

PREMIUM QUALITY

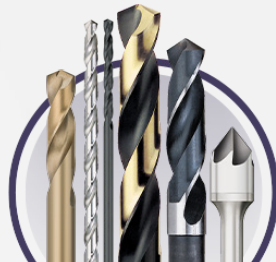
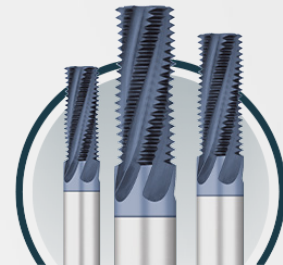
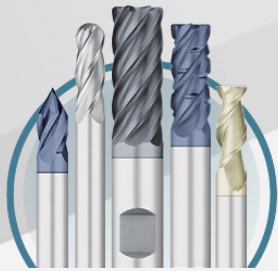
CUTTING TOOLS

FOR PRECISION

MACHINING

FALL 2023

 **PIONEER**[®]
T O O L



ENDMILLS | DRILLS | REAMERS | TAPS | BURRS

REGRINDS & COATINGS



BLACKHAWK[®]
MANUFACTURING GROUP
Cutting Tool Solutions

A COMPLETE CUTTING TOOL SERVICE

BlackHawk Manufacturing Group is your complete re-grinding and resharpener solution. Offering this service at many of our strategically placed manufacturing facilities allows us to expedite your order, at faster turnaround times and lower costs. With CNC tool grinders and manual equipment, we service a wide range of cutting tools in various order sizes. Your trusted tools will be reground to meet and exceed the OEM specifications. We can even hone your cutting tools for material specific applications improving the tool life, efficiency, and saving your business time and money.

We also offer custom design and fabrication services. Depending on your application and project needs, our engineers will work with you to determine the application, verify the material, coating, and edge-prep for your specific tool. From there, we can produce a virtual design and program the cutting tool process from start to finish. Whether reverse engineering, tweaking an existing tool, or developing a full-blown custom tool, our experienced and skilled craftsmen will create the solution you need.

QUALITY ASSURED

For full quality control, every order is inspected incrementally with the latest in CMM vision equipment to verify many features that can't be done any other way. Rake angles, relief angles, profiles, diameters, and snap gauges that were once optically checked with an indicator can now be inspected to the millionths to ensure accurate results. With many years servicing the aerospace industry, we have the capability to meet and exceed NAS specifications. We can even develop custom, hard to find, or discontinued tool holders for common CNC machines.

SIMPLE, USER-FRIENDLY ORDERING PROCESS

Submitting an inquiry or placing an order could not be easier. Simply scan the QR code to go to our custom tool builder, fill in the necessary information, and our engineers will do the rest and get back to you with a timely response.



THE ONLY CUTTING TOOL PARTNER YOU WILL EVER NEED

No matter what you need – a custom tool design and fabrication from an existing print, a drawing on a napkin, or a solution that just hasn't been created yet. Resharpener, regrounding, or modification of existing cutting tools. Coating and honing to increase longevity and efficiency. Or something you just can't find in a catalog.

However large or small your order, we've got you covered, because we're "big enough to serve and small enough to care". BlackHawk Manufacturing Group is your production floor's full source cutting tool manufacturer and reconditioning service provider.

855.610.1001

manufacturing@BHID.com

MODIFICATIONS & CUSTOM TOOLS



BLACK HAWK[®]
MANUFACTURING GROUP
Cutting Tool Solutions

PRECISION

- Take these tools directly to work with 100% confidence.

SPEED

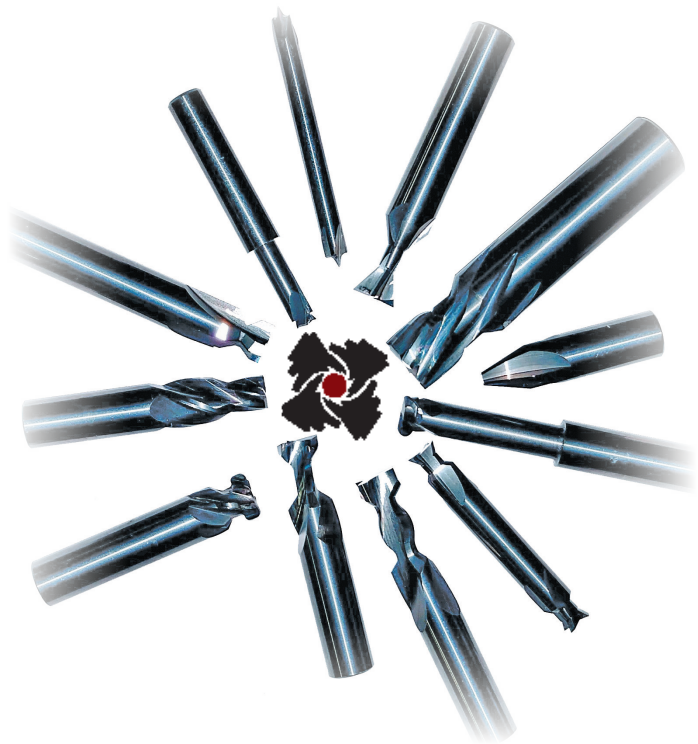
- Make your delivery dates definite.

VERSATILITY

- We adapt to complex geometries from the most respected names in tools.

Grinding, Reconditioning & Modification

- Drills
- Step Drills
- Keyway Cutters
- Counterbores
- Countersinks
- Milling Cutters
- Reamers
- Oil Hole Drills
- Saws
- End Mills
- Dovetails
- Form Tools
- Spade Drills
- Matched Milling Cutter Sets
- Taps
- Subland Drills
- Brazed Carbide Tool Bits
- Core Drills
- Port Tools
- Straight Flute Drills



855.610.1001

manufacturing@BHID.com

MILLING

General Purpose End Mills - Carbide - Roughers 10

4 Flute	Square	Carbide	30° Helix - Fine Pitch - Rougher	10
4 Flute	Ball	Carbide	30° Helix - Fine Pitch - Rougher	11
4 Flute	Corner Radius	Carbide	40° Helix - Rougher/Finisher	12

General Purpose End Mills - Carbide - For Aluminum 13

2 Flute	Square	Carbide	45° Helix	13
2 Flute	Ball	Carbide	45° Helix	14
2 Flute	Corner Radius	Carbide	45° Helix	15
3 Flute	Square	Carbide	45° Helix	18
NEW 3 Flute	Square	Carbide	45° Helix - Chipbreaker	19
3 Flute	Ball	Carbide	45° Helix	20
NEW 3 Flute	Ball	Carbide	45° Helix - Chipbreaker	21
3 Flute	Corner Radius	Carbide	45° Helix	22
NEW 3 Flute	Corner Radius	Carbide	45° Helix - Chipbreaker	25

General Purpose End Mills - Carbide 28

2 Flute	Square	Carbide	Straight Flute	28
2 Flute	Square	Carbide	30° Helix	29
2 Flute	Ball	Carbide	30° Helix	31
2 Flute	Corner Radius	Carbide	30° Helix	33
2 Flute	Square	Carbide	30° Helix - NC Tolerance	35
2 Flute	Ball	Carbide	30° Helix - NC Tolerance	36
3 Flute	Square	Carbide	30° Helix	37
3 Flute	Ball	Carbide	30° Helix	39
3 Flute	Corner Radius	Carbide	30° Helix	41
3 Flute	Square	Carbide	30° Helix - Tapered	45
3 Flute	Ball	Carbide	30° Helix - Tapered	46
3 Flute	Square	Carbide	45° Helix	47
3 Flute	Corner Radius	Carbide	45° Helix	48
3 Flute	Square	Carbide	60° Helix	49
3 Flute	Corner Radius	Carbide	60° Helix	50
4 Flute	Square	Carbide	Straight Flute	51
4 Flute	Square	Carbide	30° Helix	52
4 Flute	Square	Carbide	30° Helix - Double-Ended	54
4 Flute	Square	Carbide	30° Helix - Metric	55
4 Flute	Ball	Carbide	30° Helix	57
4 Flute	Ball	Carbide	30° Helix - Double-Ended	59
4 Flute	Ball	Carbide	30° Helix - Metric	60
4 Flute	Corner Radius	Carbide	30° Helix	61
4 Flute	Square	Carbide	30° Helix - NC Tolerance	67
4 Flute	Ball	Carbide	30° Helix - NC Tolerance	67
5 Flute	Square	Carbide	45° Helix	68
NEW ITEMS 5 Flute	Corner Radius	Carbide	45° Helix	69

General Purpose End Mills - Cobalt 71

Multi-flute		Cobalt	30° Helix - Coarse Pitch - Rougher	71
Multi-flute		Cobalt	30° Helix - Fine Pitch - Rougher	71
2 Flute	Square	Cobalt	30° Helix	72
2 Flute	Square	Cobalt	30° Helix - Double-Ended	73
4 & 6 Flute	Square	Cobalt	30° Helix	74
4 Flute	Square	Cobalt	30° Helix - Double-Ended	75

MILLING (cont.)**HIGH PERFORMANCE END MILLS - CARBIDE 78**

4 Flute	Square	Carbide	Variable Index	78
4 Flute	Square	Carbide	Variable Index - Chipbreaker	80
4 Flute	Ball	Carbide	Variable Index	81
4 Flute	Corner Radius	Carbide	Variable Index	82
4 Flute	Corner Radius	Carbide	Variable Index - Chipbreaker	84
5 Flute	Square	Carbide	Variable Index	86
5 Flute	Square	Carbide	Variable Index - Chipbreaker	87
5 Flute	Corner Radius	Carbide	Variable Index	88
5 Flute	Corner Radius	Carbide	Variable Index - Chipbreaker	90
6 Flute	Square	Carbide	Variable Index	92
6 Flute	Square	Carbide	Variable Index - Chipbreaker	93
6 Flute	Corner Radius	Carbide	Variable Index	94
6 Flute	Corner Radius	Carbide	Variable Index - Chipbreaker	95
7 Flute	Square	Carbide	Variable Index	96
7 Flute	Corner Radius	Carbide	Variable Index	97

Drill / End Mills 98

2 Flute				98
4 Flute				99

Chamfer Mills 100

2 Flute		Flat Tip		100
2 Flute		Flat Tip - Double-Ended		101
2 Flute		Pointed Tip		102
4 Flute		Flat Tip		103
4 Flute		Flat Tip - Double-Ended		104

Technical Information 105**MICRO MILLING****Micro Milling 114**

2 Flute	Square	Carbide	30° Helix - Stub & Regular Flute	114
2 Flute	Ball	Carbide	30° Helix - Stub & Regular Flute	117
2 Flute	Corner Radius	Carbide	30° Helix - Stub & Regular Flute	120
3 Flute	Square	Carbide	30° Helix - Stub & Regular Flute	122
3 Flute	Square	Carbide	30° Helix - Long Flute	124
3 Flute	Square	Carbide	30° Helix - Long Reach, Stub Flute	126
3 Flute	Square	Carbide	30° Helix - Long Reach, Regular Flute	128
3 Flute	Square	Carbide	30° Helix - Long Reach, Long Flute	130
3 Flute	Ball	Carbide	30° Helix - Long Flute	132
3 Flute	Ball	Carbide	30° Helix - Long Reach, Stub Flute	134
3 Flute	Ball	Carbide	30° Helix - Long Reach, Regular Flute	136
3 Flute	Ball	Carbide	30° Helix - Long Reach, Long Flute	138
4 Flute	Square	Carbide	30° Helix - Stub & Regular Flute	140
4 Flute	Ball	Carbide	30° Helix - Stub & Regular Flute	143
4 Flute	Corner Radius	Carbide	30° Helix - Stub & Regular Flute	146

Technical Information 148

DRILLING

Spot Drills			149
Spot Drills	Carbide		149
Drills - Carbide			150
Stub Length	Carbide	135° Split Point	150
Jobber Length	Carbide	118° Split Point	153
Straight Flute	Carbide	140° Split Point	157
Drills - Cobalt			159
Stub Length	Cobalt	135° Split Point	159
Jobber Length	Cobalt	135° Split Point	162
Aircraft Extension Drills	Cobalt	135° Split Point	165
Silver & Deming	Cobalt	135° Split Point	166
Drills - High Speed Steel			167
Stub Length	High Speed Steel	135° Split Point	167
Jobber Length	High Speed Steel	135° Split Point	170
Jobber Length	High Speed Steel	118° Point - Black Oxide Finish	173
Jobber Length	High Speed Steel	118° Point - Bright Finish & TiN Coated	177
Aircraft Extension Drills	High Speed Steel	135° Split Point	180
Silver & Deming	High Speed Steel	118° Point - 3 Flats	182
Silver & Deming	High Speed Steel	118° Point	183
Silver & Deming	High Speed Steel	118° Split Point - 3 Flats - Black & Gold Oxide Finish	184
Taper Length	High Speed Steel	118° Point	185
Taper Shank	High Speed Steel	118° Point	188
Extra Long	High Speed Steel	118° Point	190
Mechanics Length	High Speed Steel	135° Split Point	191
Screw Extractors			192
Drill Sets			193
Jobber Drill Sets	Cobalt		193
Screw Machine Drill Set	Cobalt		193
Jobber Drill Sets	High Speed Steel		194
Jobber Drill Sets	High Speed Steel	Black & Gold Oxide Finish	195
Mechanics Length Sets	High Speed Steel		195
Silver & Deming Sets	High Speed Steel		196
Tap & Drill Sets	High Speed Steel		196
Combined Drill & Countersinks			197
Carbide			197
M42 Cobalt			198
High Speed Steel			198
High Speed Steel - Long Length			199
Countersinks			200
Single Flute	Carbide		200
Single Flute	Carbide	Double-Ended	201
3 Flute	Carbide		202
4 Flute	Carbide	Double-Ended	203
6 Flute	Carbide		204
6 Flute	Carbide	Double-Ended	205

Countersinks (Cont.)

Zero Flute	Cobalt		206
Single Flute	High Speed Steel		207
Single Flute	High Speed Steel	Double-Ended	208
4 Flute	High Speed Steel		209
4 Flute	High Speed Steel	Double-Ended	210

Technical Information**211****REAMING****Reamers - Carbide****215**

Straight Flute	Carbide		215
Straight Flute	Carbide	Quickturn Custom Diameter Reamer Program	227
Right Hand Spiral	Carbide		228

Reamers - Cobalt**229**

Chuckling - Straight Flute	Cobalt		229
Chuckling - Straight Flute	Cobalt	Quickturn Custom Diameter Reamer Program	233
Chuckling - Right Hand Spiral	Cobalt		234
Dowel Pin - Straight Flute	Cobalt		238
Dowel Pin - Right Hand Spiral	Cobalt		238

Reamers - High Speed Steel**239**

Chuckling - Straight Flute	High Speed Steel		239
Chuckling - Straight Flute	High Speed Steel	Quickturn Custom Diameter Reamer Program	264
Chuckling - Right Hand Spiral	High Speed Steel		265
NEW Chuckling - Left Hand Spiral	High Speed Steel		269
Dowel Pin - Straight Flute	High Speed Steel		273
Dowel Pin - Right Hand Spiral	High Speed Steel		273
Expansion - Straight Flute	High Speed Steel		274
Expansion - Straight Flute - Taper Shank	High Speed Steel		275
Hand Reamers - Straight Flute	High Speed Steel		276
Taper Pipe	High Speed Steel		277
Taper Pin	High Speed Steel		278
Capscrew Counterbores	High Speed Steel		279
Taper Shank Bridge Reamers	High Speed Steel		280
Flatted Shank Construction Reamers	High Speed Steel		281
Magnetic Hex Shank Safety Reamers	High Speed Steel		281

Reamer Sets**282**

Reamer Sets	Cobalt		282
Reamer Sets	High Speed Steel		282

Technical Information**283**

THREAD MILLING

Thread Mills		284
Single-Form - UN Threads	Carbide	284
Multi-Form - UN Threads	Carbide	285
Multi-Form - UN Threads - Coolant Through	Carbide	286
Multi-Form - NPT Pipe Threads	Carbide	286
Multi-Form - NPTF Pipe Threads	Carbide	287
Multi-Form - Metric Threads	Carbide	287
Technical Information		288

TAPPING

High Performance Taps		289
Spiral Point - ANSI Threads	Premium Powdered Metal	289
Spiral Point - Metric Threads	Premium Powdered Metal	290
Spiral Flute Semi-Bottoming - ANSI Threads	High Vanadium Powdered Metal	291
Spiral Flute Semi-Bottoming - Metric Threads	High Vanadium Powdered Metal	292
General Purpose Taps - High Speed Steel		293
Hand Taps	High Speed Steel	293
Hand Taps - Steam Oxide Finish	High Speed Steel	296
Hand Taps - Nitride & Steam Oxide Finish	High Speed Steel	297
Hand Taps - TiN Coated	High Speed Steel	298
Hand Taps - Metric - Uncoated	High Speed Steel	299
Hand Taps - Metric - TiN Coated	High Speed Steel	300
Hand Taps - 8 Pitch	High Speed Steel	301
Hand Taps - Left Hand	High Speed Steel	302
Spiral Point Plug Taps	High Speed Steel	303
Spiral Point Plug Taps - Metric	High Speed Steel	306
Spiral Point Bottoming Taps	High Speed Steel	307
STI Taps - Hand Plug & Bottoming Taps	High Speed Steel	308
STI Taps - Spiral Point Plug	High Speed Steel	308
Oversize Taps - Hand Plug	High Speed Steel	309
Oversize Taps - Spiral Point Plug	High Speed Steel	309
Extension Taps - Spiral Point Plug	High Speed Steel	310
Pulley Taps	High Speed Steel	311
Spiral Flute - Semi-Bottoming	High Speed Steel	312
Spiral Flute - Semi-Bottoming - Metric	High Speed Steel	313
Straight Pipe - NPS	High Speed Steel	313
Taper Pipe - Extension Taper Pipe	High Speed Steel	314
Taper Pipe - NPT	High Speed Steel	315
Taper Pipe - NPT Interrupted	High Speed Steel	315
Taper Pipe - NPTF Dryseal	High Speed Steel	316
Taper Pipe - NPTF Dryseal Interrupted	High Speed Steel	316
Thread Forming	High Speed Steel	317
Thread Forming - Metric	High Speed Steel	319

TAPPING (cont.)

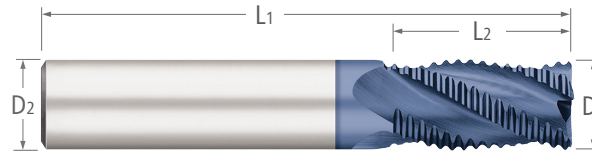
General Purpose Tap Sets	320
Hand Tap Sets	High Speed Steel 320
Hand Tap Sets - Metric	High Speed Steel 322
Hand Tap Sets - Left Hand	High Speed Steel 323
Combination Drill & Taps	324
Combination Drill & Taps	324
Combination Drill & Taps - Metric	324
General Purpose Dies	325
Hexagon Rethreading Die	Carbon Steel 325
Hexagon Rethreading Die - Metric	Carbon Steel 326
Hexagon Rethreading Die - NPT	Carbon Steel 327
Adjustable Round Split Die	Carbon Steel 327
Adjustable Round Split Die	High Speed Steel 328
Die Stocks	329
Tap Handles - T-Handle Tap Wrench	329
Technical Information	330

DEBURRING

Burs	338
Cylindrical - SA	Carbide 338
Cylindrical - SA - For Aluminum	Carbide 339
Cylindrical End Cut - SB	Carbide 340
Cylindrical End Cut - SB - For Aluminum	Carbide 341
Cylindrical Ball Nose - SC	Carbide 342
Cylindrical Ball Nose - SC - For Aluminum	Carbide 343
Ball Shape - SD	Carbide 344
Ball Shape - SD - For Aluminum	Carbide 345
Egg Shape - SE	Carbide 346
Egg Shape - SE - For Aluminum	Carbide 346
Round Nose Tree - SF	Carbide 347
Round Nose Tree - SF - For Aluminum	Carbide 347
Pointed Tree - SG	Carbide 348
Flame Shape - SH	Carbide 349
60° Included Angle - SJ	Carbide 349
90° Included Angle - SK	Carbide 350
Included Angle with Radius End - SL	Carbide 350
Included Angle with Radius End - SL - For Aluminum	Carbide 351
Pointed Cone - SM	Carbide 351
Inverted Taper - SN	Carbide 352
Burs Sets	352
Technical Information	353
Decimal Equivalents & Tap Drill Sizes	354
Coating Chart	355

GENERAL PURPOSE END MILLS - CARBIDE - ROUGHERS

4 Flute - Square - 30° Helix - Fine Pitch Rougher



- Excellent performance in hardened steels, titanium, Inconel, and high temp alloys
- Offered in stub, regular, and long length styles
- Fine pitch for maximized material removal rates (MRR) and minimized vibration or chatter
- Center cutting
- TiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ALTiN COATED	
D1 ^{+0.000"} _{-0.002"}	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C774304	25.82	C772465	28.01
	1/8	1/2	1-1/2	C774313	26.87	C772468	29.05
	1/8	3/4	2-1/4	C774325	29.15	C772473	33.58
	1/8	1	3	C774326	33.78	C772474	36.17
3/16	3/16	3/8	2	C774305	28.61	C772466	31.14
	3/16	5/8	2	C774314	29.85	C772469	32.34
	3/16	7/8	2	C774327	32.44	C772475	37.16
	3/16	1-1/4	3	C774328	37.46	C772476	40.15
1/4	1/4	3/8	2	C774306	31.74	C766106	34.73
	1/4	1/2	2	C774316	32.98	C772470	35.97
	1/4	3/4	2-1/2	C774315	35.62	C746429	38.81
	1/4	1-1/8	3	C774330	41.44	C772477	44.63
	1/4	1-1/2	4	C774329	52.04	C760100	55.52
5/16	5/16	1/2	2	C774307	44.92	C766107	48.56
	5/16	13/16	2-1/2	C774317	50.10	C746426	53.98
	5/16	1-1/8	3	C774332	58.26	C772478	62.14
	5/16	1-1/2	4	C774331	67.01	C760101	71.24
3/8	3/8	9/16	2	C774308	52.34	C766108	56.62
	3/8	7/8	2-1/2	C774318	58.36	C746427	62.93
	3/8	1-1/8	3	C774334	68.70	C772479	73.33
	3/8	1-1/2	4	C774335	79.10	C772480	84.08
	3/8	1-3/4	4	C774333	84.48	C760102	89.50
1/2	1/2	5/8	2-1/2	C774309	64.68	C766109	70.79
	1/2	1	3	C774320	70.40	C772471	76.57
	1/2	1-1/4	3	C774319	73.23	C735121	79.40
	1/2	1-1/2	4	C774337	90.99	C772481	97.66
	1/2	2	4	C774336	96.71	C760103	103.38
5/8	5/8	3/4	3	C774310	145.42	C766110	152.93
	5/8	1-1/4	3-1/2	C774322	155.67	C772472	163.73
	5/8	1-5/8	3-1/2	C774321	161.89	C746425	169.95
	5/8	2-1/4	5	C774339	220.94	C772482	229.85
	5/8	2-1/2	5	C774338	233.18	C760104	242.13
	5/8	3	6	C774340	248.85	C772483	265.67
3/4	3/4	1	3	C774311	175.52	C766111	184.42
	3/4	1-5/8	4	C774323	196.31	C746428	205.92
	3/4	2-1/4	5	C774342	269.94	C772484	280.54
	3/4	2-1/2	5	C774341	280.19	C760105	290.84
	3/4	3	6	C774343	299.54	C772485	311.04
1	1	1-1/4	3-1/2	C774312	314.97	C772467	339.89
	1	2	4	C774324	364.52	C746431	378.75
	1	2-1/2	5	C774344	482.82	C760106	498.59

For technical information, see page 106

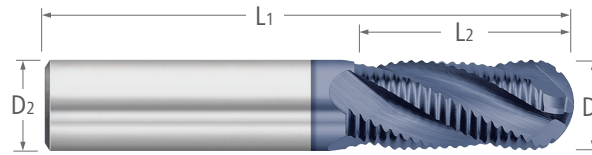
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE END MILLS - CARBIDE - ROUGHERS

4 Flute - Ball - 30° Helix - Fine Pitch Rougher

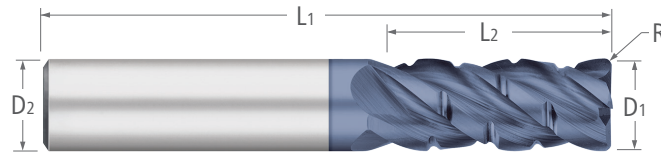


- Excellent performance in hardened steels, titanium, Inconel, and high temp alloys
- Offered in stub, regular, and long length styles
- Fine pitch for maximized material removal rates (MRR) and minimized vibration or chatter
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
$D_{1-0.002}^{+0.000}$	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/4	1/4	3/8	2	C774501	41.49	C774514	47.11
	1/4	3/4	2-1/2	C774345	45.32	C766458	48.61
	1/4	1-1/2	4	C774502	61.74	C774515	68.16
5/16	5/16	1/2	2	C774503	58.01	C774516	64.77
	5/16	7/8	2-1/2	C774346	58.85	C766459	66.07
	5/16	1-1/2	4	C774504	80.10	C774517	87.81
3/8	3/8	9/16	2	C774505	69.15	C774518	77.21
	3/8	1	2-1/2	C774347	75.17	C766460	79.85
	3/8	1-3/4	4	C774506	101.29	C774519	110.49
1/2	1/2	5/8	2-1/2	C774507	94.77	C774520	106.42
	1/2	1-1/4	3	C774348	103.33	C766461	109.70
	1/2	2	4	C774508	126.76	C774521	139.25
$D_{1-0.003}^{+0.000}$	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	3/4	3	C774509	167.06	C774522	180.59
	5/8	1-5/8	3-1/2	C774349	183.53	C766462	191.64
	5/8	2-1/2	5	C774510	254.82	C774523	270.39
3/4	3/4	1	3	C774511	236.61	C774524	252.73
	3/4	1-5/8	4	C774350	257.41	C766463	267.31
	3/4	2-1/2	5	C774512	341.33	C774525	359.84
1	1	2	4	C774351	419.39	C766464	444.32
	1	2-1/2	5	C774513	537.75	C774526	564.61

GENERAL PURPOSE END MILLS - CARBIDE - ROUGHERS

4 Flute - Corner Radius - 40° Helix - Rougher/Finisher



- Excellent performance in hardened steels, titanium, Inconel, and high temp alloys
- Engineered with chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure
- Corner radius for increased edge strength
- Higher helix for enhanced cutting action
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ALTiN COATED	
$D_{1 \pm .000 / -.002}^{+.000}$	D2 (h6)	$R \pm .001 / -.001^{+.001}$	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	.010	1/2	1-1/2	C775747	40.94	C772486	47.36
	1/8	.010	3/4	2-1/4	C775667	41.74	C772448	48.46
	1/8	.010	1	3	C775677	42.79	C772458	49.55
3/16	3/16	.010	5/8	2	C775654	48.66	C772487	56.07
	3/16	.010	7/8	2-1/2	C775668	50.15	C772449	57.91
	3/16	.010	1-1/8	3	C775678	51.94	C772459	59.80
1/4	1/4	.020	3/4	2-1/2	C775655	57.66	C751350	66.86
	1/4	.020	1-1/8	3	C775669	57.91	C772450	67.11
	1/4	.020	1-1/2	4	C775679	62.93	C772460	72.83
5/16	5/16	.020	13/16	2-1/2	C775656	62.09	C751349	72.78
	5/16	.020	1-1/8	3	C775670	71.44	C772451	82.59
	5/16	.020	1-5/8	4	C775680	79.65	C772461	91.74
3/8	3/8	.020	7/8	2-1/2	C775657	66.76	C751348	79.10
	3/8	.020	1-1/8	3	C775671	81.19	C772452	94.23
	3/8	.020	1-1/2	4	C775672	82.93	C772453	96.76
	3/8	.020	2	4	C775681	84.28	C772462	98.16
1/2	1/2	.030	1-1/4	3	C775659	81.99	C772488	98.31
	1/2	.030	1-1/2	4	C775673	75.77	C772454	92.68
	1/2	.030	2	4	C775674	77.26	C772455	94.23
	1/2	.030	3	6	C775682	83.98	C772463	103.43
	1/2	.040	1-1/4	3	C775658	75.42	C751347	91.44
$D_{1 \pm .000 / -.003}^{+.000}$	5/8	.030	1-5/8	3-1/2	C775662*	167.01	C772490*	190.54
	5/8	.030	2-1/4	5	C775675*	177.76	C772456*	202.98
	5/8	.030	3	6	C775683*	182.48	C772464*	209.25
	5/8	.040	1-1/4	3-1/2	C775661*	164.97	C772489*	188.40
	5/8	.040	1-5/8	3-1/2	C775660*	158.85	C751346*	181.99
3/4	3/4	.030	1-5/8	4	C775664*	224.22	C772491*	253.53
	3/4	.030	2-1/4	5	C775676*	236.36	C772457*	267.66
	3/4	.040	1-5/8	4	C775663*	214.42	C751345*	243.23
1	1	.030	1-5/8	4	C775666*	365.17	C772492*	409.59
	1	.040	1-5/8	4	C775665*	365.17	C751344*	409.59

*Includes Weldon Flat

For technical information, see page 106

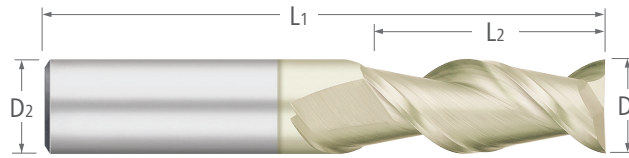
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

2 Flute - Square - 45° Helix


END MILLS

Roughers

For Aluminum

Carbide

Cobalt

- Designed for high speed slotting and profiling in aluminum and non-ferrous materials
- Offered in stub, regular, and long length styles
- 45° helix for faster chip removal and a better finish
- Center cutting
- ZrN coating offers increased speed rates and prolonged tool life
- Solid carbide
- Precision manufactured in the USA

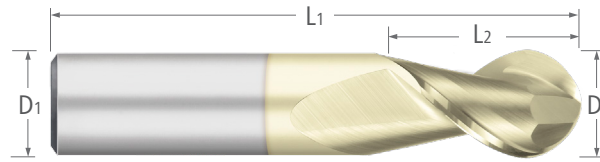
CUTTER DIA. $D1^{+0.000}_{-0.002}$ "	SHANK DIA. $D2$ (h6)	LOC $L2$	OAL $L1$	UNCOATED		ZRN COATED	
				TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C774352	9.50	C771460	11.84
	1/8	1/2	1-1/2	C774370	14.18	C763736	16.52
	1/8	3/4	2-1/4	C774388	25.47	C763744	28.06
3/16	3/16	3/8	2	C774353	14.97	C771461	17.61
	3/16	5/8	2	C774371	20.25	C763737	22.93
	3/16	3/4	2-1/2	C774389	29.30	C763745	32.24
1/4	1/4	1/2	2	C774354	21.94	C771462	25.17
	1/4	3/4	2-1/2	C774372	28.56	C748141	32.04
	1/4	1-1/4	3	C774390	40.45	C748155	43.93
5/16	5/16	1/2	2	C774355	26.72	C771463	30.60
	5/16	13/16	2-1/2	C774373	33.83	C748144	38.01
	5/16	1-3/8	3	C774391	55.52	C748158	59.80
3/8	3/8	5/8	2	C774356	28.86	C771464	33.38
	3/8	1	2-1/2	C774374	35.37	C748143	40.25
	3/8	1-1/2	4	C774392	66.22	C748157	71.64
1/2	1/2	5/8	2-1/2	C774357	49.65	C771465	56.27
	1/2	1-1/4	3	C774375	56.81	C748140	63.58
	1/2	2	4	C774393	93.33	C748154	100.64
5/8	5/8	3/4	3	C774358	105.42	C771466	120.30
	5/8	1-5/8	3-1/2	C774376	119.15	C748145	127.71
	5/8	2-3/8	5	C774394	208.45	C748159	218.00
3/4	3/4	1	3	C774359	161.29	C771467	170.94
	3/4	1-3/4	4	C774377	173.08	C748142	183.38
	3/4	2-1/2	5	C774395	225.47	C748156	236.76
1	1	1-1/4	3-1/2	C774360	271.64	C771468	299.05
	1	1-3/4	4	C774378	285.37	C748139	300.49
	1	2-1/4	5	C774396	354.47	C748153	384.02

For technical information, see page 109



GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

2 Flute - Ball - 45° Helix



- Designed for high speed slotting and profiling in aluminum and non-ferrous materials
- Offered in stub and regular length styles
- 45° helix for faster chip removal and a better finish
- Center cutting
- ZrN coating offers increased speed rates and prolonged tool life
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. $D1_{-0.002}^{+0.000}$	SHANK DIA. $D2 (h6)$	LOC $L2$	OAL $L1$	UNCOATED		ZRN COATED	
				TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/2	1-1/2	C774679	17.81	C774697	22.39
	1/8	3/4	2-1/4	C774688	31.84	C774706	36.77
3/16	3/16	5/8	2	C774680	24.97	C774698	30.15
	3/16	3/4	2-1/2	C774689	36.82	C774707	42.39
1/4	1/4	3/4	2-1/2	C774681	33.23	C774699	39.85
	1/4	1-1/4	3	C774690	47.11	C774708	53.78
5/16	5/16	13/16	2-1/2	C774682	39.45	C774700	47.36
	5/16	1-3/8	3	C774691	64.68	C774709	72.59
3/8	3/8	1	2-1/2	C774683	41.19	C774701	50.60
	3/8	1-1/2	4	C774692	76.42	C774710	86.57
1/2	1/2	1-1/4	3	C774684	66.12	C774702	78.95
	1/2	2	4	C774693	107.56	C774711	121.29
$D1_{-0.003}^{+0.000}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	1-5/8	3-1/2	C774685	130.94	C774703	146.91
	5/8	2-3/8	5	C774694	229.85	C774712	246.96
3/4	3/4	1-3/4	4	C774686	190.09	C774704	209.05
	3/4	2-1/2	5	C774695	248.65	C774713	269.10
1	1	1-3/4	4	C774687	314.82	C774705	342.28
	1	2-1/4	5	C774696	391.04	C774714	420.59

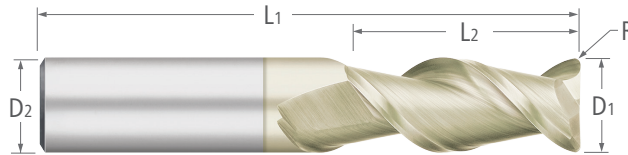
For technical information, see page 109

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

2 Flute - Corner Radius - 45° Helix



- Designed for high speed slotting and profiling in aluminum and non-ferrous materials
- Offered in stub, regular, and long length styles
- Corner radius for increased edge strength
- 45° helix for faster chip removal and a better finish
- Center cutting
- ZrN coating offers increased speed rates and prolonged tool life
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ZRN COATED	
$D1_{-0.002}^{+0.001}$	D2 (h6)	$R_{-0.001}^{+0.001}$	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	.010	1/4	1-1/2	C774361	12.24	C771469	14.58
	1/8	.010	1/2	1-1/2	C774379	17.31	C763740	19.70
	1/8	.010	3/4	2-1/4	C774397	30.94	C763748	33.53
	1/8	.015	1/4	1-1/2	C775438	12.24	C775460	16.82
	1/8	.015	1/2	1-1/2	C775086	17.31	C775487	21.89
	1/8	.015	3/4	2-1/4	C775113	30.94	C775514	35.82
	1/8	.020	1/4	1-1/2	C775439	12.24	C775461	16.82
	1/8	.020	1/2	1-1/2	C775087	17.31	C775488	21.89
	1/8	.020	3/4	2-1/4	C775114	30.94	C775515	35.82
	1/8	.030	1/4	1-1/2	C775440	12.24	C775462	16.82
	1/8	.030	1/2	1-1/2	C775088	17.31	C775489	21.89
1/8	.030	3/4	2-1/4	C775115	30.94	C775516	35.82	
3/16	3/16	.010	3/8	2	C774362	18.46	C771470	21.09
	3/16	.010	5/8	2	C774380	24.23	C763741	26.96
	3/16	.010	3/4	2-1/2	C774398	35.72	C763749	38.71
	3/16	.020	3/8	2	C775441	18.46	C775463	23.63
	3/16	.020	5/8	2	C775089	24.23	C775490	29.40
	3/16	.020	3/4	2-1/2	C775116	35.72	C775517	41.29
	3/16	.030	3/8	2	C775442	18.46	C775464	23.63
	3/16	.030	5/8	2	C775090	24.23	C775491	29.40
	3/16	.030	3/4	2-1/2	C775117	35.72	C775518	41.29
1/4	1/4	.015	1/2	2	C775443	26.37	C775465	32.59
	1/4	.015	3/4	2-1/2	C775091	32.24	C775492	38.85
	1/4	.015	1-1/4	3	C775118	45.77	C775519	52.39
	1/4	.020	1/2	2	C774363	26.37	C771471	29.65
	1/4	.020	3/4	2-1/2	C774381	32.24	C751455	35.72
	1/4	.020	1-1/4	3	C774399	45.77	C751469	49.30
	1/4	.030	1/2	2	C775444	26.37	C775466	32.59
	1/4	.030	3/4	2-1/2	C775092	32.24	C775493	38.85
	1/4	.030	1-1/4	3	C775119	45.77	C775520	52.39
	1/4	.060	1/2	2	C775445	26.37	C775467	32.59
	1/4	.060	3/4	2-1/2	C775093	32.24	C775494	38.85
	1/4	.060	1-1/4	3	C775120	45.77	C775521	52.39

continued on next page

For technical information, see page 109

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

2 Flute - Corner Radius - 45° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ZRN COATED	
$D_1^{+.000^*}$ $1_{-.002^*}$	D ₂ (h6)	$R^{+.001^*}$ $_{-.001^*}$	L ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE
5/16	5/16	.020	1/2	2	C774364	30.70	C771472	38.21
	5/16	.020	13/16	2-1/2	C774382	38.31	C751456	42.44
	5/16	.020	1-3/8	3	C774400	62.78	C751470	67.06
	5/16	.030	1/2	2	C775446	30.70	C775468	38.21
	5/16	.030	13/16	2-1/2	C775094	38.31	C775495	46.22
	5/16	.030	1-3/8	3	C775121	62.78	C775522	70.74
	5/16	.060	1/2	2	C775447	30.70	C775469	38.21
	5/16	.060	13/16	2-1/2	C775095	38.31	C775496	46.22
	5/16	.060	1-3/8	3	C775122	62.78	C775523	70.74
3/8	3/8	.015	5/8	2	C775448	32.44	C775470	41.24
	3/8	.015	1	2-1/2	C775096	40.00	C775497	49.40
	3/8	.015	1-1/2	4	C775123	74.18	C775524	84.33
	3/8	.020	5/8	2	C774365	32.44	C771473	37.06
	3/8	.020	1	2-1/2	C774383	40.00	C751457	44.92
	3/8	.020	1-1/2	4	C774401	74.18	C751471	79.60
	3/8	.030	5/8	2	C775449	32.44	C775471	41.24
	3/8	.030	1	2-1/2	C775097	40.00	C775498	49.40
	3/8	.030	1-1/2	4	C775124	74.18	C775525	84.33
	3/8	.060	5/8	2	C775450	32.44	C775472	41.24
	3/8	.060	1	2-1/2	C775098	40.00	C775499	49.40
	3/8	.060	1-1/2	4	C775125	74.18	C775526	84.33
1/2	1/2	.015	5/8	2-1/2	C775451	53.28	C775473	66.07
	1/2	.015	1-1/4	3	C775099	64.18	C775500	77.01
	1/2	.015	2	4	C775126	104.43	C775527	118.16
	1/2	.020	5/8	2-1/2	C775452	53.28	C775474	66.07
	1/2	.020	1-1/4	3	C775100	64.18	C775501	77.01
	1/2	.020	2	4	C775127	104.43	C775528	118.16
	1/2	.030	5/8	2-1/2	C775453	53.28	C775475	66.07
	1/2	.030	1-1/4	3	C775101	64.18	C775502	77.01
	1/2	.030	2	4	C775128	104.43	C775529	118.16
	1/2	.040	5/8	2-1/2	C774366	53.28	C771474	60.00
	1/2	.040	1-1/4	3	C774384	64.18	C751458	70.94
	1/2	.040	2	4	C774402	104.43	C751472	111.84
	1/2	.060	5/8	2-1/2	C775454	53.28	C775476	66.07
	1/2	.060	1-1/4	3	C775102	64.18	C775503	77.01
	1/2	.060	2	4	C775129	104.43	C775530	118.16
	1/2	.125	5/8	2-1/2	C775455	53.28	C775477	66.07
	1/2	.125	1-1/4	3	C775103	64.18	C775504	77.01
	1/2	.125	2	4	C775130	104.43	C775531	118.16

continued on next page

For technical information, see page 109

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

2 Flute - Corner Radius - 45° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ZRN COATED	
D1 ^{+0.000"} _{-0.003"}	D2 (h6)	R ^{+0.001"} _{-0.001"}	L2	L1	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	.015	3/4	3	C775456	111.39	C775478	126.27
	5/8	.015	1-5/8	3-1/2	C775104	127.16	C775505	143.08
	5/8	.015	2-3/8	5	C775131	223.18	C775532	240.29
	5/8	.040	3/4	3	C774367	111.39	C771475	126.27
	5/8	.040	1-5/8	3-1/2	C774385	127.16	C751459	135.72
	5/8	.040	2-3/8	5	C774403	223.18	C751473	240.29
	5/8	.060	3/4	3	C775457	111.39	C775479	126.27
	5/8	.060	1-5/8	3-1/2	C775105	127.16	C775506	143.08
	5/8	.060	2-3/8	5	C775132	223.18	C775533	240.29
3/4	3/4	.015	1	3	C775458	166.86	C775480	184.57
	3/4	.015	1-3/4	4	C775106	184.57	C775507	203.53
	3/4	.015	2-1/2	5	C775133	241.39	C775534	261.83
	3/4	.030	1	3	C775459	166.86	C775481	184.57
	3/4	.030	1-3/4	4	C775107	184.57	C775508	203.53
	3/4	.030	2-1/2	5	C775134	241.39	C775535	261.83
	3/4	.040	1	3	C774368	166.86	C771476	184.57
	3/4	.040	1-3/4	4	C774386	184.57	C751460	194.92
	3/4	.040	2-1/2	5	C774404	241.39	C751474	261.83
	3/4	.060	1	3	C775541	166.86	C775482	184.57
	3/4	.060	1-3/4	4	C775108	184.57	C775509	203.53
	3/4	.060	2-1/2	5	C775135	241.39	C775536	261.83
	3/4	.125	1	3	C775542	166.86	C775483	184.57
	3/4	.125	1-3/4	4	C775109	184.57	C775510	203.53
	3/4	.125	2-1/2	5	C775136	241.39	C775537	261.83
1	1	.030	1-1/4	3-1/2	C775543	280.14	C775484	307.55
	1	.030	1-3/4	4	C775110	305.66	C775511	333.08
	1	.030	2-1/4	5	C775137	379.64	C775538	409.19
	1	.040	1-1/4	3-1/2	C774369	280.14	C771477	307.55
	1	.040	1-3/4	4	C774387	305.66	C751461	333.08
	1	.040	2-1/4	5	C774405	379.64	C751475	409.19
	1	.060	1-1/4	3-1/2	C775544	280.14	C775485	307.55
	1	.060	1-3/4	4	C775111	305.66	C775512	333.08
	1	.060	2-1/4	5	C775138	379.64	C775539	409.19
	1	.125	1-1/4	3-1/2	C775545	280.14	C775486	307.55
	1	.125	1-3/4	4	C775112	305.66	C775513	333.08
	1	.125	2-1/4	5	C775139	379.64	C775540	409.19

END MILLS

Roughers

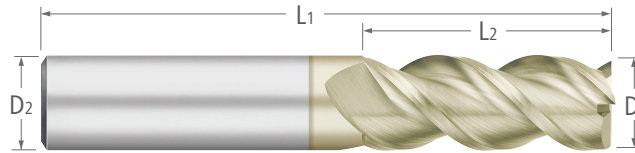
For Aluminum

Carbide

Cobalt

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

3 Flute - Square - 45° Helix



- Designed for high speed slotting and profiling in aluminum and non-ferrous materials
- Additional flute has 50% more cutting performance than certain 2 flute applications
- Offered in stub, regular, and long length styles
- 45° helix for faster chip removal and a better finish
- Center cutting
- ZrN coating offers increased speed rates and prolonged tool life
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ZRN COATED	
				TOOL #	PRICE	TOOL #	PRICE
$D1^{+0.000}_{-0.002}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C774406	9.50	C771478	11.84
	1/8	1/2	1-1/2	C774424	14.18	C763752	16.52
	1/8	3/4	2-1/4	C774442	25.42	C763760	28.01
3/16	3/16	3/8	2	C774407	14.97	C771479	17.61
	3/16	5/8	2	C774425	20.25	C763753	22.93
	3/16	3/4	2-1/2	C774443	29.30	C763761	32.24
1/4	1/4	1/2	2	C774408	21.94	C771480	25.17
	1/4	3/4	2-1/2	C774426	28.56	C750556	32.04
	1/4	1-1/4	3	C774444	40.45	C750570	43.93
5/16	5/16	1/2	2	C774409	26.72	C771481	30.60
	5/16	13/16	2-1/2	C774427	33.83	C750557	38.01
	5/16	1-3/8	3	C774445	55.52	C750571	59.80
3/8	3/8	5/8	2	C774410	28.86	C771482	33.38
	3/8	1	2-1/2	C774428	35.37	C750558	40.25
	3/8	1-1/2	4	C774446	66.22	C750572	71.64
1/2	1/2	5/8	2-1/2	C774411	49.65	C771483	56.27
	1/2	1-1/4	3	C774429	56.81	C750559	63.58
	1/2	2	4	C774447	93.33	C750573	100.64
$D1^{+0.000}_{-0.003}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	3/4	3	C774412	105.92	C771484	113.88
	5/8	1-5/8	3-1/2	C774430	119.15	C750560	127.71
	5/8	2-3/8	5	C774448	208.45	C750574	218.00
3/4	3/4	1	3	C774413	161.29	C771485	170.94
	3/4	1-3/4	4	C774431	173.08	C750561	183.38
	3/4	2-1/2	5	C774449	225.47	C750575	236.76
1	1	1-1/4	3-1/2	C774414	272.98	C771486	300.44
	1	1-3/4	4	C774432	286.81	C750562	301.88
	1	2-1/4	5	C774450	354.47	C750576	371.04

For technical information, see page 109

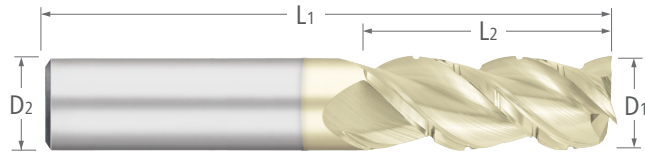
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

3 Flute - Square - 45° Helix - Chipbreaker

NEW!



