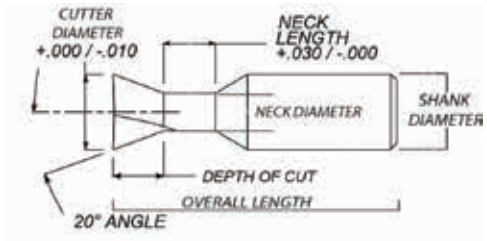
Cutter ø	Angle per Side	Depth of Cut	# of Teeth	Neck ø	Neck Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/16	15°	.125	4	.110	1/4	2-1/2	3/16	RDC861000	RDC861000A
1/4	15°	.160	4	.150	1/4	2-1/2	1/4	RDC861005	RDC861005A
5/16	15°	.190	4	.200	1/4	2-1/2	5/16	RDC861010	RDC861010A
3/8	15°	.250	4	.230	1/4	2-1/2	3/8	RDC861015	RDC861015A
1/2	15°	.320	6	.320	1/4	3	1/2	RDC861020	RDC861020A
5/8	15°	.500	6	.345	1/4	3-1/2	5/8	RDC861025	RDC861025A



Uncoated



AlTiN Coated



Carbide 40° Dovetail Cutters

Cutter ø	Angle per Side	Depth of Cut	# Teeth	Neck ø	Neck Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	20°	.085	3	.062	3/16	2	1/8	RDC861250	RDC861250A
3/16	20°	.130	3	.090	1/4	2-1/2	3/16	RDC861255	RDC861255A
1/4	20°	.170	3	.125	1/4	2-1/2	1/4	RDC861260	RDC861260A
5/16	20°	.255	4	.125	1/4	2-1/2	5/16	RDC861265	RDC861265A
3/8	20°	.305	5	.160	1/4	2-1/2	3/8	RDC861270	RDC861270A
1/2	20°	.405	6	.200	1/4	3	1/2	RDC861275	RDC861275A
5/8	20°	.500	6	.260	1/4	3-1/2	5/8	RDC861280	RDC861280A

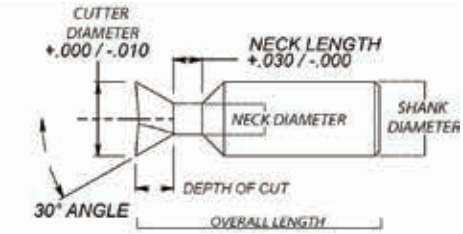
Speeds & Feeds page 464.



Uncoated



AlTiN Coated



Carbide 60° Dovetail Cutters

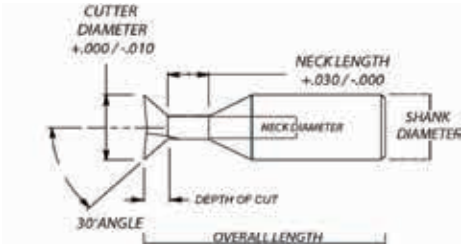
Cutter ø	Angle per Side	Depth of Cut	# Teeth	Neck ø	Neck Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	30°	.054	3	.062	3/16	2	1/8	RDC861095	RDC861095A
3/16	30°	.080	3	.090	1/4	2-1/2	3/16	RDC861100	RDC861100A
1/4	30°	.100	4	.125	1/4	2-1/2	1/4	RDC861105	RDC861105A
5/16	30°	.160	4	.125	1/4	2-1/2	5/16	RDC861107	RDC861107A
3/8	30°	.180	5	.160	1/4	2-1/2	3/8	RDC861110	RDC861110A
1/2	30°	.250	6	.200	1/4	3	1/2	RDC861115	RDC861115A
5/8	30°	.315	6	.260	1/4	3-1/2	5/8	RDC861117	RDC861117A
3/4	30°	.380	6	.311	1/4	4	3/4	RDC861118	RDC861118A



Uncoated



AlTiN Coated



Carbide 90° Dovetail Cutters

Cutter ø	Angle per Side	Depth of Cut	# Teeth	Neck ø	Neck Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
1/8	45°	.032	3	.062	3/16	2	1/8	RDC861119	RDC861119A
3/16	45°	.045	3	.090	1/4	2-1/2	3/16	RDC861120	RDC861120A
1/4	45°	.062	3	.115	1/4	2-1/2	1/4	RDC861125	RDC861125A
5/16	45°	.080	4	.150	1/4	2-1/2	5/16	RDC861127	RDC861127A
3/8	45°	.120	4	.125	1/4	2-1/2	3/8	RDC861130	RDC861130A
1/2	45°	.150	4	.185	1/4	3	1/2	RDC861135	RDC861135A
5/8	45°	.190	6	.245	1/4	3-1/2	5/8	RDC861137	RDC861137A
3/4	45°	.230	6	.290	1/4	4	3/4	RDC861139	RDC861139A
7/8	45°	.270	6	.335	1/4	4	7/8	RDC861142	RDC861142A
1	45°	.320	6	.360	1/4	4	1	RDC861144	RDC861144A

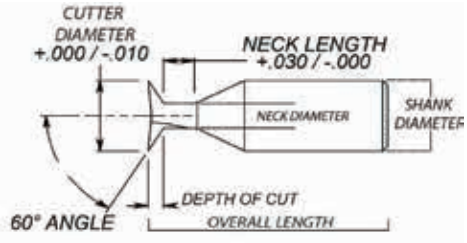
Speeds & Feeds page 464.



Uncoated



AlTiN Coated



Carbide 120° Dovetail Cutters

Cutter ø	Angle per Side	Depth of Cut	# of Teeth	Neck ø	Neck Length	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
3/16	60°	.032	3	.070	1/4	2-1/2	3/16	RDC861160	RDC861160A
1/4	60°	.048	3	.080	1/4	2-1/2	1/4	RDC861165	RDC861165A
5/16	60°	.062	4	.095	1/4	2-1/2	5/16	RDC861170	RDC861170A
3/8	60°	.078	4	.100	1/4	2-1/2	3/8	RDC861175	RDC861175A
1/2	60°	.094	4	.170	1/4	3	1/2	RDC861180	RDC861180A
5/8	60°	.125	5	.180	1/4	3-1/2	5/8	RDC861185	RDC861185A

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2-Flute



Uncoated



AlTiN Coated

Carbide 2-Flute, Chamfer Mills, Single End

Included Angle	Cutter ø	Decimal Equiv	Flat Width	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
60°	1/8	.1250	.018	1-1/2	1/8	RCM2000	RCM2001
	1/4	.2500	.044	2-1/2	1/4	RCM2002	RCM2003
	3/8	.3750	.060	2-1/2	3/8	RCM2004	RCM2005
	1/2	.5000	.080	3	1/2	RCM2006	RCM2007
82°	1/8	.1250	.018	1-1/2	1/8	RCM2008	RCM2009
	1/4	.2500	.044	2-1/2	1/4	RCM2010	RCM2011
	3/8	.3750	.060	2-1/2	3/8	RCM2012	RCM2013
	1/2	.5000	.080	3	1/2	RCM2014	RCM2015
90°	1/8	.1250	.018	1-1/2	1/8	RCM2016	RCM2017
	1/4	.2500	.044	2-1/2	1/4	RCM2018	RCM2019
	3/8	.3750	.060	2-1/2	3/8	RCM2020	RCM2021
	1/2	.5000	.080	3	1/2	RCM2022	RCM2023
100°	1/8	.1250	.018	1-1/2	1/8	RCM2024	RCM2025
	1/4	.2500	.044	2-1/2	1/4	RCM2026	RCM2027
	3/8	.3750	.060	2-1/2	3/8	RCM2028	RCM2029
	1/2	.5000	.080	3	1/2	RCM2030	RCM2031
120°	1/8	.1250	.018	1-1/2	1/8	RCM2032	RCM2033
	1/4	.2500	.044	2-1/2	1/4	RCM2034	RCM2035
	3/8	.3750	.060	2-1/2	3/8	RCM2036	RCM2037
	1/2	.5000	.080	3	1/2	RCM2038	RCM2039

Speeds & Feeds page 465.



Uncoated



AlTiN Coated

Carbide 2-Flute, Chamfer Mills, Double End

Included Angle	Cutter ø	Decimal Equiv	Flat Width	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
60°	1/8	.1250	.018	2	1/8	RCM2050	RCM2051
	3/16	.1875	.028	2-1/2	3/16	RCM2052	RCM2053
	1/4	.2500	.044	2-1/2	1/4	RCM2054	RCM2055
	5/16	.3125	.060	2-1/2	5/16	RCM2056	RCM2057
	3/8	.3750	.060	2-1/2	3/8	RCM2058	RCM2059
	1/2	.5000	.080	3	1/2	RCM2060	RCM2061
82°	1/8	.1250	.018	2	1/8	RCM2062	RCM2063
	3/16	.1875	.028	2-1/2	3/16	RCM2064	RCM2065
	1/4	.2500	.044	2-1/2	1/4	RCM2066	RCM2067
	5/16	.3125	.060	2-1/2	5/16	RCM2068	RCM2069
	3/8	.3750	.060	2-1/2	3/8	RCM2070	RCM2071
	1/2	.5000	.080	3	1/2	RCM2072	RCM2073
90°	1/8	.1250	.018	2	1/8	RCM2074	RCM2075
	3/16	.1875	.028	2-1/2	3/16	RCM2076	RCM2077
	1/4	.2500	.044	2-1/2	1/4	RCM2078	RCM2079
	5/16	.3125	.060	2-1/2	5/16	RCM2080	RCM2081
	3/8	.3750	.060	2-1/2	3/8	RCM2082	RCM2083
	1/2	.5000	.080	3	1/2	RCM2084	RCM2085
100°	1/8	.1250	.018	2	1/8	RCM2086	RCM2087
	3/16	.1875	.028	2-1/2	3/16	RCM2088	RCM2089
	1/4	.2500	.044	2-1/2	1/4	RCM2090	RCM2091
	5/16	.3125	.060	2-1/2	5/16	RCM2092	RCM2093
	3/8	.3750	.060	2-1/2	3/8	RCM2094	RCM2095
	1/2	.5000	.080	3	1/2	RCM2096	RCM2097
120°	1/8	.1250	.018	2	1/8	RCM2098	RCM2099
	3/16	.1875	.028	2-1/2	3/16	RCM2100	RCM2101
	1/4	.2500	.044	2-1/2	1/4	RCM2102	RCM2103
	5/16	.3125	.060	2-1/2	5/16	RCM2104	RCM2105
	3/8	.3750	.060	2-1/2	3/8	RCM2106	RCM2107
	1/2	.5000	.080	3	1/2	RCM2108	RCM2109

Speeds & Feeds page 465.

2-Flute

NEW Product



Uncoated



AlTiN Coated

2-Flute Long Reach Chamfer Mills

Included Angle	Cutter ø	Decimal Equiv	Flat Width	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
60°	3/16	.1875	.028	4	3/16	RCM3420	RCM3421
	1/4	.2500	.044	4	1/4	RCM3422	RCM3423
	5/16	.3125	.060	4	5/16	RCM3424	RCM3425
	3/8	.3750	.060	6	3/8	RCM3426	RCM3427
	1/2	.5000	.080	6	1/2	RCM3428	RCM3429
90°	3/16	.1875	.028	4	3/16	RCM3410	RCM3411
	1/4	.2500	.044	4	1/4	RCM3412	RCM3413
	5/16	.3125	.060	4	5/16	RCM3414	RCM3415
	3/8	.3750	.060	6	3/8	RCM3416	RCM3417
	1/2	.5000	.080	6	1/2	RCM3418	RCM3419
120°	3/16	.1875	.028	4	3/16	RCM3400	RCM3401
	1/4	.2500	.044	4	1/4	RCM3402	RCM3403
	5/16	.3125	.060	4	5/16	RCM3404	RCM3405
	3/8	.3750	.060	6	3/8	RCM3406	RCM3407
	1/2	.5000	.080	6	1/2	RCM3408	RCM3409

Speeds & Feeds page 465.



Uncoated



AlTiN Coated

Carbide 4-Flute, Chamfer Mills, Single End

Included Angle	Cutter ø	Decimal Equiv	Flat Width	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
60°	1/8	.1250	.020	1-1/2	1/8	RCM4000	RCM4001
	1/4	.2500	.044	2-1/2	1/4	RCM4002	RCM4003
	3/8	.3750	.060	2-1/2	3/8	RCM4004	RCM4005
	1/2	.5000	.080	3	1/2	RCM4006	RCM4007
82°	1/8	.1250	.020	1-1/2	1/8	RCM4008	RCM4009
	1/4	.2500	.044	2-1/2	1/4	RCM4010	RCM4011
	3/8	.3750	.060	2-1/2	3/8	RCM4012	RCM4013
	1/2	.5000	.080	3	1/2	RCM4014	RCM4015
90°	1/8	.1250	.020	1-1/2	1/8	RCM4016	RCM4017
	1/4	.2500	.044	2-1/2	1/4	RCM4018	RCM4019
	3/8	.3750	.060	2-1/2	3/8	RCM4020	RCM4021
	1/2	.5000	.080	3	1/2	RCM4022	RCM4023
100°	1/8	.1250	.020	1-1/2	1/8	RCM4024	RCM4025
	1/4	.2500	.044	2-1/2	1/4	RCM4026	RCM4027
	3/8	.3750	.060	2-1/2	3/8	RCM4028	RCM4029
	1/2	.5000	.080	3	1/2	RCM4030	RCM4031
120°	1/8	.1250	.020	1-1/2	1/8	RCM4032	RCM4033
	1/4	.2500	.044	2-1/2	1/4	RCM4034	RCM4035
	3/8	.3750	.060	2-1/2	3/8	RCM4036	RCM4037
	1/2	.5000	.080	3	1/2	RCM4038	RCM4039

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4-Flute



Uncoated



AlTiN Coated

Carbide 4-Flute, Chamfer Mills, Double End

Included Angle	Cutter ø	Decimal Equiv	Flat Width	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
60°	1/8	.1250	.020	2	1/8	RCM4050	RCM4051
	3/16	.1875	.030	2-1/2	3/16	RCM4052	RCM4053
	1/4	.2500	.044	2-1/2	1/4	RCM4054	RCM4055
	5/16	.3125	.060	2-1/2	5/16	RCM4056	RCM4057
	3/8	.3750	.060	2-1/2	3/8	RCM4058	RCM4059
	1/2	.5000	.080	3	1/2	RCM4060	RCM4061
82°	1/8	.1250	.020	2	1/8	RCM4062	RCM4063
	3/16	.1875	.030	2-1/2	3/16	RCM4064	RCM4065
	1/4	.2500	.044	2-1/2	1/4	RCM4066	RCM4067
	5/16	.3125	.060	2-1/2	5/16	RCM4068	RCM4069
	3/8	.3750	.060	2-1/2	3/8	RCM4070	RCM4071
	1/2	.5000	.080	3	1/2	RCM4072	RCM4073
90 °	1/8	.1250	.020	2	1/8	RCM4074	RCM4075
	3/16	.1875	.030	2-1/2	3/16	RCM4076	RCM4077
	1/4	.2500	.044	2-1/2	1/4	RCM4078	RCM4079
	5/16	.3125	.060	2-1/2	5/16	RCM4080	RCM4081
	3/8	.3750	.060	2-1/2	3/8	RCM4082	RCM4083
	1/2	.5000	.080	3	1/2	RCM4084	RCM4085
100°	1/8	.1250	.020	2	1/8	RCM4086	RCM4087
	3/16	.1875	.030	2-1/2	3/16	RCM4088	RCM4089
	1/4	.2500	.044	2-1/2	1/4	RCM4090	RCM4091
	5/16	.3125	.060	2-1/2	5/16	RCM4092	RCM4093
	3/8	.3750	.060	2-1/2	3/8	RCM4094	RCM4095
	1/2	.5000	.080	3	1/2	RCM4096	RCM4097
120°	1/8	.1250	.020	2	1/8	RCM4098	RCM4099
	3/16	.1875	.030	2-1/2	3/16	RCM4100	RCM4101
	1/4	.2500	.044	2-1/2	1/4	RCM4102	RCM4103
	5/16	.3125	.060	2-1/2	5/16	RCM4104	RCM4105
	3/8	.3750	.060	2-1/2	3/8	RCM4106	RCM4107
	1/2	.5000	.080	3	1/2	RCM4108	RCM4109

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NEW Product



Uncoated



AlTiN Coated

4-Flute Long Reach Chamfer Mills

Included Angle	Cutter ø	Decimal Equiv	Flat Width	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
60°	3/16	.1875	.028	4	3/16	RCM3520	RCM3521
	1/4	.2500	.044	4	1/4	RCM3522	RCM3523
	5/16	.3125	.060	4	5/16	RCM3524	RCM3525
	3/8	.3750	.060	6	3/8	RCM3526	RCM3527
	1/2	.5000	.080	6	1/2	RCM3528	RCM3529
90°	3/16	.1875	.028	4	3/16	RCM3510	RCM3511
	1/4	.2500	.044	4	1/4	RCM3512	RCM3513
	5/16	.3125	.060	4	5/16	RCM3514	RCM3515
	3/8	.3750	.060	6	3/8	RCM3516	RCM3517
	1/2	.5000	.080	6	1/2	RCM3518	RCM3519
120°	3/16	.1875	.028	4	3/16	RCM3500	RCM3501
	1/4	.2500	.044	4	1/4	RCM3502	RCM3503
	5/16	.3125	.060	4	5/16	RCM3504	RCM3505
	3/8	.3750	.060	6	3/8	RCM3506	RCM3507
	1/2	.5000	.080	6	1/2	RCM3508	RCM3509

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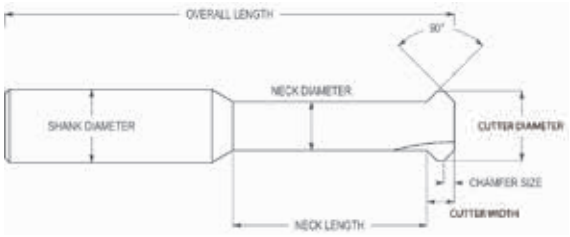
Edgebreakers



Uncoated



AlTiN Coated



Carbide Edge Breakers

Cutter ø	Cutter Width	Neck ø	Neck Length	Chamfer Size	# of Flutes	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.075	.040	.050	.187	.012	3	2	1/8	REB651180	REB651180A
	.040	.050	.375	.012	3	2	1/8	REB651185	REB651185A
.090	.045	.060	.187	.015	4	2	1/8	REB651190	REB651190A
	.045	.060	.375	.015	4	2	1/8	REB651195	REB651195A
	.045	.060	.500	.015	4	2	1/8	REB651197	REB651197A
.120	.072	.075	.250	.020	4	2	1/8	REB651200	REB651200A
	.072	.075	.500	.020	4	2	1/8	REB651205	REB651205A
.180	.093	.100	.250	.032	6	2-1/2	3/16	REB651210	REB651210A
	.093	.100	.500	.032	6	2-1/2	3/16	REB651215	REB651215A
	.093	.100	.750	.032	6	2-1/2	3/16	REB651220	REB651220A
	.093	.100	1.000	.032	6	2-1/2	3/16	REB651225	REB651225A
.240	.093	.165	.250	.032	6	2-1/2	1/4	REB651230	REB651230A
	.093	.165	.500	.032	6	2-1/2	1/4	REB651235	REB651235A
	.093	.165	.750	.032	6	2-1/2	1/4	REB651240	REB651240A
	.093	.165	1.000	.032	6	2-1/2	1/4	REB651245	REB651245A
.310	.093	.200	.250	.032	6	2-1/2	5/16	REB651250	REB651250A
	.093	.200	.500	.032	6	2-1/2	5/16	REB651255	REB651255A
	.093	.200	.750	.032	6	2-1/2	5/16	REB651260	REB651260A
	.093	.200	1.000	.032	6	2-1/2	5/16	REB651265	REB651265A
.360	.125	.250	.250	.046	6	2-1/2	3/8	REB651270	REB651270A
	.125	.250	.500	.046	6	2-1/2	3/8	REB651275	REB651275A
	.125	.250	.750	.046	6	2-1/2	3/8	REB651280	REB651280A
	.125	.250	1.000	.046	6	2-1/2	3/8	REB651285	REB651285A
.490	.156	.350	.500	.062	6	3	1/2	REB651290	REB651290A
	.156	.350	.750	.062	6	3	1/2	REB651295	REB651295A
	.156	.350	1.000	.062	6	3	1/2	REB651300	REB651300A

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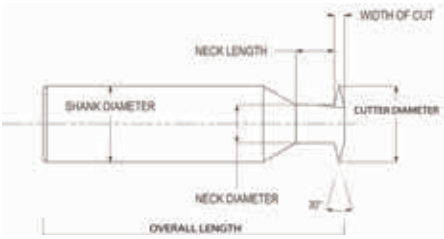
30° Angle Cutters



Uncoated



AlTiN Coated



30° Double Angle Cutters

Cutter ø	Width of Cut	Neck ø	Neck Length	# of Teeth	OAL	Shank ø	Depth of Cut	Uncoated Part #	AlTiN Coated Part #
1/8	.020	.050	.188	4	2	1/8	.037	RDA920880	RDA920880A
	.020	.050	.375	4	2	1/8	.037	RDA920885	RDA920885A
3/16	.026	.080	.250	4	2-1/2	3/16	.053	RDA920890	RDA920890A
	.026	.080	.750	4	2-1/2	3/16	.053	RDA920895	RDA920895A
1/4	.032	.125	.250	4	2-1/2	1/4	.062	RDA920900	RDA920900A
	.032	.125	.750	4	2-1/2	1/4	.062	RDA920905	RDA920905A
5/16	.040	.160	.312	4	2-1/2	5/16	.076	RDA920902	RDA920902A
	.040	.160	1.000	4	2-1/2	5/16	.076	RDA920904	RDA920904A
3/8	.050	.250	.312	4	2-1/2	3/8	.062	RDA920907	RDA920907A
	.050	.250	1.000	4	2-1/2	3/8	.062	RDA920910	RDA920910A
1/2	.067	.250	.375	4	3	1/2	.125	RDA920912	RDA920912A
	.067	.250	1.250	4	3	1/2	.125	RDA920920	RDA920920A
5/8*	.070	.250	.250	6	3	1/2	.187	RDA920925	RDA920925A
3/4*	.100	.250	.250	5	3	1/2	.250	RDA920930	RDA920930A

* Carbide head with steel shank

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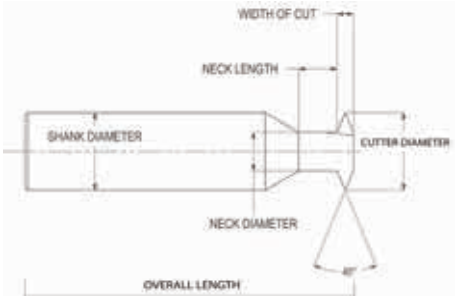
45° Angle Cutters



Uncoated



AlTiN Coated



45° Double Angle Cutters

Cutter ø	Width of Cut	Neck ø	Neck Length	# of Teeth	OAL	Shank ø	Depth of Cut	Uncoated Part #	AlTiN Coated Part #
1/8	.030	.050	.188	4	2	1/8	.037	RDA921500	RDA921500A
	.030	.050	.375	4	2	1/8	.037	RDA921505	RDA921505A
3/16	.044	.080	.250	4	2-1/2	3/16	.053	RDA921510	RDA921510A
	.044	.080	.750	4	2-1/2	3/16	.053	RDA921515	RDA921515A
1/4	.050	.125	.250	4	2-1/2	1/4	.062	RDA921520	RDA921520A
	.050	.125	.750	4	2-1/2	1/4	.062	RDA921525	RDA921525A
5/16	.062	.160	.312	4	2-1/2	5/16	.076	RDA921530	RDA921530A
	.062	.160	1.000	4	2-1/2	5/16	.076	RDA921535	RDA921535A
3/8	.075	.187	.312	4	2-1/2	3/8	.062	RDA921540	RDA921540A
	.075	.187	1.000	4	2-1/2	3/8	.062	RDA921545	RDA921545A
1/2	.100	.250	.375	4	3	1/2	.125	RDA921550	RDA921550A
	.100	.250	1.250	4	3	1/2	.125	RDA921555	RDA921555A
5/8*	.125	.250	.250	5	3	1/2	.187	RDA921560	RDA921560A
3/4*	.150	.250	.250	5	3	1/2	.250	RDA921565	RDA921565A

* Carbide head with steel shank

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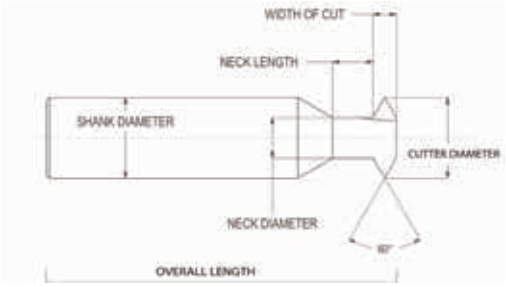
60° Angle Cutters



Uncoated



AlTiN Coated



60° Double Angle Cutters

Cutter ø	Width of Cut	Neck ø	Neck Length	# of Teeth	OAL	Shank ø	Depth of Cut	Uncoated Part #	AlTiN Coated Part #
1/8	.062	.062	.188	4	2	1/8	.031	RDA921180	RDA921180A
	.062	.062	.375	4	2	1/8	.031	RDA921185	RDA921185A
3/16	.093	.093	.250	4	2-1/2	3/16	.047	RDA921190	RDA921190A
	.093	.093	.750	4	2-1/2	3/16	.047	RDA921195	RDA921195A
1/4	.125	.125	.250	4	2-1/2	1/4	.062	RDA921200	RDA921200A
	.125	.125	.750	4	2-1/2	1/4	.062	RDA921205	RDA921205A
5/16	.088	.160	.312	4	2-1/2	5/16	.076	RDA921207	RDA921207A
	.088	.160	1.000	4	2-1/2	5/16	.076	RDA921208	RDA921208A
3/8	.109	.188	.312	4	2-1/2	3/8	.093	RDA921210	RDA921210A
	.109	.188	1.000	4	2-1/2	3/8	.093	RDA921215	RDA921215A
1/2	.140	.250	.375	4	3	1/2	.125	RDA921220	RDA921220A
	.140	.250	1.250	4	3	1/2	.125	RDA921225	RDA921225A
5/8*	.144	.250	.250	5	3	1/2	.187	RDA921230	RDA921230A
3/4*	.217	.250	.250	5	3	1/2	.250	RDA921235	RDA921235A

* Carbide head with steel shank

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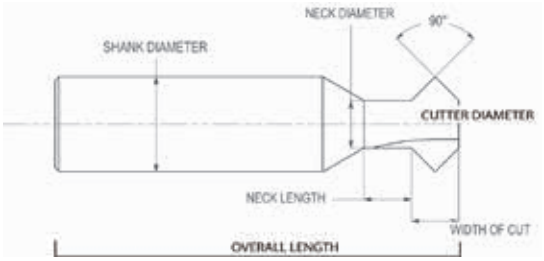
90° Angle Cutters



Uncoated



AlTiN Coated



90° Double Angle Cutters

Cutter ø	Width of Cut	Neck ø	Neck Length	# of Teeth	OAL	Shank ø	Depth of Cut	Uncoated Part #	AlTiN Coated Part #
3/32	.047	.045	.125	2	2	1/8	.024	RDA920955	RDA920955A
	.047	.045	.250	2	2	1/8	.024	RDA920960	RDA920960A
1/8	.062	.062	.188	4	2	1/8	.031	RDA920965	RDA920965A
	.062	.062	.500	4	2	1/8	.031	RDA920970	RDA920970A
3/16	.093	.093	.250	4	2-1/2	3/16	.047	RDA920975	RDA920975A
	.093	.093	.500	4	2-1/2	3/16	.047	RDA920980	RDA920980A
	.093	.093	.750	4	2-1/2	3/16	.047	RDA920985	RDA920985A
	.093	.093	1.000	4	2-1/2	3/16	.047	RDA920990	RDA920990A
1/4	.120	.125	.250	4	2-1/2	1/4	.062	RDA921000	RDA921000A
	.120	.125	.500	4	2-1/2	1/4	.062	RDA921002	RDA921002A
	.120	.125	.750	4	2-1/2	1/4	.062	RDA921005	RDA921005A
	.120	.125	1.000	4	2-1/2	1/4	.062	RDA921006	RDA921006A
5/16	.125	.188	.500	4	2-1/2	5/16	.067	RDA921007	RDA921007A
	.125	.188	.750	4	2-1/2	5/16	.067	RDA921008	RDA921008A
	.125	.188	1.000	4	2-1/2	5/16	.067	RDA921009	RDA921009A
3/8	.185	.188	.312	4	2-1/2	3/8	.094	RDA921010	RDA921010A
	.185	.188	.500	4	2-1/2	3/8	.094	RDA921011	RDA921011A
	.185	.188	.750	4	2-1/2	3/8	.094	RDA921012	RDA921012A
	.185	.188	1.000	4	2-1/2	3/8	.094	RDA921015	RDA921015A
1/2	.250	.250	.375	4	3	1/2	.125	RDA921020	RDA921020A
	.250	.250	.625	4	3	1/2	.125	RDA921022	RDA921022A
	.250	.250	.875	4	3	1/2	.125	RDA921023	RDA921023A
	.250	.250	1.250	4	3	1/2	.125	RDA921025	RDA921025A
1/2*	.125	.250	.250	6	3-1/8	1/2	.125	RDA921100	RDA921100A
	.187	.250	.250	6	3-1/8	1/2	.125	RDA921105	RDA921105A
5/8	.312	.300	.500	4	3-1/2	5/8	.162	RDA921106	RDA921106A
	.312	.300	.750	4	3-1/2	5/8	.162	RDA921107	RDA921107A
	.312	.300	1.250	4	3-1/2	5/8	.162	RDA921108	RDA921108A
5/8*	.187	.250	.250	6	3-1/8	1/2	.202	RDA921110	RDA921110A
	.250	.280	.250	6	3-1/8	1/2	.172	RDA921115	RDA921115A
3/4*	.125	.250	.250	8	3-1/8	1/2	.250	RDA921117	RDA921117A
	.250	.280	.250	8	3-1/8	1/2	.235	RDA921120	RDA921120A
1*	.125	.250	.250	8	3-1/8	1/2	.375	RDA921125	RDA921125A
	.250	.490	.250	8	3-1/8	1/2	.255	RDA921130	RDA921130A

* Carbide head with steel shank

Speeds & Feeds page 466.

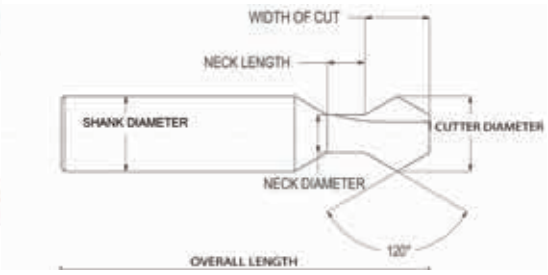
120° Angle Cutters



Uncoated



AlTiN Coated



120° Double Angle Cutters

Cutter ø	Width of Cut	Neck ø	Neck Length	# of Teeth	OAL	Shank ø	Depth of Cut	Uncoated Part #	AlTiN Coated Part #
1/8	.109	.062	.188	4	2	1/8	.031	RDA921280	RDA921280A
	.109	.062	.500	4	2	1/8	.031	RDA921285	RDA921285A
3/16	.163	.094	.250	4	2-1/2	3/16	.046	RDA921290	RDA921290A
	.163	.094	.750	4	2-1/2	3/16	.046	RDA921295	RDA921295A
1/4	.215	.125	.250	4	2-1/2	1/4	.062	RDA921300	RDA921300A
	.215	.125	.750	4	2-1/2	1/4	.062	RDA921302	RDA921302A
5/16	.281	.150	.312	4	2-1/2	5/16	.081	RDA921304	RDA921304A
	.281	.150	1.000	4	2-1/2	5/16	.081	RDA921306	RDA921306A
3/8	.320	.188	.312	4	2-1/2	3/8	.093	RDA921310	RDA921310A
	.320	.188	1.000	4	2-1/2	3/8	.093	RDA921315	RDA921315A
1/2	.430	.250	.375	4	3	1/2	.125	RDA921320	RDA921320A
	.430	.250	1.250	4	3	1/2	.125	RDA921325	RDA921325A

Speeds & Feeds page 466.

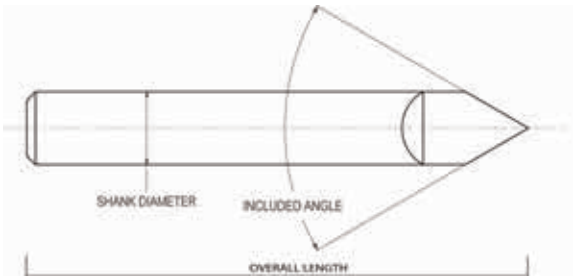
Standard Point



Uncoated

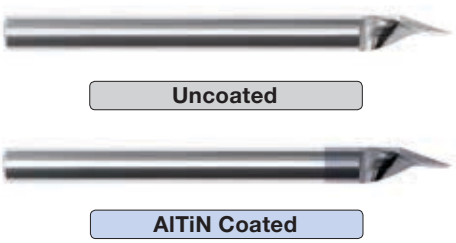


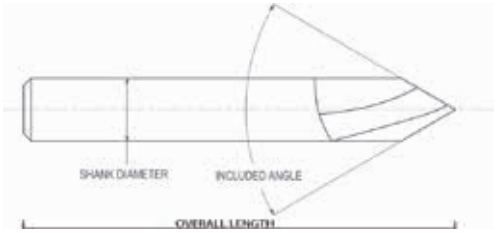
AlTiN Coated



Carbide Standard Point Engraving Tools

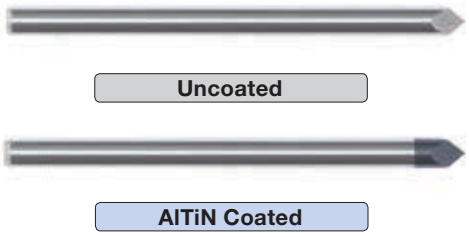
Included Angle	Tip ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
30°	.015	2	1/8	RET621095	RET621095A
	.015	2-1/2	3/16	RET621117	RET621117A
	.015	2-1/2	1/4	RET621137	RET621137A
	.015	2-1/2	5/16	RET621157	RET621157A
	.015	2-1/2	3/8	RET621170	RET621170A
	.015	3	1/2	RET621182	RET621182A
40°	.015	2	1/8	RET621100	RET621100A
	.015	2-1/2	3/16	RET621120	RET621120A
	.015	2-1/2	1/4	RET621140	RET621140A
	.015	2-1/2	5/16	RET621160	RET621160A
	.015	2-1/2	3/8	RET621172	RET621172A
	.015	3	1/2	RET621185	RET621185A
60°	.015	2	1/8	RET621105	RET621105A
	.015	2-1/2	3/16	RET621125	RET621125A
	.015	2-1/2	1/4	RET621145	RET621145A
	.015	2-1/2	5/16	RET621162	RET621162A
	.015	2-1/2	3/8	RET621175	RET621175A
	.015	3	1/2	RET621187	RET621187A
90°	.015	2	1/8	RET621110	RET621110A
	.015	2-1/2	3/16	RET621130	RET621130A
	.015	2-1/2	1/4	RET621150	RET621150A
	.015	2-1/2	5/16	RET621165	RET621165A
	.015	2-1/2	3/8	RET621177	RET621177A
	.015	3	1/2	RET621190	RET621190A
120°	.015	2	1/8	RET621115	RET621115A
	.015	2-1/2	3/16	RET621135	RET621135A
	.015	2-1/2	1/4	RET621155	RET621155A
	.015	2-1/2	5/16	RET621167	RET621167A
	.015	2-1/2	3/8	RET621180	RET621180A
	.015	3	1/2	RET621192	RET621192A

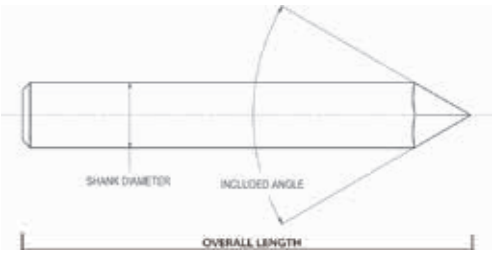




Spiral Flute Engraving Tools

Included Angle	Tip ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
40°	.004	2	1/8	RET621600	RET621600A
	.004	2-1/2	3/16	RET621615	RET621615A
	.004	2-1/2	1/4	RET621630	RET621630A
60°	.004	2	1/8	RET621605	RET621605A
	.004	2-1/2	3/16	RET621620	RET621620A
	.004	2-1/2	1/4	RET621635	RET621635A
90°	.004	2	1/8	RET621610	RET621610A
	.004	2-1/2	3/16	RET621625	RET621625A
	.004	2-1/2	1/4	RET621640	RET621640A





Chisel Style Engraving Tools

Included Angle	Tip ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
40°	.002	2	1/8	RET622400	RET622400A
	.002	2-1/2	3/16	RET622415	RET622415A
	.002	2-1/2	1/4	RET622430	RET622430A
60°	.002	2	1/8	RET622405	RET622405A
	.002	2-1/2	3/16	RET622420	RET622420A
	.002	2-1/2	1/4	RET622435	RET622435A
90°	.002	2	1/8	RET622410	RET622410A
	.002	2-1/2	3/16	RET622425	RET622425A
	.002	2-1/2	1/4	RET622440	RET622440A

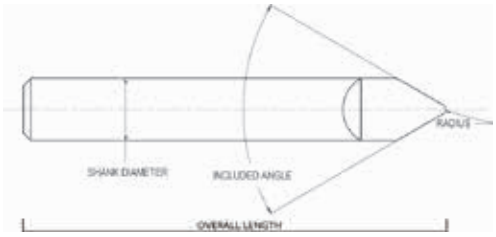
Radius & 2-Flute



Uncoated



AlTiN Coated



Radius Tip Engraving Tools

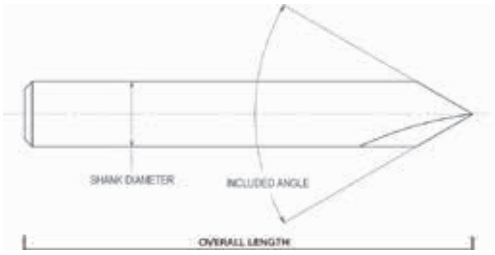
Included Angle	Tip Radius	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
30°	.005	2	1/8	RET622200	RET622200A
	.010	2	1/8	RET622205	RET622205A
	.015	2	1/8	RET622210	RET622210A
	.020	2	1/8	RET622215	RET622215A
40°	.005	2	1/8	RET622220	RET622220A
	.010	2	1/8	RET622225	RET622225A
	.015	2	1/8	RET622230	RET622230A
	.020	2	1/8	RET622235	RET622235A
60°	.005	2	1/8	RET622240	RET622240A
	.010	2	1/8	RET622250	RET622250A
	.015	2	1/8	RET622260	RET622260A
	.020	2	1/8	RET622270	RET622270A
90°	.005	2	1/8	RET622280	RET622280A
	.010	2	1/8	RET622290	RET622290A
	.015	2	1/8	RET622300	RET622300A
	.020	2	1/8	RET622310	RET622310A



Uncoated



AlTiN Coated



2-Flute Engraving Tools

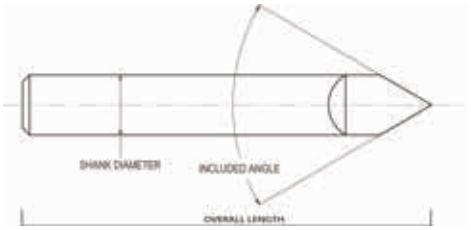
Included Angle	Web Thickness	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
30°	.005	2	1/8	RET622600	RET622600A
	.005	2-1/2	3/16	RET622605	RET622605A
	.005	2-1/2	1/4	RET622610	RET622610A
60°	.005	2	1/8	RET622615	RET622615A
	.010	2	1/8	RET622620	RET622620A
	.005	2-1/2	3/16	RET622625	RET622625A
	.005	2-1/2	1/4	RET622630	RET622630A
90°	.005	2	1/8	RET622635	RET622635A
	.010	2	1/8	RET622640	RET622640A
	.005	2-1/2	3/16	RET622650	RET622650A
	.005	2-1/2	1/4	RET622660	RET622660A
120°	.005	2	1/8	RET622670	RET622670A
	.005	2-1/2	3/16	RET622680	RET622680A
	.005	2-1/2	1/4	RET622690	RET622690A



Uncoated



AlTiN Coated



Carbide Standard Point Extra Long Engraving Tools

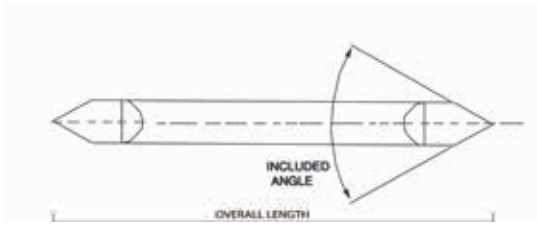
Included Angle	Tip ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
40°	.015	4	1/8	RET621800	RET621800A
	.015	4	3/16	RET621820	RET621820A
	.015	4	1/4	RET621840	RET621840A
60°	.015	4	1/8	RET621805	RET621805A
	.015	4	3/16	RET621825	RET621825A
	.015	4	1/4	RET621845	RET621845A
90°	.015	4	1/8	RET621810	RET621810A
	.015	4	3/16	RET621830	RET621830A
	.015	4	1/4	RET621850	RET621850A
120°	.015	4	1/8	RET621815	RET621815A
	.015	4	3/16	RET621835	RET621835A
	.015	4	1/4	RET621855	RET621855A



Uncoated



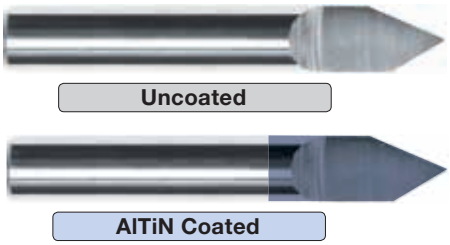
AlTiN Coated

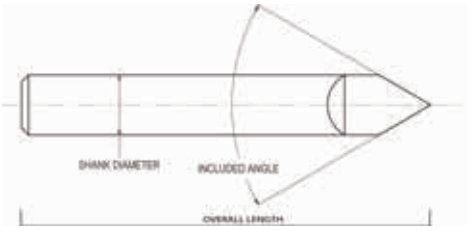


Carbide Standard Point Double-End Engraving Tools

Included Angle	Tip ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
30°	.015	2	1/8	RET621400	RET621400A
	.015	2-1/2	3/16	RET621417	RET621417A
	.015	2-1/2	1/4	RET621437	RET621437A
40°	.015	2	1/8	RET621402	RET621402A
	.015	2-1/2	3/16	RET621420	RET621420A
	.015	2-1/2	1/4	RET621440	RET621440A
60°	.015	2	1/8	RET621405	RET621405A
	.015	2-1/2	3/16	RET621425	RET621425A
	.015	2-1/2	1/4	RET621445	RET621445A
90°	.015	2	1/8	RET621410	RET621410A
	.015	2-1/2	3/16	RET621430	RET621430A
	.015	2-1/2	1/4	RET621450	RET621450A
120°	.015	2	1/8	RET621415	RET621415A
	.015	2-1/2	3/16	RET621435	RET621435A
	.015	2-1/2	1/4	RET621455	RET621455A

Fine Point & Soft Material

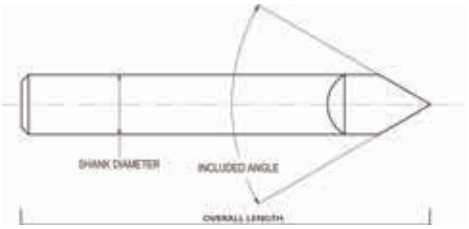




Carbide Fine Point Engraving Tools

Included Angle	Tip ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
40°	.002	2	1/8	RET621200	RET621200A
60°	.002	2	1/8	RET621205	RET621205A
90°	.002	2	1/8	RET621210	RET621210A





Carbide Soft Material Engraving Tools

Included Angle	Tip ø	OAL	Shank ø	Uncoated Part #	TiN Coated Part #
40°	.015	2	1/8	RET621500	RET621500T
	.015	2-1/2	3/16	RET621520	RET621520T
	.015	2-1/2	1/4	RET621540	RET621540T
60°	.015	2	1/8	RET621505	RET621505T
	.015	2-1/2	3/16	RET621525	RET621525T
	.015	2-1/2	1/4	RET621545	RET621545T
90°	.015	2	1/8	RET621510	RET621510T
	.015	2-1/2	3/16	RET621530	RET621530T
	.015	2-1/2	1/4	RET621550	RET621550T

Key Cutters Speeds & Feeds

Material	Grades	SFM
P - Steels		
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	80-90
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012. 5015, 9310	180
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	170
M- Stainless Steels		
Austenitic	301-304L, 310, 316L, 321, 347	100
Martensitic	403, 410, 416, 420, 430, 431, 440	110
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	120
K - Cast Irons		
Ductile	A536, J434, 60-40-18	180
Gray	A48, A436, A319. Class 20, G4000	140
Malleable	A220, A602, J158	100
N - Non-Ferrous		
Aluminum Alloys	2014, 2024, 6061, 7075	300
Aluminum High Silicon	A380, A390	300
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	230-250
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	180-200
Copper		100-200
Magnesium		300
S - High Temp Alloys		
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	80
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	80
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	80
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	90

NOTE: Speeds and Feeds listed are estimated and will vary by application.

These tools can be found on pages 417-441.

Speeds Formula for Calculating RPM

SFM **X** 4 = F

$$\frac{F}{\text{Diameter of Cutter}} = \textbf{RPM}$$

EXAMPLE: 1/2" ø Cutter in Aluminum

SFM (300) **X** 4 = 1200 (F)

$$\frac{1200\ (F)}{.500} = 2400\ \textbf{RPM}$$

Feeds Formula for Calculating IPM

.001 **X** # of Teeth in Cutter **X** RPM = **IPM**

EXAMPLE: 1/2" ø Cutter in Aluminum

.001 **X** 6 **X** 2400 = 14.4 **IPM**

Dovetail Cutters Speeds & Feeds

Material	Grades	SFM	Feed by Dovetail Cutter Diameter (IPT)						
			1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.0625)	3/4 (.7500)	1 (1.000)
P - Steels									
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	200-350	.0002-.0006	.0005-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0035-.0050	.0050-.0060
High Strength Tool Steel >32 HRC		100-300	.0002-.0006	.0005-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0035-.0050	.0050-.0060
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	250-550	.0002-.0006	.0005-.0010	.0010-.0020	.0020-.0030	.0035-.0045	.0045-.0060	.0060-.0070
Low Carbon >32HRC		80-150	.0003-.0005	.0005-.0007	.0006-.0008	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	100-250	.0004-.0008	.0008-.0015	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0050
Medium Carbon >32 HRC		80-150	.0003-.0005	.0005-.0007	.0006-.0008	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030
M - Stainless Steels									
Austenitic	301-304L, 310, 316L, 321, 347	250-400	.0002-.001	.0002-.0010	.0010-.0020	.0010-.0020	.0020-.0060	.0020-.0060	.0020-.0060
Austenitic >32 HRC		50-250	.0002-.001	.0002-.0010	.0010-.0020	.0010-.0020	.0010-.0060	.0010-.0060	.0010-.0060
Martensitic	403, 410, 416, 420, 430, 431, 440	250-400	.0002-.001	.0002-.0010	.0010-.0020	.0010-.0020	.0020-.0060	.0020-.0060	.0020-.0060
Martensitic >32 HRC		50-250	.0002-.001	.0002-.0010	.0010-.0020	.0010-.0020	.0010-.0060	.0010-.0060	.0010-.0060
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8M0, PH14-8/M0	250-400	.0002-.001	.0002-.0010	.0010-.0020	.0010-.0020	.0020-.0060	.0020-.0060	.0020-.0060
Precipitation Hardening >32 HRC		50-250	.0002-.001	.0002-.0010	.0010-.0020	.0010-.0020	.0010-.0060	.0010-.0060	.0010-.0060
K - Cast Irons									
Ductile	A536, J434, 60-40-18	80-400	.0002-.0006	.0006-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0035-.0045	.0045-.0060
Gray	A48, A436, A319, Class 20, G4000	200-500	.0003-.0015	.0015-.0020	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0050	.0050-.0060
Malleable	A220, A602, J158	250-600	.001-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0035-.0040	.0040-.0045	.0050-.0060
N - Non-Ferrous									
Aluminum Alloys		900-1300	.0002-.0010	.0010-.0020	.0020-.0030	.0030-.0040	.0050-.0060	.0060-.0070	.0070-.0080
Aluminum High Silicon		600-900	.0002-.0010	.0010-.0020	.0020-.0030	.0030-.0040	.0050-.0060	.0060-.0070	.0070-.0080
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze								
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics								
Copper		350-900	.0005-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0030-.0040	.0040-.0050	.0050-.0060
Magnesium		800-1400	.0005-.0010	.0010-.0020	.0020-.0030	.0030-.0040	.0050-.0070	.0060-.0080	.0080-.0100
S - High Temp Alloys									
Cobalt Base	Stellite, HS-21, Haynes 25/188,	150-300	.0002-.0006	.0005-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Cobalt Base >32HRC	X40, L605	20-130	.0003-.0006	.0005-.0008	.0007-.0009	.0008-.0010	.0010-.0014	.0013-.0018	.0016-.0020
Iron Base	Incoloy 800-802, Multmet N-155	20-130	.0002-.0006	.0005-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Iron Base >32HRC	Timkin 16-25-6, Carpenter 22-b3	15-80	.0003-.0006	.0005-.0008	.0007-.0009	.0008-.0010	.0010-.0014	.0013-.0018	.0016-.0020
Nickel Base	Inconel 625/718, Inco 700, 713C, 718	150-300	.0002-.0006	.0005-.0010	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0040
Nickel Base >32HRC	Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	20-130	.0003-.0006	.0005-.0008	.0007-.0009	.0008-.0010	.0010-.0014	.0013-.0018	.0016-.0020
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	30-350	.0002-.0005	.0005-.0010	.0008-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0050

NOTE: Speeds and Feeds listed are estimated and will vary by application.

These tools can be found on pages 442-445.

Chamfer Mills Speeds & Feeds

Material	Grades	SFM			Feed by Chamfer Mill Diameter (IPT)						
					1/8	1/4	3/8	1/2	5/8	3/4	1
		Uncoated	AlTiN	TiCN	(.1250)	(.2500)	(.3750)	(.5000)	(.0625)	(.7500)	(1.000)
P - Steels											
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	150-225	210-315	185-310	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
High Strength Tool Steel		60-125	85-175	75-155	.0003-.0005	.0004-.0005	.0005-.0008	.0008-.0015	.0015-.0022	.0020-.0025	.0025-.0035
>32 HRC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	200-250	280-350	250-310	.0007-.0015	.0010-.0015	.0015-.002	.0020-.0025	.0025-.0030	.0030-.0035	.0040-.0050
Low Carbon >32HRC		125-175	175-245	155-215	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	200-250	280-350	250-310	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0035	.0040-.0050
Medium Carbon >32 HRC		125-175	175-245	155-215	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
M - Stainless Steels											
Austenitic	301-304L, 310, 316L, 321, 347	200-250	280-350	250-310	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Austenitic >32 HRC		150-200	210-350	185-250	.0003-.0005	.0004-.0005	.0005-.0008	.008-.0015	.0015-.0022	.0020-.0025	.0025-.0035
Martensitic	403, 410, 416, 420, 430, 431, 440	150-250	210-350	185-310	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Martensitic >32 HRC		125-175	175-245	155-215	.0003-.0005	.0004-.0005	.0005-.0008	.008-.0015	.0015-.0022	.0020-.0025	.0025-.0035
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8M0, PH14-8//M0	150-250	210-350	185-310	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Precipitation Hardening		125-175	175-245	155-215	.0003-.0005	.0004-.0005	.0005-.0008	.008-.0015	.0015-.0022	.0020-.0025	.0025-.0035
>32 HRC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
K - Cast Irons											
Ductile	A536, J434, 60-40-18	300-400	420-560	375-500	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0060	.0080-.0120	.0100-.0120
Gray	A48, A436, A319, Class 20, G4000	250-350	350-490	310-435	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
Malleable	A220, A602, J158	275-375	375-515	340-465	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
N - Non-Ferrous											
Aluminum Alloys		>500	>500	>500	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
Aluminum High Silicon		450	450	560	.0010-.0015	.0015-.002	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
Brass/Bronze	Aluminum Bronze , Low Silicon Bronze	250-350	350-490	310-435	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0050	.0050-.0080	.0080-.0100
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	250-1000	350-1400	310-435	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
Copper		300-400	420-560	375-500	.0007-.0015	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0050	.0050-.0080	.0080-.0100
Magnesium		>500	>500	>500	.0010-.0015	.0015-.002	.0020-.0030	.0030-.0040	.0040-.0060	.0060-.0080	.0080-.0100
S - High Temp Alloys											
Cobalt Base	Stellite, HS-21, Haynes 25/188,	175-225	245-315	215-280	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Cobalt Base >32HRC	X40, L605	125-175	175-245	155-215	.0003-.0005	.0004-.0005	.0005-.0008	.0080-.0015	.0015-.0022	.0020-.0025	.0025-.0035
Iron Base	Incoloy 800-802, Multmet N-155	175-225	245-315	215-280	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Iron Base >32HRC	Timkin 16-25-6, Carpenter 22-b3	125-175	175-245	155-215	.0003-.0005	.0004-.0005	.0005-.0008	.0080-.0015	.0015-.0022	.0020-.0025	.0025-.0035
Nickel Base	Inconel 625/718, Inco 700, 713C, 718	125-175	175-245	155-215	.0005-.0010	.0008-.0010	.0010-.0015	.0015-.0020	.0020-.0030	.0030-.0040	.0035-.0045
Nickel Base >32HRC	Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	70-115	100-160	85-140	.0003-.0005	.0004-.0005	.0005-.0008	.0080-.0015	.0015-.0022	.0020-.0025	.0025-.0035
Titanium	Commercially Pure, 6Al-4V ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si Ti-8Al-1Mo, Ti-8Al-4Mo	200-300	280-420	250-375	.0007-.0015	.0010-.0015	.0015-.002	.0020-.0025	.0025-.0030	.0030-.0035	.0040-.0050

NOTES: (1) Speeds and Feeds listed are estimated and will vary by application.

(2) Maximize rigidity to reduce chatter and increase tool life by applying the following tips.

- **Choose the largest diameter possible**
- **Use the shortest LOC (Length of Cut) available**
- **Use the toolholder which offers the shortest gage length**

(3) To control chatter, increase feed or reduce speed.

(4) For extra long endmills, reduce SFM by 25%.

(5) Keep to a minimum at all times. As runout increases, the tools' performance decreases and tool life will be reduced.

(6) Use a coolant or air blast to evacuate chips to avoid premature damage to your carbide cutting tool, which may occur if chips are recut.

These tools can be found on pages 446-451.

Edge Breakers & Angle Cutters Speeds & Feeds

Material	Grades	SFM
P - Steels		
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	80-90
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012. 5015, 9310	180
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	170
M- Stainless Steels		
Austenitic	301-304L, 310, 316L, 321, 347	100
Martensitic	403, 410, 416, 420, 430, 431, 440	110
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	120
K - Cast Irons		
Ductile	A536, J434, 60-40-18	180
Gray	A48, A436, A319. Class 20, G4000	140
Malleable	A220, A602, J158	100
N - Non-Ferrous		
Aluminum Alloys	2014, 2024, 6061, 7075	300
Aluminum High Silicon	A380, A390	300
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	230-250
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	180-200
Copper		100-200
Magnesium		300
S - High Temp Alloys		
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	80
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	80
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	80
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	90

NOTE: Speeds and Feeds listed are estimated and will vary by application.

These tools can be found on pages 452-457.

Speeds Formula for Calculating RPM

SFM **X** 4 = F

$$\frac{F}{\text{Diameter of Cutter}} = \textbf{RPM}$$

EXAMPLE: 1/2" ø Cutter in Aluminum

SFM (300) **X** 4 = 1200 (F)

$$\frac{1200\ (F)}{.500} = 2400\ \textbf{RPM}$$

Feeds Formula for Calculating IPM

.001 **X** # of Teeth in Cutter **X** RPM = **IPM**

EXAMPLE: 1/2" ø Cutter in Aluminum

.001 **X** 6 **X** 2400 = 14.4 **IPM**



Carbide Straight Flute Reamers (.0400-.0740)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
#60	.0400	4	1/4	1-1/2	.0400	RR23046
#59	.0410	4	3/8	1-1/2	.0410	RR23047
#58	.0420	4	3/8	1-1/2	.0420	RR23048
#57	.0430	4	3/8	1-1/2	.0430	RR23049
—	.0440	4	3/8	1-1/2	.0440	RR23050
—	.0450	4	3/8	1-1/2	.0450	RR23051
—	.0460	4	3/8	1-1/2	.0460	RR23052
#56	.0465	4	3/8	1-1/2	.0465	RR23053
3/64	.0469	4	3/8	1-1/2	.0469	RR23054
—	.0470	4	3/8	1-1/2	.0470	RR23055
—	.0480	4	3/8	1-1/2	.0480	RR23056
—	.0490	4	3/8	1-1/2	.0490	RR23057
—	.0500	4	3/8	1-1/2	.0500	RR23058
—	.0510	4	3/8	1-1/2	.0510	RR23059
#55	.0520	4	3/8	1-1/2	.0520	RR23060
—	.0530	4	3/8	1-1/2	.0530	RR23061
—	.0540	4	3/8	1-1/2	.0540	RR23062
#54	.0550	4	3/8	1-1/2	.0550	RR23063
—	.0560	4	3/8	1-1/2	.0560	RR23064
—	.0570	4	3/8	1-1/2	.0570	RR23065
—	.0580	4	3/8	1-1/2	.0580	RR23066
—	.0590	4	3/8	1-1/2	.0590	RR23067
1.5MM	.0591	4	3/8	1-1/2	.0591	RR23068
#53	.0595	4	3/8	1-1/2	.0595	RR23069
—	.0600	4	3/8	1-1/2	.0600	RR23070
—	.0605	4	3/8	1-1/2	.0605	RR23071
—	.0610	4	3/8	1-1/2	.0610	RR23072
—	.0615	4	3/8	1-1/2	.0615	RR23073
—	.0620	4	3/8	1-1/2	.0620	RR23074
1/16	.0625	4	3/8	1-1/2	.0625	RR23075
—	.0630	4	3/8	1-1/2	.0630	RR23076
#52	.0635	4	3/8	1-1/2	.0635	RR23077
—	.0640	4	3/8	1-1/2	.0640	RR23078
—	.0645	4	3/8	1-1/2	.0645	RR23079
—	.0650	4	3/8	1-1/2	.0650	RR23080
—	.0660	4	1/2	1-3/4	.0660	RR23081
#51	.0670	4	1/2	1-3/4	.0670	RR23082
—	.0680	4	1/2	1-3/4	.0680	RR23083
—	.0690	4	1/2	1-3/4	.0690	RR23084
#50	.0700	4	1/2	1-3/4	.0700	RR23085
—	.0710	4	1/2	1-3/4	.0710	RR23086
—	.0720	4	1/2	1-3/4	.0720	RR23087
#49	.0730	4	1/2	1-3/4	.0730	RR23088
—	.0740	4	1/2	1-3/4	.0740	RR23089

Carbide Straight Flute Reamers (.0750-.1040)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
—	.0750	4	1/2	1-3/4	.0750	RR23090
#48	.0760	4	1/2	1-3/4	.0760	RR23091
—	.0770	4	1/2	1-3/4	.0770	RR23092
—	.0780	4	1/2	1-3/4	.0780	RR23093
5/64	.0781	4	1/2	1-3/4	.0781	RR23094
#47	.0785	4	1/2	1-3/4	.0785	RR23095
2MM	.0787	4	1/2	1-3/4	.0787	RR23096
—	.0790	4	1/2	1-3/4	.0790	RR23097
—	.0800	4	1/2	1-3/4	.0800	RR23098
#46	.0810	4	1/2	2	.0810	RR23099
#45	.0820	4	1/2	2	.0820	RR23100
—	.0830	4	1/2	2	.0830	RR23101
—	.0840	4	1/2	2	.0840	RR23102
—	.0850	4	1/2	2	.0850	RR23103
#44	.0860	4	1/2	2	.0860	RR23104
—	.0870	4	1/2	2	.0870	RR23105
—	.0880	4	1/2	2	.0880	RR23106
#43	.0890	4	1/2	2	.0890	RR23107
—	.0900	4	1/2	2	.0900	RR23108
—	.0910	4	1/2	2	.0910	RR23109
—	.0915	4	1/2	2	.0915	RR23110
—	.0920	4	1/2	2	.0920	RR23111
—	.0925	4	1/2	2	.0925	RR23112
—	.0930	4	1/2	2	.0930	RR23113
#42	.0935	4	1/2	2	.0935	RR23114
3/32	.0938	4	1/2	2	.0938	RR23115
—	.0940	4	1/2	2	.0940	RR23116
—	.0945	4	1/2	2	.0945	RR23117
—	.0950	4	1/2	2	.0950	RR23118
#41	.0960	4	5/8	2	.0960	RR23119
—	.0970	4	5/8	2	.0970	RR23120
#40	.0980	4	5/8	2	.0980	RR23121
2.5MM	.0984	4	5/8	2	.0984	RR23122
—	.0990	4	5/8	2-1/4	.0990	RR23123
#39	.0995	4	5/8	2-1/4	.0995	RR23124
—	.1000	4	5/8	2-1/4	.1000	RR23125
—	.1010	4	5/8	2-1/4	.1010	RR23126
#38	.1015	4	5/8	2-1/4	.1015	RR23127
—	.1020	4	5/8	2-1/4	.1020	RR23128
—	.1030	4	5/8	2-1/4	.1030	RR23129
#37	.1040	4	5/8	2-1/4	.1040	RR23130

Continued

Tolerances	Diameter	Shank
All Sizes	+.0003, -.0000	+.0003, -.0002

Speeds, feeds & tech info pages 497-498.