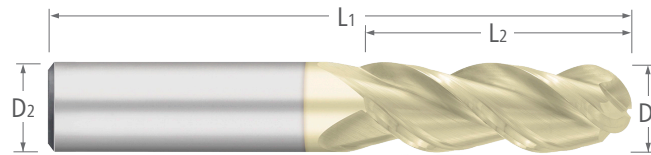
- Designed for roughing, high speed slotting, profiling, and certain finishing applications in aluminum and non-ferrous materials
- Chipbreaker geometry for optimal chip evacuation, reduced harmonics, and minimized tool pressure
- Additional flute has 50% more cutting performance than certain 2 flute applications
- Offered in stub, regular, and long length styles
- 45° helix for faster chip removal and a better finish
- Center cutting
- ZrN coating offers increased speed rates and prolonged tool life
- Solid carbide
- Precision manufactured in the USA

	CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ZRN COATED	
	D1 ^{+0.000"} _{-0.002"}	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
NEW	1/8	1/8	1/2	1-1/2	C775931	16.67	C775956	21.24
NEW		1/8	3/4	2-1/4	C775940	27.91	C775965	32.84
NEW	3/16	3/16	5/8	2	C775932	23.23	C775957	28.41
NEW		3/16	3/4	2-1/2	C775941	32.29	C775966	37.81
NEW	1/4	1/4	1/2	2	C775924	25.12	C775949	31.34
NEW		1/4	3/4	2-1/2	C775933	31.74	C775958	38.36
NEW		1/4	1-1/4	3	C775942	43.63	C775967	50.25
NEW	5/16	5/16	1/2	2	C775925	30.00	C775950	37.46
NEW		5/16	13/16	2-1/2	C775934	37.11	C775959	45.07
NEW		5/16	1-3/8	3	C775943	58.80	C775968	66.76
NEW	3/8	3/8	5/8	2	C775926	32.84	C775951	41.64
NEW		3/8	1	2-1/2	C775935	39.35	C775960	48.76
NEW		3/8	1-1/2	4	C775944	70.20	C775969	80.35
NEW	1/2	1/2	5/8	2-1/2	C775927	53.83	C775952	66.62
NEW		1/2	1-1/4	3	C775936	60.99	C775961	73.78
NEW		1/2	2	4	C775945	98.31	C775970	112.04
	D1 ^{+0.000"} _{-0.003"}	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
NEW	5/8	5/8	3/4	3	C775928	110.89	C775953	125.77
NEW		5/8	1-5/8	3-1/2	C775937	124.13	C775962	140.05
NEW		5/8	2-3/8	5	C775946	213.93	C775971	231.04
NEW	3/4	3/4	1	3	C775929	167.26	C775954	184.97
NEW		3/4	1-3/4	4	C775938	179.05	C775963	198.01
NEW		3/4	2-1/2	5	C775947	231.93	C775972	252.38
NEW	1	1	1-1/4	3-1/2	C775930	280.94	C775955	308.35
NEW		1	1-3/4	4	C775939	294.77	C775964	322.18
NEW		1	2-1/4	5	C775948	362.93	C775973	392.43

END MILLS
Roughers
For Aluminum
Carbide
Cobalt

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

3 Flute - Ball - 45° Helix



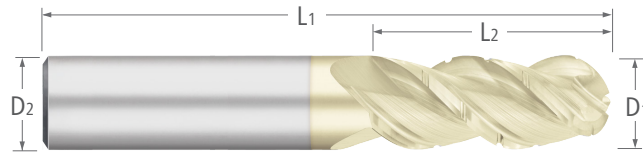
- Designed for high speed slotting and profiling in aluminum and non-ferrous materials
- Additional flute has 50% more cutting performance than certain 2 flute applications
- Offered in stub and regular length styles
- 45° helix for faster chip removal and a better finish
- Center cutting
- ZrN coating offers increased speed rates and prolonged tool life
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. $D1_{-0.002}^{+0.001}$	SHANK DIA. $D2 (h6)$	LOC $L2$	OAL $L1$	UNCOATED		ZRN COATED	
				TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/2	1-1/2	C774715	17.31	C774733	21.89
	1/8	3/4	2-1/4	C774724	30.94	C774742	35.82
3/16	3/16	5/8	2	C774716	24.23	C774734	29.40
	3/16	3/4	2-1/2	C774725	35.72	C774743	41.29
1/4	1/4	3/4	2-1/2	C774717	32.24	C774735	38.85
	1/4	1-1/4	3	C774726	45.77	C774744	52.39
5/16	5/16	13/16	2-1/2	C774718	38.31	C774736	46.22
	5/16	1-3/8	3	C774727	62.78	C774745	70.74
3/8	3/8	1	2-1/2	C774719	40.00	C774737	49.40
	3/8	1-1/2	4	C774728	74.18	C774746	84.33
1/2	1/2	1-1/4	3	C774720	64.18	C774738	77.01
	1/2	2	4	C774729	104.43	C774747	118.16
$D1_{-0.003}^{+0.001}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	1-5/8	3-1/2	C774721	127.16	C774739	143.08
	5/8	2-3/8	5	C774730	223.18	C774748	240.29
3/4	3/4	1-3/4	4	C774722	184.57	C774740	203.53
	3/4	2-1/2	5	C774731	241.39	C774749	261.83
1	1	1-3/4	4	C774723	305.66	C774741	333.08
	1	2-1/4	5	C774732	379.64	C774750	409.19

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

3 Flute - Ball - 45° Helix - Chipbreaker

NEW!



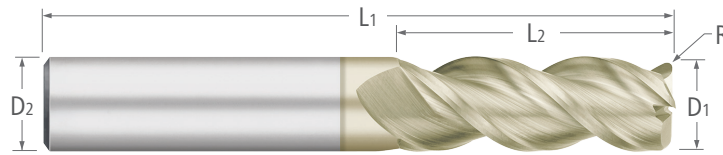
- Designed for roughing, high speed slotting, profiling, and certain finishing applications in aluminum and non-ferrous materials
- Additional flute has 50% more cutting performance than certain 2 flute applications
- Chipbreaker geometry for optimal chip evacuation, reduced harmonics, and minimized tool pressure
- Offered in stub and regular styles
- 45° helix for faster chip removal and a better finish
- Center cutting
- ZrN coating offers increased speed rates and prolonged tool life
- Solid carbide
- Precision manufactured in the USA

	CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ZRN COATED	
	D1 ^{+0.000} _{-0.002} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
NEW	1/8	1/8	1/2	1-1/2	C776176	19.80	C776194	24.38
NEW		1/8	3/4	2-1/4	C776185	33.43	C776203	38.36
NEW	3/16	3/16	5/8	2	C776177	27.21	C776195	32.39
NEW		3/16	3/4	2-1/2	C776186	38.71	C776204	44.23
NEW	1/4	1/4	3/4	2-1/2	C776178	35.42	C776196	42.04
NEW		1/4	1-1/4	3	C776187	48.95	C776205	55.57
NEW	5/16	5/16	13/16	2-1/2	C776179	41.59	C776197	49.55
NEW		5/16	1-3/8	3	C776188	66.07	C776206	74.03
NEW	3/8	3/8	1	2-1/2	C776180	43.98	C776198	53.38
NEW		3/8	1-1/2	4	C776189	78.16	C776207	88.31
NEW	1/2	1/2	1-1/4	3	C776181	68.36	C776199	81.14
NEW		1/2	2	4	C776190	109.40	C776208	123.13
	D1 ^{+0.000} _{-0.003} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
NEW	5/8	5/8	1-5/8	3-1/2	C776182	132.14	C776200	148.06
NEW		5/8	2-3/8	5	C776191	228.65	C776209	245.77
NEW	3/4	3/4	1-3/4	4	C776183	190.54	C776201	209.50
NEW		3/4	2-1/2	5	C776192	247.85	C776210	268.30
NEW	1	1	1-3/4	4	C776184	313.62	C776202	341.04
NEW		1	2-1/4	5	C776193	388.10	C776211	417.60

END MILLS
Roughers
For Aluminum
Carbide
Cobalt

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

3 Flute - Corner Radius - 45° Helix



- Designed for high speed slotting and profiling in aluminum and non-ferrous materials
- Additional flute has 50% more cutting performance than certain 2 flute applications
- Offered in stub, regular, and long length styles
- Corner radius for increased edge strength
- 45° helix for faster chip removal and a better finish
- Center cutting
- ZrN coating offers increased speed rates and prolonged tool life
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ZRN COATED	
					TOOL #	PRICE	TOOL #	PRICE
$D1_{-0.002}^{+0.001}$	$D2_{(h6)}$	$R_{-0.001}^{+0.001}$	$L2$	$L1$				
1/8	1/8	.010	1/4	1-1/2	C774415	12.24	C771487	14.58
	1/8	.010	1/2	1-1/2	C774433	17.31	C763756	19.70
	1/8	.010	3/4	2-1/4	C774451	30.94	C763764	33.53
	1/8	.015	1/4	1-1/2	C775546	12.24	C775573	16.82
	1/8	.015	1/2	1-1/2	C775140	17.31	C775600	21.89
	1/8	.015	3/4	2-1/4	C775167	30.94	C775627	35.82
	1/8	.020	1/4	1-1/2	C775547	12.24	C775574	16.82
	1/8	.020	1/2	1-1/2	C775141	17.31	C775601	21.89
	1/8	.020	3/4	2-1/4	C775168	30.94	C775628	35.82
	1/8	.030	1/4	1-1/2	C775548	12.24	C775575	16.82
	1/8	.030	1/2	1-1/2	C775142	17.31	C775602	21.89
1/8	.030	3/4	2-1/4	C775169	30.94	C775629	35.82	
3/16	3/16	.010	3/8	2	C774416	18.46	C771488	21.09
	3/16	.010	5/8	2	C774434	24.23	C763757	26.96
	3/16	.010	3/4	2-1/2	C774452	35.72	C763765	38.71
	3/16	.020	3/8	2	C775549	18.46	C775576	23.63
	3/16	.020	5/8	2	C775143	24.23	C775603	29.40
	3/16	.020	3/4	2-1/2	C775170	35.72	C775630	41.29
	3/16	.030	3/8	2	C775550	18.46	C775577	23.63
	3/16	.030	5/8	2	C775144	24.23	C775604	29.40
	3/16	.030	3/4	2-1/2	C775171	35.72	C775631	41.29
1/4	1/4	.015	1/2	2	C775551	26.37	C775578	32.59
	1/4	.015	3/4	2-1/2	C775145	32.24	C775605	38.85
	1/4	.015	1-1/4	3	C775172	45.77	C775632	52.39
	1/4	.020	1/2	2	C774417	26.37	C771489	29.65
	1/4	.020	3/4	2-1/2	C774435	32.24	C751483	35.72
	1/4	.020	1-1/4	3	C774453	45.77	C751497	49.30
	1/4	.030	1/2	2	C775552	26.37	C775579	32.59
	1/4	.030	3/4	2-1/2	C775146	32.24	C775606	38.85
	1/4	.030	1-1/4	3	C775173	45.77	C775633	52.39
	1/4	.060	1/2	2	C775553	26.37	C775580	32.59
	1/4	.060	3/4	2-1/2	C775147	32.24	C775607	38.85
	1/4	.060	1-1/4	3	C775174	45.77	C775634	52.39

continued on next page

For technical information, see page 109

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

3 Flute - Corner Radius - 45° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ZRN COATED	
D1 ^{+0.000"} _{-0.002"}	D2 (h6)	R ^{+0.001"} _{-0.001"}	L2	L1	TOOL #	PRICE	TOOL #	PRICE
5/16	5/16	.020	1/2	2	C774418	30.89	C771490	34.73
	5/16	.020	13/16	2-1/2	C774436	38.31	C751484	42.44
	5/16	.020	1-3/8	3	C774454	62.78	C751498	67.06
	5/16	.030	1/2	2	C775554	30.89	C775581	38.36
	5/16	.030	13/16	2-1/2	C775148	38.31	C775608	46.22
	5/16	.030	1-3/8	3	C775175	62.78	C775635	70.74
	5/16	.060	1/2	2	C775555	30.89	C775582	38.36
	5/16	.060	13/16	2-1/2	C775149	38.31	C775609	46.22
	5/16	.060	1-3/8	3	C775176	62.78	C775636	70.74
3/8	3/8	.015	5/8	2	C775556	32.64	C775583	41.49
	3/8	.015	1	2-1/2	C775150	40.00	C775610	49.40
	3/8	.015	1-1/2	4	C775177	74.18	C775637	84.33
	3/8	.020	5/8	2	C774419	32.64	C771491	37.21
	3/8	.020	1	2-1/2	C774437	40.00	C751485	44.92
	3/8	.020	1-1/2	4	C774455	74.18	C751499	79.60
	3/8	.030	5/8	2	C775557	32.64	C775584	41.49
	3/8	.030	1	2-1/2	C775151	40.00	C775611	49.40
	3/8	.030	1-1/2	4	C775178	74.18	C775638	84.33
	3/8	.060	5/8	2	C775558	32.64	C775585	41.49
	3/8	.060	1	2-1/2	C775152	40.00	C775612	49.40
	3/8	.060	1-1/2	4	C775179	74.18	C775639	84.33
1/2	1/2	.015	5/8	2-1/2	C775559	53.28	C775586	66.07
	1/2	.015	1-1/4	3	C775153	64.18	C775613	77.01
	1/2	.015	2	4	C775180	104.43	C775640	118.16
	1/2	.020	5/8	2-1/2	C775560	53.28	C775587	66.07
	1/2	.020	1-1/4	3	C775154	64.18	C775614	77.01
	1/2	.020	2	4	C775181	104.43	C775641	118.16
	1/2	.030	5/8	2-1/2	C775561	53.28	C775588	66.07
	1/2	.030	1-1/4	3	C775155	64.18	C775615	77.01
	1/2	.030	2	4	C775182	104.43	C775642	118.16
	1/2	.040	5/8	2-1/2	C774420	53.28	C771492	60.00
	1/2	.040	1-1/4	3	C774438	64.18	C751486	70.94
	1/2	.040	2	4	C774456	104.43	C751500	111.84
	1/2	.060	5/8	2-1/2	C775562	53.28	C775589	66.07
	1/2	.060	1-1/4	3	C775156	64.18	C775616	77.01
	1/2	.060	2	4	C775183	104.43	C775643	118.16
	1/2	.125	5/8	2-1/2	C775563	53.28	C775590	66.07
	1/2	.125	1-1/4	3	C775157	64.18	C775617	77.01
	1/2	.125	2	4	C775184	104.43	C775644	118.16

continued on next page

END MILLS

Roughers

For Aluminum

Carbide

Cobalt

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

3 Flute - Corner Radius - 45° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ZRN COATED	
D1 ^{+0.000"} _{-0.003"}	D2 (h6)	R ^{+0.001"} _{-0.001"}	L2	L1	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	.015	3/4	3	C775564	111.39	C775591	126.27
	5/8	.015	1-5/8	3-1/2	C775158	127.76	C775618	143.73
	5/8	.015	2-3/8	5	C775185	223.18	C775645	240.29
	5/8	.040	3/4	3	C774421	111.39	C771493	126.27
	5/8	.040	1-5/8	3-1/2	C774439	127.76	C751487	136.36
	5/8	.040	2-3/8	5	C774457	223.18	C751501	232.83
	5/8	.060	3/4	3	C775565	111.39	C775592	126.27
	5/8	.060	1-5/8	3-1/2	C775159	127.76	C775619	143.73
	5/8	.060	2-3/8	5	C775186	223.18	C775646	240.29
3/4	3/4	.015	1	3	C775566	166.86	C775593	184.57
	3/4	.015	1-3/4	4	C775160	184.57	C775620	203.53
	3/4	.015	2-1/2	5	C775187	241.39	C775647	261.83
	3/4	.030	1	3	C775567	166.86	C775594	184.57
	3/4	.030	1-3/4	4	C775161	184.57	C775621	203.53
	3/4	.030	2-1/2	5	C775188	241.39	C775648	261.83
	3/4	.040	1	3	C774422	166.86	C771494	184.57
	3/4	.040	1-3/4	4	C774440	184.57	C751488	194.92
	3/4	.040	2-1/2	5	C774458	241.39	C751502	252.83
	3/4	.060	1	3	C775568	166.86	C775595	184.57
	3/4	.060	1-3/4	4	C775162	184.57	C775622	203.53
	3/4	.060	2-1/2	5	C775189	241.39	C775649	261.83
	3/4	.125	1	3	C775569	166.86	C775596	184.57
	3/4	.125	1-3/4	4	C775163	184.57	C775623	203.53
	3/4	.125	2-1/2	5	C775190	241.39	C775650	261.83
1	1	.030	1-1/4	3-1/2	C775570	280.14	C775597	307.55
	1	.030	1-3/4	4	C775164	305.66	C775624	333.08
	1	.030	2-1/4	5	C775191	379.64	C775651	409.19
	1	.040	1-1/4	3-1/2	C774423	280.14	C771495	307.55
	1	.040	1-3/4	4	C774441	305.66	C751489	333.08
	1	.040	2-1/4	5	C774459	379.64	C751503	409.19
	1	.060	1-1/4	3-1/2	C775571	280.14	C775598	307.55
	1	.060	1-3/4	4	C775165	305.66	C775625	327.60
	1	.060	2-1/4	5	C775192	379.64	C775652	409.19
	1	.125	1-1/4	3-1/2	C775572	280.14	C775599	307.55
	1	.125	1-3/4	4	C775166	305.66	C775626	333.08
	1	.125	2-1/4	5	C775193	379.64	C775653	409.19

For technical information, see page 109

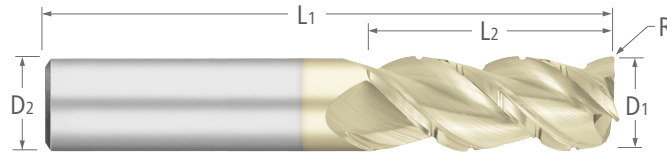
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

3 Flute - Corner Radius - 45° Helix - Chipbreaker

NEW!



- Designed for roughing, high speed slotting, profiling, and certain finishing applications in aluminum and non-ferrous materials
- Chipbreaker geometry for optimal chip evacuation, reduced harmonics, and minimized tool pressure
- Additional flute has 50% more cutting performance than certain 2 flute applications
- Offered in stub, regular, and long length styles
- Corner radius for increased edge strength
- 45° helix for faster chip removal and a better finish
- ZrN coating offers increased speed rates and prolonged tool life
- Solid carbide
- Precision manufactured in the USA

	CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ZRN COATED	
	D1 ^{+0.000"} _{-0.002"}	D2 (h6)	R ^{+0.001"} _{-0.001"}	L2	L1	TOOL #	PRICE	TOOL #	PRICE
NEW	1/8	1/8	.010	1/2	1-1/2	C776003	19.80	C776104	24.38
NEW		1/8	.010	3/4	2-1/4	C776039	33.43	C776140	38.36
NEW		1/8	.015	1/2	1-1/2	C776004	19.80	C776105	24.38
NEW		1/8	.015	3/4	2-1/4	C776040	33.43	C776141	38.36
NEW		1/8	.020	1/2	1-1/2	C776005	19.80	C776106	24.38
NEW		1/8	.020	3/4	2-1/4	C776041	33.43	C776142	38.36
NEW		1/8	.030	1/2	1-1/2	C776006	19.80	C776107	24.38
NEW		1/8	.030	3/4	2-1/4	C776042	33.43	C776143	38.36
NEW	3/16	3/16	.010	5/8	2	C776007	27.21	C776108	32.39
NEW		3/16	.010	3/4	2-1/2	C776043	38.71	C776144	44.23
NEW		3/16	.020	5/8	2	C776008	27.21	C776109	32.39
NEW		3/16	.020	3/4	2-1/2	C776044	38.71	C776145	44.23
NEW		3/16	.030	5/8	2	C776009	27.21	C776110	32.39
NEW		3/16	.030	3/4	2-1/2	C776045	38.71	C776146	44.23
NEW	1/4	1/4	.015	1/2	2	C775974	29.55	C776075	35.77
NEW		1/4	.015	3/4	2-1/2	C776010	35.42	C776111	42.04
NEW		1/4	.015	1-1/4	3	C776046	48.95	C776147	55.57
NEW		1/4	.020	1/2	2	C775975	29.55	C776076	35.77
NEW		1/4	.020	3/4	2-1/2	C776011	35.42	C776112	42.04
NEW		1/4	.020	1-1/4	3	C776047	48.95	C776148	55.57
NEW		1/4	.030	1/2	2	C775976	29.55	C776077	35.77
NEW		1/4	.030	3/4	2-1/2	C776012	35.42	C776113	42.04
NEW		1/4	.030	1-1/4	3	C776048	48.95	C776149	55.57
NEW		1/4	.060	1/2	2	C775977	29.55	C776078	35.77
NEW		1/4	.060	3/4	2-1/2	C776013	35.42	C776114	42.04
NEW		1/4	.060	1-1/4	3	C776049	48.95	C776150	55.57

continued on next page

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM
3 Flute - Corner Radius - 45° Helix - Chipbreaker (Cont.)
NEW!

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ZRN COATED		
$D1_{-0.002}^{+0.000}$	$D2 (h6)$	$R_{-0.001}^{+0.001}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE	
5/16	5/16	.020	1/2	2	C775978	34.18	C776079	41.64	NEW
	5/16	.020	13/16	2-1/2	C776014	41.59	C776115	49.55	NEW
	5/16	.020	1-3/8	3	C776050	66.07	C776151	74.03	NEW
	5/16	.030	1/2	2	C775979	34.18	C776080	41.64	NEW
	5/16	.030	13/16	2-1/2	C776015	41.59	C776116	49.55	NEW
	5/16	.030	1-3/8	3	C776051	66.07	C776152	74.03	NEW
	5/16	.060	1/2	2	C775980	34.18	C776081	41.64	NEW
	5/16	.060	13/16	2-1/2	C776016	41.59	C776117	49.55	NEW
	5/16	.060	1-3/8	3	C776052	66.07	C776153	74.03	NEW
3/8	3/8	.015	5/8	2	C775981	36.62	C776082	45.42	NEW
	3/8	.015	1	2-1/2	C776017	43.98	C776118	53.38	NEW
	3/8	.015	1-1/2	4	C776053	78.16	C776154	88.31	NEW
	3/8	.020	5/8	2	C775982	36.62	C776083	45.42	NEW
	3/8	.020	1	2-1/2	C776018	43.98	C776119	53.38	NEW
	3/8	.020	1-1/2	4	C776054	78.16	C776155	88.31	NEW
	3/8	.030	5/8	2	C775983	36.62	C776084	45.42	NEW
	3/8	.030	1	2-1/2	C776019	43.98	C776120	53.38	NEW
	3/8	.030	1-1/2	4	C776055	78.16	C776156	88.31	NEW
	3/8	.060	5/8	2	C775984	36.62	C776085	45.42	NEW
	3/8	.060	1	2-1/2	C776020	43.98	C776121	53.38	NEW
	3/8	.060	1-1/2	4	C776056	78.16	C776157	88.31	NEW
1/2	1/2	.015	5/8	2-1/2	C775985	57.46	C776086	70.25	NEW
	1/2	.015	1-1/4	3	C776021	68.36	C776122	81.14	NEW
	1/2	.015	2	4	C776057	109.40	C776158	123.13	NEW
	1/2	.020	5/8	2-1/2	C775986	57.46	C776087	70.25	NEW
	1/2	.020	1-1/4	3	C776022	68.36	C776123	81.14	NEW
	1/2	.020	2	4	C776058	109.40	C776159	123.13	NEW
	1/2	.030	5/8	2-1/2	C775987	57.46	C776088	70.25	NEW
	1/2	.030	1-1/4	3	C776023	68.36	C776124	81.14	NEW
	1/2	.030	2	4	C776059	109.40	C776160	123.13	NEW
	1/2	.040	5/8	2-1/2	C775988	57.46	C776089	70.25	NEW
	1/2	.040	1-1/4	3	C776024	68.36	C776125	81.14	NEW
	1/2	.040	2	4	C776060	109.40	C776161	123.13	NEW
	1/2	.060	5/8	2-1/2	C775989	57.46	C776090	70.25	NEW
	1/2	.060	1-1/4	3	C776025	68.36	C776126	81.14	NEW
	1/2	.060	2	4	C776061	109.40	C776162	123.13	NEW
	1/2	.125	5/8	2-1/2	C775990	57.46	C776091	70.25	NEW
	1/2	.125	1-1/4	3	C776026	68.36	C776127	81.14	NEW
	1/2	.125	2	4	C776062	109.40	C776163	123.13	NEW

continued on next page

NEW!

GENERAL PURPOSE END MILLS - CARBIDE - FOR ALUMINUM

3 Flute - Corner Radius - 45° Helix - Chipbreaker (Cont.)

continued from previous page

	CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ZRN COATED		
	D1 ^{+0.000"} _{-0.003"}	D2 (h6)	R ^{+0.001"} _{-0.001"}	L2	L1	TOOL #	PRICE	TOOL #	PRICE	
NEW	5/8	5/8	.015	3/4	3	C775991	116.37	C776092	131.24	
NEW		5/8	.015	1-5/8	3-1/2	C776027	132.73	C776128	148.65	
NEW		5/8	.015	2-3/8	5	C776063	228.65	C776164	245.77	
NEW		5/8	.040	3/4	3	C775992	116.37	C776093	131.24	
NEW		5/8	.040	1-5/8	3-1/2	C776028	132.73	C776129	148.65	
NEW		5/8	.040	2-3/8	5	C776064	228.65	C776165	245.77	
NEW		5/8	.060	3/4	3	C775993	116.37	C776094	131.24	
NEW		5/8	.060	1-5/8	3-1/2	C776029	132.73	C776130	148.65	
NEW		5/8	.060	2-3/8	5	C776065	228.65	C776166	245.77	
NEW		3/4	3/4	.015	1	3	C775994	172.83	C776095	190.54
NEW	3/4		.015	1-3/4	4	C776030	190.54	C776131	209.50	
NEW	3/4		.015	2-1/2	5	C776066	247.85	C776167	268.30	
NEW	3/4		.030	1	3	C775995	172.83	C776096	190.54	
NEW	3/4		.030	1-3/4	4	C776031	190.54	C776132	209.50	
NEW	3/4		.030	2-1/2	5	C776067	247.85	C776168	268.30	
NEW	3/4		.040	1	3	C775996	172.83	C776097	190.54	
NEW	3/4		.040	1-3/4	4	C776032	190.54	C776133	209.50	
NEW	3/4		.040	2-1/2	5	C776068	247.85	C776169	268.30	
NEW	3/4		.060	1	3	C775997	172.83	C776098	190.54	
NEW	3/4		.060	1-3/4	4	C776033	190.54	C776134	209.50	
NEW	3/4		.060	2-1/2	5	C776069	247.85	C776170	268.30	
NEW	3/4		.125	1	3	C775998	172.83	C776099	190.54	
NEW	3/4		.125	1-3/4	4	C776034	190.54	C776135	209.50	
NEW	3/4		.125	2-1/2	5	C776070	247.85	C776171	268.30	
NEW	1		1	.030	1-1/4	3-1/2	C775999	288.10	C776100	315.51
NEW			1	.030	1-3/4	4	C776035	313.62	C776136	341.04
NEW			1	.030	2-1/4	5	C776071	388.10	C776172	417.60
NEW		1	.040	1-1/4	3-1/2	C776000	288.10	C776101	315.51	
NEW		1	.040	1-3/4	4	C776036	313.62	C776137	341.04	
NEW		1	.040	2-1/4	5	C776072	388.10	C776173	417.60	
NEW		1	.060	1-1/4	3-1/2	C776001	288.10	C776102	315.51	
NEW		1	.060	1-3/4	4	C776037	313.62	C776138	341.04	
NEW		1	.060	2-1/4	5	C776073	388.10	C776174	417.60	
NEW		1	.125	1-1/4	3-1/2	C776002	288.10	C776103	315.51	
NEW		1	.125	1-3/4	4	C776038	313.62	C776139	341.04	
NEW		1	.125	2-1/4	5	C776074	388.10	C776175	417.60	

END MILLS

Roughers

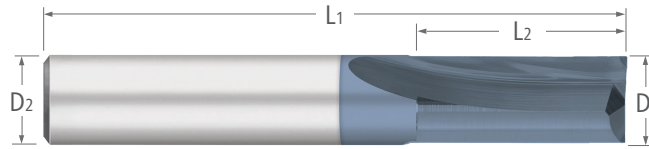
For Aluminum

Carbide

Cobalt

GENERAL PURPOSE END MILLS - CARBIDE

2 Flute - Square - Straight Flute

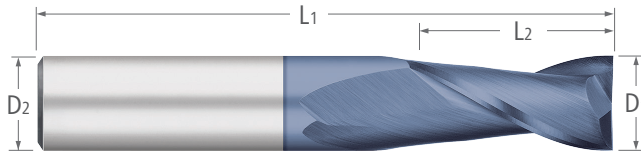


- Straight flute design for cutting high Rc materials
- Offered in regular length styles
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. $D_1^{+0.000^{\circ}}_{-0.002^{\circ}}$	SHANK DIA. $D_2 (h6)$	LOC L_2	OAL L_1	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/2	1-1/2	C774527	8.96	C774537	13.13
3/16	3/16	5/8	2	C774528	12.29	C774538	16.96
1/4	1/4	3/4	2-1/2	C774529	15.07	C774539	21.09
5/16	5/16	13/16	2-1/2	C774530	19.70	C774540	26.91
3/8	3/8	1	2-1/2	C774531	23.38	C774541	31.99
7/16	7/16	1	2-3/4	C774532	35.92	C774542	45.92
1/2	1/2	1-1/4	3	C774533	43.38	C774543	55.02
$D_1^{+0.000^{\circ}}_{-0.003^{\circ}}$	$D_2 (h6)$	L_2	L_1	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	1-1/4	3-1/2	C774534	82.88	C774544	97.36
3/4	3/4	1-1/2	4	C774535	115.92	C774545	133.18
1	1	1-1/2	4	C774536	195.12	C774546	220.04

GENERAL PURPOSE END MILLS - CARBIDE

2 Flute - Square - 30° Helix



- Offered in stub, regular, long, and extra long length styles
- TiCN coating adds enhanced performance when AlTiN cannot be used
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TICN COATED		ALTiN COATED	
D1 ^{+0.000} / _{-0.001} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/64	1/8	.023	1-1/2	C760150	15.32	C771563	18.66	C760152	19.25
	1/8	1/32	1-1/2	C735236	16.12	C742314	20.55	C747765	20.55
1/32	1/8	1/16	1-1/2	C747805	9.40	C771564	12.34	C747867	12.34
	1/8	1/8	1-1/2	C735031	10.75	C742317	14.13	C747767	14.68
3/64	1/8	3/32	1-1/2	C747811	9.40	C771565	12.74	C747873	12.09
	1/8	1/8	1-1/2	C747787	9.20	C742274	12.54	C747747	12.54
1/16	1/8	1/8	1-1/2	C747803	7.11	C771566	10.40	C747865	9.30
	1/8	1/4	1-1/2	C735033	9.25	C742320	10.65	C747769	10.65
5/64	1/8	1/8	1-1/2	C760151	11.94	C771567	15.32	C760153	15.02
	1/8	1/4	1-1/2	C735179	9.55	C742264	12.89	C747742	12.94
3/32	1/8	3/16	1-1/2	C747809	7.11	C771568	10.40	C747871	9.30
	1/8	3/8	1-1/2	C735035	8.41	C742277	10.65	C747749	10.65
7/64	1/8	3/8	1-1/2	C735181	8.76	C742256	11.84	C747738	11.84

D1 ^{+0.000} / _{-0.002} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C747807	6.82	C771569	8.86	C747869	8.86
	1/8	1/2	1-1/2	C735037	8.01	C742312	9.90	C747764	9.90
	1/8	3/4	2-1/4	C747394	12.98	C740004	16.57	C747377	16.82
	1/8	1	3	C747285	14.53	C739934	18.61	C747271	18.95
9/64	3/16	9/16	2	C735183	11.69	C742248	15.47	C747734	16.02
5/32	3/16	5/16	2	C747814	11.19	C771570	14.93	C747876	13.98
	3/16	9/16	2	C735108	11.84	C742266	13.78	C747743	13.78
11/64	3/16	5/8	2	C735185	11.29	C742307	15.02	C747762	15.32
3/16	3/16	3/8	2	C747808	10.50	C771571	13.18	C747870	12.94
	3/16	5/8	2	C735039	10.99	C742279	13.78	C747750	13.78
	3/16	3/4	2-1/2	C747393	16.32	C740003	19.70	C747376	19.70
	3/16	1-1/8	3	C747284	15.77	C739933	19.80	C747270	20.35
13/64	1/4	5/8	2-1/2	C735187	15.97	C742302	20.35	C747760	21.09
7/32	1/4	7/16	2	C747817	14.13	C771572	18.61	C747879	17.01
	1/4	5/8	2-1/2	C735111	16.27	C742258	19.10	C747739	19.10
15/64	1/4	3/4	2-1/2	C735170	18.46	C742297	23.23	C747758	23.93
1/4	1/4	1/2	2	C747806	12.39	C771573	15.52	C747868	15.52
	1/4	3/4	2-1/2	C735041	13.48	C742315	18.31	C747766	19.10
	1/4	1	4	C747395	22.89	C740006	28.11	C747379	29.30
	1/4	1-1/8	3	C735193	21.74	C740005	26.72	C747378	27.76
	1/4	1-1/2	4	C747286	23.68	C739935	28.90	C747272	30.10
	1/4	1-1/2	6	C747287	30.20	C739936	36.82	C747273	37.66

continued on next page

For technical information, see page 108

GENERAL PURPOSE END MILLS - CARBIDE

2 Flute - Square - 30° Helix (Cont.)

continued from previous page

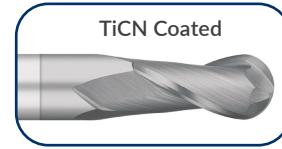
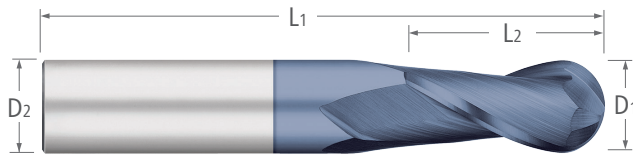
CUTTER DIA. D1 ^{+0.00"} -0.002"	SHANK DIA. D2 (h6)	LOC L2	OAL L1	UNCOATED		TICN COATED		ALTIN COATED	
				TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
17/64	5/16	3/4	2-1/2	C747794	24.28	C742294	30.05	C747757	31.49
9/32	5/16	3/4	2-1/2	C735113	24.28	C742250	30.05	C747735	31.49
19/64	5/16	13/16	2-1/2	C735220	24.28	C742291	30.05	C747756	31.49
5/16	5/16	1/2	2	C747813	16.72	C771574	21.99	C747875	21.99
	5/16	13/16	2-1/2	C735043	17.61	C742268	22.84	C747744	22.84
	5/16	1-1/8	3	C735195	24.68	C739999	30.40	C747372	31.89
	5/16	1-5/8	4	C747280	30.30	C739929	37.26	C747266	38.01
21/64	3/8	1	2-1/2	C747792	27.36	C742289	34.23	C747755	35.37
11/32	3/8	1	2-1/2	C747800	27.36	C742309	34.23	C747763	35.37
23/64	3/8	1	2-1/2	C747791	27.36	C742287	34.23	C747754	35.37
3/8	3/8	5/8	2	C747812	21.74	C771575	27.01	C747874	27.01
	3/8	1	2-1/2	C735045	20.90	C742272	26.12	C747746	26.12
	3/8	1	4	C747391	33.03	C740001	40.40	C747374	42.19
	3/8	1-1/8	3	C735061	28.26	C740000	36.17	C747373	36.82
	3/8	1-1/2	6	C747282	52.34	C739931	60.94	C747268	63.98
	3/8	1-3/4	4	C747281	34.58	C739930	42.04	C747267	43.78
25/64	7/16	1	2-3/4	C747790	35.82	C742285	43.83	C747753	45.82
13/32	7/16	1	2-3/4	C735198	35.82	C742304	43.88	C747761	45.82
27/64	7/16	1	2-3/4	C747789	36.96	C742283	44.97	C747752	46.96
7/16	7/16	5/8	2-1/2	C747816	27.06	C771576	35.07	C747878	33.78
	7/16	1	2-3/4	C735047	32.09	C742260	39.90	C747740	39.90
	7/16	2	4	C747388	44.58	C739997	53.08	C747370	55.22
	7/16	3	6	C747278	70.55	C739927	80.45	C747264	85.77
29/64	1/2	1	3	C747788	53.23	C742281	62.54	C747751	64.87
15/32	1/2	1	3	C747796	53.23	C742299	62.54	C747759	64.87
31/64	1/2	1	3	C747786	53.23	C742270	62.54	C747745	64.87
1/2	1/2	5/8	2-1/2	C747804	34.23	C771577	43.53	C747866	42.83
	1/2	1	3	C735049	38.71	C742318	46.91	C747768	48.56
	1/2	1	4	C747396	49.65	C740007	60.60	C747380	62.09
	1/2	1-1/2	6	C747288	79.30	C739937	90.89	C747274	93.83
	1/2	2	4	C735063	52.54	C740008	63.98	C747381	65.02
	1/2	3	6	C747289	83.63	C739938	97.56	C747275	98.16

D1 ^{+0.00"} -0.003"	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
9/16	9/16	1-1/4	3-1/2	C747782	72.83	C742252	84.43	C747736	91.69
5/8	5/8	3/4	3	C747815	72.39	C771578	83.23	C747877	85.92
	5/8	1-1/4	3-1/2	C735158	74.03	C742262	89.50	C747741	89.50
	5/8	2-1/4	5	C747389	113.63	C739998	126.07	C747371	133.98
	5/8	3	6	C747279	122.58	C739928	136.07	C747265	139.45
3/4	3/4	1	3	C747810	100.89	C771579	113.73	C747872	116.96
	3/4	1-1/2	4	C735250	103.48	C742275	127.01	C747748	127.01
	3/4	2-1/4	5	C747392	156.91	C740002	192.98	C747375	192.98
	3/4	3	6	C747283	183.08	C739932	213.33	C747269	213.33
7/8	7/8	1-1/2	4	C747783	190.19	C742254	228.30	C747737	228.30
	7/8	2-1/4	5	C747387	297.46	C739996	315.37	C747369	319.84
	7/8	3	6	C747277	326.01	C739926	345.41	C747263	350.24
1	1	1-1/4	3-1/2	C771562	167.06	C771580	181.09	C772403	191.99
	1	1-1/2	4	C735051	174.22	C742322	212.33	C747770	212.33
	1	2-1/4	5	C747397	214.87	C740009	236.31	C747382	241.69
	1	3	6	C747290	309.35	C739939	332.58	C747276	338.40



GENERAL PURPOSE END MILLS - CARBIDE

2 Flute - Ball - 30° Helix



- Offered in stub, regular, long, and extra long length styles
- TiCN coating adds enhanced performance when AlTiN cannot be used
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TICN COATED		ALTiN COATED	
D1 ^{+0.000} / _{-0.001} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/64	1/8	.023	1-1/2	C760154	19.15	C771583	22.54	C760156	23.33
	1/8	1/32	1-1/2	C747692	18.06	C742110	21.39	C747657	22.98
1/32	1/8	1/16	1-1/2	C747820	12.24	C771584	15.57	C747882	15.82
	1/8	1/8	1-1/2	C747694	11.59	C742112	14.93	C747659	15.12
3/64	1/8	3/32	1-1/2	C747826	12.24	C771585	15.57	C747888	15.82
	1/8	1/8	1-1/2	C747674	11.59	C742092	14.93	C747639	15.12
1/16	1/8	1/8	1-1/2	C747818	9.20	C771586	11.89	C747880	11.89
	1/8	1/4	1-1/2	C735164	10.75	C742114	14.13	C747661	14.53
5/64	1/8	1/8	1-1/2	C760155	14.88	C771587	18.21	C760157	18.81
	1/8	1/4	1-1/2	C747670	10.75	C742087	14.13	C747634	14.53
3/32	1/8	3/16	1-1/2	C747824	9.20	C771588	12.54	C747886	11.89
	1/8	3/8	1-1/2	C747676	11.29	C742094	14.63	C747641	15.32
7/64	1/8	3/8	1-1/2	C747667	11.29	C742083	14.63	C747630	15.32
D1 ^{+0.000} / _{-0.002} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C747822	8.71	C771589	11.29	C747884	11.29
	1/8	1/2	1-1/2	C735238	10.35	C742109	13.68	C747656	14.03
	1/8	3/4	2-1/4	C747341	15.37	C739976	18.91	C747327	19.80
	1/8	1	3	C747236	17.31	C739892	22.14	C747222	22.14
9/64	3/16	9/16	2	C747663	15.02	C742079	18.81	C747626	19.75
5/32	3/16	5/16	2	C747829	14.53	C771590	18.31	C747891	18.81
	3/16	9/16	2	C747671	15.02	C742088	18.81	C747635	19.75
11/64	3/16	5/8	2	C747689	15.02	C742107	18.81	C747654	19.75
3/16	3/16	3/8	2	C747823	13.63	C771591	17.41	C747885	17.61
	3/16	5/8	2	C735026	13.53	C742095	17.41	C747642	18.26
	3/16	3/4	2-1/2	C747340	17.76	C739975	21.79	C747326	22.79
	3/16	1-1/8	3	C747235	20.75	C739891	24.53	C747221	24.53
13/64	1/4	5/8	2-1/2	C747687	19.70	C742105	24.48	C747652	25.72
7/32	1/4	7/16	2	C747832	18.46	C771592	22.93	C747894	23.68
	1/4	5/8	2-1/2	C747668	19.70	C742084	24.48	C747631	25.12
15/64	1/4	3/4	2-1/2	C747685	19.70	C742103	24.48	C747650	25.72
1/4	1/4	1/2	2	C747821	17.51	C771593	20.75	C747883	22.04
	1/4	3/4	2-1/2	C747693	19.15	C742111	23.13	C747658	23.93
	1/4	1	4	C747343	27.46	C739978	33.78	C747329	33.88
	1/4	1-1/8	3	C747342	24.88	C739977	29.65	C747328	30.89
	1/4	1-1/2	4	C747237	30.25	C739894	34.03	C747224	34.03
	1/4	1-1/2	6	C747238	35.72	C739893	40.84	C747223	42.24
17/64	5/16	3/4	2-1/2	C747684	24.88	C742102	30.60	C747649	32.09

continued on next page

For technical information, see page 108

GENERAL PURPOSE END MILLS - CARBIDE

2 Flute - Ball - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TICN COATED		ALTiN COATED	
$D_{1-0.002}^{+0.000}$	D ₂ (h6)	L ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
9/32	5/16	3/4	2-1/2	C747664	24.92	C742080	30.65	C747627	32.14
19/64	5/16	13/16	2-1/2	C747683	27.06	C742101	32.84	C747648	33.73
5/16	5/16	1/2	2	C747828	21.74	C771594	27.16	C747890	28.06
	5/16	13/16	2-1/2	C747672	22.93	C742089	28.71	C747636	29.75
	5/16	1-1/8	3	C747336	29.25	C739971	37.66	C747322	37.66
	5/16	1-5/8	4	C747231	36.57	C739887	42.74	C747217	44.28
21/64	3/8	1	2-1/2	C747682	31.49	C742100	38.36	C747647	40.55
11/32	3/8	1	2-1/2	C747690	33.08	C742108	39.90	C747655	41.64
23/64	3/8	1	2-1/2	C747681	31.49	C742099	38.36	C747646	40.05
3/8	3/8	5/8	2	C747827	28.06	C771595	34.48	C747889	34.53
	3/8	1	2-1/2	C735122	24.68	C742091	33.03	C747638	33.23
	3/8	1	4	C747338	41.39	C739973	51.24	C747324	51.24
	3/8	1-1/8	3	C747337	33.98	C739972	43.43	C747323	43.43
	3/8	1-1/2	6	C747233	55.72	C739889	65.97	C747219	64.97
	3/8	1-3/4	4	C747232	39.35	C739888	47.96	C747218	47.61
25/64	7/16	1	2-3/4	C747680	42.69	C742098	50.65	C747645	52.64
13/32	7/16	1	2-3/4	C747688	42.88	C742106	50.89	C747653	52.88
27/64	7/16	1	2-3/4	C747679	42.69	C742097	50.65	C747644	52.64
7/16	7/16	5/8	2-1/2	C747831	35.27	C771596	43.23	C747893	43.18
	7/16	1	2-3/4	C735023	36.32	C742085	44.28	C747632	46.27
	7/16	2	4	C747334	56.57	C739969	65.07	C747320	67.21
	7/16	3	6	C747229	83.28	C739885	93.18	C747215	95.72
29/64	1/2	1	3	C747678	56.27	C742096	65.57	C747643	67.91
15/32	1/2	1	3	C747686	56.27	C742104	65.57	C747651	67.91
31/64	1/2	1	3	C747673	56.27	C742090	65.57	C747637	67.91
1/2	1/2	5/8	2-1/2	C747819	44.18	C771597	53.48	C747881	55.87
	1/2	1	3	C735028	50.05	C742113	61.19	C747660	61.69
	1/2	1	4	C735233	57.91	C739979	67.91	C747330	70.40
	1/2	1-1/2	6	C747239	88.75	C739895	100.35	C747225	107.76
	1/2	2	4	C747345	58.51	C739980	70.74	C747331	70.99
	1/2	3	6	C747240	89.25	C739896	109.35	C747226	109.35
$D_{1-0.003}^{+0.000}$	D ₂ (h6)	L ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
9/16	9/16	1-1/4	3-1/2	C747665	76.32	C742081	87.91	C747628	90.79
5/8	5/8	3/4	3	C747830	84.43	C771598	95.22	C747892	98.51
	5/8	1-1/4	3-1/2	C747669	80.55	C742086	92.14	C747633	95.02
	5/8	2-1/4	5	C747335	133.93	C739970	146.36	C747321	149.50
	5/8	3	6	C747230	140.05	C739886	153.53	C747216	156.86
3/4	3/4	1	3	C747825	128.95	C771599	141.84	C747887	137.11
	3/4	1-1/2	4	C747675	118.70	C742093	132.48	C747640	147.36
	3/4	2-1/4	5	C747339	185.62	C739974	200.44	C747325	204.12
	3/4	3	6	C747234	198.60	C739890	214.67	C747220	218.65
7/8	7/8	1-1/2	4	C747666	229.85	C742082	246.46	C747629	250.64
	7/8	2-1/4	5	C747333	319.05	C739968	337.01	C747319	341.48
	7/8	3	6	C747228	351.48	C739884	370.89	C747214	375.76
1	1	1-1/4	3-1/2	C771581	198.85	C771600	218.85	C771582	223.78
	1	1-1/2	4	C747697	211.98	C742115	227.51	C747662	236.91
	1	2-1/4	5	C747346	367.30	C739981	388.75	C747332	394.12
	1	3	6	C747241	354.32	C739897	377.55	C747227	383.37

For technical information, see pages 108

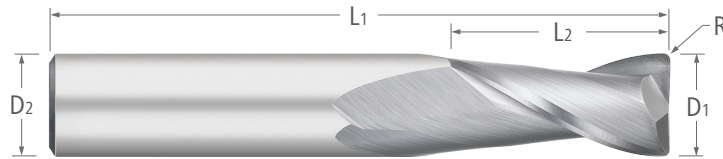
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE END MILLS - CARBIDE

2 Flute - Corner Radius - 30° Helix



- Offered in stub, regular, and long length styles
- Corner radius for increased edge strength
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED	
					TOOL #	PRICE
$D1^{+.000}$ $_{-.002}$ "	$D2$ (h6)	$R^{+.001}$ $_{-.001}$ "	$L2$	$L1$		
1/8	1/8	.005	1/4	1-1/2	C773854	8.71
	1/8	.005	1/2	1-1/2	C773855	11.94
	1/8	.010	1/4	1-1/2	C773856	8.71
	1/8	.010	1/2	1-1/2	C773857	11.94
	1/8	.015	1/4	1-1/2	C773858	8.71
	1/8	.015	1/2	1-1/2	C773859	11.94
	1/8	.020	1/4	1-1/2	C773860	8.71
	1/8	.020	1/2	1-1/2	C773861	11.94
	1/8	.030	1/4	1-1/2	C773862	8.71
	1/8	.030	1/2	1-1/2	C773863	11.94
3/16	3/16	.005	3/8	2	C773864	13.63
	3/16	.005	5/8	2	C773865	13.08
	3/16	.010	3/8	2	C773866	13.63
	3/16	.010	5/8	2	C773867	13.08
	3/16	.015	3/8	2	C773868	13.63
	3/16	.015	5/8	2	C773869	13.08
	3/16	.020	3/8	2	C773870	13.63
	3/16	.020	5/8	2	C773871	13.08
	3/16	.030	3/8	2	C773872	13.63
	3/16	.030	5/8	2	C773873	13.08
1/4	1/4	.005	1/2	2	C773874	17.46
	1/4	.005	3/4	2-1/2	C773875	17.41
	1/4	.005	1-1/2	4	C773876	28.21
	1/4	.010	1/2	2	C773877	17.46
	1/4	.010	3/4	2-1/2	C773878	17.41
	1/4	.010	1-1/2	4	C773879	28.21
	1/4	.015	1/2	2	C773880	17.46
	1/4	.015	3/4	2-1/2	C773881	17.41
	1/4	.015	1-1/2	4	C773882	28.21
	1/4	.020	1/2	2	C773883	17.46
	1/4	.020	3/4	2-1/2	C773884	17.41
	1/4	.020	1-1/2	4	C773885	28.21
	1/4	.030	1/2	2	C773886	17.46
	1/4	.030	3/4	2-1/2	C773887	17.41
	1/4	.030	1-1/2	4	C773888	28.21
	1/4	.060	1/2	2	C773889	17.46
	1/4	.060	3/4	2-1/2	C773890	17.41
	1/4	.060	1-1/2	4	C773891	28.21
5/16	5/16	.030	13/16	2-1/2	C773892	27.61
	5/16	.060	13/16	2-1/2	C773893	27.61

continued on next page

For technical information, see pages 108

GENERAL PURPOSE END MILLS - CARBIDE

2 Flute - Corner Radius - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED	
$D1^{+.000^*}_{-.002^*}$	$D2 (h6)$	$R^{+.001^*}_{-.001^*}$	$L2$	$L1$	TOOL #	PRICE
3/8	3/8	.015	5/8	2	C773894	28.06
	3/8	.015	1	2-1/2	C773895	32.74
	3/8	.015	1-3/4	4	C773896	42.29
	3/8	.030	5/8	2	C773897	28.06
	3/8	.030	1	2-1/2	C773898	32.74
	3/8	.030	1-3/4	4	C773899	42.29
	3/8	.060	5/8	2	C773900	28.21
	3/8	.060	1	2-1/2	C773901	32.74
	3/8	.060	1-3/4	4	C773902	42.29
	3/8	.125	5/8	2	C773903	28.06
	3/8	.125	1	2-1/2	C773904	32.74
3/8	.125	1-3/4	4	C773905	42.29	
1/2	1/2	.015	1	3	C773906	56.02
	1/2	.015	2	4	C773910	70.55
	1/2	.030	1	3	C773907	56.02
	1/2	.030	2	4	C773911	70.55
	1/2	.060	1	3	C773908	56.02
	1/2	.060	2	4	C773912	70.55
	1/2	.125	1	3	C773909	56.02
	1/2	.125	2	4	C773913	70.55
5/8	5/8	.060	1-1/4	3-1/2	C773914	86.86
	5/8	.125	1-1/4	3-1/2	C773915	86.86
3/4	3/4	.030	1-1/2	4	C773916	128.55
	3/4	.060	1-1/2	4	C773917	128.55
	3/4	.125	1-1/2	4	C773918	128.55
1	1	.030	1-1/2	4	C773919	243.28
	1	.060	1-1/2	4	C773920	243.28
	1	.125	1-1/2	4	C773921	243.28

DID YOU KNOW?



Premature tool wear and breakage are easily avoidable, but can lead to poor part finish, machine downtime, and even scrapped parts.

Read More : **End Mill and Milling Troubleshooting Guide** on our technical blog, "In The Loupe"

harveyperformance.com/in-the-loupe/end-mill-troubleshooting-guide



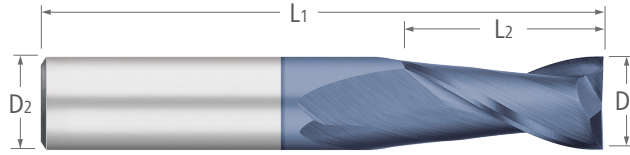
For technical information, see pages 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE

2 Flute - Square - 30° Helix - NC Tolerance



- Excellent for keyways
- Tight tolerance for precision machining
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ALTiN COATED	
$D1^{+0.001}_{-0.000}$ "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/16	1/8	3/16	1-1/2	C774751	12.64	C774766	16.82
3/32	1/8	3/8	1-1/2	C774752	13.48	C774767	17.66
1/8	1/8	1/2	1-1/2	C774753	15.87	C774768	20.05
5/32	3/16	9/16	2	C774754	19.35	C774769	24.03
3/16	3/16	5/8	2	C774755	22.74	C774770	27.41
7/32	1/4	5/8	2-1/2	C774756	28.11	C774771	34.13
1/4	1/4	3/4	2-1/2	C774757	32.04	C774772	38.01
9/32	5/16	3/4	2-1/2	C774758	34.97	C774773	42.19
5/16	5/16	13/16	2-1/2	C774759	37.91	C774774	45.12
3/8	3/8	1	2-1/2	C774760	39.60	C774775	48.16
7/16	7/16	1	2-3/4	C774761	51.49	C774776	61.49
1/2	1/2	1	3	C774762	63.68	C774777	75.32
5/8	5/8	1-1/4	3-1/2	C774763	133.43	C774778	147.91
3/4	3/4	1-1/2	4	C774764	193.08	C774779	210.29
1	1	1-1/2	4	C774765	315.91	C774780	340.84

END MILLS

Roughers

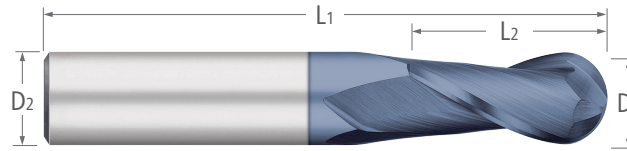
For Aluminum

Carbide

Cobalt

GENERAL PURPOSE END MILLS - CARBIDE

2 Flute - Ball - 30° Helix - NC Tolerance



- Excellent for keyways
- Tight tolerance for precision machining
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
$D1_{-0.000}^{+0.001}$	$D2 (h6)$	$L2$	$L1$				
1/16	1/8	3/16	1-1/2	C774811	15.17	C774826	19.35
3/32	1/8	3/8	1-1/2	C774812	16.17	C774827	19.55
1/8	1/8	1/2	1-1/2	C774813	19.05	C774828	23.23
5/32	3/16	9/16	2	C774814	23.18	C774829	27.91
3/16	3/16	5/8	2	C774815	27.26	C774830	31.99
7/32	1/4	5/8	2-1/2	C774816	33.73	C774831	39.75
1/4	1/4	3/4	2-1/2	C774817	38.46	C774832	44.48
9/32	5/16	3/4	2-1/2	C774818	41.99	C774833	49.20
5/16	5/16	13/16	2-1/2	C774819	45.52	C774834	52.74
3/8	3/8	1	2-1/2	C774820	47.51	C774835	56.12
7/16	7/16	1	2-3/4	C774821	61.79	C774836	71.79
1/2	1/2	1	3	C774822	76.42	C774837	88.06
5/8	5/8	1-1/4	3-1/2	C774823	160.10	C774838	174.57
3/4	3/4	1-1/2	4	C774824	231.69	C774839	248.90
1	1	1-1/2	4	C774825	379.14	C774840	404.07

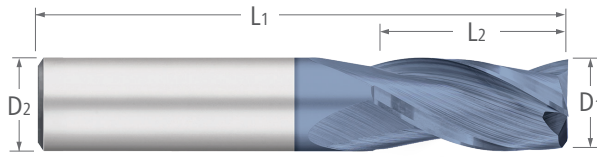
For technical information, see pages 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Square - 30° Helix



- Offered in stub, regular, long, and extra long length styles
- TiCN coating adds enhanced performance when AlTiN cannot be used

- AlTiN coating offers increased wear and heat resistance

- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TICN COATED		ALTiN COATED	
D1 ^{+0.000} / _{-0.001} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/64	1/8	.023	1-1/2	C771601	15.32	C771637	18.66	C771619	19.50
	1/8	1/32	1-1/2	C771655	16.12	C771731	19.50	C771693	20.30
1/32	1/8	1/16	1-1/2	C771602	9.40	C771638	12.74	C771620	12.34
	1/8	1/8	1-1/2	C771656	10.75	C771732	14.13	C771694	14.93
3/64	1/8	3/32	1-1/2	C771603	9.40	C771639	12.74	C771621	13.58
	1/8	1/8	1-1/2	C771657	9.20	C771733	12.54	C771695	13.38
1/16	1/8	1/8	1-1/2	C771604	7.11	C771640	10.40	C771622	9.30
	1/8	1/4	1-1/2	C771658	9.25	C771734	10.65	C771696	10.65
5/64	1/8	1/8	1-1/2	C771605	11.94	C771641	15.32	C771623	16.12
	1/8	1/4	1-1/2	C771659	9.55	C771735	12.64	C771697	13.73
3/32	1/8	3/16	1-1/2	C771606	7.11	C771642	10.40	C771624	11.24
	1/8	3/8	1-1/2	C771660	8.41	C771736	11.74	C771698	10.65
7/64	1/8	3/8	1-1/2	C771661	8.76	C771737	12.14	C771699	12.94

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TICN COATED		ALTiN COATED	
D1 ^{+0.000} / _{-0.002} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C771607	6.82	C771643	8.86	C771625	8.86
	1/8	1/2	1-1/2	C771662	8.01	C771738	9.90	C771700	9.90
	1/8	3/4	2-1/4	C771769	12.98	C771797	16.57	C771783	16.82
	1/8	1	3	C771811	14.53	C771843	18.06	C771827	18.95
9/64	3/16	9/16	2	C771663	11.69	C771739	15.47	C771701	16.42
5/32	3/16	5/16	2	C771608	11.19	C771644	14.93	C771626	13.98
	3/16	9/16	2	C771664	11.84	C771740	13.78	C771702	13.78
11/64	3/16	5/8	2	C771665	11.29	C771741	15.02	C771703	15.97
3/16	3/16	3/8	2	C771609	10.50	C771645	13.18	C771627	13.18
	3/16	5/8	2	C771666	10.99	C771742	14.73	C771704	13.78
	3/16	3/4	2-1/2	C771770	16.32	C771798	20.30	C771784	19.70
	3/16	1-1/8	3	C771812	15.77	C771844	19.80	C771828	20.35
13/64	1/4	5/8	2-1/2	C771667	15.97	C771743	20.80	C771705	21.99
7/32	1/4	7/16	2	C771610	14.13	C771646	18.61	C771628	19.75
	1/4	5/8	2-1/2	C771668	16.27	C771744	21.04	C771706	22.24
15/64	1/4	3/4	2-1/2	C771669	18.46	C771745	23.23	C771707	24.43
1/4	1/4	1/2	2	C771611	12.39	C771647	15.52	C771629	15.52
	1/4	3/4	2-1/2	C771670	13.48	C771746	18.31	C771708	19.10
	1/4	1	4	C771772	22.89	C771800	28.01	C771786	29.30
	1/4	1-1/8	3	C771771	21.74	C771799	26.52	C771785	27.76
	1/4	1-1/2	4	C771813	22.29	C771845	27.61	C771829	28.86
	1/4	1-1/2	6	C771814	30.20	C771846	36.17	C771830	36.82
17/64	5/16	3/4	2-1/2	C771671	24.28	C771747	30.05	C771709	31.49
9/32	5/16	3/4	2-1/2	C771672	24.28	C771748	30.05	C771710	31.49
19/64	5/16	13/16	2-1/2	C771673	24.28	C771749	30.05	C771711	31.49

continued on next page

For technical information, see page 108

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Square - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TICN COATED		ALTIN COATED	
				TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
$D1_{-0.002}^{+0.000}$	D ₂ (h6)	L ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
5/16	5/16	1/2	2	C771612	16.72	C771648	22.14	C771630	23.53
	5/16	13/16	2-1/2	C771674	17.61	C771750	23.33	C771712	22.84
	5/16	1-1/8	3	C771773	24.68	C771801	30.40	C771787	31.89
	5/16	1-5/8	4	C771815	30.30	C771847	36.47	C771831	38.01
21/64	3/8	1	2-1/2	C771675	27.36	C771751	34.23	C771713	35.37
11/32	3/8	1	2-1/2	C771676	27.36	C771752	34.23	C771714	35.92
23/64	3/8	1	2-1/2	C771677	27.36	C771753	34.23	C771715	35.92
3/8	3/8	5/8	2	C771613	21.74	C771649	28.16	C771631	25.82
	3/8	1	2-1/2	C771678	20.90	C771754	26.12	C771716	26.12
	3/8	1	4	C771775	33.03	C771803	40.40	C771789	42.19
	3/8	1-1/8	3	C771774	28.26	C771802	35.12	C771788	36.82
	3/8	1-1/2	6	C771817	52.34	C771849	60.94	C771833	63.13
	3/8	1-3/4	4	C771816	34.58	C771848	41.94	C771832	43.78
25/64	7/16	1	2-3/4	C771679	35.82	C771755	43.83	C771717	45.82
13/32	7/16	1	2-3/4	C771680	35.82	C771756	43.83	C771718	45.82
27/64	7/16	1	2-3/4	C771681	36.96	C771757	44.97	C771719	46.96
7/16	7/16	5/8	2-1/2	C771614	27.06	C771650	35.07	C771632	37.06
	7/16	1	2-3/4	C771682	32.09	C771758	39.90	C771720	42.04
	7/16	2	4	C771776	44.58	C771804	51.84	C771790	55.22
	7/16	3	6	C771818	70.55	C771850	80.45	C771834	82.98
29/64	1/2	1	3	C771683	53.23	C771759	62.54	C771721	64.87
15/32	1/2	1	3	C771684	53.23	C771760	62.54	C771722	64.87
31/64	1/2	1	3	C771685	53.23	C771761	62.54	C771723	64.87
1/2	1/2	5/8	2-1/2	C771615	34.23	C771651	43.53	C771633	45.87
	1/2	1	3	C771686	38.71	C771762	48.01	C771724	48.56
	1/2	1	4	C771777	49.65	C771805	59.60	C771791	62.09
	1/2	1-1/4	3	C771687	38.71	C771763	48.01	C771725	48.56
	1/2	1-1/2	6	C771819	79.30	C771851	90.89	C771835	93.83
	1/2	2	4	C771778	52.54	C771806	62.54	C771792	65.02
	1/2	3	6	C771820	83.63	C771852	95.22	C771836	98.16
$D1_{-0.003}^{+0.000}$	D ₂ (h6)	L ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
9/16	9/16	1-1/4	3-1/2	C771688	72.83	C771764	84.43	C771726	87.31
5/8	5/8	3/4	3	C771616	72.39	C771652	83.23	C771634	85.92
	5/8	1-1/4	3-1/2	C771689	74.03	C771765	85.62	C771727	88.51
	5/8	2-1/4	5	C771779	113.63	C771807	126.07	C771793	125.12
	5/8	3	6	C771821	122.58	C771853	136.07	C771837	139.45
3/4	3/4	1	3	C771617	100.89	C771653	113.73	C771635	116.96
	3/4	1-1/2	4	C771690	103.48	C771766	117.26	C771728	120.74
	3/4	2-1/4	5	C771780	156.91	C771808	171.74	C771794	175.47
	3/4	3	6	C771822	183.08	C771854	199.15	C771838	203.88
	3/4	4	7	C771823	314.22	C771855	331.68	C771839	336.01
7/8	7/8	1-1/2	4	C771691	190.19	C771767	206.81	C771729	210.99
	7/8	2-1/4	5	C771781	297.46	C771809	315.37	C771795	319.84
	7/8	3	6	C771824	326.01	C771856	345.41	C771840	350.24
1	1	1-1/4	3-1/2	C771618	167.06	C771654	187.01	C771636	191.99
	1	1-1/2	4	C771692	174.22	C771768	194.17	C771730	199.15
	1	2-1/4	5	C771782	214.87	C771810	236.31	C771796	229.35
	1	3	6	C771825	309.35	C771857	332.58	C771841	338.40
	1	4	7	C771826	405.51	C771858	430.69	C771842	437.00

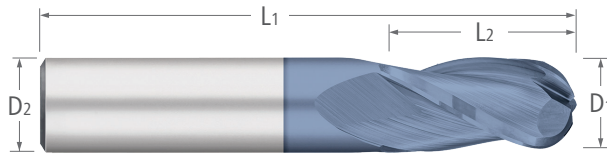
For technical information, see page 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Ball - 30° Helix



- Offered in stub, regular, long, and extra long length styles
- TiCN coating adds enhanced performance when AlTiN cannot be used
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TICN COATED		ALTiN COATED	
D1 ^{+0.000} / _{-0.001} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/64	1/8	.023	1-1/2	C771859	19.15	C771895	22.54	C771877	23.33
	1/8	1/32	1-1/2	C771913	18.06	C771987	21.39	C771950	22.24
1/32	1/8	1/16	1-1/2	C771860	12.24	C771896	15.57	C771878	16.42
	1/8	1/8	1-1/2	C771914	11.59	C771988	14.93	C771951	15.77
3/64	1/8	3/32	1-1/2	C771861	12.24	C771897	15.57	C771879	16.42
	1/8	1/8	1-1/2	C771915	11.59	C771989	14.93	C771952	15.77
1/16	1/8	1/8	1-1/2	C771862	9.20	C771898	12.54	C771880	11.89
	1/8	1/4	1-1/2	C771916	10.75	C771990	14.13	C771953	14.53
5/64	1/8	1/8	1-1/2	C771863	14.88	C771899	18.21	C771881	18.81
	1/8	1/4	1-1/2	C771917	10.75	C771991	14.13	C771954	14.93
3/32	1/8	3/16	1-1/2	C771864	9.20	C771900	12.54	C771882	13.38
	1/8	3/8	1-1/2	C771918	11.29	C771992	14.63	C771955	15.47
7/64	1/8	3/8	1-1/2	C771919	11.29	C771993	13.93	C771956	15.47

D1 ^{+0.000} / _{-0.002} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C771865	8.71	C771901	12.09	C771883	11.29
	1/8	1/2	1-1/2	C771920	10.35	C771994	13.68	C771957	14.53
	1/8	3/4	2-1/4	C772024	15.37	C772052	18.91	C772038	19.80
	1/8	1	3	C772066	17.31	C772098	20.85	C772082	22.14
9/64	3/16	9/16	2	C771921	15.02	C771995	18.81	C771958	19.75
5/32	3/16	5/16	2	C771866	14.53	C771902	18.31	C771884	18.81
	3/16	9/16	2	C771922	15.02	C771996	18.81	C771959	19.75
11/64	3/16	5/8	2	C771923	15.02	C771997	18.81	C771960	19.75
3/16	3/16	3/8	2	C771867	13.63	C771903	17.41	C771885	17.61
	3/16	5/8	2	C771924	13.53	C771998	16.96	C771961	18.26
	3/16	3/4	2-1/2	C772025	17.76	C772053	21.79	C772039	22.79
	3/16	1-1/8	3	C772067	20.75	C772099	24.78	C772083	24.53
13/64	1/4	5/8	2-1/2	C771925	19.65	C771999	24.48	C771962	25.67
7/32	1/4	7/16	2	C771868	18.41	C771904	22.93	C771886	24.08
	1/4	5/8	2-1/2	C771926	19.65	C772000	23.88	C771963	25.67
15/64	1/4	3/4	2-1/2	C771927	19.65	C772001	24.48	C771964	25.67
1/4	1/4	1/2	2	C771869	17.51	C771905	21.99	C771887	22.84
	1/4	3/4	2-1/2	C771928	18.46	C772002	23.28	C771965	24.53
	1/4	1	4	C772027	27.46	C772055	32.59	C772041	33.88
	1/4	1-1/8	3	C772026	24.88	C772054	29.65	C772040	30.89
	1/4	1-1/2	4	C772068	30.25	C772100	34.03	C772084	34.03
	1/4	1-1/2	6	C772069	35.72	C772101	41.69	C772085	43.18
17/64	5/16	3/4	2-1/2	C771929	24.88	C772003	30.60	C771966	32.09
9/32	5/16	3/4	2-1/2	C771930	24.92	C772004	30.65	C771967	32.14

continued on next page

For technical information, see page 108

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Ball - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TICN COATED		ALTiN COATED	
D ₁ ^{+0.000} / _{-0.002} "	D ₂ (h6)	L ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
19/64	5/16	13/16	2-1/2	C771931	27.06	C772005	32.84	C771968	34.28
5/16	5/16	1/2	2	C771870	21.74	C771906	27.16	C771888	28.51
	5/16	13/16	2-1/2	C771932	22.93	C772006	28.71	C771969	30.15
	5/16	1-1/8	3	C772028	29.25	C772056	35.02	C772042	36.47
	5/16	1-5/8	4	C772070	36.57	C772102	42.74	C772086	44.28
21/64	3/8	1	2-1/2	C771933	31.49	C772007	38.36	C771970	40.05
11/32	3/8	1	2-1/2	C771934	33.08	C772008	39.90	C771971	41.64
23/64	3/8	1	2-1/2	C771935	31.49	C772009	38.36	C771972	40.05
3/8	3/8	5/8	2	C771871	28.06	C771907	34.48	C771889	36.12
	3/8	1	2-1/2	C771936	24.68	C772010	31.49	C771973	33.23
	3/8	1	4	C772030	41.39	C772058	48.76	C772044	50.55
	3/8	1-1/8	3	C772029	33.98	C772057	40.80	C772043	43.43
	3/8	1-1/2	6	C772072	55.72	C772104	64.38	C772088	66.52
	3/8	1-3/4	4	C772071	39.35	C772103	46.72	C772087	48.51
25/64	7/16	1	2-3/4	C771937	42.69	C772011	50.65	C771974	52.64
13/32	7/16	1	2-3/4	C771938	42.88	C772012	48.51	C771975	52.88
27/64	7/16	1	2-3/4	C771939	42.69	C772013	50.65	C771976	52.64
7/16	7/16	5/8	2-1/2	C771872	35.27	C771908	43.23	C771890	45.22
	7/16	1	2-3/4	C771940	36.32	C772015	44.28	C771977	46.27
	7/16	2	4	C772031	56.57	C772059	65.07	C772045	67.21
	7/16	3	6	C772073	83.28	C772105	93.18	C772089	95.72
29/64	1/2	1	3	C771941	56.27	C772017	65.57	C771978	67.91
15/32	1/2	1	3	C771942	56.27	C772019	65.57	C771979	67.91
31/64	1/2	1	3	C771943	56.27	C772021	65.57	C771980	67.91
1/2	1/2	5/8	2-1/2	C771873	44.18	C771909	53.48	C771891	55.87
	1/2	1	3	C771944	50.05	C772014	59.35	C771981	61.69
	1/2	1	4	C772032	57.91	C772060	67.91	C772046	70.40
	1/2	1-1/2	6	C772074	88.75	C772106	100.35	C772090	103.28
	1/2	2	4	C772033	58.51	C772061	68.51	C772047	69.65
	1/2	3	6	C772075	89.25	C772107	100.89	C772091	103.78
D ₁ ^{+0.000} / _{-0.003} "	D ₂ (h6)	L ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
9/16	9/16	1-1/4	3-1/2	C771945	76.32	C772016	87.91	C771982	90.79
5/8	5/8	3/4	3	C771874	84.43	C771910	95.22	C771892	97.96
	5/8	1-1/4	3-1/2	C771946	80.55	C772018	92.14	C771983	95.02
	5/8	2-1/4	5	C772034	133.93	C772062	146.36	C772048	149.50
	5/8	3	6	C772076	140.05	C772108	153.53	C772092	156.86
3/4	3/4	1	3	C771875	128.95	C771911	141.84	C771893	145.07
	3/4	1-1/2	4	C771947	118.70	C772020	132.48	C771984	135.92
	3/4	2-1/4	5	C772035	185.62	C772063	200.44	C772049	204.12
	3/4	3	6	C772077	198.60	C772109	214.67	C772093	218.65
	3/4	4	7	C772078	328.60	C772110	346.01	C772094	394.12
7/8	7/8	1-1/2	4	C771948	229.85	C772022	246.46	C771985	250.64
	7/8	2-1/4	5	C772036	319.05	C772064	337.01	C772050	341.48
	7/8	3	6	C772079	351.48	C772111	370.89	C772095	375.76
1	1	1-1/4	3-1/2	C771876	198.85	C771912	218.85	C771894	232.98
	1	1-1/2	4	C771949	211.98	C772023	231.93	C771986	236.91
	1	2-1/4	5	C772037	367.30	C772065	388.75	C772051	394.12
	1	3	6	C772080	354.32	C772112	377.55	C772096	382.33
	1	4	7	C772081	430.64	C772113	455.81	C772097	462.13

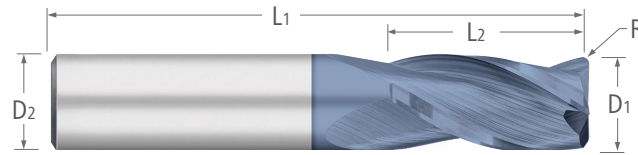
For technical information, see page 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Corner Radius - 30° Helix



- Offered in stub, regular, long, and extra long length styles
- Corner radius for increased edge strength
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ALTiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
$D1^{+.0001}_{-.002}$	$D2 (h6)$	$R^{+.001}_{-.001}$	$L2$	$L1$				
1/8	1/8	.005	1/4	1-1/2	C773922	8.71	C774066	12.89
	1/8	.005	1/2	1-1/2	C773953	11.94	C774097	16.12
	1/8	.005	3/4	2-1/4	C774010	16.32	C774154	20.75
	1/8	.005	1	3	C774044	18.51	C774188	22.93
	1/8	.010	1/4	1-1/2	C773923	8.71	C774067	12.89
	1/8	.010	1/2	1-1/2	C773954	11.94	C774098	16.12
	1/8	.010	3/4	2-1/4	C774011	16.32	C774155	20.75
	1/8	.010	1	3	C774045	18.51	C774189	22.93
	1/8	.015	1/4	1-1/2	C773924	8.71	C774068	12.89
	1/8	.015	1/2	1-1/2	C773955	11.94	C774099	16.12
	1/8	.015	3/4	2-1/4	C774012	16.32	C774156	20.75
	1/8	.015	1	3	C774046	18.51	C774190	22.93
	1/8	.020	1/4	1-1/2	C773925	8.71	C774069	12.89
	1/8	.020	1/2	1-1/2	C773956	11.94	C774100	16.12
	1/8	.020	3/4	2-1/4	C774013	16.32	C774157	20.75
	1/8	.020	1	3	C774047	18.51	C774191	22.93
	1/8	.030	1/4	1-1/2	C773926	8.71	C774070	12.89
	1/8	.030	1/2	1-1/2	C773957	11.94	C774101	16.12
1/8	.030	3/4	2-1/4	C774014	16.32	C774158	20.75	
1/8	.030	1	3	C774048	18.51	C774192	22.93	
3/16	3/16	.005	3/8	2	C773927	13.63	C774071	18.36
	3/16	.005	5/8	2	C773958	13.08	C774102	17.76
	3/16	.005	3/4	2-1/2	C774015	18.91	C774159	23.93
	3/16	.005	1-1/8	3	C774049	20.30	C774193	25.32
	3/16	.010	3/8	2	C773928	13.63	C774072	18.36
	3/16	.010	5/8	2	C773959	13.08	C774103	17.76
	3/16	.010	3/4	2-1/2	C774016	18.91	C774160	23.93
	3/16	.010	1-1/8	3	C774050	20.30	C774194	25.32
	3/16	.015	3/8	2	C773929	13.63	C774073	18.36
	3/16	.015	5/8	2	C773960	13.08	C774104	17.76
	3/16	.015	3/4	2-1/2	C774017	18.91	C774161	23.93
	3/16	.015	1-1/8	3	C774051	20.30	C774195	25.32

continued on next page

For technical information, see pages 108

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Corner Radius - 30° Helix (Cont.)

continued from previous page

CUTTER DIA. D1 ^{+0.000"} -0.002"	SHANK DIA. D2 (h6)	RADIUS R ^{+0.001"} -0.001"	LOC L2	OAL L1	UNCOATED		ALTiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
3/16	3/16	.020	3/8	2	C773930	13.63	C774074	18.36
	3/16	.020	5/8	2	C773961	13.08	C774105	17.76
	3/16	.020	3/4	2-1/2	C774018	18.91	C774162	23.93
	3/16	.020	1-1/8	3	C774052	20.30	C774196	25.32
	3/16	.030	3/8	2	C773931	13.63	C774075	18.36
	3/16	.030	5/8	2	C773962	13.08	C774106	17.76
	3/16	.030	3/4	2-1/2	C774019	18.91	C774163	23.93
	3/16	.030	1-1/8	3	C774053	20.30	C774197	25.32
1/4	1/4	.005	1/2	2	C773932	17.46	C774076	23.08
	1/4	.005	3/4	2-1/2	C773963	17.41	C774107	23.38
	1/4	.005	1	4	C774026	27.76	C774170	34.18
	1/4	.005	1-1/8	3	C774020	26.42	C774164	32.44
	1/4	.005	1-1/2	4	C774054	28.21	C774198	34.63
	1/4	.005	1-1/2	6	C774060	37.91	C774204	44.53
	1/4	.010	1/2	2	C773933	17.46	C774077	23.08
	1/4	.010	3/4	2-1/2	C773964	17.41	C774108	23.38
	1/4	.010	1	4	C774027	27.76	C774171	34.18
	1/4	.010	1-1/8	3	C774021	26.42	C774165	32.44
	1/4	.010	1-1/2	4	C774055	28.21	C774199	34.63
	1/4	.010	1-1/2	6	C774061	37.91	C774205	45.37
	1/4	.015	1/2	2	C773934	17.46	C774078	23.08
	1/4	.015	3/4	2-1/2	C773965	17.41	C774109	23.38
	1/4	.015	1	4	C774028	27.76	C774172	34.18
	1/4	.015	1-1/8	3	C774022	26.42	C774166	32.44
	1/4	.015	1-1/2	4	C774056	28.21	C774200	34.63
	1/4	.015	1-1/2	6	C774062	37.91	C774206	45.37
	1/4	.020	1/2	2	C773935	17.46	C774079	23.08
	1/4	.020	3/4	2-1/2	C773966	17.41	C774110	23.38
	1/4	.020	1	4	C774029	27.76	C774173	34.18
	1/4	.020	1-1/8	3	C774023	26.42	C774167	32.44
	1/4	.020	1-1/2	4	C774057	28.21	C774201	34.63
	1/4	.020	1-1/2	6	C774063	37.91	C774207	45.37
	1/4	.030	1/2	2	C773936	17.46	C774080	23.08
	1/4	.030	3/4	2-1/2	C773967	17.41	C774111	23.38
	1/4	.030	1	4	C774030	27.76	C774174	34.18
	1/4	.030	1-1/8	3	C774024	26.42	C774168	32.44
	1/4	.030	1-1/2	4	C774058	28.21	C774202	34.63
	1/4	.030	1-1/2	6	C774064	37.91	C774208	45.37
	1/4	.060	1/2	2	C773937	17.46	C774081	23.08
	1/4	.060	3/4	2-1/2	C773968	17.41	C774112	23.38
1/4	.060	1	4	C774031	27.76	C774175	34.18	
1/4	.060	1-1/8	3	C774025	26.42	C774169	32.44	
1/4	.060	1-1/2	4	C774059	28.21	C774203	34.63	
1/4	.060	1-1/2	6	C774065	37.91	C774209	45.37	

continued on next page

For technical information, see pages 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Corner Radius - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ALTiN COATED	
D1 ^{+0.000"} _{-0.002"}	D2 (h6)	R ^{+0.001"} _{-0.001"}	L2	L1	TOOL #	PRICE	TOOL #	PRICE
5/16	5/16	.015	13/16	2-1/2	C773969	27.61	C774113	34.83
	5/16	.015	1-1/8	3	C774032	29.95	C774176	37.16
	5/16	.020	13/16	2-1/2	C773970	27.61	C774114	34.83
	5/16	.020	1-1/8	3	C774033	29.95	C774177	37.16
	5/16	.030	13/16	2-1/2	C773971	27.61	C774115	34.83
	5/16	.030	1-1/8	3	C774034	29.95	C774178	37.16
	5/16	.045	13/16	2-1/2	C773972	27.61	C774116	34.83
	5/16	.045	1-1/8	3	C774035	29.95	C774179	37.16
	5/16	.060	13/16	2-1/2	C773973	27.61	C774117	34.83
	5/16	.060	1-1/8	3	C774036	29.95	C774180	37.16
3/8	3/8	.010	5/8	2	C773938	28.06	C774082	36.12
	3/8	.010	1	2-1/2	C773974	32.74	C774118	41.34
	3/8	.015	5/8	2	C773939	28.06	C774083	36.12
	3/8	.015	1	2-1/2	C773975	32.74	C774119	41.34
	3/8	.020	5/8	2	C773940	28.06	C774084	36.12
	3/8	.020	1	2-1/2	C773976	32.74	C774120	41.34
	3/8	.030	5/8	2	C773941	28.06	C774085	36.12
	3/8	.030	1	2-1/2	C773977	32.74	C774121	41.34
	3/8	.045	5/8	2	C773942	28.06	C774086	36.12
	3/8	.045	1	2-1/2	C773978	32.74	C774122	41.34
	3/8	.060	5/8	2	C773943	28.21	C774087	52.24
	3/8	.060	1	2-1/2	C773979	32.74	C774123	41.34
	3/8	.090	5/8	2	C773944	28.06	C774088	36.12
	3/8	.090	1	2-1/2	C773980	32.74	C774124	41.34
	3/8	.125	5/8	2	C773945	28.06	C774089	36.12
	3/8	.125	1	2-1/2	C773981	32.74	C774125	41.34
1/2	1/2	.010	5/8	2-1/2	C773946	44.18	C774090	55.87
	1/2	.010	1	3	C773982	56.02	C774126	67.66
	1/2	.010	1	4	C774037	66.12	C774181	78.61
	1/2	.015	5/8	2-1/2	C773947	44.18	C774091	55.87
	1/2	.015	1	3	C773983	56.02	C774127	67.66
	1/2	.015	1	4	C774038	66.12	C774182	78.61
	1/2	.020	5/8	2-1/2	C773948	44.18	C774092	55.87
	1/2	.020	1	3	C773984	56.02	C774128	67.66
	1/2	.020	1	4	C774039	66.12	C774183	78.61
	1/2	.030	5/8	2-1/2	C773949	44.18	C774093	55.87
	1/2	.030	1	3	C773985	56.02	C774129	67.66
	1/2	.030	1	4	C774040	66.12	C774184	78.61
	1/2	.060	5/8	2-1/2	C773950	44.18	C774094	55.87
	1/2	.060	1	3	C773986	56.02	C774130	67.66
	1/2	.060	1	4	C774041	66.12	C774185	78.61
	1/2	.090	5/8	2-1/2	C773951	44.18	C774095	55.87
	1/2	.090	1	3	C773987	56.02	C774131	67.66
	1/2	.090	1	4	C774042	66.12	C774186	78.61
	1/2	.125	5/8	2-1/2	C773952	44.18	C774096	55.87
	1/2	.125	1	3	C773988	56.02	C774132	67.66
1/2	.125	1	4	C774043	66.12	C774187	78.61	

continued on next page

For technical information, see pages 108

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Corner Radius - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ALTiN COATED	
$D_1^{+.0001}$ $-.0031$	D ₂ (h6)	$R^{+.0011}$ $-.0011$	L ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	.015	1-1/4	3-1/2	C773989	86.86	C774133	101.34
	5/8	.020	1-1/4	3-1/2	C773990	86.86	C774134	101.34
	5/8	.030	1-1/4	3-1/2	C773991	86.86	C774135	101.34
	5/8	.045	1-1/4	3-1/2	C773992	86.86	C774136	101.34
	5/8	.060	1-1/4	3-1/2	C773993	86.86	C774137	101.34
	5/8	.090	1-1/4	3-1/2	C773994	86.86	C774138	101.34
3/4	3/4	.015	1-1/2	4	C773995	128.55	C774139	145.82
	3/4	.020	1-1/2	4	C773996	128.55	C774140	145.82
	3/4	.030	1-1/2	4	C773997	128.55	C774141	145.82
	3/4	.045	1-1/2	4	C773998	128.55	C774142	145.82
	3/4	.060	1-1/2	4	C773999	128.55	C774143	145.82
	3/4	.090	1-1/2	4	C774000	128.55	C774144	145.82
	3/4	.125	1-1/2	4	C774001	128.55	C774145	145.82
	3/4	.250	1-1/2	4	C774002	128.55	C774146	145.82
1	1	.015	1-1/2	4	C774003	243.28	C774147	268.20
	1	.020	1-1/2	4	C774004	243.28	C774148	268.20
	1	.030	1-1/2	4	C774005	243.28	C774149	268.20
	1	.045	1-1/2	4	C774006	243.28	C774150	268.20
	1	.060	1-1/2	4	C774007	243.28	C774151	268.20
	1	.090	1-1/2	4	C774008	243.28	C774152	268.20
	1	.125	1-1/2	4	C774009	243.28	C774153	268.20

DID YOU KNOW?



Premature tool wear and breakage are easily avoidable, but can lead to poor part finish, machine downtime, and even scrapped parts.