Carbide Straight Flute Reamers (.1050-.1380)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
—	.1050	4	5/8	2-1/4	.1050	RR23131
—	.1060	4	5/8	2-1/4	.1060	RR23132
#36	.1065	4	5/8	2-1/4	.1065	RR23133
—	.1070	4	5/8	2-1/4	.1070	RR23134
—	.1080	4	5/8	2-1/4	.1080	RR23135
—	.1090	4	5/8	2-1/4	.1090	RR23136
7/64	.1094	4	5/8	2-1/4	.1094	RR23137
#35	.1100	4	5/8	2-1/4	.1100	RR23138
#34	.1110	4	5/8	2-1/4	.1110	RR23139
—	.1120	4	5/8	2-1/4	.1120	RR23140
#33	.1130	4	5/8	2-1/4	.1130	RR23141
—	.1140	4	5/8	2-1/4	.1140	RR23142
—	.1150	4	5/8	2-1/4	.1150	RR23143
#32	.1160	4	5/8	2-1/4	.1160	RR23144
—	.1170	4	5/8	2-1/4	.1170	RR23145
—	.1180	4	5/8	2-1/4	.1180	RR23146
3MM	.1181	4	5/8	2-1/4	.1181	RR23147
—	.1190	4	5/8	2-1/4	.1190	RR23148
#31	.1200	4	5/8	2-1/4	.1200	RR23149
—	.1210	4	5/8	2-1/4	.1210	RR23150
—	.1220	4	5/8	2-1/4	.1220	RR23151
—	.1230	4	5/8	2-1/4	.1230	RR23152
—	.1235	4	5/8	2-1/4	.1235	RR23153
—	.1240	4	5/8	2-1/4	.1240	RR23154
—	.1245	4	5/8	2-1/4	.1245	RR23155
1/8	.1250	4	5/8	2-1/4	.1250	RR23156
—	.1255	4	5/8	2-1/4	.1255	RR23157
—	.1260	4	5/8	2-1/4	.1260	RR23158
—	.1265	4	5/8	2-1/4	.1265	RR23159
—	.1270	4	5/8	2-1/4	.1270	RR23160
—	.1275	4	5/8	2-1/4	.1275	RR23161
—	.1280	4	5/8	2-1/4	.1280	RR23162
#30	.1285	4	5/8	2-1/4	.1285	RR23163
—	.1290	4	5/8	2-1/4	.1290	RR23164
—	.1300	4	5/8	2-1/2	.1300	RR23165
—	.1310	4	3/4	2-1/2	.1310	RR23166
—	.1320	4	3/4	2-1/2	.1320	RR23167
—	.1330	4	3/4	2-1/2	.1330	RR23168
—	.1340	4	3/4	2-1/2	.1340	RR23169
—	.1350	4	3/4	2-1/2	.1350	RR23170
#29	.1360	4	3/4	2-1/2	.1360	RR23171
—	.1370	4	3/4	2-1/2	.1370	RR23172
3.5MM	.1378	4	3/4	2-1/2	.1378	RR23173
—	.1380	4	3/4	2-1/2	.1380	RR23174

Carbide Straight Flute Reamers (.1390-.1710)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
—	.1390	4	3/4	2-1/2	.1390	RR23175
—	.1400	4	3/4	2-1/2	.1400	RR23176
#28	.1405	4	3/4	2-1/2	.1405	RR23177
9/64	.1406	4	3/4	2-1/2	.1406	RR23178
—	.1410	4	3/4	2-1/2	.1410	RR23179
—	.1420	4	3/4	2-1/2	.1420	RR23180
—	.1430	4	3/4	2-1/2	.1430	RR23181
#27	.1440	4	3/4	2-1/2	.1440	RR23182
—	.1450	4	3/4	2-1/2	.1450	RR23183
—	.1460	4	3/4	2-1/2	.1460	RR23184
#26	.1470	4	3/4	2-1/2	.1470	RR23185
—	.1480	4	3/4	2-1/2	.1480	RR23186
—	.1490	4	3/4	2-1/2	.1490	RR23187
#25	.1495	4	3/4	2-1/2	.1495	RR23188
—	.1500	4	3/4	2-1/2	.1500	RR23189
—	.1510	4	3/4	2-1/2	.1510	RR23190
#24	.1520	4	3/4	2-1/2	.1520	RR23191
—	.1530	4	3/4	2-1/2	.1530	RR23192
#23	.1540	4	3/4	2-1/2	.1540	RR23193
—	.1545	4	3/4	2-1/2	.1545	RR23194
—	.1550	4	3/4	2-1/2	.1550	RR23195
—	.1555	4	3/4	2-1/2	.1555	RR23196
—	.1560	4	3/4	2-1/2	.1560	RR23197
5/32	.1562	4	3/4	2-1/2	.1562	RR23198
—	.1565	4	3/4	2-1/2	.1565	RR23199
#22	.1570	4	3/4	2-1/2	.1570	RR23200
4MM	.1575	4	3/4	2-1/2	.1575	RR23201
—	.1580	4	3/4	2-1/2	.1580	RR23202
#21	.1590	4	3/4	2-1/2	.1590	RR23203
—	.1600	4	3/4	2-1/2	.1600	RR23204
#20	.1610	4	7/8	2-1/2	.1610	RR23205
—	.1620	4	7/8	2-3/4	.1620	RR23206
—	.1630	4	7/8	2-3/4	.1630	RR23207
—	.1640	4	7/8	2-3/4	.1640	RR23208
	.1650	4	7/8	2-3/4	.1650	RR23209
#19	.1660	4	7/8	2-3/4	.1660	RR23210
—	.1670	4	7/8	2-3/4	.1670	RR23211
—	.1680	4	7/8	2-3/4	.1680	RR23212
—	.1690	4	7/8	2-3/4	.1690	RR23213
#18	.1695	4	7/8	2-3/4	.1695	RR23214
—	.1700	4	7/8	2-3/4	.1700	RR23215
—	.1710	4	7/8	2-3/4	.1710	RR23216

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Tolerances	Diameter	Shank
All Sizes	+.0003, -.0000	+.0003, -.0002



Carbide Straight Flute Reamers (.1719-.2055)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
11/64	.1719	4	7/8	2-3/4	.1719	RR23217
—	.1720	4	7/8	2-3/4	.1720	RR23218
#17	.1730	4	7/8	2-3/4	.1730	RR23219
—	.1740	4	7/8	2-3/4	.1740	RR23220
—	.1750	4	7/8	2-3/4	.1750	RR23221
—	.1760	4	7/8	2-3/4	.1760	RR23222
#16	.1770	4	7/8	2-3/4	.1770	RR23223
4.5MM	.1772	4	7/8	2-3/4	.1772	RR23224
—	.1780	4	7/8	2-3/4	.1780	RR23225
—	.1790	4	7/8	2-3/4	.1790	RR23226
#15	.1800	4	7/8	2-3/4	.1800	RR23227
—	.1810	4	7/8	2-3/4	.1810	RR23228
#14	.1820	4	7/8	2-3/4	.1820	RR23229
—	.1830	4	7/8	2-3/4	.1830	RR23230
—	.1840	4	7/8	2-3/4	.1840	RR23231
#13	.1850	4	7/8	2-3/4	.1850	RR23232
—	.1855	4	7/8	2-3/4	.1855	RR23233
—	.1860	4	7/8	2-3/4	.1860	RR23234
—	.1865	4	7/8	2-3/4	.1865	RR23235
—	.1870	4	7/8	2-3/4	.1870	RR23236
3/16	.1875	4	7/8	2-3/4	.1875	RR23237
—	.1880	4	7/8	2-3/4	.1880	RR23238
—	.1885	4	7/8	2-3/4	.1885	RR23239
#12	.1890	4	7/8	2-3/4	.1890	RR23240
—	.1900	4	7/8	2-3/4	.1900	RR23241
#11	.1910	4	7/8	2-3/4	.1910	RR23242
—	.1920	4	7/8	2-3/4	.1920	RR23243
—	.1930	4	7/8	2-3/4	.1930	RR23244
#10	.1935	4	7/8	2-3/4	.1935	RR23245
—	.1940	4	7/8	2-3/4	.1940	RR23246
—	.1950	4	7/8	2-3/4	.1950	RR23247
#9	.1960	4	1	3	.1960	RR23248
5MM	.1969	4	1	3	.1969	RR23249
—	.1970	4	1	3	.1970	RR23250
—	.1980	4	1	3	.1980	RR23251
#8	.1990	4	1	3	.1990	RR23252
—	.2000	4	1	3	.2000	RR23253
#7	.2010	4	1	3	.2010	RR23254
—	.2020	4	1	3	.2020	RR23255
—	.2030	4	1	3	.2030	RR23256
13/64	.2031	4	1	3	.2031	RR23257
#6	.2040	4	1	3	.2040	RR23258
—	.2050	4	1	3	.2050	RR23259
#5	.2055	4	1	3	.2055	RR23260

Carbide Straight Flute Reamers (.2060-.2430)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
—	.2060	4	1	3	.2060	RR23261
—	.2070	4	1	3	.2070	RR23262
—	.2080	4	1	3	.2080	RR23263
#4	.2090	4	1	3	.2090	RR23264
—	.2100	4	1	3	.2100	RR23265
—	.2110	4	1	3	.2110	RR23266
—	.2120	4	1	3	.2120	RR23267
#3	.2130	4	1	3	.2130	RR23268
—	.2140	4	1	3	.2140	RR23269
—	.2150	4	1	3	.2150	RR23270
—	.2160	4	1	3	.2160	RR23271
5.5MM	.2165	4	1	3	.2165	RR23272
—	.2170	4	1	3	.2170	RR23273
—	.2180	4	1	3	.2180	RR23274
7/32	.2188	4	1	3	.2188	RR23275
—	.2190	4	1	3	.2190	RR23276
—	.2200	4	1	3	.2200	RR23277
#2	.2210	4	1	3	.2210	RR23278
—	.2220	4	1	3	.2220	RR23279
—	.2230	4	1	3	.2230	RR23280
—	.2240	4	1	3	.2240	RR23281
—	.2250	4	1	3	.2250	RR23282
—	.2260	4	1	3	.2260	RR23283
—	.2270	4	1	3	.2270	RR23284
#1	.2280	4	1	3	.2280	RR23285
—	.2290	4	1	3	.2290	RR23286
—	.2300	4	1	3	.2300	RR23287
—	.2310	4	1	3	.2310	RR23288
—	.2320	4	1	3	.2320	RR23289
—	.2330	4	1	3	.2330	RR23290
A	.2340	4	1	3	.2340	RR23291
15/64	.2344	4	1	3	.2344	RR23292
—	.2350	4	1	3	.2350	RR23293
—	.2360	4	1	3	.2360	RR23294
6MM	.2362	4	1	3	.2362	RR23295
—	.2370	4	1	3	.2370	RR23296
B	.2380	4	1	3	.2380	RR23297
—	.2390	4	1	3	.2390	RR23298
—	.2400	4	1	3	.2400	RR23299
—	.2410	4	1	3	.2410	RR23300
C	.2420	4	1	3	.2420	RR23301
—	.2430	4	1	3	.2430	RR23302

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Tolerances	Diameter	Shank
All Sizes	+.0003, -.0000	+.0003, -.0002

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Carbide Straight Flute Reamers (.2440-.2800)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
—	.2440	4	1	3	.2440	RR23303
—	.2450	4	1	3	.2450	RR23304
D	.2460	4	1	3	.2460	RR23305
—	.2470	4	1	3	.2470	RR23306
—	.2480	4	1	3	.2480	RR23307
—	.2485	4	1	3	.2485	RR23308
—	.2490	4	1	3	.2490	RR23309
—	.2495	4	1	3	.2495	RR23310
1/4	.2500	4	1	3	.2500	RR23311
—	.2505	4	1	3	.2505	RR23312
—	.2510	4	1	3	.2510	RR23313
—	.2515	4	1	3	.2515	RR23314
—	.2520	4	1	3	.2520	RR23315
—	.2530	4	1	3	.2530	RR23316
—	.2540	4	1	3	.2540	RR23317
—	.2550	4	1	3	.2550	RR23318
6.5MM	.2559	6	1-1/8	3-1/4	.2559	RR23319
—	.2560	6	1-1/8	3-1/4	.2560	RR23320
F	.2570	6	1-1/8	3-1/4	.2570	RR23321
—	.2580	6	1-1/8	3-1/4	.2580	RR23322
—	.2590	6	1-1/8	3-1/4	.2590	RR23323
—	.2600	6	1-1/8	3-1/4	.2600	RR23324
G	.2610	6	1-1/8	3-1/4	.2610	RR23325
—	.2620	6	1-1/8	3-1/4	.2620	RR23326
—	.2630	6	1-1/8	3-1/4	.2630	RR23327
—	.2640	6	1-1/8	3-1/4	.2640	RR23328
—	.2650	6	1-1/8	3-1/4	.2650	RR23329
17/64	.2656	6	1-1/8	3-1/4	.2656	RR23330
H	.2660	6	1-1/8	3-1/4	.2660	RR23331
—	.2670	6	1-1/8	3-1/4	.2670	RR23332
—	.2680	6	1-1/8	3-1/4	.2680	RR23333
—	.2690	6	1-1/8	3-1/4	.2690	RR23334
—	.2700	6	1-1/8	3-1/4	.2700	RR23335
—	.2710	6	1-1/8	3-1/4	.2710	RR23336
I	.2720	6	1-1/8	3-1/4	.2720	RR23337
—	.2730	6	1-1/8	3-1/4	.2730	RR23338
—	.2740	6	1-1/8	3-1/4	.2740	RR23339
—	.2750	6	1-1/8	3-1/4	.2750	RR23340
7MM	.2756	6	1-1/8	3-1/4	.2756	RR23341
—	.2760	6	1-1/8	3-1/4	.2760	RR23342
J	.2770	6	1-1/8	3-1/4	.2770	RR23343
—	.2780	6	1-1/8	3-1/4	.2780	RR23344
—	.2790	6	1-1/8	3-1/4	.2790	RR23345
—	.2800	6	1-1/8	3-1/4	.2800	RR23346

Carbide Straight Flute Reamers (.2810-.3160)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
K	.2810	6	1-1/8	3-1/4	.2810	RR23347
9/32	.2812	6	1-1/8	3-1/4	.2812	RR23348
—	.2820	6	1-1/8	3-1/4	.2820	RR23349
—	.2830	6	1-1/8	3-1/4	.2830	RR23350
—	.2840	6	1-1/8	3-1/4	.2840	RR23351
—	.2850	6	1-1/8	3-1/4	.2850	RR23352
—	.2860	6	1-1/8	3-1/4	.2860	RR23353
—	.2870	6	1-1/8	3-1/4	.2870	RR23354
—	.2880	6	1-1/8	3-1/4	.2880	RR23355
—	.2890	6	1-1/8	3-1/4	.2890	RR23356
L	.2900	6	1-1/8	3-1/4	.2900	RR23357
—	.2910	6	1-1/8	3-1/4	.2910	RR23358
—	.2920	6	1-1/8	3-1/4	.2920	RR23359
—	.2930	6	1-1/8	3-1/4	.2930	RR23360
—	.2940	6	1-1/8	3-1/4	.2940	RR23361
M	.2950	6	1-1/8	3-1/4	.2950	RR23362
7.5MM	.2953	6	1-1/8	3-1/4	.2953	RR23363
—	.2960	6	1-1/8	3-1/4	.2960	RR23364
19/64	.2969	6	1-1/8	3-1/4	.2969	RR23365
—	.2970	6	1-1/8	3-1/4	.2970	RR23366
—	.2980	6	1-1/8	3-1/4	.2980	RR23367
—	.2990	6	1-1/8	3-1/4	.2990	RR23368
—	.3000	6	1-1/8	3-1/4	.3000	RR23369
—	.3010	6	1-1/8	3-1/4	.3010	RR23370
N	.3020	6	1-1/8	3-1/4	.3020	RR23371
—	.3030	6	1-1/8	3-1/4	.3030	RR23372
—	.3040	6	1-1/8	3-1/4	.3040	RR23373
—	.3050	6	1-1/8	3-1/4	.3050	RR23374
—	.3060	6	1-1/8	3-1/4	.3060	RR23375
—	.3070	6	1-1/8	3-1/4	.3070	RR23376
—	.3080	6	1-1/8	3-1/4	.3080	RR23377
—	.3090	6	1-1/8	3-1/4	.3090	RR23378
—	.3100	6	1-1/8	3-1/4	.3100	RR23379
—	.3110	6	1-1/8	3-1/4	.3110	RR23380
—	.3115	6	1-1/8	3-1/4	.3115	RR23381
—	.3120	6	1-1/8	3-1/4	.3120	RR23382
5/16	.3125	6	1-1/8	3-1/4	.3125	RR23383
—	.3130	6	1-1/8	3-1/4	.3130	RR23384
—	.3135	6	1-1/8	3-1/4	.3135	RR23385
—	.3140	6	1-1/8	3-1/4	.3140	RR23386
8MM	.3150	6	1-1/8	3-1/4	.3150	RR23387
O	.3160	6	1-1/8	3-1/4	.3160	RR23388

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Tolerances	Diameter	Shank
All Sizes	+.0003, -.0000	+.0003, -.0002



Carbide Straight Flute Reamers (.3170-.3560)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
—	.3170	6	1-1/8	3-1/4	.3170	RR23389
—	.3180	6	1-1/8	3-1/4	.3180	RR23390
—	.3190	6	1-1/8	3-1/4	.3190	RR23391
—	.3200	6	1-1/8	3-1/4	.3200	RR23392
—	.3210	6	1-1/4	3-1/2	.3210	RR23393
—	.3220	6	1-1/4	3-1/2	.3220	RR23394
P	.3230	6	1-1/4	3-1/2	.3230	RR23395
—	.3240	6	1-1/4	3-1/2	.3240	RR23396
—	.3250	6	1-1/4	3-1/2	.3250	RR23397
—	.3260	6	1-1/4	3-1/2	.3260	RR23398
—	.3270	6	1-1/4	3-1/2	.3270	RR23399
—	.3280	6	1-1/4	3-1/2	.3280	RR23400
21/64	.3281	6	1-1/4	3-1/2	.3281	RR23401
—	.3290	6	1-1/4	3-1/2	.3290	RR23402
—	.3300	6	1-1/4	3-1/2	.3300	RR23403
—	.3310	6	1-1/4	3-1/2	.3310	RR23404
Q	.3320	6	1-1/4	3-1/2	.3320	RR23405
—	.3330	6	1-1/4	3-1/2	.3330	RR23406
—	.3340	6	1-1/4	3-1/2	.3340	RR23407
8.5MM	.3346	6	1-1/4	3-1/2	.3346	RR23408
—	.3350	6	1-1/4	3-1/2	.3350	RR23409
—	.3360	6	1-1/4	3-1/2	.3360	RR23410
—	.3370	6	1-1/4	3-1/2	.3370	RR23411
—	.3380	6	1-1/4	3-1/2	.3380	RR23412
R	.3390	6	1-1/4	3-1/2	.3390	RR23413
—	.3400	6	1-1/4	3-1/2	.3400	RR23414
—	.3410	6	1-1/4	3-1/2	.3410	RR23415
—	.3420	6	1-1/4	3-1/2	.3420	RR23416
—	.3430	6	1-1/4	3-1/2	.3430	RR23417
11/32	.3438	6	1-1/4	3-1/2	.3438	RR23418
—	.3440	6	1-1/4	3-1/2	.3440	RR23419
—	.3450	6	1-1/4	3-1/2	.3450	RR23420
—	.3460	6	1-1/4	3-1/2	.3460	RR23421
—	.3470	6	1-1/4	3-1/2	.3470	RR23422
S	.3480	6	1-1/4	3-1/2	.3480	RR23423
—	.3490	6	1-1/4	3-1/2	.3490	RR23424
—	.3500	6	1-1/4	3-1/2	.3500	RR23425
—	.3510	6	1-1/4	3-1/2	.3510	RR23426
—	.3520	6	1-1/4	3-1/2	.3520	RR23427
—	.3530	6	1-1/4	3-1/2	.3530	RR23428
—	.3540	6	1-1/4	3-1/2	.3540	RR23429
9MM	.3543	6	1-1/4	3-1/2	.3543	RR23430
—	.3550	6	1-1/4	3-1/2	.3550	RR23431
—	.3560	6	1-1/4	3-1/2	.3560	RR23432

Carbide Straight Flute Reamers (.3570-.3930)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
—	.3570	6	1-1/4	3-1/2	.3570	RR23433
T	.3580	6	1-1/4	3-1/2	.3580	RR23434
—	.3590	6	1-1/4	3-1/2	.3590	RR23435
23/64	.3594	6	1-1/4	3-1/2	.3594	RR23436
—	.3600	6	1-1/4	3-1/2	.3600	RR23437
—	.3610	6	1-1/4	3-1/2	.3610	RR23438
—	.3620	6	1-1/4	3-1/2	.3620	RR23439
—	.3630	6	1-1/4	3-1/2	.3630	RR23440
—	.3640	6	1-1/4	3-1/2	.3640	RR23441
—	.3650	6	1-1/4	3-1/2	.3650	RR23442
—	.3660	6	1-1/4	3-1/2	.3660	RR23443
—	.3670	6	1-1/4	3-1/2	.3670	RR23444
U	.3680	6	1-1/4	3-1/2	.3680	RR23445
—	.3690	6	1-1/4	3-1/2	.3690	RR23446
—	.3700	6	1-1/4	3-1/2	.3700	RR23447
—	.3710	6	1-1/4	3-1/2	.3710	RR23448
—	.3720	6	1-1/4	3-1/2	.3720	RR23449
—	.3730	6	1-1/4	3-1/2	.3730	RR23450
9.5MM	.3740	6	1-1/4	3-1/2	.3740	RR23451
—	.3745	6	1-1/4	3-1/2	.3745	RR23452
3/8	.3750	6	1-1/4	3-1/2	.3750	RR23453
—	.3755	6	1-1/4	3-1/2	.3755	RR23454
—	.3760	6	1-1/4	3-1/2	.3760	RR23455
—	.3765	6	1-1/4	3-1/2	.3765	RR23456
V	.3770	6	1-1/4	3-1/2	.3770	RR23457
—	.3780	6	1-1/4	3-1/2	.3780	RR23458
—	.3790	6	1-1/4	3-1/2	.3790	RR23459
—	.3800	6	1-1/4	3-1/2	.3800	RR23460
—	.3810	6	1-1/4	3-1/2	.3810	RR23461
—	.3820	6	1-1/4	3-1/2	.3820	RR23462
—	.3830	6	1-1/4	3-1/2	.3830	RR23463
—	.3840	6	1-1/4	3-1/2	.3840	RR23464
—	.3850	6	1-1/4	3-1/2	.3850	RR23465
W	.3860	6	1-1/4	3-1/2	.3860	RR23466
—	.3870	6	1-1/4	3-1/2	.3870	RR23467
—	.3880	6	1-1/4	3-1/2	.3880	RR23468
—	.3890	6	1-1/4	3-1/2	.3890	RR23469
—	.3900	6	1-1/4	3-1/2	.3900	RR23470
25/64	.3906	6	1-1/4	3-1/2	.3906	RR23471
—	.3910	6	1-1/4	3-1/2	.3910	RR23472
—	.3920	6	1-1/4	3-1/2	.3920	RR23473
—	.3930	6	1-1/4	3-1/2	.3930	RR23474

Continued

Tolerances	Diameter	Shank
All Sizes	+.0003, -.0000	+.0003, -.0002

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Carbide Straight Flute Reamers (.3937-.4330)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
10MM	.3937	6	1-1/4	3-1/2	.3937	RR23475
—	.3940	6	1-1/4	3-1/2	.3940	RR23476
—	.3950	6	1-1/4	3-1/2	.3950	RR23477
—	.3960	6	1-1/4	3-1/2	.3960	RR23478
X	.3970	6	1-1/4	3-1/2	.3970	RR23479
—	.3980	6	1-1/4	3-1/2	.3980	RR23480
—	.3990	6	1-1/4	3-1/2	.3990	RR23481
—	.4000	6	1-1/4	3-1/2	.4000	RR23482
—	.4010	6	1-1/4	3-1/2	.4010	RR23483
—	.4020	6	1-1/4	3-1/2	.4020	RR23484
—	.4030	6	1-1/4	3-1/2	.4030	RR23485
Y	.4040	6	1-1/4	3-1/2	.4040	RR23486
—	.4050	6	1-1/4	3-1/2	.4050	RR23487
—	.4060	6	1-1/4	3-1/2	.4060	RR23488
13/32	.4062	6	1-1/4	3-1/2	.4062	RR23489
—	.4070	6	1-1/4	3-1/2	.4070	RR23490
—	.4080	6	1-1/4	3-1/2	.4080	RR23491
—	.4090	6	1-1/4	3-1/2	.4090	RR23492
—	.4100	6	1-1/4	3-1/2	.4100	RR23493
—	.4110	6	1-1/4	3-1/2	.4110	RR23494
—	.4120	6	1-1/4	3-1/2	.4120	RR23495
Z	.4130	6	1-1/4	3-1/2	.4130	RR23496
10.5MM	.4134	6	1-1/4	3-1/2	.4134	RR23497
—	.4140	6	1-1/4	3-1/2	.4140	RR23498
—	.4150	6	1-1/4	3-1/2	.4150	RR23499
—	.4160	6	1-3/8	4	.4160	RR23500
—	.4170	6	1-3/8	4	.4170	RR23501
—	.4180	6	1-3/8	4	.4180	RR23502
—	.4190	6	1-3/8	4	.4190	RR23503
—	.4200	6	1-3/8	4	.4200	RR23504
—	.4210	6	1-3/8	4	.4210	RR23505
27/64	.4219	6	1-3/8	4	.4219	RR23506
—	.4220	6	1-3/8	4	.4220	RR23507
—	.4230	6	1-3/8	4	.4230	RR23508
—	.4240	6	1-3/8	4	.4240	RR23509
—	.4250	6	1-3/8	4	.4250	RR23510
—	.4260	6	1-3/8	4	.4260	RR23511
—	.4270	6	1-3/8	4	.4270	RR23512
—	.4280	6	1-3/8	4	.4280	RR23513
—	.4290	6	1-3/8	4	.4290	RR23514
—	.4300	6	1-3/8	4	.4300	RR23515
—	.4310	6	1-3/8	4	.4310	RR23516
—	.4320	6	1-3/8	4	.4320	RR23517
—	.4330	6	1-3/8	4	.4330	RR23518

Carbide Straight Flute Reamers (.4331-.4688)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
11MM	.4331	6	1-3/8	4	.4331	RR23519
—	.4340	6	1-3/8	4	.4340	RR23520
—	.4350	6	1-3/8	4	.4350	RR23521
—	.4360	6	1-3/8	4	.4360	RR23522
—	.4365	6	1-3/8	4	.4365	RR23523
—	.4370	6	1-3/8	4	.4370	RR23524
7/16	.4375	6	1-3/8	4	.4375	RR23525
—	.4380	6	1-3/8	4	.4380	RR23526
—	.4385	6	1-3/8	4	.4385	RR23527
—	.4390	6	1-3/8	4	.4390	RR23528
—	.4400	6	1-3/8	4	.4400	RR23529
—	.4410	6	1-3/8	4	.4410	RR23530
—	.4420	6	1-3/8	4	.4420	RR23531
—	.4430	6	1-3/8	4	.4430	RR23532
—	.4440	6	1-3/8	4	.4440	RR23533
—	.4450	6	1-3/8	4	.4450	RR23534
—	.4460	6	1-3/8	4	.4460	RR23535
—	.4470	6	1-3/8	4	.4470	RR23536
—	.4480	6	1-3/8	4	.4480	RR23537
—	.4490	6	1-3/8	4	.4490	RR23538
—	.4500	6	1-3/8	4	.4500	RR23539
—	.4510	6	1-3/8	4	.4510	RR23540
—	.4520	6	1-3/8	4	.4520	RR23541
11.5MM	.4528	6	1-3/8	4	.4528	RR23542
—	.4530	6	1-3/8	4	.4530	RR23543
29/64	.4531	6	1-3/8	4	.4531	RR23544
—	.4540	6	1-3/8	4	.4540	RR23545
—	.4550	6	1-3/8	4	.4550	RR23546
—	.4560	6	1-3/8	4	.4560	RR23547
—	.4570	6	1-3/8	4	.4570	RR23548
—	.4580	6	1-3/8	4	.4580	RR23549
—	.4590	6	1-3/8	4	.4590	RR23550
—	.4600	6	1-3/8	4	.4600	RR23551
—	.4610	6	1-3/8	4	.4610	RR23552
—	.4620	6	1-3/8	4	.4620	RR23553
—	.4630	6	1-3/8	4	.4630	RR23554
—	.4640	6	1-3/8	4	.4640	RR23555
—	.4650	6	1-3/8	4	.4650	RR23556
—	.4660	6	1-3/8	4	.4660	RR23557
—	.4670	6	1-3/8	4	.4670	RR23558
—	.4680	6	1-3/8	4	.4680	RR23559
15/32	.4688	6	1-3/8	4	.4688	RR23560

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Tolerances	Diameter	Shank
All Sizes	+.0003, -.0000	+.0003, -.0002



Carbide Straight Flute Reamers (.4690-.5020)

Size	Decimal Equiv	# of Flutes	FL	OAL	Shank ø	Uncoated Part #
–	.4690	6	1-3/8	4	.4690	RR23561
–	.4700	6	1-3/8	4	.4700	RR23562
–	.4710	6	1-3/8	4	.4710	RR23563
–	.4720	6	1-3/8	4	.4720	RR23564
12MM	.4724	6	1-3/8	4	.4724	RR23565
–	.4730	6	1-3/8	4	.4730	RR23566
–	.4740	6	1-3/8	4	.4740	RR23567
–	.4750	6	1-3/8	4	.4750	RR23568
–	.4760	6	1-1/2	4	.4760	RR23569
–	.4770	6	1-1/2	4	.4770	RR23570
–	.4780	6	1-1/2	4	.4780	RR23571
–	.4790	6	1-1/2	4	.4790	RR23572
–	.4800	6	1-1/2	4	.4800	RR23573
–	.4810	6	1-1/2	4	.4810	RR23574
–	.4820	6	1-1/2	4	.4820	RR23575
–	.4830	6	1-1/2	4	.4830	RR23576
–	.4840	6	1-1/2	4	.4840	RR23577
31/64	.4844	6	1-1/2	4	.4844	RR23578
–	.4850	6	1-1/2	4	.4850	RR23579
–	.4860	6	1-1/2	4	.4860	RR23580
–	.4870	6	1-1/2	4	.4870	RR23581
–	.4880	6	1-1/2	4	.4880	RR23582
–	.4890	6	1-1/2	4	.4890	RR23583
–	.4900	6	1-1/2	4	.4900	RR23584
–	.4910	6	1-1/2	4	.4910	RR23585
–	.4920	6	1-1/2	4	.4920	RR23586
12.5MM	.4921	6	1-1/2	4	.4921	RR23587
–	.4930	6	1-1/2	4	.4930	RR23588
–	.4940	6	1-1/2	4	.4940	RR23589
–	.4950	6	1-1/2	4	.4950	RR23590
–	.4960	6	1-1/2	4	.4960	RR23591
–	.4970	6	1-1/2	4	.4970	RR23592
–	.4980	6	1-1/2	4	.4980	RR23593
–	.4990	6	1-1/2	4	.4990	RR23594
–	.4995	6	1-1/2	4	.4995	RR23595
1/2	.5000	6	1-1/2	4	.5000	RR23596
–	.5005	6	1-1/2	4	.5005	RR23597
–	.5010	6	1-1/2	4	.5010	RR23598
–	.5020	6	1-1/2	4	.5020	RR23599

Tolerances	Diameter	Shank
All Sizes	+.0003, -.0000	+.0003, -.0002

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HSS & Cobalt Straight Flute Chucking Reamers (.0135-.0785)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
#80	.0135	3/8	3/4	2	.014	RR60001	RR60410
#79	.0145	3/8	3/4	2	.015	RR60002	RR60411
1/64	.0156	3/8	3/4	2	.016	RR60003	RR60412
#78	.0160	3/8	7/8	2	.016	RR60004	RR60413
#77	.0180	3/8	7/8	2	.018	RR60005	RR60414
#76	.0200	3/8	7/8	2	.020	RR60006	RR60415
#75	.0210	1/2	1	3	.021	RR60007	RR60416
#74	.0225	1/2	1	3	.023	RR60008	RR60417
#73	.0240	1/2	1-1/8	3	.024	RR60009	RR60418
#72	.0250	1/2	1-1/8	3	.025	RR60010	RR60419
#71	.0260	1/2	1-1/4	3	.026	RR60011	RR60420
#70	.0280	1/2	1-1/4	3	.028	RR60012	RR60421
#69	.0292	1/2	1-3/8	3	.029	RR60013	RR60422
#68	.0310	1/2	1-3/8	3	.031	RR60014	RR60423
1/32	.0312	1/2	1-3/8	3	.031	RR60015	RR60424
#67	.0320	1/2	1-3/8	3	.032	RR60016	RR60425
#66	.0330	1/2	1-3/8	3	.033	RR60017	RR60426
#65	.0350	1/2	1-1/2	3	.035	RR60018	RR60427
#64	.0360	1/2	1-1/2	3	.036	RR60019	RR60428
#63	.0370	1/2	1-1/2	3	.037	RR60020	RR60429
#62	.0380	1/2	1-1/2	3	.038	RR60021	RR60430
#61	.0390	1/2	1-1/2	3	.039	RR60022	RR60431
1.0MM	.0394	1/2	2-1/2	4	.039	RR60023	RR60432
#60	.0400	1/2	2-1/2	4	.039	RR60024	RR60433
#59	.0410	1/2	2-1/2	4	.039	RR60025	RR60434
#58	.0420	1/2	2-1/2	4	.039	RR60026	RR60435
#57	.0430	1/2	2-1/2	4	.039	RR60027	RR60436
#56	.0465	1/2	2-1/2	4	.046	RR60028	RR60437
3/64	.0469	1/2	2-1/2	4	.046	RR60029	RR60438
#55	.0520	1/2	2-1/2	4	.051	RR60030	RR60439
#54	.0550	1/2	2-1/2	4	.051	RR60031	RR60440
1.5MM	.0591	1/2	2-1/2	4	.051	RR60032	RR60441
#53	.0595	1/2	2-1/2	4	.059	RR60033	RR60442
1/16	.0625	1/2	2-1/2	4	.059	RR60034	RR60443
#52	.0635	1/2	2-1/2	4	.059	RR60035	RR60444
#51	.0670	3/4	3	4	.066	RR60036	RR60445
#50	.0700	3/4	3	4	.066	RR60037	RR60446
#49	.0730	3/4	3	4	.066	RR60038	RR60447
#48	.0760	3/4	3	4	.072	RR60039	RR60448
5/64	.0781	3/4	3	4	.072	RR60040	RR60449
#47	.0785	3/4	3	4	.072	RR60041	RR60450

Continued

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Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



HSS & Cobalt Straight Flute Chucking Reamers (.0787-.1695)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
2.0MM	.0787	3/4	3	4	.072	RR60042	RR60451
#46	.0810	3/4	3	4	.077	RR60043	RR60452
#45	.0820	3/4	3	4	.077	RR60044	RR60453
#44	.0860	3/4	3	4	.081	RR60045	RR60454
#43	.0890	3/4	3	4	.081	RR60046	RR60455
#42	.0935	3/4	3	4	.088	RR60047	RR60456
3/32	.0938	3/4	3	4	.088	RR60048	RR60457
#41	.0960	7/8	3-1/2	4	.093	RR60049	RR60458
#40	.0980	7/8	3-1/2	4	.093	RR60050	RR60459
2.5MM	.0984	7/8	3-1/2	4	.093	RR60051	RR60460
#39	.0995	7/8	3-1/2	4	.093	RR60052	RR60461
#38	.1015	7/8	3-1/2	4	.095	RR60053	RR60462
#37	.1040	7/8	3-1/2	4	.095	RR60054	RR60463
#36	.1065	7/8	3-1/2	4	.103	RR60055	RR60464
7/64	.1094	7/8	3-1/2	4	.103	RR60056	RR60465
#35	.1100	7/8	3-1/2	4	.103	RR60057	RR60466
#34	.1110	7/8	3-1/2	4	.106	RR60058	RR60467
#33	.1130	7/8	3-1/2	4	.106	RR60059	RR60468
#32	.1160	7/8	3-1/2	4	.112	RR60060	RR60469
3.0MM	.1181	7/8	3-1/2	4	.112	RR60061	RR60470
#31	.1200	7/8	3-1/2	4	.112	RR60062	RR60471
O/U	.1240	7/8	3-1/2	4	.119	RR60063	RR60472
1/8	.1250	7/8	3-1/2	4	.119	RR60064	RR60473
O/U	.1260	7/8	3-1/2	4	.119	RR60065	RR60474
#30	.1285	7/8	3-1/2	4	.119	RR60066	RR60475
#29	.1360	1	4	4	.128	RR60067	RR60476
3.5MM	.1378	1	4	4	.135	RR60068	RR60477
#28	.1405	1	4	4	.135	RR60069	RR60478
9/64	.1406	1	4	4	.135	RR60070	RR60479
#27	.1440	1	4	4	.135	RR60071	RR60480
#26	.1470	1	4	4	.143	RR60072	RR60481
#25	.1495	1	4	4	.143	RR60073	RR60482
#24	.1520	1	4	4	.146	RR60074	RR60483
#23	.1540	1	4	4	.146	RR60075	RR60484
5/32	.1562	1	4	4	.151	RR60076	RR60485
#22	.1570	1	4	6	.151	RR60077	RR60486
4.0MM	.1575	1	4	6	.151	RR60078	RR60487
#21	.1590	1-1/8	4-1/2	6	.153	RR60079	RR60488
#20	.1610	1-1/8	4-1/2	6	.153	RR60080	RR60489
#19	.1660	1-1/8	4-1/2	6	.160	RR60081	RR60490
#18	.1695	1-1/8	4-1/2	6	.160	RR60082	RR60491

Continued

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006

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HSS & Cobalt Straight Flute Chucking Reamers (.1719-.2720)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
11/64	.1719	1-1/8	4-1/2	6	.165	RR60083	RR60492
#17	.1730	1-1/8	4-1/2	6	.165	RR60084	RR60493
#16	.1770	1-1/8	4-1/2	6	.170	RR60085	RR60494
4.5MM	.1772	1-1/8	4-1/2	6	.170	RR60086	RR60495
#15	.1800	1-1/8	4-1/2	6	.176	RR60087	RR60496
#14	.1820	1-1/8	4-1/2	6	.176	RR60088	RR60497
#13	.1850	1-1/8	4-1/2	6	.181	RR60089	RR60498
O/U	.1865	1-1/8	4-1/2	6	.181	RR60090	RR60499
3/16	.1875	1-1/8	4-1/2	6	.181	RR60091	RR60500
O/U	.1885	1-1/8	4-1/2	6	.181	RR60092	RR60501
#12	.1890	1-1/8	4-1/2	6	.181	RR60093	RR60502
#11	.1910	1-1/4	5	6	.186	RR60094	RR60503
#10	.1935	1-1/4	5	6	.186	RR60095	RR60504
#9	.1960	1-1/4	5	6	.190	RR60096	RR60505
5.0MM	.1969	1-1/4	5	6	.190	RR60097	RR60506
#8	.1990	1-1/4	5	6	.190	RR60098	RR60507
#7	.2010	1-1/4	5	6	.190	RR60099	RR60508
13/64	.2031	1-1/4	5	6	.195	RR60100	RR60509
#6	.2040	1-1/4	5	6	.195	RR60101	RR60510
#5	.2055	1-1/4	5	6	.202	RR60102	RR60511
#4	.2090	1-1/4	5	6	.202	RR60103	RR60512
#3	.2130	1-1/4	5	6	.208	RR60104	RR60513
5.5MM	.2165	1-1/4	5	6	.208	RR60105	RR60514
7/32	.2188	1-1/4	5	6	.208	RR60106	RR60515
#2	.2210	1-1/2	6	6	.217	RR60107	RR60516
#1	.2280	1-1/2	6	6	.217	RR60108	RR60517
A	.2340	1-1/2	6	6	.227	RR60109	RR60518
15/64	.2344	1-1/2	6	6	.227	RR60110	RR60519
6.0MM	.2362	1-1/2	6	6	.227	RR60111	RR60520
B	.2380	1-1/2	6	6	.233	RR60112	RR60521
C	.2420	1-1/2	6	6	.233	RR60113	RR60522
D	.2460	1-1/2	6	6	.233	RR60114	RR60523
O/U	.2490	1-1/2	6	6	.241	RR60115	RR60524
1/4	.2500	1-1/2	6	6	.241	RR60116	RR60525
O/U	.2510	1-1/2	6	6	.241	RR60117	RR60526
6.5MM	.2559	1-1/2	6	6	.241	RR60118	RR60527
F	.2570	1-1/2	6	6	.249	RR60119	RR60528
G	.2610	1-1/2	6	6	.249	RR60120	RR60529
17/64	.2656	1-1/2	6	6	.249	RR60121	RR60530
H	.2660	1-1/2	6	6	.249	RR60122	RR60531
I	.2720	1-1/2	6	6	.249	RR60123	RR60532

Continued

Speeds, feeds & tech info pages 497-498.

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



HSS & Cobalt Straight Flute Chucking Reamers (.2756-.4375)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
7.0MM	.2756	1-1/2	6	6	.249	RR60124	RR60533
J	.2770	1-1/2	6	6	.249	RR60125	RR60534
K	.2810	1-1/2	6	6	.249	RR60126	RR60535
9/32	.2812	1-1/2	6	6	.249	RR60127	RR60536
L	.2900	1-1/2	6	6	.279	RR60128	RR60537
M	.2950	1-1/2	6	6	.279	RR60129	RR60538
7.5MM	.2953	1-1/2	6	6	.279	RR60130	RR60539
19/64	.2969	1-1/2	6	6	.279	RR60131	RR60540
N	.3020	1-1/2	6	6	.279	RR60132	RR60541
O/U	.3115	1-1/2	6	6	.279	RR60133	RR60542
5/16	.3125	1-1/2	6	6	.279	RR60134	RR60543
O/U	.3135	1-1/2	6	6	.279	RR60135	RR60544
8.0MM	.3150	1-1/2	6	6	.279	RR60136	RR60545
O	.3160	1-1/2	6	6	.279	RR60137	RR60546
P	.3230	1-1/2	6	6	.279	RR60138	RR60547
21/64	.3281	1-1/2	6	6	.279	RR60139	RR60548
Q	.3320	1-1/2	6	6	.279	RR60140	RR60549
8.5MM	.3346	1-1/2	6	6	.279	RR60141	RR60550
R	.3390	1-1/2	6	6	.279	RR60142	RR60551
11/32	.3438	1-1/2	6	6	.279	RR60143	RR60552
S	.3480	1-3/4	6	6	.311	RR60144	RR60553
9.0MM	.3543	1-3/4	7	6	.311	RR60145	RR60554
T	.3580	1-3/4	7	6	.311	RR60146	RR60555
23/64	.3594	1-3/4	7	6	.311	RR60147	RR60556
U	.3680	1-3/4	7	6	.311	RR60148	RR60557
9.5MM-O/U	.3740	1-3/4	7	6	.311	RR60149	RR60558
3/8	.3750	1-3/4	7	6	.311	RR60150	RR60559
O/U	.3760	1-3/4	7	6	.311	RR60151	RR60560
V	.3770	1-3/4	7	6	.311	RR60152	RR60561
W	.3860	1-3/4	7	6	.311	RR60153	RR60562
25/64	.3906	1-3/4	7	6	.311	RR60154	RR60563
10.0MM	.3937	1-3/4	7	6	.311	RR60155	RR60564
X	.3970	1-3/4	7	6	.311	RR60156	RR60565
Y	.4040	1-3/4	7	6	.311	RR60157	RR60566
13/32	.4062	1-3/4	7	6	.311	RR60158	RR60567
Z	.4130	1-3/4	7	6	.373	RR60159	RR60568
10.5MM	.4134	1-3/4	7	6	.373	RR60160	RR60569
27/64	.4219	1-3/4	7	6	.373	RR60161	RR60570
11.0MM	.4331	1-3/4	7	6	.373	RR60162	RR60571
O/U	.4365	1-3/4	7	6	.373	RR60163	RR60572
7/16	.4375	1-3/4	7	6	.373	RR60164	RR60573

Continued

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006

Speeds, feeds & tech info pages 497-498.



HSS & Cobalt Straight Flute Chucking Reamers (.4385-.7188)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
O/U	.4385	1-3/4	7	6	.373	RR60165	RR60574
11.5MM	.4528	1-3/4	7	6	.373	RR60166	RR60575
29/64	.4531	1-3/4	7	6	.373	RR60167	RR60576
15/32	.4688	1-3/4	7	6	.373	RR60168	RR60577
12.0MM	.4724	2	8	6	.436	RR60169	RR60578
31/64	.4844	2	8	6	.436	RR60170	RR60579
12.5MM	.4921	2	8	6	.436	RR60171	RR60580
O/U	.4990	2	8	6	.436	RR60172	RR60581
1/2	.5000	2	8	6	.436	RR60173	RR60582
O/U	.5010	2	8	6	.436	RR60174	RR60583
13.0MM	.5118	2	8	6	.436	RR60175	–
33/64	.5156	2	8	6	.436	RR60176	–
17/32	.5312	2	8	6	.436	RR60177	RR60584
13.5MM	.5315	2	8	6	.436	RR60178	–
35/64	.5469	2	8	8	.436	RR60179	–
14.0MM	.5512	2	8	8	.436	RR60180	–
O/U	.5615	2	8	8	.436	RR60181	–
9/16	.5625	2	8	8	.436	RR60182	RR60585
O/U	.5635	2	8	8	.436	RR60183	–
14.5MM	.5709	2	8	8	.436	RR60184	–
37/64	.5781	2	8	8	.436	RR60185	–
15.0MM	.5906	2	8	8	.436	RR60186	–
19/32	.5938	2	8	8	.436	RR60187	RR60586
39/64	.6094	2-1/4	9	8	.562	RR60188	–
15.5MM	.6102	2-1/4	9	8	.562	RR60189	–
O/U	.6240	2-1/4	9	8	.562	RR60190	–
5/8	.6250	2-1/4	9	8	.562	RR60191	RR60587
O/U	.6260	2-1/4	9	8	.562	RR60192	–
16.0MM	.6299	2-1/4	9	8	.562	RR60193	–
41/64	.6406	2-1/4	9	8	.562	RR60194	–
16.5MM	.6496	2-1/4	9	8	.562	RR60195	–
21/32	.6562	2-1/4	9	8	.562	RR60196	RR60588
17.0MM	.6693	2-1/4	9	8	.562	RR60197	–
43/64	.6719	2-1/4	9	8	.562	RR60198	–
O/U	.6865	2-1/4	9	8	.562	RR60199	–
11/16	.6875	2-1/4	9	8	.562	RR60200	RR60589
O/U	.6885	2-1/4	9	8	.562	RR60201	–
17.5MM	.6890	2-1/4	9	8	.562	RR60202	–
45/64	.7031	2-1/4	9	8	.562	RR60203	–
18.0MM	.7087	2-1/4	9	8	.562	RR60204	–
23/32	.7188	2-1/4	9	8	.562	RR60205	RR60590

Continued

Speeds, feeds & tech info pages 497-498.

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



HSS & Cobalt Straight Flute Chucking Reamers (.7283-1.0000)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
18.5MM	.7283	2-1/2	9	8	.624	RR60206	–
47/64	.7344	2-1/2	9	8	.624	RR60207	–
19.0MM	.7480	2-1/2	9	8	.624	RR60208	–
O/U	.7490	2-1/2	9	8	.624	RR60209	–
3/4	.7500	2-1/2	9	8	.624	RR60210	RR60591
O/U	.7510	2-1/2	9	8	.624	RR60211	–
49/64	.7656	2-1/2	9	8	.624	RR60212	–
19.5MM	.7677	2-1/2	9	8	.624	RR60213	–
25/32	.7812	2-1/2	9	8	.624	RR60214	RR60592
20.0MM	.7874	2-1/2	9	8	.624	RR60215	–
51/64	.7969	2-1/2	9	8	.624	RR60216	–
20.5MM	.8071	2-1/2	9	8	.624	RR60217	–
O/U	.8115	2-1/2	9	8	.624	RR60218	–
13/16	.8125	2-1/2	9	8	.624	RR60219	RR60593
O/U	.8135	2-1/2	9	8	.624	RR60220	–
21.0MM	.8268	2-1/2	9-1/2	8	.624	RR60221	–
53/64	.8281	2-1/2	9-1/2	8	.624	RR60222	–
27/32	.8438	2-1/2	9-1/2	8	.624	RR60223	RR60594
21.5MM	.8465	2-5/8	10	8	.749	RR60224	–
55/64	.8594	2-5/8	10	8	.749	RR60225	–
22.0MM	.8661	2-5/8	10	8	.749	RR60226	–
O/U	.8740	2-5/8	10	8	.749	RR60227	–
7/8	.8750	2-5/8	10	8	.749	RR60228	RR60595
O/U	.8760	2-5/8	10	8	.749	RR60229	–
22.5MM	.8858	2-5/8	10	8	.749	RR60230	–
57/64	.8906	2-5/8	10	8	.749	RR60231	–
23.0MM	.9055	2-5/8	10	8	.749	RR60232	–
29/32	.9062	2-5/8	10	8	.749	RR60233	RR60596
59/64	.9219	2-5/8	10	8	.749	RR60234	–
23.5MM	.9252	2-5/8	10	8	.749	RR60235	–
O/U	.9365	2-5/8	10	8	.749	RR60236	–
15/16	.9375	2-5/8	10	8	.749	RR60237	RR60597
O/U	.9385	2-5/8	10	8	.749	RR60238	–
24.0MM	.9449	2-5/8	10	8	.749	RR60239	–
61/64	.9531	2-5/8	10	8	.749	RR60240	–
24.5MM	.9646	2-5/8	10	8	.749	RR60241	–
31/32	.9688	2-5/8	10	8	.749	RR60242	RR60598
25.0MM	.9843	2-3/4	10-1/2	8	.874	RR60243	–
63/64	.9844	2-3/4	10-1/2	8	.874	RR60244	–
O/U	.9990	2-3/4	10-1/2	8	.874	RR60245	–
1	1.0000	2-3/4	10-1/2	8	.874	RR60246	RR60599

Continued

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006

Speeds, feeds & tech info pages 497-498.



HSS & Cobalt Straight Flute Chucking Reamers (1.0010-2.0000)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
O/U	1.0010	2-3/4	10-1/2	8	.874	RR60247	–
1-1/32	1.0312	2-3/4	10-1/2	8	.874	RR60248	–
1-1/16	1.0625	2-3/4	10-1/2	8	.874	RR60249	RR60600
1-3/32	1.0938	2-7/8	11	8	.874	RR60250	–
1-1/8	1.1250	2-7/8	11	8	.874	RR60251	RR60601
1-5/32	1.1562	2-7/8	11	10	.999	RR60252	–
1-3/16	1.1875	2-7/8	11	10	.999	RR60253	RR60602
1-7/32	1.2188	3	11-1/2	10	.999	RR60254	–
1-1/4	1.2500	3	11-1/2	10	.999	RR60255	RR60603
1-9/32	1.2812	3	11-1/2	10	.999	RR60256	–
1-5/16	1.3125	3	11-1/2	10	.999	RR60257	RR60604
1-11/32	1.3438	3-1/4	12	10	.999	RR60258	–
1-3/8	1.3750	3-1/4	12	10	.999	RR60259	RR60605
1-13/32	1.4062	3-1/4	12	10	1.249	RR60260	–
1-7/16	1.4375	3-1/4	12	10	1.249	RR60261	RR60606
1-15/32	1.4688	3-1/2	12-1/2	10	1.249	RR60262	–
1-1/2	1.5000	3-1/2	12-1/2	10	1.249	RR60263	RR60607
1-9/16	1.5625	3-1/2	13	12	1.249	RR60310	–
1-5/8	1.6250	3-1/2	13	12	1.249	RR60311	–
1-11/16	1.6875	4	13-1/2	12	1.249	RR60312	–
1-3/4	1.7500	4	13-1/2	12	1.249	RR60313	–
1-13/16	1.8125	4	14	12	1.499	RR60314	–
1-7/8	1.8750	4	14	12	1.499	RR60315	–
1-15/16	1.9375	4	14	12	1.499	RR60316	–
2	2.0000	4	14	12	1.499	RR60317	–

Speeds, feeds & tech info pages 497-498.

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



HSS, Precision Ground Chucking Reamers (.0140-.0455)

Size	Uncoated Part #
.0140	RR62307
.0150	RR62308
.0155	RR62309
.0165	RR62310
.0170	RR62311
.0175	RR62312
.0185	RR62313
.0190	RR62314
.0195	RR62315
.0205	RR62316
.0215	RR62317
.0220	RR62318
.0230	RR62319
.0235	RR62320
.0245	RR62321
.0255	RR62322
.0265	RR62323
.0270	RR62324
.0275	RR62325
.0285	RR62326
.0290	RR62327
.0295	RR62328
.0300	RR62329
.0305	RR62330
.0315	RR62331
.0325	RR62332
.0335	RR62333
.0340	RR62334
.0345	RR62335
.0355	RR62336
.0365	RR62337
.0375	RR62338
.0385	RR62339
.0395	RR62340
.0405	RR62341
.0415	RR62342
.0425	RR62343
.0435	RR62344
.0440	RR62345
.0445	RR62346
.0450	RR62347
.0455	RR62348

HSS, Precision Ground Chucking Reamers (.0460-.0705)

Size	Uncoated Part #
.0460	RR62349
.0470	RR62350
.0475	RR62351
.0480	RR62352
.0485	RR62353
.0490	RR62354
.0495	RR62355
.0500	RR62356
.0505	RR62357
.0510	RR62358
.0515	RR62359
.0525	RR62360
.0530	RR62361
.0535	RR62362
.0540	RR62363
.0545	RR62364
.0555	RR62365
.0560	RR62366
.0565	RR62367
.0570	RR62368
.0575	RR62369
.0580	RR62370
.0585	RR62371
.0590	RR62372
.0600	RR62373
.0605	RR62374
.0610	RR62375
.0615	RR62376
.0620	RR62377
.0630	RR62378
.0640	RR62379
.0645	RR62380
.0650	RR62381
.0655	RR62382
.0660	RR62383
.0665	RR62384
.0675	RR62385
.0680	RR62386
.0685	RR62387
.0690	RR62388
.0695	RR62389
.0705	RR62390

HSS, Precision Ground Chucking Reamers (.0710-.0955)

Size	Uncoated Part #
.0710	RR62391
.0715	RR62392
.0720	RR62393
.0725	RR62394
.0735	RR62395
.0740	RR62396
.0745	RR62397
.0750	RR62398
.0755	RR62399
.0765	RR62400
.0770	RR62401
.0775	RR62402
.0780	RR62403
.0790	RR62404
.0795	RR62405
.0800	RR62406
.0805	RR62407
.0815	RR62408
.0825	RR62409
.0830	RR62410
.0835	RR62411
.0840	RR62412
.0845	RR62413
.0850	RR62414
.0855	RR62415
.0865	RR62416
.0870	RR62417
.0875	RR62418
.0880	RR62419
.0885	RR62420
.0895	RR62421
.0900	RR62422
.0905	RR62423
.0910	RR62424
.0915	RR62425
.0920	RR62426
.0925	RR62427
.0930	RR62428
.0940	RR62429
.0945	RR62430
.0950	RR62431
.0955	RR62432

Continued

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006

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HSS, Precision Ground Chucking Reamers (.0965-.1220)

Size	Uncoated Part #
.0965	RR62433
.0970	RR62434
.0975	RR62435
.0985	RR62436
.0990	RR62437
.1000	RR62438
.1005	RR62439
.1010	RR62440
.1020	RR62441
.1025	RR62442
.1030	RR62443
.1035	RR62444
.1045	RR62445
.1050	RR62446
.1055	RR62447
.1060	RR62448
.1070	RR62449
.1075	RR62450
.1080	RR62451
.1085	RR62452
.1090	RR62453
.1095	RR62454
.1105	RR62455
.1115	RR62456
.1120	RR62457
.1125	RR62458
.1135	RR62459
.1140	RR62460
.1145	RR62461
.1150	RR62462
.1155	RR62463
.1165	RR62464
.1170	RR62465
.1175	RR62466
.1180	RR62467
.1185	RR62468
.1190	RR62469
.1195	RR62470
.1205	RR62471
.1210	RR62472
.1215	RR62473
.1220	RR62474

HSS, Precision Ground Chucking Reamers (.1225-.1460)

Size	Uncoated Part #
.1225	RR62475
.1230	RR62476
.1235	RR62477
.1245	RR62478
.1247	RR62479
.1255	RR62480
.1265	RR62481
.1270	RR62482
.1275	RR62483
.1280	RR62484
.1290	RR62485
.1295	RR62486
.1300	RR62487
.1305	RR62488
.1310	RR62489
.1315	RR62490
.1320	RR62491
.1325	RR62492
.1330	RR62493
.1335	RR62494
.1340	RR62495
.1345	RR62496
.1350	RR62497
.1355	RR62498
.1365	RR62499
.1370	RR62500
.1375	RR62501
.1380	RR62502
.1385	RR62503
.1390	RR62504
.1395	RR62505
.1400	RR62506
.1410	RR62507
.1415	RR62508
.1420	RR62509
.1425	RR62510
.1430	RR62511
.1435	RR62512
.1445	RR62513
.1450	RR62514
.1455	RR62515
.1460	RR62516

HSS, Precision Ground Chucking Reamers (.1465-.1720)

Size	Uncoated Part #
.1465	RR62517
.1475	RR62518
.1480	RR62519
.1485	RR62520
.1490	RR62521
.1500	RR62522
.1505	RR62523
.1510	RR62524
.1515	RR62525
.1525	RR62526
.1530	RR62527
.1535	RR62528
.1545	RR62529
.1550	RR62530
.1555	RR62531
.1560	RR62532
.1560	RR62533
.1580	RR62534
.1585	RR62535
.1595	RR62536
.1600	RR62537
.1605	RR62538
.1615	RR62539
.1620	RR62540
.1625	RR62541
.1630	RR62542
.1635	RR62543
.1640	RR62544
.1645	RR62545
.1650	RR62546
.1655	RR62547
.1665	RR62548
.1670	RR62549
.1675	RR62550
.1680	RR62551
.1685	RR62552
.1690	RR62553
.1700	RR62554
.1705	RR62555
.1710	RR62556
.1715	RR62557
.1720	RR62558

Continued

Speeds, feeds & tech info pages 497-498.

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



HSS, Precision Ground Chucking Reamers (.1725-.1995)

Size	Uncoated Part #
.1725	RR62559
.1735	RR62560
.1740	RR62561
.1745	RR62562
.1750	RR62563
.1755	RR62564
.1760	RR62565
.1765	RR62566
.1775	RR62567
.1780	RR62568
.1785	RR62569
.1790	RR62570
.1795	RR62571
.1805	RR62572
.1810	RR62573
.1815	RR62574
.1825	RR62575
.1830	RR62576
.1835	RR62577
.1840	RR62578
.1845	RR62579
.1855	RR62580
.1860	RR62581
.1870	RR62582
.1880	RR62583
.1895	RR62584
.1900	RR62585
.1905	RR62586
.1915	RR62587
.1920	RR62588
.1925	RR62589
.1930	RR62590
.1940	RR62591
.1945	RR62592
.1950	RR62593
.1955	RR62594
.1965	RR62595
.1970	RR62596
.1975	RR62597
.1980	RR62598
.1985	RR62599
.1995	RR62600

HSS, Precision Ground Chucking Reamers (.2000-.2240)

Size	Uncoated Part #
.2000	RR62601
.2005	RR62602
.2015	RR62603
.2020	RR62604
.2025	RR62605
.2030	RR62606
.2035	RR62607
.2045	RR62608
.2050	RR62609
.2060	RR62610
.2065	RR62611
.2070	RR62612
.2075	RR62613
.2080	RR62614
.2085	RR62615
.2095	RR62616
.2100	RR62617
.2105	RR62618
.2110	RR62619
.2115	RR62620
.2120	RR62621
.2125	RR62622
.2135	RR62623
.2140	RR62624
.2145	RR62625
.2150	RR62626
.2155	RR62627
.2160	RR62628
.2170	RR62629
.2175	RR62630
.2180	RR62631
.2185	RR62632
.2190	RR62633
.2195	RR62634
.2200	RR62635
.2205	RR62636
.2215	RR62637
.2220	RR62638
.2225	RR62639
.2230	RR62640
.2235	RR62641
.2240	RR62642

HSS, Precision Ground Chucking Reamers (.2245-.2475)

Size	Uncoated Part #
.2245	RR62643
.2250	RR62644
.2255	RR62645
.2260	RR62646
.2265	RR62647
.2270	RR62648
.2275	RR62649
.2285	RR62650
.2290	RR62651
.2295	RR62652
.2300	RR62653
.2305	RR62654
.2310	RR62655
.2315	RR62656
.2320	RR62657
.2325	RR62658
.2330	RR62659
.2335	RR62660
.2345	RR62661
.2350	RR62662
.2355	RR62663
.2360	RR62664
.2365	RR62665
.2370	RR62666
.2375	RR62667
.2385	RR62668
.2390	RR62669
.2395	RR62670
.2400	RR62671
.2405	RR62672
.2410	RR62673
.2415	RR62674
.2425	RR62675
.2430	RR62676
.2435	RR62677
.2440	RR62678
.2445	RR62679
.2450	RR62680
.2455	RR62681
.2465	RR62682
.2470	RR62683
.2475	RR62684

Continued

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006

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HSS, Precision Ground Chucking Reamers (.2480-.2715)

Size	Uncoated Part #
.2480	RR62685
.2485	RR62686
.2495	RR62687
.2505	RR62688
.2515	RR62689
.2520	RR62690
.2525	RR62691
.2530	RR62692
.2535	RR62693
.2540	RR62694
.2545	RR62695
.2550	RR62696
.2555	RR62697
.2560	RR62698
.2565	RR62699
.2575	RR62700
.2580	RR62701
.2585	RR62702
.2590	RR62703
.2595	RR62704
.2600	RR62705
.2605	RR62706
.2615	RR62707
.2620	RR62708
.2625	RR62709
.2630	RR62710
.2635	RR62711
.2640	RR62712
.2645	RR62713
.2650	RR62714
.2655	RR62715
.2665	RR62716
.2670	RR62717
.2675	RR62718
.2680	RR62719
.2685	RR62720
.2690	RR62721
.2695	RR62722
.2700	RR62723
.2705	RR62724
.2710	RR62725
.2715	RR62726

HSS, Precision Ground Chucking Reamers (.2725-.2945)

Size	Uncoated Part #
.2725	RR62727
.2730	RR62728
.2735	RR62729
.2740	RR62730
.2745	RR62731
.2750	RR62732
.2755	RR62733
.2760	RR62734
.2765	RR62735
.2775	RR62736
.2780	RR62737
.2785	RR62738
.2790	RR62739
.2795	RR62740
.2800	RR62741
.2805	RR62742
.2815	RR62743
.2820	RR62744
.2825	RR62745
.2830	RR62746
.2835	RR62747
.2840	RR62748
.2845	RR62749
.2850	RR62750
.2855	RR62751
.2860	RR62752
.2865	RR62753
.2870	RR62754
.2875	RR62755
.2880	RR62756
.2885	RR62757
.2890	RR62758
.2895	RR62759
.2905	RR62760
.2910	RR62761
.2915	RR62762
.2920	RR62763
.2925	RR62764
.2930	RR62765
.2935	RR62766
.2940	RR62767
.2945	RR62768

HSS, Precision Ground Chucking Reamers (.2955-.3190)

Size	Uncoated Part #
.2955	RR62769
.2960	RR62770
.2965	RR62771
.2970	RR62772
.2975	RR62773
.2980	RR62774
.2985	RR62775
.2990	RR62776
.2995	RR62777
.3000	RR62778
.3005	RR62779
.3010	RR62780
.3015	RR62781
.3025	RR62782
.3030	RR62783
.3035	RR62784
.3040	RR62785
.3045	RR62786
.3050	RR62787
.3055	RR62788
.3060	RR62789
.3065	RR62790
.3070	RR62791
.3075	RR62792
.3080	RR62793
.3085	RR62794
.3090	RR62795
.3095	RR62796
.3100	RR62797
.3105	RR62798
.3110	RR62799
.3120	RR62800
.3130	RR62801
.3140	RR62802
.3145	RR62803
.3155	RR62804
.3165	RR62805
.3170	RR62806
.3175	RR62807
.3180	RR62808
.3185	RR62809
.3190	RR62810

Continued

Speeds, feeds & tech info pages 497-498.