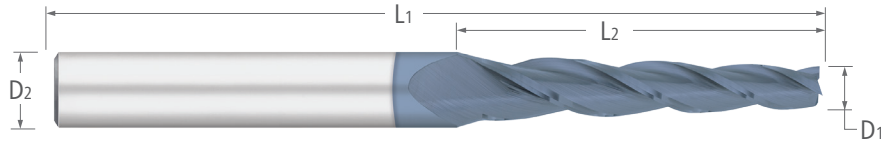
Read More : **End Mill and Milling Troubleshooting Guide**
on our technical blog, "In The Loupe"

harveyperformance.com/in-the-loupe/end-mill-troubleshooting-guide



GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Square - 30° Helix - Tapered

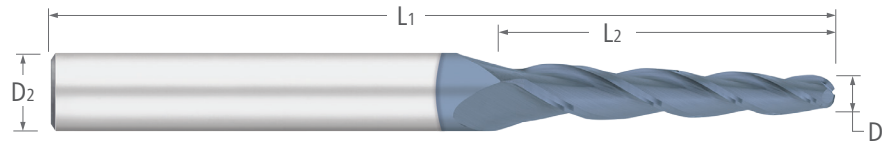


- Excellent for holding draft angles in mold and die applications
- Offered in 1°, 1.5°, 2°, 3°, 5°, and 7° angles per side
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

ANGLE PER SIDE	TIP DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ALTiN COATED	
	$D1_{-0.001}^{+0.001}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
1°	1/8	1/4	1-1/2	3	C775194	34.78	C775210	40.80
	3/16	3/8	1-3/4	3-1/2	C775195	52.93	C775211	62.09
1.5°	1/8	1/4	1-1/2	3	C775196	35.77	C775212	41.79
	3/16	3/8	1-3/4	3-1/2	C775197	55.12	C775213	64.33
2°	1/8	1/4	1	3	C775198	34.78	C775214	40.80
	3/16	3/8	1-3/4	3-1/2	C775199	52.93	C775215	62.09
	1/4	1/2	2	4	C775200	76.07	C775216	88.56
3°	1/8	1/4	1	3	C775201	35.77	C775217	41.79
	5/32	3/8	1-3/4	3-1/2	C775202	55.12	C775218	64.33
	1/4	1/2	2	4	C775203	76.07	C775219	88.56
5°	1/8	1/4	3/4	3	C775204	35.77	C775220	41.79
	1/8	3/8	1-1/2	3-1/2	C775205	54.87	C775221	64.03
	1/4	1/2	1-1/4	4	C775206	76.07	C775222	88.56
7°	1/8	1/4	1/2	3	C775207	35.77	C775223	41.79
	5/32	3/8	3/4	3-1/2	C775208	54.87	C775224	64.03
	3/16	1/2	1-1/4	4	C775209	76.07	C775225	88.56

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Ball - 30° Helix - Tapered



- Excellent for holding draft angles in mold and die applications
- Offered in 1°, 1.5°, 2°, 3°, 5°, and 7° angles per side
- ALTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

ANGLE PER SIDE	TIP DIA.	SHANK DIA. D ₂ (h6)	LOC L ₂	OAL L ₁	UNCOATED		ALTiN COATED	
	D ₁ ^{+0.001} _{-0.001}				TOOL #	PRICE	TOOL #	PRICE
1°	1/8	1/4	1-1/2	3	C775226	40.00	C775242	46.02
	3/16	3/8	1-3/4	3-1/2	C775227	60.79	C775243	70.00
1.5°	1/8	1/4	1-1/2	3	C775228	41.14	C775244	47.16
	3/16	3/8	1-3/4	3-1/2	C775229	63.43	C775245	72.59
2°	1/8	1/4	1	3	C775230	40.00	C775246	46.02
	3/16	3/8	1-3/4	3-1/2	C775231	61.04	C775247	70.25
	1/4	1/2	2	4	C775232	87.51	C775248	100.00
3°	1/8	1/4	1	3	C775233	41.14	C775249	47.16
	5/32	3/8	1-3/4	3-1/2	C775234	63.08	C775250	72.29
	1/4	1/2	2	4	C775235	87.51	C775251	100.00
5°	1/8	1/4	3/4	3	C775236	41.14	C775252	47.16
	1/8	3/8	1-1/2	3-1/2	C775237	63.08	C775253	72.29
	1/4	1/2	1-1/4	4	C775238	87.51	C775254	100.00
7°	1/8	1/4	1/2	3	C775239	41.14	C775255	47.16
	5/32	3/8	3/4	3-1/2	C775240	63.08	C775256	72.29
	3/16	1/2	1-1/4	4	C775241	87.51	C775257	100.00

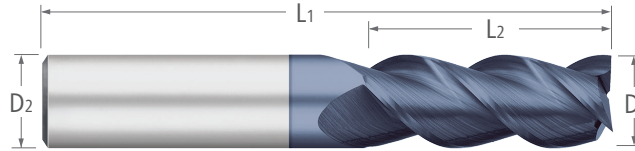
For technical information, see pages 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Square - 45° Helix

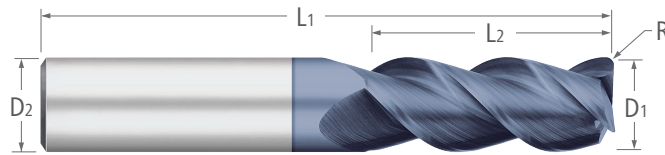


- Engineered to slot and profile at increased speed and feed rates
- Proven performance in stainless steels and similar alloys
- AlTiN coating offers increased wear and heat resistance
- Optimized shearing action for excellent part finish
- 45° helix for faster chip removal and a better finish
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. $D_1 \begin{smallmatrix} +.000" \\ -.002" \end{smallmatrix}$	SHANK DIA. $D_2 (h6)$	LOC L_2	OAL L_1	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C774663	9.50	C774671	13.68
	1/8	1/2	1-1/2	C772637	14.93	C745425	18.46
3/16	3/16	3/8	2	C774664	14.97	C774672	19.70
	3/16	5/8	2	C772638	17.86	C745424	22.09
1/4	1/4	1/2	2-1/2	C774665	21.94	C774673	27.96
	1/4	3/4	2-1/2	C772639	19.10	C745426	23.73
5/16	5/16	1/2	2	C774666	26.72	C774674	33.48
	5/16	13/16	2-1/2	C772640	23.13	C745421	28.66
3/8	3/8	5/8	2	C774667	28.86	C774675	36.86
	3/8	1	2-1/2	C772641	30.99	C745422	38.36
1/2	1/2	5/8	2-1/2	C774668	49.65	C774676	61.29
	1/2	1-1/4	3	C772642	52.88	C745427	64.53
$D_1 \begin{smallmatrix} +.000" \\ -.003" \end{smallmatrix}$	$D_2 (h6)$	L_2	L_1	TOOL #	PRICE	TOOL #	PRICE
				C774669	105.92	C774677	119.45
5/8	5/8	3/4	3	C774669	105.92	C774677	119.45
	5/8	1-5/8	3-1/2	C772643	105.32	C745420	123.03
3/4	3/4	1	3	C774670	161.29	C774678	177.41
	3/4	1-5/8	4	C772644	147.81	C745423	172.63

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Corner Radius - 45° Helix

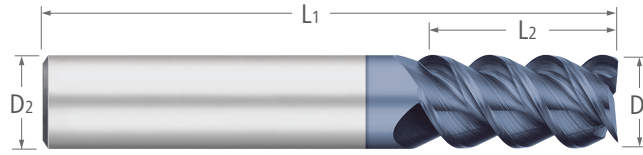


- Engineered to slot and profile at increased speed and feed rates
- Optimized shearing action for excellent part finish
- Proven performance in stainless steels and similar alloys
- Corner radius for increased edge strength
- 45° helix for faster chip removal and a better finish
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. $D1_{-.002}^{+.000}$	SHANK DIA. $D2 (h6)$	RADIUS $R_{-.001}^{+.001}$	LOC $L2$	OAL $L1$	UNCOATED		ALTiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	.010	1/4	1-1/2	C775422	12.24	C775430	16.42
	1/8	.010	1/2	1-1/2	C772645	16.67	C751383	20.65
3/16	3/16	.010	3/8	2	C775423	18.46	C775431	23.13
	3/16	.010	5/8	2	C772646	19.95	C751384	24.68
1/4	1/4	.020	1/2	2-1/2	C775424	26.37	C775432	32.39
	1/4	.020	3/4	2-1/2	C772647	21.39	C751385	26.47
5/16	5/16	.020	1/2	2	C775425	30.89	C775433	35.62
	5/16	.020	13/16	2-1/2	C772648	25.87	C751386	32.04
3/8	3/8	.020	5/8	2	C775426	32.64	C775434	39.90
	3/8	.020	1	2-1/2	C772649	34.68	C751387	42.88
1/2	1/2	.040	5/8	2-1/2	C775427	53.28	C775435	64.92
	1/2	.040	1-1/4	3	C772650	59.10	C751388	70.74
5/8	5/8	.040	3/4	3	C775428	111.39	C775436	124.92
	5/8	.040	1-5/8	3-1/2	C772651	112.48	C751389	131.39
3/4	3/4	.040	1	3	C775429	166.86	C775437	182.93
	3/4	.040	1-5/8	4	C772652	157.81	C751390	184.37

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Square - 60° Helix



- "High shear" geometry for slotting and profiling
- Proven performance in high-temp alloys such as Inconel, hastelloy, waspalloy, and titanium
- 60° helix for improved surface finish
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
$D1^{+.000}_{-.002}$	$D2 (h6)$	$L2$	$L1$				
1/8	1/8	1/2	1-1/2	C772543	14.93	C746119	18.46
3/16	3/16	5/8	2	C772544	17.86	C746118	22.09
1/4	1/4	3/4	2-1/2	C772545	19.10	C746120	23.73
5/16	5/16	13/16	2-1/2	C772546	23.13	C746115	28.66
3/8	3/8	1	2-1/2	C772547	30.99	C746116	37.46
1/2	1/2	1-1/4	3	C772548	52.88	C746121	64.53
$D1^{+.000}_{-.003}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	1-5/8	3-1/2	C772549	105.32	C746114	123.03
3/4	3/4	1-5/8	4	C772550	147.81	C746117	172.63

END MILLS

Roughers

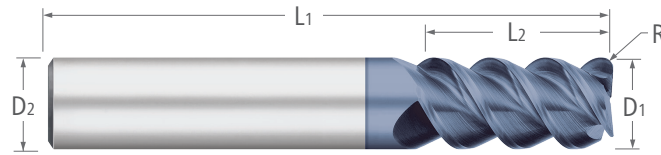
For Aluminum

Carbide

Cobalt

GENERAL PURPOSE END MILLS - CARBIDE

3 Flute - Corner Radius - 60° Helix



- "High shear" geometry for slotting and profiling
- Proven performance in high-temp alloys such as Inconel, hastelloy, waspalloy, and titanium
- Corner radius for increased edge strength
- 60° helix for improved surface finish
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ALTiN COATED	
$D_1 \begin{smallmatrix} +.0001 \\ -.0021 \end{smallmatrix}$	$D_2 (h6)$	$R \begin{smallmatrix} +.0011 \\ -.0011 \end{smallmatrix}$	L_2	L_1	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	.010	1/2	1-1/2	C772551	16.67	C751367	20.65
3/16	3/16	.010	5/8	2	C772552	19.95	C751368	24.68
1/4	1/4	.020	3/4	2-1/2	C772553	21.39	C751369	26.47
5/16	5/16	.020	13/16	2-1/2	C772554	25.87	C751370	33.08
3/8	3/8	.020	1	2-1/2	C772555	34.68	C751371	42.88
1/2	1/2	.040	1-1/4	3	C772556	59.10	C751372	70.69
$D_1 \begin{smallmatrix} +.0001 \\ -.0031 \end{smallmatrix}$	$D_2 (h6)$	$R \begin{smallmatrix} +.0011 \\ -.0011 \end{smallmatrix}$	L_2	L_1	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	.040	1-5/8	3-1/2	C772557	112.48	C751373	126.91
3/4	3/4	.040	1-5/8	4	C772558	157.81	C751374	175.07

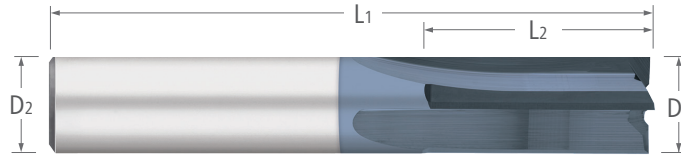
For technical information, see page 109

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Square - Straight Flute



- Straight flute design for cutting high Rc materials
- Offered in regular length styles
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. $D1_{-0.002}^{+0.000}$	SHANK DIA. $D2 (h6)$	LOC $L2$	OAL $L1$	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/2	1-1/2	C774547	8.96	C774557	13.13
3/16	3/16	5/8	2	C774548	12.29	C774558	16.96
1/4	1/4	3/4	2-1/2	C774549	15.07	C774559	21.09
5/16	5/16	13/16	2-1/2	C774550	19.70	C774560	26.91
3/8	3/8	1	2-1/2	C774551	23.38	C774561	31.99
7/16	7/16	1	2-3/4	C774552	35.92	C774562	45.92
1/2	1/2	1-1/4	3	C774553	43.38	C774563	55.02
$D1_{-0.003}^{+0.000}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	1-1/4	3-1/2	C774554	82.88	C774564	97.36
3/4	3/4	1-1/2	4	C774555	115.92	C774565	133.18
1	1	1-1/2	4	C774556	195.12	C774566	220.04

END MILLS

Roughers

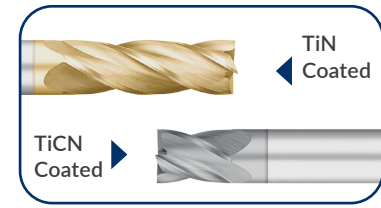
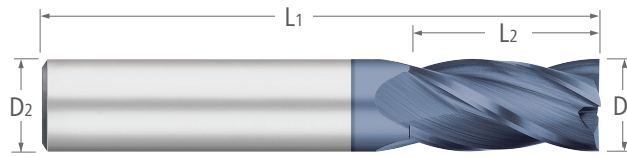
For Aluminum

Carbide

Cobalt

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Square - 30° Helix



- Offered in stub, regular, long, and extra long length styles
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- TiCN coating adds enhanced performance when AlTiN cannot be used
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. D1 ^{+0.000} _{-0.001} "	SHANK DIA. D2 (h6)	LOC L2	OAL L1	UNCOATED		TIN COATED		TICN COATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/64	1/8	.023	1-1/2	C760158	15.32	C773145	18.36	C772114	18.66	C760160	19.25
	1/8	1/32	1-1/2	C747732	16.12	C773163	19.15	C742192	19.50	C739793	20.55
1/32	1/8	1/16	1-1/2	C747710	9.40	C773146	12.44	C772115	12.34	C747851	12.34
	1/8	1/8	1-1/2	C735204	10.75	C773164	13.78	C742195	14.13	C739795	14.68
3/64	1/8	3/32	1-1/2	C747704	9.40	C773147	12.44	C772116	12.74	C747857	12.34
	1/8	1/8	1-1/2	C747719	9.20	C773165	12.24	C742152	12.54	C739773	12.54
1/16	1/8	1/8	1-1/2	C747711	7.11	C773148	10.10	C772117	9.30	C747849	9.30
	1/8	1/4	1-1/2	C735065	9.25	C773166	12.29	C742198	10.65	C739798	10.65
5/64	1/8	1/8	1-1/2	C760159	11.94	C773149	14.97	C772118	15.32	C760161	15.02
	1/8	1/4	1-1/2	C735173	9.55	C773167	12.59	C742142	12.89	C739767	12.94
3/32	1/8	3/16	1-1/2	C747706	7.11	C773150	10.10	C772119	9.30	C747854	9.30
	1/8	3/8	1-1/2	C735175	8.41	C773168	11.44	C742155	10.65	C739776	10.65
7/64	1/8	3/8	1-1/2	C735174	8.76	C773169	11.79	C742134	11.84	C739761	11.84

D1 ^{+0.000} _{-0.002} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C747708	6.82	C773151	9.75	C772120	8.86	C735263	8.86
	1/8	1/2	1-1/2	C735066	8.01	C773170	11.04	C742190	9.70	C735243	9.90
	1/8	3/4	2-1/4	C747366	12.98	C773202	16.17	C739990	16.57	C747355	16.82
	1/8	1	3	C735151	14.53	C773216	17.71	C739906	18.61	C747250	18.95
9/64	3/16	9/16	2	C735176	11.69	C773171	14.83	C742126	15.47	C739755	16.02
5/32	3/16	5/16	2	C747701	11.19	C773152	14.58	C772121	14.93	C747860	13.98
	3/16	9/16	2	C735110	11.84	C773172	15.27	C742144	13.78	C739768	13.78
11/64	3/16	5/8	2	C735177	11.29	C773173	14.68	C742185	15.02	C739789	15.32
3/16	3/16	3/8	2	C747707	10.50	C773153	13.88	C772122	13.18	C735264	13.18
	3/16	5/8	2	C735067	10.99	C773174	14.38	C742157	13.78	C735244	13.78
	3/16	3/4	2-1/2	C747365	16.32	C773203	19.90	C739989	19.70	C747354	19.70
	3/16	1-1/8	3	C735153	15.77	C773217	19.35	C739905	19.80	C747249	20.35
13/64	1/4	5/8	2-1/2	C735178	15.97	C773175	20.35	C742180	20.80	C739787	21.09
7/32	1/4	7/16	2	C747698	14.13	C773154	18.21	C772123	17.71	C747863	17.71
	1/4	5/8	2-1/2	C735115	16.27	C773176	20.60	C742136	19.10	C739762	19.10
15/64	1/4	3/4	2-1/2	C735172	18.46	C773177	22.79	C742175	23.23	C739785	23.93
1/4	1/4	1/2	2	C747709	12.39	C773155	16.17	C772124	15.52	C735242	15.52
	1/4	3/4	2-1/2	C735068	13.48	C773178	17.81	C742193	18.31	C735247	19.10
	1/4	1	4	C747367	22.89	C773205	27.51	C739992	28.11	C747357	29.30
	1/4	1-1/8	3	C735124	21.74	C773204	26.07	C739991	26.72	C747356	27.76
	1/4	1-1/2	4	C735167	23.68	C773218	28.31	C739907	28.90	C747251	30.10
	1/4	1-1/2	6	C747261	30.20	C773219	35.57	C739908	36.82	C747252	37.66
17/64	5/16	3/4	2-1/2	C747725	24.28	C773179	29.45	C742172	30.05	C739784	31.49
9/32	5/16	3/4	2-1/2	C735116	24.28	C773180	29.45	C742128	30.05	C739756	31.49

continued on next page

For technical information, see page 108



GENERAL PURPOSE END MILLS - CARBIDE

4 Flute- Square - 30° Helix (Cont.)

continued from previous page

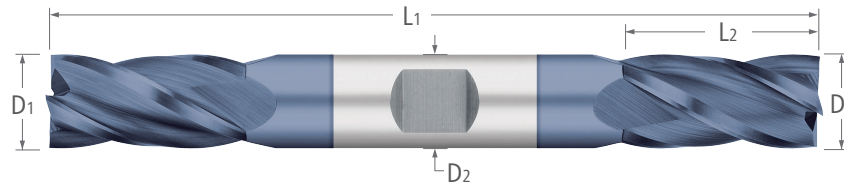
CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TIN COATED		TICN COATED		ALTiN COATED	
D1 ^{+0.000} _{-0.002} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
19/64	5/16	13/16	2-1/2	C735142	24.28	C773181	29.45	C742169	30.05	C739783	31.49
5/16	5/16	1/2	2	C747702	16.72	C773156	21.64	C772125	22.14	C747859	21.99
	5/16	13/16	2-1/2	C735069	17.61	C773182	22.79	C742146	22.84	C735245	22.84
	5/16	1-1/8	3	C747363	24.68	C773206	29.85	C739985	31.49	C747350	31.89
	5/16	1-5/8	4	C747258	30.30	C773220	35.87	C739901	37.26	C747245	38.01
21/64	3/8	1	2-1/2	C747724	27.36	C773183	33.53	C742167	34.23	C739782	35.37
11/32	3/8	1	2-1/2	C735249	27.36	C773184	33.53	C742187	34.23	C739790	35.37
23/64	3/8	1	2-1/2	C747723	27.36	C773185	33.53	C742165	34.23	C739781	35.37
3/8	3/8	5/8	2	C747703	21.74	C773157	27.51	C772126	28.16	C747858	27.01
	3/8	1	2-1/2	C735070	20.90	C773186	27.06	C742150	26.12	C735246	26.12
	3/8	1	4	C747364	33.03	C773208	39.65	C739987	40.40	C747352	42.19
	3/8	1-1/8	3	C735086	28.26	C773207	34.43	C739986	36.17	C747351	36.82
	3/8	1-1/2	6	C747259	52.34	C773222	60.10	C739903	63.98	C747247	63.98
	3/8	1-3/4	4	C735096	34.58	C773221	41.24	C739902	42.04	C747246	43.78
25/64	7/16	1	2-3/4	C747722	35.82	C773187	43.03	C742163	43.88	C739780	45.82
13/32	7/16	1	2-3/4	C747729	35.82	C773188	43.03	C742182	43.88	C739788	45.82
27/64	7/16	1	2-3/4	C747721	36.96	C773189	44.18	C742161	45.32	C739779	46.96
7/16	7/16	5/8	2-1/2	C747699	27.06	C773158	34.28	C772127	35.07	C747862	33.78
	7/16	1	2-3/4	C735071	32.09	C773190	39.30	C742138	39.90	C739763	39.90
	7/16	2	4	C735216	44.58	C773209	52.24	C739983	54.92	C747348	55.22
	7/16	3	6	C747257	70.55	C773223	79.45	C739899	85.77	C747243	85.77
29/64	1/2	1	3	C747720	53.23	C773191	61.64	C742159	62.54	C739778	64.87
15/32	1/2	1	3	C747727	53.23	C773192	61.64	C742177	62.54	C739786	64.87
31/64	1/2	1	3	C747718	53.23	C773193	61.64	C742148	62.54	C739770	64.87
1/2	1/2	5/8	2-1/2	C735207	34.23	C773159	42.64	C772128	42.83	C735241	42.83
	1/2	1	3	C735072	38.71	C773194	47.11	C735141	48.01	C735248	48.56
	1/2	1	4	C747368	49.65	C773210	58.61	C739993	60.60	C747358	62.09
	1/2	1-1/4	3	C747833	38.71	C773195	47.11	C748257	48.01	C748258	48.56
	1/2	1-1/2	6	C747262	79.30	C773224	89.75	C739909	93.78	C747253	93.83
	1/2	2	4	C735088	52.54	C773211	61.54	C739994	63.98	C747359	65.02
	1/2	3	6	C735098	83.63	C773225	94.08	C739910	97.56	C747254	98.16

D1 ^{+0.000} _{-0.003} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
9/16	9/16	1-1/4	3-1/2	C747713	72.83	C773196	83.23	C742130	91.69	C739757	91.69
5/8	5/8	3/4	3	C747700	72.39	C773160	82.14	C772129	83.23	C747861	85.92
	5/8	1-1/4	3-1/2	C735073	74.03	C773197	84.43	C742140	89.50	C739765	89.50
	5/8	2-1/4	5	C735090	113.63	C773212	124.87	C739984	133.98	C747349	133.98
	5/8	3	6	C735100	122.58	C773226	134.72	C739900	143.63	C747244	143.63
3/4	3/4	1	3	C747705	100.89	C773161	112.48	C772130	119.00	C747856	119.00
	3/4	1-1/2	4	C735074	103.48	C773198	115.92	C742153	127.01	C739774	127.01
	3/4	2-1/4	5	C735092	156.91	C773213	170.29	C739988	192.98	C747353	192.98
	3/4	3	6	C735102	183.08	C773227	197.51	C739904	213.33	C747248	213.33
	3/4	4	7	C747999	314.22	C773228	329.89	C763766	337.85	C748001	337.85
	3/4	5	8	C747714	190.19	C773199	205.17	C742132	228.30	C739759	228.30
7/8	7/8	2-1/4	5	C747361	297.46	C773214	313.57	C739982	315.37	C747347	319.84
	7/8	3	6	C747256	326.01	C773229	343.47	C739898	345.41	C747242	386.51
	7/8	4	7	C747714	190.19	C773199	205.17	C742132	228.30	C739759	228.30
1	1	1-1/4	3-1/2	C770001	167.06	C773162	176.02	C772131	187.01	C770003	197.56
	1	1-1/2	4	C735075	174.22	C773200	192.13	C742200	212.33	C739799	212.33
	1	2-1/4	5	C735094	214.87	C773215	234.17	C739995	236.31	C747360	264.27
	1	3	6	C735104	309.35	C773230	330.24	C739911	362.28	C747255	362.28
	1	4	7	C747998	405.51	C773231	428.20	C763767	474.37	C748000	474.37
1-1/4	1-1/4	2	4-1/2	C751358	594.91	C773201	617.70	C751824	620.28	C751825	626.60

For technical information, see page 108

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Square - 30° Helix - Double-Ended



- Double-ended
- Offered in stub and regular length styles
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LENGTH OF CUT	OAL	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
$D1_{-0.002}^{+0.001}$	$D2 (h6)$	$L2$	$L1$				
1/16	1/8	1/8	1-1/2	C772426	14.38	C747987	18.56
3/32	1/8	3/16	1-1/2	C772427	14.83	C747992	19.05
1/8	1/8	1/4	1-1/2	C772428	11.94	C747990	16.12
	3/8	3/8	3-1/8	C772404*	53.63	C747923*	63.68
5/32	3/16	5/16	2	C772429	16.82	C747995	21.54
	3/8	7/16	3-1/4	C772405*	53.63	C747928*	63.68
3/16	3/16	3/8	2	C772430	16.82	C747991	21.54
	3/8	1/2	3-1/4	C772406*	53.63	C747925*	63.68
7/32	1/4	1/2	2-1/2	C772431	23.08	C747997	29.10
	3/8	9/16	3-1/2	C772407*	54.48	C747930*	65.17
1/4	1/4	1/2	2-1/2	C772432	23.08	C747989	29.10
	3/8	5/8	3-1/2	C772408*	54.48	C747922*	67.41
9/32	3/8	11/16	3-1/2	C772409*	55.82	C747931*	69.95
5/16	5/16	1/2	2-1/2	C772433	29.85	C747994	36.91
	3/8	3/4	3-1/2	C772410*	55.82	C747927*	69.95
11/32	3/8	3/4	3-1/2	C772411*	55.82	C747924*	69.95
3/8	3/8	9/16	2-1/2	C772434	32.93	C747993	40.75
	3/8	3/4	3-1/2	C772412*	55.82	C747926*	69.95
7/16	7/16	9/16	2-3/4	C772435	46.52	C747996	56.47
	1/2	7/8	4	C772413*	80.99	C747929*	104.08
1/2	1/2	5/8	3	C772436	56.96	C747988	73.13
	1/2	1	4	C772414*	90.99	C747921*	116.91

*Includes weldon flat

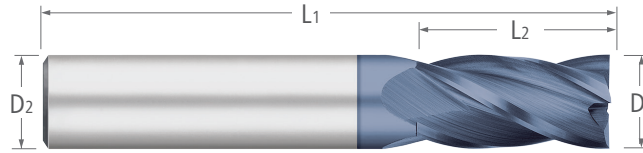
For technical information, see page 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Square - 30° Helix - Metric



- Offered in stub, regular, long, and extra long length styles
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LENGTH OF CUT	OAL	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
$D1_{-0.05}^{+0.00}$ mm	$D2$ (h6)	$L2$	$L1$				
1.0 mm	3 mm	3 mm	38 mm	C761500	13.53	C761501	17.06
1.5 mm	3 mm	4.5 mm	38 mm	C750475	13.53	C750495	17.06
2.0 mm	3 mm	6.3 mm	38 mm	C750476	13.53	C750496	17.06
2.5 mm	3 mm	9.5 mm	38 mm	C750477	13.53	C750497	17.06
3.0 mm	3 mm	6 mm	38 mm	C772493	13.53	C772502	17.71
	3 mm	12 mm	38 mm	C750478	13.53	C750498	17.06
	3 mm	18 mm	50 mm	C772511	13.88	C772527	18.06
	3 mm	25 mm	63 mm	C772559	13.88	C772574	18.36
3.5 mm	4 mm	12 mm	50 mm	C750479	16.67	C750499	20.35
4.0 mm	4 mm	8 mm	50 mm	C772494	16.67	C772503	21.39
	4 mm	14 mm	50 mm	C750480	16.67	C750500	21.04
	4 mm	20 mm	63 mm	C772512	16.96	C772528	21.99
	4 mm	25 mm	63 mm	C772560	16.96	C772575	21.99
4.5 mm	6 mm	16 mm	50 mm	C750481	20.40	C750501	25.72
5.0 mm	6 mm	10 mm	50 mm	C772495	20.40	C772504	26.02
	6 mm	16 mm	50 mm	C750482	20.40	C750502	25.72
	6 mm	25 mm	63 mm	C772513	20.75	C772529	26.77
	6 mm	32 mm	63 mm	C772561	20.75	C772576	26.77
5.5 mm	6 mm	16 mm	50 mm	C770005	20.40	C770008	25.72
6.0 mm	6 mm	12 mm	50 mm	C772496	21.29	C772505	26.96
	6 mm	19 mm	50 mm	C750483	21.39	C750503	26.87
	6 mm	25 mm	63 mm	C772514	21.84	C772530	27.86
	6 mm	32 mm	63 mm	C772562	21.84	C772577	27.86
6.5 mm	8 mm	19 mm	63 mm	C770006	23.28	C770009	29.25
7.0 mm	8 mm	19 mm	63 mm	C750484	23.28	C750504	29.25
7.5 mm	8 mm	19 mm	63 mm	C770007	24.08	C770010	30.40
8.0 mm	8 mm	12 mm	50 mm	C772497	24.08	C772506	32.14
	8 mm	20 mm	63 mm	C750485	24.08	C750505	30.40
	8 mm	26 mm	63 mm	C772515	24.38	C772531	32.98
	8 mm	32 mm	63 mm	C772516	24.38	C772532	32.98
	8 mm	38 mm	75 mm	C772563	24.38	C772578	32.98
	8 mm	45 mm	100 mm	C772564	25.42	C772579	34.63

continued on next page

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Square - 30° Helix - Metric (Cont.)

continued from previous page

CUTTER DIA. D ₁ ^{+0.00 mm} -0.05 mm	SHANK DIA. D ₂ (h6)	LENGTH OF CUT L ₂	OAL L ₁	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
9.0 mm	10 mm	22 mm	75 mm	C750486	35.22	C750506	44.48
10.0 mm	10 mm	16 mm	50 mm	C772498	44.53	C772507	53.93
	10 mm	22 mm	75 mm	C750487	44.73	C750507	54.68
	10 mm	28 mm	75 mm	C772517	44.53	C772533	54.48
	10 mm	34 mm	75 mm	C772518	44.92	C772534	54.92
	10 mm	40 mm	75 mm	C772565	44.92	C772580	54.92
	10 mm	45 mm	100 mm	C772566	46.57	C772581	57.21
11.0 mm	12 mm	25 mm	75 mm	C750488	49.10	C750508	60.74
12.0 mm	12 mm	16 mm	63 mm	C772499	50.94	C772508	62.59
	12 mm	25 mm	75 mm	C750489	50.94	C750509	62.59
	12 mm	35 mm	75 mm	C772519	50.94	C772535	62.59
	12 mm	50 mm	100 mm	C772520	52.59	C772536	65.07
	12 mm	63 mm	100 mm	C772567	52.59	C772582	65.07
	12 mm	75 mm	127 mm	C772568	54.23	C772583	67.66
14.0 mm	14 mm	18 mm	75 mm	C772500	86.22	C772509	99.70
	14 mm	32 mm	89 mm	C750490	86.61	C750510	102.68
	14 mm	50 mm	100 mm	C772521	87.76	C772537	102.24
	14 mm	75 mm	127 mm	C772569	88.06	C772584	103.63
16.0 mm	16 mm	20 mm	75 mm	C772501	98.21	C772510	114.28
	16 mm	32 mm	89 mm	C750491	98.21	C750511	117.06
	16 mm	50 mm	100 mm	C772522	99.90	C772538	117.11
	16 mm	75 mm	127 mm	C772570	101.19	C772585	119.75
18.0 mm	18 mm	38 mm	100 mm	C750492	135.02	C750512	160.10
	18 mm	50 mm	100 mm	C772523	134.42	C772539	151.64
	18 mm	75 mm	127 mm	C772571	136.56	C772586	155.07
20.0 mm	20 mm	38 mm	100 mm	C750493	213.13	C750513	253.87
	20 mm	50 mm	100 mm	C772524	213.13	C772540	233.92
	20 mm	63 mm	100 mm	C772525	213.13	C772541	233.92
	20 mm	75 mm	127 mm	C772572	215.32	C772587	237.76
25.0 mm	25 mm	38 mm	100 mm	C750494	278.00	C750514	302.93
	25 mm	50 mm	100 mm	C772526	278.00	C772542	302.93
	25 mm	75 mm	127 mm	C772573	280.24	C772588	307.11

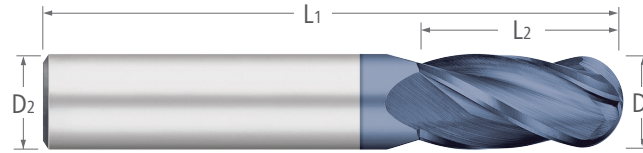
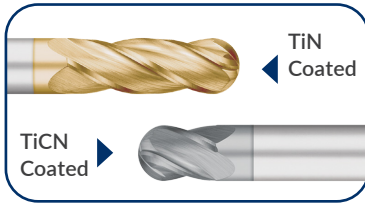
For technical information, see page 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Ball - 30° Helix



- Offered in stub, regular, long, and extra long length styles
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds

- TiCN coating adds enhanced performance when AlTiN cannot be used
- AlTiN coating offers increased wear and heat resistance

- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TIN COATED		TICN COATED		ALTiN COATED	
D1 ^{+0.000} _{-0.001} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/64	1/8	.023	1-1/2	C760162	19.15	C773232	22.19	C772132	22.19	C760164	23.33
	1/8	1/32	1-1/2	C747622	18.06	C773250	21.09	C742073	21.39	C747588	22.98
1/32	1/8	1/16	1-1/2	C747836	12.24	C773233	15.27	C772133	15.57	C747897	15.82
	1/8	1/8	1-1/2	C747623	11.59	C773251	14.63	C742075	14.93	C747590	15.12
3/64	1/8	3/32	1-1/2	C747842	12.24	C773234	15.27	C772134	15.57	C747903	15.82
	1/8	1/8	1-1/2	C747606	11.59	C773252	14.63	C742055	14.93	C747570	15.12
1/16	1/8	1/8	1-1/2	C747834	9.20	C773235	12.24	C772135	11.89	C747895	11.89
	1/8	1/4	1-1/2	C735223	10.75	C773253	13.78	C742077	14.13	C747592	14.53
5/64	1/8	1/8	1-1/2	C760163	14.88	C773236	17.91	C772136	18.21	C760165	18.81
	1/8	1/4	1-1/2	C747601	10.75	C773254	13.78	C742050	14.13	C747565	14.53
3/32	1/8	3/16	1-1/2	C747840	9.20	C773237	12.24	C772137	12.54	C747901	11.89
	1/8	3/8	1-1/2	C735160	11.29	C773255	14.33	C742057	14.63	C747572	15.32
7/64	1/8	3/8	1-1/2	C747597	11.29	C773256	14.33	C742046	14.63	C747561	15.32

D1 ^{+0.000} _{-0.002} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C747838	8.71	C773238	11.74	C772138	12.09	C747899	11.29
	1/8	1/2	1-1/2	C735128	10.35	C773257	13.38	C742072	13.68	C747587	14.03
	1/8	3/4	2-1/4	C747313	15.37	C773287	18.56	C739962	18.91	C747299	19.80
	1/8	1	3	C747208	17.31	C773301	20.50	C739877	22.14	C747194	22.14
9/64	3/16	9/16	2	C747593	15.02	C773258	18.46	C742042	19.35	C747557	19.75
5/32	3/16	5/16	2	C747845	14.53	C773239	17.91	C772139	18.31	C747906	18.81
	3/16	9/16	2	C735208	15.02	C773259	18.46	C742051	19.35	C747566	19.75
11/64	3/16	5/8	2	C747620	15.02	C773260	18.46	C742070	18.81	C747585	19.75
3/16	3/16	3/8	2	C747839	13.63	C773240	17.01	C772140	17.41	C747900	17.61
	3/16	5/8	2	C735139	13.53	C773261	16.92	C742058	17.41	C747573	18.26
	3/16	3/4	2-1/2	C747312	17.76	C773288	21.34	C739961	21.79	C747298	22.79
	3/16	1-1/8	3	C747207	20.75	C773302	24.33	C739873	24.53	C747193	24.53
13/64	1/4	5/8	2-1/2	C747618	19.70	C773262	24.03	C742068	24.48	C747583	25.12
7/32	1/4	7/16	2	C747848	18.46	C773241	22.54	C772141	22.93	C747909	23.68
	1/4	5/8	2-1/2	C747598	19.70	C773263	24.03	C742047	24.48	C747562	25.12
15/64	1/4	3/4	2-1/2	C735202	19.70	C773264	24.03	C742066	24.48	C747581	25.12
1/4	1/4	1/2	2	C747837	17.51	C773242	21.59	C772142	21.54	C747898	22.84
	1/4	3/4	2-1/2	C735126	19.15	C773265	23.53	C742074	23.93	C747589	23.93
	1/4	1	4	C747315	27.46	C773290	32.14	C739964	33.78	C747301	33.88
	1/4	1-1/8	3	C747314	24.88	C773289	29.20	C739963	30.55	C747300	30.89
	1/4	1-1/2	4	C747209	30.25	C773303	34.43	C739878	34.03	C747195	34.03
	1/4	1-1/2	6	C747210	35.72	C773304	41.09	C739879	41.69	C747196	42.24
17/64	5/16	3/4	2-1/2	C747615	24.88	C773266	28.66	C742065	30.60	C747580	32.09
9/32	5/16	3/4	2-1/2	C747594	24.92	C773267	30.10	C742043	30.65	C747558	32.14

continued on next page

For technical information, see page 108

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Ball - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		TIN COATED		TICN COATED		ALTiN COATED	
D1 ^{+0.000*} D1 _{-0.002*}	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
19/64	5/16	13/16	2-1/2	C747614	27.06	C773268	32.24	C742064	33.88	C747579	34.28
5/16	5/16	1/2	2	C747844	21.74	C773243	26.67	C772143	27.16	C747905	28.06
	5/16	13/16	2-1/2	C735119	22.93	C773269	28.11	C742052	28.71	C747567	29.75
	5/16	1-1/8	3	C747308	29.25	C773291	34.43	C739957	37.66	C747294	37.66
	5/16	1-5/8	4	C747203	36.57	C773305	42.14	C739868	44.97	C747189	44.97
21/64	3/8	1	2-1/2	C747613	31.49	C773270	37.66	C742063	38.36	C747578	40.55
11/32	3/8	1	2-1/2	C747621	33.08	C773271	39.25	C742071	39.90	C747586	41.64
23/64	3/8	1	2-1/2	C747612	31.49	C773272	37.66	C742062	38.36	C747577	40.55
3/8	3/8	5/8	2	C747843	28.06	C773244	33.83	C772144	34.48	C747904	34.53
	3/8	1	2-1/2	C735210	24.68	C773273	30.85	C742054	33.03	C747569	33.23
	3/8	1	4	C747310	41.39	C773293	48.01	C739959	51.24	C747296	51.24
	3/8	1-1/8	3	C747309	33.98	C773292	40.15	C739958	43.43	C747295	43.43
	3/8	1-1/2	6	C747205	55.72	C773307	63.48	C739870	65.97	C747191	66.52
	3/8	1-3/4	4	C735212	39.35	C773306	45.97	C739869	47.96	C747190	48.51
25/64	7/16	1	2-3/4	C747611	42.69	C773274	49.90	C742061	50.65	C747576	52.64
13/32	7/16	1	2-3/4	C747619	42.88	C773275	50.10	C742069	52.44	C747584	52.88
27/64	7/16	1	2-3/4	C747610	42.69	C773276	49.90	C742060	50.65	C747575	52.64
7/16	7/16	5/8	2-1/2	C747847	35.27	C773245	42.49	C772145	43.23	C747908	43.18
	7/16	1	2-3/4	C747599	36.32	C773277	43.53	C742048	44.63	C747563	46.27
	7/16	2	4	C747306	56.57	C773294	64.28	C739955	65.07	C747292	70.10
	7/16	3	6	C747201	83.28	C773308	92.19	C739866	93.18	C747187	101.84
29/64	1/2	1	3	C747609	56.27	C773278	64.68	C742059	65.57	C747574	69.10
15/32	1/2	1	3	C747617	56.27	C773279	64.68	C742067	65.57	C747582	69.10
31/64	1/2	1	3	C747604	56.27	C773280	64.68	C742053	65.57	C747568	67.91
1/2	1/2	5/8	2-1/2	C747835	44.18	C773246	52.59	C772146	53.93	C747896	55.87
	1/2	1	3	C735117	50.05	C773281	58.46	C742076	61.19	C747591	61.69
	1/2	1	4	C747316	57.91	C773295	66.91	C739965	70.20	C747302	70.40
	1/2	1-1/2	6	C747211	88.75	C773309	99.20	C739880	107.76	C747197	107.76
	1/2	2	4	C735214	58.51	C773296	67.51	C739966	70.74	C747303	70.99
	1/2	3	6	C747212	89.25	C773310	99.70	C739881	109.35	C747198	109.35
D1 ^{+0.000*} D1 _{-0.003*}	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
9/16	9/16	1-1/4	3-1/2	C747595	76.32	C773282	86.71	C742044	89.05	C747559	90.79
5/8	5/8	3/4	3	C747846	84.43	C773247	94.13	C772147	98.51	C747907	98.51
	5/8	1-1/4	3-1/2	C747600	80.55	C773283	90.94	C742049	92.14	C747564	98.95
	5/8	2-1/4	5	C735200	133.93	C773297	145.17	C739956	146.36	C747293	161.29
	5/8	3	6	C747202	140.05	C773311	152.19	C739867	153.53	C747188	164.03
3/4	3/4	1	3	C747841	128.95	C773248	140.59	C772148	141.84	C747902	156.61
	3/4	1-1/2	4	C735162	118.70	C773284	131.14	C742056	147.36	C747571	147.36
	3/4	2-1/4	5	C747311	185.62	C773298	198.95	C739960	200.44	C747297	224.02
	3/4	3	6	C735155	198.60	C773312	213.03	C739872	255.52	C747192	255.52
	3/4	4	7	C748003	328.60	C773313	344.27	C763768	346.01	C748005	350.34
7/8	7/8	1-1/2	4	C747596	229.85	C773285	244.82	C742045	246.46	C747560	278.30
	7/8	2-1/4	5	C747305	319.05	C773299	335.22	C739954	337.01	C747291	341.48
	7/8	3	6	C747200	351.48	C773314	368.95	C739865	370.89	C747186	417.45
1	1	1-1/4	3-1/2	C770002	198.85	C773249	216.81	C772149	218.85	C770004	232.98
	1	1-1/2	4	C735143	211.98	C773286	229.89	C742078	231.93	C750001	260.29
	1	2-1/4	5	C747318	367.30	C773300	386.61	C739967	382.33	C747304	430.39
	1	3	6	C747213	354.32	C773315	375.21	C739882	377.55	C747199	434.77
	1	4	7	C748002	430.64	C773316	453.32	C763769	455.81	C748004	486.41

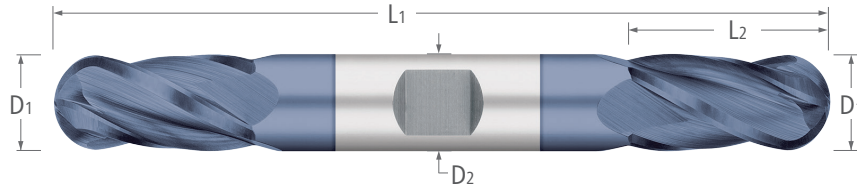
For technical information, see page 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Ball - 30° Helix - Double-Ended



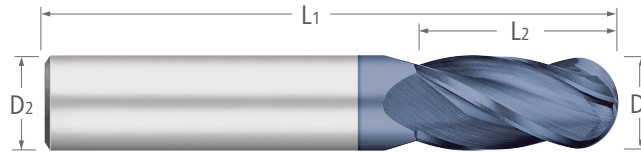
- Double-ended
- Offered in stub and regular length styles
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. D1 ^{+0.000} / _{-0.002} "	SHANK DIA. D2 (h6)	LENGTH OF CUT L2	OAL L1	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
1/16	1/8	1/8	1-1/2	C772437	17.96	C747965	23.13
3/32	1/8	3/16	1-1/2	C772438	18.51	C747970	23.78
1/8	1/8	1/4	1-1/2	C772439	14.97	C747968	19.20
	3/8	3/8	3-1/8	C772415*	60.99	C747945*	75.77
5/32	3/16	5/16	2	C772440	20.99	C747973	25.82
	3/8	7/16	3-1/4	C772416*	60.99	C747950*	75.77
3/16	3/16	3/8	2	C772441	20.99	C747969	25.82
	3/8	1/2	3-1/4	C772417*	60.99	C747947*	75.77
7/32	1/4	1/2	2-1/2	C772442	27.56	C747975	35.47
	3/8	9/16	3-1/2	C772418*	61.79	C747952*	78.31
1/4	1/4	1/2	2-1/2	C772443	27.56	C747967	35.47
	3/8	5/8	3-1/2	C772419*	61.79	C747944*	78.31
9/32	3/8	11/16	3-1/2	C772420*	67.71	C747953*	76.91
5/16	5/16	1/2	2-1/2	C772444	37.31	C747972	44.53
	3/8	3/4	3-1/2	C772421*	67.71	C747949*	87.01
11/32	3/8	3/4	3-1/2	C772422*	67.71	C747946*	76.91
3/8	3/8	9/16	2-1/2	C772445	41.14	C747971	49.75
	3/8	3/4	3-1/2	C772423*	67.71	C747948*	87.01
7/16	7/16	9/16	2-3/4	C772446	58.16	C747974	68.11
	1/2	7/8	4	C772424*	98.01	C747951*	110.49
1/2	1/2	5/8	3	C772447	71.14	C747966	91.44
	1/2	1	4	C772425	100.20	C747943	128.70

*Includes weldon flat

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Ball - 30° Helix - Metric



- Regular length for versatility
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LENGTH OF CUT	OAL	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
$D_1^{+0.00}_{-0.05}$ mm	D_2 (h6)	L_2	L_1				
1.0 mm	3 mm	3 mm	38 mm	C770011	15.37	C770035	19.55
1.5 mm	3 mm	4.5 mm	38 mm	C770012	15.37	C770036	19.55
2.0 mm	3 mm	6.3 mm	38 mm	C770013	15.37	C770037	19.55
2.5 mm	3 mm	9.5 mm	38 mm	C770014	15.37	C770038	19.55
3.0 mm	3 mm	12 mm	38 mm	C770015	15.37	C770039	19.55
3.5 mm	4 mm	12 mm	50 mm	C770016	18.91	C770040	23.63
4.0 mm	4 mm	14 mm	50 mm	C770017	18.91	C770041	23.63
4.5 mm	6 mm	16 mm	50 mm	C770018	23.13	C770042	28.81
5.0 mm	6 mm	16 mm	50 mm	C770019	23.13	C770043	28.81
5.5 mm	6 mm	16 mm	50 mm	C770020	23.13	C770044	28.81
6.0 mm	6 mm	19 mm	50 mm	C770021	24.18	C770045	29.85
6.5 mm	8 mm	19 mm	63 mm	C770022	27.46	C770046	33.83
7.0 mm	8 mm	19 mm	63 mm	C770023	27.46	C770047	33.83
7.5 mm	8 mm	19 mm	63 mm	C770024	28.56	C770048	35.22
8.0 mm	8 mm	20 mm	63 mm	C770025	28.66	C770049	35.22
9.0 mm	10 mm	22 mm	75 mm	C770026	39.95	C770050	49.95
10.0 mm	10 mm	22 mm	75 mm	C770027	52.29	C770051	62.29
11.0 mm	12 mm	25 mm	75 mm	C770028	55.77	C770052	67.46
12.0 mm	12 mm	25 mm	75 mm	C770029	58.16	C770053	70.30
14.0 mm	14 mm	32 mm	89 mm	C770030	98.36	C770054	118.90
16.0 mm	16 mm	32 mm	89 mm	C770031	111.54	C770055	128.75
18.0 mm	18 mm	38 mm	100 mm	C770032	152.63	C770056	169.90
20.0 mm	20 mm	38 mm	100 mm	C770033	242.08	C770057	293.92
25.0 mm	25 mm	38 mm	100 mm	C770034	315.71	C770058	340.64

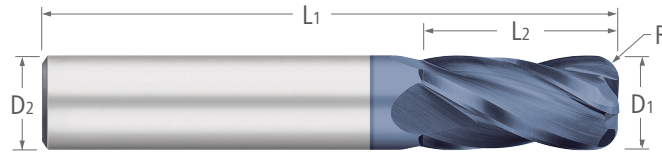
For technical information, see page 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Corner Radius - 30° Helix



- Offered in stub, regular, long, and extra long length styles
- Corner radius for increased edge strength
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LENGTH OF CUT	OAL	UNCOATED		ALTiN COATED	
$D1^{+0.000}_{-0.002}$	D2 (h6)	$R^{+0.001}_{-0.001}$	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	.005	1/4	1-1/2	C774210	8.71	C774257	15.27
	1/8	.005	1/2	1-1/2	C774220	11.94	C774267	17.66
	1/8	.005	3/4	2-1/4	C774231	16.32	C774278	20.75
	1/8	.005	1	3	C774244	18.51	C774291	22.93
	1/8	.010	1/4	1-1/2	C774211	8.71	C774258	15.27
	1/8	.010	1/2	1-1/2	C774221	11.94	C774268	17.66
	1/8	.010	3/4	2-1/4	C774232	16.32	C774279	20.60
	1/8	.010	1	3	C774245	18.51	C774292	22.93
	1/8	.015	1/4	1-1/2	C772905	8.71	C771514	15.27
	1/8	.015	1/2	1-1/2	C772953	11.94	C743652	17.66
	1/8	.015	3/4	2-1/4	C773001	16.32	C751601	20.60
	1/8	.015	1	3	C773066	18.51	C751745	22.49
	1/8	.020	1/4	1-1/2	C772906	8.71	C771515	15.27
	1/8	.020	1/2	1-1/2	C772954	11.94	C743651	17.66
	1/8	.020	3/4	2-1/4	C773002	16.32	C751602	20.60
	1/8	.020	1	3	C773067	18.51	C751746	22.93
	1/8	.030	1/4	1-1/2	C772907	8.71	C771516	15.27
	1/8	.030	1/2	1-1/2	C772955	11.94	C751528	17.66
	1/8	.030	3/4	2-1/4	C773003	16.32	C751603	20.60
	1/8	.030	1	3	C773068	18.51	C751747	22.93
3/16	3/16	.005	3/8	2	C774212	13.63	C774259	18.56
	3/16	.005	5/8	2	C774222	13.08	C774269	20.75
	3/16	.005	3/4	2-1/2	C774233	18.91	C774280	23.93
	3/16	.005	1-1/8	3	C774246	20.30	C774293	25.32
	3/16	.010	3/8	2	C774213	13.63	C774260	18.56
	3/16	.010	5/8	2	C774223	13.08	C774270	20.75
	3/16	.010	3/4	2-1/2	C774234	18.91	C774281	23.93
	3/16	.010	1-1/8	3	C774247	20.30	C774294	25.32
	3/16	.015	3/8	2	C772908	13.63	C771517	18.56
	3/16	.015	5/8	2	C772956	13.08	C743650	20.75
	3/16	.015	3/4	2-1/2	C773004	18.91	C751604	23.93
	3/16	.015	1-1/8	3	C773069	20.30	C751748	25.32
	3/16	.020	3/8	2	C772909	13.63	C771518	18.56
	3/16	.020	5/8	2	C772957	13.08	C743649	20.75
	3/16	.020	3/4	2-1/2	C773005	18.91	C751605	23.93
	3/16	.020	1-1/8	3	C773070	20.30	C751749	25.32
	3/16	.030	3/8	2	C772910	13.63	C771519	18.56
	3/16	.030	5/8	2	C772958	13.08	C743648	20.75
	3/16	.030	3/4	2-1/2	C773006	18.91	C751606	23.93
	3/16	.030	1-1/8	3	C773071	20.30	C751750	25.32

END MILLS

Roughers

For Aluminum

Carbide

Cobalt

For technical information, see page 108

continued on next page



GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Corner Radius - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LENGTH OF CUT	OAL	UNCOATED		ALTIN COATED	
$D_1^{+.000^*}_{-.002^*}$	$D_2 (h6)$	$R^{+.001^*}_{-.001^*}$	L_2	L_1	TOOL #	PRICE	TOOL #	PRICE
1/4	1/4	.005	1/2	2	C774214	17.46	C774261	23.08
	1/4	.005	3/4	2-1/2	C774224	17.41	C774271	24.28
	1/4	.005	1	4	C774237	27.76	C774284	34.18
	1/4	.005	1-1/8	3	C774235	26.42	C774282	32.44
	1/4	.005	1-1/2	4	C774248	28.21	C774295	34.63
	1/4	.005	1-1/2	6	C774250	37.91	C774297	45.37
	1/4	.010	1/2	2	C774215	17.46	C774262	22.98
	1/4	.010	3/4	2-1/2	C774225	17.41	C774272	24.28
	1/4	.010	1	4	C774238	27.76	C774285	34.18
	1/4	.010	1-1/8	3	C774236	26.42	C774283	32.44
	1/4	.010	1-1/2	4	C774249	28.21	C774296	34.63
	1/4	.010	1-1/2	6	C774251	37.91	C774298	45.37
	1/4	.015	1/2	2	C772911	17.46	C771520	22.98
	1/4	.015	3/4	2-1/2	C772959	17.41	C743657	24.28
	1/4	.015	1	4	C773012	27.76	C751612	34.18
	1/4	.015	1-1/8	3	C773007	26.42	C751607	32.44
	1/4	.015	1-1/2	4	C773072	28.21	C751751	33.98
	1/4	.015	1-1/2	6	C773077	37.91	C751756	45.37
	1/4	.020	1/2	2	C772912	17.46	C771521	22.98
	1/4	.020	3/4	2-1/2	C772960	17.41	C743656	24.28
	1/4	.020	1	4	C773013	27.76	C751613	34.18
	1/4	.020	1-1/8	3	C773008	26.42	C751608	32.44
	1/4	.020	1-1/2	4	C773073	28.21	C751752	34.63
	1/4	.020	1-1/2	6	C773078	37.91	C751757	45.37
	1/4	.030	1/2	2	C772913	17.46	C771522	22.98
	1/4	.030	3/4	2-1/2	C772961	17.41	C743655	24.28
	1/4	.030	1	4	C773014	27.76	C751614	34.18
	1/4	.030	1-1/8	3	C773009	26.42	C751609	32.44
	1/4	.030	1-1/2	4	C773074	28.21	C751753	34.63
	1/4	.030	1-1/2	6	C773079	37.91	C751758	45.37
	1/4	.045	1/2	2	C772914	17.46	C771523	22.98
	1/4	.045	3/4	2-1/2	C772962	17.41	C743654	24.28
	1/4	.045	1	4	C773015	27.76	C751615	34.18
	1/4	.045	1-1/8	3	C773010	26.42	C751610	32.44
	1/4	.045	1-1/2	4	C773075	28.21	C751754	34.63
	1/4	.045	1-1/2	6	C773080	37.91	C751759	45.37
	1/4	.060	1/2	2	C772915	17.46	C771524	22.98
	1/4	.060	3/4	2-1/2	C772963	17.41	C743653	24.28
	1/4	.060	1	4	C773016	27.76	C751616	34.18
	1/4	.060	1-1/8	3	C773011	26.42	C751611	32.44
1/4	.060	1-1/2	4	C773076	28.21	C751755	34.63	
1/4	.060	1-1/2	6	C773081	37.91	C751760	45.37	
5/16	5/16	.015	1/2	2	C772916	21.74	C771525	30.15
	5/16	.015	13/16	2-1/2	C772964	27.61	C743635	34.48
	5/16	.015	1-1/8	3	C773017	29.95	C751617	37.16
	5/16	.015	1-5/8	4	C773082	38.76	C751761	46.52
	5/16	.020	1/2	2	C772917	21.74	C771526	30.15
	5/16	.020	13/16	2-1/2	C772965	27.61	C743634	34.48
	5/16	.020	1-1/8	3	C773018	29.95	C751618	37.16

continued on next page

For technical information, see page 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Corner Radius - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LENGTH OF CUT	OAL	UNCOATED		ALTiN COATED	
D1 ^{+0.000*} -0.002*	D2 (h6)	R ^{+0.001*} -0.001*	L2	L1	TOOL #	PRICE	TOOL #	PRICE
5/16	5/16	.020	1-5/8	4	C773083	38.76	C751762	46.52
	5/16	.030	1/2	2	C772918	21.74	C771527	30.15
	5/16	.030	13/16	2-1/2	C772966	27.61	C743633	34.48
	5/16	.030	1-1/8	3	C773019	29.95	C751619	37.16
	5/16	.030	1-5/8	4	C773084	38.76	C751763	46.52
	5/16	.045	1/2	2	C772919	21.74	C771528	30.15
	5/16	.045	13/16	2-1/2	C772967	27.61	C743632	34.48
	5/16	.045	1-1/8	3	C773020	29.95	C751620	37.16
	5/16	.045	1-5/8	4	C773085	38.76	C751764	46.52
	5/16	.060	1/2	2	C772920	21.74	C771529	30.15
	5/16	.060	13/16	2-1/2	C772968	27.61	C743631	34.48
	5/16	.060	1-1/8	3	C773021	29.95	C751621	37.16
5/16	.060	1-5/8	4	C773086	38.76	C751765	46.52	
3/8	3/8	.010	5/8	2	C774216	28.06	C774263	37.51
	3/8	.010	1	2-1/2	C774226	32.74	C774273	41.34
	3/8	.010	1	4	C774240	47.11	C774287	56.32
	3/8	.010	1-1/8	3	C774239	38.56	C774286	47.11
	3/8	.010	1-1/2	6	C774253	59.95	C774300	71.39
	3/8	.010	1-3/4	4	C774252	42.29	C774299	51.49
	3/8	.015	5/8	2	C772921	28.06	C771530	37.51
	3/8	.015	1	2-1/2	C772969	32.74	C743640	41.34
	3/8	.015	1	4	C773027	47.11	C751627	56.32
	3/8	.015	1-1/8	3	C773022	38.56	C751622	47.11
	3/8	.015	1-1/2	6	C773092	59.95	C751771	71.39
	3/8	.015	1-3/4	4	C773087	42.29	C751766	51.49
	3/8	.020	5/8	2	C772922	28.06	C771531	37.51
	3/8	.020	1	2-1/2	C772970	32.74	C743639	41.34
	3/8	.020	1	4	C773028	47.11	C751628	56.32
	3/8	.020	1-1/8	3	C773023	38.56	C751623	47.11
	3/8	.020	1-1/2	6	C773093	59.95	C751772	71.39
	3/8	.020	1-3/4	4	C773088	42.29	C751767	51.49
	3/8	.030	5/8	2	C772923	28.06	C771532	37.51
	3/8	.030	1	2-1/2	C772971	32.74	C743638	41.34
	3/8	.030	1	4	C773029	47.11	C751629	56.32
	3/8	.030	1-1/8	3	C773024	38.56	C751624	47.11
	3/8	.030	1-1/2	6	C773094	59.95	C751773	71.39
	3/8	.030	1-3/4	4	C773089	42.29	C751768	51.49
	3/8	.045	5/8	2	C772924	28.06	C771533	37.51
	3/8	.045	1	2-1/2	C772972	32.74	C743637	41.34
	3/8	.045	1	4	C773030	47.11	C751630	56.32
	3/8	.045	1-1/8	3	C773025	38.56	C751625	47.11
	3/8	.045	1-1/2	6	C773095	59.95	C751774	71.39
	3/8	.045	1-3/4	4	C773090	42.29	C751769	51.49
	3/8	.060	5/8	2	C772925	44.18	C771534	39.75
	3/8	.060	1	2-1/2	C772973	32.74	C743636	41.34
	3/8	.060	1	4	C773031	47.11	C751631	56.32
	3/8	.060	1-1/8	3	C773026	38.56	C751626	47.11
	3/8	.060	1-1/2	6	C773096	59.95	C751775	71.39
	3/8	.060	1-3/4	4	C773091	42.29	C751770	51.49
3/8	.090	5/8	2	C774217	28.06	C774264	37.51	

continued on next page

For technical information, see page 108

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Corner Radius - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LENGTH OF CUT	OAL	UNCOATED		ALTiN COATED	
D ₁ ^{+0.000} _{-0.002} "	D ₂ (h6)	R ^{+0.001} _{-0.001} "	L ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE
3/8	3/8	.090	1	2-1/2	C774227	32.74	C774274	41.34
	3/8	.125	5/8	2	C774218	28.06	C774265	37.51
	3/8	.125	1	2-1/2	C774228	32.74	C774275	41.34
1/2	1/2	.010	5/8	2-1/2	C774219	44.18	C774266	58.01
	1/2	.010	1	3	C774229	56.02	C774276	65.27
	1/2	.010	1	4	C774241	66.12	C774288	78.61
	1/2	.010	2	4	C774254	90.79	C774301	108.06
	1/2	.010	1-1/2	6	C774242	70.55	C774289	82.98
	1/2	.010	3	6	C774255	95.17	C774302	109.70
	1/2	.015	5/8	2-1/2	C772926	44.18	C771535	58.01
	1/2	.015	1	3	C772974	56.02	C743664	65.27
	1/2	.015	1	4	C773032	66.12	C751632	78.61
	1/2	.015	1-1/2	6	C773097	90.79	C751776	108.06
	1/2	.015	2	4	C773039	70.55	C751639	82.98
	1/2	.015	3	6	C773104	95.17	C751783	109.70
	1/2	.020	5/8	2-1/2	C772927	44.18	C771536	58.01
	1/2	.020	1	3	C772975	56.02	C743663	65.27
	1/2	.020	1	4	C773033	66.12	C751633	78.61
	1/2	.020	1-1/2	6	C773098	90.79	C751777	105.32
	1/2	.020	2	4	C773040	70.55	C751640	82.98
	1/2	.020	3	6	C773105	95.17	C751784	113.33
	1/2	.030	5/8	2-1/2	C772928	44.18	C771537	58.01
	1/2	.030	1	3	C772976	56.02	C743662	65.27
	1/2	.030	1	4	C773034	66.12	C751634	78.61
	1/2	.030	1-1/2	6	C773099	90.79	C751778	108.06
	1/2	.030	2	4	C773041	70.55	C751641	82.98
	1/2	.030	3	6	C773106	95.17	C751785	113.33
	1/2	.045	5/8	2-1/2	C772929	44.18	C771538	58.01
	1/2	.045	1	3	C772977	56.02	C743661	65.27
	1/2	.045	1	4	C773035	66.12	C751635	78.61
	1/2	.045	1-1/2	6	C773100	90.79	C751779	108.06
	1/2	.045	2	4	C773042	70.55	C751642	82.98
	1/2	.045	3	6	C773107	95.17	C751786	113.33
	1/2	.060	5/8	2-1/2	C772930	44.18	C771539	58.01
	1/2	.060	1	3	C772978	56.02	C743660	65.27
	1/2	.060	1	4	C773036	66.12	C751636	78.61
	1/2	.060	1-1/2	6	C773101	90.79	C751780	108.06
	1/2	.060	2	4	C773043	70.55	C751643	82.98
	1/2	.060	3	6	C773108	95.17	C751787	113.33
1/2	.090	5/8	2-1/2	C772931	44.18	C771540	55.87	
1/2	.090	1	3	C772979	56.02	C743659	65.27	
1/2	.090	1	4	C773037	66.12	C751637	78.61	
1/2	.090	1-1/2	6	C773102	90.79	C751781	108.06	
1/2	.090	2	4	C773044	70.55	C751644	82.98	
1/2	.090	3	6	C773109	95.17	C751788	109.70	
1/2	.125	5/8	2-1/2	C772932	44.18	C771541	58.01	
1/2	.125	1	3	C772980	56.02	C743658	65.27	
1/2	.125	1	4	C773038	66.12	C751638	78.61	
1/2	.125	1-1/2	6	C773103	90.79	C751782	108.06	
1/2	.125	2	4	C773045	70.55	C751645	82.98	
1/2	.125	3	6	C773110	95.17	C751789	113.33	

For technical information, see page 108

continued on next page



GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Corner Radius - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LENGTH OF CUT	OAL	UNCOATED		ALTiN COATED	
D1 ^{+0.001"} _{-0.002"}	D2 (h6)	R ^{+0.001"} _{-0.001"}	L2	L1	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	.015	3/4	3	C772933	84.43	C771542	97.96
	5/8	.015	1-1/4	3-1/2	C772981	86.86	C743630	101.34
	5/8	.015	2-1/4	5	C773046	125.17	C751646	149.00
	5/8	.015	3	6	C773111	133.93	C751790	159.50
	5/8	.020	3/4	3	C772934	84.43	C771543	97.96
	5/8	.020	1-1/4	3-1/2	C772982	86.86	C743629	101.34
	5/8	.020	2-1/4	5	C773047	125.17	C751647	140.74
	5/8	.020	3	6	C773112	133.93	C751791	159.50
	5/8	.030	3/4	3	C772935	84.43	C771544	97.96
	5/8	.030	1-1/4	3-1/2	C772983	86.86	C743628	101.34
	5/8	.030	2-1/4	5	C773048	125.17	C751648	149.00
	5/8	.030	3	6	C773113	133.93	C751792	159.50
	5/8	.045	3/4	3	C772936	84.43	C771545	97.96
	5/8	.045	1-1/4	3-1/2	C772984	86.86	C743627	101.34
	5/8	.045	2-1/4	5	C773049	125.17	C751649	149.00
	5/8	.045	3	6	C773114	133.93	C751793	150.74
	5/8	.060	3/4	3	C772937	84.43	C771546	97.96
	5/8	.060	1-1/4	3-1/2	C772985	86.86	C743626	101.34
	5/8	.060	2-1/4	5	C773050	125.17	C751650	149.00
	5/8	.060	3	6	C773115	133.93	C751794	150.74
	5/8	.090	3/4	3	C772938	84.43	C771547	97.96
5/8	.090	1-1/4	3-1/2	C772986	86.86	C743625	101.34	
5/8	.090	2-1/4	5	C773051	125.17	C751651	140.74	
5/8	.090	3	6	C773116	133.93	C751795	150.74	
3/4	3/4	.015	1	3	C772939	128.40	C771548	144.47
	3/4	.015	1-1/2	4	C772987	128.55	C743647	145.82
	3/4	.015	2-1/4	5	C773052	174.52	C751652	193.98
	3/4	.015	3	6	C773117	186.86	C751796	206.91
	3/4	.015	4	7	C773124	301.88	C751803	359.44
	3/4	.020	1	3	C772940	128.40	C771549	140.44
	3/4	.020	1-1/2	4	C772988	128.55	C743646	145.82
	3/4	.020	2-1/4	5	C773053	174.52	C751653	193.98
	3/4	.020	3	6	C773118	186.86	C751797	218.85
	3/4	.020	4	7	C773125	301.88	C751804	323.67
	3/4	.030	1	3	C772941	128.40	C771550	140.44
	3/4	.030	1-1/2	4	C772989	128.55	C743645	145.82
	3/4	.030	2-1/4	5	C773054	174.52	C751654	193.98
	3/4	.030	3	6	C773119	186.86	C751798	218.85
	3/4	.030	4	7	C773126	301.88	C751805	359.44
	3/4	.045	1	3	C772942	128.40	C771551	144.47
	3/4	.045	1-1/2	4	C772990	128.55	C743644	145.82
	3/4	.045	2-1/4	5	C773055	174.52	C751655	193.08
	3/4	.045	3	6	C773120	186.86	C751799	206.91
	3/4	.045	4	7	C773127	301.88	C751806	359.44
	3/4	.060	1	3	C772943	128.40	C771552	140.44
	3/4	.060	1-1/2	4	C772991	128.55	C743643	145.82
	3/4	.060	2-1/4	5	C773056	174.52	C751656	193.98
	3/4	.060	3	6	C773121	186.86	C751800	218.85
	3/4	.060	4	7	C773128	301.88	C751807	359.44
	3/4	.090	1	3	C772944	128.40	C771553	144.47

continued on next page

For technical information, see page 108

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Corner Radius - 30° Helix (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LENGTH OF CUT	OAL	UNCOATED		ALTiN COATED	
D1 ^{+0.000*} -0.003*	D2 (h6)	R ^{+0.001*} -0.001*	L2	L1	TOOL #	PRICE	TOOL #	PRICE
3/4	3/4	.090	1-1/2	4	C772992	128.55	C743642	145.82
	3/4	.090	2-1/4	5	C773057	174.52	C751657	193.98
	3/4	.090	3	6	C773122	186.86	C751801	206.91
	3/4	.090	4	7	C773129	301.88	C751808	359.44
	3/4	.125	1	3	C772945	128.40	C771554	140.44
	3/4	.125	1-1/2	4	C772993	128.55	C743641	145.82
	3/4	.125	2-1/4	5	C773058	174.52	C751658	193.98
	3/4	.125	3	6	C773123	186.86	C751802	218.85
	3/4	.125	4	7	C773130	301.88	C751809	359.44
	3/4	.250	1-1/2	4	C774230	128.55	C774277	145.82
	3/4	.250	2-1/4	5	C774243	174.52	C774290	193.98
	3/4	.250	3	6	C774256	186.86	C774303	218.85
1	1	.015	1-1/4	3-1/2	C772946	198.85	C771555	255.27
	1	.015	1-1/2	4	C772994	243.28	C751529	268.20
	1	.015	2-1/4	5	C773059	255.91	C751659	282.78
	1	.015	3	6	C773131	315.56	C751810	344.62
	1	.015	4	7	C773138	431.88	C751817	514.22
	1	.020	1-1/4	3-1/2	C772947	198.85	C771556	255.27
	1	.020	1-1/2	4	C772995	243.28	C751530	268.20
	1	.020	2-1/4	5	C773060	255.91	C751660	304.72
	1	.020	3	6	C773132	315.56	C751811	344.62
	1	.020	4	7	C773139	431.88	C751818	514.22
	1	.030	1-1/4	3-1/2	C772948	198.85	C771557	223.78
	1	.030	1-1/2	4	C772996	243.28	C751531	268.20
	1	.030	2-1/4	5	C773061	255.91	C751661	304.72
	1	.030	3	6	C773133	315.56	C751812	356.71
	1	.030	4	7	C773140	431.88	C751819	463.42
	1	.045	1-1/4	3-1/2	C772949	198.85	C771558	255.27
	1	.045	1-1/2	4	C772997	243.28	C751532	268.20
	1	.045	2-1/4	5	C773062	255.91	C751662	282.78
	1	.045	3	6	C773134	315.56	C751813	344.62
	1	.045	4	7	C773141	431.88	C751820	463.42
	1	.060	1-1/4	3-1/2	C772950	198.85	C771559	223.78
	1	.060	1-1/2	4	C772998	243.28	C751533	268.20
	1	.060	2-1/4	5	C773063	255.91	C751663	304.72
	1	.060	3	6	C773135	315.56	C751814	356.71
	1	.060	4	7	C773142	431.88	C751821	514.22
	1	.090	1-1/4	3-1/2	C772951	198.85	C771560	223.78
	1	.090	1-1/2	4	C772999	243.28	C751534	268.20
	1	.090	2-1/4	5	C773064	255.91	C751664	282.78
	1	.090	3	6	C773136	315.56	C751815	356.71
	1	.090	4	7	C773143	431.88	C751822	463.42
	1	.125	1-1/4	3-1/2	C772952	198.85	C771561	223.78
	1	.125	1-1/2	4	C773000	243.28	C751535	268.20
	1	.125	2-1/4	5	C773065	255.91	C751665	304.72
	1	.125	3	6	C773137	315.56	C751816	356.71
	1	.125	4	7	C773144	431.88	C751823	514.22

For technical information, see page 108

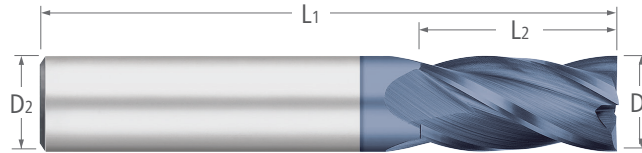
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Square - 30° Helix - NC Tolerance

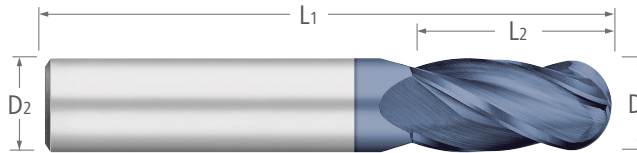


- Excellent for keyways
- Tight tolerance for precision machining
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ALTiN COATED	
$D1_{-0.000}^{+0.001}$	$D2_{(h6)}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
1/16	1/8	3/16	1-1/2	C774781	12.64	C774796	16.82
3/32	1/8	3/8	1-1/2	C774782	13.48	C774797	17.66
1/8	1/8	1/2	1-1/2	C774783	15.87	C774798	20.05
5/32	3/16	9/16	2	C774784	19.35	C774799	24.03
3/16	3/16	5/8	2	C774785	22.74	C774800	27.41
7/32	1/4	5/8	2-1/2	C774786	28.11	C774801	34.13
1/4	1/4	3/4	2-1/2	C774787	32.04	C774802	38.01
9/32	5/16	3/4	2-1/2	C774788	34.97	C774803	42.19
5/16	5/16	13/16	2-1/2	C774789	37.91	C774804	45.12
3/8	3/8	1	2-1/2	C774790	39.60	C774805	48.16
7/16	7/16	1	2-3/4	C774791	51.49	C774806	61.49
1/2	1/2	1	3	C774792	63.68	C774807	75.32
5/8	5/8	1-1/4	3-1/2	C774793	133.43	C774808	147.91
3/4	3/4	1-1/2	4	C774794	193.08	C774809	210.29
1	1	1-1/2	4	C774795	315.91	C774810	340.84

GENERAL PURPOSE END MILLS - CARBIDE

4 Flute - Ball - 30° Helix - NC Tolerance



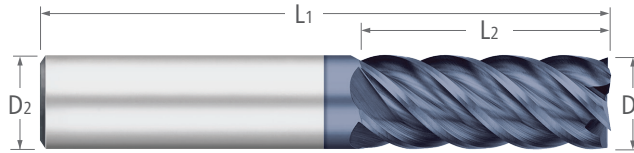
- Excellent for keyways
- Tight tolerance for precision machining
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	UNCOATED		ALTiN COATED	
$D1_{-0.000}^{+0.001}$	$D2_{(h6)}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
1/16	1/8	3/16	1-1/2	C774841	15.17	C774856	19.35
3/32	1/8	3/8	1-1/2	C774842	16.17	C774857	20.35
1/8	1/8	1/2	1-1/2	C774843	19.05	C774858	23.23
5/32	3/16	9/16	2	C774844	23.18	C774859	27.91
3/16	3/16	5/8	2	C774845	27.26	C774860	31.99
7/32	1/4	5/8	2-1/2	C774846	33.73	C774861	39.75
1/4	1/4	3/4	2-1/2	C774847	38.46	C774862	44.48
9/32	5/16	3/4	2-1/2	C774848	41.99	C774863	49.20
5/16	5/16	13/16	2-1/2	C774849	45.52	C774864	52.74
3/8	3/8	1	2-1/2	C774850	47.51	C774865	56.12
7/16	7/16	1	2-3/4	C774851	61.79	C774866	71.79
1/2	1/2	1	3	C774852	76.42	C774867	88.06
5/8	5/8	1-1/4	3-1/2	C774853	160.10	C774868	174.57
3/4	3/4	1-1/2	4	C774854	231.69	C774869	248.90
1	1	1-1/2	4	C774855	379.14	C774870	404.07

For technical information, see page 108

GENERAL PURPOSE END MILLS - CARBIDE

5 Flute - Square - 45° Helix



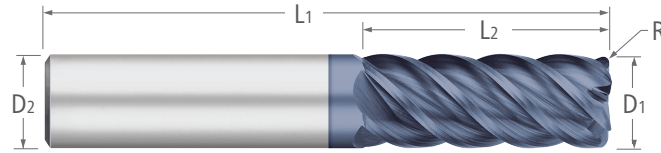
- Excellent performance in profiling and finishing applications
- Offered in stub and regular length styles
- 45° helix for faster chip removal and a better finish
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LENGTH OF CUT	OAL	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
$D1^{+0.000}_{-0.002}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C772653	8.11	C744525	10.10
	1/8	1/2	1-1/2	C772671	15.57	C748126	18.66
3/16	3/16	3/8	2	C772654	12.79	C744524	15.17
	3/16	3/4	2	C772672	19.60	C748127	23.08
1/4	1/4	1/2	2	C772655	15.42	C744526	18.16
	1/4	3/4	2-1/2	C772673	21.04	C748125	24.88
5/16	5/16	1/2	2	C772656	18.56	C744521	22.93
	5/16	7/8	2-1/2	C772674	25.42	C748130	29.90
3/8	3/8	5/8	2	C772657	30.50	C744522	35.97
	3/8	1	2-1/2	C772675	34.03	C748129	40.15
7/16	7/16	5/8	2-1/2	C772658	34.87	C744519	41.09
1/2	1/2	5/8	2-1/2	C772659	40.30	C744527	47.51
	1/2	1-1/4	3	C772676	63.53	C748124	75.17
$D1^{+0.000}_{-0.003}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	3/4	3	C772660	71.49	C744520	85.02
	5/8	1-5/8	3-1/2	C772677	120.44	C748131	142.83
3/4	3/4	1	3	C772661	96.37	C744523	112.48
	3/4	1-5/8	4	C772678	169.35	C748128	194.17

NEW SIZES!

GENERAL PURPOSE END MILLS - CARBIDE

5 Flute - Corner Radius - 45° Helix



- Excellent performance in profiling and finishing applications
- Offered in stub and regular length styles
- 45° helix for faster chip removal and a better finish
- Corner radius for increased edge strength
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

	CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	UNCOATED		ALTiN COATED	
	D1 ^{+0.000"} _{-0.002"}	D2 (h6)	R ^{+0.001"} _{-0.001"}	L2	L1	TOOL #	PRICE	TOOL #	PRICE
NEW NEW NEW NEW	1/8	1/8	.010	1/4	1-1/2	C772662	9.35	C751423	11.24
		1/8	.010	1/2	1-1/2	C772679	17.41	C751440	21.54
		1/8	.020	1/4	1-1/2	C776212	9.35	C776242	13.53
		1/8	.020	1/2	1-1/2	C776228	17.41	C776258	21.59
		1/8	.030	1/4	1-1/2	C776213	9.35	C776243	13.53
		1/8	.030	1/2	1-1/2	C776229	17.41	C776259	21.59
NEW NEW NEW NEW NEW NEW	3/16	3/16	.010	3/8	2	C772663	14.33	C751424	16.96
		3/16	.010	3/4	2	C772680	21.89	C751441	25.77
		3/16	.020	3/8	2	C776214	14.33	C776244	19.05
		3/16	.020	3/4	2	C776230	21.89	C776260	26.62
		3/16	.030	3/8	2	C776215	14.33	C776245	19.05
		3/16	.030	3/4	2	C776231	21.89	C776261	26.62
NEW NEW NEW NEW NEW NEW	1/4	1/4	.010	1/2	2	C776216	17.21	C776246	22.84
		1/4	.010	3/4	2-1/2	C776232	23.53	C776262	29.55
		1/4	.020	1/2	2	C772664	17.21	C751425	20.25
		1/4	.020	3/4	2-1/2	C772681	23.53	C751442	27.71
		1/4	.030	1/2	2	C776217	17.21	C776247	22.84
		1/4	.030	3/4	2-1/2	C776233	23.53	C776263	29.55
NEW NEW NEW NEW NEW NEW	5/16	5/16	.010	1/2	2	C776218	20.70	C776248	27.51
		5/16	.010	7/8	2-1/2	C776234	28.36	C776264	35.57
		5/16	.020	1/2	2	C772665	20.70	C751426	25.62
		5/16	.020	7/8	2-1/2	C772682	28.36	C751443	33.43
		5/16	.030	1/2	2	C776219	20.70	C776249	27.51
		5/16	.030	7/8	2-1/2	C776235	28.36	C776265	35.57
NEW NEW NEW NEW NEW NEW	3/8	3/8	.010	5/8	2	C776220	34.08	C776250	42.14
		3/8	.010	1	2-1/2	C776236	38.01	C776266	46.57
		3/8	.020	5/8	2	C772666	34.08	C751427	40.10
		3/8	.020	1	2-1/2	C772683	38.01	C751444	44.82
		3/8	.030	5/8	2	C776221	34.08	C776251	42.14
		3/8	.030	1	2-1/2	C776237	38.01	C776267	46.57
NEW NEW NEW NEW NEW NEW	1/2	1/2	.020	5/8	2-1/2	C776222	44.97	C776252	56.62
		1/2	.020	1-1/4	3	C776238	70.94	C776268	82.59
		1/2	.030	5/8	2-1/2	C776223	44.97	C776253	56.62
		1/2	.030	1-1/4	3	C776239	70.94	C776269	82.59
		1/2	.040	5/8	2-1/2	C772668	44.97	C751429	53.03
		1/2	.040	1-1/4	3	C772684	70.94	C751445	82.59

continued on next page

For technical information, see page 109

GENERAL PURPOSE END MILLS - CARBIDE

5 Flute - Corner Radius - 45° Helix (Cont.)

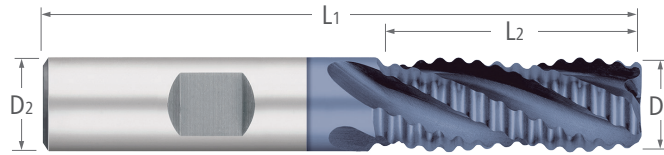
**NEW
SIZES!**

continued from previous page

CUTTER DIA. $D_1^{+.000''}$ $-.003''$	SHANK DIA. $D_2 (h6)$	RADIUS $R^{+.001''}$ $-.001''$	LOC L_2	OAL L_1	UNCOATED		ALTIM COATED		
					TOOL #	PRICE	TOOL #	PRICE	
5/8	5/8	.020	3/4	3	C776224	76.42	C776254	89.95	NEW
	5/8	.030	3/4	3	C776225	76.42	C776255	89.95	NEW
	5/8	.040	3/4	3	C772669	76.42	C751430	89.95	
	5/8	.040	1-5/8	3-1/2	C772685	128.60	C751446	152.53	
3/4	3/4	.020	1	3	C776226	102.93	C776256	119.00	NEW
	3/4	.020	1-5/8	4	C776240	180.89	C776270	198.15	NEW
	3/4	.030	1	3	C776227	102.93	C776257	119.00	NEW
	3/4	.030	1-5/8	4	C776241	180.89	C776271	198.15	NEW
	3/4	.040	1	3	C772670	102.93	C751431	119.00	
	3/4	.040	1-5/8	4	C772686	180.89	C751447	207.36	

GENERAL PURPOSE END MILLS - COBALT

Roughers - Coarse Pitch - 30° Helix



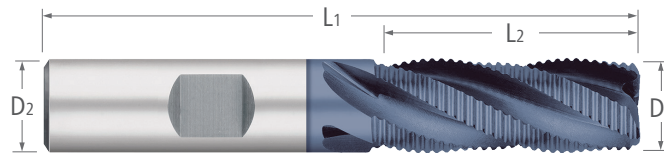
- Coarse pitch for increased metal removal rates (MRR) with decreased horse power requirements
- Weldon flat
- M42 cobalt
- AlTiN coating offers increased wear and heat resistance
- Precision manufactured in the USA

CUTTER DIA. D1 ^{+0.005"} _{-0.005"}	SHANK DIA. D2 ^{+0.001"} _{-0.005"}	LOC L2	FLUTES	OAL L1	UNCOATED		ALTiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
1/4	3/8	5/8	4	2-7/16	C774460	56.37	C750598	62.09
5/16	3/8	3/4	4	2-1/2	C774461	61.94	C750599	67.81
3/8	3/8	3/4	4	2-1/2	C774462	64.87	C750600	70.79
7/16	3/8	1	4	2-11/16	C774463	65.32	C750601	71.24
1/2	1/2	1	4	3	C774464	65.02	C750602	72.59
1/2	1/2	1-1/4	4	3-1/4	C774465	67.06	C750603	75.02
5/8	5/8	1-5/8	4	3-3/4	C774466	86.02	C750604	95.47
3/4*	3/4	1-5/8	4	3-7/8	C774467	94.03	C750605	105.07
7/8*	3/4	1-7/8	5	4-1/8	C774468	132.98	C750606	145.62
1*	1	2	5	4-1/2	C774469	124.08	C750607	140.74
1-1/8*	1	2	6	4-1/2	C774470	199.05	C750608	225.87
1-1/4*	1-1/4	2	6	4-1/2	C774471	214.77	C750609	236.06
1-1/2*	1-1/4	2	6	4-1/2	C774472	254.62	C750610	276.86
2*	1-1/4	2	8	4-1/2	C774473	359.99	C750612	391.63

*Non Center Cutting

GENERAL PURPOSE END MILLS - COBALT

Roughers - Fine Pitch - 30° Helix



- Fine pitch for maximized material removal rates (MRR) and minimized vibration or chatter
- Weldon flat
- M42 cobalt
- AlTiN coating offers increased wear and heat resistance
- Precision manufactured in the USA

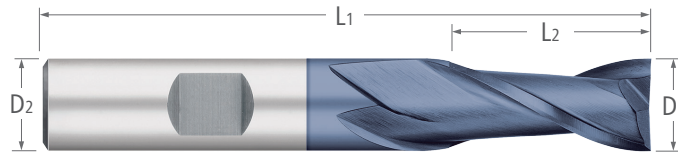
CUTTER DIA. D1 ^{+0.005"} _{-0.005"}	SHANK DIA. D2 ^{+0.001"} _{-0.005"}	LOC L2	FLUTES	OAL L1	UNCOATED		ALTiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
1/4	3/8	5/8	4	2-7/16	C774474	56.37	C750650	62.09
5/16	3/8	3/4	4	2-1/2	C774475	61.94	C750651	67.81
3/8	3/8	3/4	4	2-1/2	C774476	65.32	C750652	71.24
7/16	3/8	1	4	2-11/16	C774477	65.67	C750653	71.59
1/2	1/2	1-1/4	4	3-1/4	C774478	64.63	C750654	72.59
5/8	5/8	1-5/8	4	3-3/4	C774479	86.02	C750655	95.47
3/4*	3/4	1-5/8	4	3-7/8	C774480	94.03	C750656*	105.07
7/8*	3/4	1-7/8	5	4-1/8	C774481	124.38	C750657*	136.81
1*	1	2	5	4-1/2	C774482	124.13	C750658*	140.79
1-1/8*	1	2	6	4-1/2	C774483	213.53	C750659*	240.39
1-1/4*	1-1/4	2	6	4-1/2	C774484	214.77	C750660*	246.41
1-1/2*	1-1/4	2	6	4-1/2	C774485	269.15	C750661*	300.79
2*	1-1/4	2	8	4-1/2	C774486	385.81	C750663*	417.50

*Non Center Cutting

For technical information, see page 107

GENERAL PURPOSE END MILLS - COBALT

2 Flute - Square - 30° Helix



- Center cutting
- M42 cobalt
- AlTiN coating offers increased wear and heat resistance
- Precision manufactured in the USA

CUTTER DIA. $D1_{-0.0000}^{+0.0015}$	SHANK DIA. $D2_{-0.0005}^{-0.0001}$	LENGTH OF CUT L ₂	OAL L ₁	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
1/8	3/8	3/8	2-5/16	C772150	23.18	C763537	29.70
3/16	3/8	7/16	2-5/16	C772151	23.18	C763539	29.70
1/4	3/8	1/2	2-5/16	C772152	29.35	C763541	29.70
5/16	3/8	9/16	2-5/16	C772153	29.35	C763543	29.70
3/8	3/8	9/16	2-5/16	C772154	23.18	C763544	29.70
7/16	3/8	13/16	2-1/2	C772155	31.84	C763545	40.45
1/2	3/8	13/16	2-1/2	C772156	39.20	C763546	41.04
	1/2	1	3	C772157	33.88	C763547	43.38
9/16	1/2	1-1/8	3-1/8	C772158	38.16	C763548	48.80
5/8	1/2	1-1/8	3-1/8	C772159	51.94	C763549	54.68
	5/8	1-5/16	3-7/16	C772160	43.38	C763550	55.52
3/4	1/2	1-5/16	3-5/16	C772161	60.89	C763551	63.53
	5/8	1-5/16	3-7/16	C772162	60.89	C763552	63.53
	3/4	1-5/16	3-9/16	C772163	60.89	C763553	63.53
13/16	5/8	1-1/2	3-5/8	C772164	61.04	C763554	75.52
	3/4	1-1/2	3-3/4	C772165	61.44	C763555	78.31
7/8	3/4	1-1/2	3-3/4	C772166	67.61	C763557	84.82
	7/8	1-1/2	3-3/4	C772167	67.61	C763558	86.96
15/16	5/8	1-1/2	3-5/8	C772168	77.81	C763559	92.29
	3/4	1-1/2	3-3/4	C772169	82.93	C763560	100.20
1	3/4	1-1/2	3-3/4	C772170	83.98	C763563	88.46
	1	1-5/8	4-1/8	C772171	96.27	C763565	100.69
1-1/8	1	1-5/8	4-1/8	C772172	123.43	C763567	150.29
1-1/4	1	1-5/8	4-1/8	C772173	144.08	C763569	170.94
1-1/2	1-1/4	1-5/8	4-1/8	C772174	175.37	C763573	207.01

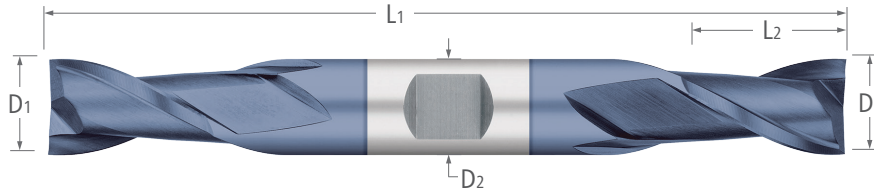
For technical information, see page 110

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE END MILLS - COBALT

2 Flute - Square - 30° Helix - Double-Ended



- Double-ended
- Center cutting
- Weldon flat
- AlTiN coating offers increased wear and heat resistance
- M42 cobalt
- Precision manufactured in the USA

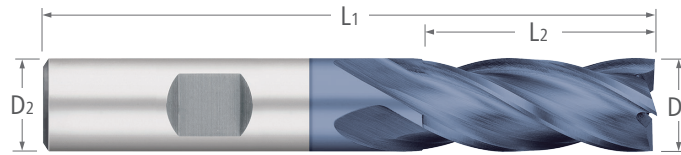
CUTTER DIA. D1 ^{+0.0000°} _{-0.0015°}	SHANK DIA. D2 ^{-0.0001°} _{-0.0005°}	LENGTH OF CUT L2	OAL L1	UNCOATED		ALTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
1/8	3/8	3/8	3-1/16	C772212	35.72	C763671	44.92
5/32	3/8	7/16	3-1/8	C772213	38.01	C763672	47.21
3/16	3/8	7/16	3-1/4	C772214	35.72	C763673	44.92
7/32	3/8	1/2	3-1/4	C772215	38.01	C763674	47.21
1/4	3/8	1/2	3-3/8	C772216	35.92	C763675	45.12
9/32	3/8	9/16	3-3/8	C772217	38.01	C763676	47.21
5/16	3/8	9/16	3-1/2	C772218	41.99	C763677	45.42
11/32	3/8	9/16	3-1/2	C772219	38.01	C763678	47.21
3/8*	3/8	9/16	3-1/2	C772220	35.92	C763679	45.12
13/32	1/2	13/16	4-1/8	C772221	47.46	C763680	60.89
7/16	1/2	13/16	4-1/8	C772222	54.77	C763681	68.21
1/2*	1/2	13/16	3-3/4	C772223	55.07	C763683	67.56
9/16	5/8	1-1/8	5	C772224	70.20	C763684	85.77
5/8*	5/8	1-1/8	5	C772225	79.60	C763685	86.71
3/4*	3/4	1-5/16	5	C772226	96.42	C763687	114.97
7/8*	7/8	1-9/16	5-1/2	C772227	112.48	C763689	136.71
1*	1	1-5/8	5-7/8	C772228	157.41	C763691	169.00

*Tolerance is +.000"/-.0025

END MILLS
Roughers
For Aluminum
Carbide
Cobalt

GENERAL PURPOSE END MILLS - COBALT

4 & 6 Flute - Square - 30° Helix



- Center cutting
- Stocked in 4 and 6 flute options
- Weldon flat
- AlTiN coating offers increased wear and heat resistance
- M42 cobalt
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	FLUTES	OAL	UNCOATED		ALTiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
$D_1^{+0.0015}$ $_{-0.0000}$	$D_2^{-0.0001}$ $_{-0.0005}$	L_2		L_1				
1/8	3/8	3/8	4	2-5/16	C772175	24.03	C763612	30.25
5/32	3/8	7/16	4	2-5/16	C772176	32.29	C763613	40.84
3/16	3/8	1/2	4	2-3/8	C772177	24.03	C763614	30.25
7/32	3/8	1/2	4	2-3/8	C772178	32.29	C763615	40.84
1/4	3/8	5/8	4	2-7/16	C772179	24.13	C763616	30.25
9/32	3/8	11/16	4	2-1/2	C772180	32.29	C763617	40.84
5/16	3/8	3/4	4	2-1/2	C772181	24.13	C763618	30.25
11/32	3/8	3/4	4	2-1/2	C772182	32.98	C763619	41.54
3/8	3/8	3/4	4	2-1/2	C772183	24.13	C763620	30.25
13/32	3/8	1	4	2-11/16	C772184	48.16	C763621	56.76
7/16	3/8	1	4	2-11/16	C772185	31.79	C763622	40.40
15/32	3/8	1	4	2-11/16	C772186	50.84	C763623	59.95
1/2	3/8	1	4	2-11/16	C772187	39.10	C763624	40.89
	1/2	1-1/4	4	3-1/4	C772188	31.99	C763625	40.89
17/32	1/2	1-3/8	4	3-3/8	C772189	59.65	C763626	72.14
9/16	1/2	1-3/8	4	3-3/8	C772190	38.21	C763627	49.10
5/8	1/2	1-3/8	4	3-3/8	C772191	43.53	C763628	53.43
	5/8	1-5/8	4	3-3/4	C772192	49.40	C763629	59.35
11/16	1/2	1-5/8	4	3-5/8	C772193	52.19	C763630	61.94
	5/8	1-5/8	4	3-3/4	C772194	53.58	C763631	63.18
3/4	1/2	1-5/8	4	3-5/8	C772195	74.33	C763632	75.12
	5/8	1-5/8	4	3-3/4	C772196	74.33	C763633	75.12
	3/4	1-5/8	4	3-7/8	C772197	63.13	C763634	75.12
13/16	3/4	1-7/8	4	4-1/8	C772198	69.75	C763635	84.87
7/8	3/4	1-7/8	4	4-1/8	C772199	68.95	C763636	84.58
	7/8	1-7/8	4	4-1/8	C772200	68.95	C763637	84.58
15/16	3/4	1-7/8	4	4-1/8	C772201	87.16	C763638	105.72
1	3/4	1-7/8	4	4-1/8	C772202	91.44	C763639	96.22
	1	2	4	4-1/2	C772203	82.59	C763641	101.89
1-1/8	3/4	1-5/8	6	3-7/8	C772204	122.19	C763642	139.45
1-1/4	1	2	6	4-1/2	C772205	132.83	C763643	155.87
	1-1/4	2	6	4-1/2	C772206	136.07	C763644	167.76
1-3/8	3/4	2	6	4-1/4	C772207	189.75	C763645	208.25
1-1/2	1	2	6	4-1/2	C772208	215.57	C763646	242.43
	1-1/4	2	4	4-1/2	C772209	177.21	C763647	208.85
1-5/8	1-1/4	2	6	4-1/2	C772210	288.50	C763648	320.19
2	1-1/4	2	6	4-1/2	C772211	326.86	C763649	358.50

For technical information, see page 110

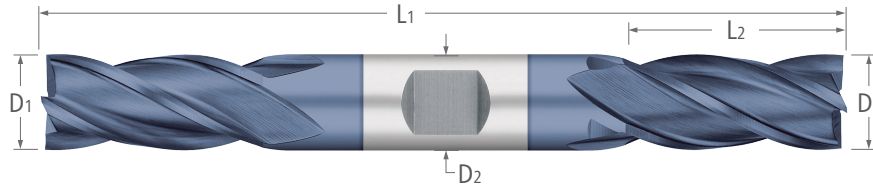
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE END MILLS - COBALT

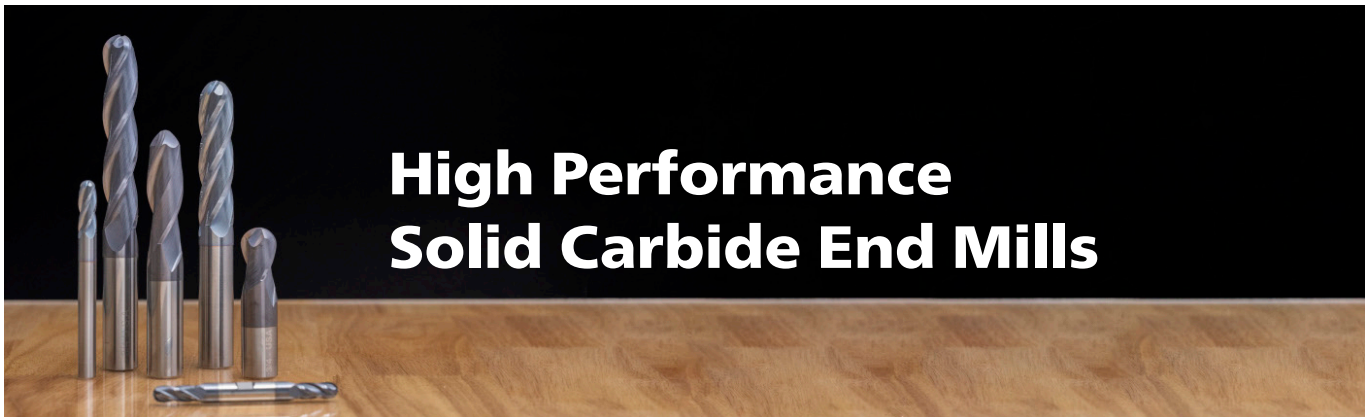
4 Flute - Square - 30° Helix - Double-Ended



- Double-ended
- Center cutting
- Weldon flat
- AlTiN coating offers increased wear and heat resistance
- M42 cobalt
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LENGTH OF CUT	OAL	UNCOATED		ALTiN COATED	
$D_1^{+0.0000/-0.0015}$	$D_2^{-0.0001/-0.0005}$	L ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE
1/8	3/8	3/8	3-1/16	C772229	36.22	C763713	45.37
5/32	3/8	7/16	3-1/8	C772230	38.21	C763714	47.36
3/16	3/8	1/2	3-1/4	C772231	36.22	C763715	45.37
7/32	3/8	9/16	3-1/4	C772232	38.21	C763716	47.36
1/4	3/8	5/8	3-3/8	C772233	36.42	C763717	45.62
9/32	3/8	11/16	3-3/8	C772234	38.21	C763718	47.36
5/16	3/8	3/4	3-1/2	C772235	42.49	C763719	45.87
11/32	3/8	3/4	3-1/2	C772236	38.21	C763720	47.36
3/8*	3/8	3/4	3-1/2	C772237	36.42	C763721	45.62
13/32	1/2	1	4-1/8	C772238	55.87	C763722	69.30
7/16	1/2	1	4-1/8	C772239	54.38	C763723	67.81
1/2*	1/2	1	4-1/8	C772240	54.63	C763725	68.06
9/16	5/8	1-3/8	5	C772241	71.79	C763726	87.36
5/8*	5/8	1-3/8	5	C772242	72.14	C763727	85.27
3/4*	3/4	1-5/8	5-5/8	C772243	95.52	C763729	107.36
7/8*	7/8	1-7/8	6-1/8	C772244	112.04	C763731	138.31
1*	1	1-7/8	6-3/8	C772245	136.02	C763733	176.31

*Tolerance is +.000"/-.0025



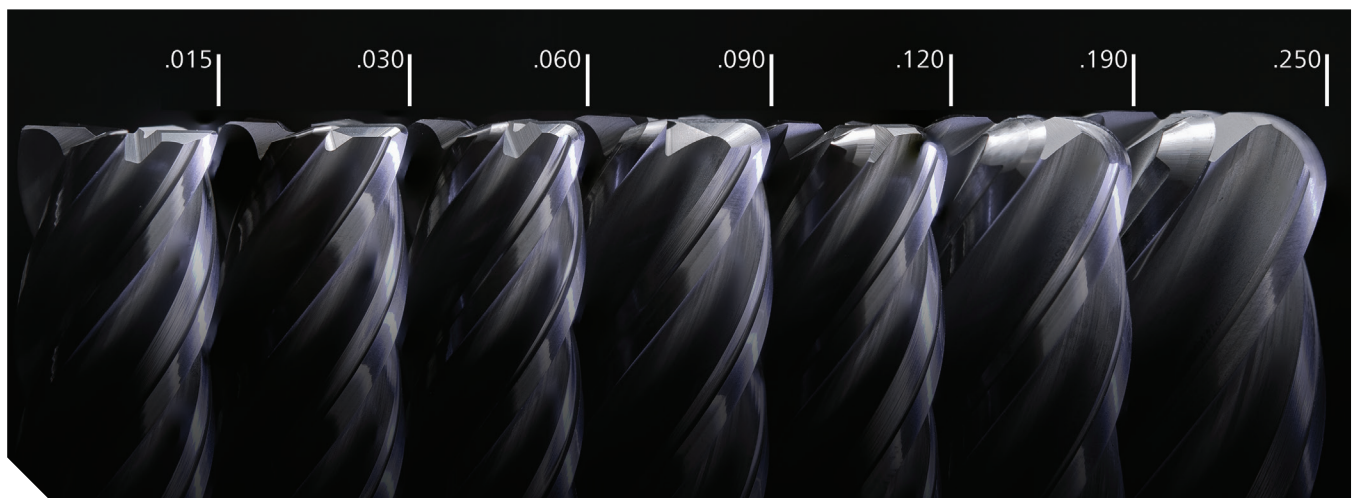
High Performance Solid Carbide End Mills

Our High Performance carbide end mills incorporate the ultimate in variable index geometry. Our flute configuration produces a harmonics shift, resulting in minimal chatter and an exceptional finish.