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



HSS, Precision Ground Chucking Reamers (.3195-.3415)

Size	Uncoated Part #
.3195	RR62811
.3200	RR62812
.3205	RR62813
.3210	RR62814
.3215	RR62815
.3220	RR62816
.3225	RR62817
.3235	RR62818
.3240	RR62819
.3245	RR62820
.3250	RR62821
.3255	RR62822
.3260	RR62823
.3265	RR62824
.3270	RR62825
.3275	RR62826
.3280	RR62827
.3285	RR62828
.3290	RR62829
.3295	RR62830
.3300	RR62831
.3305	RR62832
.3310	RR62833
.3315	RR62834
.3325	RR62835
.3330	RR62836
.3335	RR62837
.3340	RR62838
.3345	RR62839
.3350	RR62840
.3355	RR62841
.3360	RR62842
.3365	RR62843
.3370	RR62844
.3375	RR62845
.3380	RR62846
.3385	RR62847
.3395	RR62848
.3400	RR62849
.3405	RR62850
.3410	RR62851
.3415	RR62852

HSS, Precision Ground Chucking Reamers (.3420-.3635)

Size	Uncoated Part #
.3420	RR62853
.3425	RR62854
.3430	RR62855
.3435	RR62856
.3440	RR62857
.3445	RR62858
.3450	RR62859
.3455	RR62860
.3460	RR62861
.3465	RR62862
.3470	RR62863
.3475	RR62864
.3485	RR62865
.3490	RR62866
.3495	RR62867
.3500	RR62868
.3505	RR62869
.3510	RR62870
.3515	RR62871
.3520	RR62872
.3525	RR62873
.3530	RR62874
.3535	RR62875
.3540	RR62876
.3545	RR62877
.3550	RR62878
.3555	RR62879
.3560	RR62880
.3565	RR62881
.3570	RR62882
.3575	RR62883
.3585	RR62884
.3590	RR62885
.3595	RR62886
.3600	RR62887
.3605	RR62888
.3610	RR62889
.3615	RR62890
.3620	RR62891
.3625	RR62892
.3630	RR62893
.3635	RR62894

HSS, Precision Ground Chucking Reamers (.3640-.3875)

Size	Uncoated Part #
.3640	RR62895
.3645	RR62896
.3650	RR62897
.3655	RR62898
.3660	RR62899
.3665	RR62900
.3670	RR62901
.3675	RR62902
.3685	RR62903
.3690	RR62904
.3695	RR62905
.3700	RR62906
.3705	RR62907
.3710	RR62908
.3715	RR62909
.3720	RR62910
.3725	RR62911
.3730	RR62912
.3735	RR62913
.3745	RR62914
.3755	RR62915
.3765	RR62916
.3775	RR62917
.3780	RR62918
.3785	RR62919
.3790	RR62920
.3795	RR62921
.3800	RR62922
.3805	RR62923
.3810	RR62924
.3815	RR62925
.3820	RR62926
.3825	RR62927
.3830	RR62928
.3835	RR62929
.3840	RR62930
.3845	RR62931
.3850	RR62932
.3855	RR62933
.3865	RR62934
.3870	RR62935
.3875	RR62936

Continued

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006

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HSS, Precision Ground Chucking Reamers (.3880-.4095)

Size	Uncoated Part #
.3880	RR62937
.3885	RR62938
.3890	RR62939
.3895	RR62940
.3900	RR62941
.3905	RR62942
.3910	RR62943
.3915	RR62944
.3920	RR62945
.3925	RR62946
.3930	RR62947
.3935	RR62948
.3940	RR62949
.3945	RR62950
.3950	RR62951
.3955	RR62952
.3960	RR62953
.3965	RR62954
.3975	RR62955
.3980	RR62956
.3985	RR62957
.3990	RR62958
.3995	RR62959
.4000	RR62960
.4005	RR62961
.4010	RR62962
.4015	RR62963
.4020	RR62964
.4025	RR62965
.4030	RR62966
.4035	RR62967
.4045	RR62968
.4050	RR62969
.4055	RR62970
.4060	RR62971
.4065	RR62972
.4070	RR62973
.4075	RR62974
.4080	RR62975
.4085	RR62976
.4090	RR62977
.4095	RR62978

HSS, Precision Ground Chucking Reamers (.4100-.4310)

Size	Uncoated Part #
.4100	RR62979
.4105	RR62980
.4110	RR62981
.4115	RR62982
.4120	RR62983
.4125	RR62984
.4135	RR62985
.4140	RR62986
.4145	RR62987
.4150	RR62988
.4155	RR62989
.4160	RR62990
.4165	RR62991
.4170	RR62992
.4175	RR62993
.4180	RR62994
.4185	RR62995
.4190	RR62996
.4195	RR62997
.4200	RR62998
.4205	RR62999
.4210	RR63000
.4215	RR63001
.4220	RR63002
.4225	RR63003
.4230	RR63004
.4235	RR63005
.4240	RR63006
.4245	RR63007
.4250	RR63008
.4255	RR63009
.4260	RR63010
.4265	RR63011
.4270	RR63012
.4275	RR63013
.4280	RR63014
.4285	RR63015
.4290	RR63016
.4295	RR63017
.4300	RR63018
.4305	RR63019
.4310	RR63020

HSS, Precision Ground Chucking Reamers (.4315-.4535)

Size	Uncoated Part #
.4315	RR63021
.4320	RR63022
.4325	RR63023
.4330	RR63024
.4335	RR63025
.4340	RR63026
.4345	RR63027
.4350	RR63028
.4355	RR63029
.4360	RR63030
.4370	RR63031
.4380	RR63032
.4390	RR63033
.4395	RR63034
.4400	RR63035
.4405	RR63036
.4410	RR63037
.4415	RR63038
.4420	RR63039
.4425	RR63040
.4430	RR63041
.4435	RR63042
.4440	RR63043
.4445	RR63044
.4450	RR63045
.4455	RR63046
.4460	RR63047
.4465	RR63048
.4470	RR63049
.4475	RR63050
.4480	RR63051
.4485	RR63052
.4490	RR63053
.4495	RR63054
.4500	RR63055
.4505	RR63056
.4510	RR63057
.4515	RR63058
.4520	RR63059
.4525	RR63060
.4530	RR63061
.4535	RR63062

Continued

Speeds, feeds & tech info pages 497-498.

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



HSS, Precision Ground Chucking Reamers (.4540-.4745)

Size	Uncoated Part #
.4540	RR63063
.4545	RR63064
.4550	RR63065
.4555	RR63066
.4560	RR63067
.4565	RR63068
.4570	RR63069
.4575	RR63070
.4580	RR63071
.4585	RR63072
.4590	RR63073
.4595	RR63074
.4600	RR63075
.4605	RR63076
.4610	RR63077
.4615	RR63078
.4620	RR63079
.4625	RR63080
.4630	RR63081
.4635	RR63082
.4640	RR63083
.4645	RR63084
.4650	RR63085
.4655	RR63086
.4660	RR63087
.4665	RR63088
.4670	RR63089
.4675	RR63090
.4680	RR63091
.4685	RR63092
.4690	RR63093
.4695	RR63094
.4700	RR63095
.4705	RR63096
.4710	RR63097
.4715	RR63098
.4720	RR63099
.4725	RR63100
.4730	RR63101
.4735	RR63102
.4740	RR63103
.4745	RR63104

HSS, Precision Ground Chucking Reamers (.4750-.4955)

Size	Uncoated Part #
.4750	RR63105
.4755	RR63106
.4760	RR63107
.4765	RR63108
.4770	RR63109
.4775	RR63110
.4780	RR63111
.4785	RR63112
.4790	RR63113
.4795	RR63114
.4800	RR63115
.4805	RR63116
.4810	RR63117
.4815	RR63118
.4820	RR63119
.4825	RR63120
.4830	RR63121
.4835	RR63122
.4840	RR63123
.4845	RR63124
.4850	RR63125
.4855	RR63126
.4860	RR63127
.4865	RR63128
.4870	RR63129
.4875	RR63130
.4880	RR63131
.4885	RR63132
.4890	RR63133
.4895	RR63134
.4900	RR63135
.4905	RR63136
.4910	RR63137
.4915	RR63138
.4920	RR63139
.4925	RR63140
.4930	RR63141
.4935	RR63142
.4940	RR63143
.4945	RR63144
.4950	RR63145
.4955	RR63146

HSS, Precision Ground Chucking Reamers (.4960-.6845)

Size	Uncoated Part #
.4960	RR63147
.4965	RR63148
.4970	RR63149
.4975	RR63150
.4980	RR63151
.4985	RR63152
.4995	RR63153
.5005	RR63154
.5015	RR63155
.5020	RR63156
.5025	RR63157
.5030	RR63158
.5035	RR63159
.5040	RR63160
.5045	RR63161
.5050	RR63162
.5060	RR63163
.5070	RR63164
.5080	RR63165
.5090	RR63166
.5100	RR63167
.5600	RR63168
.5605	RR63169
.5610	RR63170
.5620	RR63171
.5630	RR63172
.5640	RR63173
.5645	RR63174
.5650	RR63175
.5655	RR63176
.6220	RR63177
.6225	RR63178
.6230	RR63179
.6235	RR63180
.6245	RR63181
.6255	RR63182
.6265	RR63183
.6270	RR63184
.6275	RR63185
.6280	RR63186
.6300	RR63249
.6845	RR63187

Continued

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006

Speeds, feeds & tech info pages 497-498.



HSS, Precision Ground Chucking Reamers (.6850-.9350)

Size	Uncoated Part #
.6850	RR63188
.6855	RR63189
.6860	RR63190
.6870	RR63191
.6880	RR63192
.6895	RR63193
.6900	RR63194
.6905	RR63195
.7470	RR63196
.7475	RR63197
.7485	RR63198
.7495	RR63199
.7505	RR63200
.7515	RR63201
.7520	RR63202
.7525	RR63203
.7530	RR63204
.7540	RR63205
.7550	RR63206
.8095	RR63207
.8100	RR63208
.8105	RR63209
.8110	RR63210
.8120	RR63211
.8130	RR63212
.8140	RR63213
.8145	RR63214
.8150	RR63215
.8155	RR63216
.8720	RR63217
.8725	RR63218
.8730	RR63219
.8735	RR63220
.8745	RR63221
.8755	RR63222
.8765	RR63223
.8770	RR63224
.8775	RR63225
.8780	RR63226
.9340	RR63227
.9345	RR63228
.9350	RR63229

HSS, Precision Ground Chucking Reamers (.9355-1.0030)

Size	Uncoated Part #
.9355	RR63230
.9360	RR63231
.9370	RR63232
.9380	RR63233
.9390	RR63234
.9395	RR63235
.9400	RR63236
.9405	RR63237
.9970	RR63238
.9975	RR63239
.9980	RR63240
.9985	RR63241
.9995	RR63242
1.0005	RR63243
1.0015	RR63244
1.0020	RR63245
1.0025	RR63246
1.0030	RR63247

Speeds, feeds & tech info pages 497-498.

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



HSS & Cobalt, Right-Hand Spiral & Right-Hand Cut Chucking Reamers (.0394-.1240)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
1.0MM	.0394	1/2	2-1/2	4	.0394	RR60650	RR60826
#60	.0400	1/2	2-1/2	4	.0390	RR60651	RR60827
#59	.0410	1/2	2-1/2	4	.0390	RR60652	RR60828
#58	.0420	1/2	2-1/2	4	.0390	RR60653	RR60829
#57	.0430	1/2	2-1/2	4	.0390	RR60654	RR60830
#56	.0465	1/2	2-1/2	4	.0455	RR60655	RR60831
3/64	.0469	1/2	2-1/2	4	.0455	RR60656	RR60832
#55	.0520	1/2	2-1/2	4	.0510	RR60657	RR60833
#54	.0550	1/2	2-1/2	4	.0510	RR60658	RR60834
1.5MM	.0591	1/2	2-1/2	4	.0510	RR60659	RR60835
#53	.0595	1/2	2-1/2	4	.0585	RR60660	RR60836
1/16	.0625	1/2	2-1/2	4	.0585	RR60661	RR60837
#52	.0635	1/2	2-1/2	4	.0585	RR60662	RR60838
#51	.0670	3/4	3	4	.0660	RR60663	RR60839
#50	.0700	3/4	3	4	.0660	RR60664	RR60840
#49	.0730	3/4	3	4	.0660	RR60665	RR60841
#48	.0760	3/4	3	4	.0720	RR60666	RR60842
5/64	.0781	3/4	3	4	.0720	RR60667	RR60843
#47	.0785	3/4	3	4	.0720	RR60668	RR60844
2.0MM	.0787	3/4	3	4	.0720	RR60669	RR60845
#46	.0810	3/4	3	4	.0771	RR60670	RR60846
#45	.0820	3/4	3	4	.0771	RR60671	RR60847
#44	.0860	3/4	3	4	.0810	RR60672	RR60848
#43	.0890	3/4	3	4	.0810	RR60673	RR60849
#42	.0935	3/4	3	4	.0880	RR60674	RR60850
3/32	.0938	3/4	3	4	.0880	RR60675	RR60851
#41	.0960	7/8	3-1/2	4	.0928	RR60676	RR60852
#40	.0980	7/8	3-1/2	4	.0928	RR60677	RR60853
2.5MM	.0984	7/8	3-1/2	4	.0928	RR60678	RR60854
#39	.0995	7/8	3-1/2	4	.0928	RR60679	RR60855
#38	.1015	7/8	3-1/2	4	.0950	RR60680	RR60856
#37	.1040	7/8	3-1/2	4	.0950	RR60681	RR60857
#36	.1065	7/8	3-1/2	4	.1030	RR60682	RR60858
7/64	.1094	7/8	3-1/2	4	.1030	RR60683	RR60859
#35	.1100	7/8	3-1/2	4	.1030	RR60684	RR60860
#34	.1110	7/8	3-1/2	4	.1055	RR60685	RR60861
#33	.1130	7/8	3-1/2	4	.1055	RR60686	RR60862
#32	.1160	7/8	3-1/2	4	.1120	RR60687	RR60863
3.0MM	.1181	7/8	3-1/2	4	.1120	RR60688	RR60864
#31	.1200	7/8	3-1/2	4	.1120	RR60689	RR60865
O/U	.1240	7/8	3-1/2	4	.1190	RR60690	RR60866

Continued

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006

Speeds, feeds & tech info pages 497-498.



HSS & Cobalt, Right-Hand Spiral & Right-Hand Cut Chucking Reamers (.1250-.2130)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
1/8	.1250	7/8	3-1/2	4	.1190	RR60691	RR60867
O/U	.1260	7/8	3-1/2	4	.1190	RR60692	RR60868
#30	.1285	7/8	3-1/2	4	.1190	RR60693	RR60869
#29	.1360	1	4	4	.1275	RR60694	RR60870
3.5MM	.1378	1	4	4	.1350	RR60695	RR60871
#28	.1405	1	4	4	.1350	RR60696	RR60872
9/64	.1406	1	4	4	.1350	RR60697	RR60873
#27	.1440	1	4	4	.1350	RR60698	RR60874
#26	.1470	1	4	4	.1430	RR60699	RR60875
#25	.1495	1	4	4	.1430	RR60700	RR60876
#24	.1520	1	4	4	.1460	RR60701	RR60877
#23	.1540	1	4	4	.1460	RR60702	RR60878
5/32	.1562	1	4	4	.1510	RR60703	RR60879
#22	.1570	1	4	6	.1510	RR60704	RR60880
4.0MM	.1575	1	4	6	.1510	RR60705	RR60881
#21	.1590	1-1/8	4-1/2	6	.1530	RR60706	RR60882
#20	.1610	1-1/8	4-1/2	6	.1530	RR60707	RR60883
#19	.1660	1-1/8	4-1/2	6	.1595	RR60708	RR60884
#18	.1695	1-1/8	4-1/2	6	.1595	RR60709	RR60885
11/64	.1719	1-1/8	4-1/2	6	.1645	RR60710	RR60886
#17	.1730	1-1/8	4-1/2	6	.1645	RR60711	RR60887
#16	.1770	1-1/8	4-1/2	6	.1704	RR60712	RR60888
4.5MM	.1772	1-1/8	4-1/2	6	.1704	RR60713	RR60889
#15	.1800	1-1/8	4-1/2	6	.1755	RR60714	RR60890
#14	.1820	1-1/8	4-1/2	6	.1755	RR60715	RR60891
#13	.1850	1-1/8	4-1/2	6	.1805	RR60716	RR60892
O/U	.1865	1-1/8	4-1/2	6	.1805	RR60717	RR60893
3/16	.1875	1-1/8	4-1/2	6	.1805	RR60718	RR60894
O/U	.1885	1-1/8	4-1/2	6	.1805	RR60719	RR60895
#12	.1890	1-1/8	4-1/2	6	.1805	RR60720	RR60896
#11	.1910	1-1/4	5	6	.1860	RR60721	RR60897
#10	.1935	1-1/4	5	6	.1860	RR60722	RR60898
#9	.1960	1-1/4	5	6	.1895	RR60723	RR60899
5.0MM	.1969	1-1/4	5	6	.1895	RR60724	RR61000
#8	.1990	1-1/4	5	6	.1895	RR60725	RR61001
#7	.2010	1-1/4	5	6	.1895	RR60726	RR61002
13/64	.2031	1-1/4	5	6	.1945	RR60727	RR61003
#6	.2040	1-1/4	5	6	.1945	RR60728	RR61004
#5	.2055	1-1/4	5	6	.2016	RR60729	RR61005
#4	.2090	1-1/4	5	6	.2016	RR60730	RR61006
#3	.2130	1-1/4	5	6	.2075	RR60731	RR61007

Continued

Speeds, feeds & tech info pages 497-498.

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



HSS & Cobalt, Right-Hand Spiral & Right-Hand Cut Chucking Reamers (.2165-.3543)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
5.5MM	.2165	1-1/4	5	6	.2075	RR60732	RR61008
7/32	.2188	1-1/4	5	6	.2075	RR60733	RR61009
#2	.2210	1-1/2	6	6	.2173	RR60734	RR61010
#1	.2280	1-1/2	6	6	.2173	RR60735	RR61011
A	.2340	1-1/2	6	6	.2265	RR60736	RR61012
15/64	.2344	1-1/2	6	6	.2265	RR60737	RR61013
6.0MM	.2362	1-1/2	6	6	.2265	RR60738	RR61014
B	.2380	1-1/2	6	6	.2329	RR60739	RR61015
C	.2420	1-1/2	6	6	.2329	RR60740	RR61016
D	.2460	1-1/2	6	6	.2329	RR60741	RR61017
O/U	.2490	1-1/2	6	6	.2405	RR60742	RR61018
1/4	.2500	1-1/2	6	6	.2405	RR60743	RR61019
O/U	.2510	1-1/2	6	6	.2405	RR60744	RR61020
6.5MM	.2559	1-1/2	6	6	.2405	RR60745	RR61021
F	.2570	1-1/2	6	6	.2485	RR60746	RR61022
G	.2610	1-1/2	6	6	.2485	RR60747	RR61023
17/64	.2656	1-1/2	6	6	.2485	RR60748	RR61024
H	.2660	1-1/2	6	6	.2485	RR60749	RR61025
I	.2720	1-1/2	6	6	.2485	RR60750	RR61026
7.0MM	.2756	1-1/2	6	6	.2485	RR60751	RR61027
J	.2770	1-1/2	6	6	.2485	RR60752	RR61028
K	.2810	1-1/2	6	6	.2485	RR60753	RR61029
9/32	.2812	1-1/2	6	6	.2485	RR60754	RR61030
L	.2900	1-1/2	6	6	.2792	RR60755	RR61031
M	.2950	1-1/2	6	6	.2792	RR60756	RR61032
7.5MM	.2953	1-1/2	6	6	.2792	RR60757	RR61033
19/64	.2969	1-1/2	6	6	.2792	RR60758	RR61034
N	.3020	1-1/2	6	6	.2792	RR60759	RR61035
O/U	.3115	1-1/2	6	6	.2792	RR60760	RR61036
5/16	.3125	1-1/2	6	6	.2792	RR60761	RR61037
O/U	.3135	1-1/2	6	6	.2792	RR60762	RR61038
8.0MM	.3150	1-1/2	6	6	.2792	RR60763	RR61039
O	.3160	1-1/2	6	6	.2792	RR60764	RR61040
P	.3230	1-1/2	6	6	.2792	RR60765	RR61041
21/64	.3281	1-1/2	6	6	.2792	RR60766	RR61042
Q	.3320	1-1/2	6	6	.2792	RR60767	RR61043
8.5MM	.3346	1-1/2	6	6	.2792	RR60768	RR61044
R	.3390	1-1/2	6	6	.2792	RR60769	RR61045
11/32	.3438	1-1/2	6	6	.2792	RR60770	RR61046
S	.3480	1-3/4	6	6	.3105	RR60771	RR61047
9.0MM	.3543	1-3/4	7	6	.3105	RR60772	RR61048

Continued

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006

Speeds, feeds & tech info pages 497-498.



HSS & Cobalt, Right-Hand Spiral & Right-Hand Cut Chucking Reamers (.3580-.8750)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
T	.3580	1-3/4	7	6	.3105	RR60773	RR61049
23/64	.3594	1-3/4	7	6	.3105	RR60774	RR61050
U	.3680	1-3/4	7	6	.3105	RR60775	RR61051
9.5MM-O/U	.3740	1-3/4	7	6	.3105	RR60776	RR61052
3/8	.3750	1-3/4	7	6	.3105	RR60777	RR61053
O/U	.3760	1-3/4	7	6	.3105	RR60778	RR61054
V	.3770	1-3/4	7	6	.3105	RR60779	RR61055
W	.3860	1-3/4	7	6	.3105	RR60780	RR61056
25/64	.3906	1-3/4	7	6	.3105	RR60781	RR61057
10.0MM	.3937	1-3/4	7	6	.3105	RR60782	RR61058
X	.3970	1-3/4	7	6	.3105	RR60783	RR61059
Y	.4040	1-3/4	7	6	.3105	RR60784	RR61060
13/32	.4062	1-3/4	7	6	.3105	RR60785	RR61061
Z	.4130	1-3/4	7	6	.3730	RR60786	RR61062
10.5MM	.4134	1-3/4	7	6	.3730	RR60787	RR61063
27/64	.4219	1-3/4	7	6	.3730	RR60788	RR61064
11.0MM	.4331	1-3/4	7	6	.3730	RR60789	RR61065
O/U	.4365	1-3/4	7	6	.3730	RR60790	RR61066
7/16	.4375	1-3/4	7	6	.3730	RR60791	RR61067
O/U	.4385	1-3/4	7	6	.3730	RR60792	RR61068
11.5MM	.4528	1-3/4	7	6	.3730	RR60793	RR61069
29/64	.4531	1-3/4	7	6	.3730	RR60794	RR61070
15/32	.4688	1-3/4	7	6	.3730	RR60795	RR61071
12.0MM	.4724	2	8	6	.4355	RR60796	RR61072
31/64	.4844	2	8	6	.4355	RR60797	RR61073
12.5MM	.4921	2	8	6	.4355	RR60798	RR61074
O/U	.4990	2	8	6	.4355	RR60799	RR61075
1/2	.5000	2	8	6	.4355	RR60800	RR61076
O/U	.5010	2	8	6	.4355	RR60801	RR61077
17/32	.5312	2	8	6	.4355	RR60802	RR61078
9/16	.5625	2	8	8	.4355	RR60803	RR61080
19/32	.5938	2	8	8	.4355	RR60804	RR61081
5/8	.6250	2-1/4	9	8	.5615	RR60805	RR61082
21/32	.6562	2-1/4	9	8	.5615	RR60806	RR61083
11/16	.6875	2-1/4	9	8	.5615	RR60807	RR61084
23/32	.7188	2-1/4	9	8	.5615	RR60808	RR61085
3/4	.7500	2-1/2	9-1/2	8	.6240	RR60809	RR61086
25/32	.7812	2-1/2	9-1/2	8	.6240	RR60810	RR61087
13/16	.8125	2-1/2	9-1/2	8	.6240	RR60811	RR61088
27/32	.8438	2-1/2	9-1/2	8	.6240	RR60812	RR61089
7/8	.8750	2-5/8	10	8	.7490	RR60813	RR61090

Continued

Speeds, feeds & tech info pages 497-498.

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



HSS & Cobalt, Right-Hand Spiral & Right-Hand Cut Chucking Reamers (.9062-2.000)

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	HSS Uncoated Part #	Cobalt Uncoated Part #
29/32	.9062	2-5/8	10	8	.7490	RR60814	RR61091
15/16	.9375	2-5/8	10	8	.7490	RR60815	RR61092
31/32	.9688	2-5/8	10	8	.7490	RR60816	RR61093
1	1.0000	2-3/4	10-1/2	8	.8740	RR60817	RR61094
1-1/16	1.0625	2-3/4	10-1/2	8	.8740	RR60818	–
1-1/8	1.1250	2-7/8	11	8	.8740	RR60819	–
1-3/16	1.1875	2-7/8	11	10	.9990	RR60820	–
1-1/4	1.2500	3	11-1/2	10	.9990	RR60821	–
1-5/16	1.3125	3	11-1/2	10	.9990	RR60822	–
1-3/8	1.3750	3-1/4	12	10	.9990	RR60823	–
1-7/16	1.4375	3-1/4	12	10	1.2490	RR60824	–
1-1/2	1.5000	3-1/2	12-1/2	10	1.2490	RR60825	–
1-9/16	1.5625	3-1/2	13	12	1.2490	RR60300	–
1-5/8	1.6250	3-1/2	13	12	1.2490	RR60301	–
1-11/16	1.6875	4	13-1/2	12	1.2490	RR60302	–
1-3/4	1.7500	4	13-1/2	12	1.2490	RR60303	–
1-13/16	1.8125	4	14	12	1.4990	RR60304	–
1-7/8	1.8750	4	14	12	1.4990	RR60305	–
1-15/16	1.9375	4	14	12	1.4990	RR60306	–
2	2.0000	4	14	12	1.4990	RR60307	–

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006

Speeds, feeds & tech info pages 497-498.



HSS, Expansion Style Reamers

Size	Decimal Equiv	FL	OAL	# of Flutes	Shank ø	Uncoated Part #
3/8	.3750	3/4	7	6	5/16	RR61701
13/32	.4062	3/4	7	6	5/16	RR61702
7/16	.4375	7/8	7	6	3/8	RR61703
15/32	.4688	7/8	8	6	27/64	RR61704
1/2	.5000	1	8	6	7/16	RR61705
17/32	.5312	1	8	6	7/16	RR61706
9/16	.5625	1-1/8	8	6	7/16	RR61707
19/32	.5938	1-1/8	8	6	7/16	RR61708
5/8	.6250	1-1/4	9	6	9/16	RR61709
21/32	.6562	1-1/4	9	6	9/16	RR61710
11/16	.6875	1-1/4	9	6	9/16	RR61711
23/32	.7188	1-1/4	9	6	9/16	RR61712
3/4	.7500	1-3/8	9-1/2	6	5/8	RR61713
25/32	.7812	1-3/8	9-1/2	8	5/8	RR61714
13/16	.8125	1-3/8	9-1/2	8	5/8	RR61715
27/32	.8438	1-3/8	9-1/2	8	5/8	RR61716
7/8	.8750	1-1/2	10	8	3/4	RR61717
29/32	.9062	1-1/2	10	8	3/4	RR61718
15/16	.9375	1-1/2	10	8	3/4	RR61719
31/32	.9688	1-1/2	10	8	3/4	RR61720
1	1.0000	1-5/8	10-1/2	8	7/8	RR61721
1-1/32	1.0312	1-5/8	10-1/2	8	7/8	RR61722
1-1/16	1.0625	1-5/8	10-1/2	8	7/8	RR61723
1-3/32	1.0938	1-5/8	10-1/2	8	7/8	RR61724
1-1/8	1.1250	1-3/4	11	8	7/8	RR61725
1-5/32	1.1562	1-3/4	11	8	7/8	RR61726
1-3/16	1.1875	1-3/4	11	8	1	RR61727
1-7/32	1.2188	1-3/4	11	8	1	RR61728
1-1/4	1.2500	1-7/8	11-1/2	8	1	RR61729
1-5/16	1.3125	1-7/8	11-1/2	8	1	RR61730
1-3/8	1.3750	2	12	8	1	RR61731
1-7/16	1.4375	2	12	8	1-1/4	RR61732
1-1/2	1.5000	2-1/8	12-1/2	8	1-1/4	RR61733

Speeds, feeds & tech info pages 497-498.

Through 1/2" ø	Above 1/2" to 5/8"	Above 5/8" to 1 1/2"	Above 1 1/2" to 2"
+.0002, -.0000	+.0003, -.0000	+.0001, +.0004	+.0002, +.0006



Capscrew Counterbore Tools

Size	Tolerance	Pilot ø	Pilot Length	Cutter ø	Body Length	OAL	Shank ø	Uncoated Part #
4	STD	.1120	1/8	.1830	9/16	3-7/8	.1560	RR62270
4	1/64 O/S	.1270	1/8	.1990	9/16	3-7/8	.1560	RR62284
4	1/32 O/S	.1430	1/8	.2150	9/16	3-7/8	.1560	RR62001
5	STD	.1250	5/32	.2050	5/8	4-1/8	.1870	RR62271
5	1/64 O/S	.1400	5/32	.2210	5/8	4-1/8	.1870	RR62285
5	1/32 O/S	.1560	5/32	.2370	5/8	4-1/8	.1870	RR62002
6	STD	.1380	3/16	.2270	3/4	4-5/8	.2180	RR62272
6	1/64 O/S	.1530	3/16	.2430	3/4	4-5/8	.2180	RR62286
6	1/32 O/S	.1690	3/16	.2590	3/4	4-5/8	.2180	RR62003
8	STD	.1640	7/32	.2700	3/4	5	.2500	RR62273
8	1/64 O/S	.1790	7/32	.2860	3/4	5	.2500	RR62287
8	1/32 O/S	.1950	7/32	.3020	3/4	5	.2500	RR62004
10	STD	.1900	1/4	.3120	7/8	5-1/4	.2800	RR62274
10	1/64 O/S	.2050	1/4	.3280	7/8	5-1/4	.2800	RR62288
10	1/32 O/S	.2210	1/4	.3440	7/8	5-1/4	.2800	RR62005
1/4	STD	.2500	9/32	.3800	1	5-5/8	.3140	RR62275
1/4	1/64 O/S	.2650	9/32	.3960	1	5-5/8	.3140	RR62289
1/4	1/32 O/S	.2810	9/32	.4120	1	5-5/8	.3140	RR62006
5/16	STD	.3125	5/16	.4740	1	6-1/8	.3750	RR62276
5/16	1/64 O/S	.3280	5/16	.4890	1	6-1/8	.3750	RR62290
5/16	1/32 O/S	.3430	5/16	.5040	1	6-1/8	.3750	RR62007
3/8	STD	.3750	3/8	.5690	1-1/4	6-1/2	.5000	RR62277
3/8	1/64 O/S	.3900	3/8	.5850	1-1/4	6-1/2	.5000	RR62291
3/8	1/32 O/S	.4060	3/8	.6010	1-1/4	6-1/2	.5000	RR62008
7/16	STD	.4370	7/16	.6610	1-1/4	7	.5000	RR62278
7/16	1/64 O/S	.4520	7/16	.6760	1-1/4	7	.5000	RR62292
7/16	1/32 O/S	.4680	7/16	.6910	1-1/4	7	.5000	RR62009
1/2	STD	.5000	1/2	.7550	1-1/2	7-1/2	.5000	RR62279
1/2	1/64 O/S	.5150	1/2	.7710	1-1/2	7-1/2	.5000	RR62293
1/2	1/32 O/S	.5310	1/2	.7870	1-1/2	7-1/2	.5000	RR62010
5/8	STD	.6250	5/8	.9690	1-1/2	7-5/8	.6250	RR62280
5/8	1/64 O/S	.6400	5/8	.9840	1-1/2	7-5/8	.6250	RR62294
5/8	1/32 O/S	.6560	5/8	1.0000	1-1/2	7-5/8	.6250	RR62011
3/4	STD	.7500	3/4	1.1560	1-5/8	7-3/4	.7490	RR62281
3/4	1/64 O/S	.7650	3/4	1.1720	1-5/8	7-3/4	.7490	RR62295
3/4	1/32 O/S	.7810	3/4	1.1880	1-5/8	7-3/4	.7490	RR62012
7/8	STD	.8750	7/8	1.3440	1-7/8	8	.8700	RR62282
7/8	1/64 O/S	.8910	7/8	1.3590	1-7/8	8	.8700	RR62296
7/8	1/32 O/S	.9060	7/8	1.3750	1-7/8	8	.8700	RR62013
1	STD	1.0000	1	1.5310	2	8-1/2	.9980	RR62283
1	1/64 O/S	1.0150	1	1.5470	2	8-1/2	.9980	RR62297
1	1/32 O/S	1.0310	1	1.5630	2	8-1/2	.9980	RR62014



Taper Pipe Reamers

Size	Small End ø	Large End ø	OAL	# of Flutes	Thread or Flute Lgth	Size of Square	Shank ø	Uncoated Part #
1/16	.2320	.2750	2-1/8	6	3/4	.235	.3125	RR61849
1/8	.3160	.3620	2-1/8	6	3/4	.328	.4375	RR61850
1/4	.4060	.4720	2-7/16	6	1-1/16	.421	.5625	RR61851
3/8	.5400	.6060	2-9/16	6	1-1/16	.531	.7000	RR61852
1/2	.6650	.7510	3-1/8	6	1-3/8	.515	.6875	RR61853
3/4	.8760	.9620	3-1/4	8	1-3/8	.679	.9063	RR61854
1	1.1030	1.2120	3-3/4	8	1-3/4	.843	1.1250	RR61855
1-1/4	1.4440	1.5530	4	10	1-3/4	.984	1.3125	RR61856
1-1/2	1.6840	1.7930	4-1/4	12	1-3/4	1.125	1.5000	RR61857
2	2.1590	2.2680	4-1/2	12	1-3/4	1.406	1.8750	RR61858



Taper Pin Reamers

Size	Small End ø	Large End ø	# of Flutes	Uncoated Part #
7/0	.0497	.0666	4	RR62025
6/0	.0611	.0806	4	RR62026
5/0	.0719	.0966	4	RR62027
4/0	.0869	.1142	4	RR62028
3/0	.1029	.1302	4	RR62029
2/0	.1137	.1462	4	RR62030
0	.1287	.1638	4	RR62031
1	.1447	.1798	6	RR62032
2	.1605	.2008	6	RR62033
3	.1813	.2294	6	RR62034
4	.2071	.2604	6	RR62035
5	.2409	.2994	6	RR62036
6	.2773	.3540	6	RR62037
7	.3297	.4220	6	RR62038
8	.3971	.5050	6	RR62039
9	.4805	.6066	6	RR62040
10	.5799	.7216	6	RR62041
11	.7060	.8780	8	RR62042
12	.8420	1.0500	8	RR62043
13	1.0090	1.2590	10	RR62044
14	1.2500	1.5420	10	RR62045

HSS & Carbide Reamers Speeds & Feeds

Material	Grades	SFM		Tool Diameter (IPR)					
				1/8	1/4	3/8	1/2	3/4	1
		HSS	Carbide	(.1250)	(.2500)	(.3750)	(.5000)	(.7500)	(1.000)
P - Steels									
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	10-25	50-100	.0020	.0040	.0050	.0060	.0080	.0160
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	50-80	250-300	.0060	.0100	.0120	.0140	.0200	.0400
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	30-50	125-225	.0040	.0060	.0080	.0090	.0110	.0160
M - Stainless Steels									
Austenitic	301-304L, 310, 316L, 321, 347	20-30	150-225	.0040	.0060	.0070	.0080	.0120	.0180
Martensitic	403, 410, 416, 420, 430, 431, 440	15-25	60-110	.0040	.0060	.0070	.0080	.0120	.0180
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	15-25	60-90	.0030	.0040	.0050	.0060	.0100	.0150
K - Cast Irons									
Ductile	A536, J434. 60-40-18	25-40	100-175	.0040	.0060	.0080	.0090	.0120	.0180
Gray	A48, A436, A319, Class 20, G4000	40-65	125-200	.0050	.0070	.0090	.0110	.0150	.0300
Malleable	A220, A602, J158	50-100	150-250	.0050	.0070	.0090	.0110	.0150	.0300
N - Non-Ferrous									
Aluminum Alloys	2014, 2024, 6061, 7075	125-325	450-1000	.0040	.0060	.0080	.0100	.0200	.0400
High Silicon	A380, A390	105-275	380-850	.0040	.0060	.0080	.0100	.0200	.0400
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	125-200	225-400	.0040	.0050	.0060	.0070	.0150	.0300
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	75-100	550-900	.0020	.0050	.0070	.0080	.0150	.0300
Copper		50-75	100-175	.0040	.0060	.0080	.0100	.0120	.0150
Magnesium		50-75	100-175	.0040	.0060	.0080	.0100	.0120	.0150
S - High Temp Alloys									
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	10-15	30-50	.0020	.0040	.0050	.0060	.0080	.0160
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	15-25	50-75	.0020	.0040	.0050	.0060	.0080	.0160
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	10-20	45-70	.0020	.0040	.0050	.0060	.0080	.0160
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	35-100	45-125	.0030	.0050	.0060	.0070	.0090	.0180

NOTE: Speeds and Feeds listed are estimated and will vary by application.

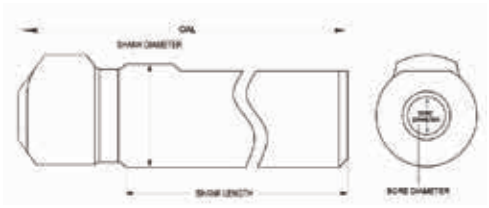
These tools can be found on pages 467-494.

Total Stock Allowance by Reamer Diameter

Material	Grades	≤1/64 (.0156)	1/32 (.0312)	1/16 (.0625)	1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)	3/4 (.7500)	7/8 (.875)	1+ (1.000)+
P - Steels												
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	.0010	.0020	.0040	.0070	.0080	.0100	.0110	.0130	.0140	.0150	.0160
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	.0010	.0030	.0060	.0100	.0110	.0130	.0140	.0160	.0170	.0180	.0190
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	.0010	.0030	.0050	.0090	.0100	.0120	.0130	.0150	.0170	.0180	.0190
M - Stainless Steels												
Austenitic	301-304L, 310, 316L, 321, 347	.0010	.0020	.0050	.0090	.0100	.0120	.0130	.0150	.0160	.0170	.0180
Martensitic	403, 410, 416, 420, 430, 431, 440	.0010	.0020	.0050	.0090	.0100	.0120	.0130	.0150	.0160	.0170	.0180
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	.0010	.0020	.0050	.0090	.0100	.0120	.0130	.0150	.0160	.0170	.0180
K - Cast Irons												
Ductile	A536, J434, 60-40-18	.0020	.0060	.0100	.0110	.0130	.0140	.0150	.0150	.0170	.0180	.0190
Gray	A48, A436, A319, Class 20, G4000	.0010-.0015	.0015- .0025	.0020-.0030	.0025-.0040	.0060-.0080	.0080-.0100	.0100-.0140	.0120-.0180	.0150-.0200	.0160-.0220	.0200-.0300
Malleable	A220, A602, J158	.0020	.0030	.0060	.0100	.0110	.0130	.0140	.0160	.0180	.0190	.0200
N - Non-Ferrous												
Aluminum Alloys	2014, 2024, 6061, 7075	.0010	.0030	.0060	.0110	.0120	.0150	.0160	.0180	.0200	.0210	.0220
Aluminum High Silicon	A380, A390	.0010-.0020	.0040	.0050	.0050-.0060	.0060-.0100	.0080-.0140	.0120-.0180	.0140-.0200	.0160-.0220	.0160-.0220	.0180-.0280
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	.0010	.0030	.0060	.0110	.0120	.0130	.0150	.0160	.0180	.0190	.0200
Composites	Plastics	.0020	.0020-.0030	.0030-.0050	.0040-.0070	.0050-.0100	.0070-.0150	.0100-.0200	.0120-.0220	.0140-.0240	.0160-.0260	.0180-.0300
Magnesium		.0010	.0020	.0030	.0040	.0080-.0100	.0100-.0120	.0140-.0180	.0150-.0200	.0160-.0220	.0180-.0280	.0200-.0300
S - High Temp Alloys												
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	<.0010	.0010	.0015	.0010-.0020	.0040-.0060	.0050-.0070	.0080-.0100	.0090-.0120	.0100-.0150	.0110-.0170	.0120-.0200
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	.0010	.0030	.0050	.0100	.0110	.0130	.0140	.0150	.0160	.0170	.0180
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	.0010	.0030	.0050	.0100	.0110	.0130	.0140	.0150	.0160	.0170	.0180
Titanium	Commercially Pure, 6Al-4V ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	.0010	.0030	.0050	.0100	.0110	.0130	.0140	.0150	.0160	.0170	.0180

NOTE: Speeds and Feeds listed are estimated and will vary by application.

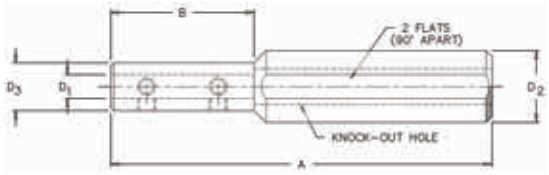




Quick Change Bar Toolholders

Quick Change Shank ø	Shank Length	OAL	Bore ø	Style	Part #
3/8	3	3-1/2	3/16	Std	RQS429000
1/2	3	3-1/2	3/16	Std	RQS429005
5/8	3	3-1/2	3/16	Std	RQS429010
3/4	3	3-1/2	3/16	Std	RQS429015
22MM	3	3-1/2	3/16	Std	RQS429020
3/8	3	3-1/2	3/16	Coolant Hole	RQS429500
1/2	3	3-1/2	3/16	Coolant Hole	RQS429505
5/8	3	3-1/2	3/16	Coolant Hole	RQS429510
3/4	3	3-1/2	3/16	Coolant Hole	RQS429515
22MM	3	3-1/2	3/16	Coolant Hole	RQS429520
-	-	-	-	Lock Screw	RQS428888

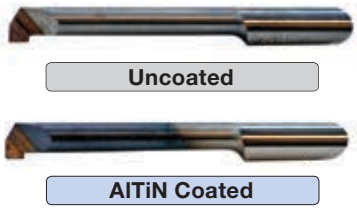


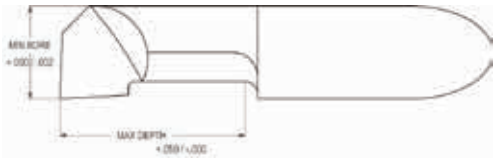


Standard Bar Holders

D1 Bore ø	D2 Shank ø	Bar Depth	A OAL	D3 Head ø	Part #
1/8	3/4	3/4	5	3/8	RBS1250750
1/8	1	3/4	6	3/8	RBS1251000
3/16	3/4	3/4	5	7/16	RBS1870750
3/16	1	3/4	6	7/16	RBS1871000
1/4	3/4	1	5	5/8	RBS2500750
1/4	1	1	6	5/8	RBS2501000
-	-	-	-	Lock Screw	RQS428888

Boring - Quick Change





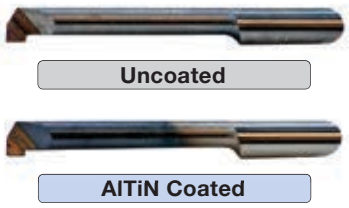
Carbide Quick Change Boring Bars

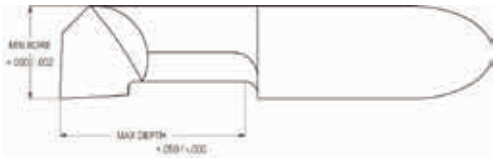
Minimum Bore	Max. Depth	Quick Change Shank ø	Uncoated Part #	AlTiN Coated Part #
.030	.100	3/16	RQB420980	RQB420980A
	.150	3/16	RQB420985	RQB420985A
.040	.200	3/16	RQB420990	RQB420990A
	.300	3/16	RQB420995	RQB420995A
.050	.200	3/16	RQB421000	RQB421000A
	.300	3/16	RQB421005	RQB421005A
.060	.200	3/16	RQB421010	RQB421010A
	.300	3/16	RQB421015	RQB421015A
	.400	3/16	RQB421020	RQB421020A
	.500	3/16	RQB421025	RQB421025A
.080	.200	3/16	RQB421030	RQB421030A
	.300	3/16	RQB421035	RQB421035A
	.400	3/16	RQB421040	RQB421040A
	.500	3/16	RQB421045	RQB421045A
.100	.200	3/16	RQB421050	RQB421050A
	.300	3/16	RQB421055	RQB421055A
	.400	3/16	RQB421060	RQB421060A
	.500	3/16	RQB421065	RQB421065A
	.600	3/16	RQB421070	RQB421070A
	.700	3/16	RQB421075	RQB421075A
.120	.200	3/16	RQB421080	RQB421080A
	.300	3/16	RQB421085	RQB421085A
	.400	3/16	RQB421090	RQB421090A
	.500	3/16	RQB421095	RQB421095A
	.600	3/16	RQB421100	RQB421100A
	.700	3/16	RQB421105	RQB421105A
.140	.200	3/16	RQB421110	RQB421110A
	.300	3/16	RQB421115	RQB421115A
	.400	3/16	RQB421120	RQB421120A
	.500	3/16	RQB421125	RQB421125A
	.600	3/16	RQB421130	RQB421130A
	.700	3/16	RQB421135	RQB421135A

Continued

Must be used with quick change bar toolholders on page 499.

Speeds, feeds and tech info pages 542-543.





Carbide Quick Change Boring Bars

Minimum Bore	Max. Depth	Quick Change Shank ø	Uncoated Part #	AlTiN Coated Part #
.160	.200	3/16	RQB421140	RQB421140A
	.300	3/16	RQB421145	RQB421145A
	.400	3/16	RQB421150	RQB421150A
	.500	3/16	RQB421155	RQB421155A
	.600	3/16	RQB421160	RQB421160A
	.700	3/16	RQB421165	RQB421165A
	.800	3/16	RQB421170	RQB421170A
	.900	3/16	RQB421175	RQB421175A
	1.000	3/16	RQB421180	RQB421180A
	1.100	3/16	RQB421185	RQB421185A
.180	.200	3/16	RQB421190	RQB421190A
	.300	3/16	RQB421195	RQB421195A
	.400	3/16	RQB421200	RQB421200A
	.500	3/16	RQB421205	RQB421205A
	.600	3/16	RQB421210	RQB421210A
	.700	3/16	RQB421215	RQB421215A
	.800	3/16	RQB421220	RQB421220A
	.900	3/16	RQB421225	RQB421225A
	1.000	3/16	RQB421230	RQB421230A
	1.100	3/16	RQB421235	RQB421235A

Must be used with quick change bar toolholders on page 499.

Speeds, feeds and tech info pages 542-543.

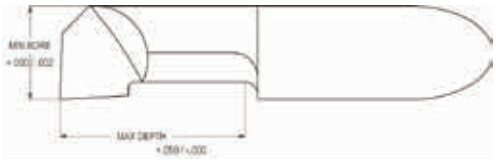
Grooving - Quick Change



Uncoated



AlTiN Coated



Carbide Quick Change Grooving Bars

Groove Width	Minimum Bore	Offset	Max. Depth	Shank Length	Quick Change Shank ø	Uncoated Part#	AlTiN Coated Part #
.018	.185	.060	.200	.90	3/16	RQG427000	RQG427000A
	.185	.060	.300	.90	3/16	RQG427005	RQG427005A
	.185	.060	.400	1.10	3/16	RQG427010	RQG427010A
	.185	.060	.500	1.10	3/16	RQG427015	RQG427015A
	.185	.060	.600	1.30	3/16	RQG427020	RQG427020A
	.185	.060	.700	1.30	3/16	RQG427025	RQG427025A
.029	.185	.060	.200	.90	3/16	RQG427030	RQG427030A
	.185	.060	.300	.90	3/16	RQG427035	RQG427035A
	.185	.060	.400	1.10	3/16	RQG427040	RQG427040A
	.185	.060	.500	1.10	3/16	RQG427045	RQG427045A
	.185	.060	.600	1.30	3/16	RQG427050	RQG427050A
	.185	.060	.700	1.30	3/16	RQG427055	RQG427055A
.032	.185	.060	.200	.90	3/16	RQG427060	RQG427060A
	.185	.060	.300	.90	3/16	RQG427065	RQG427065A
	.185	.060	.400	1.10	3/16	RQG427070	RQG427070A
	.185	.060	.500	1.10	3/16	RQG427075	RQG427075A
	.185	.060	.600	1.30	3/16	RQG427080	RQG427080A
	.185	.060	.700	1.30	3/16	RQG427085	RQG427085A
.033	.185	.060	.200	.90	3/16	RQG427090	RQG427090A
	.185	.060	.300	.90	3/16	RQG427095	RQG427095A
	.185	.060	.400	1.10	3/16	RQG427100	RQG427100A
	.185	.060	.500	1.10	3/16	RQG427105	RQG427105A
	.185	.060	.600	1.30	3/16	RQG427110	RQG427110A
	.185	.060	.700	1.30	3/16	RQG427115	RQG427115A
.039	.185	.060	.200	.90	3/16	RQG427120	RQG427120A
	.185	.060	.300	.90	3/16	RQG427125	RQG427125A
	.185	.060	.400	1.10	3/16	RQG427130	RQG427130A
	.185	.060	.500	1.10	3/16	RQG427135	RQG427135A
	.185	.060	.600	1.30	3/16	RQG427140	RQG427140A
	.185	.060	.700	1.30	3/16	RQG427145	RQG427145A
.040	.185	.060	.200	.90	3/16	RQG427150	RQG427150A
	.185	.060	.300	.90	3/16	RQG427155	RQG427155A
	.185	.060	.400	1.10	3/16	RQG427160	RQG427160A
	.185	.060	.500	1.10	3/16	RQG427165	RQG427165A
	.185	.060	.600	1.30	3/16	RQG427170	RQG427170A
	.185	.060	.700	1.30	3/16	RQG427175	RQG427175A

Continued

Must be used with quick change bar toolholders on page 499.

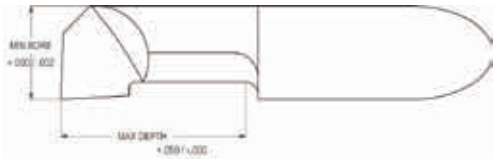
Speeds, feeds and tech info pages 544-545.



Uncoated



AlTiN Coated



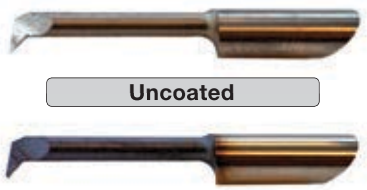
Carbide Quick Change Grooving Bars

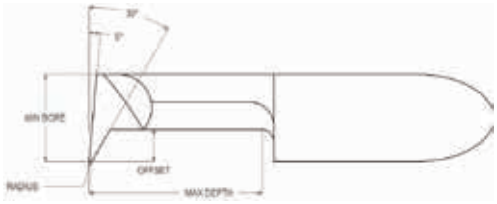
Groove Width	Minimum Bore	Offset	Max. Depth	Shank Length	Quick Change Shank ø	Uncoated Part#	AlTiN Coated Part #
.046	.185	.060	.200	.90	3/16	RQG427180	RQG427180A
	.185	.060	.300	.90	3/16	RQG427185	RQG427185A
	.185	.060	.400	1.10	3/16	RQG427190	RQG427190A
	.185	.060	.500	1.10	3/16	RQG427195	RQG427195A
	.185	.060	.600	1.30	3/16	RQG427200	RQG427200A
	.185	.060	.700	1.30	3/16	RQG427205	RQG427205A
.048	.185	.060	.200	.90	3/16	RQG427210	RQG427210A
	.185	.060	.300	.90	3/16	RQG427215	RQG427215A
	.185	.060	.400	1.10	3/16	RQG427220	RQG427220A
	.185	.060	.500	1.10	3/16	RQG427225	RQG427225A
	.185	.060	.600	1.30	3/16	RQG427230	RQG427230A
	.185	.060	.700	1.30	3/16	RQG427235	RQG427235A
.056	.185	.060	.200	.90	3/16	RQG427240	RQG427240A
	.185	.060	.300	.90	3/16	RQG427245	RQG427245A
	.185	.060	.400	1.10	3/16	RQG427250	RQG427250A
	.185	.060	.500	1.10	3/16	RQG427255	RQG427255A
	.185	.060	.600	1.30	3/16	RQG427260	RQG427260A
	.185	.060	.700	1.30	3/16	RQG427265	RQG427265A
.062	.185	.060	.200	.90	3/16	RQG427270	RQG427270A
	.185	.060	.300	.90	3/16	RQG427275	RQG427275A
	.185	.060	.400	1.10	3/16	RQG427280	RQG427280A
	.185	.060	.500	1.10	3/16	RQG427285	RQG427285A
	.185	.060	.600	1.30	3/16	RQG427290	RQG427290A
	.185	.060	.700	1.30	3/16	RQG427295	RQG427295A

Must be used with quick change bar toolholders on page 499.

Speeds, feeds and tech info pages 544-545.

Profiling - Quick Change





Carbide Quick Change Profile Bars

Minimum Bore	Offset	Max. Depth	Tip Radius	Quick Change Shank ø	Uncoated Part#	AlTiN Coated Part #
.080	.040	.200	.005	3/16	RQP425000	RQP425000A
	.040	.300	.005	3/16	RQP425005	RQP425005A
.100	.040	.200	.005	3/16	RQP425010	RQP425010A
	.040	.300	.005	3/16	RQP425015	RQP425015A
.120	.050	.200	.007	3/16	RQP425020	RQP425020A
	.050	.300	.007	3/16	RQP425025	RQP425025A
	.050	.400	.007	3/16	RQP425030	RQP425030A
	.050	.500	.007	3/16	RQP425035	RQP425035A
	.050	.600	.007	3/16	RQP425040	RQP425040A
	.050	.700	.007	3/16	RQP425045	RQP425045A
.140	.050	.200	.007	3/16	RQP425050	RQP425050A
	.050	.300	.007	3/16	RQP425055	RQP425055A
	.050	.400	.007	3/16	RQP425060	RQP425060A
	.050	.500	.007	3/16	RQP425065	RQP425065A
	.050	.600	.007	3/16	RQP425070	RQP425070A
	.050	.700	.007	3/16	RQP425075	RQP425075A
.160	.060	.200	.007	3/16	RQP425080	RQP425080A
	.060	.300	.007	3/16	RQP425085	RQP425085A
	.060	.400	.007	3/16	RQP425090	RQP425090A
	.060	.500	.007	3/16	RQP425095	RQP425095A
	.060	.600	.007	3/16	RQP425100	RQP425100A
	.060	.700	.007	3/16	RQP425105	RQP425105A
.180	.060	.200	.007	3/16	RQP425110	RQP425110A
	.060	.300	.007	3/16	RQP425115	RQP425115A
	.060	.400	.007	3/16	RQP425120	RQP425120A
	.060	.500	.007	3/16	RQP425125	RQP425125A
	.060	.600	.007	3/16	RQP425130	RQP425130A
	.060	.700	.007	3/16	RQP425135	RQP425135A

Must be used with quick change bar toolholders on page 499.

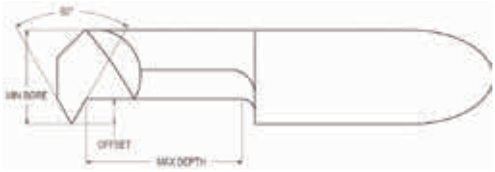
Speeds, feeds and tech info pages 542-543.



Uncoated



AlTiN Coated



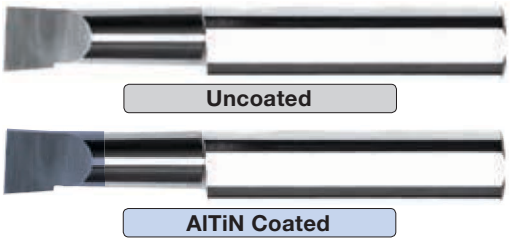
Carbide Quick Change Threading Bars

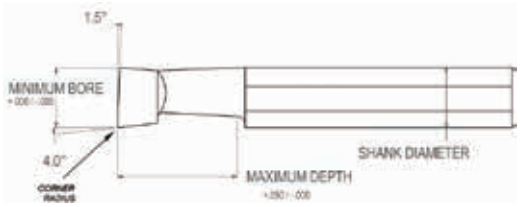
Minimum Bore	Offset	Max. Depth	Quick Change Shank ø	Uncoated Part#	AlTiN Coated Part #
.060	.025	.200	3/16	RQT423000	RQT423000A
	.025	.300	3/16	RQT423005	RQT423005A
.080	.025	.200	3/16	RQT423010	RQT423010A
	.025	.300	3/16	RQT423015	RQT423015A
	.025	.400	3/16	RQT423020	RQT423020A
	.025	.500	3/16	RQT423025	RQT423025A
.100	.030	.200	3/16	RQT423030	RQT423030A
	.030	.300	3/16	RQT423035	RQT423035A
	.030	.400	3/16	RQT423040	RQT423040A
	.030	.500	3/16	RQT423045	RQT423045A
.120	.035	.200	3/16	RQT423050	RQT423050A
	.035	.300	3/16	RQT423055	RQT423055A
	.035	.400	3/16	RQT423060	RQT423060A
	.035	.500	3/16	RQT423065	RQT423065A
.140	.040	.200	3/16	RQT423070	RQT423070A
	.040	.300	3/16	RQT423075	RQT423075A
	.040	.400	3/16	RQT423080	RQT423080A
	.040	.500	3/16	RQT423085	RQT423085A
	.040	.600	3/16	RQT423090	RQT423090A
	.040	.700	3/16	RQT423095	RQT423095A
.160	.045	.200	3/16	RQT423100	RQT423100A
	.045	.300	3/16	RQT423105	RQT423105A
	.045	.400	3/16	RQT423110	RQT423110A
	.045	.500	3/16	RQT423115	RQT423115A
	.045	.600	3/16	RQT423120	RQT423120A
	.045	.700	3/16	RQT423125	RQT423125A
.180	.045	.200	3/16	RQT423130	RQT423130A
	.045	.300	3/16	RQT423135	RQT423135A
	.045	.400	3/16	RQT423140	RQT423140A
	.045	.500	3/16	RQT423145	RQT423145A
	.045	.600	3/16	RQT423150	RQT423150A
	.045	.700	3/16	RQT423155	RQT423155A

Must be used with quick change bar toolholders on page 499.

Speeds, feeds and tech info pages 546-547.

Sharp Corner



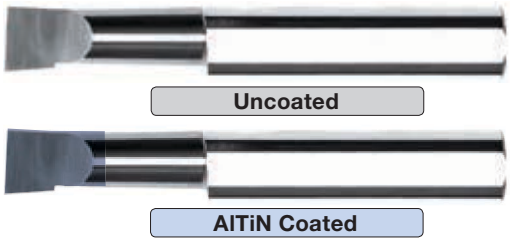


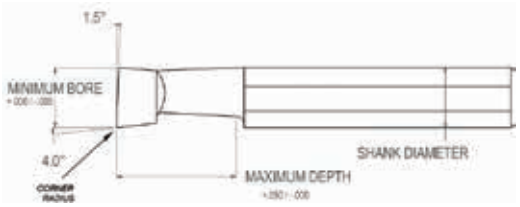
Carbide Boring Bars Sharp Corner

Minimum Bore	Max. Depth	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.050	.150	2	1/8	RBB101000	RBB101000A
	.200	2	1/8	RBB101005	RBB101005A
	.300	2	1/8	RBB101010	RBB101010A
	.400	2	1/8	RBB101015	RBB101015A
.060	.150	2	1/8	RBB101020	RBB101020A
	.200	2	1/8	RBB101025	RBB101025A
	.300	2	1/8	RBB101030	RBB101030A
	.400	2	1/8	RBB101035	RBB101035A
	.500	2	1/8	RBB101040	RBB101040A
.080	.150	2	1/8	RBB101045	RBB101045A
	.200	2	1/8	RBB101050	RBB101050A
	.300	2	1/8	RBB101055	RBB101055A
	.400	2	1/8	RBB101060	RBB101060A
	.500	2	1/8	RBB101065	RBB101065A
	.600	2	1/8	RBB101070	RBB101070A
.100	.150	2	1/8	RBB101075	RBB101075A
	.200	2	1/8	RBB101080	RBB101080A
	.300	2	1/8	RBB101085	RBB101085A
	.400	2	1/8	RBB101090	RBB101090A
	.500	2	1/8	RBB101095	RBB101095A
	.600	2	1/8	RBB101100	RBB101100A
	.700	2	1/8	RBB101105	RBB101105A
.110	.150	2	1/8	RBB101110	RBB101110A
	.200	2	1/8	RBB101115	RBB101115A
	.300	2	1/8	RBB101120	RBB101120A
	.400	2	1/8	RBB101125	RBB101125A
	.500	2	1/8	RBB101130	RBB101130A
	.600	2	1/8	RBB101135	RBB101135A
	.700	2	1/8	RBB101140	RBB101140A
.120	.250	2-1/2	3/16	RBB101145	RBB101145A
	.350	2-1/2	3/16	RBB101150	RBB101150A
	.500	2-1/2	3/16	RBB101155	RBB101155A
	.600	2-1/2	3/16	RBB101160	RBB101160A
	.700	2-1/2	3/16	RBB101165	RBB101165A
	.800	2-1/2	3/16	RBB101170	RBB101170A
.140	.250	2-1/2	3/16	RBB101175	RBB101175A
	.400	2-1/2	3/16	RBB101180	RBB101180A
	.500	2-1/2	3/16	RBB101185	RBB101185A
	.600	2-1/2	3/16	RBB101190	RBB101190A
	.700	2-1/2	3/16	RBB101195	RBB101195A
	.750	2-1/2	3/16	RBB101200	RBB101200A
	.800	2-1/2	3/16	RBB101205	RBB101205A

Continued

Speeds, feeds and tech info pages 542-543.