- 4, 5 and 6 flute square and corner radius chipbreakers
- 7 flute square and corner radius
- Post polished AlCrO-MAX coating covers a wide range of materials
- Made in the USA from premium micrograin carbide
- Used in all slotting, roughing, profiling and finishing applications
- High performance, chatter free machining provides versatility in use for all ferrous materials
- Designed for use in Alloy steels, Inconel, Cast Iron, Titanium, Stainless Steel, High Temp and all other exotic materials up to 50 Rc
- Enables higher SFM and heavier chip loads
- Eccentric relief on the cutting edge provides enhanced edge strength
- Available in 4, 5, 6, 7 Flute - stub, regular, long & extra long lengths
- Available in Square End, Ball Nose and various Corner Radius sizes
- 4 flute recommended for slotting up to 1 x Diameter

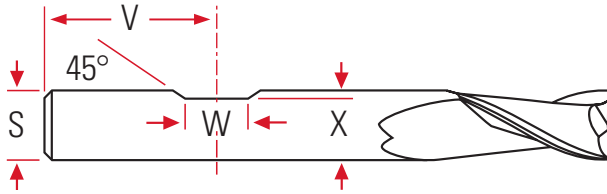
OUTPERFORM WITH CORNER RADIUS TOOLS

The sharp corner of an end mill is the weakest point on the tool. The corner radius design eliminates this vulnerability which reduces chipping and provides longer tool life. Our tools are available with corner radii starting at .010" to .250". Longer tool life means increased productivity which has real impact on your bottom line.



WELDON FLAT SPECIFICATIONS

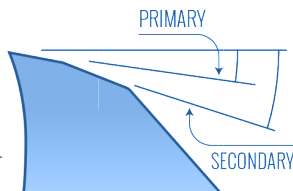
HIGH PERFORMANCE



S Shank Dia.	Stub Length				Regular Length				Long Length				Extra Long Length			
	V	W		X	V	W		X	V	W		X	V	W		X
		Min.	Max.			Min.	Max.			Min.	Max.			Min.	Max.	
1/2 (1-1/4 LOC)	-	-	-	-	.750	.330	.332	.440	-	-	-	-	-	-	-	-
1/2 (2 LOC)	-	-	-	-	-	-	-	-	.875	.330	.332	.440	-	-	-	-
1/2	.750	.330	.332	.440	.875	.330	.332	.440	1.250	.330	.332	.440	1.500	.330	.332	.440
5/8 (1-1/4 LOC)	-	-	-	-	1.250	.400	.402	.560	-	-	-	-	-	-	-	-
5/8	.750	.400	.402	.560	.875	.400	.402	.560	1.250	.400	.402	.560	1.500	.400	.402	.560
3/4	.750	.455	.457	.675	.875	.455	.457	.675	1.250	.455	.457	.675	1.500	.455	.457	.675
1 (1-1/2 LOC)	-	-	-	-	1.375	.515	.517	.925	-	-	-	-	-	-	-	-
1	-	-	-	-	0.875	.515	.517	.925	1.250	.515	.517	0.925	1.500	.515	.517	0.925

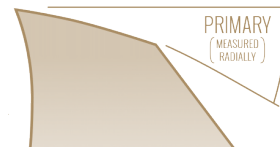
Our High Performance carbide end mills utilize an Eccentric Relief on the cutting edge to provide enhanced edge strength and a smoother cutting action.

General Purpose Standard Relief



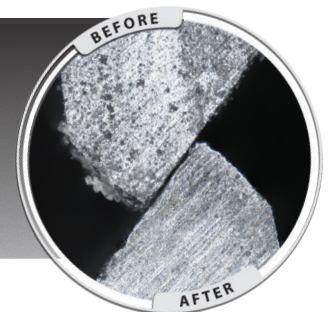
Most common relief for non-ferrous alloys. Includes a primary and secondary relief angle.

High performance End Mill Eccentric Relief



A powerful edge design for ferrous and tough material cutting. This design includes a primary relief measured radially along its edge.

4 on-site Otec Post Polish and Edge Prep machines

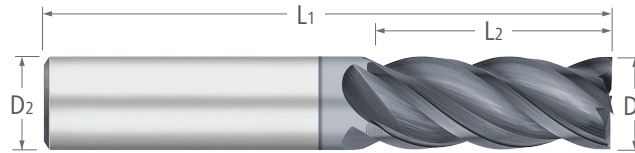


BENEFITS OF POST POLISHING

AlCrO-MAX by nature of the coating process leaves tiny "droplets" of the coating on the surface of the tool. Proven results have shown that the removal of these droplets provide a smoother tool surface which results in a better cut. Perhaps the most important benefit is that the tool is able to run at faster feed rates due to the smoothness of the flute area. This results in better chip evacuation and cooler temperatures resulting in longer tool life.

HIGH PERFORMANCE END MILLS - CARBIDE

4 Flute - Square



- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Offered in stub, regular, long, and extra long length styles
- Delivers efficient, chatter-free machining in roughing, profiling, finishing, and slotting applications up to 1x diameter
- Large core and eccentric relief for improved tool life
- Post-polished ALCrO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	ALCrO-MAX COATED		ALCrO-MAX COATED + WELDON FLAT	
				TOOL #	PRICE	TOOL #	PRICE
$D1^{+0.001}$ $D1_{-0.002}$	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C766053	16.72		
	1/8	1/2	2	C766061	20.00		
	1/8	3/4	2	C773317	21.54		
	1/8	1	2-1/2	C773457	25.52		
3/16	3/16	3/8	2	C766054	21.54		
	3/16	9/16	2	C766062	22.74		
	3/16	3/4	2	C773318	24.23		
	3/16	1	2-1/2	C773458	28.31		
1/4	1/4	3/8	2	C765011	24.33		
	1/4	3/4	2-1/2	C765035	28.86		
	1/4	1-1/8	3	C765061	33.03		
	1/4	1-1/2	4	C765088	39.25		
5/16	5/16	7/16	2	C765012	35.42		
	5/16	13/16	2-1/2	C765036	38.21		
	5/16	1-1/8	3	C765062	45.42		
3/8	3/8	1/2	2	C765013	39.05		
	3/8	1	2-1/2	C765037	44.97		
	3/8	1-1/4	3	C765063	61.34		
	3/8	2	4	C765089	68.80		
7/16	7/16	5/8	2-1/2	C766055	50.89		
	7/16	1	2-3/4	C766063	55.77		
	7/16	2	4	C766077	77.81		
	7/16	3	6	C766083	113.38		
1/2	1/2	5/8	2-1/2	C765014	58.41	C765017	62.34
	1/2	1	3	C765038	67.11	C765043	71.14
	1/2	1-1/4	3	C765039	67.11	C765044	71.14
	1/2	1-1/2	4	C765064	84.72	C765069	88.46
	1/2	2	4	C765065	93.43	C765070	97.71
	1/2	3	6	C765090	132.48	C765096	136.46

continued on next page

HIGH PERFORMANCE END MILLS - CARBIDE 4 Flute - Square (Cont.)

continued from previous page

CUTTER DIA. D1 ^{+0.000"} -0.003"	SHANK DIA. D2 (h6)	LOC L2	OAL L1	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
				TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	3/4	3	C765015	115.02	C765018	119.45
	5/8	1-1/4	3-1/2	C773363	119.15	C773365	128.11
	5/8	1-5/8	3-1/2	C765040	122.14	C765045	126.07
	5/8	2-1/4	5	C765066	173.83	C765071	178.85
	5/8	3	6	C765091	187.46	C765097	192.63
3/4	3/4	1	3	C765016	151.69	C765019	156.51
	3/4	1-5/8	4	C765041	168.70	C765046	172.88
	3/4	2-1/4	5	C765067	210.34	C765072	215.72
	3/4	3	6	C765092	248.65	C765098	253.18
	3/4	4	7	C765093	408.35	C765099	413.62
1	1	1-1/2	4	C773364	303.67	C773366	317.60
	1	2	4	C765042	313.47	C765047	319.84
	1	2-1/4	5	C765068	346.71	C765073	353.37
	1	3	6	C765094	405.41	C765100	410.69
	1	4-1/4	7	C765095	598.44	C765101	604.91

HIGH PERFORMANCE

DID YOU KNOW?



Premature tool wear and breakage are easily avoidable, but can lead to poor part finish, machine downtime, and even scrapped parts.

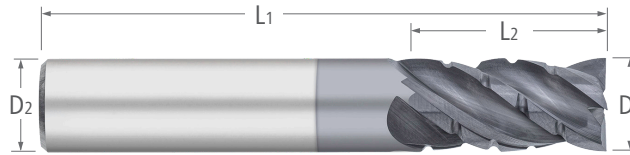
Read More : **End Mill and Milling Troubleshooting Guide** on our technical blog, "In The Loupe"

harveyperformance.com/in-the-loupe/end-mill-troubleshooting-guide



HIGH PERFORMANCE END MILLS - CARBIDE

4 Flute - Square - Chipbreaker



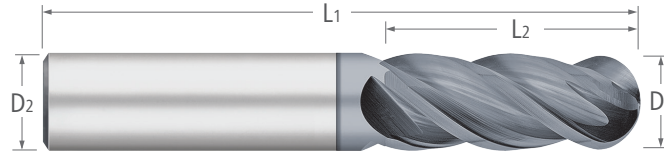
- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Engineered with chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure
- Offered in regular, long, and extra long length styles
- Delivers efficient, chatter-free machining in roughing, profiling, finishing, and slotting applications up to 1x diameter
- Large core and eccentric relief for improved tool life
- Post-polished AlCrO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LENGTH OF CUT	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
				TOOL #	PRICE	TOOL #	PRICE
$D1^{+0.000}_{-0.002}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/2	2	C773367	23.88		
	1/8	3/4	2	C773319	25.42		
	1/8	1	2-1/2	C773459	29.50		
3/16	3/16	9/16	2	C773368	26.62		
	3/16	3/4	2	C773320	28.21		
	3/16	1	2-1/2	C773460	32.24		
1/4	1/4	3/4	2-1/2	C773369	34.87		
	1/4	1-1/8	3	C773321	39.45		
	1/4	1-1/2	4	C773461	45.87		
5/16	5/16	13/16	2-1/2	C773370	44.23		
	5/16	1-1/8	3	C773322	52.04		
3/8	3/8	1	2-1/2	C773371	50.79		
	3/8	1-1/4	3	C773323	67.06		
	3/8	2	4	C773462	74.82		
7/16	7/16	1	2-3/4	C773372	61.54		
	7/16	2	4	C773324	80.60		
	7/16	3	6	C773463	121.59		
1/2	1/2	1	3	C773373	75.02	C773380	81.99
	1/2	1-1/4	3	C773374	75.02	C773381	81.99
	1/2	1-1/2	4	C773325	92.19	C773330	99.15
	1/2	2	4	C773326	101.34	C773331	108.31
	1/2	3	6	C773464	140.59	C773470	147.56
$D1^{+0.000}_{-0.003}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	1-1/4	3-1/2	C773375	127.81	C773382	136.76
	5/8	1-5/8	3-1/2	C773376	130.25	C773383	139.20
	5/8	2-1/4	5	C773327	182.63	C773332	191.59
	5/8	3	6	C773465	197.36	C773471	206.31
3/4	3/4	1-5/8	4	C773377	178.90	C773384	189.85
	3/4	2-1/4	5	C773328	221.34	C773333	232.28
	3/4	3	6	C773466	258.45	C773472	269.40
	3/4	4	7	C773467	417.30	C773473	428.25
1	1	1-1/2	4	C773378	314.62	C773385	328.55
	1	2	4	C773379	324.47	C773386	338.40
	1	2-1/4	5	C773329	357.65	C773334	371.58
	1	3	6	C773468	414.47	C773474	428.40
	1	4-1/4	7	C773469	606.60	C773475	620.53

For technical information, see page 111

HIGH PERFORMANCE END MILLS - CARBIDE

4 Flute - Ball



- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Offered in stub, regular, long, and extra long length styles
- Delivers efficient, chatter-free machining in roughing, profiling, finishing, and slotting applications up to 1x diameter
- Large core and eccentric relief for improved tool life
- Post-polished ALCRO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

HIGH PERFORMANCE

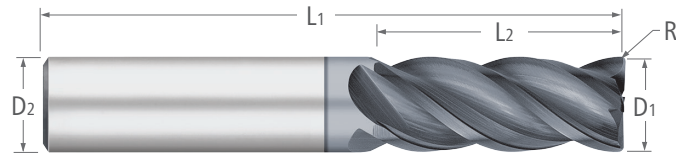
CUTTER DIA.	SHANK DIA.	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
D1 ^{+0.000} _{-0.002} "	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C766089	19.25		
	1/8	1/2	2	C766093	27.41		
3/16	3/16	3/8	2	C766090	27.41		
	3/16	9/16	2	C766094	30.35		
1/4	1/4	3/8	2	C765827	31.19		
	1/4	3/4	2-1/2	C765851	36.42		
	1/4	1-1/8	3	C765877	38.06		
	1/4	1-1/2	4	C765904	55.07		
5/16	5/16	7/16	2	C765828	40.84		
	5/16	13/16	2-1/2	C765852	44.28		
	5/16	1-1/8	3	C765878	52.44		
3/8	3/8	1/2	2	C765829	45.07		
	3/8	1	2-1/2	C765853	51.89		
	3/8	1-1/4	3	C765879	70.79		
	3/8	2	4	C765905	79.75		
7/16	7/16	5/8	2-1/2	C766091	60.94		
	7/16	1	2-3/4	C766095	70.65		
	7/16	2	4	C766097	88.21		
	7/16	3	6	C766099	130.20		
1/2	1/2	5/8	2-1/2	C765830	67.76	C765833	71.89
	1/2	1	3	C765854	77.46	C765859	82.09
	1/2	1-1/4	3	C765855	77.46	C765860	82.09
	1/2	1-1/2	4	C765880	97.26	C765885	102.09
	1/2	2	4	C765881	108.41	C765886	112.73
	1/2	3	6	C765906	152.83	C765912	159.80
5/8	5/8	3/4	3	C765831	133.38	C765834	137.86
	5/8	1-5/8	3-1/2	C765856	140.94	C765861	145.42
	5/8	2-1/4	5	C765882	200.59	C765887	209.55
	5/8	3	6	C765907	216.31	C765913	225.27
3/4	3/4	1	3	C765832	175.87	C765835	180.59
	3/4	1-5/8	4	C765857	193.73	C765862	199.50
	3/4	2-1/4	5	C765883	243.87	C765888	248.90
	3/4	3	6	C765908	285.52	C765914	296.46
	3/4	4	7	C765909	468.89	C765915	479.84
1	1	2	4	C765858	361.68	C765863	375.61
	1	2-1/4	5	C765884	400.04	C765889	407.70
	1	3	6	C765910	465.56	C765916	479.49
	1	4-1/4	7	C766043	687.25	C766041	701.18

For technical information, see page 111



HIGH PERFORMANCE END MILLS - CARBIDE

4 Flute - Corner Radius



- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Offered in stub, regular, long, and extra long length styles
- Corner radius for increased edge strength
- Delivers efficient, chatter-free machining in roughing, profiling, finishing, and slotting applications up to 1x diameter
- Large core and eccentric relief for improved tool life
- Post-polished AlCrO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
					TOOL #	PRICE	TOOL #	PRICE
$D1^{+0.000}_{-0.002}$	$D2 (h6)$	$R^{+0.001}_{-0.001}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	.010	1/4	1-1/2	C766057	19.15		
	1/8	.010	1/2	2	C766067	22.39		
	1/8	.020	1/2	2	C766068	22.39		
	1/8	.030	1/2	2	C766069	22.39		
3/16	3/16	.010	3/8	2	C766058	24.08		
	3/16	.010	9/16	2	C766070	25.37		
	3/16	.020	9/16	2	C766071	25.37		
	3/16	.030	9/16	2	C766072	25.37		
1/4	1/4	.015	3/8	2	C765113	28.36		
	1/4	.015	3/4	2-1/2	C765181	31.39		
	1/4	.015	1-1/8	3	C765260	35.57		
	1/4	.015	1-1/2	4	C765314	43.28		
	1/4	.030	3/4	2-1/2	C765182	31.39		
	1/4	.030	1-1/8	3	C765261	35.57		
	1/4	.030	1-1/2	4	C765315	43.28		
	1/4	.060	3/4	2-1/2	C765183	31.39		
5/16	5/16	.015	7/16	2	C765114	38.21		
	5/16	.015	13/16	2-1/2	C765184	40.45		
	5/16	.015	1-1/8	3	C765262	48.21		
	5/16	.030	13/16	2-1/2	C765185	40.45		
	5/16	.030	1-1/8	3	C765263	48.21		
3/8	3/8	.015	1/2	2	C765115	42.04		
	3/8	.015	1	2-1/2	C765187	47.21		
	3/8	.030	1	2-1/2	C765188	47.21		
	3/8	.030	1-1/4	3	C765264	64.08		
	3/8	.030	2	4	C765316	73.28		
	3/8	.060	1	2-1/2	C765189	47.21		
	3/8	.060	1-1/4	3	C765265	64.08		
	3/8	.060	2	4	C765317	73.28		
7/16	7/16	.015	1	2-3/4	C766073	61.89		
	7/16	.030	5/8	2-1/2	C766059	53.58		
	7/16	.030	1	2-3/4	C766074	61.89		
	7/16	.030	2	4	C766080	81.94		
	7/16	.030	3	6	C766086	115.57		
	7/16	.060	1	2-3/4	C766075	61.89		
	7/16	.060	2	4	C766081	81.94		
	7/16	.060	3	6	C766087	115.57		

continued on next page

For technical information, see page 111

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

HIGH PERFORMANCE END MILLS - CARBIDE

4 Flute - Corner Radius (Cont.)

continued from previous page

CUTTER DIA. $D_1^{+.000}$ $-.002$	SHANK DIA. D_2 (h6)	RADIUS $R^{+.001}$ $-.001$	LOC L_2	OAL L_1	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
					TOOL #	PRICE	TOOL #	PRICE
1/2	1/2	.015	1	3	C765190	75.42	C765212	80.00
	1/2	.015	1-1/4	3	C765195	75.42	C765217	80.00
	1/2	.030	5/8	2-1/2	C765116	63.93	C765119	67.91
	1/2	.030	1	3	C765191	75.42	C765213	80.00
	1/2	.030	1-1/4	3	C765196	75.42	C765218	80.00
	1/2	.030	1-1/2	4	C765266	89.80	C765276	94.08
	1/2	.030	2	4	C765268	99.00	C765278	103.28
	1/2	.030	3	6	C765318	136.61	C765330	140.59
	1/2	.060	1	3	C765192	75.42	C765214	80.00
	1/2	.060	1-1/4	3	C765197	75.42	C765219	80.00
	1/2	.060	1-1/2	4	C765267	89.80	C765277	94.08
	1/2	.060	2	4	C765269	99.00	C765279	103.28
	1/2	.060	3	6	C765319	136.61	C765331	143.58
	1/2	.090	1	3	C765193	75.42	C765215	80.00
	1/2	.090	1-1/4	3	C765198	75.42	C765220	80.00
1/2	.120	1	3	C765194	75.42	C765216	80.00	
1/2	.120	1-1/4	3	C765199	75.42	C765221	80.00	

$D_1^{+.000}$ $-.003$	D_2 (h6)	$R^{+.001}$ $-.001$	L_2	L_1				
					TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	.030	3/4	3	C765117	121.14	C765120	125.07
	5/8	.030	1-5/8	3-1/2	C765200	127.11	C765222	131.69
	5/8	.030	2-1/4	5	C765270	180.24	C765280	184.42
	5/8	.030	3	6	C765320	191.59	C765332	200.54
	5/8	.060	1-5/8	3-1/2	C765201	127.11	C765223	131.69
	5/8	.060	2-1/4	5	C765271	180.24	C765281	184.42
	5/8	.060	3	6	C765321	191.59	C765333	200.54
	5/8	.090	1-5/8	3-1/2	C765202	127.11	C765224	131.69
5/8	.120	1-5/8	3-1/2	C765203	127.11	C765225	131.69	
3/4	3/4	.030	1	3	C765118	157.96	C765121	162.09
	3/4	.030	1-5/8	4	C765204	177.06	C765226	181.29
	3/4	.030	2-1/4	5	C765272	225.87	C765282	232.43
	3/4	.030	3	6	C765322	252.98	C765334	258.75
	3/4	.030	4	7	C765324	411.88	C765336	422.83
	3/4	.060	1-5/8	4	C765205	177.06	C765227	181.29
	3/4	.060	2-1/4	5	C765273	225.87	C765283	232.43
	3/4	.060	3	6	C765323	252.98	C765335	263.92
	3/4	.060	4	7	C765325	411.88	C765337	422.83
	3/4	.090	1-5/8	4	C765206	176.26	C765228	181.29
	3/4	.120	1-5/8	4	C765207	177.06	C765229	181.29
	3/4	.190	1-5/8	4	C766434	176.26	C766438	181.29
3/4	.250	1-5/8	4	C766435	177.06	C766439	181.29	
1	1	.030	2	4	C765208	321.78	C765230	328.25
	1	.030	2-1/4	5	C765274	353.92	C765284	358.95
	1	.030	3	6	C765326	416.06	C765338	421.43
	1	.030	4-1/4	7	C765328	604.16	C765340	610.63
	1	.060	2	4	C765209	321.78	C765231	335.71
	1	.060	2-1/4	5	C765275	352.23	C765285	366.16
	1	.060	3	6	C765327	414.12	C765339	428.05
	1	.060	4-1/4	7	C765329	601.33	C765341	615.26
	1	.090	2	4	C765210	321.78	C765232	335.71
	1	.120	2	4	C765211	321.78	C765233	335.71
	1	.190	2	4	C766436	321.78	C766440	335.71
1	.250	2	4	C766437	321.78	C766441	328.25	

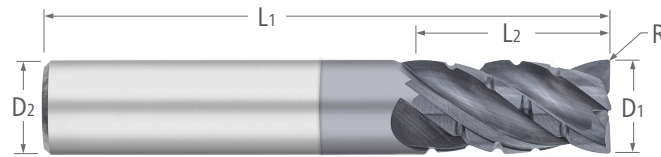
HIGH PERFORMANCE

For technical information, see page 111



HIGH PERFORMANCE END MILLS - CARBIDE

4 Flute - Corner Radius - Chipbreaker



HIGH PERFORMANCE

- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Engineered with chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure
- Offered in regular, long, and extra long length styles
- Corner radius for increased edge strength
- Delivers efficient, chatter-free machining in roughing, profiling, finishing, and slotting applications up to 1x diameter
- Large core and eccentric relief for improved tool life
- Post-polished AlCrO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
D1 ^{+0.000"} _{-.002"}	D2 (h6)	R ^{+0.01"} _{-.001"}	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	.010	1/2	2	C773387	27.71		
	1/8	.020	1/2	2	C773388	27.91		
	1/8	.030	1/2	2	C773389	27.91		
3/16	3/16	.010	9/16	2	C773390	32.04		
	3/16	.020	9/16	2	C773391	32.04		
	3/16	.030	9/16	2	C773392	32.04		
1/4	1/4	.015	3/4	2-1/2	C773393	38.71		
	1/4	.015	1-1/8	3	C773335	45.22		
	1/4	.015	1-1/2	4	C773476	51.64		
	1/4	.030	3/4	2-1/2	C773394	39.30		
	1/4	.030	1-1/8	3	C773336	45.22		
	1/4	.030	1-1/2	4	C773477	51.64		
	1/4	.060	3/4	2-1/2	C773395	39.30		
5/16	5/16	.015	13/16	2-1/2	C773396	50.60		
	5/16	.015	1-1/8	3	C773337	57.86		
	5/16	.030	13/16	2-1/2	C773397	50.60		
	5/16	.030	1-1/8	3	C773338	57.86		
	5/16	.060	13/16	2-1/2	C773398	50.60		
3/8	3/8	.015	1	2-1/2	C773399	58.80		
	3/8	.030	1	2-1/2	C773400	58.80		
	3/8	.030	1-1/4	3	C773339	75.07		
	3/8	.030	2	4	C773478	83.58		
	3/8	.060	1	2-1/2	C773401	58.80		
	3/8	.060	1-1/4	3	C773340	75.07		
	3/8	.060	2	4	C773479	83.58		
7/16	7/16	.015	1	2-3/4	C773402	70.30		
	7/16	.030	1	2-3/4	C773403	70.30		
	7/16	.030	2	4	C773341	89.45		
	7/16	.030	3	6	C773480	128.21		
	7/16	.060	1	2-3/4	C773404	70.30		
	7/16	.060	2	4	C773342	89.45		
	7/16	.060	3	6	C773481	128.21		

continued on next page

For technical information, see page 111

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

HIGH PERFORMANCE END MILLS - CARBIDE

4 Flute - Corner Radius - Chipbreaker (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
D1 ^{+0.000"} _{-.002"}	D2 (h6)	R ^{+0.001"} _{-.001"}	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/2	1/2	.015	1	3	C773405	83.03	C773431	90.00
	1/2	.015	1-1/4	3	C773410	83.03	C773436	90.00
	1/2	.030	1	3	C773406	83.03	C773432	90.00
	1/2	.030	1-1/4	3	C773411	83.03	C773437	90.00
	1/2	.030	1-1/2	4	C773343	100.74	C773353	107.71
	1/2	.030	2	4	C773345	110.69	C773355	117.66
	1/2	.030	3	6	C773482	149.95	C773494	156.91
	1/2	.060	1	3	C773407	83.03	C773433	90.00
	1/2	.060	1-1/4	3	C773412	83.03	C773438	90.00
	1/2	.060	1-1/2	4	C773344	100.74	C773354	107.71
	1/2	.060	2	4	C773346	110.69	C773356	117.66
	1/2	.060	3	6	C773483	149.95	C773495	156.91
	1/2	.090	1	3	C773408	83.03	C773434	90.00
	1/2	.090	1-1/4	3	C773413	83.03	C773439	90.00
1/2	.120	1	3	C773409	83.03	C773435	90.00	
1/2	.120	1-1/4	3	C773414	83.03	C773440	90.00	
5/8	5/8	.030	1-5/8	3-1/2	C773415	142.38	C773441	151.34
	5/8	.030	2-1/4	5	C773347	194.72	C773357	203.68
	5/8	.030	3	6	C773484	208.30	C773496	217.26
	5/8	.060	1-5/8	3-1/2	C773416	142.38	C773442	151.34
	5/8	.060	2-1/4	5	C773348	194.72	C773358	203.68
	5/8	.060	3	6	C773485	208.30	C773497	217.26
	5/8	.090	1-5/8	3-1/2	C773417	142.38	C773443	151.34
	5/8	.120	1-5/8	3-1/2	C773418	142.38	C773444	151.34
3/4	3/4	.030	1-5/8	4	C773419	192.08	C773445	203.03
	3/4	.030	2-1/4	5	C773349	234.47	C773359	245.42
	3/4	.030	3	6	C773486	271.64	C773498	282.58
	3/4	.030	4	7	C773488	430.49	C773500	441.43
	3/4	.060	1-5/8	4	C773420	192.08	C773446	203.03
	3/4	.060	2-1/4	5	C773350	234.47	C773360	245.42
	3/4	.060	3	6	C773487	271.64	C773499	282.58
	3/4	.060	4	7	C773489	430.49	C773501	441.43
	3/4	.090	1-5/8	4	C773421	192.08	C773447	203.03
	3/4	.120	1-5/8	4	C773422	192.08	C773448	203.03
	3/4	.190	1-5/8	4	C773423	192.08	C773449	203.03
	3/4	.250	1-5/8	4	C773424	192.08	C773450	203.03
1	1	.030	2	4	C773425	341.98	C773451	355.91
	1	.030	2-1/4	5	C773351	375.21	C773361	389.14
	1	.030	3	6	C773490	432.03	C773502	445.96
	1	.030	4-1/4	7	C773492	624.11	C773504	638.04
	1	.060	2	4	C773426	341.98	C773452	355.91
	1	.060	2-1/4	5	C773352	375.21	C773362	389.14
	1	.060	3	6	C773491	432.03	C773503	445.96
	1	.060	4-1/4	7	C773493	624.11	C773505	638.04
	1	.090	2	4	C773427	341.98	C773453	355.91
	1	.120	2	4	C773428	341.98	C773454	355.91
	1	.190	2	4	C773429	341.98	C773455	355.91
	1	.250	2	4	C773430	341.98	C773456	355.91

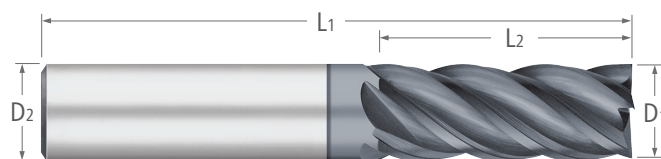
HIGH PERFORMANCE

For technical information, see page 111



HIGH PERFORMANCE END MILLS - CARBIDE

5 Flute - Square



- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Offered in stub, regular, long, and extra long length styles
- Delivers efficient, chatter-free machining in roughing, profiling, finishing
- Large core and eccentric relief for improved tool life
- Post-polished ALCRO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
				TOOL #	PRICE	TOOL #	PRICE
$D1_{-0.002}^{+0.000}$	$D2_{(h6)}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	1/4	1-1/2	C766100	18.31		
	1/8	1/2	2	C766102	21.99		
3/16	3/16	3/8	2	C766101	23.68		
	3/16	9/16	2	C766103	25.12		
1/4	1/4	3/8	2	C765929	26.62		
	1/4	3/4	2-1/2	C765953	31.94		
	1/4	1-1/8	3	C765979	36.32		
	1/4	1-1/2	4	C766006	43.38		
5/16	5/16	7/16	2	C765930	38.76		
	5/16	13/16	2-1/2	C765954	42.24		
	5/16	1-1/8	3	C765980	50.00		
3/8	3/8	1/2	2	C765931	43.18		
	3/8	1	2-1/2	C765955	49.45		
	3/8	1-1/4	3	C765981	67.51		
	3/8	2	4	C766007	75.67		
1/2	1/2	5/8	2-1/2	C765932	64.28	C765935	68.61
	1/2	1	3	C765956	74.23	C765961	78.26
	1/2	1-1/4	3	C765957	74.23	C765962	78.26
	1/2	1-1/2	4	C765982	92.73	C765987	97.31
	1/2	2	4	C765983	103.33	C765988	107.51
	1/2	3	6	C766008	145.67	C766014	150.05
$D1_{-0.003}^{+0.000}$	$D2_{(h6)}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	3/4	3	C765933	126.51	C765936	131.44
	5/8	1-5/8	3-1/2	C765958	133.68	C765963	138.65
	5/8	2-1/4	5	C765984	192.13	C765989	196.76
	5/8	3	6	C766009	206.21	C766015	211.89
3/4	3/4	1	3	C765934	167.71	C765937	172.14
	3/4	1-5/8	4	C765959	184.72	C765964	190.19
	3/4	2-1/4	5	C765985	232.53	C765990	237.31
	3/4	3	6	C766010	272.23	C766016	278.50
	3/4	4	7	C766011	449.14	C766017	455.01
1	1	2	4	C765960	344.82	C765965	358.75
	1	2-1/4	5	C765986	383.22	C765991	397.15
	1	3	6	C766012	445.91	C766018	451.73
	1	4-1/4	7	C766044	658.29	C766045	672.22

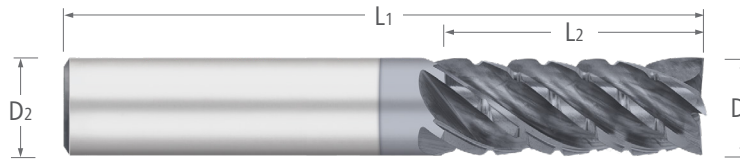
For technical information, see page 112

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

HIGH PERFORMANCE END MILLS - CARBIDE

5 Flute - Square - Chipbreaker


HIGH PERFORMANCE

- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Engineered with chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure
- Offered in regular, long, and extra long length styles
- Delivers efficient, chatter-free machining in roughing, profiling, and finishing applications
- Large core and eccentric relief for improved tool life
- Post-polished ALCRO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

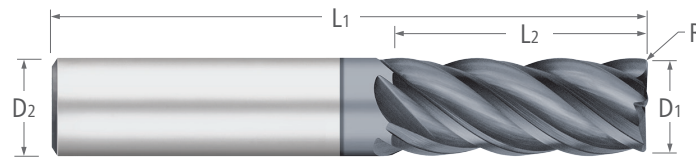
CUTTER DIA.	SHANK DIA.	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT					
$D1^{+0.000}_{-0.002}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE				
1/8	1/8	1/2	2	C773506	24.58						
3/16	3/16	9/16	2	C773517	27.71						
1/4	1/4	3/4	2-1/2	C773528	34.53						
	1/4	1-1/8	3	C773617	38.90						
	1/4	1-1/2	4	C773630	45.97						
5/16	5/16	13/16	2-1/2	C773539	44.82						
	5/16	1-1/8	3	C773618	52.59						
3/8	3/8	1	2-1/2	C773550	52.04						
	3/8	1-1/4	3	C773619	70.10						
	3/8	2	4	C773631	78.26						
1/2	1/2	1	3	C773561	76.81	C773612	83.78				
	1/2	1-1/4	3	C773572	76.81	C773613	83.78				
	1/2	1-1/2	4	C773620	95.32	C773625	102.29				
	1/2	2	4	C773621	105.92	C773626	112.88				
	1/2	3	6	C773632	148.26	C773638	155.22				
$D1^{+0.000}_{-0.003}$	$D2 (h6)$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE				
				5/8	5/8	1-5/8	3-1/2	C773583	136.27	C773614	145.22
				5/8	5/8	2-1/4	5	C773622	194.72	C773627	203.68
3/4	3/4	3	6	C773633	208.80	C773639	217.76				
				3/4	3/4	1-5/8	4	C773594	187.31	C773615	198.25
				3/4	3/4	2-1/4	5	C773623	235.12	C773628	246.06
				3/4	3/4	3	6	C773634	274.82	C773640	285.76
1	1	4	7	C773635	451.73	C773641	462.68				
				1	1	2	4	C773605	347.40	C773616	361.33
				1	1	2-1/4	5	C773624	385.81	C773629	399.74
				1	1	3	6	C773636	448.50	C773642	462.43
				C773637	660.88	C773643	674.81				

For technical information, see page 112



HIGH PERFORMANCE END MILLS - CARBIDE

5 Flute - Corner Radius



HIGH PERFORMANCE

- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Offered in stub, regular, long, and extra long length styles
- Corner radius for increased edge strength
- Delivers efficient, chatter-free machining in roughing, profiling, and finishing applications
- Large core and eccentric relief for improved tool life
- Post-polished ALCRO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
					TOOL #	PRICE	TOOL #	PRICE
$D1^{+.000}_{-.002}$	$D2(h6)$	$R^{+.001}_{-.001}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	.010	1/4	1-1/2	C766104	21.09		
	1/8	.010	1/2	2	C771454	25.32		
	1/8	.020	1/2	2	C771455	25.32		
	1/8	.030	1/2	2	C771456	25.32		
3/16	3/16	.010	3/8	2	C766105	26.32		
	3/16	.010	9/16	2	C771457	29.90		
	3/16	.020	9/16	2	C771458	29.90		
	3/16	.030	9/16	2	C771459	29.90		
1/4	1/4	.015	3/8	2	C766031	31.24		
	1/4	.015	3/4	2-1/2	C765395	34.53		
	1/4	.015	1-1/8	3	C765470	38.90		
	1/4	.015	1-1/2	4	C765520	47.36		
	1/4	.030	3/4	2-1/2	C765396	34.53		
	1/4	.030	1-1/8	3	C765471	38.90		
	1/4	.030	1-1/2	4	C765521	47.36		
	1/4	.060	3/4	2-1/2	C765397	34.53		
5/16	5/16	.015	7/16	2	C766032	41.99		
	5/16	.015	13/16	2-1/2	C765398	44.73		
	5/16	.015	1-1/8	3	C765472	53.03		
	5/16	.030	13/16	2-1/2	C765399	44.73		
	5/16	.030	1-1/8	3	C765473	53.03		
	5/16	.060	13/16	2-1/2	C765400	44.73		
3/8	3/8	.015	1/2	2	C766033	46.22		
	3/8	.015	1	2-1/2	C765401	51.94		
	3/8	.030	1	2-1/2	C765402	51.94		
	3/8	.030	1-1/4	3	C765474	70.55		
	3/8	.030	2	4	C765522	80.25		
	3/8	.060	1	2-1/2	C765403	51.94		
	3/8	.060	1-1/4	3	C765475	70.55		
	3/8	.060	2	4	C765523	80.25		
1/2	1/2	.015	1	3	C765404	83.38	C765426	87.96
	1/2	.015	1-1/4	3	C765409	83.38	C765431	87.96

continued on next page

For technical information, see page 112

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

HIGH PERFORMANCE END MILLS - CARBIDE

5 Flute - Corner Radius (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
					TOOL #	PRICE	TOOL #	PRICE
$D1_{-.002}^{+.000}$	D2 (h6)	$R_{-.001}^{+.001}$	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/2	1/2	.030	5/8	2-1/2	C766034	70.69	C766037	74.67
	1/2	.030	1	3	C765405	83.38	C765427	87.96
	1/2	.030	1-1/4	3	C765410	83.38	C765432	87.96
	1/2	.030	2	4	C765476	109.45	C765484	113.63
	1/2	.030	3	6	C765524	149.55	C765536	156.51
	1/2	.060	1	3	C765406	83.38	C765428	87.96
	1/2	.060	1-1/4	3	C765411	83.38	C765433	87.96
	1/2	.060	2	4	C765477	109.45	C765485	116.42
	1/2	.060	3	6	C765525	149.55	C765537	156.51
	1/2	.090	1	3	C765407	83.38	C765429	90.35
	1/2	.090	1-1/4	3	C765412	83.38	C765434	90.35
	1/2	.120	1	3	C765408	83.38	C765430	87.96
1/2	.120	1-1/4	3	C765413	83.38	C765435	87.96	
$D1_{-.003}^{+.000}$	D2 (h6)	$R_{-.001}^{+.001}$	L2	L1	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	.030	3/4	3	C766035	132.58	C766038	137.56
	5/8	.030	1-5/8	3-1/2	C765414	139.80	C765436	144.82
	5/8	.030	2-1/4	5	C765478	197.31	C765486	202.93
	5/8	.030	3	6	C765526	210.79	C765538	216.46
	5/8	.060	1-5/8	3-1/2	C765415	139.80	C765437	144.82
	5/8	.060	2-1/4	5	C765479	197.31	C765487	206.26
	5/8	.060	3	6	C765527	210.79	C765539	219.75
	5/8	.090	1-5/8	3-1/2	C765416	139.80	C765438	148.75
	5/8	.120	1-5/8	3-1/2	C765417	139.80	C765439	148.75
3/4	3/4	.030	1	3	C766036	173.78	C766039	178.30
	3/4	.030	1-5/8	4	C765418	193.88	C765440	199.40
	3/4	.030	2-1/4	5	C765480	248.45	C765488	255.67
	3/4	.030	3	6	C765528	278.25	C765540	284.62
	3/4	.030	4	7	C765530	455.26	C765542	466.21
	3/4	.060	1-5/8	4	C765419	193.88	C765441	199.40
	3/4	.060	2-1/4	5	C765481	248.45	C765489	255.67
	3/4	.060	3	6	C765529	278.25	C765541	284.62
	3/4	.060	4	7	C765531	453.12	C765543	464.07
	3/4	.090	1-5/8	4	C765420	193.88	C765442	204.82
	3/4	.120	1-5/8	4	C765421	193.88	C765443	199.40
	3/4	.190	1-5/8	4	C766450	193.88	C766454	204.82
1	1	.030	2	4	C765422	353.97	C765444	367.90
	1	.030	2-1/4	5	C765482	389.29	C765490	403.22
	1	.030	3	6	C765532	455.51	C765544	463.57
	1	.030	4-1/4	7	C765534	661.43	C765546	675.36
	1	.060	2	4	C765423	353.97	C765445	361.04
	1	.060	2-1/4	5	C765483	387.45	C765491	401.38
	1	.060	3	6	C765533	455.51	C765545	469.44
	1	.060	4-1/4	7	C765535	661.43	C765547	675.36
	1	.090	2	4	C765424	353.97	C765446	367.90
	1	.120	2	4	C765425	353.97	C765447	367.90
	1	.190	2	4	C766452	353.97	C766456	367.90
	1	.250	2	4	C766453	353.97	C766457	367.90

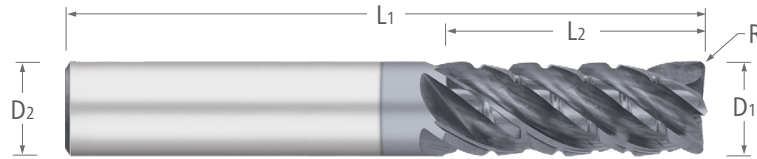
HIGH PERFORMANCE

For technical information, see page 112



HIGH PERFORMANCE END MILLS - CARBIDE

5 Flute - Corner Radius - Chipbreaker



HIGH PERFORMANCE

- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Engineered with chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure
- Offered in regular, long, and extra long length styles
- Delivers efficient, chatter free machining in light profiling, High Efficiency Milling (HEM), and finishing applications
- Corner radius for increased edge strength
- Large core and eccentric relief for improved tool life
- Post-polished AlCrO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	ALCRO-MAX COATED	ALCRO-MAX COATED + WELDON FLAT		
$D_1^{+.000}_{-.002}$	$D_2(h6)$	$R^{+.001}_{-.001}$	L_2	L_1	TOOL #	PRICE	TOOL #	PRICE
1/8	1/8	.010	1/2	2	C773644	27.91		
	1/8	.020	1/2	2	C773645	27.91		
	1/8	.030	1/2	2	C773646	27.91		
3/16	3/16	.010	9/16	2	C773647	32.49		
	3/16	.020	9/16	2	C773648	32.49		
	3/16	.030	9/16	2	C773649	32.49		
1/4	1/4	.015	3/4	2-1/2	C773650	37.11		
	1/4	.015	1-1/8	3	C773711	41.49		
	1/4	.015	1-1/2	4	C773733	49.95		
	1/4	.030	3/4	2-1/2	C773651	37.11		
	1/4	.030	1-1/8	3	C773712	41.49		
	1/4	.030	1-1/2	4	C773734	49.95		
	1/4	.060	3/4	2-1/2	C773652	37.11		
5/16	5/16	.015	13/16	2-1/2	C773653	47.31		
	5/16	.015	1-1/8	3	C773713	55.62		
	5/16	.030	13/16	2-1/2	C773654	47.31		
	5/16	.030	1-1/8	3	C773714	55.62		
	5/16	.060	13/16	2-1/2	C773655	47.31		
3/8	3/8	.015	1	2-1/2	C773656	54.53		
	3/8	.030	1	2-1/2	C773657	54.53		
	3/8	.030	1-1/4	3	C773715	73.08		
	3/8	.030	2	4	C773735	82.83		
	3/8	.060	1	2-1/2	C773658	54.53		
	3/8	.060	1-1/4	3	C773716	73.08		
	3/8	.060	2	4	C773736	82.83		

continued on next page

For technical information, see page 112

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

HIGH PERFORMANCE END MILLS - CARBIDE

5 Flute - Corner Radius - Chipbreaker (Cont.)

continued from previous page

CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
					TOOL #	PRICE	TOOL #	PRICE
$D1_{-.002}^{+.000}$	D2 (h6)	$R_{-.001}^{+.001}$	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/2	1/2	.015	1	3	C773659	85.97	C773685	92.93
	1/2	.015	1-1/4	3	C773664	85.97	C773690	92.93
	1/2	.030	1	3	C773660	85.97	C773686	92.93
	1/2	.030	1-1/4	3	C773665	85.97	C773691	92.93
	1/2	.030	2	4	C773717	112.04	C773725	119.00
	1/2	.030	3	6	C773737	152.14	C773749	159.10
	1/2	.060	1	3	C773661	85.97	C773687	92.93
	1/2	.060	1-1/4	3	C773666	85.97	C773692	92.93
	1/2	.060	2	4	C773718	112.04	C773726	119.00
	1/2	.060	3	6	C773738	152.14	C773750	159.10
	1/2	.090	1	3	C773662	85.97	C773688	92.93
	1/2	.090	1-1/4	3	C773667	85.97	C773693	92.93
	1/2	.120	1	3	C773663	85.97	C773689	92.93
	1/2	.120	1-1/4	3	C773668	85.97	C773694	92.93
$D1_{-.003}^{+.000}$	D2 (h6)	$R_{-.001}^{+.001}$	L2	L1	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	.030	1-5/8	3-1/2	C773669	142.38	C773695	151.34
	5/8	.030	2-1/4	5	C773719	199.90	C773727	208.85
	5/8	.030	3	6	C773739	213.38	C773751	222.33
	5/8	.060	1-5/8	3-1/2	C773670	142.38	C773696	151.34
	5/8	.060	2-1/4	5	C773720	199.90	C773728	208.85
	5/8	.060	3	6	C773740	213.38	C773752	222.33
	5/8	.090	1-5/8	3-1/2	C773671	142.38	C773697	151.34
	5/8	.120	1-5/8	3-1/2	C773672	142.38	C773698	151.34
3/4	3/4	.030	1-5/8	4	C773673	196.46	C773699	207.41
	3/4	.030	2-1/4	5	C773721	251.04	C773729	261.98
	3/4	.030	3	6	C773741	280.84	C773753	291.78
	3/4	.030	4	7	C773743	457.85	C773755	468.79
	3/4	.060	1-5/8	4	C773674	196.46	C773700	207.41
	3/4	.060	2-1/4	5	C773722	251.04	C773730	261.98
	3/4	.060	3	6	C773742	280.84	C773754	291.78
	3/4	.060	4	7	C773744	455.71	C773756	466.66
	3/4	.090	1-5/8	4	C773675	196.46	C773701	207.41
	3/4	.120	1-5/8	4	C773676	196.46	C773702	207.41
	3/4	.190	1-5/8	4	C773677	196.46	C773703	207.41
	3/4	.250	1-5/8	4	C773678	196.46	C773704	207.41
1	1	.030	2	4	C773679	356.56	C773705	370.49
	1	.030	2-1/4	5	C773723	391.88	C773731	405.81
	1	.030	3	6	C773745	458.10	C773757	472.03
	1	.030	4-1/4	7	C773747	664.01	C773759	677.94
	1	.060	2	4	C773680	356.56	C773706	370.49
	1	.060	2-1/4	5	C773724	390.04	C773732	403.97
	1	.060	3	6	C773746	458.10	C773758	472.03
	1	.060	4-1/4	7	C773748	664.01	C773760	677.94
	1	.090	2	4	C773681	356.56	C773707	370.49
	1	.120	2	4	C773682	356.56	C773708	370.49
	1	.190	2	4	C773683	356.56	C773709	370.49
	1	.250	2	4	C773684	356.56	C773710	370.49

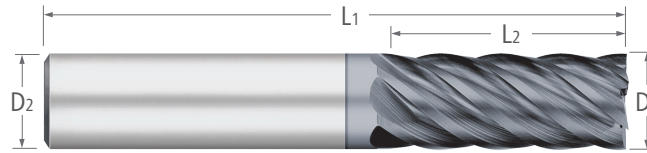
HIGH PERFORMANCE

For technical information, see page 112



HIGH PERFORMANCE END MILLS - CARBIDE

6 Flute - Square



HIGH PERFORMANCE

- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Offered in stub, regular, long, and extra long length styles
- Delivers efficient, chatter-free machining in High Efficiency Milling (HEM), profiling, and finishing applications
- Large core and eccentric relief for improved tool life
- Post-polished ALCRO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
$D_1^{+0.0001}_{-0.002}$	D_2 (h6)	L_2	L_1	TOOL #	PRICE	TOOL #	PRICE
1/4	1/4	3/8	2	C771496	28.41		
	1/4	3/4	2-1/2	C765552	56.67		
	1/4	1-1/8	3	C765567	62.19		
5/16	5/16	7/16	2	C771497	42.29		
	5/16	13/16	2-1/2	C765553	66.96		
	5/16	1-1/8	3	C765568	72.54		
3/8	3/8	1/2	2	C771498	47.11		
	3/8	1	2-1/2	C765554	72.19		
	3/8	1-1/4	3	C765569	82.83		
1/2	1/2	5/8	2-1/2	C771499	69.85	C771502	74.77
	1/2	1-1/4	3	C765555	97.01	C765559	102.29
	1/2	2	4	C765570	128.26	C765574	135.22
$D_1^{+0.0001}_{-0.003}$	5/8	3/4	3	C771500	133.98	C771503	142.93
		1-5/8	3-1/2	C765556	160.84	C765560	167.26
		2-1/4	5	C765571	199.25	C765575	207.16
3/4	3/4	1	3	C771501	173.78	C771504	184.72
		1-5/8	4	C765557	201.89	C765561	209.95
		2-1/4	5	C765572	248.80	C765576	259.74
1	1	2	4	C765558	309.25	C765562	318.45
		3	6	C765573	504.32	C765577	518.25

For technical information, see page 113

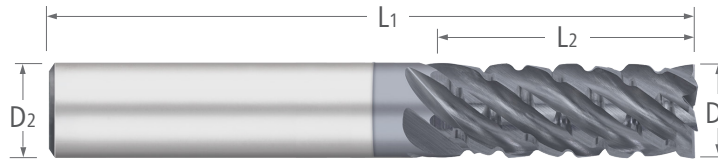
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



HIGH PERFORMANCE END MILLS - CARBIDE

6 Flute - Square - Chipbreaker



HIGH PERFORMANCE

- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Engineered with chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure
- Offered in regular, long, and extra long length styles
- Delivers efficient, chatter free machining in light profiling, High Efficiency Milling (HEM), and finishing applications
- Large core and eccentric relief for improved tool life
- Post-polished AlCrO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

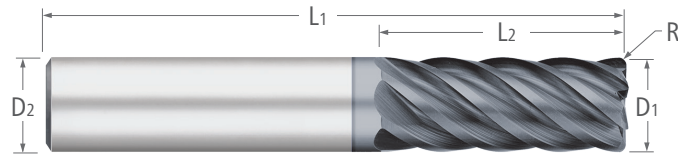
CUTTER DIA.	SHANK DIA.	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
D1 ^{+0.000"} / _{-0.002"}	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
1/4	1/4	3/4	2-1/2	C773761	59.25		
	1/4	1-1/8	3	C773772	64.77		
5/16	5/16	13/16	2-1/2	C773762	69.55		
	5/16	1-1/8	3	C773773	75.12		
3/8	3/8	1	2-1/2	C773763	74.77		
	3/8	1-1/4	3	C773774	85.42		
1/2	1/2	1-1/4	3	C773764	99.60	C773768	106.56
	1/2	2	4	C773775	130.84	C773779	137.81
D1 ^{+0.000"} / _{-0.003"}	D2 (h6)	L2	L1	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	1-5/8	3-1/2	C773765	163.43	C773769	172.38
	5/8	2-1/4	5	C773776	201.84	C773780	210.79
3/4	3/4	1-5/8	4	C773766	204.47	C773770	215.42
	3/4	2-1/4	5	C773777	251.39	C773781	262.33
1	1	2	4	C773767	311.83	C773771	325.76
	1	3	6	C773778	506.90	C773782	520.83

For technical information, see page 113



HIGH PERFORMANCE END MILLS - CARBIDE

6 Flute - Corner Radius



HIGH PERFORMANCE

- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Offered in stub, regular, long, and extra long length styles
- Corner radius for increased edge strength
- Delivers efficient, chatter-free machining in High Efficiency Milling (HEM), profiling, and finishing applications
- Large core and eccentric relief for improved tool life
- Post-polished AlCrO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

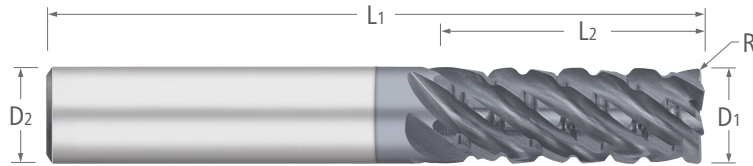
CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT										
$D1^{+.000}_{-.002}$	$D2 (h6)$	$R^{+.001}_{-.001}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE									
1/4	1/4	.015	3/8	2	C771505	34.18											
	1/4	.015	3/4	2-1/2	C765582	62.93											
	1/4	.015	1-1/8	3	C765597	69.80											
5/16	5/16	.015	7/16	2	C771506	45.62											
	5/16	.015	13/16	2-1/2	C765583	74.82											
	5/16	.015	1-1/8	3	C765598	81.04											
3/8	3/8	.015	1/2	2	C771507	50.20											
	3/8	.015	1	2-1/2	C765584	80.60											
	3/8	.015	1-1/4	3	C765599	92.54											
1/2	1/2	.030	5/8	2-1/2	C771508	77.11	C771511	81.49									
	1/2	.030	1-1/4	3	C765585	107.76	C765589	114.28									
	1/2	.030	2	4	C765600	143.18	C765604	150.15									
$D1^{+.000}_{-.003}$	$D2 (h6)$	$R^{+.001}_{-.001}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE									
									5/8	5/8	.030	3/4	3	C771509	141.14	C771512	150.10
									5/8	5/8	.030	1-5/8	3-1/2	C765586	172.58	C765590	178.60
5/8	5/8	.030	2-1/4	5	C765601	212.78	C765605	221.74									
									3/4	3/4	.030	1	3	C771510	183.73	C771513	187.96
									3/4	3/4	.060	1-5/8	4	C765587	215.62	C765591	224.22
3/4	3/4	.060	2-1/4	5	C765602	265.71	C765606	276.66									
									1	1	.060	2	4	C765588	330.24	C765592	344.17
1	1	.060	3	6	C765603	541.13	C765607	555.06									

For technical information, see page 113

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

HIGH PERFORMANCE END MILLS - CARBIDE 6 Flute - Corner Radius - Chipbreaker



HIGH PERFORMANCE

- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Engineered with chipbreaker geometry for optimal chip evacuation, reduced harmonics, and reduced tool pressure
- Offered in stub, regular, long, and extra long length styles
- Delivers efficient, chatter-free machining in High Efficiency Milling (HEM), profiling, and finishing applications
- Corner radius for increased edge strength
- Large core and eccentric relief for improved tool life
- Post-polished ALCRO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

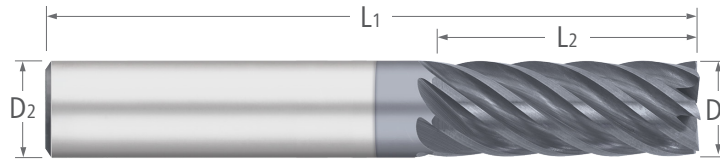
CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	ALCRO-MAX COATED		ALCRO-MAX COATED + WELDON FLAT	
					TOOL #	PRICE	TOOL #	PRICE
$D1^{+.000}_{-.002}$	$D2 (h6)$	$R^{+.001}_{-.001}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
1/4	1/4	.015	3/4	2-1/2	C773783	65.52		
	1/4	.015	1-1/8	3	C773794	72.39		
5/16	5/16	.015	13/16	2-1/2	C773784	77.41		
	5/16	.015	1-1/8	3	C773795	83.63		
3/8	3/8	.015	1	2-1/2	C773785	83.18		
	3/8	.015	1-1/4	3	C773796	95.12		
1/2	1/2	.030	1-1/4	3	C773786	110.35	C773790	117.31
	1/2	.030	2	4	C773797	145.77	C773801	152.73
$D1^{+.000}_{-.003}$	$D2 (h6)$	$R^{+.001}_{-.001}$	$L2$	$L1$	TOOL #	PRICE	TOOL #	PRICE
5/8	5/8	.030	1-5/8	3-1/2	C773787	175.17	C773791	184.12
	5/8	.030	2-1/4	5	C773798	215.37	C773802	224.32
3/4	3/4	.060	1-5/8	4	C773788	218.20	C773792	229.15
	3/4	.060	2-1/4	5	C773799	268.30	C773803	279.25
1	1	.060	2	4	C773789	332.83	C773793	346.76
	1	.060	3	6	C773800	543.72	C773804	557.65

For technical information, see page 113



HIGH PERFORMANCE END MILLS - CARBIDE

7 Flute - Square



HIGH PERFORMANCE

- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Offered in regular, long, and extra long length styles
- Delivers efficient, chatter free machining in light profiling, High Efficiency Milling (HEM), and finishing applications
- Large core and eccentric relief for improved tool life
- Post-polished AlCrO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	SHANK DIA.	LOC	OAL	ALCRO-MAX COATED	
$D_{1-0.002}^{+0.000}$	$D_2 (h6)$	L_2	L_1	TOOL #	PRICE
1/4	1/4	3/8	2	C773568	30.40
	1/4	3/4	2-1/2	C773575	37.21
	1/4	1-1/8	3	C773582	43.03
5/16	5/16	7/16	2	C773569	45.27
	5/16	13/16	2-1/2	C773576	48.16
	5/16	1-1/8	3	C773584	57.51
3/8	3/8	1/2	2	C773570	50.40
	3/8	1	2-1/2	C773577	57.16
	3/8	1-1/4	3	C773585	77.46
1/2	1/2	5/8	2-1/2	C773571	74.77
	1/2	1-1/4	3	C773578	92.63
	1/2	2	4	C773586	120.84
$D_{1-0.003}^{+0.000}$	5/8	3/4	3	C773573	143.38
	5/8	1-5/8	3-1/2	C773579	160.94
	5/8	2-1/4	5	C773587	213.18
3/4	3/4	1	3	C773574	185.97
	3/4	1-5/8	4	C773580	204.87
	3/4	2-1/4	5	C773588	266.21
1	1	2	4	C773581	397.95
	1	3	6	C773589	489.29

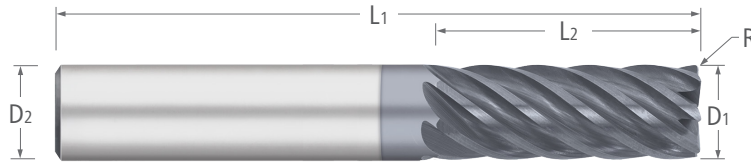
For technical information, see page 113

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

HIGH PERFORMANCE END MILLS - CARBIDE

7 Flute - Corner Radius


HIGH PERFORMANCE

- High performance variable index geometry offers outstanding performance in a wide range of materials, including high temp alloys, stainless steels, alloy steels, cast iron, and titanium
- Delivers efficient, chatter free machining in light profiling, High Efficiency Milling (HEM), and finishing applications
- Large core and eccentric relief for improved tool life
- Offered in regular, long, and extra long length styles
- Corner radius for increased edge strength
- Post-polished AlCrO-MAX coating increases wear and high heat resistance
- Solid carbide
- Precision manufactured in the USA

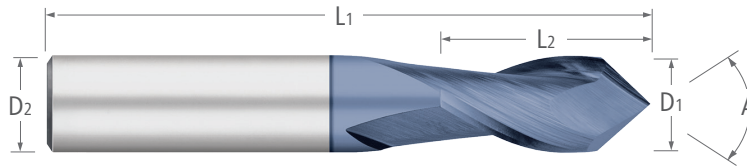
CUTTER DIA.	SHANK DIA.	RADIUS	LOC	OAL	ALCRO-MAX COATED	
$D_1^{+.000}_{-.002}$	$D_2 (h6)$	$R^{+.001}_{-.001}$	L_2	L_1	TOOL #	PRICE
1/4	1/4	.015	3/8	2	C773590	35.52
	1/4	.015	3/4	2-1/2	C773597	39.40
	1/4	.015	1-1/8	3	C773604	44.33
5/16	5/16	.015	7/16	2	C773591	47.41
	5/16	.015	13/16	2-1/2	C773598	50.60
	5/16	.015	1-1/8	3	C773606	59.30
3/8	3/8	.015	1/2	2	C773592	52.19
	3/8	.015	1	2-1/2	C773599	57.76
	3/8	.015	1-1/4	3	C773607	74.48
1/2	1/2	.030	5/8	2-1/2	C773593	80.20
	1/2	.030	1-1/4	3	C773600	93.63
	1/2	.030	2	4	C773608	119.55
5/8	5/8	.030	3/4	3	C773595	146.81
	5/8	.030	1-5/8	3-1/2	C773601	179.50
	5/8	.030	2-1/4	5	C773609	221.29
3/4	3/4	.060	1	3	C773596	191.09
	3/4	.060	1-5/8	4	C773602	224.27
	3/4	.060	2-1/4	5	C773610	276.36
1	1	.060	2	4	C773603	397.80
	1	.060	3	6	C773611	508.45

For technical information, see page 113



DRILL / END MILLS

2 Flute



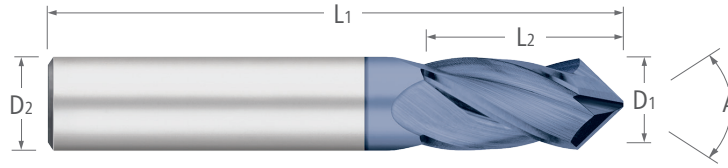
- Versatile tool engineered for drilling, chamfering, countersinking, spotting, and profiling applications
- Offered in 60°, 90°, and 120° point angles
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

INCLUDED ANGLE	CUTTER DIAMETER	LENGTH OF CUT	SHANK DIAMETER	OVERALL LENGTH	UNCOATED		ALTiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
A	$D1^{+0.001}_{-0.002}$	L2	D2 (h6)	L1	TOOL #	PRICE	TOOL #	PRICE
60°	1/32	1/8	1/8	1-1/2	C763770	14.93	C763782	18.86
	1/16	3/16	1/8	1-1/2	C763771	14.97	C763783	18.86
	3/32	3/8	1/8	1-1/2	C763772	14.97	C763784	18.86
	1/8	1/2	1/8	1-1/2	C763773	14.33	C763785	18.11
	3/16	5/8	3/16	2	C763774	20.25	C763786	24.97
	1/4	3/4	1/4	2-1/2	C763775	25.32	C763787	31.34
	5/16	13/16	5/16	2-1/2	C763776	31.44	C763788	38.66
	3/8	1	3/8	2-1/2	C763777	39.35	C763789	47.91
	7/16	1	7/16	2-3/4	C763778	53.18	C763790	63.38
1/2	1	1/2	3	C763779	65.57	C763791	77.76	
90°	1/32	1/8	1/8	1-1/2	C763818	14.93	C763830	18.86
	1/16	3/16	1/8	1-1/2	C763819	14.97	C763831	18.86
	3/32	3/8	1/8	1-1/2	C763820	14.97	C763832	18.21
	1/8	1/2	1/8	1-1/2	C763821	14.33	C763833	18.11
	3/16	5/8	3/16	2	C763822	20.25	C763834	24.97
	1/4	3/4	1/4	2-1/2	C763823	25.32	C763835	31.34
	5/16	13/16	5/16	2-1/2	C763824	31.44	C763836	38.66
	3/8	1	3/8	2-1/2	C763825	39.35	C763837	47.91
	7/16	1	7/16	2-3/4	C763826	53.18	C763838	63.38
1/2	1	1/2	3	C763827	65.57	C763839	77.76	
120°	1/32	1/8	1/8	1-1/2	C772589	14.93	C772601	19.10
	1/16	3/16	1/8	1-1/2	C772590	14.97	C772602	19.15
	3/32	3/8	1/8	1-1/2	C772591	14.97	C772603	19.15
	1/8	1/2	1/8	1-1/2	C772592	14.33	C772604	18.51
	3/16	5/8	3/16	2	C772593	20.25	C772605	24.97
	1/4	3/4	1/4	2-1/2	C772594	25.32	C772606	31.34
	5/16	13/16	5/16	2-1/2	C772595	31.44	C772607	38.66
	3/8	1	3/8	2-1/2	C772596	39.35	C772608	47.91
	7/16	1	7/16	2-3/4	C772597	53.18	C772609	63.18
1/2	1	1/2	3	C772598	65.57	C772610	77.21	
A		L2	D2 (h6)	L1	TOOL #	PRICE	TOOL #	PRICE
60°	5/8	1-1/4	5/8	3-1/2	C763780	124.52	C763792	148.40
	3/4	1-1/2	3/4	4	C763781	184.32	C763793	218.50
90°	5/8	1-1/4	5/8	3-1/2	C763828	124.52	C763840	148.40
	3/4	1-1/2	3/4	4	C763829	184.32	C763841	218.50
120°	5/8	1-1/4	5/8	3-1/2	C772599	124.52	C772611	139.00
	3/4	1-1/2	3/4	4	C772600	184.32	C772612	201.59

For technical information, see page 108

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

DRILL / END MILLS
4 Flute


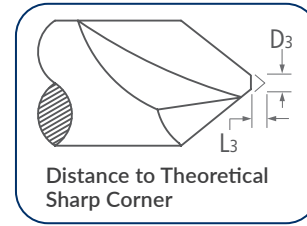
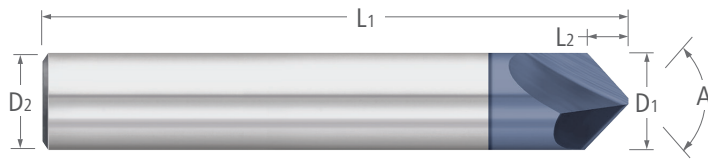
- Versatile tool engineered for drilling, chamfering, countersinking, spotting, and profiling applications
- Offered in 60°, 90°, and 120° point angles
- Solid carbide
- Precision manufactured in the USA
- AlTiN coating offers increased wear and heat resistance

INCLUDED ANGLE	CUTTER DIAMETER	LENGTH OF CUT	SHANK DIAMETER	OVERALL LENGTH	UNCOATED		ALTiN COATED	
A	D ₁ ^{+0.000} _{-0.002} "	L ₂	D ₂ (h6)	L ₁	TOOL #	PRICE	TOOL #	PRICE
60°	1/32	1/8	1/8	1-1/2	C763794	14.93	C763806	18.86
	1/16	3/16	1/8	1-1/2	C763795	14.97	C763807	18.86
	3/32	3/8	1/8	1-1/2	C763796	14.97	C763808	18.86
	1/8	1/2	1/8	1-1/2	C763797	14.33	C763809	18.11
	3/16	5/8	3/16	2	C763798	20.25	C763810	24.97
	1/4	3/4	1/4	2-1/2	C763799	25.32	C763811	31.34
	5/16	13/16	5/16	2-1/2	C763800	31.44	C763812	38.21
	3/8	1	3/8	2-1/2	C763801	39.35	C763813	47.91
	7/16	1	7/16	2-3/4	C763802	53.18	C763814	63.38
1/2	1	1/2	3	C763803	65.57	C763815	77.76	
90°	1/32	1/8	1/8	1-1/2	C763842	14.93	C763854	18.86
	1/16	3/16	1/8	1-1/2	C763843	14.97	C763855	18.86
	3/32	3/8	1/8	1-1/2	C763844	14.97	C763856	18.86
	1/8	1/2	1/8	1-1/2	C763845	14.33	C763857	18.11
	3/16	5/8	3/16	2	C763846	20.25	C763858	24.97
	1/4	3/4	1/4	2-1/2	C763847	25.32	C763859	31.34
	5/16	13/16	5/16	2-1/2	C763848	31.44	C763860	38.66
	3/8	1	3/8	2-1/2	C763849	39.35	C763861	47.91
	7/16	1	7/16	2-3/4	C763850	53.18	C763862	63.38
1/2	1	1/2	3	C763851	65.57	C763863	77.76	
120°	1/32	1/8	1/8	1-1/2	C772613	14.93	C772625	19.10
	1/16	3/16	1/8	1-1/2	C772614	14.97	C772626	19.15
	3/32	3/8	1/8	1-1/2	C772615	14.97	C772627	19.15
	1/8	1/2	1/8	1-1/2	C772616	14.33	C772628	18.51
	3/16	5/8	3/16	2	C772617	20.25	C772629	24.97
	1/4	3/4	1/4	2-1/2	C772618	25.32	C772630	31.34
	5/16	13/16	5/16	2-1/2	C772619	31.44	C772631	38.66
	3/8	1	3/8	2-1/2	C772620	39.35	C772632	47.91
	7/16	1	7/16	2-3/4	C772621	53.18	C772633	63.18
1/2	1	1/2	3	C772622	65.57	C772634	77.21	
A		L ₂	D ₂ (h6)	L ₁	TOOL #	PRICE	TOOL #	PRICE
60°	5/8	1-1/4	5/8	3-1/2	C763804	124.52	C763816	148.40
	3/4	1-1/2	3/4	4	C763805	184.32	C763817	218.50
90°	5/8	1-1/4	5/8	3-1/2	C763852	124.52	C763864	148.40
	3/4	1-1/2	3/4	4	C763853	184.32	C763865	218.50
120°	5/8	1-1/4	5/8	3-1/2	C772623	124.52	C772635	139.00
	3/4	1-1/2	3/4	4	C772624	184.32	C772636	201.59

For technical information, see page 108

CHAMFER MILLS

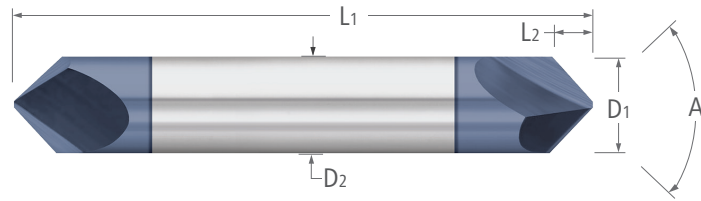
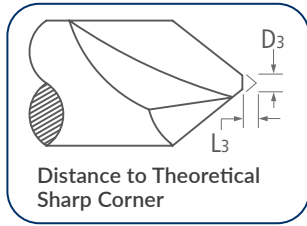
2 Flute - Flat Tip



- Flat tip (non-cutting) design for increased strength in chamfering and profiling applications
- Fully stocked in 60°, 82°, 90°, 100°, and 120° styles
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

INCLUDED ANGLE	CUTTER DIA.	LENGTH OF CUT	TIP DIA.	THEORETICAL TIP LENGTH	SHANK DIA.	OVERALL LENGTH	UNCOATED		ALTiN COATED	
							TOOL #	PRICE	TOOL #	PRICE
A	D ₁	L ₂	D ₃	L ₃	D ₂ (h6)	L ₁	TOOL #	PRICE	TOOL #	PRICE
60°	1/8	.091	.020	.017	1/8	1-1/2	C765608	12.79	C765628	16.12
	3/16	.137	.030	.026	3/16	2-1/2	C772246	17.66	C772256	22.69
	1/4	.178	.044	.038	1/4	2-1/2	C765609	22.64	C765629	28.36
	5/16	.219	.060	.052	5/16	2-1/2	C772247	28.26	C772257	35.47
	3/8	.273	.060	.052	3/8	2-1/2	C765610	35.12	C765630	43.68
	1/2	.364	.080	.069	1/2	3	C765611	58.41	C765631	70.05
82°	1/8	.060	.020	.012	1/8	1-1/2	C765612	12.79	C765632	16.12
	3/16	.091	.030	.017	3/16	2-1/2	C772248	17.66	C772258	22.69
	1/4	.119	.044	.025	1/4	2-1/2	C765613	22.64	C765633	28.36
	5/16	.145	.060	.035	5/16	2-1/2	C772249	28.26	C772259	35.47
	3/8	.181	.060	.035	3/8	2-1/2	C765614	35.12	C765634	43.68
	1/2	.242	.080	.046	1/2	3	C765615	58.41	C765635	70.05
90°	1/8	.053	.020	.010	1/8	1-1/2	C765616	12.79	C765636	16.12
	3/16	.079	.030	.015	3/16	2-1/2	C772250	17.66	C772260	22.24
	1/4	.103	.044	.022	1/4	2-1/2	C765617	22.64	C765637	28.36
	5/16	.126	.060	.030	5/16	2-1/2	C772251	28.26	C772261	35.47
	3/8	.158	.060	.030	3/8	2-1/2	C765618	35.12	C765638	43.68
	1/2	.210	.080	.040	1/2	3	C765619	58.41	C765639	70.05
100°	1/8	.052	.020	.008	1/8	1-1/2	C765620	12.79	C765640	16.96
	3/16	.066	.030	.013	3/16	2-1/2	C772252	17.66	C772262	22.69
	1/4	.086	.044	.019	1/4	2-1/2	C765621	22.64	C765641	28.36
	5/16	.106	.060	.025	5/16	2-1/2	C772253	28.26	C772263	35.47
	3/8	.132	.060	.025	3/8	2-1/2	C765622	35.12	C765642	43.68
	1/2	.176	.080	.034	1/2	3	C765623	58.41	C765643	70.05
120°	1/8	.030	.020	.006	1/8	1-1/2	C765624	12.79	C765644	16.96
	3/16	.045	.030	.009	3/16	2-1/2	C772254	17.66	C772264	22.69
	1/4	.059	.044	.013	1/4	2-1/2	C765625	22.64	C765645	28.36
	5/16	.073	.060	.017	5/16	2-1/2	C772255	28.26	C772265	35.47
	3/8	.091	.060	.017	3/8	2-1/2	C765626	35.12	C765646	43.68
	1/2	.121	.080	.023	1/2	3	C765627	58.41	C765647	70.05

CHAMFER MILLS 2 Flute - Flat Tip - Double-Ended



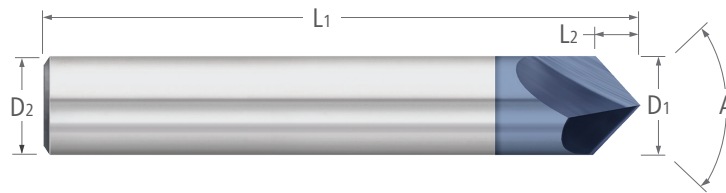
- Flat tip (non-cutting) design for increased strength in chamfering and profiling applications
- Double-ended
- Fully stocked in 60°, 82°, 90°, 100°, and 120° styles
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

INCLUDED ANGLE	CUTTER DIA.	LENGTH OF CUT	TIP DIA.	THEORETICAL TIP LENGTH	SHANK DIA.	OVERALL LENGTH	UNCOATED		ALTiN COATED	
A	D ₁	L ₂	D ₃	L ₃	D ₂ (h6)	L ₁	TOOL #	PRICE	TOOL #	PRICE
60°	1/8	.091	.020	.017	1/8	2	C765688	22.98	C765718	27.41
	3/16	.137	.030	.026	3/16	2-1/2	C765689	31.64	C765719	37.76
	1/4	.178	.044	.038	1/4	2-1/2	C765690	40.70	C765720	48.16
	5/16	.219	.060	.052	5/16	2-1/2	C765691	51.84	C765721	59.05
	3/8	.273	.060	.052	3/8	2-1/2	C765692	63.23	C765722	75.32
	1/2	.364	.080	.069	1/2	3	C765693	104.57	C765723	124.72
82°	1/8	.060	.020	.012	1/8	2	C765694	22.98	C765724	27.41
	3/16	.091	.028	.017	3/16	2-1/2	C765695	31.64	C765725	37.76
	1/4	.119	.044	.025	1/4	2-1/2	C765696	40.55	C765726	48.16
	5/16	.145	.060	.035	5/16	2-1/2	C765697	51.84	C765727	57.16
	3/8	.181	.060	.035	3/8	2-1/2	C765698	63.48	C765728	75.32
	1/2	.242	.080	.046	1/2	3	C765699	104.57	C765729	124.72
90°	1/8	.053	.020	.010	1/8	2	C765700	22.98	C765730	27.41
	3/16	.079	.028	.015	3/16	2-1/2	C765701	31.64	C765731	37.76
	1/4	.103	.044	.022	1/4	2-1/2	C765702	40.70	C765732	48.16
	5/16	.126	.060	.030	5/16	2-1/2	C765703	51.84	C765733	61.74
	3/8	.158	.060	.030	3/8	2-1/2	C765704	63.48	C765734	75.32
	1/2	.210	.080	.040	1/2	3	C765705	104.57	C765735	124.72
100°	1/8	.052	.020	.008	1/8	2	C765706	22.98	C765736	27.16
	3/16	.066	.028	.013	3/16	2-1/2	C765707	31.64	C765737	36.67
	1/4	.086	.044	.019	1/4	2-1/2	C765708	40.55	C765738	46.57
	5/16	.106	.060	.025	5/16	2-1/2	C765709	51.84	C765739	59.05
	3/8	.132	.060	.025	3/8	2-1/2	C765710	63.23	C765740	71.79
	1/2	.176	.080	.034	1/2	3	C765711	104.57	C765741	110.94
120°	1/8	.030	.020	.006	1/8	2	C765712	22.98	C765742	27.41
	3/16	.045	.028	.009	3/16	2-1/2	C765713	31.64	C765743	37.76
	1/4	.059	.044	.013	1/4	2-1/2	C765714	40.55	C765744	48.16
	5/16	.073	.060	.017	5/16	2-1/2	C765715	51.84	C765745	59.05
	3/8	.091	.060	.017	3/8	2-1/2	C765716	63.23	C765746	75.32
	1/2	.121	.080	.023	1/2	3	C765717	104.57	C765747	124.72

CHAMFER MILLS

CHAMFER MILLS

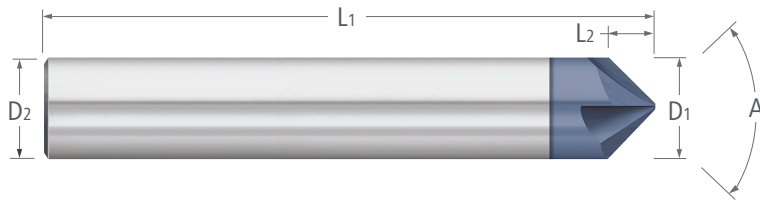
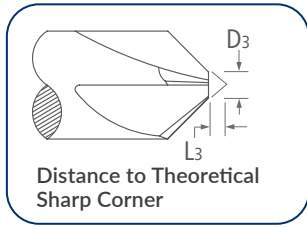
2 Flute - Pointed Tip



- Pointed tip geometry for general purpose chamfering and deburring applications in narrow grooves, slots, and small holes
- Fully stocked in 60°, 82°, 90°, 100°, and 120° styles
- Solid carbide
- Precision manufactured in the USA
- AlTiN coating offers increased wear and heat resistance

INCLUDED ANGLE	CUTTER DIAMETER	LENGTH OF CUT	TIP DIAMETER	SHANK DIAMETER	OVERALL LENGTH	UNCOATED		ALTiN COATED	
						TOOL #	PRICE	TOOL #	PRICE
A	D1	L2	D3	D2 (h6)	L1				
60°	1/8	.108	.010	1/8	1-1/2	C772286	12.79	C772316	16.96
	3/16	.163	.010	3/16	2-1/2	C772287	17.71	C772317	22.24
	1/4	.216	.010	1/4	2-1/2	C772288	22.54	C772318	28.36
	5/16	.271	.010	5/16	2-1/2	C772289	28.26	C772319	35.47
	3/8	.325	.010	3/8	2-1/2	C772290	35.12	C772320	43.68
	1/2	.433	.010	1/2	3	C772291	58.16	C772321	69.80
82°	1/8	.072	.010	1/8	1-1/2	C772292	12.79	C772322	16.96
	3/16	.108	.010	3/16	2-1/2	C772293	17.71	C772323	22.74
	1/4	.144	.010	1/4	2-1/2	C772294	22.54	C772324	28.51
	5/16	.180	.010	5/16	2-1/2	C772295	28.26	C772325	35.47
	3/8	.216	.010	3/8	2-1/2	C772296	35.12	C772326	43.68
	1/2	.288	.010	1/2	3	C772297	58.16	C772327	69.80
90°	1/8	.063	.010	1/8	1-1/2	C772298	12.79	C772328	16.12
	3/16	.094	.010	3/16	2-1/2	C772299	17.71	C772329	22.24
	1/4	.125	.010	1/4	2-1/2	C772300	22.54	C772330	28.36
	5/16	.156	.010	5/16	2-1/2	C772301	28.26	C772331	35.47
	3/8	.188	.010	3/8	2-1/2	C772302	35.12	C772332	42.83
	1/2	.250	.010	1/2	3	C772303	58.16	C772333	69.80
100°	1/8	.052	.010	1/8	1-1/2	C772304	12.79	C772334	16.96
	3/16	.079	.010	3/16	2-1/2	C772305	17.71	C772335	22.74
	1/4	.105	.010	1/4	2-1/2	C772306	22.54	C772336	28.51
	5/16	.131	.010	5/16	2-1/2	C772307	28.26	C772337	35.47
	3/8	.157	.010	3/8	2-1/2	C772308	35.12	C772338	43.68
	1/2	.210	.010	1/2	3	C772309	58.16	C772339	69.80
120°	1/8	.036	.010	1/8	1-1/2	C772310	12.79	C772340	16.96
	3/16	.054	.010	3/16	2-1/2	C772311	17.71	C772341	22.74
	1/4	.072	.010	1/4	2-1/2	C772312	22.54	C772342	28.51
	5/16	.090	.010	5/16	2-1/2	C772313	28.26	C772343	35.47
	3/8	.108	.010	3/8	2-1/2	C772314	35.12	C772344	43.68
	1/2	.144	.010	1/2	3	C772315	58.16	C772345	69.80

CHAMFER MILLS 4 Flute - Flat Tip



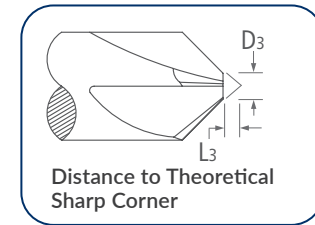
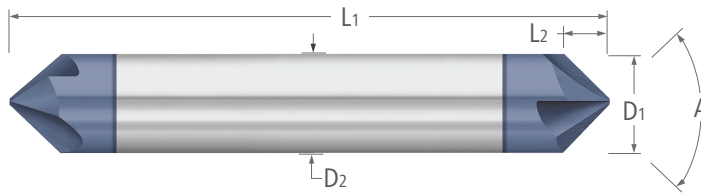
- Flat tip (non-cutting) design for increased strength in chamfering and profiling applications
- Fully stocked in 60°, 82°, 90°, 100°, and 120° styles
- Solid carbide
- Precision manufactured in the USA
- ALTiN coating offers increased wear and heat resistance

INCLUDED ANGLE	CUTTER DIA.	LENGTH OF CUT	TIP DIA.	THEORETICAL TIP LENGTH	SHANK DIA.	OVERALL LENGTH	UNCOATED		ALTiN COATED	
							TOOL #	PRICE	TOOL #	PRICE
A	D ₁	L ₂	D ₃	L ₃	D ₂ (h6)	L ₁				
60°	1/8	.091	.020	.017	1/8	1-1/2	C765648	12.79	C765668	16.12
	3/16	.137	.030	.026	3/16	2-1/2	C772266	17.66	C772276	22.69
	1/4	.178	.044	.038	1/4	2-1/2	C765649	22.64	C765669	28.36
	5/16	.219	.060	.052	5/16	2-1/2	C772267	28.26	C772277	35.47
	3/8	.273	.060	.052	3/8	2-1/2	C765650	35.12	C765670	43.68
	1/2	.364	.080	.069	1/2	3	C765651	58.41	C765671	70.05
82°	1/8	.060	.020	.012	1/8	1-1/2	C765652	12.79	C765672	16.12
	3/16	.091	.030	.017	3/16	2-1/2	C772268	17.66	C772278	22.69
	1/4	.119	.044	.025	1/4	2-1/2	C765653	22.64	C765673	28.36
	5/16	.145	.060	.035	5/16	2-1/2	C772269	28.26	C772279	35.47
	3/8	.181	.060	.035	3/8	2-1/2	C765654	35.12	C765674	43.68
	1/2	.242	.080	.046	1/2	3	C765655	58.41	C765675	70.05
90°	1/8	.053	.020	.010	1/8	1-1/2	C765656	12.79	C765676	16.12
	3/16	.079	.030	.015	3/16	2-1/2	C772270	17.66	C772280	22.24
	1/4	.103	.044	.022	1/4	2-1/2	C765657	22.64	C765677	28.36
	5/16	.126	.060	.030	5/16	2-1/2	C772271	28.26	C772281	35.47
	3/8	.158	.060	.030	3/8	2-1/2	C765658	35.12	C765678	43.68
	1/2	.210	.080	.040	1/2	3	C765659	58.41	C765679	70.05
100°	1/8	.052	.020	.008	1/8	1-1/2	C765660	12.79	C765680	16.12
	3/16	.066	.030	.013	3/16	2-1/2	C772272	17.66	C772282	22.69
	1/4	.086	.044	.019	1/4	2-1/2	C765661	22.64	C765681	28.36
	5/16	.106	.060	.025	5/16	2-1/2	C772273	28.26	C772283	35.47
	3/8	.132	.060	.025	3/8	2-1/2	C765662	35.12	C765682	43.68
	1/2	.176	.080	.034	1/2	3	C765663	58.41	C765683	70.05
120°	1/8	.030	.020	.006	1/8	1-1/2	C765664	12.79	C765684	16.12
	3/16	.045	.030	.009	3/16	2-1/2	C772274	17.66	C772284	22.69
	1/4	.059	.044	.013	1/4	2-1/2	C765665	22.64	C765685	28.36
	5/16	.073	.060	.017	5/16	2-1/2	C772275	28.26	C772285	35.47
	3/8	.091	.060	.017	3/8	2-1/2	C765666	35.12	C765686	42.83
	1/2	.121	.080	.023	1/2	3	C765667	58.41	C765687	70.05