Carbide Boring Bars Sharp Corner

Minimum Bore	Max. Depth	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.160	.250	2-1/2	3/16	RBB101210	RBB101210A
	.400	2-1/2	3/16	RBB101215	RBB101215A
	.500	2-1/2	3/16	RBB101220	RBB101220A
	.600	2-1/2	3/16	RBB101225	RBB101225A
	.750	2-1/2	3/16	RBB101230	RBB101230A
	.900	2-1/2	3/16	RBB101235	RBB101235A
	1.000	2-1/2	3/16	RBB101240	RBB101240A
.180	.350	2-1/2	1/4	RBB101245	RBB101245A
	.500	2-1/2	1/4	RBB101250	RBB101250A
	.600	2-1/2	1/4	RBB101255	RBB101255A
	.750	2-1/2	1/4	RBB101260	RBB101260A
	.900	2-1/2	1/4	RBB101265	RBB101265A
	1.000	2-1/2	1/4	RBB101270	RBB101270A
	1.100	2-1/2	1/4	RBB101275	RBB101275A
.200	.400	2-1/2	1/4	RBB101280	RBB101280A
	.500	2-1/2	1/4	RBB101285	RBB101285A
	.600	2-1/2	1/4	RBB101290	RBB101290A
	.700	2-1/2	1/4	RBB101295	RBB101295A
	.800	2-1/2	1/4	RBB101300	RBB101300A
	.900	2-1/2	1/4	RBB101305	RBB101305A
	1.000	2-1/2	1/4	RBB101310	RBB101310A
	1.100	2-1/2	1/4	RBB101315	RBB101315A
	1.200	2-1/2	1/4	RBB101320	RBB101320A
	1.300	2-1/2	1/4	RBB101325	RBB101325A
.230	.400	2-1/2	5/16	RBB101330	RBB101330A
	.500	2-1/2	5/16	RBB101335	RBB101335A
	.600	2-1/2	5/16	RBB101340	RBB101340A
	.700	2-1/2	5/16	RBB101345	RBB101345A
	.800	2-1/2	5/16	RBB101350	RBB101350A
	.900	2-1/2	5/16	RBB101355	RBB101355A
	1.000	2-1/2	5/16	RBB101360	RBB101360A
	1.150	2-1/2	5/16	RBB101365	RBB101365A
	1.200	2-1/2	5/16	RBB101370	RBB101370A
	1.250	2-1/2	5/16	RBB101375	RBB101375A
	1.400	2-1/2	5/16	RBB101380	RBB101380A
	1.500	2-1/2	5/16	RBB101385	RBB101385A
	1.600	2-1/2	5/16	RBB101390	RBB101390A

Continued

Speeds, feeds and tech info pages 542-543.

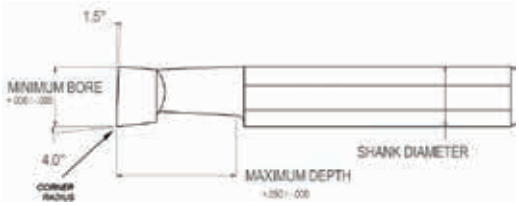
Sharp Corner



Uncoated



AlTiN Coated

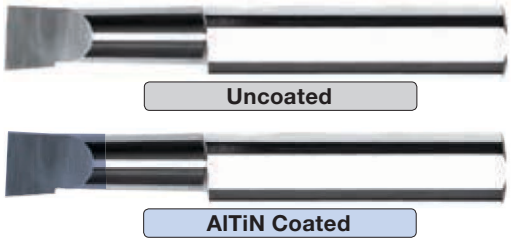


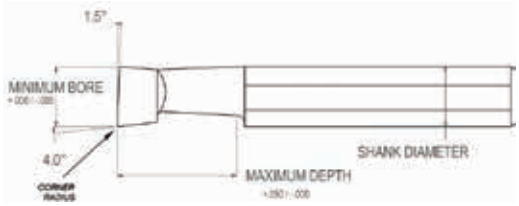
Carbide Boring Bars Sharp Corner

Minimum Bore	Max. Depth	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.290	.500	2-1/2	5/16	RBB101395	RBB101395A
	.600	2-1/2	5/16	RBB101400	RBB101400A
	.750	2-1/2	5/16	RBB101405	RBB101405A
	.900	2-1/2	5/16	RBB101410	RBB101410A
	1.000	2-1/2	5/16	RBB101415	RBB101415A
	1.100	2-1/2	5/16	RBB101420	RBB101420A
	1.250	2-1/2	5/16	RBB101425	RBB101425A
	1.350	2-1/2	5/16	RBB101430	RBB101430A
	1.500	2-1/2	5/16	RBB101435	RBB101435A
	1.600	2-1/2	5/16	RBB101440	RBB101440A
	1.750	2-1/2	5/16	RBB101445	RBB101445A
.320	.500	2-1/2	3/8	RBB101450	RBB101450A
	.600	2-1/2	3/8	RBB101455	RBB101455A
	.750	2-1/2	3/8	RBB101460	RBB101460A
	.900	2-1/2	3/8	RBB101465	RBB101465A
	1.000	2-1/2	3/8	RBB101470	RBB101470A
	1.100	2-1/2	3/8	RBB101475	RBB101475A
	1.125	2-1/2	3/8	RBB101480	RBB101480A
	1.500	2-1/2	3/8	RBB101485	RBB101485A
	1.600	2-1/2	3/8	RBB101490	RBB101490A
	1.800	2-1/2	3/8	RBB101495	RBB101495A
	2.000	4	3/8	RBB101500	RBB101500A
	2.500	4	3/8	RBB101505	RBB101505A
	3.000	4	3/8	RBB101510	RBB101510A
.360	.500	2-1/2	3/8	RBB101515	RBB101515A
	.600	2-1/2	3/8	RBB101520	RBB101520A
	.750	2-1/2	3/8	RBB101525	RBB101525A
	.900	2-1/2	3/8	RBB101530	RBB101530A
	1.000	2-1/2	3/8	RBB101535	RBB101535A
	1.150	2-1/2	3/8	RBB101540	RBB101540A
	1.250	2-1/2	3/8	RBB101545	RBB101545A
	1.500	2-1/2	3/8	RBB101550	RBB101550A
	1.600	2-1/2	3/8	RBB101555	RBB101555A
	1.800	2-1/2	3/8	RBB101560	RBB101560A
	2.000	4	3/8	RBB101565	RBB101565A
	2.500	4	3/8	RBB101570	RBB101570A
	3.000	4	3/8	RBB101575	RBB101575A

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Speeds, feeds and tech info pages 542-543.





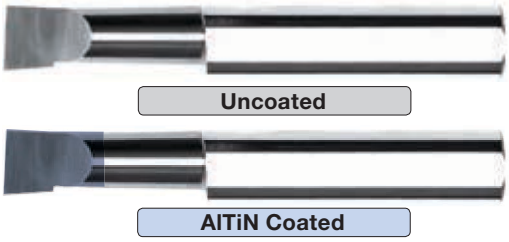
Carbide Boring Bars Sharp Corner

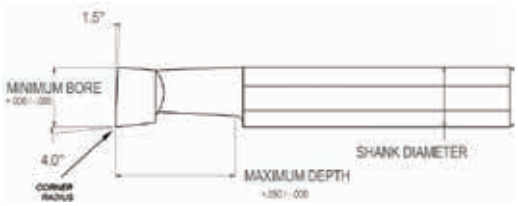
Minimum Bore	Max. Depth	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.490	.750	3	1/2	RBB101580	RBB101580A
	1.000	3	1/2	RBB101585	RBB101585A
	1.250	3	1/2	RBB101590	RBB101590A
	1.500	3	1/2	RBB101595	RBB101595A
	2.000	4	1/2	RBB101600	RBB101600A
	2.500	4	1/2	RBB101605	RBB101605A
	2.600	4	1/2	RBB101610	RBB101610A
	3.000	6	1/2	RBB101615	RBB101615A
	3.500	6	1/2	RBB101620	RBB101620A
	4.000	6	1/2	RBB101625	RBB101625A
	4.500	6	1/2	RBB101630	RBB101630A

Speeds, feeds and tech info pages 542-543.

Radius

NEW Product





Carbide Boring Bars With Radius

Minimum Bore	Max. Depth	OAL	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
.050	.150	2	.003/.005	1/8	RBB101000R	RBB101000RA
	.200	2	.003/.005	1/8	RBB101005R	RBB101005RA
	.300	2	.003/.005	1/8	RBB101010R	RBB101010RA
	.400	2	.003/.005	1/8	RBB101015R	RBB101015RA
.060	.150	2	.003/.005	1/8	RBB101020R	RBB101020RA
	.200	2	.003/.005	1/8	RBB101025R	RBB101025RA
	.300	2	.003/.005	1/8	RBB101030R	RBB101030RA
	.400	2	.003/.005	1/8	RBB101035R	RBB101035RA
	.500	2	.003/.005	1/8	RBB101040R	RBB101040RA
.080	.150	2	.003/.005	1/8	RBB101045R	RBB101045RA
	.200	2	.003/.005	1/8	RBB101050R	RBB101050RA
	.300	2	.003/.005	1/8	RBB101055R	RBB101055RA
	.400	2	.003/.005	1/8	RBB101060R	RBB101060RA
	.500	2	.003/.005	1/8	RBB101065R	RBB101065RA
	.600	2	.003/.005	1/8	RBB101070R	RBB101070RA
.100	.150	2	.003/.005	1/8	RBB101075R	RBB101075RA
	.200	2	.003/.005	1/8	RBB101080R	RBB101080RA
	.300	2	.003/.005	1/8	RBB101085R	RBB101085RA
	.400	2	.003/.005	1/8	RBB101090R	RBB101090RA
	.500	2	.003/.005	1/8	RBB101095R	RBB101095RA
	.600	2	.003/.005	1/8	RBB101100R	RBB101100RA
	.700	2	.003/.005	1/8	RBB101105R	RBB101105RA
.110	.150	2	.003/.005	1/8	RBB101110R	RBB101110RA
	.200	2	.003/.005	1/8	RBB101115R	RBB101115RA
	.300	2	.003/.005	1/8	RBB101120R	RBB101120RA
	.400	2	.003/.005	1/8	RBB101125R	RBB101125RA
	.500	2	.003/.005	1/8	RBB101130R	RBB101130RA
	.600	2	.003/.005	1/8	RBB101135R	RBB101135RA
	.700	2	.003/.005	1/8	RBB101140R	RBB101140RA
.120	.250	2-1/2	.005/.008	3/16	RBB101145R	RBB101145RA
	.350	2-1/2	.005/.008	3/16	RBB101150R	RBB101150RA
	.500	2-1/2	.005/.008	3/16	RBB101155R	RBB101155RA
	.600	2-1/2	.005/.008	3/16	RBB101160R	RBB101160RA
	.700	2-1/2	.005/.008	3/16	RBB101165R	RBB101165RA
	.800	2-1/2	.005/.008	3/16	RBB101170R	RBB101170RA
.140	.250	2-1/2	.005/.008	3/16	RBB101175R	RBB101175RA
	.400	2-1/2	.005/.008	3/16	RBB101180R	RBB101180RA
	.500	2-1/2	.005/.008	3/16	RBB101185R	RBB101185RA
	.600	2-1/2	.005/.008	3/16	RBB101190R	RBB101190RA
	.700	2-1/2	.005/.008	3/16	RBB101195R	RBB101195RA
	.750	2-1/2	.005/.008	3/16	RBB101200R	RBB101200RA
	.800	2-1/2	.005/.008	3/16	RBB101205R	RBB101205RA

Continued

Speeds, feeds and tech info pages 542-543.

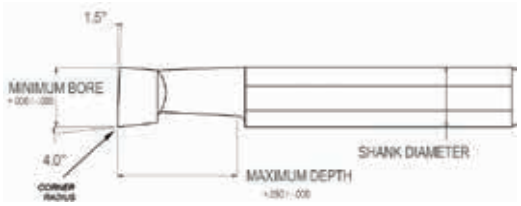
NEW Product



Uncoated



AlTiN Coated



Carbide Boring Bars With Radius

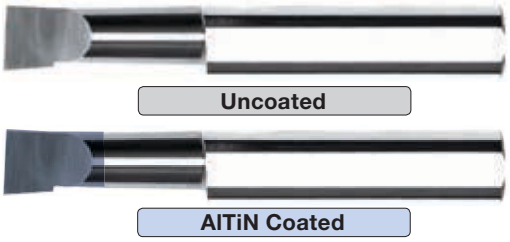
Minimum Bore	Max. Depth	OAL	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
.160	.250	2-1/2	.005/.008	3/16	RBB101210R	RBB101210RA
	.400	2-1/2	.005/.008	3/16	RBB101215R	RBB101215RA
	.500	2-1/2	.005/.008	3/16	RBB101220R	RBB101220RA
	.600	2-1/2	.005/.008	3/16	RBB101225R	RBB101225RA
	.750	2-1/2	.005/.008	3/16	RBB101230R	RBB101230RA
	.900	2-1/2	.005/.008	3/16	RBB101235R	RBB101235RA
	1.000	2-1/2	.005/.008	3/16	RBB101240R	RBB101240RA
.180	.350	2-1/2	.005/.008	1/4	RBB101245R	RBB101245RA
	.500	2-1/2	.005/.008	1/4	RBB101250R	RBB101250RA
	.600	2-1/2	.005/.008	1/4	RBB101255R	RBB101255RA
	.750	2-1/2	.005/.008	1/4	RBB101260R	RBB101260RA
	.900	2-1/2	.005/.008	1/4	RBB101265R	RBB101265RA
	1.000	2-1/2	.005/.008	1/4	RBB101270R	RBB101270RA
	1.100	2-1/2	.005/.008	1/4	RBB101275R	RBB101275RA
.200	.400	2-1/2	.005/.008	1/4	RBB101280R	RBB101280RA
	.500	2-1/2	.005/.008	1/4	RBB101285R	RBB101285RA
	.600	2-1/2	.005/.008	1/4	RBB101290R	RBB101290RA
	.700	2-1/2	.005/.008	1/4	RBB101295R	RBB101295RA
	.800	2-1/2	.005/.008	1/4	RBB101300R	RBB101300RA
	.900	2-1/2	.005/.008	1/4	RBB101305R	RBB101305RA
	1.000	2-1/2	.005/.008	1/4	RBB101310R	RBB101310RA
	1.100	2-1/2	.005/.008	1/4	RBB101315R	RBB101315RA
	1.200	2-1/2	.005/.008	1/4	RBB101320R	RBB101320RA
	1.300	2-1/2	.005/.008	1/4	RBB101325R	RBB101325RA
.230	.400	2-1/2	.005/.008	5/16	RBB101330R	RBB101330RA
	.500	2-1/2	.005/.008	5/16	RBB101335R	RBB101335RA
	.600	2-1/2	.005/.008	5/16	RBB101340R	RBB101340RA
	.700	2-1/2	.005/.008	5/16	RBB101345R	RBB101345RA
	.800	2-1/2	.005/.008	5/16	RBB101350R	RBB101350RA
	.900	2-1/2	.005/.008	5/16	RBB101355R	RBB101355RA
	1.000	2-1/2	.005/.008	5/16	RBB101360R	RBB101360RA
	1.150	2-1/2	.005/.008	5/16	RBB101365R	RBB101365RA
	1.200	2-1/2	.005/.008	5/16	RBB101370R	RBB101370RA
	1.250	2-1/2	.005/.008	5/16	RBB101375R	RBB101375RA
	1.400	2-1/2	.005/.008	5/16	RBB101380R	RBB101380RA
	1.500	2-1/2	.005/.008	5/16	RBB101385R	RBB101385RA
	1.600	2-1/2	.005/.008	5/16	RBB101390R	RBB101390RA

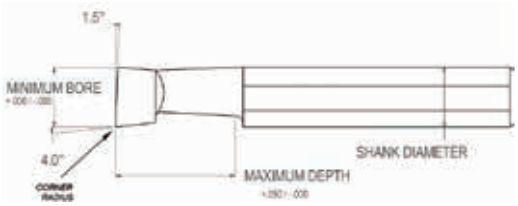
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Speeds, feeds and tech info pages 542-543.

Radius

NEW Product





Carbide Boring Bars With Radius

Minimum Bore	Max. Depth	OAL	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
.290	.500	2-1/2	.005/.008	5/16	RBB101395R	RBB101395RA
	.600	2-1/2	.005/.008	5/16	RBB101400R	RBB101400RA
	.750	2-1/2	.005/.008	5/16	RBB101405R	RBB101405RA
	.900	2-1/2	.005/.008	5/16	RBB101410R	RBB101410RA
	1.000	2-1/2	.005/.008	5/16	RBB101415R	RBB101415RA
	1.100	2-1/2	.005/.008	5/16	RBB101420R	RBB101420RA
	1.250	2-1/2	.005/.008	5/16	RBB101425R	RBB101425RA
	1.350	2-1/2	.005/.008	5/16	RBB101430R	RBB101430RA
	1.500	2-1/2	.005/.008	5/16	RBB101435R	RBB101435RA
	1.600	2-1/2	.005/.008	5/16	RBB101440R	RBB101440RA
	1.750	2-1/2	.005/.008	5/16	RBB101445R	RBB101445RA
.320	.500	2-1/2	.005/.008	3/8	RBB101450R	RBB101450RA
	.600	2-1/2	.005/.008	3/8	RBB101455R	RBB101455RA
	.750	2-1/2	.005/.008	3/8	RBB101460R	RBB101460RA
	.900	2-1/2	.005/.008	3/8	RBB101465R	RBB101465RA
	1.000	2-1/2	.005/.008	3/8	RBB101470R	RBB101470RA
	1.100	2-1/2	.005/.008	3/8	RBB101475R	RBB101475RA
	1.125	2-1/2	.005/.008	3/8	RBB101480R	RBB101480RA
	1.500	2-1/2	.005/.008	3/8	RBB101485R	RBB101485RA
	1.600	2-1/2	.005/.008	3/8	RBB101490R	RBB101490RA
	1.800	2-1/2	.005/.008	3/8	RBB101495R	RBB101495RA
	2.000	4	.005/.008	3/8	RBB101500R	RBB101500RA
	2.500	4	.005/.008	3/8	RBB101505R	RBB101505RA
	3.000	4	.005/.008	3/8	RBB101510R	RBB101510RA
.360	.500	2-1/2	.005/.008	3/8	RBB101515R	RBB101515RA
	.600	2-1/2	.005/.008	3/8	RBB101520R	RBB101520RA
	.750	2-1/2	.005/.008	3/8	RBB101525R	RBB101525RA
	.900	2-1/2	.005/.008	3/8	RBB101530R	RBB101530RA
	1.000	2-1/2	.005/.008	3/8	RBB101535R	RBB101535RA
	1.150	2-1/2	.005/.008	3/8	RBB101540R	RBB101540RA
	1.250	2-1/2	.005/.008	3/8	RBB101545R	RBB101545RA
	1.500	2-1/2	.005/.008	3/8	RBB101550R	RBB101550RA
	1.600	2-1/2	.005/.008	3/8	RBB101555R	RBB101555RA
	1.800	2-1/2	.005/.008	3/8	RBB101560R	RBB101560RA
	2.000	4	.005/.008	3/8	RBB101565R	RBB101565RA
	2.500	4	.005/.008	3/8	RBB101570R	RBB101570RA
	3.000	4	.005/.008	3/8	RBB101575R	RBB101575RA

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Speeds, feeds and tech info pages 542-543.

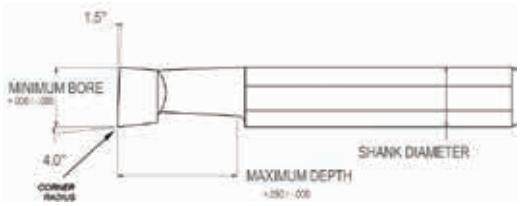
NEW Product



Uncoated



AlTiN Coated



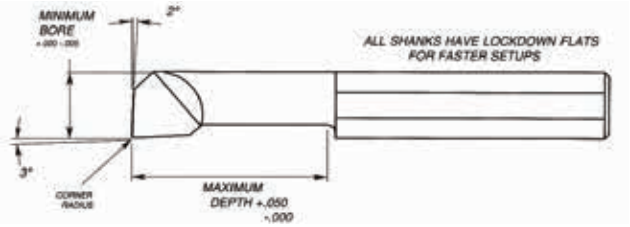
Carbide Boring Bars With Radius

Minimum Bore	Max. Depth	OAL	Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
.490	.750	3	.005/.008	1/2	RBB101580R	RBB101580RA
	1.000	3	.005/.008	1/2	RBB101585R	RBB101585RA
	1.250	3	.005/.008	1/2	RBB101590R	RBB101590RA
	1.500	3	.005/.008	1/2	RBB101595R	RBB101595RA
	2.000	4	.005/.008	1/2	RBB101600R	RBB101600RA
	2.500	4	.005/.008	1/2	RBB101605R	RBB101605RA
	2.600	4	.005/.008	1/2	RBB101610R	RBB101610RA
	3.000	6	.005/.008	1/2	RBB101615R	RBB101615RA
	3.500	6	.005/.008	1/2	RBB101620R	RBB101620RA
	4.000	6	.005/.008	1/2	RBB101625R	RBB101625RA
	4.500	6	.005/.008	1/2	RBB101630R	RBB101630RA

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AlTiN Coated



Carbide Extreme Boring Tools

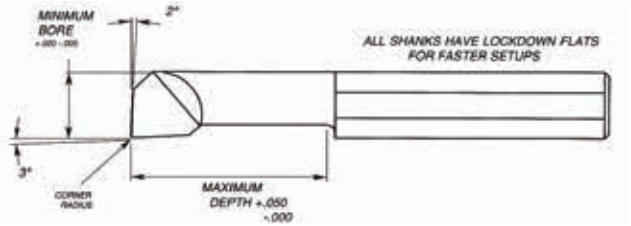
Minimum Bore	Max. Depth	Radius	OAL	Shank ø	AlTiN Coated Part #
.050	.200	.007	2	1/8	RBB181000
	.300	.007	2	1/8	RBB181005
	.400	.007	2	1/8	RBB181010
.060	.200	.007	2	1/8	RBB181015
	.300	.007	2	1/8	RBB181020
	.400	.007	2	1/8	RBB181025
	.500	.007	2	1/8	RBB181030
.080	.200	.007	2	1/8	RBB181035
	.300	.007	2	1/8	RBB181040
	.400	.007	2	1/8	RBB181045
	.500	.007	2	1/8	RBB181050
	.600	.007	2	1/8	RBB181055
.090	.400	.007	2	1/8	RBB181060
	.500	.007	2	1/8	RBB181065
	.600	.007	2	1/8	RBB181070
.100	.300	.007	2	1/8	RBB181075
	.400	.007	2	1/8	RBB181080
	.500	.007	2	1/8	RBB181085
	.600	.007	2	1/8	RBB181090
	.700	.007	2	1/8	RBB181095
.110	.300	.007	2	1/8	RBB181100
	.400	.007	2	1/8	RBB181105
	.500	.007	2	1/8	RBB181110
	.600	.007	2	1/8	RBB181115
	.700	.007	2	1/8	RBB181120
.120	.400	.007	2	1/8	RBB181125
	.500	.007	2	1/8	RBB181130
	.600	.007	2	1/8	RBB181135
	.700	.007	2	1/8	RBB181140
	.800	.007	2	1/8	RBB181145
.140	.400	.007	2-1/2	3/16	RBB181150
	.500	.007	2-1/2	3/16	RBB181155
	.600	.007	2-1/2	3/16	RBB181160
	.700	.007	2-1/2	3/16	RBB181165
	.800	.007	2-1/2	3/16	RBB181170
	.900	.007	2-1/2	3/16	RBB181175
	1.000	.007	2-1/2	3/16	RBB181180
	1.250	.007	2-1/2	3/16	RBB181185
.160	.500	.007	2-1/2	3/16	RBB181190
	.600	.007	2-1/2	3/16	RBB181195
	.800	.007	2-1/2	3/16	RBB181200
	1.000	.007	2-1/2	3/16	RBB181205
	1.250	.007	2-1/2	3/16	RBB181210

Continued

Speeds, feeds and tech info pages 542-543.



AlTiN Coated



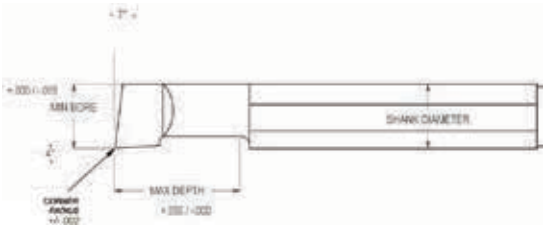
Carbide Extreme Boring Tools

Minimum Bore	Max. Depth	Radius	OAL	Shank ø	AlTiN Coated Part #
.180	.400	.007	2-1/2	3/16	RBB181212
	.500	.007	2-1/2	3/16	RBB181215
	.600	.007	2-1/2	3/16	RBB181220
	.800	.007	2-1/2	3/16	RBB181225
	1.000	.007	2-1/2	3/16	RBB181230
	1.250	.007	2-1/2	3/16	RBB181235
	1.500	.007	2-1/2	3/16	RBB181240
.200	.400	.007	2-1/2	1/4	RBB181242
	.500	.007	2-1/2	1/4	RBB181245
	.800	.007	2-1/2	1/4	RBB181250
	1.000	.007	2-1/2	1/4	RBB181255
	1.250	.007	2-1/2	1/4	RBB181260
	1.500	.007	2-1/2	1/4	RBB181265
	1.750	.007	2-1/2	1/4	RBB181270
.240	.500	.007	2-1/2	1/4	RBB181275
	.800	.007	2-1/2	1/4	RBB181280
	1.000	.007	2-1/2	1/4	RBB181285
	1.250	.007	2-1/2	1/4	RBB181290
	1.500	.007	2-1/2	1/4	RBB181295
.290	.750	.007	2-1/2	5/16	RBB181300
	1.000	.007	2-1/2	5/16	RBB181305
	1.250	.007	2-1/2	5/16	RBB181310
	1.500	.007	2-1/2	5/16	RBB181315
	1.750	.007	2-1/2	5/16	RBB181320
.310	.500	.007	2-1/2	5/16	RBB181325
	.750	.007	2-1/2	5/16	RBB181330
	1.000	.007	2-1/2	5/16	RBB181335
	1.250	.007	2-1/2	5/16	RBB181340
	1.500	.007	2-1/2	5/16	RBB181345
	1.750	.007	2-1/2	5/16	RBB181350
.360	.500	.015	2-1/2	3/8	RBB181355
	.750	.015	2-1/2	3/8	RBB181360
	1.000	.015	2-1/2	3/8	RBB181365
	1.250	.015	2-1/2	3/8	RBB181370
	1.500	.015	2-1/2	3/8	RBB181375
.490	.750	.015	3	1/2	RBB181380
	1.000	.015	3	1/2	RBB181385
	1.250	.015	3	1/2	RBB181390

Speeds, feeds and tech info pages 542-543.



ZrN Coated



Carbide Boring Bars for Aluminum

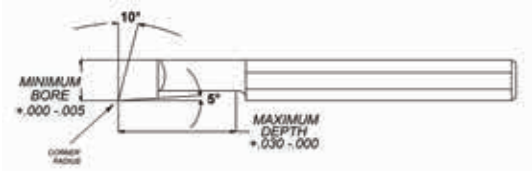
Minimum Bore	Max. Depth	Radius	OAL	Shank ø	ZrN Coated Part #
.120	.250	.007	2	1/8	RBB191200
	.500	.007	2	1/8	RBB191250
	.800	.007	2	1/8	RBB191290
.180	.500	.007	2-1/2	3/16	RBB191300
	.750	.007	2-1/2	3/16	RBB191350
	1.250	.007	2-1/2	3/16	RBB191390
.240	.500	.007	2-1/2	1/4	RBB191400
	.750	.007	2-1/2	1/4	RBB191450
	1.250	.007	2-1/2	1/4	RBB191490
.370	.500	.015	2-1/2	3/8	RBB191500
	.750	.015	2-1/2	3/8	RBB191550
	1.250	.015	2-1/2	3/8	RBB191590
.490	.750	.015	3	1/2	RBB191600
	1.000	.015	3	1/2	RBB191650
	1.500	.015	3	1/2	RBB191690

Speeds, feeds and tech info pages 542-543.

NEW Product



Uncoated

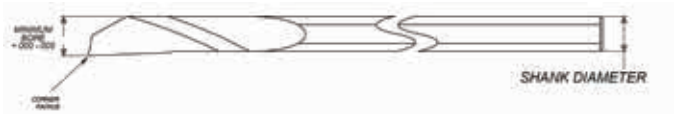


Carbide Boring Bars for Plastic

Minimum Bore	Offset	Max. Depth	Neck ø	OAL	Shank ø	Uncoated Part #
.120	.030	.250	.090	2	1/8	RBB911000
	.030	.500	.090	2	1/8	RBB911010
	.030	.800	.090	2	1/8	RBB911020
.180	.045	.500	.135	2-1/2	3/16	RBB911030
	.045	.750	.135	2-1/2	3/16	RBB911040
	.045	1.250	.135	2-1/2	3/16	RBB911050
.240	.040	.500	.200	2-1/2	1/4	RBB911060
	.040	.750	.200	2-1/2	1/4	RBB911070
	.040	1.250	.200	2-1/2	1/4	RBB911080
.370	.070	.500	.300	2-1/2	3/8	RBB911090
	.070	.750	.300	2-1/2	3/8	RBB911100
	.070	1.250	.300	2-1/2	3/8	RBB911110
.490	.080	.750	.410	3	1/2	RBB911120
	.080	1.000	.410	3	1/2	RBB911130
	.080	1.500	.410	3	1/2	RBB911140



Uncoated



Carbide Long-Reach Boring Bars

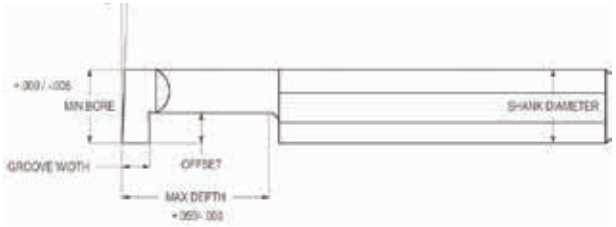
Minimum Bore	OAL	Corner Radius	Shank ø	Uncoated Part #	AlTiN Coated Part #
.220	4	.005	3/16	RBB041095	RBB041095A
.280	4	.007	1/4	RBB041100	RBB041100A
.350	4	.007	5/16	RBB041110	RBB041110A
.420	6	.010	3/8	RBB041120	RBB041120A
.560	6	.010	1/2	RBB041130	RBB041130A
.700	6	.015	5/8	RBB041140	RBB041140A

Speeds, feeds and tech info pages 542-543.

Grooving



Uncoated



Carbide Grooving Bars

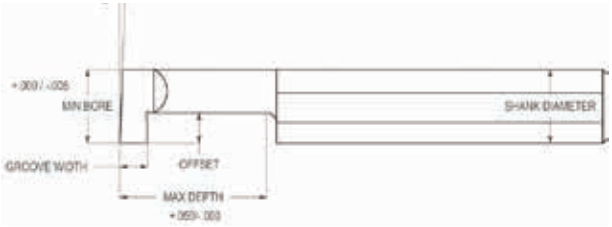
Minimum Bore	Groove Width	Offset	Max. Depth	OAL	Shank ø	Uncoated Part #
.060	.031/.032	.020	.187	1-1/2	1/8	RGB201170
	.031/.032	.020	.250	1-1/2	1/8	RGB201175
	.031/.032	.020	.375	1-1/2	1/8	RGB201180
.090	.046/.047	.030	.250	2	1/8	RGB201185
	.046/.047	.030	.375	2	1/8	RGB201190
	.046/.047	.030	.500	2	1/8	RGB201195
.120	.062/.063	.040	.250	2	1/8	RGB201200
	.062/.063	.040	.375	2	1/8	RGB201205
	.062/.063	.040	.500	2	1/8	RGB201210
	.062/.063	.040	.625	2	1/8	RGB201215
.187	.017/.018	.050	.250	2-1/2	3/16	RGB201220
	.017/.018	.050	.375	2-1/2	3/16	RGB201225
	.017/.018	.050	.500	2-1/2	3/16	RGB201230
	.017/.018	.050	.625	2-1/2	3/16	RGB201235
	.025/.026	.050	.250	2-1/2	3/16	RGB201240
	.025/.026	.050	.375	2-1/2	3/16	RGB201245
	.025/.026	.050	.500	2-1/2	3/16	RGB201250
	.025/.026	.050	.625	2-1/2	3/16	RGB201255
	.030/.031	.050	.250	2-1/2	3/16	RGB201260
	.030/.031	.050	.375	2-1/2	3/16	RGB201265
	.030/.031	.050	.500	2-1/2	3/16	RGB201270
	.030/.031	.050	.625	2-1/2	3/16	RGB201275
	.062/.063	.050	.250	2-1/2	3/16	RGB201280
	.062/.063	.050	.375	2-1/2	3/16	RGB201285
	.062/.063	.050	.500	2-1/2	3/16	RGB201290
	.062/.063	.050	.625	2-1/2	3/16	RGB201295
.250	.017/.018	.050	.250	2-1/2	1/4	RGB201300
	.017/.018	.050	.375	2-1/2	1/4	RGB201305
	.017/.018	.050	.500	2-1/2	1/4	RGB201310
	.017/.018	.050	.625	2-1/2	1/4	RGB201315
	.025/.026	.050	.250	2-1/2	1/4	RGB201320
	.025/.026	.050	.375	2-1/2	1/4	RGB201325
	.025/.026	.050	.500	2-1/2	1/4	RGB201330
	.025/.026	.050	.625	2-1/2	1/4	RGB201335
	.030/.031	.050	.250	2-1/2	1/4	RGB201340
	.030/.031	.050	.375	2-1/2	1/4	RGB201345
	.030/.031	.050	.500	2-1/2	1/4	RGB201350
	.030/.031	.050	.625	2-1/2	1/4	RGB201355
	.062/.064	.050	.375	2-1/2	1/4	RGB201356
	.062/.064	.050	.500	2-1/2	1/4	RGB201357
	.062/.064	.050	.625	2-1/2	1/4	RGB201358

Continued

Speeds, feeds and tech info pages 544-545.



Uncoated



Carbide Grooving Bars

Minimum Bore	Groove Width	Offset	Max. Depth	OAL	Shank ø	Uncoated Part #
.312	.033/.034	.100	.250	2-1/2	5/16	RGB201360
	.033/.034	.100	.375	2-1/2	5/16	RGB201365
	.033/.034	.100	.500	2-1/2	5/16	RGB201370
	.033/.034	.100	.750	2-1/2	5/16	RGB201375
	.038/.039	.100	.250	2-1/2	5/16	RGB201380
	.038/.039	.100	.375	2-1/2	5/16	RGB201385
	.038/.039	.100	.500	2-1/2	5/16	RGB201390
	.038/.039	.100	.750	2-1/2	5/16	RGB201395
	.062/.064	.100	.500	2-1/2	5/16	RGB201400
	.062/.064	.100	.750	2-1/2	5/16	RGB201405
	.062/.064	.100	1.000	2-1/2	5/16	RGB201410
	.093/.095	.100	.500	2-1/2	5/16	RGB201415
	.093/.095	.100	.750	2-1/2	5/16	RGB201420
	.093/.095	.100	1.000	2-1/2	5/16	RGB201425
.375	.039/.041	.100	.250	2-1/2	3/8	RGB201430
	.039/.041	.100	.375	2-1/2	3/8	RGB201435
	.039/.041	.100	.500	2-1/2	3/8	RGB201440
	.039/.041	.100	.750	2-1/2	3/8	RGB201445
	.039/.041	.100	1.000	2-1/2	3/8	RGB201450
	.039/.041	.100	1.250	2-1/2	3/8	RGB201455
	.046/.048	.100	.250	2-1/2	3/8	RGB201460
	.046/.048	.100	.375	2-1/2	3/8	RGB201465
	.046/.048	.100	.500	2-1/2	3/8	RGB201470
	.046/.048	.100	.750	2-1/2	3/8	RGB201475
	.046/.048	.100	1.000	2-1/2	3/8	RGB201480
	.046/.048	.100	1.250	2-1/2	3/8	RGB201485
	.055/.057	.100	.250	2-1/2	3/8	RGB201490
	.055/.057	.100	.375	2-1/2	3/8	RGB201495
	.055/.057	.100	.500	2-1/2	3/8	RGB201500
	.055/.057	.100	.750	2-1/2	3/8	RGB201505
	.055/.057	.100	1.000	2-1/2	3/8	RGB201510
	.055/.057	.100	1.250	2-1/2	3/8	RGB201515
	.062/.064	.100	.250	2-1/2	3/8	RGB201520
	.062/.064	.100	.375	2-1/2	3/8	RGB201525
	.062/.064	.100	.500	2-1/2	3/8	RGB201530
	.062/.064	.100	.750	2-1/2	3/8	RGB201535
	.062/.064	.100	1.000	2-1/2	3/8	RGB201540
	.062/.064	.100	1.250	2-1/2	3/8	RGB201545
	.069/.071	.100	.250	2-1/2	3/8	RGB201550
	.069/.071	.100	.375	2-1/2	3/8	RGB201555
	.069/.071	.100	.500	2-1/2	3/8	RGB201560

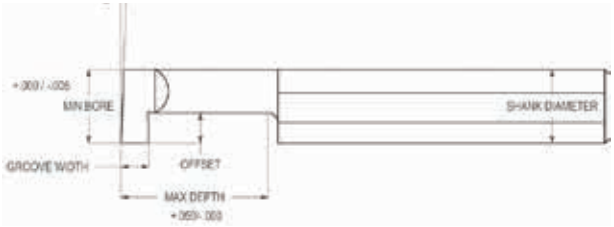
Continued

Speeds, feeds and tech info pages 544-545.

Grooving



Uncoated



Carbide Grooving Bars

Minimum Bore	Groove Width	Offset	Max. Depth	OAL	Shank ø	Uncoated Part #
.375	.069/.071	.100	.750	2-1/2	3/8	RGB201565
	.069/.071	.100	1.000	2-1/2	3/8	RGB201570
	.069/.071	.100	1.250	2-1/2	3/8	RGB201575
	.087/.089	.100	.250	2-1/2	3/8	RGB201580
	.087/.089	.100	.375	2-1/2	3/8	RGB201585
	.087/.089	.100	.500	2-1/2	3/8	RGB201590
	.087/.089	.100	.750	2-1/2	3/8	RGB201595
	.087/.089	.100	1.000	2-1/2	3/8	RGB201600
	.087/.089	.100	1.250	2-1/2	3/8	RGB201605
	.093/.095	.100	.500	2-1/2	3/8	RGB201610
	.093/.095	.100	.750	2-1/2	3/8	RGB201615
	.093/.095	.100	1.000	2-1/2	3/8	RGB201620
	.125/.127	.100	.500	2-1/2	3/8	RGB201625
	.125/.127	.100	.750	2-1/2	3/8	RGB201630
	.125/.127	.100	1.000	2-1/2	3/8	RGB201635
.500	.093/.095	.150	.500	3	1/2	RGB201640
	.093/.095	.150	.750	3	1/2	RGB201645
	.093/.095	.150	1.000	3	1/2	RGB201650
	.093/.095	.150	1.250	3	1/2	RGB201655
	.093/.095	.150	1.500	3	1/2	RGB201660
	.125/.127	.150	.500	3	1/2	RGB201665
	.125/.127	.150	.750	3	1/2	RGB201670
	.125/.127	.150	1.000	3	1/2	RGB201675
	.125/.127	.150	1.250	3	1/2	RGB201680
	.125/.127	.150	1.500	3	1/2	RGB201685
	.156/.158	.150	.500	3	1/2	RGB201690
	.156/.158	.150	.750	3	1/2	RGB201695
	.156/.158	.150	1.000	3	1/2	RGB201700
	.156/.158	.150	1.250	3	1/2	RGB201705
	.156/.158	.150	1.500	3	1/2	RGB201710
	.187/.189	.150	.500	3	1/2	RGB201715
	.187/.189	.150	.750	3	1/2	RGB201720
	.187/.189	.150	1.000	3	1/2	RGB201725
	.187/.189	.150	1.250	3	1/2	RGB201730
	.187/.189	.150	1.500	3	1/2	RGB201735
	.250/.252	.150	.500	3	1/2	RGB201740
	.250/.252	.150	.750	3	1/2	RGB201745
	.250/.252	.150	1.000	3	1/2	RGB201750
	.250/.252	.150	1.250	3	1/2	RGB201755
	.250/.252	.150	1.500	3	1/2	RGB201760

Speeds, feeds and tech info pages 544-545.

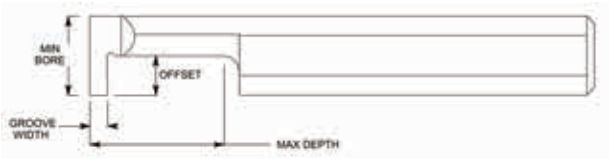
NEW Product



Uncoated



AlTiN Coated



Carbide Deep Groove Bars

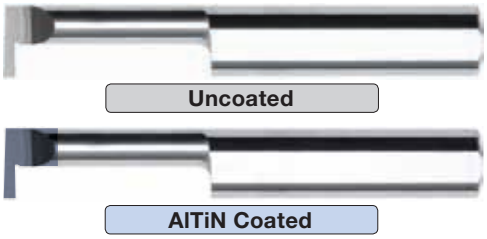
Minimum Bore	Grove Width	Offset	Max. Depth	Neck ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.250	.030/.031	.080	.250	.170	2-1/2	1/4	RGB1211000	RGB1211000A
	.030/.031	.080	.375	.170	2-1/2	1/4	RGB1211005	RGB1211005A
	.030/.031	.080	.500	.170	2-1/2	1/4	RGB1211010	RGB1211010A
	.062/.064	.080	.250	.170	2-1/2	1/4	RGB1211015	RGB1211015A
	.062/.064	.080	.375	.170	2-1/2	1/4	RGB1211020	RGB1211020A
	.062/.064	.080	.500	.170	2-1/2	1/4	RGB1211025	RGB1211025A
.312	.030/.031	.150	.250	.162	2-1/2	5/16	RGB1211030	RGB1211030A
	.030/.031	.150	.375	.162	2-1/2	5/16	RGB1211035	RGB1211035A
	.030/.031	.150	.500	.162	2-1/2	5/16	RGB1211040	RGB1211040A
	.030/.031	.150	.750	.162	2-1/2	5/16	RGB1211045	RGB1211045A
	.030/.031	.150	1.000	.162	2-1/2	5/16	RGB1211050	RGB1211050A
	.062/.064	.150	.250	.162	2-1/2	5/16	RGB1211055	RGB1211055A
	.062/.064	.150	.375	.162	2-1/2	5/16	RGB1211060	RGB1211060A
	.062/.064	.150	.500	.162	2-1/2	5/16	RGB1211065	RGB1211065A
	.062/.064	.150	.750	.162	2-1/2	5/16	RGB1211070	RGB1211070A
	.062/.064	.150	1.000	.162	2-1/2	5/16	RGB1211075	RGB1211075A
	.093/.095	.150	.375	.162	2-1/2	5/16	RGB1211080	RGB1211080A
	.093/.095	.150	.500	.162	2-1/2	5/16	RGB1211085	RGB1211085A
	.093/.095	.150	.750	.162	2-1/2	5/16	RGB1211090	RGB1211090A
	.093/.095	.150	1.000	.162	2-1/2	5/16	RGB1211095	RGB1211095A
.375	.030/.031	.150	.375	.225	2-1/2	3/8	RGB1211100	RGB1211100A
	.030/.031	.150	.500	.225	2-1/2	3/8	RGB1211105	RGB1211105A
	.030/.031	.150	.750	.225	2-1/2	3/8	RGB1211110	RGB1211110A
	.030/.031	.150	1.000	.225	2-1/2	3/8	RGB1211115	RGB1211115A
	.046/.048	.150	.375	.225	2-1/2	3/8	RGB1211120	RGB1211120A
	.046/.048	.150	.500	.225	2-1/2	3/8	RGB1211125	RGB1211125A
	.046/.048	.150	.750	.225	2-1/2	3/8	RGB1211130	RGB1211130A
	.046/.048	.150	1.000	.225	2-1/2	3/8	RGB1211135	RGB1211135A
	.062/.064	.150	.375	.225	2-1/2	3/8	RGB1211140	RGB1211140A
	.062/.064	.150	.500	.225	2-1/2	3/8	RGB1211145	RGB1211145A
	.062/.064	.150	.750	.225	2-1/2	3/8	RGB1211150	RGB1211150A
	.062/.064	.150	1.000	.225	2-1/2	3/8	RGB1211155	RGB1211155A
	.093/.095	.150	.375	.225	2-1/2	3/8	RGB1211160	RGB1211160A
	.093/.095	.150	.500	.225	2-1/2	3/8	RGB1211165	RGB1211165A
	.093/.095	.150	.750	.225	2-1/2	3/8	RGB1211170	RGB1211170A
	.093/.095	.150	1.000	.225	2-1/2	3/8	RGB1211175	RGB1211175A
	.125/.127	.150	.375	.225	2-1/2	3/8	RGB1211180	RGB1211180A
	.125/.127	.150	.500	.225	2-1/2	3/8	RGB1211185	RGB1211185A
	.125/.127	.150	.750	.225	2-1/2	3/8	RGB1211190	RGB1211190A
	.125/.127	.150	1.000	.225	2-1/2	3/8	RGB1211195	RGB1211195A

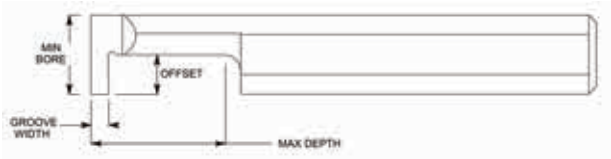
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Speeds, feeds and tech info pages 544-545.

Deep Grooving

NEW Product





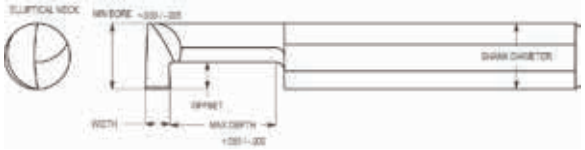
Carbide Deep Groove Bars

Minimum Bore	Grove Width	Offset	Max. Depth	Neck ø	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.500	.062/.064	.200	.500	.300	3	1/2	RGB1211200	RGB1211200A
	.062/.064	.200	.750	.300	3	1/2	RGB1211205	RGB1211205A
	.062/.064	.200	1.000	.300	3	1/2	RGB1211210	RGB1211210A
	.062/.064	.200	1.250	.300	3	1/2	RGB1211215	RGB1211215A
	.093/.095	.200	.500	.300	3	1/2	RGB1211220	RGB1211220A
	.093/.095	.200	.750	.300	3	1/2	RGB1211225	RGB1211225A
	.093/.095	.200	1.000	.300	3	1/2	RGB1211230	RGB1211230A
	.093/.095	.200	1.250	.300	3	1/2	RGB1211235	RGB1211235A
	.125/.127	.200	.500	.300	3	1/2	RGB1211240	RGB1211240A
	.125/.127	.200	.750	.300	3	1/2	RGB1211245	RGB1211245A
	.125/.127	.200	1.000	.300	3	1/2	RGB1211250	RGB1211250A
	.125/.127	.200	1.250	.300	3	1/2	RGB1211255	RGB1211255A
	.187/.189	.200	.500	.300	3	1/2	RGB1211260	RGB1211260A
	.187/.189	.200	.750	.300	3	1/2	RGB1211265	RGB1211265A
	.187/.189	.200	1.000	.300	3	1/2	RGB1211270	RGB1211270A
	.187/.189	.200	1.250	.300	3	1/2	RGB1211275	RGB1211275A

Speeds, feeds and tech info pages 544-545.



AlTiN Coated



Carbide Extreme Grooving Bars

Minimum Hole	Groove Width	Offset	Max. Depth	OAL	Shank ø	AlTiN Coated Part #
.2500	.017/.018	.050	.250	2-1/2	1/4	RGB221100
	.017/.018	.050	.375	2-1/2	1/4	RGB221105
	.017/.018	.050	.500	2-1/2	1/4	RGB221110
	.017/.018	.050	.625	2-1/2	1/4	RGB221115
	.025/.026	.050	.250	2-1/2	1/4	RGB221120
	.025/.026	.050	.375	2-1/2	1/4	RGB221125
	.025/.026	.050	.500	2-1/2	1/4	RGB221130
	.025/.026	.050	.625	2-1/2	1/4	RGB221135
	.030/.031	.050	.250	2-1/2	1/4	RGB221140
	.030/.031	.050	.375	2-1/2	1/4	RGB221145
	.030/.031	.050	.500	2-1/2	1/4	RGB221150
	.030/.031	.050	.625	2-1/2	1/4	RGB221155
	.062/.064	.050	.250	2-1/2	1/4	RGB221160
	.062/.064	.050	.375	2-1/2	1/4	RGB221165
	.062/.064	.050	.500	2-1/2	1/4	RGB221170
	.062/.064	.050	.625	2-1/2	1/4	RGB221175
	.093/.095	.050	.250	2-1/2	1/4	RGB221180
	.093/.095	.050	.375	2-1/2	1/4	RGB221185
	.093/.095	.050	.500	2-1/2	1/4	RGB221190
	.093/.095	.050	.625	2-1/2	1/4	RGB221195
	.125/.127	.050	.250	2-1/2	1/4	RGB221200
	.125/.127	.050	.375	2-1/2	1/4	RGB221205
	.125/.127	.050	.500	2-1/2	1/4	RGB221210
	.125/.127	.050	.625	2-1/2	1/4	RGB221215
.3125	.033/.034	.100	.250	2-1/2	5/16	RGB221220
	.033/.034	.100	.375	2-1/2	5/16	RGB221225
	.033/.034	.100	.500	2-1/2	5/16	RGB221230
	.033/.034	.100	.625	2-1/2	5/16	RGB221235
	.038/.039	.100	.250	2-1/2	5/16	RGB221240
	.038/.039	.100	.375	2-1/2	5/16	RGB221245
	.038/.039	.100	.500	2-1/2	5/16	RGB221250
	.038/.039	.100	.625	2-1/2	5/16	RGB221255
	.062/.064	.100	.500	2-1/2	5/16	RGB221260
	.062/.064	.100	.750	2-1/2	5/16	RGB221265
	.062/.064	.100	1.000	2-1/2	5/16	RGB221270
	.093/.095	.100	.500	2-1/2	5/16	RGB221275
	.093/.095	.100	.750	2-1/2	5/16	RGB221280
	.093/.095	.100	1.000	2-1/2	5/16	RGB221285
	.125/.127	.100	.500	2-1/2	5/16	RGB221290
	.125/.127	.100	.750	2-1/2	5/16	RGB221295
	.125/.127	.100	1.000	2-1/2	5/16	RGB221300

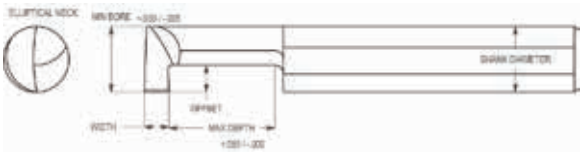
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Speeds, feeds and tech info pages 544-545.

Extreme Grooving



AlTiN Coated



Carbide Extreme Grooving Bars

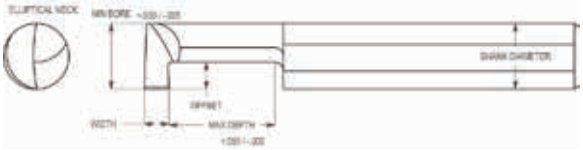
Minimum Hole	Groove Width	Offset	Max. Depth	OAL	Shank ø	AlTiN Coated Part #
.3750	.039/.041	.100	.250	2-1/2	3/8	RGB221305
	.039/.041	.100	.375	2-1/2	3/8	RGB221310
	.039/.041	.100	.500	2-1/2	3/8	RGB221315
	.039/.041	.100	.750	2-1/2	3/8	RGB221320
	.039/.041	.100	1.000	2-1/2	3/8	RGB221325
	.039/.041	.100	1.250	2-1/2	3/8	RGB221330
	.046/.048	.100	.250	2-1/2	3/8	RGB221335
	.046/.048	.100	.375	2-1/2	3/8	RGB221340
	.046/.048	.100	.500	2-1/2	3/8	RGB221345
	.046/.048	.100	.750	2-1/2	3/8	RGB221350
	.046/.048	.100	1.000	2-1/2	3/8	RGB221355
	.046/.048	.100	1.250	2-1/2	3/8	RGB221360
	.055/.057	.100	.250	2-1/2	3/8	RGB221365
	.055/.057	.100	.375	2-1/2	3/8	RGB221370
	.055/.057	.100	.500	2-1/2	3/8	RGB221375
	.055/.057	.100	.750	2-1/2	3/8	RGB221380
	.055/.057	.100	1.000	2-1/2	3/8	RGB221385
	.055/.057	.100	1.250	2-1/2	3/8	RGB221390
	.062/.064	.100	.250	2-1/2	3/8	RGB221395
	.062/.064	.100	.375	2-1/2	3/8	RGB221400
	.062/.064	.100	.500	2-1/2	3/8	RGB221405
	.062/.064	.100	.750	2-1/2	3/8	RGB221410
	.062/.064	.100	1.000	2-1/2	3/8	RGB221415
	.062/.064	.100	1.250	2-1/2	3/8	RGB221420
	.069/.071	.100	.250	2-1/2	3/8	RGB221425
	.069/.071	.100	.375	2-1/2	3/8	RGB221430
	.069/.071	.100	.500	2-1/2	3/8	RGB221435
	.069/.071	.100	.750	2-1/2	3/8	RGB221440
	.069/.071	.100	1.000	2-1/2	3/8	RGB221445
	.069/.071	.100	1.250	2-1/2	3/8	RGB221450
	.087/.089	.100	.250	2-1/2	3/8	RGB221455
	.087/.089	.100	.375	2-1/2	3/8	RGB221460
	.087/.089	.100	.500	2-1/2	3/8	RGB221465
	.087/.089	.100	.750	2-1/2	3/8	RGB221470
	.087/.089	.100	1.000	2-1/2	3/8	RGB221475
	.087/.089	.100	1.250	2-1/2	3/8	RGB221480
	.093/.095	.100	.500	2-1/2	3/8	RGB221485
	.093/.095	.100	.750	2-1/2	3/8	RGB221490
	.093/.095	.100	1.000	2-1/2	3/8	RGB221495
	.125/.127	.100	.500	2-1/2	3/8	RGB221500
	.125/.127	.100	.750	2-1/2	3/8	RGB221505
	.125/.127	.100	1.000	2-1/2	3/8	RGB221510

Continued

Speeds, feeds and tech info pages 544-545.



AlTiN Coated



Carbide Extreme Grooving Bars

Minimum Hole	Groove Width	Offset	Max. Depth	OAL	Shank ø	AlTiN Coated Part #
.5000	.062/.064	.150	.500	3	1/2	RGB221515
	.062/.064	.150	.750	3	1/2	RGB221520
	.062/.064	.150	1.000	3	1/2	RGB221525
	.062/.064	.150	1.250	3	1/2	RGB221530
	.062/.064	.150	1.500	3	1/2	RGB221535
	.093/.095	.150	.500	3	1/2	RGB221540
	.093/.095	.150	.750	3	1/2	RGB221545
	.093/.095	.150	1.000	3	1/2	RGB221550
	.093/.095	.150	1.250	3	1/2	RGB221555
	.093/.095	.150	1.500	3	1/2	RGB221560
	.125/.127	.150	.500	3	1/2	RGB221565
	.125/.127	.150	.750	3	1/2	RGB221570
	.125/.127	.150	1.000	3	1/2	RGB221575
	.125/.127	.150	1.250	3	1/2	RGB221580
	.125/.127	.150	1.500	3	1/2	RGB221585
	.156/.158	.150	.500	3	1/2	RGB221590
	.156/.158	.150	.750	3	1/2	RGB221595
	.156/.158	.150	1.000	3	1/2	RGB221600
	.156/.158	.150	1.250	3	1/2	RGB221605
	.156/.158	.150	1.500	3	1/2	RGB221610
	.187/.189	.150	.500	3	1/2	RGB221615
	.187/.189	.150	.750	3	1/2	RGB221620
	.187/.189	.150	1.000	3	1/2	RGB221625
	.187/.189	.150	1.250	3	1/2	RGB221630
	.187/.189	.150	1.500	3	1/2	RGB221635
	.250/.252	.150	.500	3	1/2	RGB221640
	.250/.252	.150	.750	3	1/2	RGB221645
	.250/.252	.150	1.000	3	1/2	RGB221650
	.250/.252	.150	1.250	3	1/2	RGB221655
	.250/.252	.150	1.500	3	1/2	RGB221660

Speeds, feeds and tech info pages 544-545.

Extra-Reach Grooving

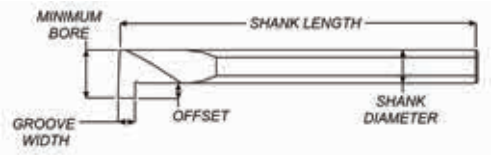
NEW Product



Uncoated



AlTiN Coated

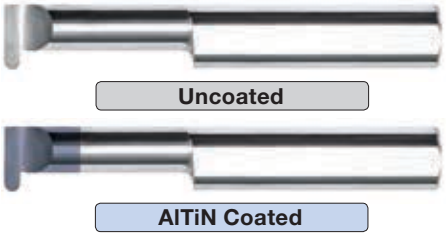


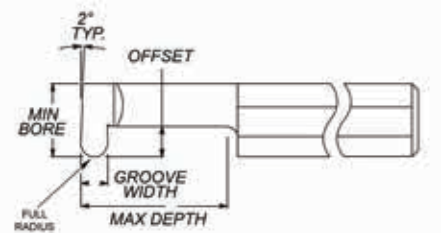
Carbide Extra-Reach Grooving Bars

Minimum Bore	Groove Width	Offset	OAL	Shank ø	Uncoated Part#	AlTiN Coated Part #
.310	.032	.060	4	.250	RGB061200	RGB061200A
	.063	.060	4	.250	RGB061205	RGB061205A
	.094	.060	4	.250	RGB061210	RGB061210A
	.125	.060	4	.250	RGB061215	RGB061215A
.390	.032	.075	4	.312	RGB061220	RGB061220A
	.063	.075	4	.312	RGB061225	RGB061225A
	.094	.075	4	.312	RGB061230	RGB061230A
	.125	.075	4	.312	RGB061235	RGB061235A
.475	.032	.100	6	.375	RGB061240	RGB061240A
	.063	.100	6	.375	RGB061245	RGB061245A
	.094	.100	6	.375	RGB061250	RGB061250A
	.125	.100	6	.375	RGB061255	RGB061255A
.620	.032	.120	6	.500	RGB061260	RGB061260A
	.063	.120	6	.500	RGB061265	RGB061265A
	.094	.120	6	.500	RGB061270	RGB061270A
	.125	.120	6	.500	RGB061275	RGB061275A

Speeds, feeds and tech info pages 544-545.

NEW Product



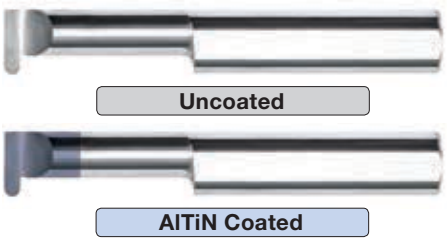


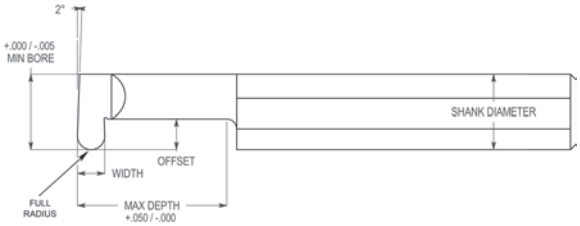
Carbide Full Radius Grooving Bars

Minimum Bore	Groove Width	Offset	Max Depth	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.0620	.031/.032	.020	.1875	2	1/8	RRG241170	RRG241170A
	.031/.032	.020	.2500	2	1/8	RRG241175	RRG241175A
	.031/.032	.020	.3750	2	1/8	RRG241180	RRG241180A
.0930	.046/.047	.030	.2500	2	1/8	RRG241185	RRG241185A
	.046/.047	.030	.3750	2	1/8	RRG241190	RRG241190A
	.046/.047	.030	.5000	2	1/8	RRG241195	RRG241195A
.1250	.062/.063	.040	.2500	2	1/8	RRG241200	RRG241200A
	.062/.063	.040	.3750	2	1/8	RRG241205	RRG241205A
	.062/.063	.040	.5000	2	1/8	RRG241210	RRG241210A
	.062/.063	.040	.6250	2	1/8	RRG241215	RRG241215A
.1875	.017/.018	.050	.2500	2-1/2	3/16	RRG241220	RRG241220A
	.017/.018	.050	.3750	2-1/2	3/16	RRG241225	RRG241225A
	.017/.018	.050	.5000	2-1/2	3/16	RRG241230	RRG241230A
	.017/.018	.050	.6250	2-1/2	3/16	RRG241235	RRG241235A
	.025/.026	.050	.2500	2-1/2	3/16	RRG241240	RRG241240A
	.025/.026	.050	.3750	2-1/2	3/16	RRG241245	RRG241245A
	.025/.026	.050	.5000	2-1/2	3/16	RRG241250	RRG241250A
	.025/.026	.050	.6250	2-1/2	3/16	RRG241255	RRG241255A
	.030/.031	.050	.2500	2-1/2	3/16	RRG241260	RRG241260A
	.030/.031	.050	.3750	2-1/2	3/16	RRG241265	RRG241265A
	.030/.031	.050	.5000	2-1/2	3/16	RRG241270	RRG241270A
	.030/.031	.050	.6250	2-1/2	3/16	RRG241275	RRG241275A
	.062/.063	.050	.2500	2-1/2	3/16	RRG241280	RRG241280A
	.062/.063	.050	.3750	2-1/2	3/16	RRG241285	RRG241285A
	.062/.063	.050	.5000	2-1/2	3/16	RRG241290	RRG241290A
	.062/.063	.050	.6250	2-1/2	3/16	RRG241295	RRG241295A

Speeds, feeds and tech info pages 544-545.

Full Radius Grooving





Carbide Full Radius Grooving Bars

Minimum Bore	Groove Width	Offset	Max. Depth	OAL	Shank ø	Uncoated Part#	AlTiN Coated Part #
.2500	.017/.018	.050	.250	2-1/2	1/4	RRG241300	RRG241300A
	.017/.018	.050	.375	2-1/2	1/4	RRG241305	RRG241305A
	.017/.018	.050	.500	2-1/2	1/4	RRG241310	RRG241310A
	.017/.018	.050	.625	2-1/2	1/4	RRG241315	RRG241315A
	.025/.026	.050	.250	2-1/2	1/4	RRG241320	RRG241320A
	.025/.026	.050	.375	2-1/2	1/4	RRG241325	RRG241325A
	.025/.026	.050	.500	2-1/2	1/4	RRG241330	RRG241330A
	.025/.026	.050	.625	2-1/2	1/4	RRG241335	RRG241335A
	.030/.031	.050	.250	2-1/2	1/4	RRG241340	RRG241340A
	.030/.031	.050	.375	2-1/2	1/4	RRG241345	RRG241345A
	.030/.031	.050	.500	2-1/2	1/4	RRG241350	RRG241350A
	.030/.031	.050	.625	2-1/2	1/4	RRG241355	RRG241355A
	.062/.064	.050	.375	2-1/2	1/4	RRG241356	RRG241356A
	.062/.064	.050	.500	2-1/2	1/4	RRG241357	RRG241357A
	.062/.064	.050	.625	2-1/2	1/4	RRG241358	RRG241358A
.3125	.033/.034	.100	.250	2-1/2	5/16	RRG241360	RRG241360A
	.033/.034	.100	.375	2-1/2	5/16	RRG241365	RRG241365A
	.033/.034	.100	.500	2-1/2	5/16	RRG241370	RRG241370A
	.033/.034	.100	.625	2-1/2	5/16	RRG241372	RRG241372A
	.033/.034	.100	.750	2-1/2	5/16	RRG241375	RRG241375A
	.038/.039	.100	.250	2-1/2	5/16	RRG241380	RRG241380A
	.038/.039	.100	.375	2-1/2	5/16	RRG241385	RRG241385A
	.038/.039	.100	.500	2-1/2	5/16	RRG241390	RRG241390A
	.038/.039	.100	.750	2-1/2	5/16	RRG241395	RRG241395A
	.062/.064	.100	.500	2-1/2	5/16	RRG241400	RRG241400A
	.062/.064	.100	.750	2-1/2	5/16	RRG241405	RRG241405A
	.062/.064	.100	1.000	2-1/2	5/16	RRG241410	RRG241410A
	.093/.095	.100	.500	2-1/2	5/16	RRG241415	RRG241415A
	.093/.095	.100	.750	2-1/2	5/16	RRG241420	RRG241420A
	.093/.095	.100	1.000	2-1/2	5/16	RRG241425	RRG241425A

Continued

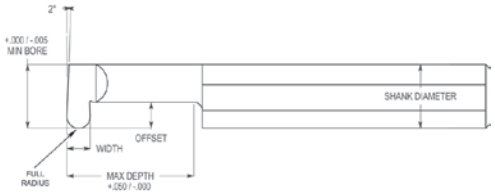
Speeds, feeds and tech info pages 544-545.



Uncoated



AlTiN Coated



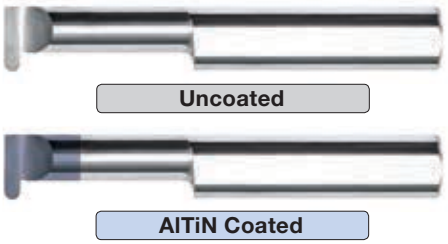
Carbide Full Radius Grooving Bars

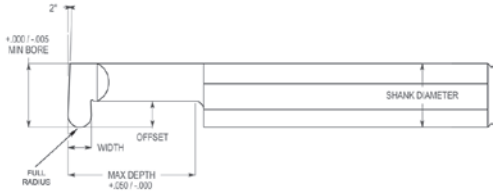
Minimum Bore	Groove Width	Offset	Max. Depth	OAL	Shank ø	Uncoated Part#	AlTiN Coated Part #
.3750	.039/.041	.100	.250	2-1/2	3/8	RRG241430	RRG241430A
		.100	.375	2-1/2	3/8	RRG241435	RRG241435A
		.100	.500	2-1/2	3/8	RRG241440	RRG241440A
		.100	.625	2-1/2	3/8	RRG241442	RRG241442A
		.100	.750	2-1/2	3/8	RRG241445	RRG241445A
		.100	1.000	2-1/2	3/8	RRG241450	RRG241450A
		.100	1.250	2-1/2	3/8	RRG241455	RRG241455A
	.046/.048	.100	.250	2-1/2	3/8	RRG241460	RRG241460A
		.100	.375	2-1/2	3/8	RRG241465	RRG241465A
		.100	.500	2-1/2	3/8	RRG241470	RRG241470A
		.100	.750	2-1/2	3/8	RRG241475	RRG241475A
		.100	1.000	2-1/2	3/8	RRG241480	RRG241480A
		.100	1.250	2-1/2	3/8	RRG241485	RRG241485A
	.055/.057	.100	.250	2-1/2	3/8	RRG241490	RRG241490A
		.100	.375	2-1/2	3/8	RRG241495	RRG241495A
		.100	.500	2-1/2	3/8	RRG241500	RRG241500A
		.100	.750	2-1/2	3/8	RRG241505	RRG241505A
		.100	1.000	2-1/2	3/8	RRG241510	RRG241510A
		.100	1.250	2-1/2	3/8	RRG241515	RRG241515A
	.062/.064	.100	.250	2-1/2	3/8	RRG241520	RRG241520A
		.100	.375	2-1/2	3/8	RRG241525	RRG241525A
		.100	.500	2-1/2	3/8	RRG241530	RRG241530A
		.100	.750	2-1/2	3/8	RRG241535	RRG241535A
		.100	1.000	2-1/2	3/8	RRG241540	RRG241540A
		.100	1.250	2-1/2	3/8	RRG241545	RRG241545A
	.069/.071	.100	.250	2-1/2	3/8	RRG241550	RRG241550A
		.100	.375	2-1/2	3/8	RRG241555	RRG241555A
		.100	.500	2-1/2	3/8	RRG241560	RRG241560A
		.100	.750	2-1/2	3/8	RRG241565	RRG241565A
		.100	1.000	2-1/2	3/8	RRG241570	RRG241570A
		.100	1.250	2-1/2	3/8	RRG241575	RRG241575A
	.087/.089	.100	.250	2-1/2	3/8	RRG241580	RRG241580A
		.100	.375	2-1/2	3/8	RRG241585	RRG241585A
		.100	.500	2-1/2	3/8	RRG241590	RRG241590A
		.100	.750	2-1/2	3/8	RRG241595	RRG241595A
		.100	1.000	2-1/2	3/8	RRG241600	RRG241600A
		.100	1.250	2-1/2	3/8	RRG241605	RRG241605A
	.093/.095	.100	.500	2-1/2	3/8	RRG241610	RRG241610A
		.100	.750	2-1/2	3/8	RRG241615	RRG241615A
		.100	1.000	2-1/2	3/8	RRG241620	RRG241620A
	.125/.127	.100	.500	2-1/2	3/8	RRG241625	RRG241625A
		.100	.750	2-1/2	3/8	RRG241630	RRG241630A
		.100	1.000	2-1/2	3/8	RRG241635	RRG241635A

Continued

Speeds, feeds and tech info pages 544-545.

Full Radius Grooving





Carbide Full Radius Grooving Bars

Minimum Bore	Groove Width	Offset	Max. Depth	OAL	Shank ø	Uncoated Part#	AlTiN Coated Part #
.5000	.093/.095	.150	.500	3	1/2	RRG241640	RRG241640A
		.150	.750	3	1/2	RRG241645	RRG241645A
		.150	1.000	3	1/2	RRG241650	RRG241650A
		.150	1.250	3	1/2	RRG241655	RRG241655A
		.150	1.500	3	1/2	RRG241660	RRG241660A
	.125/.127	.150	.500	3	1/2	RRG241665	RRG241665A
		.150	.750	3	1/2	RRG241670	RRG241670A
		.150	1.000	3	1/2	RRG241675	RRG241675A
		.150	1.250	3	1/2	RRG241680	RRG241680A
		.150	1.500	3	1/2	RRG241685	RRG241685A
	.156/.158	.150	.500	3	1/2	RRG241690	RRG241690A
		.150	.750	3	1/2	RRG241695	RRG241695A
		.150	1.000	3	1/2	RRG241700	RRG241700A
		.150	1.250	3	1/2	RRG241705	RRG241705A
		.150	1.500	3	1/2	RRG241710	RRG241710A
	.187/.189	.150	.500	3	1/2	RRG241715	RRG241715A
		.150	.750	3	1/2	RRG241720	RRG241720A
		.150	1.000	3	1/2	RRG241725	RRG241725A
		.150	1.250	3	1/2	RRG241730	RRG241730A
		.150	1.500	3	1/2	RRG241735	RRG241735A
	.250/.252	.150	.500	3	1/2	RRG241740	RRG241740A
		.150	.750	3	1/2	RRG241745	RRG241745A
		.150	1.000	3	1/2	RRG241750	RRG241750A
		.150	1.250	3	1/2	RRG241755	RRG241755A
		.150	1.500	3	1/2	RRG241760	RRG241760A

Speeds, feeds and tech info pages 544-545.

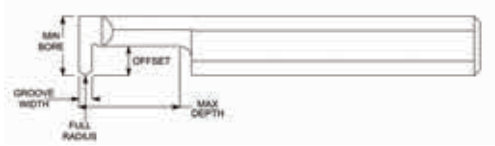
NEW Product



Uncoated



AlTiN Coated



Carbide Deep Slotting Full Radius Groove Bars

Minimum Bore	Groove Width	Offset	Max Depth	Neck ø	Radius	OAL	Shank ø	Uncoated Part#	AlTiN Coated Part #
.250	.030/.031	.080	.250	.170	.015/.0155	2-1/2	1/4	RRG1231000	RRG1231000A
	.030/.031	.080	.375	.170	.015/.0155	2-1/2	1/4	RRG1231005	RRG1231005A
	.030/.031	.080	.500	.170	.015/.0155	2-1/2	1/4	RRG1231010	RRG1231010A
	.062/.064	.080	.250	.170	.031/.032	2-1/2	1/4	RRG1231015	RRG1231015A
	.062/.064	.080	.375	.170	.031/.032	2-1/2	1/4	RRG1231020	RRG1231020A
	.062/.064	.080	.500	.170	.031/.032	2-1/2	1/4	RRG1231025	RRG1231025A
.312	.030/.031	.150	.250	.162	.015/.0155	2-1/2	5/16	RRG1231030	RRG1231030A
	.030/.031	.150	.375	.162	.015/.0155	2-1/2	5/16	RRG1231035	RRG1231035A
	.030/.031	.150	.500	.162	.015/.0155	2-1/2	5/16	RRG1231040	RRG1231040A
	.030/.031	.150	.750	.162	.015/.0155	2-1/2	5/16	RRG1231045	RRG1231045A
	.030/.031	.150	1.000	.162	.015/.0155	2-1/2	5/16	RRG1231050	RRG1231050A
	.062/.064	.150	.250	.162	.031/.032	2-1/2	5/16	RRG1231055	RRG1231055A
	.062/.064	.150	.375	.162	.031/.032	2-1/2	5/16	RRG1231060	RRG1231060A
	.062/.064	.150	.500	.162	.031/.032	2-1/2	5/16	RRG1231065	RRG1231065A
	.062/.064	.150	.750	.162	.031/.032	2-1/2	5/16	RRG1231070	RRG1231070A
	.062/.064	.150	1.000	.162	.031/.032	2-1/2	5/16	RRG1231075	RRG1231075A
	.093/.095	.150	.375	.162	.0465/.0475	2-1/2	5/16	RRG1231080	RRG1231080A
	.093/.095	.150	.500	.162	.0465/.0475	2-1/2	5/16	RRG1231085	RRG1231085A
	.093/.095	.150	.750	.162	.0465/.0475	2-1/2	5/16	RRG1231090	RRG1231090A
	.093/.095	.150	1.000	.162	.0465/.0475	2-1/2	5/16	RRG1231095	RRG1231095A
.375	.030/.031	.150	.375	.225	.015/.0155	2-1/2	3/8	RRG1231100	RRG1231100A
	.030/.031	.150	.500	.225	.015/.0155	2-1/2	3/8	RRG1231105	RRG1231105A
	.030/.031	.150	.750	.225	.015/.0155	2-1/2	3/8	RRG1231110	RRG1231110A
	.030/.031	.150	1.000	.225	.015/.0155	2-1/2	3/8	RRG1231115	RRG1231115A
	.046/.048	.150	.375	.225	.023/.024	2-1/2	3/8	RRG1231120	RRG1231120A
	.046/.048	.150	.500	.225	.023/.024	2-1/2	3/8	RRG1231125	RRG1231125A
	.046/.048	.150	.750	.225	.023/.024	2-1/2	3/8	RRG1231130	RRG1231130A
	.046/.048	.150	1.000	.225	.023/.024	2-1/2	3/8	RRG1231135	RRG1231135A
	.062/.064	.150	.375	.225	.031/.032	2-1/2	3/8	RRG1231140	RRG1231140A
	.062/.064	.150	.500	.225	.031/.032	2-1/2	3/8	RRG1231145	RRG1231145A
	.062/.064	.150	.750	.225	.031/.032	2-1/2	3/8	RRG1231150	RRG1231150A
	.062/.064	.150	1.000	.225	.031/.032	2-1/2	3/8	RRG1231155	RRG1231155A
	.093/.095	.150	.375	.225	.0465/.0475	2-1/2	3/8	RRG1231160	RRG1231160A
	.093/.095	.150	.500	.225	.0465/.0475	2-1/2	3/8	RRG1231165	RRG1231165A
	.093/.095	.150	.750	.225	.0465/.0475	2-1/2	3/8	RRG1231170	RRG1231170A

Continued

Speeds, feeds and tech info pages 544-545.

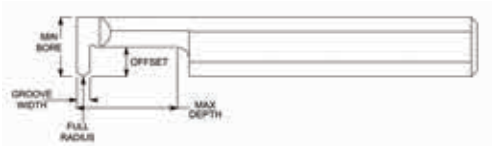
Full Radius Grooving



Uncoated



AlTiN Coated



Carbide Deep Slotting Full Radius Groove Bars

Minimum Bore	Groove Width	Offset	Max Depth	Neck ø	Radius	OAL	Shank ø	Uncoated Part#	AlTiN Coated Part #
.375	.093/.095	.150	1.000	.225	.0465/.0475	2-1/2	3/8	RRG1231175	RRG1231175A
	.125/.127	.150	.375	.225	.0625/.0635	2-1/2	3/8	RRG1231180	RRG1231180A
	.125/.127	.150	.500	.225	.0625/.0635	2-1/2	3/8	RRG1231185	RRG1231185A
	.125/.127	.150	.750	.225	.0625/.0635	2-1/2	3/8	RRG1231190	RRG1231190A
	.125/.127	.150	1.000	.225	.0625/.0635	2-1/2	3/8	RRG1231195	RRG1231195A
.500	.062/.064	.200	.500	.300	.031/.032	3	1/2	RRG1231200	RRG1231200A
	.062/.064	.200	.750	.300	.031/.032	3	1/2	RRG1231205	RRG1231205A
	.062/.064	.200	1.000	.300	.031/.032	3	1/2	RRG1231210	RRG1231210A
	.062/.064	.200	1.250	.300	.031/.032	3	1/2	RRG1231215	RRG1231215A
	.093/.095	.200	.500	.300	.0465/.0475	3	1/2	RRG1231220	RRG1231220A
	.093/.095	.200	.750	.300	.0465/.0475	3	1/2	RRG1231225	RRG1231225A
	.093/.095	.200	1.000	.300	.0465/.0475	3	1/2	RRG1231230	RRG1231230A
	.093/.095	.200	1.250	.300	.0465/.0475	3	1/2	RRG1231235	RRG1231235A
	.125/.127	.200	.500	.300	.0625/.0635	3	1/2	RRG1231240	RRG1231240A
	.125/.127	.200	.750	.300	.0625/.0635	3	1/2	RRG1231245	RRG1231245A
	.125/.127	.200	1.000	.300	.0625/.0635	3	1/2	RRG1231250	RRG1231250A
	.125/.127	.200	1.250	.300	.0625/.0635	3	1/2	RRG1231255	RRG1231255A
	.187/.189	.200	.500	.300	.0935/.0945	3	1/2	RRG1231260	RRG1231260A
	.187/.189	.200	.750	.300	.0935/.0945	3	1/2	RRG1231265	RRG1231265A
	.187/.189	.200	1.000	.300	.0935/.0945	3	1/2	RRG1231270	RRG1231270A
	.187/.189	.200	1.250	.300	.0935/.0945	3	1/2	RRG1231275	RRG1231275A

Speeds, feeds and tech info pages 544-545.

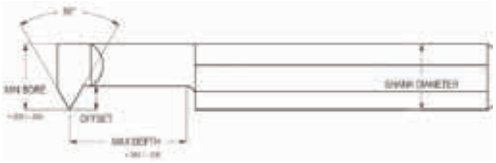
NEW Product



Uncoated



AlTiN Coated



Carbide Threading Bars, Right-Hand

Minimum Bore	Offset	Max Depth	OAL	Shank ø	Threads Per Inch	Uncoated Part#	AlTiN Coated Part #
.060	.020	.150	2	1/8	40-76	RTB301340	RTB301340A
	.020	.200	2	1/8	40-76	RTB301345	RTB301345A
	.020	.300	2	1/8	40-76	RTB301350	RTB301350A
.090	.025	.200	2	1/8	32-76	RTB301355	RTB301355A
	.025	.300	2	1/8	32-76	RTB301360	RTB301360A
	.025	.400	2	1/8	32-76	RTB301365	RTB301365A
.120	.030	.300	2-1/2	3/16	24-56	RTB301370	RTB301370A
	.030	.400	2-1/2	3/16	24-56	RTB301375	RTB301375A
	.030	.500	2-1/2	3/16	24-56	RTB301380	RTB301380A
.140	.035	.300	2-1/2	3/16	20-56	RTB301385	RTB301385A
	.035	.400	2-1/2	3/16	20-56	RTB301390	RTB301390A
	.035	.500	2-1/2	3/16	20-56	RTB301395	RTB301395A
.160	.040	.400	2-1/2	3/16	20-56	RTB301396	RTB301396A
	.040	.500	2-1/2	3/16	20-56	RTB301397	RTB301397A
	.040	.750	2-1/2	3/16	20-56	RTB301398	RTB301398A
	.040	1.000	2-1/2	3/16	20-56	RTB301399	RTB301399A
.180	.040	.350	2-1/2	1/4	18-56	RTB301400	RTB301400A
	.040	.500	2-1/2	1/4	18-56	RTB301405	RTB301405A
	.040	.750	2-1/2	1/4	18-56	RTB301410	RTB301410A
	.040	1.000	2-1/2	1/4	18-56	RTB301415	RTB301415A
.200	.045	.400	2-1/2	1/4	16-40	RTB301420	RTB301420A
	.045	.600	2-1/2	1/4	16-40	RTB301425	RTB301425A
	.045	.750	2-1/2	1/4	16-40	RTB301430	RTB301430A
	.045	1.000	2-1/2	1/4	16-40	RTB301435	RTB301435A
.230	.055	.400	2-1/2	5/16	14-40	RTB301440	RTB301440A
	.055	.600	2-1/2	5/16	14-40	RTB301445	RTB301445A
	.055	.750	2-1/2	5/16	14-40	RTB301450	RTB301450A
	.055	1.000	2-1/2	5/16	14-40	RTB301455	RTB301455A
	.055	1.500	2-1/2	5/16	14-40	RTB301460	RTB301460A
.290	.070	.500	2-1/2	5/16	12-40	RTB301465	RTB301465A
	.070	.750	2-1/2	5/16	12-40	RTB301470	RTB301470A
	.070	1.000	2-1/2	5/16	12-40	RTB301475	RTB301475A
	.070	1.250	2-1/2	5/16	12-40	RTB301480	RTB301480A
	.070	1.750	2-1/2	5/16	12-40	RTB301485	RTB301485A
.320	.075	.500	2-1/2	3/8	10-32	RTB301490	RTB301490A
	.075	.750	2-1/2	3/8	10-32	RTB301495	RTB301495A
	.075	1.000	2-1/2	3/8	10-32	RTB301500	RTB301500A
	.075	1.250	2-1/2	3/8	10-32	RTB301505	RTB301505A
	.075	1.800	2-1/2	3/8	10-32	RTB301510	RTB301510A

Continued

Speeds, feeds and tech info pages 546-547.

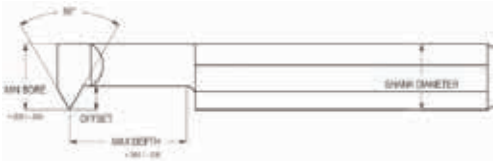
Right-Hand Threading



Uncoated



AlTiN Coated



Carbide Threading Bars, Right-Hand

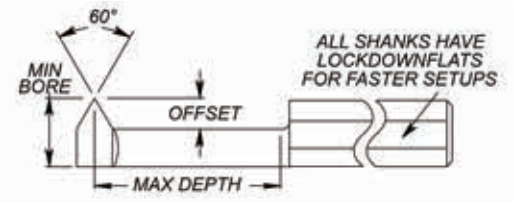
Minimum Bore	Offset	Max Depth	OAL	Shank ø	Threads Per Inch	Uncoated Part#	AlTiN Coated Part #
.360	.085	.500	2-1/2	3/8	10-32	RTB301515	RTB301515A
	.085	.750	2-1/2	3/8	10-32	RTB301520	RTB301520A
	.085	1.000	2-1/2	3/8	10-32	RTB301525	RTB301525A
	.085	1.250	2-1/2	3/8	10-32	RTB301530	RTB301530A
	.085	1.800	2-1/2	3/8	8-24	RTB301535	RTB301535A
.490	.120	.750	3	1/2	8-24	RTB301540	RTB301540A
	.120	1.000	3	1/2	8-24	RTB301542	RTB301542A
	.120	1.500	3	1/2	8-24	RTB301545	RTB301545A
	.120	2.000	3	1/2	8-24	RTB301550	RTB301550A

Speeds, feeds and tech info 546-547.

NEW Product



Uncoated

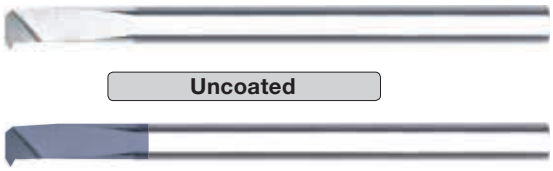


Carbide Threading Bars, Left Hand

Minimum Bore	Offset	Max. Depth	OAL	Shank ø	Threads Per Inch	Uncoated Part #
.180	.040	.500	2-1/2	1/4	18-56	RTB311200
	.040	.750	2-1/2	1/4	18-56	RTB311205
	.040	1.000	2-1/2	1/4	18-56	RTB311210
.200	.045	.500	2-1/2	1/4	16-40	RTB311215
	.045	.750	2-1/2	1/4	16-40	RTB311220
	.045	1.000	2-1/2	1/4	16-40	RTB311225
.230	.055	.500	2-1/2	5/16	14-40	RTB311230
	.055	.750	2-1/2	5/16	14-40	RTB311235
	.055	1.000	2-1/2	5/16	14-40	RTB311240
.290	.070	.500	2-1/2	5/16	12-40	RTB311245
	.070	.750	2-1/2	5/16	12-40	RTB311250
	.070	1.000	2-1/2	5/16	12-40	RTB311255
.320	.075	.500	2-1/2	3/8	10-32	RTB311260
	.075	.750	2-1/2	3/8	10-32	RTB311265
	.075	1.000	2-1/2	3/8	10-32	RTB311270
.360	.085	.500	2-1/2	3/8	10-32	RTB311275
	.085	.750	2-1/2	3/8	10-32	RTB311280
	.085	1.000	2-1/2	3/8	10-32	RTB311285

Speeds, feeds and tech info pages 546-547.

Extra-Reach Threading



Uncoated

AlTiN Coated

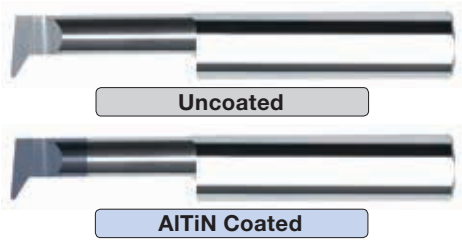


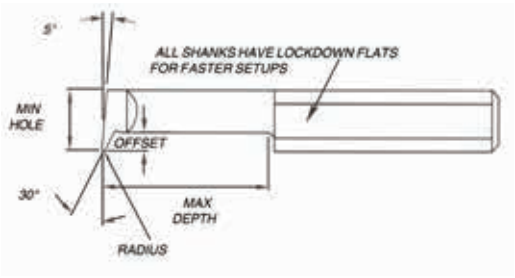
Carbide Extra-Reach Threading Bars

Minimum Bore	Offset	OAL	Largest Pitch	Shank ø	Uncoated Part #	AlTiN Coated Part #
.310	.060	4	Up To 16	1/4	RTB081500	RTB081500A
.375	.060	4	Up To 16	5/16	RTB081505	RTB081505A
.460	.080	6	Up To 11	3/8	RTB081510	RTB081510A
.610	.100	6	Up To 9	1/2	RTB081515	RTB081515A
.750	.120	6	Up To 8	5/8	RTB081520	RTB081520A

Speeds, feeds and tech info 546-547.

NEW Product



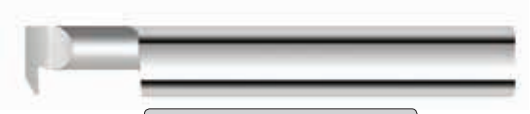


Carbide Profile Bars

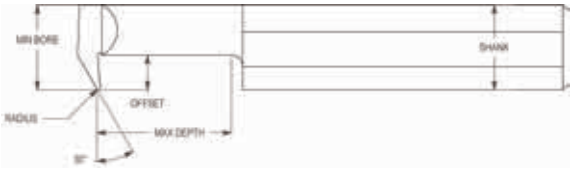
Minimum Bore	Offset	Max. Depth	Tip Radius	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.090	.040	.300	.005	2	1/8	RPB561005	RPB561005A
	.040	.400	.005	2	1/8	RPB561010	RPB561010A
.120	.050	.250	.007	2	1/8	RPB561080	RPB561080A
	.050	.500	.007	2	1/8	RPB561085	RPB561085A
	.050	.750	.007	2	1/8	RPB561090	RPB561090A
.180	.080	.500	.010	2-1/2	3/16	RPB561100	RPB561100A
	.080	.750	.010	2-1/2	3/16	RPB561105	RPB561105A
	.080	1.000	.010	2-1/2	3/16	RPB561110	RPB561110A
.220	.080	.500	.010	2-1/2	1/4	RPB561115	RPB561115A
	.080	.750	.010	2-1/2	1/4	RPB561120	RPB561120A
	.080	1.000	.010	2-1/2	1/4	RPB561125	RPB561125A
.300	.110	.500	.015	2-1/2	5/16	RPB561130	RPB561130A
	.110	.750	.015	2-1/2	5/16	RPB561135	RPB561135A
	.110	1.000	.015	2-1/2	5/16	RPB561140	RPB561140A
.360	.130	.500	.015	2-1/2	3/8	RPB561145	RPB561145A
	.130	.750	.015	2-1/2	3/8	RPB561150	RPB561150A
	.130	1.000	.015	2-1/2	3/8	RPB561155	RPB561155A
	.130	1.250	.015	2-1/2	3/8	RPB561160	RPB561160A
.490	.160	.500	.015	3	1/2	RPB561165	RPB561165A
	.160	.750	.015	3	1/2	RPB561170	RPB561170A
	.160	1.000	.015	3	1/2	RPB561175	RPB561175A
	.160	1.250	.015	3	1/2	RPB561180	RPB561180A

Speeds, feeds and tech info pages 542-543.

Reverse Profiling



Uncoated



Carbide Reverse Profile Bars

Minimum Bore	Offset	Max. Depth	Tip Radius	OAL	Shank ø	Uncoated Part #
.180	.080	.500	.010	2-1/2	3/16	RPB561500
	.080	.750	.010	2-1/2	3/16	RPB561505
	.080	1.000	.010	2-1/2	3/16	RPB561510
.220	.080	.500	.010	2-1/2	1/4	RPB561515
	.080	.750	.010	2-1/2	1/4	RPB561520
	.080	1.000	.010	2-1/2	1/4	RPB561525
.300	.110	.500	.015	2-1/2	5/16	RPB561530
	.110	.750	.015	2-1/2	5/16	RPB561535
	.110	1.000	.015	2-1/2	5/16	RPB561540
.360	.130	.500	.015	2-1/2	3/8	RPB561545
	.130	.750	.015	2-1/2	3/8	RPB561550
	.130	1.000	.015	2-1/2	3/8	RPB561555
	.130	1.250	.015	2-1/2	3/8	RPB561560
.490	.160	.500	.015	3	1/2	RPB561565
	.160	.750	.015	3	1/2	RPB561570
	.160	1.000	.015	3	1/2	RPB561575
	.160	1.250	.015	3	1/2	RPB561580

Speeds, feeds and tech info pages 542-543.

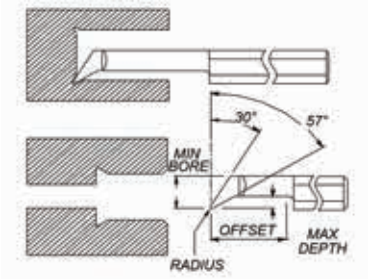
NEW Product



Uncoated



AlTiN Coated



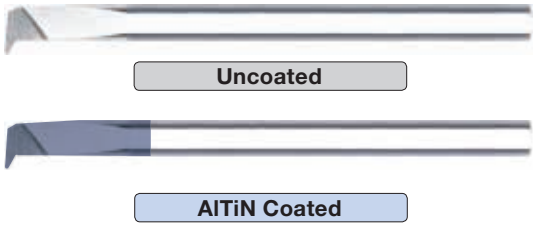
Carbide Right Hand Offset Profile Bars

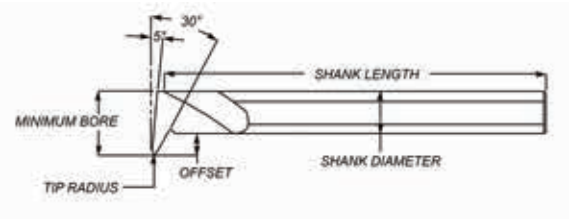
Minimum Bore	Offset	Max. Depth	Tip Radius	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.220	.080	.500	.010	2-1/2	1/4	RPB561815	RPB561815A
	.080	.750	.010	2-1/2	1/4	RPB561820	RPB561820A
	.080	1.000	.010	2-1/2	1/4	RPB561825	RPB561825A
.300	.110	.500	.015	2-1/2	5/16	RPB561830	RPB561830A
	.110	.750	.015	2-1/2	5/16	RPB561835	RPB561835A
	.110	1.000	.015	2-1/2	5/16	RPB561840	RPB561840A
.360	.130	.500	.015	2-1/2	3/8	RPB561845	RPB561845A
	.130	.750	.015	2-1/2	3/8	RPB561850	RPB561850A
	.130	1.000	.015	2-1/2	3/8	RPB561855	RPB561855A
	.130	1.250	.015	2-1/2	3/8	RPB561860	RPB561860A
.490	.160	.500	.015	3	1/2	RPB561865	RPB561865A
	.160	.750	.015	3	1/2	RPB561870	RPB561870A
	.160	1.000	.015	3	1/2	RPB561875	RPB561875A
	.160	1.250	.015	3	1/2	RPB561880	RPB561880A

Speeds, feeds and tech info pages 542-543.

Long-Reach Profiling

NEW Product





Carbide Long-Reach Profile Bars

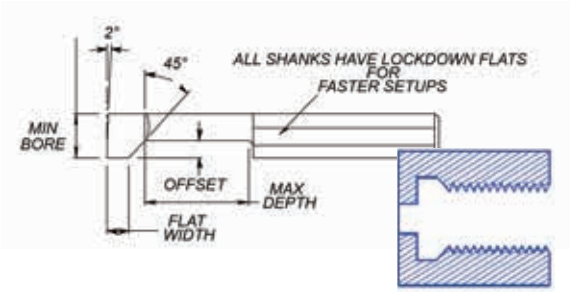
Minimum Bore	Offset	Tip Radius	OAL	Shank ø	Uncoated Part #	AlTiN Coated Part #
.360	.010	.100	4	1/4	RPB091400	RPB091400A
.420	.015	.100	4	5/16	RPB091405	RPB091405A
.480	.015	.100	6	3/8	RPB091410	RPB091410A
.615	.015	.110	6	1/2	RPB091415	RPB091415A
.750	.020	.125	6	5/8	RPB091420	RPB091420A

Speeds, feeds and tech info pages 542-543.

NEW Product



Uncoated



Carbide Thread Relief Bars

Minimum Bore	Flat Width	Offset	Max Depth	OAL	Shank ø	Uncoated Part #
.125	.060	.045	.300	2	1/8	RTB461100
	.060	.045	.400	2	1/8	RTB461105
.187	.080	.050	.400	2-1/2	3/16	RTB461110
	.080	.050	.800	2-1/2	3/16	RTB461115
.250	.095	.060	.500	2-1/2	1/4	RTB461120
	.095	.060	1.000	2-1/2	1/4	RTB461125
.312	.095	.080	.750	2-1/2	5/16	RTB461130
	.095	.080	1.250	2-1/2	5/16	RTB461135
.375	.130	.120	.750	2-1/2	3/8	RTB461140
	.130	.120	1.250	2-1/2	3/8	RTB461145
.500	.160	.130	1.000	3	1/2	RTB461150
	.160	.130	1.500	3	1/2	RTB461155

Speeds, feeds and tech info pages 542-543.

Boring & Profiling Tools Speeds & Feeds

Material	Grades	Speed		Feed	Tool Diameter (Max FPR)				
		Uncoated	AltiN Coated		.060-.080	.090-.125	.180-.220	.250-.312	.375 +
		SFM	SFM	IPR	Max DOC	Max DOC	Max DOC	Max DOC	Max DOC
P - Steels									
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	75-175	175-300	.0005-.005	.0005	.0006	.0008	.0015	.0022
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	75-200	200-450	.0005-.007	.0007	.0008	.0011	.0022	.0030
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	75-200	200-425	.0005-.007	.0006	.0007	.0010	.0019	.0026
M - Stainless Steels									
Austenitic	301-304L, 310, 316L, 321, 347	75-175	75-350	.0005-.005	.0006	.0007	.0010	.0019	.0026
Martensitic	403, 410, 416, 420, 430, 431, 440	75-210	130-420	.0005-.005	.0005	.0006	.0008	.0016	.0023
Precipitation Hardening	12/8, 15/5, 17/4, AM 350/355/363, PH13-8MO, PH14-8/MO	75-230	130-600	.0005-.005	.0005	.0006	.0008	.0016	.0023
K - Cast Irons									
Ductile	A536, J434, 60-40-18	120-350	200-550	.0005-.0010	.0010	.0012	.0017	.0031	.0044
Gray	A48, A436, A319, Class 20, G4000	120-350	200-550	.0005-.0010	.0010	.0012	.0017	.0031	.0044
Malleable	A220, A602, J158	120-350	200-550	.0005-.0010	.0010	.0012	.0017	.0031	.0044
N - Non-Ferrous									
Aluminum Alloys	2014, 2024, 6061, 7075	75-250	250-750	.0005-.0015	.0022	.0026	.0037	.0065	.0085
Aluminum High Silicon	A380, A390	75-250	250-750	.0005-.0015	.0022	.0026	.0037	.0065	.0085
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	250-300	250-650	.001-.010	.0018	.0021	.0030	.0053	.0079
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	250-300	250-650	.001-.010	.0018	.0021	.0030	.0053	.0079
Copper	101-707, 834-97	75-250	250-750	.0005-.0015	.0022	.0026	.0037	.0065	.0085
Magnesium		75-250	250-750	.0005-.0015	.0022	.0026	.0037	.0065	.0085
S - High Temp Alloys									
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	50-130	130-300	.0005-.004	.0004	.0005	.0007	.0013	.0017
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	50-100	100-200	.0005-.005	.0004	.0004	.0006	.0011	.0016
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	50-130	130-300	.0005-.004	.0004	.0005	.0007	.0013	.0017
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	50-120	120-275	.0005-.005	.0005	.0006	.0008	.0016	.0022

NOTE: Speeds and Feeds listed are estimated and will vary by application.

These tools can be found on pages 500, 501, 504, 506-517, 537-541.

Boring & Profiling Tools Troubleshooting

Problems	Causes	Solutions
Built Up Edge	Cutting Forces	Check (IPR) for excessive feed rate
	Heat	Use coolant or air blast and a coated tool
	Tool	Use a coated tool
Corner Breaking	Cutting Conditions	Check for excessive speed and feed and depth of cut
	Part	Check the entry hole size
	Tool	Select a tool with a corner radius.
Chatter	Boring Bar	Select the largest bar possible
	Setup	Position the tool above center. Reduce the overhang ratio. Clamping length should be 3x the boring bar diameter. Change the speed to break up harmonics and reduce chatter.
Rough Finish	Built up Edge	See Solution for Built Up Edge.
	Cutting Conditions	Check (IPR) for excessive feed rate
Excessive Flank Wear	Cutting Conditions	Check for excessive speed and feed
	Part	Make sure workhardening did not occur from prior operation
	Tool	Use a coated tool
Smaller Taper in Back	Chip Packing	Boring Bar may be too large which will not allow chips to evacuate. This causes the bar to deflect away from bore.
	Program	If taper is consistant, change program to compensate for the taper
Larger Taper in Back	Built Up Edge	A built up edge will cause the hole to become larger until the edge breaks off then the hole will become smaller.
	Cutting Forces	Reduce Forces. Deflecting bar below center causes the hole to become larger.
	Program	If taper is consistant, change program to compensate for the taper

Grooving Tools Speeds & Feeds

Material	Grades	Speed		Tool Diameter (Max FPR)				
		Uncoated	AltiN Coated	.060-.080	.090-.125	.180-.220	.250-.312	.375 +
		SFM	SFM	Max FPR	Max FPR	Max FPR	Max FPR	Max FPR
P - Steels								
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	75-175	175-300	.0005	.0006	.0008	.0015	.0022
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	75-200	200-450	.0007	.0008	.0011	.0022	.0030
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	75-200	200-425	.0006	.0007	.0010	.0019	.0026
M - Stainless Steels								
Austenitic	301-304L, 310, 316L, 321, 347	75-175	75-350	.0006	.0007	.0010	.0019	.0026
Martensitic	403, 410, 416, 420, 430, 431, 440	75-210	130-420	.0005	.0006	.0008	.0016	.0023
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	75-230	130-600	.0005	.0006	.0008	.0016	.0023
K - Cast Irons								
Ductile	A536, J434, 60-40-18	120-350	200-550	.0010	.0012	.0017	.0031	.0044
Gray	A48, A436, A319, Class 20, G4000	120-350	200-550	.0010	.0012	.0017	.0031	.0044
Malleable	A220, A602, J158	120-350	200-550	.0010	.0012	.0017	.0031	.0044
N - Non-Ferrous								
Aluminum Alloys	2014, 2024, 6061, 7075	75-250	250-750	.0022	.0026	.0037	.0065	.0085
Aluminum High Silicon	A380, A390	75-250	250-750	.0022	.0026	.0037	.0065	.0085
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	250-300	250-650	.0018	.0021	.0030	.0053	.0079
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	250-300	250-650	.0018	.0021	.0030	.0053	.0079
Copper	101-707, 834-97	75-250	250-750	.0022	.0026	.0037	.0065	.0085
Magnesium		75-250	250-750	.0022	.0026	.0037	.0065	.0085
S - High Temp Alloys								
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	50-130	130-300	.0004	.0005	.0007	.0013	.0017
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	50-100	100-200	.0004	.0004	.0006	.0011	.0016
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastel-loy, Waspoloy, Udimet 500 & 700	50-130	130-300	.0004	.0005	.0007	.0013	.0017
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	50-120	120-275	.0005	.0006	.0008	.0016	.0022

NOTE: Speeds and Feeds listed are estimated and will vary by application.

These tools can be found on pages 502, 503, 518-532.

Grooving Tools Troubleshooting

Problems	Causes	Solutions
Built Up Edge	Cutting Forces	Check (IPR) for excessive feed rate
	Heat	Use coolant or air blast and a coated tool
	Tool	Use a coated tool
Tool Breakage	Cutting Conditions	Check (IPR) for excessive feed rate
	Chip Packing	Stagger - Peck Grooving
Chatter	Clamping	Clamping length should be 3x the grooving bar diameter. Check the tool-holder for rigidity.
	Cutting Conditions	Reduce RPM and Increase Feed Rates
	Tool	Add a (.0001-.0003) hone to the cutting edge to keep forces consistent.
Excessive Flank Wear	Cutting Conditions	Check for excessive speed
	Part	Make sure workhardening did not occur from prior operation
	Tool	Use a coated tool

Threading Tools Speeds & Feeds

Material	Grades	SFM	Feed Infeed Per Pass 1st Pass	Feed Infeed Per Pass Last Pass
P - Steels				
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, 01	50-150	.0150	.0010
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020,1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	50-150	.0150	.0010
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	50-150	.0150	.0010
M - Stainless Steels				
Austenitic	301-304L, 310, 316L, 321, 347	65-100	.0150	.0010
Martensitic	403, 410, 416, 420, 430, 431, 440	65-100	.0150	.0010
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	65-100	.0150	.0010
K - Cast Irons				
Ductile	A536, J434, 60-40-18	85-180	.0150	.0005
Gray	A48, A436, A319, Class 20, G4000	85-140	.0150	.0005
Malleable	A220, A602, J158	85-100	.0150	.0005
N - Non-Ferrous				
Aluminum Alloys	2014, 2024, 6061, 7075	100-200	.0200	.0010
Aluminum High Silicon	A380, A390	100-200	.0200	.0010
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	200-300	.0100	.0010
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	250-400	.0150	.0010
Copper		100-200	.0100	.0010
Magnesium		100-200	.0200	.0010
S - High Temp Alloys				
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	40-65	.0200	.0005
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-b3	40-65	.0200	.0005
Nickel Base	Inconel 625/718, Inco 700, 713C, 718 Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoloy, Udimet 500 & 700	40-100	.0150	.0001
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	40-65	.0200	.0005

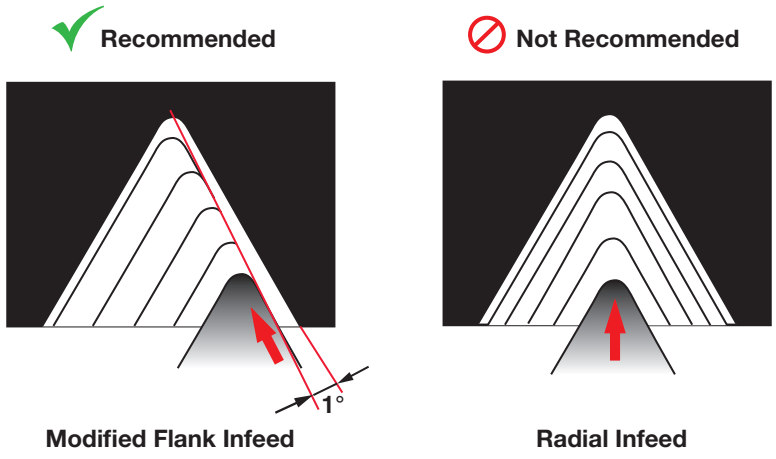
NOTE: Speeds and Feeds listed are estimated and will vary by application. These tools can be found on pages 505, 533-536.

Single Point Threading Roughing Infeed Depth per Pass

Pass	Threads Per Inch 8	10	11	12	13	14	16	18	20	24	28	32	36	40
Pass 1	.0171	.0148	.0148	.0134	.0124	.0114	.0110	.0110	.0099	.0094	.0079	.0083	.0072	.0083
Pass 2	.0283	.0243	.0243	.0219	.0202	.0189	.0179	.0178	.0159	.0150	.0126	.0130	.0113	.0128
Pass 3	.0372	.0318	.0318	.0287	.0264	.0244	.0233	.0231	.0206	.0194	.0163	.0167	.0145	
Pass 4	.0449	.0383	.0383	.0345	.0317	.0293	.0279	.0276	.0246	.0231	.0194			
Pass 5	.0517	.0441	.0441	.0396	.0364	.0337	.0321	.0316	.0282					
Pass 6	.0580	.0494	.0494	.0443	.0407	.0376	.0358							
Pass 7	.0637	.0543	.0543	.0486	.0447	.0413								
Pass 8	.0691	.0588	.0588											
Pass 9	.0742													

Threading Tools Troubleshooting

Problems	Causes	Solutions
Built Up Edge	Cutting Forces	Increase the number of passes
	Heat	Use coolant or air blast and a coated tool
	Tool	Use a coated tool
Corner Breakage	Cutting Conditions	Reduce first pass Depth of Cut
	Program	If there is not thread relief, withdraw tool on an angle.
	Part	End in Thread Relief
Chip Wrapping	Tool	The tools should be at least 30% smaller than the hole diameter.
Excessive Flank Wear	Cutting Conditions	Check for excessive speed
	Part	Make sure workhardening did not occur from prior operation
	Tool	Use a coated tool



Modified Flank Infeed

Radial Infeed

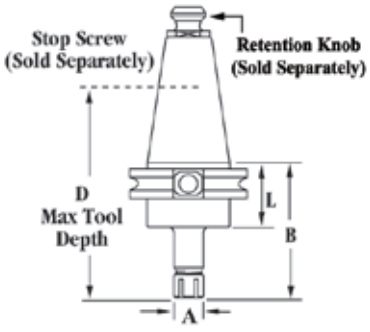
Notes:
- **A radial infeed is not recommended, a modified flank at 1 degree is recommended.**
- **For increased length to diameter ratios or difficult to machine materials increase the number of passes by 40%.**
- **Depth of cut per pass should not be less than .0003 inch.**



CAT40 & Straight Shank ER11 Collet Chucks

(Balanced to G2.5@18,000 RPM)

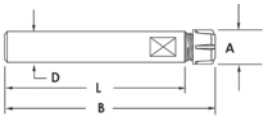
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER11 Collets found on page 601.



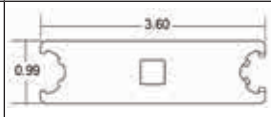
CAT40 ER11 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.0078-.2755	CAT40	.63	2.00	3.50	1.38	8 ft lbs	RC4ER11200
.0078-.2755	CAT40	.63	3.00	4.50	1.38	8 ft lbs	RC4ER11300

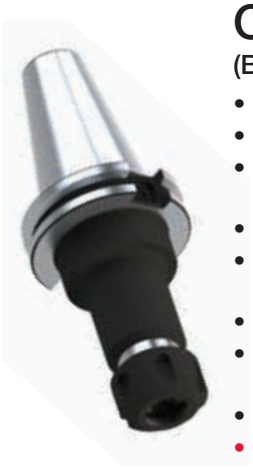
ER11 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
.63	6.6	.50	5.8			RSSER11660

ER11 Parts & Accessories

Description	Photo	Dimensions	Part #
ER11 Replacement Nosepiece			RER11NPA
ER11 Collet Wrench†			RER11W

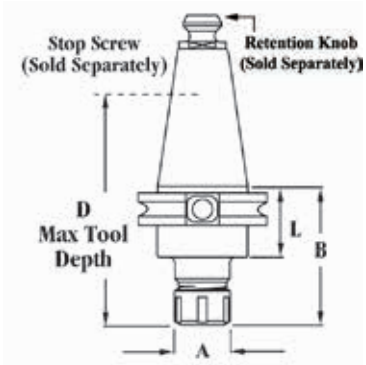
†Required for assembly.



CAT40 & Straight Shank ER16 Collet Chucks

(Balanced to G2.5@18,000 RPM)

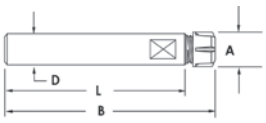
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER16 Collets found on pages 602-603.



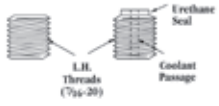
CAT40 ER16 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.020-.393	CAT40	1.259	2.00	2.10	1.38	24 ft lbs	RC4ER16200
.020-.393	CAT40	1.259	2.88	3.00	1.38	24 ft lbs	RC4ER16288
.020-.393	CAT40	1.259	4.88	3.00	1.38	24 ft lbs	RC4ER16488

ER16 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.259	7.0	.750	5.9			RSSER16700

ER16 Parts & Accessories

Description	Photo	Dimensions	Part #
ER16 Replacement Nosepiece			RER16NPA
ER16 Collet Wrench†			RER16W
ER16 Stop Screw			RER16SS
ER16 Stop Screw Coolant Thru			RER16SSC

†Required for assembly.

CAT40 & Straight Shank ER20 Collet Chucks

(Balanced to G2.5@18,000 RPM)

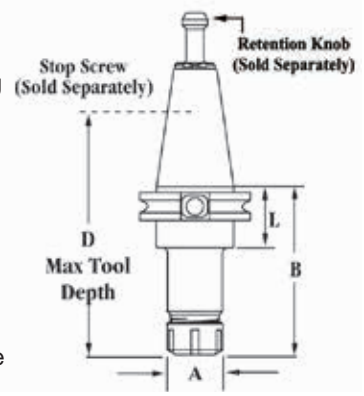


Standard Style



Tapered Style* (denoted with "T" at end of part number)

- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER20 Collets found on pages 604-605.

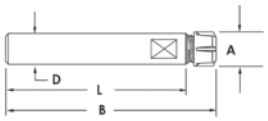


CAT40 ER20 Collet Chucks

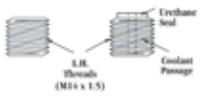
Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.040-.511	CAT40	1.38	2.55	2.90	1.38	36 ft lbs	RC4ER20255
.040-.511	CAT40	1.38	4.00	3.50	1.38	36 ft lbs	RC4ER20400
.040-.511	CAT40	1.38	6.00	3.50	1.38	36 ft lbs	RC4ER20600
.040-.511	CAT40	1.38	6.00	3.50	1.38	36 ft lbs	RC4ER2060T
.040-.511	CAT40	1.38	8.00	3.50	1.38	36 ft lbs	RC4ER20800

NOTE: "T" in part number stands for Tapered Body.

ER20 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.38	7.0	1.00	5.8			RSSER20700

ER20 Parts & Accessories

Description	Photo	Dimensions	Part #
ER20 Replacement Nosepiece			RER20NPA
ER20 Collet Wrench†			RER20W
ER20 Stop Screw			RER20SS
ER20 Stop Screw Coolant Thru			RER20SSC

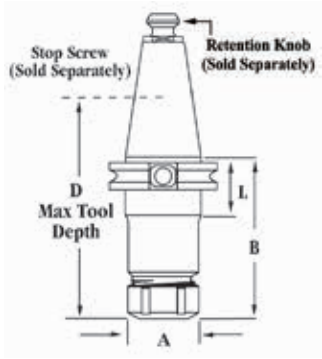
†Required for assembly.



CAT40 & Straight Shank ER25 Collet Chucks

(Balanced to G2.5@18,000 RPM)

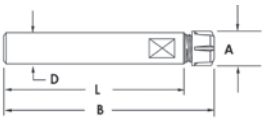
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER25 Collets found on pages 606-607.



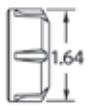
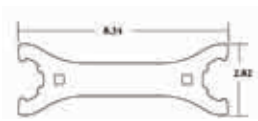
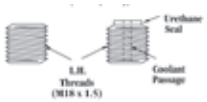
CAT40 ER25 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.040-.629	CAT40	1.64	2.50	3.00	1.38	42 ft lbs	RC4ER25250
.040-.629	CAT40	1.64	4.00	3.50	1.38	42 ft lbs	RC4ER25400
.040-.629	CAT40	1.64	6.00	3.50	1.38	42 ft lbs	RC4ER25600

ER25 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.64	7.5	1.00	5.5			RSSER25750

ER25 Parts & Accessories

Description	Photo	Dimensions	Part #
ER25 Replacement Nosepiece			RER25NPA
ER25 Collet Wrench†			RER25W
ER25 Stop Screw			RER25SS
ER25 Stop Screw Coolant Thru			RER25SSC

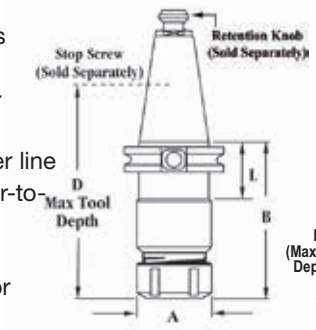
†Required for assembly.



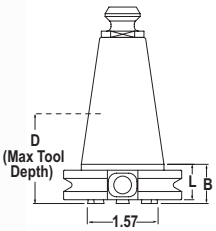
CAT40 & Straight Shank ER32 Collet Chucks

(Balanced to G2.5@18,000 RPM)

- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER32 Collets found on pages 608-609.



Standard



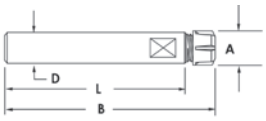
*Extra-stubby

CAT40 ER32 Collet Chucks

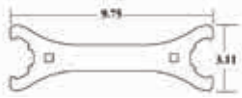
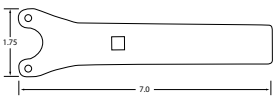
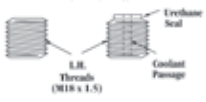
Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.079-.787	CAT40	1.97	.83*	1.90	.75	48 ft lbs	RC4ER32083
.079-.787	CAT40	1.97	2.70	3.30	1.38	48 ft lbs	RC4ER32270
.079-.787	CAT40	1.97	4.00	4.00	1.38	48 ft lbs	RC4ER32400
.079-.787	CAT40	1.97	6.00	4.00	1.38	48 ft lbs	RC4ER32600
.079-.787	CAT40	1.97	8.00	4.00	1.38	48 ft lbs	RC4ER32800

*NOTE: Extra-Stubby

ER32 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.97	7.5	1.25	5.5			RSSER32750

ER32 Parts & Accessories

Description	Photo	Dimensions	Part #
ER32 Replacement Nosepiece			RER32NPA
ER32 Shorty Replacement Nosepiece			RER32SNPA
ER32 Collet Wrench†			RER32W
ER32 Shorty Wrench			RER32SW
ER32 Stop Screw			RER32SS
ER32 Stop Screw Coolant Thru			RER32SSC

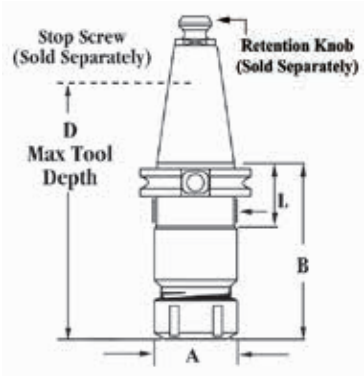
†Required for assembly.



CAT40 & Straight Shank ER40 Collet Chucks

(Balanced to G2.5@18,000 RPM)

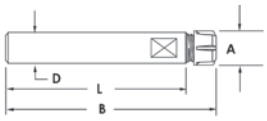
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER40 Collets found on pages 610-612.



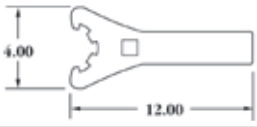
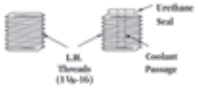
CAT40 ER40 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.086-1.023	CAT40	2.48	3.00	3.60	1.38	72 ft lbs	RC4ER40300
.086-1.023	CAT40	2.48	4.00	4.70	1.38	72 ft lbs	RC4ER40400
.086-1.023	CAT40	2.48	6.00	6.40	1.38	72 ft lbs	RC4ER40600

ER40 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
2.48	6.0	1.25	3.5			RSSER40600

ER40 Parts & Accessories

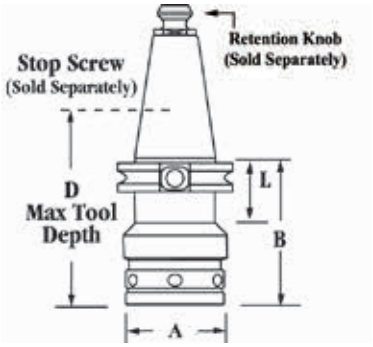
Description	Photo	Dimensions	Part #
ER40 Replacement Nosepiece			RER40NPA
ER40 Collet Wrench†			RER40W
ER40 Stop Screw			RER40SS
ER40 Stop Screw Coolant Thru			RER40SSC

†Required for assembly.



CAT40 TG100 Collet Chucks

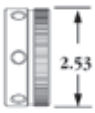
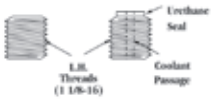
- The key reason for the RedLine Collet Systems' accuracy and gripping power is a unique flush nut design. It incorporates a rotating ball assembly producing a “radial float.” This forces the collet to self-center for maximum grip, highest precision, and minimum tool wear.
- Flexibility to mill, drill, and ream
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Less tool wear and replacement means less scrap
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- TG100 Collets found on pages 617-618.



CAT40 TG100 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.078-1.000	CAT40	2.53	2.75	2.40	1.38	60 ft lbs	RC4TG10275
.078-1.000	CAT40	2.53	3.25	2.90	1.38	60 ft lbs	RC4TG10325
.078-1.000	CAT40	2.53	4.50	3.90	1.38	60 ft lbs	RC4TG10450
.078-1.000	CAT40	2.53	6.25	5.00	1.38	60 ft lbs	RC4TG10625

TG100 Series Parts & Accessories

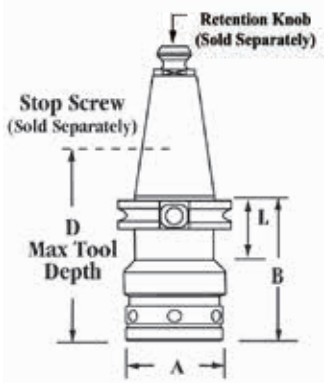
Description	Photo	Dimensions	Part #
TG100 Replacement Nosepiece			RTG100NPA
TG100 Wrench†			RTG100W
TG100 Stop Screw			RTG100SS
TG100 Stop Screw Coolant Thru			RTG100SSC

†Required for assembly.

CAT40 TG150 Collet Chucks



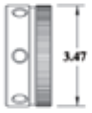
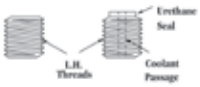
- The key reason for the RedLine Collet Systems' accuracy and gripping power is a unique flush nut design. It incorporates a rotating ball assembly producing a “radial float.” This forces the collet to self-center for maximum grip, highest precision, and minimum tool wear.
- Flexibility to mill, drill, and ream
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Less tool wear and replacement means less scrap
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- TG150 Collets found on pages 618-619.



CAT40 TG150 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.359-1.500	CAT40	3.47	4.88	3.80	1.38	100 ft lbs	RC4TG15488

TG150 Series Parts & Accessories

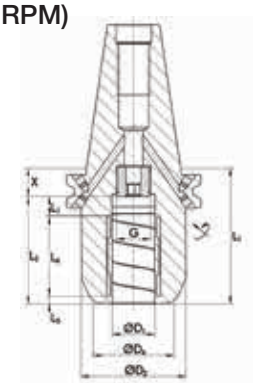
Description	Photo	Dimensions	Part #
TG150 Replacement Nosepiece			RTG150NPA
TG150 Wrench†			RTG150W
TG150 Stop Screw			RTG150SS
TG150 Stop Screw Coolant Thru			RTG150SSC

†Required for assembly.



CAT40 Hydraulic Chucks (Balanced to G2.5@25,000 RPM)

- Used for **milling, drilling, reaming and boring**
- Can be run up to 50,000 RPM
- Concentric to .00012"
- Wide range of coolant sealed or coolant flush reduction sleeves available.
- Hydraulic Chuck Sleeves can be found on pages 620-621.



CAT40 Hydraulic Chuck

Bore ø D1	D2	D4	X	Gage Length (L1)	L2	L3	L5	L6	G	Part #
3/4	44.5MM	38.5MM	13.0MM	64.0MM	51.0MM	10.0MM	3.7MM	37.8MM	M10x1	RC4HC0750

Successful Use and Care for RedLine Hydraulic Chucks

- RedLine Hydraulic Chucks can accept tools with a smooth cylindrical shank, Weldon Shank or a Whistle Notch without the use of reduction sleeves. Tools must have a H6 shank tolerance or better.
- To clamp a tool in the Hydraulic Chuck, turn the clamping screw with an Allen Key with 7-8.5 ft. lbs. torque completely to the limit stop. **Never use a Power Screwdriver to turn the actuation screw!**
- Testing of the clamping force should be done before the first use and after approximately 100 tool changes or every 3 months. A test shaft should be inserted at least to the minimum clamping depth into the toolholder. Tighten the clamping screw to a dead stop. If the test shaft can be easily removed from the toolholder manually and without any effort, the clamping force is not high enough. The Hydraulic Chuck shouldn't be used and sent in for repair.
- When using intermediate sleeves, they must be inserted completely into the Hydraulic Chuck, so the edge of the sleeve makes contact with the face of the Hydraulic Chuck. Failure to do this will result in poor run-out and lower grip force.
- Tools with Weldon Shanks or Whistle Notches influence balance and will affect the max rpm the tools can run.
- If tools are not clamped to minimum clamping depth there is a risk of damaging the expansion sleeve and will result in a loss of accuracy.
- The vent screw of the hydraulic system is protected with a pin or resin. **Don't remove it!**
- The axial length stop is set with an Allen Key via the length adjustment screw. There is 10MM (.393") adjustment. Never actuate the length adjustment screw when tools are clamped. Axial adjustment screws maximum tightening torque is 2.2 ft. lbs.

Clamping / Unclamping

- The tool shank must be burr-free and free of dirt.
- Always insert the tool down to the minimum clamping depth into the toolholder.
- **Do not combine several extensions. The clamping screw is not secured against dropping out!**
- **Hydraulic Chucks must not be clamped without a tool or workpiece.**

Shanks To Be Used in Hydraulic Expansion Toolholders

- **Type A** with straight cylindrical shaft. Cylindrical shaft acc. to DIN 6535 HA and form A according to DIN 6535 part 1
- **Type AB** with one Weldon flat Cylinder shank Form B according to DIN 1835 part 1 and DIN 6535 HB
- **Type B** with two Weldon flats Cylinder shank B according to DIN 1835 part 1
- **Type E** with Whistle-Notch flat Cylinder shank E according to DIN 1835 part 1 and DIN 6535 HE

Care, Storage and Maintenance

- For optimum clamping force, the clamping bore and groove must be cleaned after every tool change with a solvent.
- Before storage, oil the entire surface of the Hydraulic Chuck and store in an unclamped position.
- Warranty is void if repairs are by anyone other than RedLine Tools.
- It may be necessary to adjust and lubricate the actuation screw, especially with a high number of clamping cycles, high operating temperatures or where abrasive dirt or swarf are present. For optimum lubrication of the actuation screw, we are recommending the use of copper paste MOLYKOTE CU 7439 (100 g tube, Id.-No. 9247204).
- Adjustment range of the length adjustment: 10 mm
- Operating temperature: 20 – 50°C
- Max. coolant pressure: 1160 P.S.I.

NEW Product

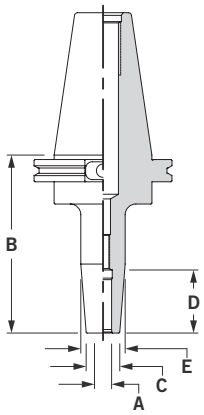
CAT40 Shrink Fit Holders



Standard Style

Shrink Fit Holders require a shrink fit machine which expands the bore when heated to accept a cutting tool. Once cooled the tool is held securely over the entire length of the shank resulting in superior gripping force with minimal runout.

- Concentric to .0002" TIR for increased cutting tool life
- Balanced to G2.5 @ 25000 RPM
- Through spindle coolant ready
- Designed with high rigidity and maximum grip



CAT40 Shrink Fit Holders

Taper	Size A	Gage Length (B)	C	D	E	Part #
CAT40	1/8	3.15	.39	—	—	RC4SF0125315
CAT40	3/16	3.15	.39	—	—	RC4SF0187315
CAT40	1/4	3.15	.83	1.38	1.06	RC4SF0250315
CAT40	1/4	5.12	.83	1.38	1.06	RC4SF0250512
CAT40	1/4	6.30	.83	1.38	1.06	RC4SF0250630
CAT40	5/16	3.15	.83	1.38	1.06	RC4SF0312315
CAT40	5/16	5.12	.83	1.38	1.06	RC4SF0312512
CAT40	5/16	6.30	.83	1.38	1.06	RC4SF0312630
CAT40	3/8	3.15	.94	1.57	1.26	RC4SF0375315
CAT40	3/8	5.12	.94	1.57	1.26	RC4SF0375512
CAT40	3/8	6.30	.94	1.57	1.26	RC4SF0375630
CAT40	7/16	3.15	.94	1.57	1.26	RC4SF0437315
CAT40	7/16	5.12	.94	1.57	1.26	RC4SF0437512
CAT40	7/16	6.30	.94	1.57	1.26	RC4SF0437630
CAT40	1/2	3.15	.94	1.77	1.26	RC4SF0500315
CAT40	1/2	5.12	.94	1.77	1.26	RC4SF0500512
CAT40	1/2	6.30	.94	1.77	1.26	RC4SF0500630
CAT40	5/8	3.15	1.06	1.77	1.34	RC4SF0625315
CAT40	5/8	5.12	1.06	1.77	1.34	RC4SF0625512
CAT40	5/8	6.30	1.06	1.77	1.34	RC4SF0625630
CAT40	3/4	3.15	1.30	2.17	1.65	RC4SF0750315
CAT40	3/4	5.12	1.30	2.17	1.65	RC4SF0750512
CAT40	3/4	6.30	1.30	2.17	1.65	RC4SF0750630
CAT40	1	3.94	1.73	2.17	2.09	RC4SF1000394
CAT40	1	5.12	1.73	2.17	2.09	RC4SF1000512
CAT40	1	6.30	1.73	2.17	2.09	RC4SF1000630
CAT40	1-1/4	3.94	1.73	2.17	2.09	RC4SF1250394
CAT40	1-1/4	5.12	1.73	2.17	2.09	RC4SF1250512
CAT40	1-1/4	6.30	1.73	2.17	2.09	RC4SF1250630

CAT40 Endmill Holders

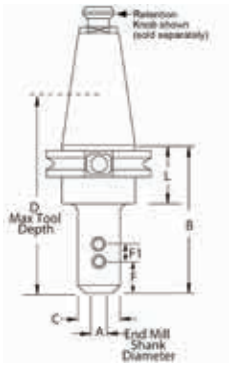


Standard Style



Tapered Style*
(denoted with "T"
at end of part number)

- Holders through 1.000" accept double end cutters (except as noted) therefore save on tool costs
- Fine thread screws match Weldon flats—lock tight, stay tight
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Less tool wear and replacement means less scrap
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance



Standard Style

CAT40 Endmill Holders - Fractional

Taper	Size A	Gage Length (B)	C	D	F	F1	L	Part #
CAT40	1/8	1.75	.69	3.3	.38	—	1.38	RC4EM0125175*
CAT40	1/8	2.50	.69	4.1	.38	—	1.38	RC4EM0125250
CAT40	1/8	4.50	.69	6.0	.38	—	1.38	RC4EM0125450
CAT40	3/16	2.50	.69	2.5	.56	—	1.38	RC4EM0187250
CAT40	3/16	4.50	.69	4.6	.56	—	1.38	RC4EM0187450
CAT40	1/4	1.75	.69	3.3	.38	—	1.38	RC4EM0250175*
CAT40	1/4	2.50	.78	2.5	.63	—	1.38	RC4EM0250250
CAT40	1/4	4.50	.78	4.6	.63	—	1.38	RC4EM0250450
CAT40	5/16	2.50	.88	4.1	.69	—	1.38	RC4EM0312250
CAT40	3/8	1.75	1.00	1.7	.75	—	1.38	RC4EM0375175*
CAT40	3/8	2.50	1.00	2.5	.75	—	1.38	RC4EM0375250
CAT40	3/8	4.50	1.00	4.5	.75	—	1.38	RC4EM0375450
CAT40	3/8	6.00	1.00	7.6	.75	—	1.38	RC4EM0375600T
CAT40	7/16	2.50	1.13	4.1	.81	—	1.38	RC4EM0437250
CAT40	1/2	1.75	1.25	3.3	.88	—	1.38	RC4EM0500175*
CAT40	1/2	2.63	1.25	2.7	.88	—	1.38	RC4EM0500263
CAT40	1/2	4.63	1.25	4.7	.88	—	1.38	RC4EM0500463
CAT40	1/2	6.63	1.25	6.7	.88	—	1.38	RC4EM0500663
CAT40	9/16	2.63	1.38	3.0	.91	—	1.38	RC4EM0562263
CAT40	5/8	1.75	1.50	2.4	.94	—	1.38	RC4EM0625175*
CAT40	5/8	3.75	1.50	3.6	.94	—	1.38	RC4EM0625375
CAT40	5/8	5.75	1.50	3.6	.94	—	1.38	RC4EM0625575
CAT40	3/4	1.75	1.75	2.5	1.00	—	1.38	RC4EM0750175*
CAT40	3/4	3.75	1.75	3.9	1.00	—	1.38	RC4EM0750375
CAT40	3/4	5.75	1.75	3.9	1.00	—	1.38	RC4EM0750575
CAT40	7/8	4.00	1.88	4.2	1.00	—	1.38	RC4EM0875400
CAT40	1	4.00	2.00	4.4	1.13	1.00	1.38	RC4EM1000400
CAT40	1	6.00	2.00	4.4	1.13	1.00	1.38	RC4EM1000600
CAT40	1-1/4	2.00	2.25	2.4	1.13	—	1.38	RC4EM1250200*
CAT40	1-1/4	4.25	2.50	4.0	1.13	1.00	1.38	RC4EM1250425
CAT40	1-1/4	6.25	2.50	4.0	1.13	1.00	1.38	RC4EM1250625
CAT40	1-1/2	4.63	2.50	3.0	1.13	1.00	1.38	RC4EM1500463

Continued

NOTE: "T" in part number stands for Tapered Body.

NOTE: * in part number stands for Single End cutting tools only.

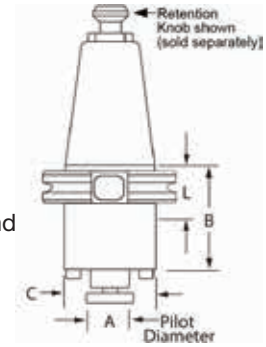
Endmill Holder Replacement Lock Screws

Holder Size	Screw Thread Size	Max. Torque (ft lbs)	Photo	Part #
1/8	8-32 x .25	18		RC4EMLS0125
3/16	10-32 x .25	30		RC4EMLS0187
1/4	1/4-28 x .25	60		RC4EMLS0250
5/16	5/16-24 x .25	120		RC4EMLS0312
3/8	3/8-24 x .30	200		RC4EMLS0375
7/16	3/8-24 x .30	200		RC4EMLS0437
1/2	7/16-20 x .36	220		RC4EMLS0500
9/16	7/16-20 x .36	220		RC4EMLS0562
5/8	1/2-20 x .42	500		REMLS0625
3/4	5/8-18 x .49	560		REMLS0750
7/8	5/8-18 x .49	560		REMLS0875
1	3/4-16 x .45	1150		REMLS1000
1-1/4	3/4-16 x .45	1150		REMLS1250
1-1/2	3/4-16 x .45	1150		REMLS1500



CAT40 Facemill Holders

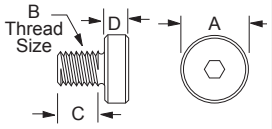
- Pilot diameter is sized for precision fit with cutter
- Face perpendicular to center line within .0002"
- Removable/replaceable drive keys are standard
- Fine thread locking screw is included
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Less tool wear and replacement means less scrap
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance



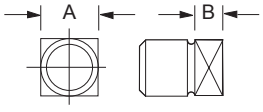
CAT40 Facemill Holders

Taper	Size A	Gage Length (B)	C	L	Part #
CAT40	1/2	1.50	1.44	1.38	RC4SM0500150
CAT40	1/2	3.50	1.44	1.38	RC4SM0500350
CAT40	3/4	1.50	1.69	1.38	RC4SM0750150
CAT40	3/4	3.50	1.69	1.38	RC4SM0750350
CAT40	1	2.06	2.19	1.38	RC4SM1000206
CAT40	1	4.00	2.19	1.38	RC4SM1000400
CAT40	1-1/4	2.63	2.75	1.38	RC4SM1250263
CAT40	1-1/4	4.00	2.75	1.38	RC4SM1250400
CAT40	1-1/2	3.00	3.81	1.38	RC4SM1500300
CAT40	1-1/2	4.00	3.81	1.38	RC4SM1500400

Facemill Holder Replacement Lock Screws

Holder Size	Size A	B	C	D	Photo	Dimensions	Part #
1/2	.625	1/4-28	.50	.34			RSMLS0500
3/4	.875	3/8-24	.63	.37			RSMLS0750
1	1.188	1/2-20	.81	.37			RSMLS1000
1-1/4	1.500	5/8-18	.94	.50			RSMLS1250
1-1/2	1.875	3/4-16	1.13	.50			RSMLS1500

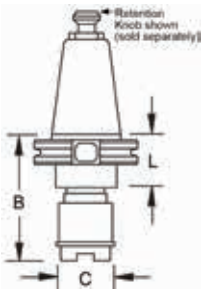
Facemill Holder Replacement Drive Keys

Holder Size	Size A	B	Photo	Dimensions	Part #
1/2	1/4	1/8			RSMDK0500
3/4	5/16	5/32			RSMDK0750
1	3/8	3/16			RSMDK1000
1-1/4	1/2	1/4			RSMDK1250
1-1/2	5/8	5/16			RSMDK1500

Note: Drive keys are in line with drive slot.

CAT40 & Straight Shank Rigid Tap Holders

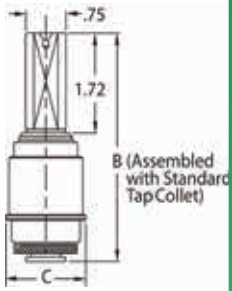




CAT40 Shank

- Rigid synchronous system for machine controls with 32 bit microprocessors
- Extended lengths available for horizontal machining centers
- **Uses popular Bilz style quick-change collet system (see page 622).**





Straight Shank

CAT40 Rigid Tap Holders

Taper	Collet Size	Gage Length (B)*	C	L	Part #
CAT40	Bilz #1	3.58	1.50	1.38	RC4THR01358
CAT40	Bilz #1	5.58	1.50	1.38	RC4THR01558
CAT40	Bilz #2	4.22	1.88	1.38	RC4THR02422
CAT40	Bilz #2	6.22	1.88	1.38	RC4THR02622

*** The "B" dimension is the assembled length including standard tap collet**

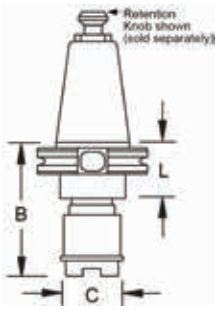
Straight Shank Rigid Tap Holders

Shank ø	Collet Size	B*	C	Part #
.75	Bilz #1	3.92	1.50	RSSTHR01392
.75	Bilz #2	4.70	1.88	RSSTHR02470

*** The "B" dimension is the assembled length including standard tap collet**

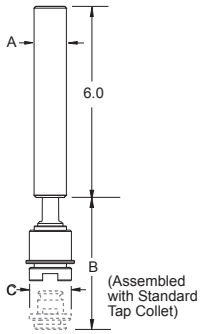
CAT40 & Straight Shank Tension & Compression Tap Holders





- Tension & Compression style has axial float for precise thread pitch
- Holders travel in tension .75"/compression .37"
- **Uses popular Bilz style quick-change collet system (see page 622).**





CAT40 Shank

Straight Shank

CAT40 Tension & Compression Tap Holders

Taper	Collet Size	Gage Length (B)*	C	L	Part #
CAT40	Bilz #1	4.56	1.75	1.38	RC4THT01456
CAT40	Bilz #2	6.47	2.25	1.38	RC4THT02647

*** The "B" dimension is the assembled length including standard tap collet**

Straight Shank Tension & Compression Tap Holders

Shank ø	Collet Size	B*	C	Part #
1.00	Bilz #1	2.50	1.50	RTHSST01850
1.25	Bilz #2	3.25	1.88	RTHSST02925

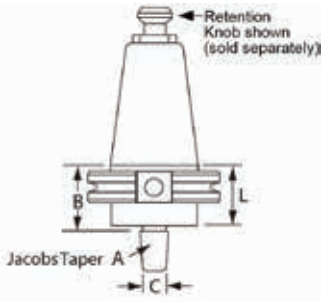
*** The "B" dimension is the assembled length including standard tap collet**



CAT40 Jacobs Taper Holders

- Precision ground Jacobs pilot
- Jacobs taper held to better than .0002" accuracy for best mating with the drill chuck

Notes: Not for high speed use.
Must be cleaned and degreased before assembly with drill chuck.



CAT40 Jacobs Taper Holders

Taper	Jacobs Taper	Gage Length (B)	C	L	Part #
CAT40	#1	1.50	.384	1.38	RC4JT01150
CAT40	#2	1.50	.559	1.38	RC4JT02150
CAT40	#3	1.50	.811	1.38	RC4JT03150
CAT40	#33	1.50	.624	1.38	RC4JT33150

Jacobs High Precision Keyless Chucks

Model	Capacity	Taper	Photo	Part #
JKP 65-J1	.012-.255	#1 J.T.		31121
JKP 80-J2S	.012-.315	#2 J.T.		9679
JKP 100-J33	.020-.394	#33 J.T.		9680
JKP 130-J2	.039-.512	#2 J.T.		9683

Jacobs High Precision Key Type Chucks

Model	Capacity	Taper	Photo	Part #
11N	.040-.375	#2 J.T.		30215
14N	.040-.500	#3 J.T.		30221
16N	.125-.625	#3 J.T.		30227
18N	.125-.750	#4 J.T.		30233

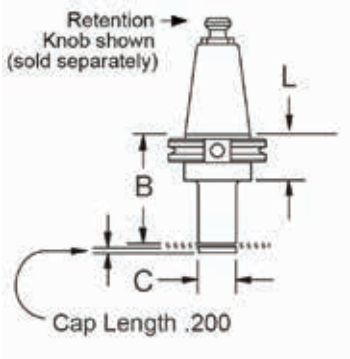
Jacobs Drill Chuck Replacement Key

Chuck #	Model	Part #
11N	K32	3666
14N	K3	3651
16N	K4	3655
18N	K4	3655



CAT40 Slitting Saw Holders

- Semi-flush nose cap gets in tight areas
- Change saw width without spacers
- Face is held perpendicular to center line within .0002"
- Pilot diameter is sized for precision fit with cutter and is keyed for positive drive
- Designed for slitting saws up to 5/16" thick — wider cutters use Stub Arbor Holder



CAT40 Slitting Saw Holders

Taper	Cutter Size ID	Gage Length (B)	C	L	Part #
CAT40	1.00	4	1.50	1.38	RC4SS1000400
CAT40	1.25	4	2.00	1.38	RC4SS1250400

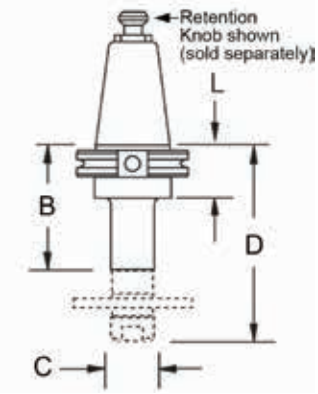
Slitting Saw Holder Replacement Parts & Accessories

Description	Part #
Cap for 1" Pilot Holder	RSSC1000
Drive Key for 1" Pilot Holder	RSSDK1000
Cap for 1-1/4" Pilot Holder	RSSC1250
Drive Key for 1-1/4" Pilot Holder	RSSDK1250



CAT40 Stub Arbor Holders

- Pilot thread is ground concentric to the tapered shank
- Face is perpendicular to center line within .0002"
- Pilot diameter is sized for precision fit with cutter and is keyed for positive drive
- Heavy duty locking nut and three arbor spacers are included - 1/4", 3/8", 3/4"



CAT40 Stub Arbor Holders

Taper	Saw ID Size	Gage Length (B)	C	D	L	Part #
CAT40	1.00	4	1.56	6.25	1.38	RC4SA1000400
CAT40	1.25	4	1.87	6.50	1.38	RC4SA1250400

Stub Arbor Holder Replacement Parts & Accessories

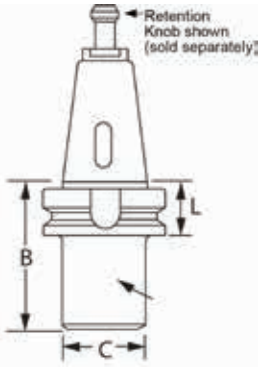
Description	Part #
Nut for 1" Stub Arbor Holder	R1000SAN
Key for 1" Stub Arbor Holder with 1/4" Square Key	RSAK1000
1/4" Spacer for 1" Stub Arbor Holder	RSAH100SP0250
3/8" Spacer for 1" Stub Arbor Holder	RSAH100SP0375
3/4" Spacer for 1" Stub Arbor Holder	RSAH100SP0750
Nut for 1-1/4" Stub Arbor Holder	R1250SAN
Key for 1-1/4" Stub Arbor Holder with 5/16" Square Key	RSAK1250
1/4" Spacer for 1-1/4" Stub Arbor Holder	RSAH125SP0250
3/8" Spacer for 1-1/4" Stub Arbor Holder	RSAH125SP0375
3/4" Spacer for 1-1/4" Stub Arbor Holder	RSAH125SP0750

CAT40 Morse Taper Holders



- Morse taper pocket held to .0002" accuracy for the best locking fit of the Morse shank
- AT3 or better shank taper results in accurate, rigid toolholder-to-spindle mount
- Less tool and wear replacements means less scrap
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance

Notes:
- Not for high speed use
- Must be cleaned before use and degreased for proper assembly
- Not to be used with coolant thru the spindle



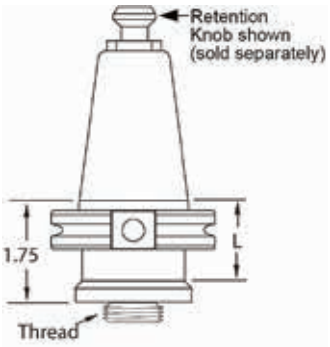
CAT40 Morse Taper Holders

Taper	Morse Taper	Gage Length (B)	C	L	Part #
CAT40	#2	2.00	1.75	1.38	RC4MT02200
CAT40	#3	2.75	1.75	1.38	RC4MT03275
CAT40	#4	3.63	1.75	1.38	RC4MT04363

CAT40 Boring Head Holders



- AT3 or better shank taper — accurate, rigid toolholder-to-spindle mount
- Less tool wear and replacement — less scrap
- Fully ground flange and V-groove — easy on the tool changers for less spindle and changer maintenance



CAT40 Boring Head Holders

Taper	Fits Boring Head	Thread	L	Part #
CAT40	SPI, Yuasa, Criterion	7/8-20	1.38	RC4BH0875138
CAT40	SPI, Yuasa, Criterion	1 1/2-18	1.38	RC4BH1500138

Tooling Packages

Two RedLine tooling packages have been created that include all the tools you'll need to get your machine going. The Standard package includes 14 toolholders, 2 sets of ER Collets and 1 set of Tapping Collets. The Basic package includes 10 toolholders and 1 set of ER Collets.

Standard Tooling Package

Description	Photo	Part #
Standard Tooling Package* For Coolant-Through Machines (list of tools is included below)		RC4PKG01C
Standard Tooling Package* For Non-Coolant-Through Machines (list of tools is included below)		RC4PKG01

Qty	Description
1	CAT40 1/4" Endmill Holder (RC4EM0250175)
1	CAT40 3/8" Endmill Holder (RC4EM0375175)
1	CAT40 1/2" Endmill Holder (RC4EM0500175)
1	CAT40 5/8" Endmill Holder (RC4EM0625175)
1	CAT40 3/4" Endmill Holder (RC4EM0750175)
1	CAT40 1" Endmill Holder (RC4EM1000400)
3	CAT40 ER20 Collet Chucks (RC4ER20255)
1	ER20 Standard 7 Piece Inch Collet Set (1120.00002)
1	ER20 Collet Chuck Wrench (RER20W)

Qty	Description
2	CAT40 ER32 Collet Chucks (RC4ER32270)
1	ER32 Standard 13 Piece Inch Collet Set (1132.00002)
1	E32 Collet Chuck Wrench (RER32W)
1	CAT40 3/4" Facemill Holder (RC4SM0750150)
1	CAT40 #1 Bilz Style Rigid Tap Holder (RC4THR01358)
1	12 Piece #1 QC Tap Collet Set 0-9/16 (21-100-SET)
1	CAT40 #2 Jacobs Taper Holder (RC4JT02150)
1	Jacobs Keyless Chuck #2, .039-.512 Capacity (9683)
14	Haas CAT40 Retention Knobs (RC4HRK) OR Haas CAT40 Coolant through Retention Knobs (RC4HRKC)

*** NOTE: If this package is purchased for a Non-Haas machine, please specify, so that the correct retention knobs can be supplied.**

Basic Tooling Package

Description	Photo	Part #
Basic Tooling Package* For Coolant-Through Machines (list of tools is included below)		RC4PKG02C
Basic Tooling Package* For Non-Coolant-Through Machines (list of tools is included below)		RC4PKG02

Qty	Description
1	CAT40 1/4" Endmill Holder (RC4EM0250175)
1	CAT40 3/8" Endmill Holder (RC4EM0375175)
1	CAT40 1/2" Endmill Holder (RC4EM0500175)
1	CAT40 5/8" Endmill Holder (RC4EM0625175)
1	CAT40 3/4" Endmill Holder (RC4EM0750175)

Qty	Description
1	CAT40 1" Endmill Holder (RC4EM1000400)
3	CAT40 ER20 Collet Chucks (RC4ER20255)
1	ER20 Standard 7 Piece Inch Collet Set (1120.00002)
1	ER20 Collet Chuck Wrench (RER20W)
1	CAT40 3/4" Facemill Holder (RC4SM0750150)
10	Haas CAT40 Retention Knobs (RC4HRK) OR Haas CAT40 Coolant through Retention Knobs (RC4HRKC)

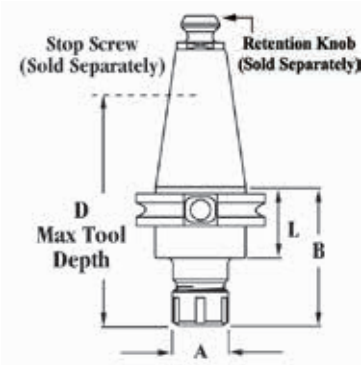
*** NOTE: If this package is purchased for a Non-Haas machine, please specify, so that the correct retention knobs can be supplied.**



CAT50 & Straight Shank ER16 Collet Chucks

(Balanced to G2.5@15,000 RPM)

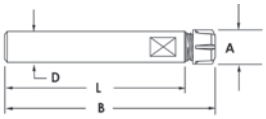
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER16 Collets found on pages 602-603.



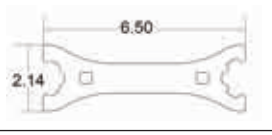
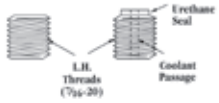
CAT50 ER16 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.020-.393	CAT50	1.259	4.88	3.00	1.38	24 ft lbs	RC5ER164880
.020-.393	CAT50	1.259	6.88	3.00	1.38	24 ft lbs	RC5ER166880

ER16 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.259	7.0	.750	5.9			RSSER16700

ER16 Parts & Accessories

Description	Photo	Dimensions	Part #
ER16 Replacement Nosepiece			RER16NPA
ER16 Collet Wrench†			RER16W
ER16 Stop Screw			RER16SS
ER16 Stop Screw Coolant Thru			RER16SSC

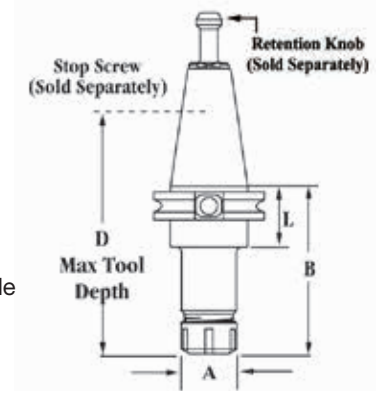
†Required for assembly.



CAT50 & Straight Shank ER20 Collet Chucks

(Balanced to G2.5@15,000 RPM)

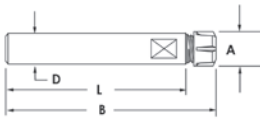
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER20 Collets found on pages 604-605.



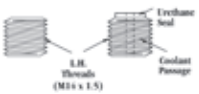
CAT50 ER20 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.040-.511	CAT50	1.38	4.00	3.50	1.38	36 ft lbs	RC5ER204000
.040-.511	CAT50	1.38	6.00	3.50	1.38	36 ft lbs	RC5ER206000
.040-.511	CAT50	1.38	8.00	3.50	1.38	36 ft lbs	RC5ER208000

ER20 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.38	7.0	1.00	5.8			RSSER20700

ER20 Parts & Accessories

Description	Photo	Dimensions	Part #
ER20 Replacement Nosepiece			RER20NPA
ER20 Collet Wrench†			RER20W
ER20 Stop Screw			RER20SS
ER20 Stop Screw Coolant Thru			RER20SSC

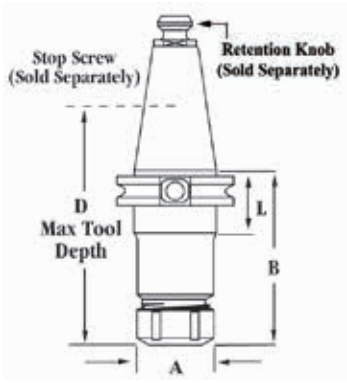
†Required for assembly.

CAT50 & Straight Shank ER25 Collet Chucks

(Balanced to G2.5@15,000 RPM)



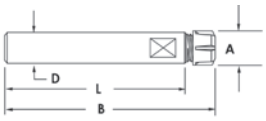
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER25 Collets found on pages 606-607.



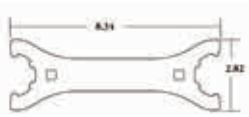
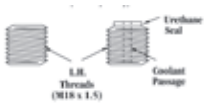
CAT50 ER25 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.040-.629	CAT50	1.64	4.00	3.50	1.38	42 ft lbs	RC5ER254000
.040-.629	CAT50	1.64	6.00	3.50	1.38	42 ft lbs	RC5ER256000

ER25 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.64	7.5	1.00	5.5			RSSER25750

ER25 Parts & Accessories

Description	Photo	Dimensions	Part #
ER25 Replacement Nosepiece			RER25NPA
ER25 Collet Wrench†			RER25W
ER25 Stop Screw			RER25SS
ER25 Stop Screw Coolant Thru			RER25SSC

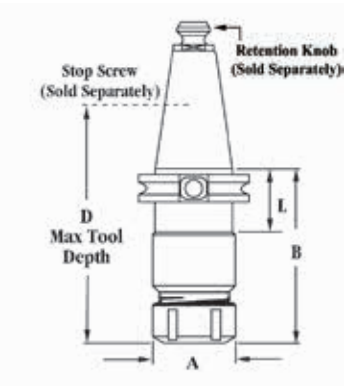
†Required for assembly.



CAT50 & Straight Shank ER32 Collet Chucks

(Balanced to G2.5@15,000 RPM)

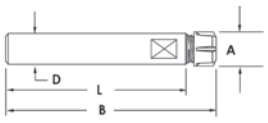
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER32 Collets found on pages 608-609.



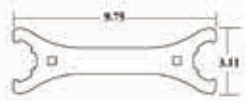
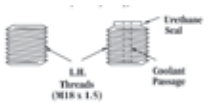
CAT50 ER32 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.079-.787	CAT50	1.97	4.00	4.00	1.38	48 ft lbs	RC5ER324000
.079-.787	CAT50	1.97	6.00	4.00	1.38	48 ft lbs	RC5ER326000
.079-.787	CAT50	1.97	8.00	4.00	1.38	48 ft lbs	RC5ER328000

ER32 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.97	7.5	1.25	5.5			RSSER32750

ER32 Parts & Accessories

Description	Photo	Dimensions	Part #
ER32 Replacement Nosepiece			RER32NPA
ER32 Collet Wrench†			RER32W
ER32 Stop Screw			RER32SS
ER32 Stop Screw Coolant Thru			RER32SSC

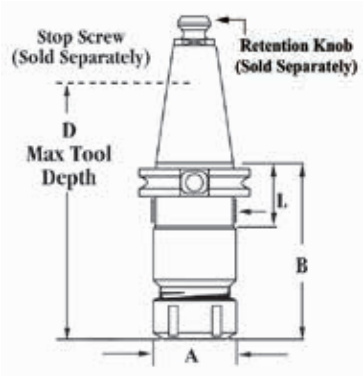
†Required for assembly.

CAT50 & Straight Shank ER40 Collet Chucks

(Balanced to G2.5@15,000 RPM)



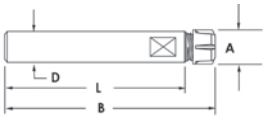
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Wide range collets reduce collet and toolholder inventories
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- Through spindle coolant standard
- ER40 Collets found on pages 610-612.



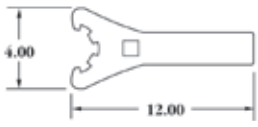
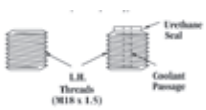
CAT50 ER40 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.086-1.023	CAT50	2.48	4.00	4.0	1.38	72 ft lbs	RC5ER404000
.086-1.023	CAT50	2.48	6.00	5.0	1.38	72 ft lbs	RC5ER406000

ER40 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
2.48	6.0	1.25	3.50			RSSER40600

ER40 Parts & Accessories

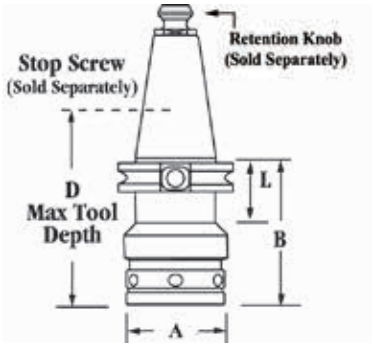
Description	Photo	Dimensions	Part #
ER40 Replacement Nosepiece			RER40NPA
ER40 Collet Wrench†			RER40W
ER40 Stop Screw			RER40SS
ER40 Stop Screw Coolant Thru			RER40SSC

†Required for assembly.



CAT50 TG100 Collet Chucks

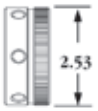
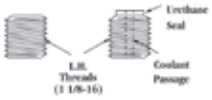
- The key reason for the RedLine Collet Systems' accuracy and gripping power is a unique flush nut design. It incorporates a rotating ball assembly producing a “radial float.” This forces the collet to self-center for maximum grip, highest precision, and minimum tool wear.
- Flexibility to mill, drill, and ream
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Less tool wear and replacement means less scrap
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- TG100 Collets found on pages 617-618.



CAT50 TG100 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.078-1.000	CAT50	2.53	2.75	3.7	1.38	60 ft lbs	RC5TG102750
.078-1.000	CAT50	2.53	3.25	4.2	1.38	60 ft lbs	RC5TG103250
.078-1.000	CAT50	2.53	5.25	5.0	1.38	60 ft lbs	RC5TG105250
.078-1.000	CAT50	2.53	7.25	5.0	1.38	60 ft lbs	RC5TG107250

TG100 Series Parts & Accessories

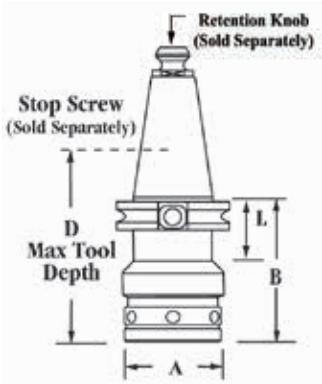
Description	Photo	Dimensions	Part #
TG100 Replacement Nosepiece			RTG100NPA
TG100 Wrench†			RTG100W
TG100 Stop Screw			RTG100SS
TG100 Stop Screw Coolant Thru			RTG100SSC

†Required for assembly.

CAT50 TG150 Collet Chucks



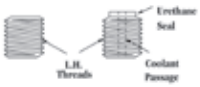
- The key reason for the RedLine Collet Systems' accuracy and gripping power is a unique flush nut design. It incorporates a rotating ball assembly producing a “radial float.” This forces the collet to self-center for maximum grip, highest precision, and minimum tool wear.
- Flexibility to mill, drill, and ream
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Less tool wear and replacement means less scrap
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance
- TG150 Collets found on pages 618-619.



CAT50 TG150 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.484-1.500	CAT50	3.47	3.50	4.8	1.38	100 ft lbs	RC5TG153500
.484-1.500	CAT50	3.47	5.50	5.0	1.38	100 ft lbs	RC5TG155500
.484-1.500	CAT50	3.47	7.50	5.0	1.38	100 ft lbs	RC5TG157500

TG150 Series Parts & Accessories

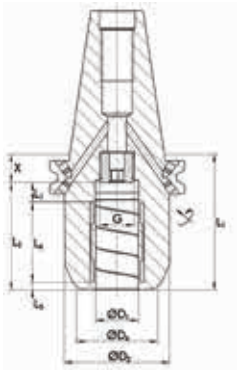
Description	Photo	Dimensions	Part #
TG150 Replacement Nosepiece			RTG150NPA
TG150 Wrench†			RTG150W
TG150 Stop Screw			RTG150SS
TG150 Stop Screw Coolant Thru			RTG150SSC

†Required for assembly.



CAT50 Hydraulic Chucks (Balanced to G2.5@25,000 RPM)

- Used for milling, drilling, reaming, and boring
- Can be run up to 25,000 RPM
- Concentric to .00012"
- Wide range of coolant sealed or coolant flush reduction sleeves available
- Collet Sleeves can be found on pages 620-621.



CAT50 Hydraulic Chuck										
Bore ø	D2	D4	X	Gage Length (L1)	L2	L3	L5	L6	G	Part #
1-1/4	69.9MM	55.5MM	20.0MM	81.0MM	61.0MM	10.0MM	4.2MM	47.7MM	M16X1MM	RC5HC1250

Successful Use and Care for RedLine Hydraulic Chucks

- RedLine Hydraulic Chucks can accept tools with a smooth cylindrical shank, Weldon Shank or a Whistle Notch without the use of reduction sleeves. Tools must have a H6 shank tolerance or better.
- To clamp a tool in the Hydraulic Chuck, turn the clamping screw with an Allen Key with 7-8.5 ft. lbs. torque completely to the limit stop. **Never use a Power Screwdriver to turn the actuation screw!**
- Testing of the clamping force should be done before the first use and after approximately 100 tool changes or every 3 months. A test shaft should be inserted at least to the minimum clamping depth into the toolholder. Tighten the clamping screw to a dead stop. If the test shaft can be easily removed from the toolholder manually and without any effort, the clamping force is not high enough. The Hydraulic Chuck shouldn't be used and sent in for repair.
- When using intermediate sleeves, they must be inserted completely into the Hydraulic Chuck, so the edge of the sleeve makes contact with the face of the Hydraulic Chuck. Failure to do this will result in poor run-out and lower grip force.
- Tools with Weldon Shanks or Whistle Notches influence balance and will affect the max rpm the tools can run.
- If tools are not clamped to minimum clamping depth there is a risk of damaging the expansion sleeve and will result in a loss of accuracy.
- The vent screw of the hydraulic system is protected with a pin or resin. **Don't remove it!**
- The axial length stop is set with an Allen Key via the length adjustment screw. There is 10MM (.393") adjustment. Never actuate the length adjustment screw when tools are clamped. Axial adjustment screws maximum tightening torque is 2.2 ft. lbs.

Clamping / Unclamping

- The tool shank must be burr-free and free of dirt.
- Always insert the tool down to the minimum clamping depth into the toolholder.
- **Do not combine several extensions. The clamping screw is not secured against dropping out!**
- **Hydraulic Chucks must not be clamped without a tool or workpiece.**

Shanks to be used in hydraulic expansion toolholders

- **Type A** with straight cylindrical shaft. Cylindrical shaft acc. to DIN 6535 HA and form A according to DIN 6535 part 1
- **Type AB** with one Weldon flat Cylinder shank Form B according to DIN 1835 part 1 and DIN 6535 HB
- **Type B** with two Weldon flats Cylinder shank B according to DIN 1835 part 1
- **Type E** with Whistle-Notch flat Cylinder shank E according to DIN 1835 part 1 and DIN 6535 HE

Care, Storage and Maintenance

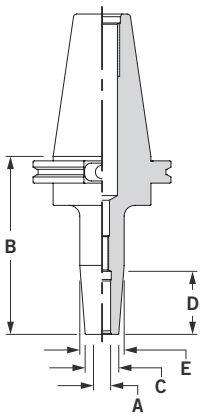
- For optimum clamping force, the clamping bore and groove must be cleaned after every tool change with a solvent.
- Before storage, oil the entire surface of the Hydraulic Chuck and store in an unclamped position.
- Warranty is void if repairs are by anyone other than RedLine Tools.
- It may be necessary to adjust and lubricate the actuation screw, especially with a high number of clamping cycles, high operating temperatures or where abrasive dirt or swarf are present. For optimum lubrication of the actuation screw, we are recommending the use of copper paste MOLYKOTE CU 7439 (100 g tube, Id.-No. 9247204).
- Adjustment range of the length adjustment: 10 mm
- Operating temperature: 20 – 50°C
- Max. coolant pressure: 1160 P.S.I.



CAT50 Shrink Fit Holders

Shrink Fit Holders require a shrink fit machine which expands the bore when heated to accept a cutting tool. Once cooled the tool is held securely over the entire length of the shank resulting in superior gripping force with minimal runout.

- Concentric to .0002" TIR for increased cutting tool life
- Balanced to G2.5 @ 25000 RPM
- Through spindle coolant ready
- Designed with high rigidity and maximum grip



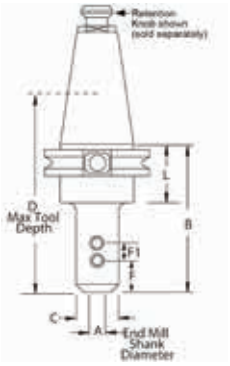
CAT50 Shrink Fit Holders

Taper	Size A	Gage Length (B)	C	D	E	Part #
CAT50	1/4	3.15	.83	1.38	1.06	RC5SF0250315
CAT50	1/4	5.12	.83	1.38	1.06	RC5SF0250512
CAT50	1/4	6.30	.83	1.38	1.06	RC5SF0250630
CAT50	5/16	3.15	.83	1.38	1.06	RC5SF0312315
CAT50	5/16	5.12	.83	1.38	1.06	RC5SF0312512
CAT50	5/16	6.30	.83	1.38	1.06	RC5SF0312630
CAT50	3/8	3.15	.94	1.57	1.26	RC5SF0375315
CAT50	3/8	5.12	.94	1.57	1.26	RC5SF0375512
CAT50	3/8	6.30	.94	1.57	1.26	RC5SF0375630
CAT50	7/16	3.15	.94	1.57	1.26	RC5SF0437315
CAT50	7/16	5.12	.94	1.57	1.26	RC5SF0437512
CAT50	7/16	6.30	.94	1.57	1.26	RC5SF0437630
CAT50	1/2	3.15	.94	1.77	1.26	RC5SF0500315
CAT50	1/2	5.12	.94	1.77	1.26	RC5SF0500512
CAT50	1/2	6.30	.94	1.77	1.26	RC5SF0500630
CAT50	5/8	3.15	1.06	1.77	1.34	RC5SF0625315
CAT50	5/8	5.12	1.06	1.77	1.34	RC5SF0625512
CAT50	5/8	6.30	1.06	1.77	1.34	RC5SF0625630
CAT50	3/4	3.15	1.30	2.17	1.65	RC5SF0750315
CAT50	3/4	5.12	1.30	2.17	1.65	RC5SF0750512
CAT50	3/4	6.30	1.30	2.17	1.65	RC5SF0750630
CAT50	7/8	3.15	1.30	2.17	1.65	RC5SF0875315
CAT50	7/8	5.12	1.30	2.17	1.65	RC5SF0875512
CAT50	7/8	6.30	1.30	2.17	1.65	RC5SF0875630
CAT50	1	3.94	1.73	2.17	2.09	RC5SF1000394
CAT50	1	5.12	1.73	2.17	2.09	RC5SF1000512
CAT50	1	6.30	1.73	2.17	2.09	RC5SF1000630
CAT50	1-1/4	3.94	1.73	2.17	2.09	RC5SF1250394
CAT50	1-1/4	5.12	1.73	2.17	2.09	RC5SF1250512
CAT50	1-1/4	6.30	1.73	2.17	2.09	RC5SF1250630



CAT50 Endmill Holders

- Holders through 1.000" accept double end cutters (except as noted) therefore save on tool costs
- Fine thread screws match Weldon flats—lock tight, stay tight
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Less tool wear and replacement means less scrap
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance



CAT50 Endmill Holders - Fractional

Taper	Size A	Gage Length (B)	C	D	F	F1	L	Part #
CAT50	1/8	2.50	.69	4.90	.38	—	1.38	RC5EM01252500
CAT50	3/16	2.50	.69	3.40	.56	—	1.38	RC5EM01872500
CAT50	1/4	2.50	.78	3.40	.63	—	1.38	RC5EM02502500
CAT50	3/8	2.50	1.00	3.40	.75	—	1.38	RC5EM03752500
CAT50	3/8	4.50	1.00	5.40	.75	—	1.38	RC5EM03754500
CAT50	3/8	6.50	1.00	5.40	.75	—	1.38	RC5EM03756500
CAT50	1/2	2.63	1.25	3.50	.88	—	1.38	RC5EM05002630
CAT50	1/2	4.63	1.25	5.50	.88	—	1.38	RC5EM05004630
CAT50	1/2	6.63	1.25	5.50	.88	—	1.38	RC5EM05006630
CAT50	5/8	3.75	1.50	4.60	.94	—	1.38	RC5EM06253750
CAT50	5/8	5.75	1.50	6.60	.84	—	1.38	RC5EM06255750
CAT50	3/4	1.63	2.75	4.00	1.00	—	1.38	RC5EM07501620*
CAT50	3/4	3.75	1.75	4.60	1.00	—	1.38	RC5EM07503750
CAT50	3/4	5.75	1.75	6.60	1.00	—	1.38	RC5EM07505750
CAT50	3/4	7.75	1.75	8.60	1.00	—	1.38	RC5EM07507750
CAT50	1	1.63	2.75	4.00	1.13	—	1.38	RC5EM10001620*
CAT50	1	4.00	2.00	4.40	1.13	1.00	1.38	RC5EM10004000
CAT50	1	6.00	2.00	4.40	1.13	1.00	1.38	RC5EM10006000
CAT50	1	8.00	2.00	4.40	1.13	1.00	1.38	RC5EM10008000
CAT50	1-1/4	2.00	2.75	4.00	1.13	—	1.38	RC5EM12502000*
CAT50	1-1/4	4.00	2.50	4.00	1.13	1.00	1.38	RC5EM12504000
CAT50	1-1/4	6.00	2.50	4.00	1.13	1.00	1.38	RC5EM12506000
CAT50	1-1/4	8.00	2.50	4.00	1.13	1.00	1.38	RC5EM12508000
CAT50	1-1/2	2.25	2.75	4.00	1.13	—	1.38	RC5EM15002250*
CAT50	1-1/2	4.00	2.50	4.00	1.13	1.00	1.38	RC5EM15004000
CAT50	1-1/2	6.00	2.50	4.00	1.13	1.00	1.38	RC5EM15006000
CAT50	1-1/2	8.00	2.50	4.00	1.13	1.00	1.38	RC5EM15008000
CAT50	2	5.63	3.75	5.00	1.41	1.50	1.38	RC5EM20005630

CONTINUED

*** found in part number stands for Single End cutting tools only.**

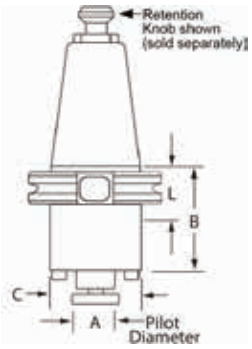
Endmill Holder Replacement Lock Screws

Holder Size	Screw Thread Size	Max. Torque (ft lbs)	Photo	Part #
1/8	8-32 x .25	18		RC4EMLS0125
3/16	10-32 x .25	30		RC4EMLS0187
1/4	1/4-28 x .25	60		RC4EMLS0250
5/16	5/16-24 x .25	120		RC4EMLS0312
3/8	3/8-24 x .30	200		RC4EMLS0375
7/16	3/8-24 x .30	200		RC4EMLS0437
1/2	7/16-20 x .36	220		RC4EMLS0500
9/16	7/16-20 x .36	220		RC4EMLS0562
5/8	1/2-20 x .42	500		REMLS0625
3/4	5/8-18 x .49	560		REMLS0750
7/8	5/8-18 x .49	560		REMLS0875
1	3/4-16 x .45	1150		REMLS1000
1-1/4	3/4-16 x .45	1150		REMLS1250
1-1/2	3/4-16 x .45	1150		REMLS1500
2	1-1/4 x .88	1500		REMLS2000



CAT50 Facemill Holders

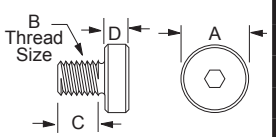
- Pilot diameter is sized for precision fit with cutter
- Face perpendicular to center line within .0002"
- Removable/replaceable drive keys are standard
- Fine thread locking screw is included
- AT3 or better shank taper allows for accurate, rigid toolholder-to-spindle mount
- Less tool wear and replacement means less scrap
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance



CAT50 Facemill Holders

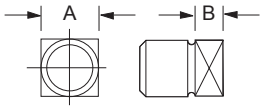
Taper	Size A	Gage Length (B)	C	L	Part #
CAT50	1/2	1.50	1.44	1.38	RC5SM05001500
CAT50	1/2	3.50	1.44	1.38	RC5SM05003500
CAT50	1/2	5.50	1.44	1.38	RC5SM05005500
CAT50	3/4	1.50	1.69	1.38	RC5SM07501500
CAT50	3/4	3.50	1.69	1.38	RC5SM07503500
CAT50	3/4	5.50	1.69	1.38	RC5SM07505500
CAT50	1	2.00	2.19	1.38	RC5SM10002000
CAT50	1	4.00	2.19	1.38	RC5SM10004000
CAT50	1	6.00	2.19	1.38	RC5SM10006000
CAT50	1-1/4	1.50	2.75	1.38	RC5SM12501500
CAT50	1-1/4	3.50	2.75	1.38	RC5SM12503500
CAT50	1-1/4	5.50	2.75	1.38	RC5SM12505500
CAT50	1-1/2	2.50	3.81	1.38	RC5SM15002500
CAT50	1-1/2	4.00	3.81	1.38	RC5SM15004000
CAT50	1-1/2	6.00	3.81	1.38	RC5SM15006000
CAT50	2	3.00	4.88	1.38	RC5SM20003000
CAT50	2	4.00	4.88	1.38	RC5SM20004000
CAT50	2	6.00	4.88	1.38	RC5SM20006000
CAT50	2	2.40	4.88	1.38	RC5SM25002400
CAT50	2	4.00	4.88	1.38	RC5SM25004000

Facemill Holder Replacement Lock Screws

Holder Size	Size A	B	C	D	Photo	Dimensions	Part #
1/2	.625	1/4-28	.50	.34			RSMLS0500
3/4	.875	3/8-24	.63	.37			RSMLS0750
1	1.188	1/2-20	.81	.37			RSMLS1000
1-1/4	1.500	5/8-18	.94	.50			RSMLS1250
1-1/2	1.875	3/4-16	1.13	.50			RSMLS1500
2	2.500	1.0-14	1.31	.50			RSMLS2000
2-1/2	3.125	1.0-14	1.50	.50			RSMLS2500

Continued

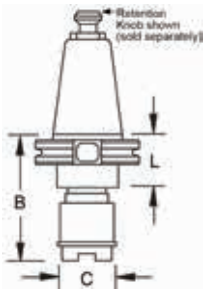
Facemill Holder Replacement Drive Keys

Holder Size	A	B	Photo	Dimensions	Part #
1/2	1/4	1/8			RSMDK0500
3/4	5/16	5/32			RSMDK0750
1	3/8	3/16			RSMDK1000
1-1/4	1/2	1/4			RSMDK1250
1-1/2	5/8	5/16			RSMDK1500
2	3/4	3/8			RSMDK2000
2-1/2	1	1/2			RSMDK2500

Note: Drive keys are in line with drive slot.

CAT50 & Straight Shank Rigid Tap Holders

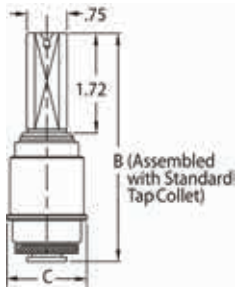




CAT50 Shank

- Rigid synchronous system for newer machine controls (machines with 32 bit microprocessors)
- Extended lengths available for horizontal machining centers
- **Uses popular Bilz style quick-change collet system (see page 622).**





Straight Shank

CAT50 Rigid Tap Holders

Taper	Collet Size	Gage Length (B)*	C	L	Part #
CAT50	Bilz #1	3.58	1.50	1.38	RC5THR013580
CAT50	Bilz #2	4.22	1.88	1.38	RC5THR024220
CAT50	Bilz #1	5.58	1.50	1.38	RC5THR015580
CAT50	Bilz #2	6.22	1.88	1.38	RC5THR026220
CAT50	Bilz #3	8.33	3.25	1.38	RC5THR038330

*** The "B" dimension is the assembled length including standard tap collet**

Straight Shank Rigid Tap Holders

Shank ø	Collet Size	B*	C	Part #
.75	Bilz #1	3.92	1.50	RSSTHR01392
.75	Bilz #2	4.70	1.88	RSSTHR02470

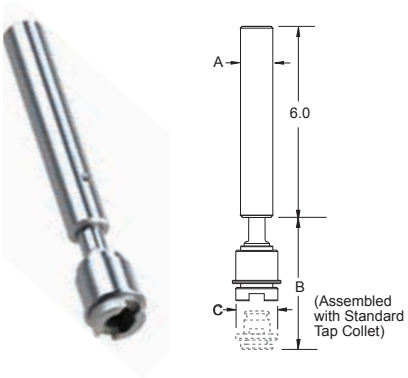
*** The "B" dimension is the assembled length including standard tap collet**

CAT50 & Straight Shank Tension & Compression Tap Holders



CAT50 Shank

- Tension & Compression style has axial float for precise thread pitch
- Holders travel in tension .75"/compression .37"
- **Uses popular Bilz style quick-change collet system (see page 622).**



Straight Shank

CAT50 Tension & Compression Tap Holders

Taper	Collet Size	Gage Length (B)*	C	L	Part #
CAT50	Bilz #1	4.56	1.75	1.38	RC5THT014560
CAT50	Bilz #2	5.82	2.25	1.38	RC5THT025820
CAT50	Bilz #3	8.33	3.25	1.38	RC5THT038330

Straight Shank Tension & Compression Tap Holders

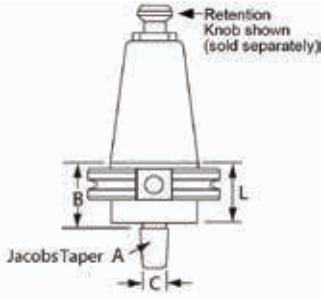
Shank ø	Collet Size	B*	C	Part #
1.00	Bilz #1	2.50	1.50	RTHSST01850
1.25	Bilz #2	3.25	1.88	RTHSST02925

CAT50 Jacobs Taper Holders



- Precision ground Jacobs pilot
- Jacobs taper held to better than .0002" accuracy for best mating with the drill chuck

Notes:
- Not for high speed use.
- Must be cleaned and degreased before assembly wtih drill chuck.



CAT50 Jacobs Taper Holders

Taper	Jacobs Taper (A)	Gage Length (B)	C	L	Part #
V50	#2	1.50	.559	1.38	RC5JT021500
V50	#3	1.50	.811	1.38	RC5JT031500
V50	#4	1.50	1.124	1.38	RC5JT041500
V50	#6	1.50	1.413	1.38	RC5JT061500
V50	#33	1.50	.624	1.38	RC5JT331500

Jacobs High Precision Keyless Chucks

Model	Capacity	Taper	Photo	Part #
JKP 65-J1	.012-.255	#1 J.T.		31121
JKP 80-J2S	.012-.315	#2 J.T.		9679
JKP 100-J33	.020-.394	#33 J.T.		9680
JKP 130-J2	.039-.512	#2 J.T.		9683

Jacobs High Precision Key Type Chucks

Model	Capacity	Taper	Photo	Part #
11N	.040-.375	#2 J.T.		30215
14N	.040-.500	#3 J.T.		30221
16N	.125-.625	#3 J.T.		30227
18N	.125-.750	#4 J.T.		30233

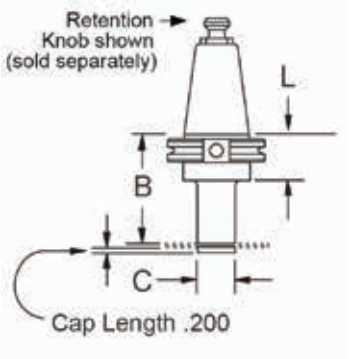
Jacobs Drill Chuck Replacement Key

Chuck #	Model	Part #
11N	K32	3666
14N	K3	3651
16N	K4	3655
18N	K4	3655



CAT50 Slitting Saw Holders

- Semi-flush nose cap gets in tight areas
- Change saw width without spacers
- Face is held perpendicular to center line within .0002"
- Pilot diameter is sized for precision fit with cutter and is keyed for positive drive
- Designed for slitting saws up to 5/16" thick — wider cutters use Stub Arbor Holder



CAT50 Slitting Saw Holders

Taper	Cutter Size ID	Gage Length (B)	C	L	Part #
CAT50	1.00	4.00	1.50	1.38	RC5SS10004000
CAT50	1.00	6.00	1.50	1.38	RC5SS10006000
CAT50	1.25	6.00	2.00	1.38	RC5SS12506000

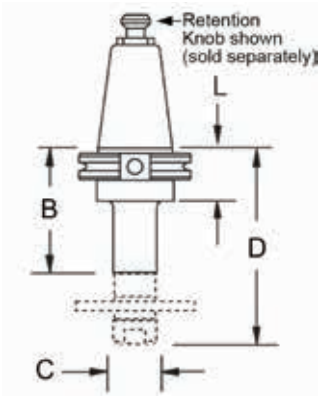
Slitting Saw Holder Replacement Parts & Accessories

Description	Part #
Cap for 1" Pilot Holder	RSSC1000
Drive Key for 1" Pilot Holder	RSSDK1000
Cap for 1-1/4" Pilot Holder	RSSC1250
Drive Key for 1-1/4" Pilot Holder	RSSDK1250



CAT50 Stub Arbor Holders

- Pilot thread is ground concentric to the tapered shank
- Face is perpendicular to center line within .0002"
- Pilot diameter is sized for precision fit with cutter and is keyed for positive drive
- Heavy duty locking nut and three arbor spacers are included - 1/4", 3/8", 3/4"



CAT50 Stub Arbor Holders

Taper	Saw ID Size	Gage Length (B)	C	D	L	Part #
CAT50	1.00	4.00	1.56	6.25	1.38	RC5SA10004000
CAT50	1.25	4.00	1.87	6.50	1.38	RC5SA12504000
CAT50	1.00	6.00	1.56	8.25	1.38	RC5SA10006000
CAT50	1.25	6.00	1.87	8.50	1.38	RC5SA12506000

Stub Arbor Holder Replacement Parts & Accessories

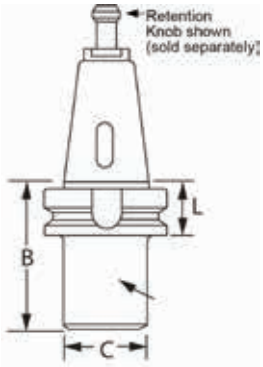
Description	Part #
Nut for 1" Stub Arbor Holder	R1000SAN
Key for 1" Stub Arbor Holder with 1/4" Square Key	RSAK1000
1/4" Spacer for 1" Stub Arbor Holder	RSAH100SP0250
3/8" Spacer for 1" Stub Arbor Holder	RSAH100SP0375
3/4" Spacer for 1" Stub Arbor Holder	RSAH100SP0750
Nut for 1-1/4" Stub Arbor Holder	R1250SAN
Key for 1-1/4" Stub Arbor Holder with 5/16" Square Key	RSAK1250
1/4" Spacer for 1-1/4" Stub Arbor Holder	RSAH125SP0250
3/8" Spacer for 1-1/4" Stub Arbor Holder	RSAH125SP0375
3/4" Spacer for 1-1/4" Stub Arbor Holder	RSAH125SP0750



CAT50 Morse Taper Holders

- Precision ground Morse taper
- Morse taper pocket held to .0002" accuracy for the best locking fit of the Morse shank
- AT3 or better shank taper results in accurate, rigid toolholder-to-spindle mount
- Less tool and wear replacements means less scrap
- Fully ground flange and V-groove is easy on tool changers for less spindle and changer maintenance

Notes:
- Not for high speed use
- Must be cleaned before use and degreased for proper assembly
- Not to be used with coolant thru the spindle



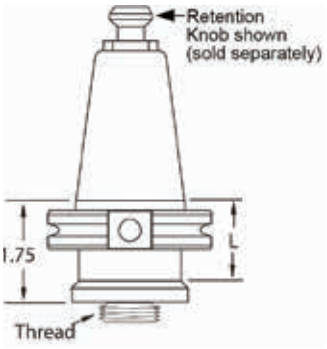
CAT50 Morse Taper Holders

Taper	Morse Taper	Gage Length (B)	C	L	Part #
CAT50	#2	1.38	2.75	1.38	RC5MT021380
CAT50	#3	1.88	2.75	1.38	RC5MT031880
CAT50	#4	2.75	2.75	1.38	RC5MT042750
CAT50	#5	4.06	2.75	1.38	RC5MT054060



CAT50 Boring Head Holders

- AT3 or better shank taper — accurate, rigid toolholder-to-spindle mount
- Less tool wear and replacement — less scrap
- Fully ground flange and V-groove — easy on the tool changers for less spindle and changer maintenance



CAT50 Boring Head Holders

Taper	Fits Boring Head	Thread	L	Part #
CAT50	SPI, Kennametal, Criterion	7/8-20	1.50	RC5BH08751380
CAT50	SPI, Kennametal, Criterion	1 1/2-18	1.50	RC5BH15001380

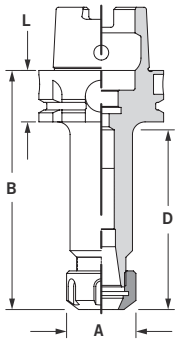
NEW Product

HSK63A & Straight Shank ER11 Collet Chucks

(Balanced to G2.5@18,000 RPM)



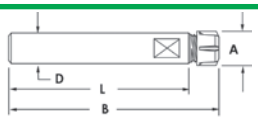
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- Wide range collets reduce collet and toolholder inventories
- Through spindle coolant standard
- ER11 Collets found on page 601.



HSK63A ER11 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.020-.275	HSK63A	.63	2.00	1.10	1.02	8 ft lbs	RHSK63AER11200
.020-.275	HSK63A	.63	4.00	3.10	1.02	8 ft lbs	RHSK63AER11400

ER11 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
.63	6.60	.50	5.80			RSSER11660

ER11 Parts & Accessories

Description	Photo	Dimensions	Part #
ER11 Replacement Nosepiece			RER11NPA
ER11 Collet Wrench†			RER11W

†Required for assembly.

HSK63A Coolant Accessories

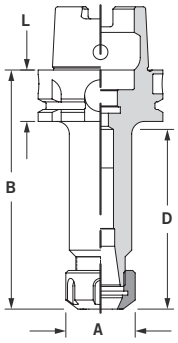
HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW



HSK63A & Straight Shank ER16 Collet Chucks (Balanced to G2.5@18,000 RPM)

NEW Product

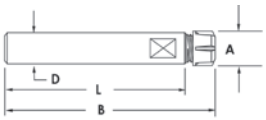
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- Wide range collets reduce collet and toolholder inventories
- Through spindle coolant standard
- ER16 Collets found on pages 602-603.



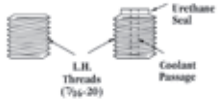
HSK63A ER16 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.020-.393	HSK63A	1.26	2.50	1.30	1.02	24 ft lbs	RHSK63AER16250
.020-.393	HSK63A	1.26	4.50	2.00	1.02	24 ft lbs	RHSK63AER16450
.020-.393	HSK63A	1.26	6.50	3.00	1.02	24 ft lbs	RHSK63AER16650

ER16 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.259	7.0	.750	5.9			RSSER16700

ER16 Parts & Accessories

Description	Photo	Dimensions	Part #
ER16 Replacement Nosepiece			RER16NPA
ER16 Collet Wrench†			RER16W
ER16 Stop Screw			RER16SS
ER16 Stop Screw Coolant Thru			RER16SSC

†Required for assembly.

HSK63A Coolant Accessories

HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW

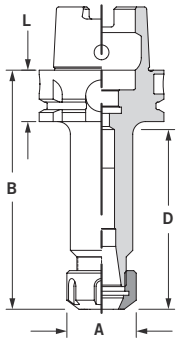
NEW Product

HSK63A & Straight Shank ER20 Collet Chucks

(Balanced to G2.5@18,000 RPM)



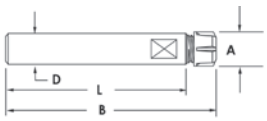
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- Wide range collets reduce collet and toolholder inventories
- Through spindle coolant standard
- ER20 Collets found on pages 604-605.



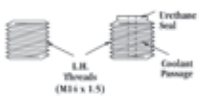
HSK63A ER20 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.040-.511	HSK63A	1.38	2.75	1.40	1.02	36 ft lbs	RHSK63AER20275
.040-.511	HSK63A	1.38	4.75	2.40	1.02	36 ft lbs	RHSK63AER20475
.040-.511	HSK63A	1.38	6.75	3.50	1.02	36 ft lbs	RHSK63AER20675

ER20 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.38	7.0	1.00	5.8			RSSER20700

ER20 Parts & Accessories

Description	Photo	Dimensions	Part #
ER20 Replacement Nosepiece			RER20NPA
ER20 Collet Wrench†			RER20W
ER20 Stop Screw			RER20SS
ER20 Stop Screw Coolant Thru			RER20SSC

†Required for assembly.

HSK63A Coolant Accessories

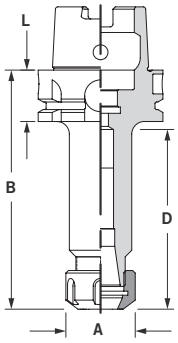
HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW

NEW Product

HSK63A & Straight Shank ER25 Collet Chucks (Balanced to G2.5@18,000 RPM)



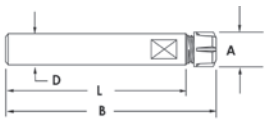
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- Wide range collets reduce collet and toolholder inventories
- Through spindle coolant standard
- ER16 Collets found on pages 606-607.



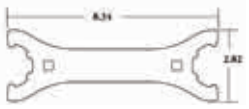
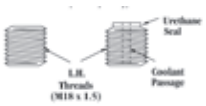
HSK63A ER25 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.040-.629	HSK63A	1.64	3.00	1.70	1.02	42 ft lbs	RHSK63AER25300
.040-.629	HSK63A	1.64	5.00	2.80	1.02	42 ft lbs	RHSK63AER25500
.040-.629	HSK63A	1.64	7.00	3.50	1.02	42 ft lbs	RHSK63AER25700

ER25 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.64	7.5	1.00	5.5			RSSER25750

ER25 Parts & Accessories

Description	Photo	Dimensions	Part #
ER25 Replacement Nosepiece			RER25NPA
ER25 Collet Wrench†			RER25W
ER25 Stop Screw			RER25SS
ER25 Stop Screw Coolant Thru			RER25SSC

†Required for assembly.

HSK63A Coolant Accessories

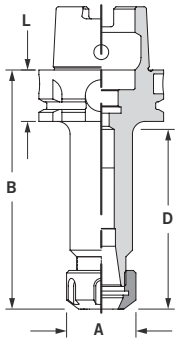
HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW



HSK63A & Straight Shank ER32 Collet Chucks

(Balanced to G2.5@18,000 RPM)

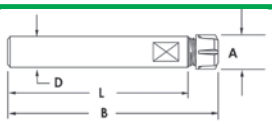
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- Wide range collets reduce collet and toolholder inventories
- Through spindle coolant standard
- ER32 Collets found on pages 608-609.



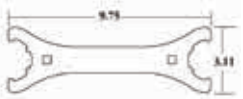
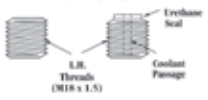
HSK63A ER32 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.079-.787	HSK63A	1.97	3.25	1.80	1.02	48 ft lbs	RHSK63AER32325
.079-.787	HSK63A	1.97	5.25	2.80	1.02	48 ft lbs	RHSK63AER32525
.079-.787	HSK63A	1.97	7.25	4.00	1.02	48 ft lbs	RHSK63AER32725

ER32 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
1.97	7.5	1.25	5.5			RSSER32750

ER32 Parts & Accessories

Description	Photo	Dimensions	Part #
ER32 Replacement Nosepiece			RER32NPA
ER32 Collet Wrench†			RER32W
ER32 Stop Screw			RER32SS
ER32 Stop Screw Coolant Thru			RER32SSC

†Required for assembly.

HSK63A Coolant Accessories

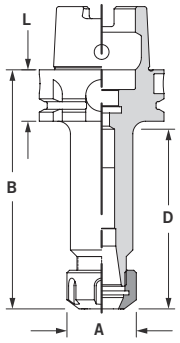
HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW

NEW Product



HSK63A & Straight Shank ER40 Collet Chucks (Balanced to G2.5@18,000 RPM)

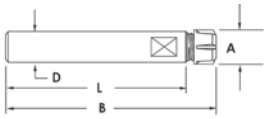
- Small diameter nose well-suited for working in close quarters
- Increased flexibility for milling, drilling, and reaming
- Flush precision collet nut, grips tool close to cutting edge for accuracy and rigidity
- Concentric to .0002" TIR puts tool precisely on spindle center line
- Wide range collets reduce collet and toolholder inventories
- Through spindle coolant standard
- ER40 Collets found on pages 610-612.



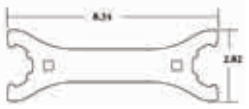
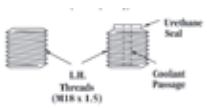
HSK63A ER40 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.086-1.023	HSK63A	2.48	3.15	1.75	1.02	72 ft lbs	RHSK63AER40315
.086-1.023	HSK63A	2.48	4.72	2.50	1.02	72 ft lbs	RHSK63AER40472

ER40 Straight Shank Collet Extension

A	B	D	L	Photo	Dimensions	Part #
2.48	6.0	1.25	3.5			RSSER40600

ER40 Parts & Accessories

Description	Photo	Dimensions	Part #
ER40 Replacement Nosepiece			RER40NPA
ER40 Collet Wrench†			RER40W
ER40 Stop Screw			RER40SS
ER40 Stop Screw Coolant Thru			RER40SSC

†Required for assembly.

HSK63A Coolant Accessories

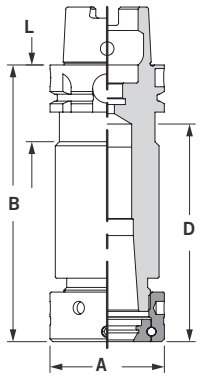
HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW

NEW Product

HSK63A TG100 Collet Chucks



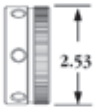
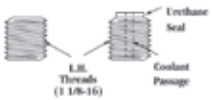
- The key reason for the RedLine Collet Systems' accuracy and gripping power is a unique flush nut design. It incorporates a rotating ball assembly producing a “radial float.” This forces the collet to self-center for maximum grip, highest precision, and minimum tool wear.
- Flexibility to mill, drill, and ream
- Less tool wear and replacement means less scrap
- TG100 Collets found on pages 617-618.



CAT40 TG100 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.078-1.000	HSK63A	2.53	4.00	2.00	1.02	60 ft lbs	RHSK63ATG10400
.078-1.000	HSK63A	2.53	6.00	4.06	1.02	60 ft lbs	RHSK63ATG10600

TG100 Series Parts & Accessories

Description	Photo	Dimensions	Part #
TG100 Replacement Nosepiece			RTG100NPA
TG100 Wrench†			RTG100W
TG100 Stop Screw			RTG100SS
TG100 Stop Screw Coolant Thru			RTG100SSC

†Required for assembly.

HSK63A Coolant Accessories

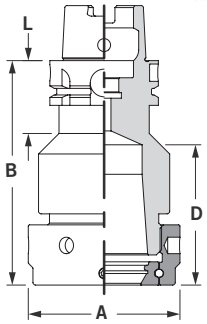
HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW

NEW Product

HSK63A TG150 Collet Chucks



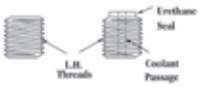
- The key reason for the RedLine Collet Systems' accuracy and gripping power is a unique flush nut design. It incorporates a rotating ball assembly producing a “radial float.” This forces the collet to self-center for maximum grip, highest precision, and minimum tool wear.
- Flexibility to mill, drill, and ream
- Less tool wear and replacement means less scrap
- TG150 Collets found on pages 618-619.



HSK63AS TG150 Collet Chucks

Capacity	Taper	A	Gage Length (B)	D	L	Max. Nosepiece Torque	Part #
.359-1.500	HSK63A	3.47	5.13	2.52	1.02	100 ft lbs	RHSK63ATG15513

TG150 Series Parts & Accessories

Description	Photo	Dimensions	Part #
TG150 Replacement Nosepiece			RTG150NPA
TG150 Wrench†			RTG150W
TG150 Stop Screw			RTG150SS
TG150 Stop Screw Coolant Thru			RTG150SSC

†Required for assembly.

HSK63A Coolant Accessories

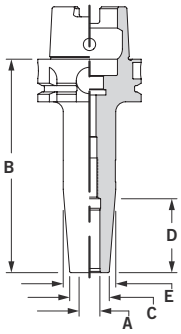
HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW



HSK63A Shrink Fit Holders

Shrink Fit Holders require a shrink fit machine which expands the bore when heated to accept a cutting tool. Once cooled the tool is held securely over the entire length of the shank resulting in superior gripping force with minimal runout.

- Concentric to .0002" TIR puts tool precisely on spindle centerline
- Balanced to G2.5 @ 25000 RPM
- Through spindle coolant ready
- Designed with high rigidity and maximum grip



HSK63A Shrink Fit Holders

Taper	Size A	Gage Length (B)	C	D	E	Part #
HSK63A	1/8	3.15	.39	—	—	RHSK63ASF0125315
HSK63A	3/16	3.15	.39	—	—	RHSK63ASF0187315
HSK63A	1/4	3.15	.83	1.38	1.06	RHSK63ASF0250315
HSK63A	1/4	5.12	.83	1.38	1.06	RHSK63ASF0250512
HSK63A	1/4	6.30	.83	1.38	1.06	RHSK63ASF0250630
HSK63A	5/16	3.15	.83	1.38	1.06	RHSK63ASF0312315
HSK63A	5/16	5.12	.83	1.38	1.06	RHSK63ASF0312512
HSK63A	5/16	6.30	.83	1.38	1.06	RHSK63ASF0312630
HSK63A	3/8	3.35	.94	1.57	1.26	RHSK63ASF0375335
HSK63A	3/8	5.12	.94	1.57	1.26	RHSK63ASF0375512
HSK63A	3/8	6.30	.94	1.57	1.26	RHSK63ASF0375630
HSK63A	1/2	3.54	.94	1.77	1.26	RHSK63ASF0500354
HSK63A	1/2	5.12	.94	1.77	1.26	RHSK63ASF0500512
HSK63A	1/2	6.30	.94	1.77	1.26	RHSK63ASF0500630
HSK63A	5/8	3.74	1.06	1.77	1.34	RHSK63ASF0625374
HSK63A	5/8	5.12	1.06	1.77	1.34	RHSK63ASF0625512
HSK63A	5/8	6.30	1.06	1.77	1.34	RHSK63ASF0625630
HSK63A	3/4	3.93	1.30	2.17	1.65	RHSK63ASF0750394
HSK63A	3/4	5.12	1.30	2.17	1.65	RHSK63ASF0750512
HSK63A	3/4	6.30	1.30	2.17	1.65	RHSK63ASF0750630
HSK63A	1	4.53	1.73	2.17	2.05	RHSK63ASF1000452
HSK63A	1	6.30	1.73	2.17	2.05	RHSK63ASF1000630
HSK63A	1-1/4	4.72	1.73	2.17	2.05	RHSK63ASF1250472
HSK63A	1-1/4	6.30	1.73	2.17	2.05	RHSK63ASF1250630

HSK63A Coolant Accessories

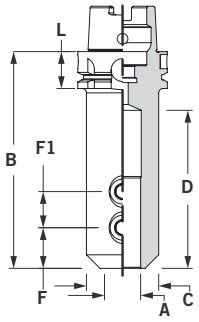
HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW



HSK63A Endmill Holders

NEW Product

- Holders through 1.000" accept double end cutters (except as noted) therefore save on tool costs
- Fine thread screws match Weldon flats—lock tight, stay tight
- Less tool wear and replacement means less scrap



HSK63A Endmill Holders - Fractional

Taper	Size A	Gage Length (B)	C	D	F	F1	L	Part #
HSK63A	1/4	2.13	.78	1.20	.53	—	1.02	RHSK63AEM0250213*
HSK63A	1/4	4.13	.78	3.20	.53	—	1.02	RHSK63AEM0250413
HSK63A	5/16	2.25	.88	1.30	.66	—	1.02	RHSK63AEM0312225*
HSK63A	5/16	4.25	.88	1.50	.66	—	1.02	RHSK63AEM0312425
HSK63A	5/16	6.25	.88	1.50	.66	—	1.02	RHSK63AEM0312625
HSK63A	3/8	2.88	1.00	1.70	.75	—	1.02	RHSK63AEM0375288*
HSK63A	3/8	4.88	1.00	1.50	.75	—	1.02	RHSK63AEM0375488
HSK63A	3/8	6.88	1.00	1.50	.75	—	1.02	RHSK63AEM0375688
HSK63A	1/2	3.13	1.25	2.00	.88	—	1.02	RHSK63AEM0500313*
HSK63A	1/2	5.13	1.25	3.00	.88	—	1.02	RHSK63AEM0500513
HSK63A	1/2	7.13	1.25	3.00	.88	—	1.02	RHSK63AEM0500713
HSK63A	5/8	3.38	1.50	2.10	.94	—	1.02	RHSK63AEM0625338*
HSK63A	5/8	5.40	1.50	3.50	.94	—	1.02	RHSK63AEM0625538
HSK63A	5/8	7.38	1.50	3.50	.94	—	1.02	RHSK63AEM0625738
HSK63A	3/4	3.50	1.75	2.20	1.00	—	1.02	RHSK63AEM0750350*
HSK63A	3/4	5.50	1.75	3.90	1.00	—	1.02	RHSK63AEM0750550
HSK63A	3/4	7.50	1.75	3.90	1.00	—	1.02	RHSK63AEM0750750
HSK63A	7/8	3.50	1.88	2.20	1.00	—	1.02	RHSK63AEM0875350*
HSK63A	1	4.00	2.00	2.70	1.13	1.00	1.02	RHSK63AEM1000400*
HSK63A	1	6.00	2.00	4.30	1.13	1.00	1.02	RHSK63AEM1000600
HSK63A	1-1/4	4.50	2.50	3.10	1.13	1.00	1.02	RHSK63AEM1250450
HSK63A	1-1/4	6.50	2.50	4.00	1.13	1.00	1.02	RHSK63AEM1250650
HSK63A	1-1/2	5.13	2.50	3.10	1.13	1.00	1.02	RHSK63AEM1500513
HSK63A	1-1/2	7.13	2.50	4.00	1.13	1.00	1.02	RHSK63AEM1500713

NOTE: * in part number stands for Single End cutting tools only.

HSK63A Coolant Accessories

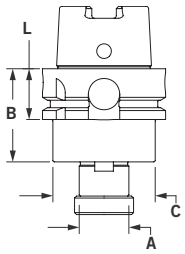
HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW

NEW Product

HSK63A Facemill Holders



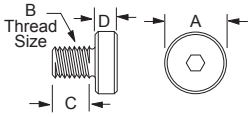
- Pilot diameter is sized for precision fit with cutter
- Face perpendicular to center line within .0002"
- Removable/replaceable drive keys are standard
- Fine thread locking screw is included
- Less tool wear and replacement means less scrap



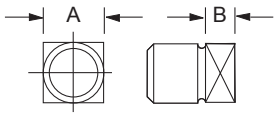
HSK63A Facemill Holders

Taper	Size A	Gage Length (B)	C	L	Part #
HSK63A	3/4	1.75	1.69	1.02	RHSK63ASM0750175
HSK63A	3/4	4.00	1.69	1.02	RHSK63ASM0750400
HSK63A	1	1.88	2.06	1.02	RHSK63ASM1000188
HSK63A	1	4.00	2.06	1.02	RHSK63ASM1000400
HSK63A	1-1/4	2.50	2.75	1.02	RHSK63ASM1250250
HSK63A	1-1/4	4.00	2.75	1.02	RHSK63ASM1250400
HSK63A	1-1/2	2.75	3.81	1.02	RHSK63ASM1500275
HSK63A	1-1/2	4.00	3.81	1.02	RHSK63ASM1500400

Facemill Holder Replacement Lock Screws

Holder Size	Size A	B	C	D	Photo	Dimensions	Part #
3/4	.875	3/8-24	.63	.37			RSMLS0750
1	1.188	1/2-20	.81	.37			RSMLS1000
1-1/4	1.500	5/8-18	.94	.50			RSMLS1250
1-1/2	1.875	3/4-16	1.13	.50			RSMLS1500

Facemill Holder Replacement Drive Keys

Holder Size	Size A	B	Photo	Dimensions	Part #
3/4	5/16	5/32			RSMDK0750
1	3/8	3/16			RSMDK1000
1-1/4	1/2	1/4			RSMDK1250
1-1/2	5/8	5/16			RSMDK1500

Note: Drive keys are in line with drive slot.

HSK63A Coolant Accessories

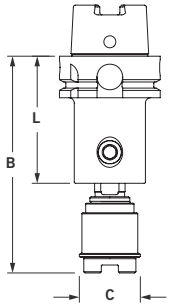
HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW

HSK63A & Straight Shank Rigid Tap Holders

NEW Product



- Rigid synchronous system for machine controls with 32 bit microprocessors
- Extended lengths available for horizontal machining centers
- **Uses popular Bilz style quick-change collet system (see page 622).**



HSK63A Rigid Tap Holders

Taper	Collet Size	Gage Length (B)*	C	L	Part #
HSK63A	Bilz #1	5.33	1.50	1.02	RHSK63ATHR01533
HSK63A	Bilz #2	6.08	1.88	1.02	RHSK63ATHR02608

*** The "B" dimension is the assembled length including standard tap collet**

Straight Shank Rigid Tap Holders

Shank ø	Collet Size	B*	C	Part #
.75	Bilz #1	3.92	1.50	RSSTHR01392
.75	Bilz #2	4.70	1.88	RSSTHR02470

*** The "B" dimension is the assembled length including standard tap collet**

HSK63A Coolant Accessories

HSK63A Coolant Tube	HSK63A Coolant Tube Plug	HSK63A Coolant Tube Wrench
		
RHSK63ACT	RHSK63AHP	RHSK63ATW

REGO-FIX® ER11 Collet Sets

Description	Part #	Photo
Fractional 7 pc Collet Set with tray; includes all sizes except 1/32”	1111.00002	
Metric 13 pc Collet Set with tray	1111.00000	

REGO-FIX® ER11 Fractional Collets

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
1/32	.0394-.0197	1.00-0.50	1111.01000	
1/16	.0625-.0425	1.59-1.09	1111.01592	
3/32	.0938-.0738	2.38-1.88	1111.02382	
1/8	.1250-.1050	3.18-2.68	1111.03182	
5/32	.1563-.1363	3.97-3.47	1111.03972	
3/16	.1875-.1675	4.76-4.26	1111.04762	
7/32	.2188-.1988	5.56-5.06	1111.05562	
1/4	.2500-.2300	6.35-5.85	1111.06352	

REGO-FIX® ER11 Metric Collets

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
1.00-0.50	.0394-.0197	1/32	1111.01000	
1.50-1.00	.0591-.0394	—	1111.01500	
2.00-1.50	.0787-.0591	1/16	1111.02000	
2.50-2.00	.0984-.0787	3/32	1111.02500	
3.00-2.50	.1181-.0984	—	1111.03000	
3.50-3.00	.1378-.1181	1/8	1111.03500	
4.00-3.50	.1575-.1378	5/32	1111.04000	
4.50-4.00	.1772-.1575	—	1111.04500	
5.00-4.50	.1969-.1772	3/16	1111.05000	
5.50-5.00	.2165-.1969	—	1111.05500	
6.00-5.50	.2362-.2165	7/32	1111.06000	
6.50-6.00	.2559-.2362	1/4	1111.06500	
7.00-6.50	.2756-.2559	—	1111.07000	

Continued

REGO-FIX® ER16 Collet Sets

Description	Part #	Photo
Fractional 12 pc Collet Set with tray; includes all sizes except 1/32"	1116.00002	
Fractional Metallic Sealed 5 pc Collet Set with tray; includes all sizes except 1/32"	1216.00002	
Metric 10 pc Collet Set with tray *Sizes that are included in sets- See page 603	1116.00000	
Metric Metallic Sealed 8 pc Collet Set with tray *See page 603	1216.00000	

REGO-FIX® ER16 Fractional Collets

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
1/32	.0394-.0197	1.00-0.50	1116.01000	
1/16	.0625-.0425	1.59-1.09	1116.01592	
3/32	.0938-.0738	2.38-1.88	1116.02382	
1/8	.1250-.0850	3.18-2.18	1116.03182	
5/32	.1563-.1163	3.97-2.97	1116.03972	
3/16	.1875-.1475	4.76-3.76	1116.04762	
7/32	.2188-.1788	5.56-4.56	1116.05562	
1/4	.2500-.2100	6.35-5.35	1116.06352	
9/32	.2813-.2413	7.14-6.14	1116.07142	
5/16	.3125-.2725	7.94-6.94	1116.07942	
11/32	.3438-.3038	8.73-7.73	1116.08732	
3/8	.3750-.3350	9.53-8.53	1116.09532	
13/32	.4063-.3663	10.32-9.32	1116.10322	

REGO-FIX® ER16 Fractional Metallic Sealed Collets
(Good to 2000 psi)

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
1/8	.1250	3.18	1216.03182	
3/16	.1875	4.76	1216.04762	
1/4	.2500-.2303	6.35-5.85	1216.06352	
5/16	.3125-.2929	7.94-7.44	1216.07942	
3/8	.3750-.3556	9.53-9.03	1216.09532	

Continued

REGO-FIX® ER16 Metric Collets

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
1.00-0.50*	.0394-.0197	1/32	1116.01000	
1.50-1.00	.0591-.0394	—	1116.01500	
2.00-1.00*	.0787-.0394	1/16	1116.02000	
2.50-1.50	.0984-.0591	—	1116.02500	
3.00-2.00*	.1181-.0787	3/32	1116.03000	
3.50-2.50	.1378-.0984	—	1116.03500	
4.00-3.00*	.1575-.1181	1/8	1116.04000	
4.50-3.50	.1772-.1378	5/32	1116.04500	
5.00-4.00*	.1969-.1575	3/16	1116.05000	
5.50-4.50	.2165-.1772	—	1116.05500	
6.00-5.00*	.2362-.1969	7/32	1116.06000	
6.50-5.50	.2559-.2165	—	1116.06500	
7.00-6.00*	.2756-.2362	1/4	1116.07000	
7.50-6.50	.2953-.2559	—	1116.07500	
8.00-7.00*	.3150-.2756	9/32	1116.08000	
8.50-7.50	.3347-.2953	5/16	1116.08500	
9.00-8.00*	.3543-.3150	11/32	1116.09000	
9.50-8.50	.3740-.3347	—	1116.09500	
10.00-9.00*	.3937-.3543	3/8	1116.10000	

REGO-FIX® ER16 Metric Metallic Sealed Collets
(Good to 2000 psi)

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
3.00	.1181	—	1216.03000	
4.00	.1575	—	1216.04000	
5.00-4.50	.1969-.1772	3/16	1216.05000	
6.00-5.50	.2362-.2165	7/32	1216.06000	
7.00-6.50	.2756-.2559	—	1216.07000	
8.00-7.50	.3150-.2953	5/16	1216.08000	
9.00-8.50	.3543-.3347	11/32	1216.09000	
10.00-9.50	.3937-.3740	3/8	1216.10000	

Continued

* Represents items included in the Collet Set on page 602.

REGO-FIX® ER20 Collet Sets

Description	Part #	Photo
Fractional 7 pc Collet Set with tray; includes all sizes	1120.00002	
Fractional Metallic Sealed 7 pc Collet Set with tray; includes all sizes	1220.00002	
Metric 12 pc Collet Set with tray *Sizes that are included in sets - see page 605	1120.00000	
Metric Metallic Sealed 11 pc Collet Set with tray *Sizes that are included in sets - see page 605	1220.00000	

REGO-FIX® ER20 Fractional Collets

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
1/8	.1250-.0850	3.18-2.18	1120.03182	
3/16	.1875-.1475	4.76-3.76	1120.04762	
1/4	.2500-.2100	6.35-5.35	1120.06352	
5/16	.3125-.2725	7.94-6.94	1120.07942	
3/8	.3750-.3350	9.53-8.53	1120.09532	
7/16	.4375-.3975	11.11-10.11	1120.11112	
1/2	.5000-.4600	12.70-11.70	1120.12702	

REGO-FIX® ER20 Fractional Metallic Sealed Collets
(Good to 2000 psi)

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
1/8	.1250	3.18	1220.03182	
3/16	.1875	4.76	1220.04762	
1/4	.2500	6.35	1220.06352	
5/16	.3125-.2929	7.94-7.44	1220.07942	
3/8	.3750-.3556	9.53-9.03	1220.09532	
7/16	.4375-.4177	11.11-10.61	1220.11112	
1/2	.5000-.4803	12.70-12.20	1220.12702	

Continued

REGO-FIX® ER20 Metric Collets

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
1.00-0.50	.0394-.0197	1/32	1120.01000	
1.50-1.00	.0591-.0394	—	1120.01500	
2.00-1.00*	.0787-.0394	1/16	1120.02000	
2.50-1.50	.0984-.0591	—	1120.02500	
3.00-2.00*	.1181-.0787	3/32	1120.03000	
3.50-2.50	.1378-.0984	—	1120.03500	
4.00-3.00*	.1575-.1181	1/8	1120.04000	
4.50-3.50	.1772-.1378	5/32	1120.04500	
5.00-4.00*	.1969-.1575	3/16	1120.05000	
5.50-4.50	.2165-.1772	—	1120.05500	
6.00-5.00*	.2362-.1969	7/32	1120.06000	
6.50-5.50	.2559-.2165	—	1120.06500	
7.00-6.00*	.2756-.2362	1/4	1120.07000	
7.50-6.50	.2953-.2559	9/32	1120.07500	
8.00-7.00*	.3150-.2756	5/16	1120.08000	
8.50-7.50	.3347-.2953	—	1120.08500	
9.00-8.00*	.3543-.3150	11/32	1120.09000	
9.50-8.50	.3740-.3347	—	1120.09500	
10.00-9.00*	.3937-.3543	3/8	1120.10000	
10.50-9.50	.4134-.3740	13/32	1120.10500	
11.00-10.00*	.4330-.3937	—	1120.11000	
11.50-10.50	.4528-.4134	7/16	1120.11500	
12.00-11.00*	.4724-.4330	15/32	1120.12000	
12.50-11.50	.4921-.4528	—	1120.12500	
13.00-12.00*	.5118-.4724	1/2	1120.13000	

REGO-FIX® ER20 Metric Metallic Sealed Collets
(Good to 2000 psi)

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
3.00	.1181	—	1220.03000	
4.00	.1575	—	1220.04000	
5.00	.1969	—	1220.05000	
6.00	.2362	—	1220.06000	
7.00-6.50	.2756-.2559	—	1220.07000	
8.00-7.50	.3150-.2653	9/32 & 5/16	1220.08000	
9.00-8.50	.3543-.3347	11/32	1220.09000	
10.00-9.50	.3937-.3740	3/8	1220.10000	
11.00-10.50	.4330-.4134	—	1220.11000	
12.00-11.50	.4724-.4528	15/32	1220.12000	
13.00-12.50	.5118-.4921	1/2	1220.13000	

Continued

* Represents items included in the Collet Set on page 604.

ER25 Collets

REGO-FIX® ER25 Collet Sets

Description	Part #	Photo
Fractional 9 pc Collet Set with tray; includes all sizes	1125.00002	
Fractional Metallic Sealed 7 pc Collet Set with tray; includes all sizes	1225.00002	
Metric 15 pc Collet Set with tray *Sizes that are included in sets - see page 607	1125.00000	
Metric Metallic Sealed 6 pc Collet Set with tray *Sizes that are included in sets - see page 607	1225.00000	

REGO-FIX® ER25 Fractional Collets

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
1/8	.1250-.0850	3.18-2.18	1125.03182	
3/16	.1875-.1475	4.76-3.76	1125.04762	
1/4	.2500-.2100	6.35-5.35	1125.06352	
5/16	.3125-.2725	7.94-6.94	1125.07942	
3/8	.3750-.3350	9.53-8.53	1125.09532	
7/16	.4375-.3975	11.11-10.11	1125.11112	
1/2	.5000-.4600	12.70-11.70	1125.12702	
9/16	.5625-.5225	14.29-13.29	1125.14292	
5/8	.6250-.5820	15.88-14.88	1125.15882	

REGO-FIX® ER25 Fractional Metallic Sealed Collets
(Good to 2000 psi)

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
1/4	.2500	6.35	1225.06352	
5/16	.3125-.2929	7.94-7.44	1225.07942	
3/8	.3750-.3556	9.53-9.03	1225.09532	
7/16	.4375-.4177	11.11-10.61	1225.11112	
1/2	.5000-.4803	12.70-12.20	1225.12702	
9/16	.5625-.5425	14.29-13.79	1225.14292	
5/8	.6250-.6055	15.88-15.38	1225.15882	

Continued

REGO-FIX® ER25 Metric Collets

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
1.00-0.50	.0394-.0197	1/32	1125.01000	
1.50-1.00	.0591-.0394	—	1125.01500	
2.00-1.00*	.0787-.0394	1/16	1125.02000	
2.50-1.50	.0984-.0591	3/32	1125.02500	
3.00-2.00*	.1181-.0787	—	1125.03000	
3.50-2.50	.1378-.0984	1/8	1125.03500	
4.00-3.00*	.1575-.1181	5/32	1125.04000	
4.50-3.50	.1772-.1378	—	1125.04500	
5.00-4.00*	.1969-.1575	3/16	1125.05000	
5.50-4.50	.2165-.1772	—	1125.05500	
6.00-5.00*	.2362-.1969	7/32	1125.06000	
6.50-5.50	.2559-.2165	—	1125.06500	
7.00-6.00*	.2756-.2362	1/4	1125.07000	
7.50-6.50	.2953-.2559	9/32	1125.07500	
8.00-7.00*	.3150-.2756	5/16	1125.08000	
8.50-7.50	.3347-.2953	—	1125.08500	
9.00-8.00*	.3543-.3150	11/32	1125.09000	
9.50-8.50	.3740-.3347	—	1125.09500	
10.00-9.00*	.3937-.3543	3/8	1125.10000	
10.50-9.50	.4134-.3740	13/32	1125.10500	
11.00-10.00*	.4330-.3937	—	1125.11000	
11.50-10.50	.4528-.4134	7/16	1125.11500	
12.00-11.00*	.4724-.4330	15/32	1125.12000	
12.50-11.50	.4921-.4528	—	1125.12500	
13.00-12.00*	.5118-.4724	1/2	1125.13000	
13.50-12.50	.5315-.4921	—	1125.13500	
14.00-13.00*	.5512-.5118	17/32	1125.14000	
14.50-13.50	.5709-.5315	—	1125.14500	
15.00-14.00*	.5905-.5512	9/16	1125.15000	
15.50-14.50	.6102-.5709	19/32	1125.15500	
16.00-15.00*	.6300-.5905	5/8	1125.16000	

REGO-FIX® ER25 Metric Metallic Sealed Collets
(Good to 2000 psi)

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
6.00	.2362	—	1225.06000	
8.00-7.50	.3150-.2953	5/16	1225.08000	
10.00-9.50	.3937-.3740	3/8	1225.10000	
12.00-11.50	.4724-.4528	15/32	1225.12000	
14.00-13.50	.5512-.5315	—	1225.14000	
16.00-15.50	.6300-.6102	5/8	1225.16000	

Continued

* Represents items included in the Collet Set on page 606.

REGO-FIX® ER32 Collet Sets

Description	Part #	Photo
Fractional 12 pc Collet Set with tray; includes all sizes	1132.00002	
Fractional Metallic Sealed 9 pc Collet Set with tray; includes all sizes	1232.00002	
Metric 18 pc Collet Set with tray *Sizes that are included in sets - see page 609.	1132.00000	
Metric Metallic Sealed 8 pc Collet Set with tray - see page 609.	1232.00000	

REGO-FIX® ER32 Fractional Collets

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
1/8	.1250-.0850	3.18-2.18	1132.03182	
3/16	.1875-.1475	4.76-3.76	1132.04762	
1/4	.2500-.2100	6.35-5.35	1132.06352	
5/16	.3125-.2725	7.94-6.94	1132.07942	
3/8	.3750-.3350	9.53-8.53	1132.09532	
7/16	.4375-.3975	11.11-10.11	1132.11112	
1/2	.5000-.4600	12.70-11.70	1132.12702	
9/16	.5625-.5225	14.29-13.29	1132.14292	
5/8	.6250-.5820	15.88-14.88	1132.15882	
11/16	.6875-.6475	17.46-16.46	1132.17462	
3/4	.7500-.7100	19.05-18.05	1132.19052	
13/16	.8125-.7725	20.64-19.64	1132.20642	

REGO-FIX® ER32 Fractional Metallic Sealed Collets
(Good to 2000 psi)

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
1/4	.2500	6.35	1232.06352	
5/16	.3125-.2929	7.94-7.44	1232.07942	
3/8	.3750-.3556	9.53-9.03	1232.09532	
7/16	.4375-.4177	11.11-10.61	1232.11112	
1/2	.5000-.4803	12.70-12.20	1232.12702	
9/16	.5625-.5425	14.29-13.79	1232.14292	
5/8	.6250-.6055	15.88-15.38	1232.15882	
11/16	.6875-.6677	17.46-16.96	1232.17462	
3/4	.7500-.7303	19.05-18.55	1232.19052	

Continued

REGO-FIX® ER32 Metric Collets

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
2.00-1.00	.0787-.0394	1/16	1132.02000	
2.50-1.50	.0984-.0591	—	1132.02500	
3.00-2.00*	.1181-.0787	3/32	1132.03000	
3.50-2.50	.1378-.0984	—	1132.03500	
4.00-3.00*	.1575-.1181	1/8	1132.04000	
4.50-3.50	.1772-.1378	5/32	1132.04500	
5.00-4.00*	.1969-.1575	3/16	1132.05000	
5.50-4.50	.2165-.1772	—	1132.05500	
6.00-5.00*	.2362-.1969	7/32	1132.06000	
6.50-5.50	.2559-.2165	—	1132.06500	
7.00-6.00*	.2756-.2362	1/4	1132.07000	
7.50-6.50	.2953-.2559	9/32	1132.07500	
8.00-7.00*	.3150-.2756	5/16	1132.08000	
8.50-7.50	.3347-.2953	—	1132.08500	
9.00-8.00*	.3543-.3150	11/32	1132.09000	
9.50-8.50	.3740-.3347	—	1132.09500	
10.00-9.00*	.3937-.3543	3/8	1132.10000	
10.50-9.50	.4134-.3740	13/32	1132.10500	
11.00-10.00*	.4330-.3937	—	1132.11000	
11.50-10.50	.4528-.4134	—	1132.11500	
12.00-11.00*	.4724-.4330	7/16	1132.12000	
12.50-11.50	.4921-.4528	15/32	1132.12500	
13.00-12.00*	.5118-.4724	1/2	1132.13000	
13.50-12.50	.5315-.4921	17/32	1132.13500	
14.00-13.00*	.5512-.5118	—	1132.14000	
14.50-13.50	.5709-.5315	—	1132.14500	
15.00-14.00*	.5905-.5512	9/16	1132.15000	
15.50-14.50	.6102-.5709	19/32	1132.15500	
16.00-15.00*	.6300-.5905	5/8	1132.16000	
16.50-15.50	.6496-.6102	—	1132.16500	
17.00-16.00*	.6693-.6300	21/32	1132.17000	
17.50-16.50	.6890-.6496	—	1132.17500	
18.00-17.00*	.7087-.6693	11/16	1132.18000	
18.50-17.50	.7284-.6890	23/32	1132.18500	
19.00-18.00*	.7480-.7087	—	1132.19000	
19.50-18.50	.7677-.7284	—	1132.19500	
20.00-19.00*	.7874-.7480	3/4 & 25/32	1132.20000	



REGO-FIX® ER32 Metric Metallic Sealed Collets
(Good to 2000 psi)

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
6.00	.2362	—	1232.06000	
8.00-7.50	.3150-.2953	5/16	1232.08000	
10.00-9.50	.3937-.3740	3/8	1232.10000	
12.00-11.50	.4724-.4528	15/32	1232.12000	
14.00-13.50	.5512-.5315	—	1232.14000	
16.00-15.50	.6300-.6102	5/8	1232.16000	
18.00-17.50	.7087-.6890	11/16	1232.18000	
20.00-19.50	.7874-.7677	25/32	1232.20000	



Continued

* Represents items included in the Collet Set on page 608.

ER40 Collets

REGO-FIX® ER40 Collet Sets

Description	Part #	Photo
Fractional 14 pc Collet Set with tray; includes all sizes	1140.00002	
Fractional Metallic Sealed 10 pc Collet Set with tray; includes all sizes	1240.00002	
Metric 23 pc Collet Set with tray *Sizes that are included in sets - see page 611	1140.00000	
Metric Metallic Sealed 12 pc Collet Set with tray; includes all sizes - see page 612	1240.00000	

REGO-FIX® ER40 Fractional Collets

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
1/8	.1250-.0850	3.18-2.18	1140.03182	
3/16	.1875-.1475	4.76-3.76	1140.04762	
1/4	.2500-.2100	6.35-5.35	1140.06352	
5/16	.3125-.2725	7.94-6.94	1140.07942	
3/8	.3750-.3350	9.53-8.53	1140.09532	
7/16	.4375-.3975	11.11-10.11	1140.11112	
1/2	.5000-.4600	12.70-11.70	1140.12702	
9/16	.5625-.5225	14.29-13.29	1140.14292	
5/8	.6250-.5850	15.88-14.88	1140.15882	
11/16	.6875-.6475	17.46-16.46	1140.17462	
3/4	.7500-.7100	19.05-18.05	1140.19052	
13/16	.8125-.7725	20.64-19.64	1140.20642	
7/8	.8750-.8350	22.23-21.23	1140.22232	
1	1.000-.9600	25.40-24.40	1140.25402	

REGO-FIX® ER40 Fractional Metallic Sealed Collets
(Good to 2000 psi)

ø (Inch)	Range (Inch)	Range (mm)	Part #	Photo
3/8	.3750-.3556	9.53-9.03	1240.09532	
7/16	.4375-.4177	11.11-10.61	1240.11112	
1/2	.5000-.4803	12.70-12.20	1240.12702	
9/16	.5625-.5425	14.29-13.79	1240.14292	
5/8	.6250-.6055	15.88-15.38	1240.15882	
11/16	.6875-.6677	17.46-16.96	1240.17462	
3/4	.7500-.7303	19.05-18.55	1240.19052	
13/16	.8125-.7929	20.64-20.14	1240.20642	
7/8	.8750-.8555	22.23-21.73	1240.22232	
1	1.0000-.9803	25.40-24.90	1240.25402	

Continued

REGO-FIX® ER40 Metric Collets

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
3.00-2.00	.1181-.0787	3/32	1140.03000	
3.50-2.50	.1378-.0984	—	1140.03500	
4.00-3.00*	.1575-.1181	1/8	1140.04000	
4.50-3.50	.1772-.1378	5/32	1140.04500	
5.00-4.00*	.1969-.1575	3/16	1140.05000	
5.50-4.50	.2165-.1772	—	1140.05500	
6.00-5.00*	.2362-.1969	7/32	1140.06000	
6.50-5.50	.2559-.2165	—	1140.06500	
7.00-6.00*	.2756-.2362	1/4	1140.07000	
7.50-6.50	.2953-.2559	9/32	1140.07500	
8.00-7.00*	.3150-.2756	5/16	1140.08000	
8.50-7.50	.3347-.2953	—	1140.08500	
9.00-8.00*	.3543-.3150	11/32	1140.09000	
9.50-8.50	.3740-.3347	—	1140.09500	
10.00-9.00*	.3937-.3543	3/8	1140.10000	
10.50-9.50	.4134-.3740	13/32	1140.10500	
11.00-10.00*	.4330-.3937	—	1140.11000	
11.50-10.50	.4528-.4134	—	1140.11500	
12.00-11.00*	.4724-.4330	7/16	1140.12000	
12.50-11.50	.4921-.4528	15/32	1140.12500	
13.00-12.00*	.5118-.4724	1/2	1140.13000	
13.50-12.50	.5315-.4921	17/32	1140.13500	
14.00-13.00*	.5512-.5118	—	1140.14000	
14.50-13.50	.5709-.5315	—	1140.14500	
15.00-14.00*	.5905-.5512	9/16	1140.15000	
15.50-14.50	.6102-.5709	19/32	1140.15500	
16.00-15.00*	.6300-.5905	5/8	1140.16000	
16.50-15.50	.6496-.6102	—	1140.16500	
17.00-16.00*	.6693-.6300	21/32	1140.17000	
17.50-16.50	.6890-.6496	—	1140.17500	
18.00-17.00*	.7087-.6693	11/16	1140.18000	
18.50-17.50	.7284-.6890	23/32	1140.18500	
19.00-18.00*	.7480-.7087	—	1140.19000	
19.50-18.50	.7677-.7284	—	1140.19500	
20.00-19.00*	.7874-.7480	3/4 & 25/32	1140.20000	
20.50-19.50	.8071-.7677	—	1140.20500	
21.00-20.00*	.8268-.7874	13/16	1140.21000	
21.50-20.50	.8465-.8071	27/32	1140.21500	
22.00-21.00*	.8661-.8268	—	1140.22000	
22.50-21.50	.8858-.8465	7/8	1140.22500	
23.00-22.00*	.9055-.8661	—	1140.23000	
23.50-22.50	.9252-.8858	29/32	1140.23500	
24.00-23.00*	.9449-.9055	15/16	1140.24000	
24.50-23.50	.9646-.9252	—	1140.24500	
25.00-24.00*	.9843-.9449	31/32	1140.25000	
25.50-24.50	1.0039-.9646	1	1140.25500	
26.00-25.00*	1.0236-.9843	—	1140.26000	
27.00-26.00	1.0630-1.0236	1-1/16	1140.27000	
28.00-27.00	1.1024-1.0630	1-3/32	1140.28000	
29.00-28.00	1.1417-1.1024	1-1/8	1140.29000	
30.00-29.00	1.1811-1.1417	1-5/32	1140.30000	

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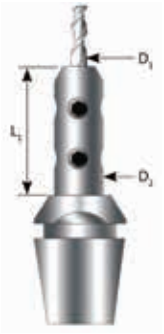
* Represents items included in the Collet Set on page 610.

ER40 Collets

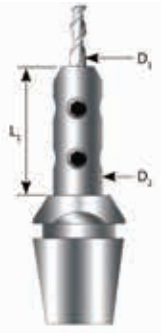
REGO-FIX® ER40 Metric Metallic Sealed Collets
(Good to 2000 psi)

Range (mm)	Range (Inch)	ø (Inch)	Part #	Photo
6.00	.2362	—	1240.06000	
8.00	.3150	—	1240.08000	
10.00-9.50	.3937-.3740	3/8	1240.10000	
12.00-11.50	.4724-.4528	15/32	1240.12000	
14.00-13.50	.5512-.5315	—	1240.14000	
16.00-15.50	.6300-.6102	5/8	1240.16000	
18.00-17.50	.7087-.6890	—	1240.18000	
20.00-19.50	.7874-.7677	25/32	1240.20000	
22.00-21.50	.8661-.8465	—	1240.22000	
24.00-23.50	.9449-.9252	15/16	1240.24000	
25.00-24.50	.9843-.9646	31/32	1240.25000	
26.00-25.50	1.0236-1.0039	—	1240.26000	

ER11 Small Tool Adapter for Milling & Boring

Bore Ø (D1)		Neck Ext. Ø (D2)	Ext. Length (L1)	Taper	Part #	Photo	Dimensions
.118	(3mm)	.315 (8mm)	.394 (10mm)	ER11	RA1000		
.118	(3mm)	.315 (8mm)	.590 (15mm)	ER11	RA1001		
.118	(3mm)	.315 (8mm)	.787 (20mm)	ER11	RA1002		
.125	(1/8)	.315 (8mm)	.394 (10mm)	ER11	RA1006		
.125	(1/8)	.315 (8mm)	.590 (15mm)	ER11	RA1007		
.125	(1/8)	.315 (8mm)	.787 (20mm)	ER11	RA1008		
.157	(4mm)	.315 (8mm)	.787 (20mm)	ER11	RA1010		

ER16 Small Tool Adapter for Milling & Boring

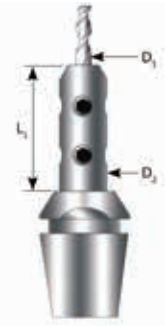
Bore Ø (D1)		Neck Ext. Ø (D2)	Ext. Length (L1)	Taper	Part #	Photo	Dimensions
.118	(3mm)	.374 (9.5mm)	.630 (16mm)	ER16	RA1014		
.118	(3mm)	.374 (9.5mm)	.984 (25mm)	ER16	RA1015		
.125	(1/8)	.374 (9.5mm)	.630 (16mm)	ER16	RA1018		
.125	(1/8)	.374 (9.5mm)	.984 (25mm)	ER16	RA1019		
.157	(4mm)	.374 (9.5mm)	.630 (16mm)	ER16	RA1022		
.157	(4mm)	.374 (9.5mm)	.984 (25mm)	ER16	RA1023		
.187	(3/16)	.374 (9.5mm)	.630 (16mm)	ER16	RA1026		
.187	(3/16)	.374 (9.5mm)	.984 (25mm)	ER16	RA1027		
.197	(5mm)	.374 (9.5mm)	.630 (16mm)	ER16	RA1032		
.197	(5mm)	.374 (9.5mm)	.984 (25mm)	ER16	RA1033		

Replacement Hardware for Small Tool Milling and Boring Adapters

Type	Description	Part #
M3 X .5 X 3	Socket Head Set Screws Stainless	RA1050
M6 X 1.0 X 5	Socket Head Stop Screw	RA1051
M8 X 1.25 X 8	Socket Head Stop Screw	RA1054

Small Tool Adapters

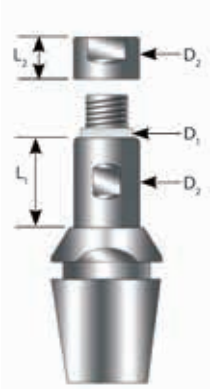
ER20 Small Tool Adapter for Milling & Boring

Bore Ø (D1)		Neck Ext. Ø (D2)	Ext. Length (L1)	Taper	Part #	Photo	Dimensions
.118	(3mm)	.374 (9.5MM)	.984 (25mm)	ER20	RA1040		
.125	(1/8)	.374 (9.5MM)	.630 (16mm)	ER20	RA1041		
.125	(1/8)	.374 (9.5MM)	.984 (25mm)	ER20	RA1042		
.157	(4mm)	.374 (9.5MM)	.630 (16mm)	ER20	RA1043		
.157	(4mm)	.374 (9.5MM)	.984 (25mm)	ER20	RA1044		
.187	(3/16)	.449 (11.4)	.551 (14mm)	ER20	RA1055		
.187	(3/16)	.449 (11.4)	.630 (16mm)	ER20	RA1056		
.187	(3/16)	.449 (11.4)	.984 (25mm)	ER20	RA1057		
.197	(5mm)	.449 (11.4)	.551 (14mm)	ER20	RA1058		
.197	(5mm)	.449 (11.4)	.984 (25mm)	ER20	RA1059		
.236	(6mm)	.492 (12.5)	.551 (14mm)	ER20	RA1060		
.236	(6mm)	.492 (12.5)	.984 (25mm)	ER20	RA1061		
.250	(1/4)	.492 (12.5)	.551 (14mm)	ER20	RA1062		
.250	(1/4)	.492 (12.5)	.984 (25mm)	ER20	RA1063		

ER25 Small Tool Adapter for Milling & Boring

Bore Ø (D1)		Neck Ext. Ø (D2)	Ext. Length (L1)	Taper	Part #	Photo	Dimensions
.118	(3mm)	.394 (10.0mm)	.984 (25mm)	ER25	RA1070		
.125	(1/8)	.394 (10.0mm)	.984 (25mm)	ER25	RA1071		
.157	(4mm)	.394 (10.0mm)	.984 (25mm)	ER25	RA1072		
.187	(3/16)	.492 (12.5)	.984 (25mm)	ER25	RA1073		
.197	(5mm)	.492 (12.5)	.984 (25mm)	ER25	RA1074		
.236	(6mm)	.492 (12.5)	.984 (25mm)	ER25	RA1075		
.276	(7mm)	.630 (16.0mm)	.984 (25mm)	ER25	RA1076		
.312	(5/16)	.630 (16.0mm	.984 (25mm)	ER25	RA1077		
.315	(8mm)	.630 (16.0mm)	.984 (25mm)	ER25	RA1078		

ER16 Small Tool Adapter for Sawing

Pilot Dia (D1)		Nut Dia (D2)	Ext. Length (L1)	Nut Length (L2)	Thread	Taper	Part #	Photo	Dimensions
.1181	(3mm)	.252 (6.4mm)	.984 (25mm)	.354 (9mm)	M3X.5	ER16	RA2000		
.1181	(3mm)	.252 (6.4mm)	1.260 (32mm)	.354 (9mm)	M3X.5	ER16	RA2001		
.1250	(1/8)	.252 (6.4mm)	.984 (25mm)	.354 (9mm)	M3X.5	ER16	RA2004		
.1250	(1/8)	.252 (6.4mm)	1.260 (32mm)	.354 (9mm)	M3X.5	ER16	RA2005		
.1875	(3/16)	.374 (9.5mm)	.984 (25mm)	.354 (9mm)	10-32	ER16	RA2008		
.1875	(3/16)	.374 (9.5mm)	1.260 (32mm)	.354 (9mm)	10-32	ER16	RA2009		
.1969	(5mm)	.374 (9.5mm)	.984 (25mm)	.354 (9mm)	M5X.8	ER16	RA2012		
.1969	(5mm)	.374 (9.5mm)	1.260 (32mm)	.354 (9mm)	M5X.8	ER16	RA2013		
.2362	(6mm)	.374 (9.5mm)	.984 (25mm)	.354 (9mm)	M6X1	ER16	RA2016		
.2362	(6mm)	.374 (9.5mm)	1.260 (32mm)	.354 (9mm)	M6X1	ER16	RA2017		
.2500	(1/4)	.374 (9.5mm)	.984 (25mm)	.354 (9mm)	1/4-32	ER16	RA2020		
.2500	(1/4)	.374 (9.5mm)	1.260 (32mm)	.354 (9mm)	1/4-32	ER16	RA2021		
.3125	(5/16)	.394 (10mm)	.984 (25mm)	.354 (9mm)	5/16-32	ER16	RA2024		
.3125	(5/16)	.394 (10mm)	1.260 (32mm)	.354 (9mm)	5/16-32	ER16	RA2025		
.3150	(8mm)	.394 (10mm)	.984 (25mm)	.354 (9mm)	5/16-32	ER16	RA2028		
.3150	(8mm)	.394 (10mm)	1.260 (32mm)	.354 (9mm)	5/16-32	ER16	RA2029		

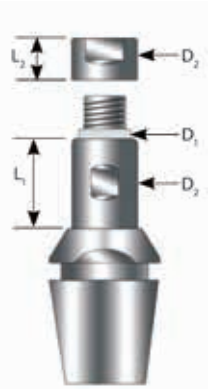
Note: Recommended MAX. SAW THICKNESS: ~2mm / .080"

Small Tool Saw Adapter Spare Arbor Nuts

Description	Nut Diameter	Nut Thickness	Type	Part #	Dimensions
M3X.5 Arbor Jam Nut	.240 (6.0mm)	.118 (2.9mm)	1	RA2040	 Type 1 Type 2
M3X.5 Arbor Nut	.252 (6.4mm)	.354 (9mm)	2	RA2050	
10-32 Arbor Jam Nut	.365 (9.2mm)	.118 (2.9mm)	1	RA2041	
10-32 Arbor Nut	.374 (9.5mm)	.354 (9mm)	2	RA2051	
M5X.8 Arbor Jam Nut	.365 (9.2mm)	.118 (2.9mm)	1	RA2042	
M5X.8 Arbor Nut	.374 (9.5mm)	.354 (9mm)	2	RA2052	
M6X1 Arbor Jam Nut	.365 (9.2mm)	.118 (2.9mm)	1	RA2043	
M6X1 Arbor Nut	.374 (9.5mm)	.354 (9mm)	2	RA2053	
1/4-32 Arbor Jam Nut	.365 (9.2mm)	.118 (2.9mm)	1	RA2044	
1/4-32 Arbor Nut	.374 (9.5mm)	.354 (9mm)	2	RA2054	
5/16-32 Arbor Jam Nut	.384 (9.7mm)	.118 (2.9mm)	1	RA5045	
5/16-32 Arbor Nut	.394 (10mm)	.354 (9mm)	2	RA2055	

Saw Adapters

ER20 Small Tool Adapter for Sawing

Pilot Dia (D1)		Nut Dia (D2)	Ext. Length (L1)	Nut Length (L2)	Thread	Taper	Part #	Photo	Dimensions
.118	3.00mm	.250 (6.35mm)	.709 (18mm)	.250 (6.35mm)	M3 x .5	ER20	RA2070		
.118	3.00mm	.250 (6.35mm)	1.180 (30mm)	.250 (6.35mm)	M3 x .5	ER20	RA2071		
.125	3.18mm	.250 (6.35mm)	.709 (18mm)	.250 (6.35mm)	M3 x .5	ER20	RA2072		
.125	3.18mm	.250 (6.35mm)	1.180 (30mm)	.250 (6.35mm)	M3 x .5	ER20	RA2073		
.187	4.76mm	.375 (9.53mm)	.709 (18mm)	.250 (6.35mm)	3/16-32	ER20	RA2074		
.187	4.76mm	.375 (9.53mm)	1.180 (30mm)	.250 (6.35mm)	3/16-32	ER20	RA2075		
.197	5.00mm	.375 (9.53mm)	.709 (18mm)	.250 (6.35mm)	3/16-32	ER20	RA2076		
.197	5.00mm	.375 (9.53mm)	1.180 (30mm)	.250 (6.35mm)	3/16-32	ER20	RA2077		
.236	6.00mm	.375 (9.53mm)	.709 (18mm)	.250 (6.35mm)	M6 x 1	ER20	RA2078		
.236	6.00mm	.375 (9.53mm)	1.180 (30mm)	.250 (6.35mm)	M6 x 1	ER20	RA2079		
.250	6.35mm	.375 (9.53mm)	.709 (18mm)	.250 (6.35mm)	1/4-32	ER20	RA2080		
.250	6.35mm	.375 (9.53mm)	1.180 (30mm)	.250 (6.35mm)	1/4-32	ER20	RA2081		
.312	7.94mm	.375 (9.50mm)	.709 (18mm)	.250 (6.35mm)	5/16-32	ER20	RA2082		
.312	7.94mm	.375 (9.53mm)	1.180 (30mm)	.250 (6.35mm)	5/16-32	ER20	RA2083		
.315	8.00mm	.394 (10.00mm)	.709 (18mm)	.250 (6.35mm)	5/16-32	ER20	RA2084		
.315	8.00mm	.394 (10.00mm)	1.180 (30mm)	.250 (6.35mm)	5/16-32	ER20	RA2085		
.375	9.52mm	.492 (12.00mm)	.709 (18mm)	.276 (7.00mm)	3/8-32	ER20	RA2086		
.375	9.52mm	.492 (12.00mm)	1.180 (30mm)	.276 (7.00mm)	3/8-32	ER20	RA2087		
.394	10.00mm	.492 (12.00mm)	.709 (18mm)	.276 (7.00mm)	3/8-32	ER20	RA2088		
.394	10.00mm	.492 (12.00mm)	1.180 (30mm)	.276 (7.00mm)	3/8-32	ER20	RA2089		

Note: Recommended MAX. SAW THICKNESS: ~2mm / .080"

Small Tool Saw Adapter Spare Arbor Nuts

Description	Nut Diameter	Nut Thickness	Type	Part #	Dimensions
M3X.5 Arbor Jam Nut	.240 (6.0mm)	.118 (2.9mm)	1	RA2040	 Type 1 Type 2
M3X.5 Arbor Nut	.252 (6.4mm)	.354 (9mm)	2	RA2050	
10-32 Arbor Jam Nut	.365 (9.2mm)	.118 (2.9mm)	1	RA2041	
10-32 Arbor Nut	.374 (9.5mm)	.354 (9mm)	2	RA2051	
M5X.8 Arbor Jam Nut	.365 (9.2mm)	.118 (2.9mm)	1	RA2042	
M5X.8 Arbor Nut	.374 (9.5mm)	.354 (9mm)	2	RA2052	
M6X1 Arbor Jam Nut	.365 (9.2mm)	.118 (2.9mm)	1	RA2043	
M6X1 Arbor Nut	.374 (9.5mm)	.354 (9mm)	2	RA2053	
1/4-32 Arbor Jam Nut	.365 (9.2mm)	.118 (2.9mm)	1	RA2044	
1/4-32 Arbor Nut	.374 (9.5mm)	.354 (9mm)	2	RA2054	
5/16-32 Arbor Jam Nut	.384 (9.7mm)	.118 (2.9mm)	1	RA5045	
5/16-32 Arbor Nut	.394 (10mm)	.354 (9mm)	2	RA2055	

KENNAMETAL TG100 Collets

Fractional Size	Range (mm)	Part #	Photo
3/32	.0781-.0940	100TG0094	
7/64	.0938-.1090	100TG0109	
1/8	.1094-.1250	100TG0125	
9/64	.1250-.1410	100TG0141	
5/32	.1410-.1563	100TG0156	
11/64	.1563-.1720	100TG0172	
3/16	.1719-.1880	100TG0188	
13/64	.1875-.2030	100TG0203	
7/32	.2031-.2190	100TG0219	
15/64	.2188-.2340	100TG0234	
1/4	.2344-.2500	100TG0250	
17/64	.2500-.2660	100TG0266	
9/32	.2656-.2810	100TG0281	
19/64	.2813-.2970	100TG0297	
5/16	.2969-.3120	100TG0312	
21/64	.3125-.3280	100TG0328	
11/32	.3281-.3440	100TG0344	
23/64	.3438-.3590	100TG0359	
3/8	.3594-.3750	100TG0375	
25/64	.3750-.3910	100TG0391	
13/32	.3906-.4060	100TG0406	
27/64	.4063-.4220	100TG0422	
7/16	.4219-.4380	100TG0438	
29/64	.4375-.4530	100TG0453	
15/32	.4531-.4690	100TG0469	
31/64	.4688-.4840	100TG0484	
1/2	.4844-.5000	100TG0500	
33/64	.5000-.5160	100TG0516	
17/32	.5156-.5310	100TG0531	
35/64	.5313-.5470	100TG0547	
9/16	.5469-.5620	100TG0562	
37/64	.5625-.5780	100TG0578	
19/32	.5781-.5940	100TG0594	
39/64	.5938-.6090	100TG0609	
5/8	.6094-.6250	100TG0625	
41/64	.6250-.6410	100TG0641	
21/32	.6406-.6560	100TG0656	
43/64	.6563-.6720	100TG0672	
11/16	.6719-.6880	100TG0688	
45/64	.6875-.7030	100TG0703	
23/32	.7031-.7190	100TG0719	
47/64	.7188-.7340	100TG0734	
3/4	.7348-.7500	100TG0750	
49/64	.7500-.7660	100TG0766	
25/32	.7656-.7810	100TG0781	
51/64	.7813-.7970	100TG0797	
13/16	.7969-.8120	100TG0812	
53/64	.8125-.8280	100TG0828	
27/32	.8281-.8440	100TG0844	



Continued

TG100 & TG150 Collets

KENNAMETAL TG100 Collets

Fractional Size	Range (mm)	Part #	Photo
55/64	.8438-.8590	100TG0859	
7/8	.8594-.8750	100TG0875	
57/64	.8750-.8910	100TG0891	
29/32	.8906-.9060	100TG0906	
59/64	.9063-.9220	100TG0922	
15/16	.9219-.9380	100TG0938	
61/64	.9375-.9530	100TG0953	
31/32	.9531-.9690	100TG0969	
63/64	.9688-.9840	100TG0984	
1	.9844-1.0000	100TG1000	

KENNAMETAL TG150 Collets

Fractional Size	Range (mm)	Part #	Photo
3/8	.3594-.3750	150TG0375	
13/32	.3906-.4063	150TG0406	
7/16	.4219-.4375	150TG0438	
31/64	.4688-.4844	150TG0484	
1/2	.4844-.5000	150TG0500	
33/64	.5000-.5156	150TG0516	
17/32	.5156-.5313	150TG0531	
35/64	5313-.5469	150TG0547	
9/16	.5469-.5625	150TG0562	
19/32	.5781-.5938	150TG0594	
5/8	.6094-.6250	150TG0625	
41/64	.6250-.6406	150TG0641	
21/32	.6406-.6563	150TG0656	
43/64	.6563-.6719	150TG0672	
11/16	.6719-.6875	150TG0688	
45/64	.6875-.7031	150TG0703	
23/32	.7031-.7188	150TG0719	
47/64	.7188-.7344	150TG0734	
3/4	.7344-.7500	150TG0750	
49/64	.7500-.7656	150TG0766	
25/32	.7656-.7813	150TG0781	
13/16	.7969-.8125	150TG0812	
27/32	.8281-.8438	150TG0844	
7/8	.8594-.8750	150TG0875	
29/32	.8906-.9063	150TG0906	
15/16	.9219-.9375	150TG0938	
61/64	.9375-.9531	150TG0953	
63/64	.9688-.9844	150TG0984	
1	.9844-1.0000	150TG1000	
1-1/64	1.0000-1.0156	150TG1016	
1-1/32	1.0560-1.0313	150TG1031	

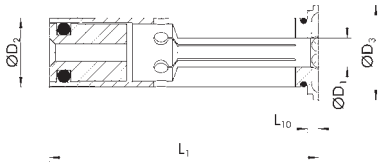
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KENNAMETAL TG150 Collets

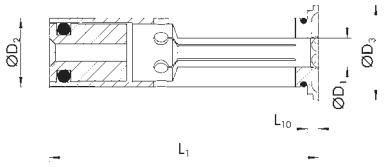
Fractional Size	Range (mm)	Part #	Photo
1-3/64	1.0313-1.0469	150TG1047	
1-1/16	1.0469-1.0625	150TG1062	
1-5/64	1.0625-1.0781	150TG1078	
1-3/32	1.0781-1.0938	150TG1094	
1-7/64	1.0938-1.1094	150TG1109	
1-1/8	1.1200-1.1250	150TG1125	
1-9/64	1.1094-1.1200	150TG1141	
1-11/64	1.1563-1.1719	150TG1172	
1-3/16	1.1719-1.1875	150TG1187	
1-13/64	1.1875-1.2031	150TG1203	
1-7/32	1.2031-1.2188	150TG1219	
1-15/64	1.2188-1.2344	150TG1234	
1-1/4	1.2344-1.2500	150TG1250	
1-17/64	1.2500-1.2656	150TG1266	
1-9/32	1.2656-1.2813	150TG1281	
1-19/64	1.2813-1.2969	150TG1297	
1-5/16	1.2969-1.3125	150TG1312	
1-21/64	1.3125-1.3281	150TG1328	
1-11/32	1.3281-1.3438	150TG1344	
1-3/8	1.3594-1.3750	150TG1375	
1-27/64	1.4063-1.4219	150TG1422	
1-29/64	1.4375-1.4531	150TG1453	
1-31/64	1.4688-1.4845	150TG1484	
1-1/2	1.4845-1.5000	150TG1500	

Hydraulic Chuck Sleeves

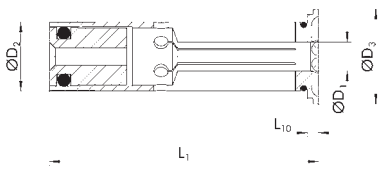
SCHUNK 3/4" Hydraulic Chuck Sleeves Coolant Sealed & Coolant Flush Fractional

Bore Ø Inch (D1)	D2	D3	L1	L10	Coolant Sealed Part #	Coolant Flush Part #	Photo	Dimensions
1/8	3/4	24.0	50.5	2.0	0224386	0217960		
3/16	3/4	24.0	50.5	2.0	0224387	0217961		
1/4	3/4	24.0	50.5	2.0	0224388	0217962		
5/16	3/4	24.0	50.5	2.0	0224389	0217963		
3/8	3/4	24.0	50.5	2.0	0224390	0217964		
7/16	3/4	24.0	50.5	2.0	0224391	0217965		
1/2	3/4	24.0	50.5	2.0	0224392	0217966		
9/16	3/4	24.0	50.5	2.0	0224393	0217967		
5/8	3/4	24.0	50.5	2.0	0224394	0217968		

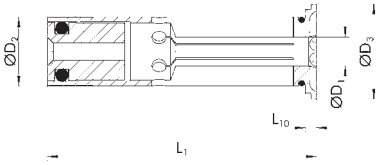
SCHUNK 3/4" Hydraulic Chuck Sleeves Coolant Sealed & Coolant Flush Metric

Bore Ø Inch (D1)	D2	D3	L1	L10	Coolant Sealed Part #	Coolant Flush Part #	Photo	Dimensions
3.0	3/4	24.0	50.5	2.0	0224395	0217969		
4.0	3/4	24.0	50.5	2.0	0224396	0217970		
5.0	3/4	24.0	50.5	2.0	0224397	0217971		
6.0	3/4	24.0	50.5	2.0	0224398	0217972		
8.0	3/4	24.0	50.5	2.0	0224399	0217973		
10.0	3/4	24.0	50.5	2.0	0224400	0217974		
12.0	3/4	24.0	50.5	2.0	0224401	0217975		
14.0	3/4	24.0	50.5	2.0	0224402	0217976		

SCHUNK 1-1/4" Hydraulic Chuck Sleeves Coolant Sealed & Coolant Flush Fractional

Bore Ø Inch (D1)	D2	D3	L1	L10	Coolant Sealed Part #	Coolant Flush Part #	Photo	Dimensions
1/4	1-1/4	35.5	60.5	3.0	0224404	0217980		
5/16	1-1/4	35.5	60.5	3.0	0224405	0217981		
3/8	1-1/4	35.5	60.5	3.0	0224406	0217982		
7/16	1-1/4	35.5	60.5	3.0	0224407	—		
1/2	1-1/4	35.5	60.5	3.0	0224408	0217984		
9/16	1-1/4	35.5	60.5	3.0	0224409	0217985		
5/8	1-1/4	35.5	60.5	3.0	0224410	0217986		
11/16	1-1/4	35.5	60.5	3.0	0224411	0217987		
3/4	1-1/4	35.5	60.5	3.0	0224412	0217988		
13/16	1-1/4	35.5	60.5	3.0	0224413	—		
7/8	1-1/4	35.5	60.5	3.0	0224414	0217990		
15/16	1-1/4	35.5	60.5	3.0	0224415	—		
1	1-1/4	35.5	60.5	3.0	0224416	0217992		

SCHUNK 1-1/4" Hydraulic Chuck Sleeves Coolant Sealed & Coolant Flush Metric

Bore Ø Inch (D1)	D2	D3	L1	L10	Coolant Sealed Part #	Coolant Flush Part #	Photo	Dimensions
8.0	1-1/4	35.5	60.5	3.0	0224421	–		
10.0	1-1/4	35.5	60.5	3.0	0224422	–		
12.0	1-1/4	35.5	60.5	3.0	0224423	–		
14.0	1-1/4	35.5	60.5	3.0	0224424	–		
16.0	1-1/4	35.5	60.5	3.0	0224425	–		
18.0	1-1/4	35.5	60.5	3.0	0224426	–		
20.0	1-1/4	35.5	60.5	3.0	0224427	0218010		
25.0	1-1/4	35.5	60.5	3.0	0224428	0218011		

BILZ #1 Tap Collets

Tap Size	Shank ø	Square	Part #	Photo
#0-6	.141	.110	21-100-019	
#8	.168	.131	21-100-027	
#10	.194	.152	21-100-038	
#12	.220	.165	21-100-046	
1/4 (M6)	.255	.191	21-100-063	
5/16 (M8)	.318	.238	21-100-089	
3/8 (M10)	.381	.286	21-100-112	
7/16	.323	.242	21-100-091	
1/2 (M12)	.367	.275	21-100-105	
9/16	.429	.322	21-100-119	
1/16 Pipe	.313	.234	21-100-081	
1/8 Pipe*	.437	.328	21-100-124	
Set includes one of each of the above EXCEPT 1/8 pipe.			21-100-SET	

* Large Shank

BILZ #2 Tap Collets

Tap Size	Shank ø	Square	Part #	Photo
1/4 (M6)	.255	.191	22-100-010	
5/16 (M8)	.318	.238	22-100-022	
3/8 (M10)	.381	.286	22-100-040	
7/16	.323	.242	22-100-023	
1/2 (M12)	.367	.275	22-100-033	
9/16	.429	.322	22-100-043	
5/8	.480	.360	22-100-058	
11/16	.542	.406	22-100-067	
3/4	.590	.442	22-100-147	
13/16	.652	.489	22-100-089	
7/8	.697	.523	22-100-093	
1/8 Pipe	.437	.328	22-102-016	
1/4 Pipe	.562	.421	22-102-002	
3/8 Pipe	.700	.531	22-102-005	
1/2 Pipe*	.687	.515	22-102-004	
Set includes one of each of the above EXCEPT 11/16, 13/16 and 7/8.			22-100-SET	

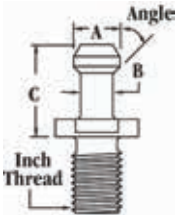
* Large Shank

BILZ #3 Tap Collets

Tap Size	Shank ø	Square	Part #	Photo
3/4	.590	.442	23-100-013	
13/16 (M20)	.652	.489	23-100-018	
7/8 (M22)	.697	.523	23-100-021	
15/16 (M24)	.760	.570	23-100-028	
1 (M25)	.800	.600	23-100-031	
1-1/8	.896	.672	23-100-038	
1-1/4	1.021	.766	23-100-045	
1-3/8	1.108	.831	23-100-053	
3/8 Pipe	.700	.531	23-102-035	
1/2 Pipe	.688	.515	23-102-049	
3/4 Pipe	.906	.679	23-102-004	
1 Pipe	1.125	.843	23-102-007	
Set includes one of each of the above.			23-100-SET	

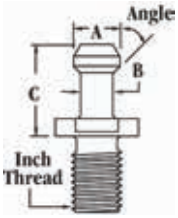
CAT40 Standard Retention Knobs

All retention knobs are compatible with all Haas CAT40 spindles. Retention knobs are also compatible with other manufacturers - please check your machine specifications to see if they are compatible with your equipment.

Machine Type	A	B	C	Angle	Thread Size	Hole ø	Torque Ft/lbs	Part #	Photo	Dimensions
Haas	.590	.390	1.270	45	5/8-11	—	30	RC4HRK		
Haas	.590	.390	1.270	45	5/8-11	.190	30	RC4HRKC		

CAT50 Standard Retention Knobs

All retention knobs are compatible with all Haas CAT50 spindles. Retention knobs are also compatible with other manufacturers - please check your machine specifications to see if they are compatible with your equipment.

Machine Type	A	B	C	Angle	Thread Size	Hole ø	Torque Ft/lbs	Part #	Photo	Dimensions
Haas	.910	.670	1.780	45	1-8	—	75	RC5HRK		
Haas	.910	.670	1.780	45	1-8	.310	75	RC5HRKC		

Vertical/Horizontal Setup Holding Fixture

Taper	Description	Photo	Mounting	Part #
CAT40	• Open design for easy access to retention knobs • Removable keylock for keyed or unkeyed use • High torque split clamp with ratchet handle, mar-free grip • Durable heat-treated premium grade aircraft aluminum			RC4SF
CAT50	• Open design for easy access to retention knobs • Removable keylock for keyed or unkeyed use • High torque split clamp with ratchet handle, mar-free grip • Durable heat-treated premium grade aircraft aluminum			RC5SF

ER16 & ER20 Coolant Seals

ER16 Coolant Seals

Range (inch)	Range (mm)	Photo	Part #
.122-.141	3.1-3.6	 GOLDEN SEAL™ 	CSER16-0141
.142-.160	3.6-4.1		CSER16-0160
.161-.180	4.1-4.6		CSER16-0180
.181-.200	4.6-5.1		CSER16-0200
.201-.220	5.1-5.6		CSER16-0220
.221-.240	5.6-6.1		CSER16-0240
.241-.260	6.1-6.6		CSER16-0260
.261-.280	6.6-7.1		CSER16-0280
.281-.300	7.1-7.6		CSER16-0300
.301-.319	7.6-8.1		CSER16-0319
.320-.339	8.1-8.6		CSER16-0339

ER20 Coolant Seals

Range (inch)	Range (mm)	Photo	Part #
.122-.141	3.1-3.6	 GOLDEN SEAL™ 	CSER20-0141
.142-.160	3.6-4.1		CSER20-0160
.161-.180	4.1-4.6		CSER20-0180
.181-.200	4.6-5.1		CSER20-0200
.201-.220	5.1-5.6		CSER20-0220
.221-.240	5.6-6.1		CSER20-0240
.241-.260	6.1-6.6		CSER20-0260
.261-.280	6.6-7.1		CSER20-0280
.281-.300	7.1-7.6		CSER20-0300
.301-.319	7.6-8.1		CSER20-0319
.320-.339	8.1-8.6		CSER20-0339
.340-.359	8.6-9.1		CSER20-0359
.360-.379	9.1-9.6		CSER20-0379
.380-.398	9.6-10.1		CSER20-0398
.399-.417	10.1-10.6		CSER20-0417
.418-.437	10.6-11.1		CSER20-0437

ER25 Coolant Seals

Range (inch)	Range (mm)	Photo	Part #
.122-.141	3.1-3.6	 GOLDEN SEAL™ 	CSER25-0141
.142-.160	3.6-4.1		CSER25-0160
.161-.180	4.1-4.6		CSER25-0180
.181-.200	4.6-5.1		CSER25-0200
.201-.220	5.1-5.6		CSER25-0220
.221-.240	5.6-6.1		CSER25-0240
.241-.260	6.1-6.6		CSER25-0260
.261-.280	6.6-7.1		CSER25-0280
.281-.300	7.1-7.6		CSER25-0300
.301-.319	7.6-8.1		CSER25-0319
.320-.339	8.1-8.6		CSER25-0339
.340-.359	8.6-9.1		CSER25-0359
.360-.379	9.1-9.6		CSER25-0379
.380-.398	9.6-10.1		CSER25-0398
.399-.417	10.1-10.6		CSER25-0417
.418-.437	10.6-11.1		CSER25-0437
.438-.457	11.1-11.6		CSER25-0457
.458-.477	11.6-12.1		CSER25-0477
.478-.497	12.1-12.6		CSER25-0497
.498-.516	12.6-13.1		CSER25-0516
.517-.536	13.1-13.6		CSER25-0536
.537-.556	13.6-14.1		CSER25-0556
.557-.575	14.1-14.6		CSER25-0575
.576-.595	14.6-15.1		CSER25-0595
.596-.614	15.1-15.6		CSER25-0614
.615-.634	15.6-16.1		CSER25-0634

ER32 Coolant Seals

ER32 Coolant Seals			
Range (inch)	Range (mm)	Photo	Part #
.122-.141	3.1-3.6	 GOLDEN SEAL™ 	CSER32-0141
.142-.160	3.6-4.1		CSER32-0160
.161-.180	4.1-4.6		CSER32-0180
.181-.200	4.6-5.1		CSER32-0200
.201-.220	5.1-5.6		CSER32-0220
.221-.240	5.6-6.1		CSER32-0240
.241-.260	6.1-6.6		CSER32-0260
.261-.280	6.6-7.1		CSER32-0280
.281-.300	7.1-7.6		CSER32-0300
.301-.319	7.6-8.1		CSER32-0319
.320-.339	8.1-8.6		CSER32-0339
.340-.359	8.6-9.1		CSER32-0359
.360-.379	9.1-9.6		CSER32-0379
.380-.398	9.6-10.1		CSER32-0398
.399-.417	10.1-10.6		CSER32-0417
.418-.437	10.6-11.1		CSER32-0437
.438-.457	11.1-11.6		CSER32-0457
.458-.477	11.6-12.1		CSER32-0477
.478-.497	12.1-12.6		CSER32-0497
.498-.516	12.6-13.1		CSER32-0516
.517-.536	13.1-13.6		CSER32-0536
.537-.556	13.6-14.1		CSER32-0556
.557-.575	14.1-14.6		CSER32-0575
.576-.595	14.6-15.1		CSER32-0595
.596-.614	15.1-15.6		CSER32-0614
.615-.634	15.6-16.1		CSER32-0634
.635-.654	16.1-16.6		CSER32-0654
.655-.673	16.6-17.1		CSER32-0673
.674-.693	17.1-17.6		CSER32-0693
.694-.713	17.6-18.1		CSER32-0713
.714-.732	18.1-18.6		CSER32-0732
.733-.752	18.6-19.1		CSER32-0752
.753-.772	19.1-19.6		CSER32-0772
.773-.792	19.6-20.1		CSER32-0792

ER40 Coolant Seals

Range (inch)	Range (mm)	Photo	Part #
.122-.141	3.1-3.6		CSER40-0141
.142-.160	3.6-4.1		CSER40-0160
.161-.180	4.1-4.6		CSER40-0180
.181-.200	4.6-5.1		CSER40-0200
.201-.220	5.1-5.6		CSER40-0220
.221-.240	5.6-6.1		CSER40-0240
.241-.260	6.1-6.6		CSER40-0260
.261-.280	6.6-7.1		CSER40-0280
.281-.300	7.1-7.6		CSER40-0300
.301-.319	7.6-8.1		CSER40-0319
.320-.339	8.1-8.6		CSER40-0339
.340-.359	8.6-9.1		CSER40-0359
.360-.379	9.1-9.6		CSER40-0379
.380-.398	9.6-10.1		CSER40-0398
.399-.417	10.1-10.6		CSER40-0417
.418-.437	10.6-11.1		CSER40-0437
.438-.457	11.1-11.6		CSER40-0457
.458-.477	11.6-12.1		CSER40-0477
.478-.497	12.1-12.6		CSER40-0497
.498-.516	12.6-13.1		CSER40-0516
.517-.536	13.1-13.6		CSER40-0536
.537-.556	13.6-14.1	GOLDEN SEAL™	CSER40-0556
.557-.575	14.1-14.6		CSER40-0575
.576-.595	14.6-15.1		CSER40-0595
.596-.614	15.1-15.6		CSER40-0614
.615-.634	15.6-16.1		CSER40-0634
.635-.654	16.1-16.6		CSER40-0654
.655-.673	16.6-17.1		CSER40-0673
.674-.693	17.1-17.6		CSER40-0693
.694-.713	17.6-18.1		CSER40-0713
.714-.732	18.1-18.6		CSER40-0732
.733-.752	18.6-19.1		CSER40-0752
.753-.772	19.1-19.6		CSER40-0772
.773-.792	19.6-20.1		CSER40-0792
.793-.811	20.1-20.6		CSER40-0811
.812-.831	20.6-21.1		CSER40-0831
.832-.851	21.1-21.6		CSER40-0851
.852-.870	21.6-22.1		CSER40-0870
.871-.890	22.1-22.6		CSER40-0890
.891-.910	22.6-23.1		CSER40-0910
.911-.929	23.1-23.6		CSER40-0929
.930-.949	23.6-24.1		CSER40-0949
.950-.969	24.1-24.6		CSER40-0969
.970-.988	24.6-25.1		CSER40-0988
.989-1.008	25.1-25.6		CSER40-1008

TG100 Coolant Seals

TG100 Coolant Seals			
Range (inch)	Range (mm)	Photo	Part #
.122-.141	3.1-3.6	 GOLDEN SEAL™ 	CSPG100-0141
.142-.160	3.6-4.1		CSPG100-0160
.161-.180	4.1-4.6		CSPG100-0180
.181-.200	4.6-5.1		CSPG100-0200
.201-.220	5.1-5.6		CSPG100-0220
.221-.240	5.6-6.1		CSPG100-0240
.241-.260	6.1-6.6		CSPG100-0260
.261-.280	6.6-7.1		CSPG100-0280
.281-.300	7.1-7.6		CSPG100-0300
.301-.319	7.6-8.1		CSPG100-0319
.320-.339	8.1-8.6		CSPG100-0339
.340-.359	8.6-9.1		CSPG100-0359
.360-.379	9.1-9.6		CSPG100-0379
.380-.398	9.6-10.1		CSPG100-0398
.399-.417	10.1-10.6		CSPG100-0417
.418-.437	10.6-11.1		CSPG100-0437
.438-.457	11.1-11.6		CSPG100-0457
.458-.477	11.6-12.1		CSPG100-0477
.478-.497	12.1-12.6		CSPG100-0497
.498-.516	12.6-13.1		CSPG100-0516
.517-.536	13.1-13.6		CSPG100-0536
.537-.556	13.6-14.1		CSPG100-0556
.557-.575	14.1-14.6		CSPG100-0575
.576-.595	14.6-15.1		CSPG100-0595
.596-.614	15.1-15.6		CSPG100-0614
.615-.634	15.6-16.1		CSPG100-0634
.635-.654	16.1-16.6		CSPG100-0654
.655-.673	16.6-17.1		CSPG100-0673
.674-.693	17.1-17.6		CSPG100-0693
.694-.713	17.6-18.1		CSPG100-0713
.714-.732	18.1-18.6		CSPG100-0732
.733-.752	18.6-19.1		CSPG100-0752
.753-.772	19.1-19.6		CSPG100-0772
.773-.792	19.6-20.1		CSPG100-0792
.793-.811	20.1-20.6		CSPG100-0811
.812-.831	20.6-21.1		CSPG100-0831
.832-.851	21.1-21.6		CSPG100-0851
.852-.870	21.6-22.1		CSPG100-0870
.871-.890	22.1-22.6		CSPG100-0890
.891-.910	22.6-23.1		CSPG100-0910
.911-.929	23.1-23.6		CSPG100-0929
.930-.949	23.6-24.1		CSPG100-0949
.950-.969	24.1-24.6		CSPG100-0969
.970-.988	24.6-25.1		CSPG100-0988
.989-1.008	25.1-25.6		CSPG100-1000



High Performance Coolants and Cutting Oils

- Provides outstanding performance
- Low odor
- Long lasting
- High quality standards results in consistent reliable performance
- No disproportionate depletion of additives so none are required
- Safe for people who use it and for the environment
- Reach compliant
- Available in 5 gallon pails, 55 gallon drums or totes. When ordering, specify quantity in gallons, 5 gallon minimum

Coolants

Part #	Material Compatibility						
	Aluminum Alloys	Carbon Steel	Cast Iron*	Nickel Alloys	Stainless Steel	Titanium	Brass
RC3000	●●	●●	●	●●	●●	●	●
RC3500	●●	●●	●	●●	●●	●	●
RC3750	●	●●	●●	●	●	●	●

● = Recommended ●● = Highly Recommended
* As with all magnesium, extreme caution must be maintained when using water based fluids

Cutting/Machining Oils

Part #	Stock Diameter			Material Compatibility					
	<0.25"	0.25-0.75"	>0.75"	Brass	Carbon Steel	Copper	Nickel Alloys	Stainless Steel	Titanium
RO1722	●	●●	●●	●●	●●	●●	●	●●	●
RO1710	●●	●●	●	●●	●●	●●	●	●●	●

● = Recommended ●● = Highly Recommended

Grinding Oil

Part #	Grind Type			Material Compatibility					
	Flute	Edge	Surface Profile	Carbide	Ceramic	Cement	CBN	PCD	HSS
RG17	●●	●●	●●	●●	●●	●●	●●	●●	●●

● = Recommended ●● = Highly Recommended

Machine Cleaner

Part #	Description
RCMC3000	Sump Cleaner For System Clean Out Prior To Charge Up

*See page 630 for mixing ratios.

Coolant Concentration/Mixing Ratios

Part #	Actual %*	General Purpose Machining		Heavy Machining	
		Start up	Top Off	Start up	Top Off
RC3000	RR x 1.0	10% mixing ratio = 10 RR	6% mixing ratio = 5 RR	14% mixing ratio = 10 RR	8% mixing ratio = 5 RR
RC3500	RR x 4.2	10% mixing ratio = 2.5 RR	6% mixing ratio = 1.5 RR	14% mixing ratio = 3 RR	8% mixing ratio = 2 RR
RC3750	RR x 3.3	6% mixing ratio = 3.3 RR	2% mixing ratio = 1.5 RR	10% mixing ratio = 4 RR	3% mixing ratio = 2 RR

*RR = Refractometer Reading



Basic Optical Refractometer

- Refractometer range 0-32 Brix
- Prism aperture lets in a lot of light
- Diamond-knurled sleeve for good gripping
- Comfortable eyepiece with adjustable focus for easy reading
- Auto temperature compensation for shop areas with varying temperature
- Average use accuracy range
- Carrying case with sampler included

Basic Optical Refractometer

Part #	Brix Scale	Numbered Graduation	Accuracy	Weight	Dimensions
OPT32	0-32	Fifths	± .20%	9.3 oz	1.50" x 7" long



Flat Belt Oil Skimmer

- 1" Wide Belt Skimmers for Use with Metalworking Coolants and Wastewater Applications.
- 5" Belt Reach, flat polyurethane belt
- Steel stabilizer bar holds tail pulley in place
- Dependable, quiet permanent magnet motor
- Choice of 1 quart (ltr) or 1 gallon (4 ltrs) per hour
- Small size - fits almost anywhere
- 115V, single-phase 60 Hz
- 1 year warranty - 90 days on belts

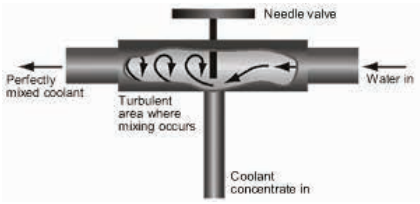
Flat Belt Oil Skimmer

Part #	Type	Reach	Collection Rate
37802	Flat	5"	1 quart (ltr) or 1 gallon (4 ltrs) per hour



Economy Mixers

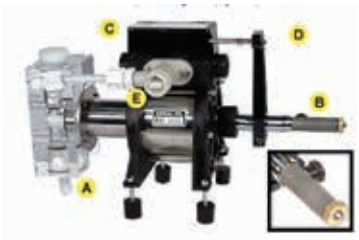
- This economy mixer properly mixes coolant emulsions and maintains a consistent concentration for increased sump and tool life
- The design of the economy mixer (see diagram at right) enables it to have a high degree of reliability and precision
- 14 metering tips for specific ratios
- Maximum viscosity of 500 SUS
- 30 day warranty
- 48" discharge tube included (max length for delivery)



Economy Mixers

Part #	GPM	Mixing Range %*		Max. Delivery	Range PSI	Fittings, NPT		Application
		Low	High			In	Out	
MIX05120	4.8	.25	22.2	48"	25-75	3/4" GHT	1/2" NPT	Barrel
MIX03725	3.0	0	25.0	40"	25-75	3/8" GHT	1/2" NPT	Barrel

*** Economy mixer is supplied with 14 various size tips within above range.**



Mixing Pump

- Perfectly mixed coolant at EVERY use
- Delivers mix through hose or conduit right to your machine
- No need to verify concentration once initially determined
- Compact with few moving parts
- Can be permanently mounted to wall
- Maximum viscosity of 700 SUS
- 800' lateral max delivery, 20' vertical max delivery
- One year warranty with purchase of prepump water filter (#MIXPPX75)
- Units available for other wall mount configurations

HOW THE PUMP WORKS: Your coolant is drawn in through the bottom port (A) and metered by the adjustable screw (B) for a constant amount of water being drawn in through the fitting (C) on the other side. The entire arm (D) moves back and forth so that your coolant is being injected into the water stream. The mixing occurs at the exit fitting (E), and proceeds to your coolant sump. You can watch what is being drawn in the clear coolant block, and you know the unit is working perfectly by seeing the draw arm moving.

Mixing Pump

Part #[1]	GPM	Mixing Range %		Mixing Ratios*		Max. Delivery[2]	Range PSI	Fittings, NPT		Application[3]
		Low	High	Low	High			In	Out	
MIXPP518	7	1.4	12.3	1:71	1:8	800'	10-75	3/4"	3/4"	Pail, Barrel, Tote

[1] For wall mount configuration, add "(VM)" to end of part number
[2] The proportioning pump can also pump the mixture a vertical distance of 20' utilizing a pressure regulating valve
[3] Unit is supplied with intake hose to meet this container type

Mixing Pump Accessories

Part #	Description
MIXPPX75	Prepump water filter for proportioning pump protection, 20µ (required to maintain warranty)
MIXXWL.1	Water limiter for proportioning pump protection
MIXXPRV.1	Pressure regulating valve (for applications with vertical delivery, ball valve discharge, or viscosities above 500 SUS

Product Index

RedLine® Tools

Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #
0217960	620	100TG0547	617	1120.04000	605	1132.12500	609	1216.06000	603	150TG0625	618	31121	584
0217961	620	100TG0562	617	1120.04500	605	1132.12702	608	1216.06352	602	150TG0641	618	3651	563
0217962	620	100TG0578	617	1120.04762	604	1132.13000	609	1216.07000	603	150TG0656	618	3651	584
0217963	620	100TG0594	617	1120.05000	605	1132.13500	609	1216.07942	602	150TG0672	618	3655	563
0217964	620	100TG0609	617	1120.05500	605	1132.14000	609	1216.08000	603	150TG0688	618	3655	563
0217965	620	100TG0625	617	1120.06000	605	1132.14292	608	1216.09000	603	150TG0703	618	3655	584
0217966	620	100TG0641	617	1120.06352	604	1132.14500	609	1216.09532	602	150TG0719	618	3655	584
0217967	620	100TG0656	617	1120.06500	605	1132.15000	609	1216.10000	603	150TG0734	618	3666	563
0217968	620	100TG0672	617	1120.07000	605	1132.15500	609	1220.00000	604	150TG0750	618	3666	584
0217969	620	100TG0688	617	1120.07500	605	1132.15882	608	1220.00002	604	150TG0766	618	37802	630
0217970	620	100TG0703	617	1120.07942	604	1132.16000	609	1220.03000	605	150TG0781	618	9679	563
0217971	620	100TG0719	617	1120.08000	605	1132.16500	609	1220.03182	604	150TG0812	618	9679	584
0217972	620	100TG0734	617	1120.08500	605	1132.17000	609	1220.04000	605	150TG0844	618	9680	563
0217973	620	100TG0750	617	1120.09000	605	1132.17462	608	1220.04762	604	150TG0875	618	9680	584
0217974	620	100TG0766	617	1120.09500	605	1132.17500	609	1220.05000	605	150TG0906	618	9683	563
0217975	620	100TG0781	617	1120.09532	604	1132.18000	609	1220.06000	605	150TG0938	618	9683	584
0217976	620	100TG0797	617	1120.10000	605	1132.18500	609	1220.06352	604	150TG0953	618	CSER16-0141	624
0217980	620	100TG0812	617	1120.10500	605	1132.19000	609	1220.07000	605	150TG0984	618	CSER16-0160	624
0217981	620	100TG0828	617	1120.11000	605	1132.19052	608	1220.07942	604	150TG1000	618	CSER16-0180	624
0217982	620	100TG0844	617	1120.11112	604	1132.19500	609	1220.08000	605	150TG1016	618	CSER16-0200	624
0217984	620	100TG0859	618	1120.11500	605	1132.20000	609	1220.09000	605	150TG1031	618	CSER16-0220	624
0217985	620	100TG0875	618	1120.12000	605	1132.20642	608	1220.09532	604	150TG1047	619	CSER16-0240	624
0217986	620	100TG0891	618	1120.12500	605	1140.00000	610	1220.10000	605	150TG1062	619	CSER16-0260	624
0217987	620	100TG0906	618	1120.12702	604	1140.00002	610	1220.11000	605	150TG1078	619	CSER16-0280	624
0217988	620	100TG0922	618	1120.13000	605	1140.03000	611	1220.11112	604	150TG1094	619	CSER16-0300	624
0217990	620	100TG0938	618	1125.00000	606	1140.03182	610	1220.12000	605	150TG1109	619	CSER16-0319	624
0217992	620	100TG0953	618	1125.00002	606	1140.03500	611	1220.12702	604	150TG1125	619	CSER16-0339	624
0218010	621	100TG0969	618	1125.01000	607	1140.04000	611	1220.13000	605	150TG1141	619	CSER20-0141	624
0218011	621	100TG0984	618	1125.01500	607	1140.04500	611	1225.00000	606	150TG1172	619	CSER20-0160	624
0224386	620	100TG1000	618	1125.02000	607	1140.04762	610	1225.00002	606	150TG1187	619	CSER20-0180	624
0224387	620	1111.00000	601	1125.02500	607	1140.05000	611	1225.06000	607	150TG1203	619	CSER20-0200	624
0224388	620	1111.00002	601	1125.03000	607	1140.05500	611	1225.06352	606	150TG1219	619	CSER20-0220	624
0224389	620	1111.01000	601	1125.03182	606	1140.06000	611	1225.07942	606	150TG1234	619	CSER20-0240	624
0224390	620	1111.01000	601	1125.03500	607	1140.06352	610	1225.08000	607	150TG1250	619	CSER20-0260	624
0224391	620	1111.01500	601	1125.04000	607	1140.06500	611	1225.09532	606	150TG1266	619	CSER20-0280	624
0224392	620	1111.01592	601	1125.04500	607	1140.07000	611	1225.10000	607	150TG1281	619	CSER20-0300	624
0224393	620	1111.02000	601	1125.04762	606	1140.07500	611	1225.11112	606	150TG1297	619	CSER20-0319	624
0224394	620	1111.02382	601	1125.05000	607	1140.07942	610	1225.12000	607	150TG1312	619	CSER20-0339	624
0224395	620	1111.02500	601	1125.05500	607	1140.08000	611	1225.12702	606	150TG1328	619	CSER20-0359	624
0224396	620	1111.03000	601	1125.06000	607	1140.08500	611	1225.14000	607	150TG1344	619	CSER20-0379	624
0224397	620	1111.03182	601	1125.06352	606	1140.09000	611	1225.14292	606	150TG1375	619	CSER20-0398	624
0224398	620	1111.03500	601	1125.06500	607	1140.09500	611	1225.15882	606	150TG1422	619	CSER20-0417	624
0224399	620	1111.03972	601	1125.07000	607	1140.09532	610	1225.16000	607	150TG1453	619	CSER20-0437	624
0224400	620	1111.04000	601	1125.07500	607	1140.10000	611	1232.00000	608	150TG1484	619	CSER25-0141	625
0224401	620	1111.04500	601	1125.07942	606	1140.10500	611	1232.00002	608	150TG1500	619	CSER25-0160	625
0224402	620	1111.04762	601	1125.08000	607	1140.11000	611	1232.06000	609	21-100-019	622	CSER25-0180	625
0224404	620	1111.05000	601	1125.08500	607	1140.11112	610	1232.06352	608	21-100-027	622	CSER25-0200	625
0224405	620	1111.05500	601	1125.09000	607	1140.11500	611	1232.07942	608	21-100-038	622	CSER25-0220	625
0224406	620	1111.05562	601	1125.09500	607	1140.12000	611	1232.08000	609	21-100-046	622	CSER25-0240	625
0224407	620	1111.06000	601	1125.09532	606	1140.12500	611	1232.09532	608	21-100-063	622	CSER25-0260	625
0224408	620	1111.06352	601	1125.10000	607	1140.12702	610	1232.10000	609	21-100-081	622	CSER25-0280	625
0224409	620	1111.06500	601	1125.10500	607	1140.13000	611	1232.11112	608	21-100-089	622	CSER25-0300	625
0224410	620	1111.07000	601	1125.11000	607	1140.13500	611	1232.12000	609	21-100-091	622	CSER25-0319	625
0224411	620	1116.00000	602	1125.11112	606	1140.14000	611	1232.12702	608	21-100-105	622	CSER25-0339	625
0224412	620	1116.00002	602	1125.11500	607	1140.14292	610	1232.14000	609	21-100-112	622	CSER25-0359	625
0224413	620	1116.01000	602	1125.12000	607	1140.14500	611	1232.14292	608	21-100-119	622	CSER25-0379	625
0224414	620	1116.01000	603	1125.12500	607	1140.15000	611	1232.15882	608	21-100-124	622	CSER25-0398	625
0224415	620	1116.01500	603	1125.12702	606	1140.15500	611	1232.16000	609	21-100-SET	622	CSER25-0417	625
0224416	620	1116.01592	602	1125.13000	607	1140.15882	610	1232.17462	608	22-100-010	622	CSER25-0437	625
0224421	621	1116.02000	603	1125.13500	607	1140.16000	611	1232.18000	609	22-100-022	622	CSER25-0457	625
0224422	621	1116.02382	602	1125.14000	607	1140.16500	611	1232.19052	608	22-100-023	622	CSER25-0477	625
0224423	621	1116.02500	603	1125.14292	606	1140.17000	611	1232.20000	609	22-100-033	622	CSER25-0497	625
0224424	621	1116.03000	603	1125.14500	607	1140.17462	610	1240.00000	610	22-100-040	622	CSER25-0516	625
0224425	621	1116.03182	602	1125.15000	607	1140.17500	611	1240.00002	610	22-100-043	622	CSER25-0536	625
0224426	621	1116.03500	603	1125.15500	607	1140.18000	611	1240.06000	612	22-100-058	622	CSER25-0556	625
0224427	621	1116.03972	602	1125.15882	606	1140.18500	611	1240.08000	612	22-100-067	622	CSER25-0575	625
0224428	621	1116.04000	603	1125.16000	607	1140.19000	611	1240.09532	610	22-100-089	622	CSER25-0595	625
100TG0094	617	1116.04500	603	1132.00000	608	1140.19052	610	1240.10000	612	22-100-093	622	CSER25-0614	625
100TG0109	617	1116.04762	602	1132.00002	608	1140.19500	611	1240.11112	610	22-100-147	622	CSER25-0634	625
100TG0125	617	1116.05000	603	1132.02000	609	1140.20000	611	1240.12000	612	22-100-SET	622	CSER32-0141	626
100TG0141	617	1116.05500	603	1132.02500	609	1140.20500	611	1240.12702	610	22-102-002	622	CSER32-0160	626
100TG0156	617	1116.05562	602	1132.03000	609	1140.20642	610	1240.14000	612	22-102-004	622	CSER32-0180	626
100TG0172	617	1116.06000	603	1132.03182	608	1140.21000	611	1240.14292	610	22-102-005	622	CSER32-0200	626
100TG0188	617	1116.06352	602	1132.03500	609	1140.21500	611	1240.15882	610	22-102-016	622	CSER32-0220	626
100TG0203	617	1116.06500	603	1132.04000	609	1140.22000	611	1240.16000	612	23-100-013	622	CSER32-0240	626
100TG0219	617	1116.07000	603	1132.04500	609	1140.22232	610	1240.17462	610	23-100-018	622	CSER32-0260	626
100TG0234	617	1116.07142	602	1132.04762	608	1140.22500	611	1240.18000	612	23-100-021	622	CSER32-0280	626
100TG0250	617	1116.07500	603	1132.05000	609	1140.23000	611	1240.19052	610	23-100-028	622	CSER32-0300	626
100TG0266	617	1116.07942	602	1132.05500	609	1140.23500	611	1240.20000	612	23-100-031	622	CSER32-0319	626
100TG0281	617	1116.08000	603	1132.06000	609	1140.24000	611	1240.20642	610	23-100-038	622	CSER32-0339	626
100TG0297	617	1116.08500	603	1132.06352	608	1140.24500	611	1240.22000	612	23-100-045	622	CSER32-0359	626
100TG0312	617	1116.08732	602	1132.06500	609	1140.25000	611	1240.22232	610	23-100-053	622	CSER32-0379	626
100TG0328	617	1116.09000	603	1132.07000	609	1140.25402	610	1240.24000	612	23-100-SET	622	CSER32-0398	626
100TG0344	617	1116.09500	603	1132.07500	609	1140.25500	611	1240.25000	612	23-102-004	622	CSER32-0417	626
100TG0359	617	1116.09532	602	1132.07942	608	1140.26000	611	1240.25402	610	23-102-007	622	CSER32-0437	626
100TG0375	617	1116.10000	603	1132.08000	609	1140.27000	611	1240.26000	612	23-102-035	622	CSER32-0457	626
100TG0391	617	1116.10322	602	1132.08500	609	1140.28000	611	150TG0375	618	23-102-049	622	CSER32-0477	626
100TG0406	617	1120.00000	604	1132.09000	609	1140.29000	611	150TG0406	618	30215	563	CSER32-0497	626
100TG0422	617	1120.00002	604	1132.09500	609	1140.30000	611	150TG0438	618	30215	584	CSER32-0516	626
100TG0438	617	1120.01000	605	1132.09532	608	1216.00000	602	150TG0484	618	30221	563	CSER32-0536	626
100TG0453	617	1120.01500	605	1132.10000	609	1216.00002	602	150TG0500	618	30221	584	CSER32-0556	626
100TG0469	617	1120.02000	605	1132.10500	609	1216.03000	603	150TG0516	618	30227	563	CSER32-0575	626
100TG0484	617	1120.02500	605	1132.11000	609	1216.03182	602	150TG0531	618	30227	584	CSER32-0595	626
100TG0500	617	1120.03000	605	1132.11112	608	1216.04000	603	150TG0547	618	30233	563	CSER32-0614	626
100TG0516	617	1120.03182	604	1132.11500	609	1216.04762	602	150TG0562	618	30233	584	CSER32-0634	626
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RET622225A	460
RET622230	460
RET622230A	460
RET622235	460
RET622235A	460

Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #
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RET622240A	460	RET7035	121	RET7131	122	RET7367	125	RET7463	126	RET7722	127	RET7870	123
RET622250	460	RET7036	121	RET7132	122	RET7368	125	RET7464	126	RET7723	127	RET7871	123
RET622250A	460	RET7037	121	RET7133	122	RET7369	125	RET7465	126	RET7724	127	RET7872	123
RET622260	460	RET7038	121	RET7134	122	RET7370	125	RET7466	126	RET7725	127	RET7873	123
RET622260A	460	RET7039	121	RET7135	122	RET7371	125	RET7467	126	RET7726	127	RET7874	123
RET622270	460	RET7040	121	RET7136	122	RET7372	125	RET7468	126	RET7727	127	RET7875	123
RET622270A	460	RET7041	121	RET7137	122	RET7373	125	RET7469	126	RET7728	127	RET7876	123
RET622280	460	RET7042	121	RET7138	122	RET7374	125	RET7470	126	RET7729	127	RET7877	123
RET622280A	460	RET7043	121	RET7139	122	RET7375	125	RET7471	126	RET7730	127	RET7878	123
RET622290	460	RET7044	121	RET7140	122	RET7376	125	RET7472	126	RET7731	127	RET7879	123
RET622290A	460	RET7045	121	RET7141	122	RET7377	125	RET7473	126	RET7732	127	RET7880	123
RET622300	460	RET7046	121	RET7142	122	RET7378	125	RET7474	126	RET7733	127	RET7881	123
RET622300A	460	RET7047	121	RET7143	122	RET7379	125	RET7475	126	RET7734	127	RET7882	123
RET622310	460	RET7048	121	RET7144	122	RET7380	125	RET7476	126	RET7735	127	RET7883	123
RET622310A	460	RET7049	121	RET7145	122	RET7381	125	RET7477	126	RET7736	127	RET7884	123
RET622400	459	RET7050	121	RET7146	122	RET7382	125	RET7478	126	RET7737	127	RET7885	123
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RET622405A	459	RET7053	121	RET7149	122	RET7385	125	RET7481	126	RET7740	127	RET7888	123
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RET622410A	459	RET7055	121	RET7151	122	RET7387	125	RET7483	126	RET7742	127	RET7890	123
RET622415	459	RET7056	121	RET7152	122	RET7388	125	RET7484	126	RET7743	127	RET7891	123
RET622415A	459	RET7057	121	RET7153	122	RET7389	125	RET7485	126	RET7744	127	RET7892	123
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RET622600A	460	RET7069	121	RET7305	125	RET7401	125	RET7497	126	RET7808	123	RET7904	123
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RET622610A	460	RET7073	121	RET7309	125	RET7405	125	RET7501	126	RET7812	123	RET7908	123
RET622615	460	RET7074	121	RET7310	125	RET7406	125	RET7502	126	RET7813	123	RET7909	123
RET622615A	460	RET7075	121	RET7311	125	RET7407	125	RET7503	126	RET7814	123	RET7910	123
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RET622620A	460	RET7077	121	RET7313	125	RET7409	125	RET7505	126	RET7816	123	RET7912	123
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RET622625A	460	RET7079	121	RET7315	125	RET7411	125	RET7507	126	RET7818	123	RET7914	123
RET622630	460	RET7080	121	RET7316	125	RET7412	125	RET7508	126	RET7819	123	RET7915	123
RET622630A	460	RET7081	121	RET7317	125	RET7413	125	RET7509	126	RET7820	123	RET7916	123
RET622635	460	RET7082	122	RET7318	125	RET7414	125	RET7510	126	RET7821	123	RET7917	124
RET622635A	460	RET7083	122	RET7319	125	RET7415	125	RET7511	126	RET7822	123	RET7918	124
RET622640	460	RET7084	122	RET7320	125	RET7416	125	RET7512	126	RET7823	123	RET7919	124
RET622640A	460	RET7085	122	RET7321	125	RET7417	126	RET7513	126	RET7824	123	RET7920	124
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RET622670	460	RET7090	122	RET7326	125	RET7422	126	RET7518	126	RET7829	123	RET7925	124
RET622670A	460	RET7091	122	RET7327	125	RET7423	126	RET7519	126	RET7830	123	RET7926	124
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RET622680A	460	RET7093	122	RET7329	125	RET7425	126	RET7521	126	RET7832	123	RET7928	124
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RET622690A	460	RET7095	122	RET7331	125	RET7427	126	RET7523	126	RET7834	123	RET7930	124
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RET7008	121	RET7104	122	RET7340	125	RET7436	126	RET7532	126	RET7843	123	RET7939	124
RET7009	121	RET7105	122	RET7341	125	RET7437	126	RET7533	126	RET7844	123	RET7940	124
RET7010	121	RET7106	122	RET7342	125	RET7438	126	RET7534	126	RET7845	123	RET7941	124
RET7011	121	RET7107	122	RET7343	125	RET7439	126	RET7535	126	RET7846	123	RET7942	124
RET7012	121	RET7108	122	RET7344	125	RET7440	126	RET7536	126	RET7847	123	RET7943	124
RET7013	121	RET7109	122	RET7345	125	RET7441	126	RET7700	127	RET7848	123	RET7944	124
RET7014	121	RET7110	122	RET7346	125	RET7442	126	RET7701	127	RET7849	123	RET7945	124
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RET7016	121	RET7112	122	RET7348	125	RET7444	126	RET7703	127	RET7851	123	RET7947	124
RET7017	121	RET7113	122	RET7349	125	RET7445	126	RET7704	127	RET7852	123	RET7948	124
RET7018	121	RET7114	122	RET7350	125	RET7446	126	RET7705	127	RET7853	123	RET7949	124
RET7019	121	RET7115	122	RET7351	125	RET7447	126	RET7706	127	RET7854	123	RET7950	124
RET7020	121	RET7116	122	RET7352	125	RET7448	126	RET7707	127	RET7855	123	RET7951	124
RET7021	121	RET7117	122	RET7353	125	RET7449	126	RET7708	127	RET7856	123	RET7952	124
RET7022	121	RET7118	122	RET7354	125	RET7450	126	RET7709	127	RET7857	123	RET7953	124
RET7023	121	RET7119	122	RET7355	125	RET7451	126	RET7710	127	RET7858	123	RET7954	124
RET7024	121	RET7120	122	RET7356	125	RET7452	126	RET7711	127	RET7859	123	RET7955	124
RET7025	121	RET7121	122	RET7357	125	RET7453	126	RET7712	127	RET7860	123	RET7956	124
RET7026	121	RET7122	122	RET7358	125	RET7454	126	RET7713	127	RET7861	123	RET7957	124
RET7027	121	RET7123	122	RET7359	125	RET7455	126	RET7714	127	RET7862	123	RET7958	124
RET7028	121	RET7124	122	RET7360	125	RET7456	126	RET7715	127	RET7863	123	RET7959	124
RET7029	121	RET7125	122	RET7361	125	RET7457	126	RET7716	127	RET7864	123	RET7960	124
RET7030	121	RET7126	122	RET7362	125	RET7458	126	RET7717	127	RET7865	123	RET7961	124
RET7031	121	RET7127	122	RET7363	125	RET7459	126	RET7718	127	RET7866	123	RET7962	124
RET7032	121	RET7128	122	RET7364	125	RET7460	126	RET7719	127	RET7867	123	RET7963	124
RET7033	121	RET7129	122	RET7365	125	RET7461	126	RET7720	127	RET7868	123	RET7964	124

Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #	Part #	Pg #
RET7965	124	RET8151	128	RET8342	129	RET8438	130	RET8548	131	RET8644	132	RET8842	139
RET7966	124	RET8152	128	RET8343	129	RET8439	130	RET8549	131	RET8645	132	RET8843	139
RET7967	124	RET8153	128	RET8344	129	RET8440	130	RET8550	131	RET8646	132	RET8844	139
RET7968	124	RET8154	128	RET8345	129	RET8441	130	RET8551	131	RET8647	132	RET8845	139
RET7969	124	RET8155	128	RET8346	129	RET8442	130	RET8552	131	RET8648	132	RET8846	139
RET7970	124	RET8156	128	RET8347	129	RET8443	130	RET8553	131	RET8649	132	RET8847	139
RET7971	124	RET8157	128	RET8348	129	RET8444	130	RET8554	131	RET8650	132	RET8848	139
RET7972	124	RET8158	128	RET8349	129	RET8445	130	RET8555	131	RET8651	132	RET8849	139
RET7973	124	RET8159	128	RET8350	129	RET8446	130	RET8556	131	RET8652	132	RET8850	139
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RT30357	399	RT30602	401	RT30804	380	RT30907	380	RT32310	394	RT34401	392	RT35131	389
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RedLine® Tools

Endmills • Threadmills • Drills • Taps • Reamers • Carbide Bars • Burs • Toolholders • Coolants • Specialty Tools

Drill Size	Decimal	Drill Size	Decimal	Drill Size	Decimal	Drill Size	Decimal
0.1 mm	.0039	#41	.0960	15/64	.2344	13.0 mm	.5118
0.2 mm	.0079	#40	.0980	6.0 mm	.2362	33/64	.5156
0.3 mm	.0118	2.5 mm	.0984	B	.2380	17/32	.5313
#80	.0135	#39	.0995	C	.2420	13.5 mm	.5315
#79	.0145	#38	.1015	D	.2460	35/64	.5469
1/64	.0156	#37	.1040	E	.2500	14.0 mm	.5512
0.4 mm	.0157	#36	.1065	1/4	.2500	9/16	.5625
#78	.0160	7/64	.1094	6.5 mm	.2559	14.5 mm	.5709
#77	.0180	#35	.1100	F	.2570	37/64	.5781
0.5 mm	.0197	#34	.1110	G	.2610	15.0 mm	.5906
#76	.0200	#33	.1130	17/64	.2656	19/32	.5938
#75	.0210	#32	.1160	H	.2660	39/64	.6094
#74	.0225	3.0 mm	.1181	I	.2720	15.5 mm	.6102
0.6 mm	.0236	#31	.1200	7.0 mm	.2756	5/8	.6250
#73	.0240	1/8	.1250	J	.2770	16.0 mm	.6299
#72	.0250	#30	.1285	K	.2810	41/64	.6406
#71	.0260	#29	.1360	9/32	.2812	16.5 mm	.6496
0.7 mm	.0276	3.5 mm	.1378	L	.2900	21/32	.6562
#70	.0280	#28	.1405	M	.2950	17.0 mm	.6693
#69	.0292	9/64	.1406	7.5 mm	.2953	43/64	.6719
#68	.0310	#27	.1440	19/64	.2969	11/16	.6875
1/32	.0312	#26	.1470	N	.3020	17.5 mm	.6890
0.8 mm	.0315	#25	.1495	5/16	.3125	45/64	.7031
#67	.0320	#24	.1520	8.0 mm	.3150	18.0 mm	.7087
#66	.0330	#23	.1540	O	.3160	23/32	.7188
#65	.0350	5/32	.1562	P	.3230	18.5 mm	.7283
0.9 mm	.0354	#22	.1570	21/64	.3281	47/64	.7344
#64	.0360	4.0 mm	.1575	Q	.3320	19.0 mm	.7480
#63	.0370	#21	.1590	8.5 mm	.3346	3/4	.7500
#62	.0380	#20	.1610	R	.3390	49/64	.7656
#61	.0390	#19	.1660	11/32	.3438	19.5 mm	.7677
1.0 mm	.0394	#18	.1695	S	.3480	25/32	.7812
#60	.0400	11/64	.1719	9.0 mm	.3543	20.0 mm	.7874
#59	.0410	#17	.1730	T	.3580	51/64	.7969
#58	.0420	#16	.1770	23/64	.3594	20.5 mm	.8071
#57	.0430	4.5mm	.1772	U	.3680	13/16	.8125
#56	.0465	#15	.1800	9.5 mm	.3740	21.0 mm	.8268
3/64	.0469	#14	.1820	3/8	.3750	53/64	.8281
#55	.0520	#13	.1850	V	.3770	27/32	.8438
#54	.0550	3/16	.1875	W	.3860	21.5 mm	.8465
1.5 mm	.0591	#12	.1890	25/64	.3906	55/64	.8594
#53	.0595	#11	.1910	10.0 mm	.3937	22.0 mm	.8661
1/16	.0625	#10	.1935	X	.3970	7/8	.8750
#52	.0635	#9	.1960	Y	.4040	22.5 mm	.8858
#51	.0670	5.0 mm	.1969	13/32	.4062	57/64	.8906
#50	.0700	#8	.1990	Z	.4130	23.0 mm	.9055
#49	.0730	#7	.2010	10.5 mm	.4134	29/32	.9062
#48	.0760	13/64	.2031	27/64	.4219	59/64	.9219
5/64	.0781	#6	.2040	11.0 mm	.4331	23.5 mm	.9252
#47	.0785	#5	.2055	7/16	.4375	15/16	.9375
2.0 mm	.0787	#4	.2090	11.5 mm	.4528	24.0 mm	.9449
#46	.0810	#3	.2130	29/64	.4531	61/64	.9531
#45	.0820	5.5 mm	.2165	15/32	.4688	24.5 mm	.9646
#44	.0860	7/32	.2188	12.0 mm	.4724	31/32	.9688
#43	.0890	#2	.2210	31/64	.4844	25.0 mm	.9843
#42	.0935	#1	.2280	12.5 mm	.4921	63/64	.9844
3/32	.0938	A	.2340	1/2	.5000	1	1.000

Tap Drill Sizes

Tap Size	Cutting Tap Drill Size	Roll Form Tap Drill Size
	Cutting taps based on Approx. 75% Full Tread	Roll form taps based on Approx. 65% Thread
0-80	3/64	54
1-64	53	1.65mm
1-72	53	1.7mm
2-56	50	5/64
2-64	50	2mm
3-48	47	43
3-56	46	2.3mm
4-40	43	39
4-48	42	2.6mm
5-40	39	33
5-44	38	2.9mm
6-32	36	1/8
6-40	33	3.2mm
8-32	29	25
8-36	29	24
10-24	25	11/64
10-32	21	16
12-24	17	5mm
12-28	15	8
1/4-20	7	1
1/4-28	3	A
5/16-18	F	7.3mm
5/16-24	I	M
3/8-16	5/16	8.8mm
3/8-24	Q	T
7/16-14	U	Y
7/16-20	W	10.5mm
1/2-13	27/64	11.8mm
1/2-20	29/64	12.0mm
9/16-12	31/64	17/32
9/16-18	33/64	13.5mm
5/8-11	17/32	14.75mm
5/8-18	37/64	15.25mm
3/4-10	21/32	45/64
3/4-16	11/16	23/32
7/8-9	49/64	—
7/8-14	13/16	—
1-8	7/8	—
1-12	59/64	—
1-14	15/16	—

Metric Tap Drill Sizes

Tap Size (Metric)	Cutting Tap Drill Size	Roll Form Tap Drill Size
	Recommended Drill Sizes Suitable for 6H Tolerance	
M1.6 x 0.35	1.25mm	—
M1.8 X 0.35	1.45 mm	—
M2 x 0.4	1.60mm	—
M2.2 x 0.45	1.75mm	—
M2.5 x 0.45	2.05mm	—
M3 x 0.5	2.5mm	7/64
M3.5 x .06	2.9mm	3.2mm
M4 x 0.7	3.3mm	#27
M4.5 x 0.75	3.75mm	4.10mm
M5 x 0.8	#19	4.60mm
M6 x 1	5mm	5.50mm
M7 x 1	6 mm	6.50mm
M8 x 1.25	H	L
M8 x 1	J	7.50mm
M10 x 1.5	8.5mm	9.20mm
M10 x 1.25	8.75mm	U
M12 x 1.75	13/32	7/16
M12 x 1.25	10.75mm	.447*
M14 x 2	12mm	13mm
M14 x 1.5	12.5mm	13.20mm
M16 x 2	14mm	15mm
M16 x 1.5	14.5mm	15.25mm
M18 x 2.5	15.5mm	16.25mm
M18 x 1.5	16.5mm	17.25mm
M20 x 2.5	17.5mm	47/64
M20 x 1.5	18.5mm	.757*
M22 x 2.5	19.5mm	—
M22 x 1.5	20.5mm	—
M24 x 3	53/64	—
M24 x 2	22mm	—
M27 x 3	24mm	—
M27 x 2	63/64	—
M30 x 3.5	1-3/64*	—
M30 x 2	1-7/64*	—
M33 x 3.5	1-11/64*	—
M33 x 2	31mm*	—
M36 x 4	32mm*	—
M36 x 3	33mm*	—
M39 x 4	35mm*	* Reaming Recommended
M39 x 3	36mm*	

Pipe Tap Drill Size

Tap Size	NPT** Tap Drill	NPTF** Tap Drill	NPS Tap Drill	NPSF Tap Drill
1/16	D	C	1/4	D
1/8	Q	Q	11/32	R
1/4	7/16	7/16	7/16	7/16
3/8	9/16	9/16	37/64	37/64
1/2	45/64	45/64	23/32	45/64
3/4	29/32	29/32	59/64	59/64
1	1-9/64	1-9/64	1-5/32	1-5/32
1-1/4	1-31/64	1-31/64	1-1/2	—
1-1/2	1-47/64	1-23/32	1-3/4	—
2	2-13/64	2-3/16	2-7/32	—
2-1/2	2-5/8	2-39/64	2-21/32D	—
3	3-1/4	3-15/64	R	—

** For Tapping Without Reaming

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Helpful Formulas

Surface Feet Per Minute
.262 x Diameter of Cutter x RPM

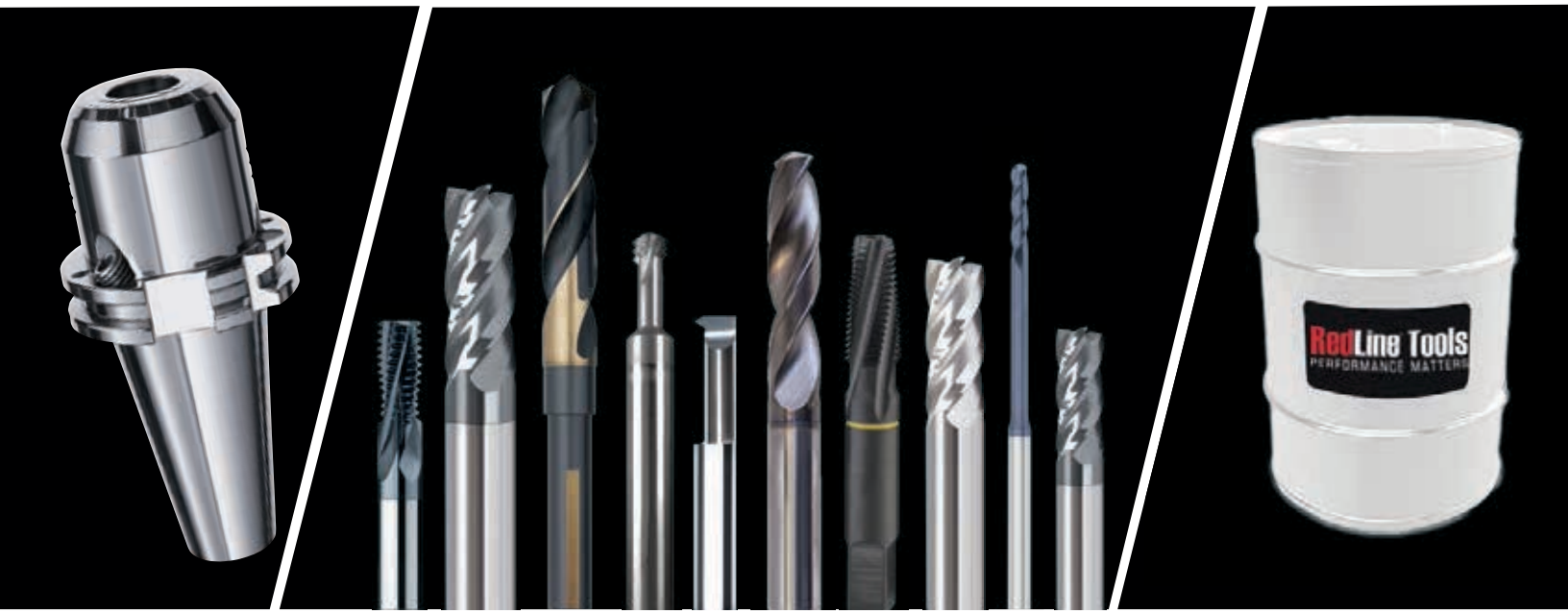
Feed Rate (Inches Per Minute)
Feed (Inches Per Tooth) x # of Teeth in Cutter x RPM

RPM
$\frac{3.82 \times \text{Surface Feet Per Minute}}{\text{Diameter}}$

Metal Removal Rate
Width of Cut x Depth x Cut x Feedrate (Inches Per Minute)

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