CHAMFER MILLS

CHAMFER MILLS

4 Flute - Flat Tip - Double-Ended



- Flat tip (non-cutting) design for increased strength in chamfering and profiling applications
- Fully stocked in 60°, 82°, 90°, 100°, and 120° styles
- Double-ended
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

INCLUDED ANGLE	CUTTER DIA.	LENGTH OF CUT	TIP DIA.	THEORETICAL TIP LENGTH	SHANK DIA.	OVERALL LENGTH	UNCOATED		ALTiN COATED	
							TOOL #	PRICE	TOOL #	PRICE
A	D ₁	L ₂	D ₃	L ₃	D ₂ (h6)	L ₁				
60°	1/8	.091	.020	.017	1/8	2	C765748	22.98	C765778	27.41
	3/16	.137	.030	.026	3/16	2-1/2	C765749	31.64	C765779	37.76
	1/4	.178	.044	.038	1/4	2-1/2	C765750	40.70	C765780	48.16
	5/16	.219	.060	.052	5/16	2-1/2	C765751	51.84	C765781	59.05
	3/8	.273	.060	.052	3/8	2-1/2	C765752	63.48	C765782	75.32
	1/2	.364	.080	.069	1/2	3	C765753	104.57	C765783	124.72
82°	1/8	.060	.020	.012	1/8	2	C765754	22.98	C765784	27.41
	3/16	.091	.030	.017	3/16	2-1/2	C765755	31.64	C765785	37.76
	1/4	.119	.044	.025	1/4	2-1/2	C765756	40.55	C765786	48.16
	5/16	.145	.060	.035	5/16	2-1/2	C765757	51.84	C765787	59.05
	3/8	.181	.060	.035	3/8	2-1/2	C765758	63.48	C765788	75.32
	1/2	.242	.080	.046	1/2	3	C765759	104.57	C765789	124.72
90°	1/8	.053	.020	.010	1/8	2	C765760	22.98	C765790	27.41
	3/16	.079	.030	.015	3/16	2-1/2	C765761	31.64	C765791	37.76
	1/4	.103	.044	.022	1/4	2-1/2	C765762	40.70	C765792	48.16
	5/16	.126	.060	.030	5/16	2-1/2	C765763	51.84	C765793	61.74
	3/8	.158	.060	.030	3/8	2-1/2	C765764	63.48	C765794	75.32
	1/2	.210	.080	.040	1/2	3	C765765	104.57	C765795	124.72
100°	1/8	.052	.020	.008	1/8	2	C765766	22.98	C765796	27.41
	3/16	.066	.030	.013	3/16	2-1/2	C765767	31.64	C765797	37.76
	1/4	.086	.044	.019	1/4	2-1/2	C765768	40.70	C765798	48.16
	5/16	.106	.060	.025	5/16	2-1/2	C765769	51.84	C765799	59.05
	3/8	.132	.060	.025	3/8	2-1/2	C765770	63.48	C765800	75.32
	1/2	.176	.080	.034	1/2	3	C765771	104.57	C765801	124.72
120°	1/8	.030	.020	.006	1/8	2	C765772	22.98	C765802	27.41
	3/16	.045	.030	.009	3/16	2-1/2	C765773	31.64	C765803	37.76
	1/4	.059	.044	.013	1/4	2-1/2	C765774	40.70	C765804	48.16
	5/16	.073	.060	.017	5/16	2-1/2	C765775	51.84	C765805	59.05
	3/8	.091	.060	.017	3/8	2-1/2	C765776	63.48	C765806	75.32
	1/2	.121	.080	.023	1/2	3	C765777	104.57	C765807	124.72

CHAMFER MILLS

Technical Information

TECHNICAL

Material Guide		Rc	SFM	Feed Per Tooth					
				UP TO 1/8"	1/8" - 3/16"	3/16" - 1/4"	1/4" - 5/16"	5/16" - 3/8"	3/8" - 1/2"
				COBALT BASE ALLOYS	Stellite, HS-21, Haynes 25/188, X-40, L-605	< 32	30 - 50	.0004	.0005
NICKEL BASE ALLOYS	Inconel-625/718, Waspalloy, Rene, Hastelloy	< 32	30 - 50	.0004	.0005	.0010	.0010	.0010	.0010
IRON BASE ALLOYS	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpeneter 22-b3	< 32	40 - 65	.0005	.0005	.0010	.0010	.0015	.0020
TITANIUM ALLOYS	Commercially Pure, 6AL-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		25 - 125	.0005	.0005	.0005	.0005	.0010	.0010
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17-4, AM-350/355	< 32	40 - 125	.0005	.0005	.0010	.0010	.0010	.0020
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 316, 304L, 316L	< 32	50 - 175	.0001	.0002	.0005	.0005	.0010	.0015
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	< 32	50 - 125	.0001	.0002	.0005	.0005	.0005	.0010
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	< 32	25 - 150	.0005	.0005	.0010	.0010	.0010	.0010
MEDIUM ALLOY STEELS	200, 250, 300	< 32	75 - 175	.0005	.0005	.0010	.0010	.0020	.0025
CARBON STEELS	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	< 32	50 - 200	.0005	.0010	.0015	.0015	.0020	.0030
DUCTILE	Ductile Cast Irons		50 - 200	.0005	.0010	.0015	.0015	.0020	.0020
CAST IRONS	Gray Cast Irons		50 - 200	.0005	.0010	.0020	.0020	.0030	.0040
ALUMINUM	2014, 2024, 6061-(T1-T6), 7075, Die Cast, Extruded		500 - 1000	.0010	.0020	.0020	.0020	.0030	.0040
MAGNESIUM			450 - 650	.0010	.0020	.0020	.0020	.0030	.0040
COPPER, COPPER ALLOYS	Yellow Brass, High Lead Brass, Red Brass		400 - 750	.0010	.0010	.0020	.0020	.0025	.0030
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze		400 - 500	.0010	.0010	.0020	.0020	.0025	.0030
PLASTICS	Acrylics, Phenolics		100 - 300	.0010	.0020	.0030	.0030	.0040	.0060
CARBON, GRAPHITES			100 - 200	.0040	.0040	.0060	.0060	.0080	.0100

These values are a starting point based on an uncoated tool.
 For AlTiN Coated tools increase SFM values by up to +40%



GENERAL PURPOSE END MILLS - CARBIDE - ROUGHING

Technical Information

Material Guide		SFM	Feed Per Tooth						
			1/8" - 1/4"	1/4" - 5/16"	5/16" - 3/8"	3/8" - 1/2"	1/2" - 5/8"	5/8" - 3/4"	3/4" - 1"
COBALT BASE ALLOYS	Stellite, HS - 21, Haynes 25/188, X - 40, L - 605	85 - 120	.0002 - .0004	.0004 - .0006	.0006 - .0008	.0008 - .0012	.0012 - .0015	.0015 - .0018	.0018 - .0025
			.0002 - .0005	.0005 - .0007	.0008 - .0009	.0009 - .0014	.0014 - .0018	.0018 - .0022	.0022 - .0029
NICKEL BASE ALLOYS	Inconel - 625/718, Waspalloy, Rene, Hastelloy	60 - 85	.0001 - .0003	.0003 - .0005	.0005 - .0006	.0006 - .0010	.0010 - .0012	.0012 - .0015	.0015 - .0020
			.0003 - .0004	.0004 - .0006	.0006 - .0007	.0007 - .0011	.0011 - .0014	.0014 - .0017	.0017 - .0023
IRON BASE ALLOYS	Incoloy 800 - 802, Multimet N - 155, Timkin 16 - 25 - 6, Carpeneter 22 - b3	70 - 100	.0002 - .0004	.0004 - .0006	.0006 - .0008	.0008 - .0012	.0012 - .0015	.0015 - .0018	.0018 - .0025
			.0002 - .0005	.0005 - .0007	.0008 - .0009	.0009 - .0014	.0014 - .0018	.0018 - .0022	.0022 - .0029
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17 - 4	175 - 245	.0006 - .0011	.0011 - .0013	.0013 - .0016	.0016 - .0022	.0022 - .0028	.0028 - .0034	.0034 - .0046
			.0009 - .0015	.0015 - .0016	.0016 - .0022	.0022 - .0030	.0030 - .0039	.0039 - .0047	.0047 - .0063
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 304L, 316, 316L	225 - 315	.0007 - .0013	.0013 - .0017	.0017 - .0020	.0020 - .0027	.0027 - .0034	.0034 - .0041	.0041 - .0055
			.0010 - .0018	.0018 - .0023	.0023 - .0028	.0028 - .0037	.0037 - .0047	.0047 - .0056	.0056 - .0075
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	200 - 280	.0009 - .0014	.0014 - .0018	.0018 - .0021	.0021 - .0029	.0029 - .0036	.0036 - .0043	.0043 - .0059
			.0014 - .0019	.0019 - .0023	.0023 - .0029	.0029 - .0040	.0040 - .0050	.0050 - .0060	.0060 - .0081
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	225 - 315	.0007 - .0013	.0013 - .0017	.0017 - .0020	.0020 - .0027	.0027 - .0034	.0034 - .0041	.0041 - .0055
			.0010 - .0018	.0018 - .0023	.0023 - .0028	.0028 - .0037	.0037 - .0047	.0047 - .0056	.0056 - .0075
MEDIUM ALLOY STEELS	200, 250, 300	250 - 350	.0007 - .0013	.0013 - .0017	.0017 - .0020	.0020 - .0027	.0027 - .0034	.0034 - .0041	.0041 - .0055
			.0010 - .0018	.0018 - .0023	.0023 - .0028	.0028 - .0037	.0037 - .0047	.0047 - .0056	.0056 - .0075
CARBON STEELS	1000's, 1100's, 1300's	265 - 370	.0007 - .0013	.0013 - .0017	.0017 - .0020	.0020 - .0027	.0027 - .0034	.0034 - .0041	.0041 - .0055
			.0010 - .0018	.0018 - .0023	.0023 - .0028	.0028 - .0037	.0037 - .0047	.0047 - .0056	.0056 - .0075

Slotting @ $\leq .5 \times D$ Profiling @ $2 \times D$ Axial / $\leq .5D$ Radial

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE END MILLS - COBALT - ROUGHING

Technical Information

Material Guide		Rc	SFM	Feed Per Tooth						
				1/4"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
COBALT BASE ALLOYS	Stellite, HS-21, Haynes 25/188, X-40, L-605	< 32	5-25	.0009 - .0011	.0012 - .0014	.0018 - .0020	.0026 - .0029	.0033 - .0037	.0040 - .0045	.0053 - .0059
NICKEL BASE ALLOYS	Inconel-625/718, Waspalloy, Rene, Hastelloy	< 32	10-20	.0009 - .0011	.0012 - .0014	.0018 - .0020	.0026 - .0029	.0033 - .0037	.0040 - .0045	.0053 - .0059
IRON BASE ALLOYS	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpeneter 22-b3	< 32	15-35	.0009 - .0011	.0012 - .0014	.0018 - .0020	.0026 - .0029	.0033 - .0037	.0040 - .0045	.0053 - .0059
MONEL	Monel-65% Nickel		10-20	.0009 - .0011	.0012 - .0014	.0018 - .0020	.0026 - .0029	.0033 - .0037	.0040 - .0045	.0053 - .0059
TITANIUM ALLOYS	Commercially Pure, 6AL-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		50-90	.0015 - .0017	.0020 - .0022	.0028 - .0030	.0040 - .0045	.0052 - .0057	.0062 - .0067	.0080 - .0090
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17-4, AM-350/355	< 32	60-80	.0011 - .0015	.0016 - .0020	.0026 - .0029	.0036 - .0040	.0046 - .0050	.0054 - .0060	.0070 - .0075
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 316, 304L, 316L	< 32	60-80	.0015 - .0019	.0020 - .0025	.0030 - .0034	.0045 - .0049	.0056 - .0061	.0067 - .0074	.0090 - .0098
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	< 32	60-100	.0015 - .0019	.0020 - .0025	.0030 - .0034	.0045 - .0049	.0056 - .0061	.0067 - .0074	.0090 - .0098
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	< 32	50-80	.0011 - .0015	.0015 - .0020	.0025 - .0028	.0035 - .0039	.0045 - .0050	.0053 - .0059	.0071 - .0079
MEDIUM ALLOY STEELS	200, 250, 300	< 32	60-120	.0016 - .0020	.0023 - .0027	.0033 - .0040	.0050 - .0054	.0032 - .0070	.0075 - .0082	.0093 - .0110
CARBON STEELS	1000's, 1100's, 1300's	< 32	70-150	.0018 - .0022	.0025 - .0029	.0037 - .0042	.0053 - .0059	.0068 - .0074	.0080 - .0090	.0100 - .0115
DUCTILE	Ductile Cast Irons		40-80	.0015 - .0018	.0019 - .0024	.0030 - .0034	.0042 - .0048	.0056 - .0061	.0065 - .0073	.0087 - .0093
CAST IRONS	Gray Cast Irons		60-150	.0010 - .0014	.0014 - .0018	.0024 - .0027	.0034 - .0038	.0044 - .0050	.0053 - .0058	.0070 - .0078
ALUMINUM	2014, 2024, 6061-(T1-T6), 7075, Die Cast, Extruded		400-650	.0024 - .0027	.0058 - .0063	.0067 - .0076	.0103 - .0110	.0112 - .0120	.0180 - .0205	.0210 - .0260

These values are a starting point based on an uncoated tool.
 For AlTiN Coated tools increase SFM values by up to +40%

TECHNICAL

GENERAL PURPOSE END MILLS - CARBIDE

Technical Information

General Purpose Carbide End Mills

Material Guide		Rc	SFM				Suggested Chip Load Per Tooth				
			2 Flute		3 & 4 Flute		1/32" - 1/8"	1/8" - 1/4"	1/4" - 1/2"	1/2" - 1"	1" - 1 1/4"
			Stub, Std	Long, X-Long	Stub, Std	Long, X-Long					
COBALT BASE ALLOYS	Stellite, HS-21, Haynes 25/188, X-40, L-605	under 32 over 32			175 - 225 125 - 175	140 - 180 100 - 140	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
NICKEL BASE ALLOYS	Inconel-625/718, Waspalloy, Rene, Hastelloy	under 32 over 32			125 - 175 70 - 115	100 - 140 55 - 95	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
IRON BASE ALLOYS	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpeneter 22-b3	under 32 over 32			175 - 225 125 - 175	140 - 180 100 - 140	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
MONEL	Monel-65% Nickel		175 - 300	125 - 175	175 - 300	140 - 240	.0007 - .0015	.0010 - .0025	.0015 - .0040	.0030 - .0050	.0040 - .0060
TITANIUM ALLOYS	Commercially Pure, 6AL-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		200 - 300	125 - 250	200 - 300	160 - 240	.0007 - .0015	.0010 - .0025	.0015 - .0040	.0030 - .0050	.0040 - .0060
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17-4	under 32 over 32			150 - 250 125 - 175	120 - 200 100 - 140	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 304L, 316, 316L	under 32 over 32			200 - 250 150 - 200	160 - 200 120 - 160	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	under 32 over 32			150 - 250 125 - 175	120 - 200 100 - 140	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	under 32 over 32			150 - 225 60 - 125	120 - 180 50 - 100	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
MEDIUM ALLOY STEELS	200, 250, 300	under 32 over 32			200 - 250 125 - 175	160 - 200 100 - 140	.0007 - .0015 .0005 - .0010	.0010 - .0025 .0008 - .0020	.0015 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040	.0040 - .0060 .0030 - .0050
CARBON STEELS	1000's, 1100's, 1300's	under 32 over 32			200 - 250 125 - 175	160 - 200 100 - 140	.0007 - .0015 .0005 - .0010	.0010 - .0025 .0008 - .0020	.0015 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040	.0040 - .0060 .0030 - .0050
DUCTILE	Ductile Cast Irons		200 - 300	125 - 200	200 - 300	160 - 240	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100	.0030 - .0080
CAST IRONS	Gray Cast Irons		225 - 325	175 - 250	250 - 350	200 - 280	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100	.0050 - .0100
ALUMINUM	2014, 2024, 6061-(T1-T6), 7075, Die Cast, Extruded		300 - 500	300 - 500	300 - 500	240 - 400	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100	.0030 - .0150
MAGNESIUM			300 - 500	300 - 500	300 - 500	240 - 400	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100	.0050 - .0100
COPPER, COPPER ALLOYS			400 - 500	250 - 350	300 - 400	240 - 320	.0007 - .0015	.0010 - .0025	.0015 - .0035	.0020 - .0080	.0040 - .0100
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze		300 - 400	200 - 300	250 - 350	200 - 280	.0007 - .0015	.0010 - .0025	.0015 - .0035	.0020 - .0080	.0040 - .0100
COMPOSITES	G-10 Fiberglass, Graphite, Graphite/Epoxy, Plastics		250 - 1000	250 - 1000	250 - 1000	200 - 800	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100	.0050 - .0100

These values are a starting point based on an uncoated tool.

For AlTiN Coated tools increase SFM values by up to +40%



GENERAL PURPOSE END MILLS - CARBIDE

45° & 60° Helix - Technical Information

General Purpose Carbide 45°& 60° Helix End Mills									
Material Guide		Rc	SFM			Feed Per Tooth			
			2, 3 Flute	3 Flute	5 Flute				
			45° Helix Aluminum	45°,60° Helix	45° Helix	UP TO 1/8"	1/8" - 1/4"	1/4" - 1/2"	1/2" - 1"
COBALT BASE ALLOYS	Stellite, HS - 21, Haynes 25/188, X - 40, L - 605	under 32 over 32		200 - 275 125 - 175	200 - 275 125 - 175	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
NICKEL BASE ALLOYS	Inconel - 625/718, Waspalloy, Rene, Hastelloy	under 32 over 32		150 - 200 90 - 125	150 - 200 90 - 125	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
IRON BASE ALLOYS	Incoloy 800 - 802, Multimet N - 155, Timkin 16 - 25 - 6, Carpeneter 22 - b3	under 32 over 32		200 - 300 150 - 200	200 - 300 150 - 200	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
MONEL	Monel - 65% Nickel			200 - 300	200 - 300	.0007 - .0015	.0010 - .0025	.0015 - .0040	.0030 - .0050
TITANIUM ALLOYS	Commercially Pure, 6Al - 4V, Astm 1/2/3, 6Al - 25N - 4Zr - 2Mo - Si		125 - 400	150 - 300	150 - 300	.0007 - .0015	.0010 - .0025	.0015 - .0040	.0030 - .0050
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17 - 4, AM - 350/355	under 32 over 32		200 - 300 150 - 200	200 - 300 150 - 200	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 316, 304L, 316L	under 32 over 32		250 - 350 175 - 275	250 - 350 175 - 275	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	under 32 over 32		200 - 300 150 - 200	200 - 300 150 - 200	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	under 32 over 32		225 - 300 125 - 200	225 - 300 125 - 200	.0005 - .0010 .0003 - .0005	.0008 - .0020 .0005 - .0015	.0010 - .0030 .0010 - .0020	.0020 - .0040 .0010 - .0030
MEDIUM ALLOY STEELS	200, 250, 300	under 32 over 32		250 - 350 150 - 200	250 - 350 150 - 200	.0007 - .0015 .0005 - .0010	.0010 - .0025 .0008 - .0020	.0015 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
CARBON STEELS	1000's, 1100's, 1300's	under 32 over 32		250 - 350 150 - 200	250 - 350 150 - 200	.0007 - .0015 .0005 - .0010	.0010 - .0025 .0008 - .0020	.0015 - .0040 .0010 - .0030	.0030 - .0050 .0020 - .0040
DUCTILE	Ductile Cast Irons			200 - 300	200 - 300	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100
CAST IRONS	Gray Cast Irons			175 - 250	175 - 250	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100
ALUMINUM	2014, 2024, 6061-(T1-T6), 7075, Die Cast, Extruded		300 - 500	200 - 400	200 - 400	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0150
MAGNESIUM			200 - 500	200 - 300	200 - 300	.0010 - .0020	.0015 - .0040	.0020 - .0060	.0030 - .0100
COPPER, COPPER ALLOYS			200 - 500	200 - 300	200 - 300	.0007 - .0015	.0010 - .0025	.0015 - .0035	.0020 - .0080
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze		200 - 500	200 - 300	200 - 300	.0007 - .0015	.0010 - .0025	.0015 - .0035	.0020 - .0080

These values are a starting point based on an uncoated tool.

For AlTiN Coated tools increase SFM values by up to +40%

GENERAL PURPOSE END MILLS - COBALT & HIGH SPEED STEEL

30° Helix - Technical Information

General Purpose Cobalt & HSS 30° Helix End Mills

Material Guide		Rc	SFM	Feed Per Tooth					
				30° Helix	1/8"	1/8" - 1/4"	1/4" - 1/2"	1/2" - 1"	1" - 1-3/8"
COBALT BASE ALLOYS	Stellite, HS - 21, Haynes 25/188, X - 40, L - 605	<32	5 - 10	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
NICKEL BASE ALLOYS	Inconel - 625/718, Waspalloy, Rene, Hastelloy	<32	10 - 15	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
IRON BASE ALLOYS	Incoloy 800 - 802, Multimet N - 155, Timkin 16 - 25 - 6, Carpeneter 22 - b3	<32	15 - 20	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
MONEL	Monel - 65% Nickel	<32	10 - 15	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
TITANIUM ALLOYS	Commercially Pure, 6Al - 4V, Astm 1/2/3, 6Al - 25N - 4Zr - 2Mo - Si	<32	15 - 20	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17 - 4	<32	15 - 20	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 304L, 316, 316L	<32	20 - 40	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	<32	40 - 60	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	<32	20 - 40	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
MEDIUM ALLOY STEELS	200, 250, 300	<32	60 - 80	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
CARBON STEELS	1000's, 1100's, 1300's		80 - 100	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
DUCTILE	Ductile Cast Irons		40 - 60	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
CAST IRONS	Gray Cast Irons		80 - 100	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
ALUMINUM	2014, 2024, 6061 - (T1 - T6), 7075, Die Cast, Extruded		200 - 500	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
COPPER, COPPER ALLOYS			150 - 250	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze		100 - 200	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060
COMPOSITES	G - 10 Fiberglass, Graphite, Graphite/ Epoxy, Plastics		200 - 500	.0002 - .0006	.0002 - .0010	.0002 - .0010	.0005 - .0030	.0010 - .0040	.0030 - .0060

These values are a starting point based on an uncoated tool.

For AlTiN Coated tools increase SFM values by up to +40%

HIGH PERFORMANCE END MILLS - CARBIDE

4 Flute - Technical Information

HIGH PERFORMANCE END MILLS - CARBIDE - 4 Flute														
Material Guide		Rc	SFM		Feed Per Tooth									
			Stub, Reg Length	Long, Xlong Length	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
COBALT BASE ALLOYS	Stellite, HS - 21, Haynes 25/188, X - 40, L - 605	under 32 over 32	275 - 350	220 - 280	.0004	.0005	.0009	.0010	.0012	.0014	.0016	.0019	.0024	.0029
			175 - 250	140 - 200	-	-	-	-	-	-	-	-	-	-
NICKEL BASE ALLOYS	Inconel - 625/718, Waspalloy, Rene, Hastelloy	under 32 over 32	200 - 300	160 - 240	.0004	.0005	.0009	.0010	.0012	.0014	.0016	.0019	.0024	.0029
			125 - 200	100 - 160	-	-	-	-	-	-	-	-	-	-
IRON BASE ALLOYS	Incoloy 800 - 802, Multimet N - 155, Timkin 16 - 25 - 6, Carpeneter 22 - b3	under 32 over 32	250 - 350	200 - 280	.0004	.0005	.0009	.0010	.0012	.0014	.0016	.0019	.0024	.0029
			200 - 250	160 - 200	-	-	-	-	-	-	-	-	-	-
MONEL	Monel - 65% Nickel		275 - 350	220 - 280	.0004	.0009	.0014	.0015	.0017	.0019	.0026	.0029	.0035	.0039
					-	-	-	-	-	-	-	-	-	-
TITANIUM ALLOYS	Commercially Pure, 6AL - 4V, Astm 1/2/3, 6Al - 25N - 4Zr - 2Mo - Si		250 - 400	200 - 320	.0004	.0009	.0014	.0015	.0017	.0019	.0026	.0029	.0035	.0039
					-	-	-	-	-	-	-	-	-	-
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17 - 4, AM - 350/355	under 32 over 32	250 - 300	200 - 240	.0004	.0009	.0014	.0016	.0017	.0019	.0026	.0029	.0035	.0039
			200 - 250	160 - 200	-	-	-	.0020	.0025	.0031	.0032	.0037	.0039	.0041
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 304L, 316, 316L	under 32 over 32	250 - 375	200 - 300	.0004	.0009	.0014	.0016	.0017	.0019	.0026	.0029	.0035	.0039
			200 - 250	160 - 200	-	-	-	.0020	.0025	.0031	.0032	.0037	.0039	.0041
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440		250 - 300	200 - 240	.0004	.0009	.0014	.0016	.0017	.0019	.0026	.0029	.0035	.0039
					-	-	-	.0020	.0025	.0031	.0032	.0037	.0039	.0041
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	under 32 over 32	250 - 350	200 - 280	.0004	.0009	.0014	.0016	.0017	.0019	.0026	.0029	.0035	.0039
			150 - 200	120 - 160	-	-	-	.0020	.0025	.0031	.0032	.0037	.0039	.0041
MEDIUM ALLOY STEELS	200, 250, 300	under 32 over 32	210 - 300	170 - 240	.0004	.0009	.0014	.0016	.0017	.0019	.0026	.0029	.0035	.0039
			130 - 170	100 - 135	-	-	-	.0020	.0025	.0031	.0032	.0037	.0039	.0041
CARBON STEELS	1000's, 1100's, 1300's		420 - 450	335 - 360	.0004	.0011	.0018	.0024	.0030	.0033	.0035	.0039	.0041	.0054
					-	.0013	.0020	.0026	.0032	.0035	.0037	.0041	.0043	.0056
DUCTILE	Ductile Cast Irons		420 - 450	335 - 360	.0004	.0011	.0018	.0024	.0030	.0033	.0035	.0039	.0041	.0054
					-	.0013	.0020	.0026	.0032	.0035	.0037	.0041	.0043	.0056
CAST IRONS	Gray Cast Irons		420 - 450	335 - 360	.0004	.0011	.0018	.0024	.0030	.0033	.0035	.0039	.0041	.0054
					-	.0013	.0020	.0026	.0032	.0035	.0037	.0041	.0043	.0056

TECHNICAL

HIGH PERFORMANCE END MILLS - CARBIDE

5 Flute - Technical Information

HIGH PERFORMANCE END MILLS - CARBIDE - 5 Flute

Material Guide	Rc	SFM		Feed Per Tooth										
		Stub, Reg Length	Long, Xlong Length	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"	
COBALT BASE ALLOYS	Stellite, HS - 21, Haynes 25/188, X - 40, L - 605	under 32 over 32	315 - 400 200 - 290	250 - 320 160 - 230	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
NICKEL BASE ALLOYS	Inconel - 625/718, Waspalloy, Rene, Hastelloy	under 32 over 32	230 - 345 145 - 230	185 - 275 115 - 185	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
IRON BASE ALLOYS	Incoloy 800 - 802, Multimet N - 155, Timkin 16 - 25 - 6, Carpeneter 22 - b3	under 32 over 32	290 - 400 230 - 290	230 - 320 185 - 230	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
MONEL	Monel - 65% Nickel		315 - 400	250 - 320	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0019 - .0021	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
TITANIUM ALLOYS	Commercially Pure, 6AL - 4V, Astm 1/2/3, 6Al - 25N - 4Zr - 2Mo - Si		290 - 460	230 - 370	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0019 - .0021	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17 - 4	under 32 over 32	290 - 345 230 - 290	230 - 275 185 - 230	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 304L, 316, 316L	under 32 over 32	290 - 430 230 - 290	230 - 345 185 - 230	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440		290 - 345	230 - 275	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	under 32 over 32	290 - 400 170 - 230	230 - 420 135 - 185	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
MEDIUM ALLOY STEELS	200, 250, 300	under 32 over 32	240 - 345 150 - 200	190 - 275 120 - 160	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
CARBON STEELS	1000's, 1100's, 1300's		480 - 510	385 - 405	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
DUCTILE	Ductile Cast Irons		480 - 510	385 - 405	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
CAST IRONS	Gray Cast Irons		480 - 510	385 - 405	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056

TEHCNICAL



HIGH PERFORMANCE END MILLS - CARBIDE

6 & 7 Flute - Technical Information

HIGH PERFORMANCE END MILLS - CARBIDE - 6 & 7 Flute											
Material Guide		Rc	Reg Length	Long Length	Suggested Chip Load Per Tooth						
					1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
COBALT BASE ALLOYS	Stellite, HS - 21, Haynes 25/188, X - 40, L - 605	under 32 over 32	360 - 460 235 - 300	290 - 370 190 - 240	.0009	.0010	.0012	.0016	.0019	.0024	.0029
					-	-	-	-	-	-	-
NICKEL BASE ALLOYS	Inconel - 625/718, Waspalloy, Rene, Hastelloy	under 32 over 32	265 - 400 170 - 260	210 - 320 135 - 210	.0009	.0010	.0012	.0016	.0019	.0024	.0029
					-	-	-	-	-	-	-
IRON BASE ALLOYS	Incoloy 800 - 802, Multimet N - 155, Timkin 16 - 25 - 6, Carpeneter 22 - b3	under 32 over 32	335 - 460 215 - 300	270 - 370 170 - 240	.0009	.0010	.0012	.0016	.0019	.0024	.0029
					-	-	-	-	-	-	-
MONEL	Monel - 65% Nickel		360 - 460	290 - 370	.0014	.0015	.0017	.0026	.0029	.0035	.0039
					-	-	-	-	-	-	-
TITANIUM ALLOYS	Commercially Pure, 6AL - 4V, Astm 1/2/3, 6Al - 25N - 4Zr - 2Mo - Si		335 - 530	270 - 425	.0014	.0015	.0017	.0026	.0029	.0035	.0039
					-	-	-	-	-	-	-
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17 - 4	under 32 over 32	335 - 400 270 - 320	270 - 320 215 - 260	.0014	.0016	.0017	.0026	.0029	.0035	.0039
					-	-	-	-	-	-	-
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 304L, 316, 316L	under 32 over 32	335 - 500 270 - 400	270 - 400 215 - 320	.0014	.0016	.0017	.0026	.0029	.0035	.0039
					-	-	-	-	-	-	-
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440		335 - 400	270 - 320	.0014	.0016	.0017	.0026	.0029	.0035	.0039
					-	-	-	-	-	-	-
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	under 32 over 32	335 - 460 215 - 300	270 - 370 170 - 240	.0014	.0016	.0017	.0026	.0029	.0035	.0039
					-	-	-	-	-	-	-
MEDIUM ALLOY STEELS	200, 250, 300	under 32 over 32	275 - 400 180 - 260	220 - 320 145 - 210	.0014	.0016	.0017	.0026	.0029	.0035	.0039
					-	-	-	-	-	-	-
CARBON STEELS	1000's, 1100's, 1300's		550 - 585	440 - 470	.0018	.0024	.0030	.0035	.0039	.0041	.0054
					-	-	-	-	-	-	-
DUCTILE	Ductile Cast Irons		550 - 585	440 - 470	.0018	.0024	.0030	.0035	.0039	.0041	.0054
					-	-	-	-	-	-	-
CAST IRONS	Gray Cast Irons		550 - 585	440 - 470	.0018	.0024	.0030	.0035	.0039	.0041	.0054
					-	-	-	-	-	-	-

TECHNICAL

MICRO END MILLS

2 Flute - Square - 30° Helix - Stub & Regular Flute

2 FLUTE



- Offered in stub and regular flute styles
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. $D1^{+0.0005}$ -0.0005	LENGTH OF CUT $L2$	SHANK DIA. $D2$ (h6)	OAL $L1$	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0050	.008	1/8	1-1/2	C760722	37.31	C760747	42.29
	.015	1/8	1-1/2	C744965	32.44	C760300	36.77
.0060	.018	1/8	1-1/2	C744964	32.44	C760301	36.77
.0070	.021	1/8	1-1/2	C744963	32.44	C760302	36.77
.0080	.024	1/8	1-1/2	C744962	32.44	C760303	36.77
.0090	.027	1/8	1-1/2	C744961	29.25	C760304	33.43
.0100	.015	1/8	1-1/2	C760723	33.43	C760748	37.86
	.030	1/8	1-1/2	C744960	29.05	C760305	33.38
.0110	.033	1/8	1-1/2	C744959	26.27	C760306	30.45
.0120	.036	1/8	1-1/2	C744958	26.02	C760307	30.35
.0130	.039	1/8	1-1/2	C744957	21.54	C760308	25.82
.0140	.042	1/8	1-1/2	C744956	21.54	C760309	25.82
.0150	.023	1/8	1-1/2	C760724	20.94	C760749	25.12
	.045	1/8	1-1/2	C744955	18.21	C760310	21.84
.0160	.048	1/8	1-1/2	C744954	18.31	C760311	22.54
.0170	.051	1/8	1-1/2	C744953	18.21	C760312	21.84
.0180	.054	1/8	1-1/2	C744952	18.21	C760313	22.49
.0190	.057	1/8	1-1/2	C744951	18.21	C760314	22.49
.0200	.030	1/8	1-1/2	C760725	19.00	C760750	22.84
	.060	1/8	1-1/2	C744950	16.52	C760315	19.85
.0210	.063	1/8	1-1/2	C744949	16.62	C760316	20.85
.0220	.066	1/8	1-1/2	C744948	16.52	C760317	19.85
.0230	.069	1/8	1-1/2	C744947	16.52	C760318	19.85
.0240	.072	1/8	1-1/2	C744946	16.52	C760319	20.80
.0250	.038	1/8	1-1/2	C760726	19.00	C760751	22.84
	.075	1/8	1-1/2	C744945	16.52	C760320	19.85
.0260	.078	1/8	1-1/2	C744944	15.52	C760321	18.66
.0270	.081	1/8	1-1/2	C744943	15.52	C760322	18.66
.0280	.084	1/8	1-1/2	C744942	15.52	C760323	19.80
.0290	.087	1/8	1-1/2	C744941	15.52	C760324	18.66
.0300	.045	1/8	1-1/2	C760727	17.86	C760752	21.39
	.090	1/8	1-1/2	C744940	15.52	C760325	18.66
.0310	.047	1/8	1-1/2	C760728	16.77	C760753	20.05
	.093	1/8	1-1/2	C744939	14.53	C760326	17.41
.0320	.096	1/8	1-1/2	C744938	14.53	C760327	17.11
.0330	.099	1/8	1-1/2	C744937	14.63	C760328	18.81
.0340	.102	1/8	1-1/2	C744936	14.73	C760329	18.91

continued on next page



MICRO END MILLS

2 Flute - Square - 30° Helix - Stub & Regular Flute (Cont.)

continued from previous page

CUTTER DIA. D ₁ ^{+0.0005"} -0.0005"	LENGTH OF CUT L ₂	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AITiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0350	.053	1/8	1-1/2	C760729	16.77	C760754	20.05
	.105	1/8	1-1/2	C744935	14.53	C760330	17.41
.0360	.108	1/8	1-1/2	C744934	14.63	C760331	18.86
.0370	.111	1/8	1-1/2	C744933	14.53	C760332	18.81
.0380	.114	1/8	1-1/2	C744932	14.53	C760333	17.41
.0390	.117	1/8	1-1/2	C744931	14.53	C760334	17.41
.0400	.060	1/8	1-1/2	C760730	16.77	C760755	20.05
	.120	1/8	1-1/2	C744930	14.53	C760335	17.41
.0410	.123	1/8	1-1/2	C744929	14.63	C760336	18.86
.0420	.126	1/8	1-1/2	C744928	14.63	C760337	18.86
.0430	.129	1/8	1-1/2	C744927	14.63	C760338	18.86
.0440	.132	1/8	1-1/2	C744926	14.18	C760339	18.41
.0450	.068	1/8	1-1/2	C760731	16.32	C760756	20.60
	.135	1/8	1-1/2	C744925	14.18	C760340	17.06
.0460	.138	1/8	1-1/2	C744924	14.23	C760341	18.41
.0470	.071	1/8	1-1/2	C760732	16.32	C760757	19.60
	.141	1/8	1-1/2	C744923	14.18	C760342	17.06
.0480	.144	1/8	1-1/2	C744922	14.28	C760343	17.06
.0490	.147	1/8	1-1/2	C744921	14.23	C760344	18.41
.0500	.075	1/8	1-1/2	C760733	16.32	C760758	19.60
	.150	1/8	1-1/2	C744920	14.18	C760345	17.06
.0510	.153	1/8	1-1/2	C744919	14.23	C760346	18.41
.0520	.156	1/8	1-1/2	C744918	14.18	C760347	18.41
.0530	.159	1/8	1-1/2	C744917	14.28	C760348	18.46
.0540	.162	1/8	1-1/2	C744916	14.28	C760349	17.06
.0550	.083	1/8	1-1/2	C760734	16.32	C760759	19.60
	.165	1/8	1-1/2	C744915	14.18	C760350	17.06
.0560	.168	1/8	1-1/2	C744914	14.33	C760351	18.51
.0570	.171	1/8	1-1/2	C744913	14.18	C760352	18.41
.0580	.174	1/8	1-1/2	C744912	14.18	C760353	17.06
.0590	.177	1/8	1-1/2	C744911	14.18	C760408	17.06
.0600	.090	1/8	1-1/2	C760735	16.32	C760760	19.60
	.180	1/8	1-1/2	C744910	14.18	C760409	17.06
.0610	.183	1/8	1-1/2	C744909	14.18	C760410	17.06
.0620	.093	1/8	1-1/2	C760736	16.32	C760761	19.60
	.186	1/8	1-1/2	C744908	14.18	C760411	17.06
.0630	.189	1/8	1-1/2	C744907	14.28	C760412	18.46
.0640	.192	1/8	1-1/2	C744906	14.18	C760413	18.41
.0650	.098	1/8	1-1/2	C760737	16.32	C760762	19.60
	.195	1/8	1-1/2	C744905	14.18	C760414	17.06
.0660	.198	1/8	1-1/2	C744904	14.33	C760415	18.51
.0670	.201	1/8	1-1/2	C744903	14.18	C760416	17.06
.0680	.204	1/8	1-1/2	C744902	14.28	C760417	17.06
.0690	.207	1/8	1-1/2	C744901	14.28	C760418	17.61
.0700	.105	1/8	1-1/2	C760738	16.47	C760763	20.65
	.210	1/8	1-1/2	C744900	14.18	C760419	17.06
.0710	.213	1/8	1-1/2	C744899	14.18	C760420	18.41

continued on next page

For technical information, see page 148

MICRO END MILLS

2 Flute - Square - 30° Helix - Stub & Regular Flute (Cont.)

continued from previous page

CUTTER DIA. D ₁ ^{+0.0005"} D ₁ _{-0.0005"}	LENGTH OF CUT L ₂	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AITIN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0720	.216	1/8	1-1/2	C744898	14.18	C760421	17.06
.0730	.219	1/8	1-1/2	C744897	14.18	C760422	17.06
.0740	.222	1/8	1-1/2	C744896	14.18	C760423	18.41
.0750	.113	1/8	1-1/2	C760739	16.37	C760764	20.60
	.225	1/8	1-1/2	C744895	14.18	C760424	17.06
.0760	.228	1/8	1-1/2	C744894	14.18	C760425	18.41
.0770	.231	1/8	1-1/2	C744893	14.28	C760426	18.46
.0780	.117	1/8	1-1/2	C760740	16.32	C760765	19.60
	.234	1/8	1-1/2	C744892	14.18	C760427	17.06
.0790	.237	1/8	1-1/2	C744891	14.18	C760428	18.41
.0800	.120	1/8	1-1/2	C760741	16.42	C760766	20.60
	.240	1/8	1-1/2	C744890	14.18	C760429	18.41
.0810	.243	1/8	1-1/2	C744889	14.18	C760430	18.41
.0820	.246	1/8	1-1/2	C744888	14.23	C760431	18.41
.0830	.249	1/8	1-1/2	C744887	14.18	C760432	18.41
.0840	.252	1/8	1-1/2	C744886	14.28	C760433	18.46
.0850	.128	1/8	1-1/2	C760742	16.32	C760767	20.60
	.255	1/8	1-1/2	C744885	14.28	C760434	18.46
.0860	.258	1/8	1-1/2	C744884	14.28	C760435	18.46
.0870	.261	1/8	1-1/2	C744883	14.18	C760436	18.41
.0880	.264	1/8	1-1/2	C744882	14.28	C760437	18.46
.0890	.267	1/8	1-1/2	C744881	14.18	C760438	17.06
.0900	.135	1/8	1-1/2	C760743	16.32	C760768	19.60
	.270	1/8	1-1/2	C744880	14.18	C760439	18.41
.0910	.273	1/8	1-1/2	C744879	14.18	C760440	18.41
.0920	.276	1/8	1-1/2	C744878	14.28	C760441	18.46
.0930	.140	1/8	1-1/2	C760744	16.32	C760769	19.60
	.279	1/8	1-1/2	C744877	14.18	C760442	17.06
.0940	.282	1/8	1-1/2	C744876	14.18	C760443	17.06
.0950	.143	1/8	1-1/2	C760745	16.47	C760770	20.65
	.285	1/8	1-1/2	C744875	14.33	C760444	18.51
.0960	.288	1/8	1-1/2	C744874	14.28	C760445	18.46
.0970	.291	1/8	1-1/2	C744873	14.18	C760446	18.41
.0980	.294	1/8	1-1/2	C744872	14.18	C760447	17.06
.0990	.297	1/8	1-1/2	C744871	14.18	C760448	18.41
.1000	.150	1/8	1-1/2	C760746	16.32	C760771	19.60
	.300	1/8	1-1/2	C744870	14.18	C760449	17.06
.1010	.303	1/8	1-1/2	C744869	14.33	C760450	18.51
.1020	.306	1/8	1-1/2	C744868	14.18	C760451	18.41
.1030	.309	1/8	1-1/2	C744867	14.33	C760452	18.51
.1040	.312	1/8	1-1/2	C744866	14.23	C760453	18.41
.1050	.315	1/8	1-1/2	C744865	14.28	C760454	18.46
.1060	.318	1/8	1-1/2	C744864	14.18	C760455	18.41
.1070	.321	1/8	1-1/2	C744863	14.33	C760456	18.51
.1080	.324	1/8	1-1/2	C744862	14.18	C760457	18.41
.1090	.327	1/8	1-1/2	C744861	14.28	C760458	18.46
.1100	.330	1/8	1-1/2	C744860	14.18	C760459	18.41
.1150	.345	1/8	1-1/2	C744859	14.18	C760460	17.06
.1200	.360	1/8	1-1/2	C744858	14.18	C760461	17.06

For technical information, see page 148

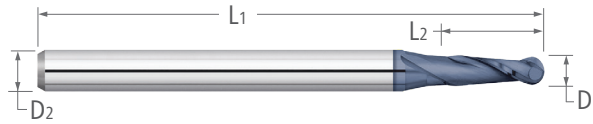
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



MICRO END MILLS

2 Flute - Ball - 30° Helix - Stub & Regular Flute



2 FLUTE

- Offered in stub and regular flute styles
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. D1 ^{+0.0005*} -0.0005*	LENGTH OF CUT L2	SHANK DIA. D2 (h6)	OAL L1	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0050	.008	1/8	1-1/2	C760772	46.86	C760797	52.83
	.015	1/8	1-1/2	C744857	40.50	C760354	45.92
.0060	.018	1/8	1-1/2	C744856	40.50	C760355	44.87
.0070	.021	1/8	1-1/2	C744855	40.50	C760356	44.87
.0080	.024	1/8	1-1/2	C744854	40.50	C760357	45.92
.0090	.027	1/8	1-1/2	C744853	36.57	C760358	40.75
.0100	.015	1/8	1-1/2	C760773	41.84	C760798	47.36
	.030	1/8	1-1/2	C744852	36.37	C760359	41.19
.0110	.033	1/8	1-1/2	C744851	32.69	C760360	36.86
.0120	.036	1/8	1-1/2	C744850	32.69	C760361	37.01
.0130	.039	1/8	1-1/2	C744849	27.21	C760362	31.39
.0140	.042	1/8	1-1/2	C744848	26.96	C760363	31.29
.0150	.023	1/8	1-1/2	C760774	26.12	C760799	30.45
	.045	1/8	1-1/2	C744847	22.74	C760364	27.01
.0160	.048	1/8	1-1/2	C744846	22.74	C760365	27.01
.0170	.051	1/8	1-1/2	C744845	22.93	C760366	27.11
.0180	.054	1/8	1-1/2	C744844	22.74	C760367	27.01
.0190	.057	1/8	1-1/2	C744843	22.93	C760368	27.11
.0200	.030	1/8	1-1/2	C760775	23.78	C760800	28.06
	.060	1/8	1-1/2	C744842	20.70	C760369	24.83
.0210	.063	1/8	1-1/2	C744841	20.70	C760370	24.97
.0220	.066	1/8	1-1/2	C744840	20.70	C760371	24.97
.0230	.069	1/8	1-1/2	C744839	20.90	C760372	25.07
.0240	.072	1/8	1-1/2	C744838	20.70	C760373	24.83
.0250	.038	1/8	1-1/2	C760776	23.78	C760801	28.06
	.075	1/8	1-1/2	C744837	20.70	C760374	24.83
.0260	.078	1/8	1-1/2	C744836	19.40	C760375	22.54
.0270	.081	1/8	1-1/2	C744835	19.50	C760376	23.73
.0280	.084	1/8	1-1/2	C744834	19.50	C760377	23.73
.0290	.087	1/8	1-1/2	C744833	19.60	C760378	23.78
.0300	.045	1/8	1-1/2	C760777	22.29	C760802	26.57
	.090	1/8	1-1/2	C744832	19.40	C760379	23.28
.0310	.047	1/8	1-1/2	C760778	20.94	C760803	25.12
	.093	1/8	1-1/2	C744831	18.21	C760380	21.84
.0320	.096	1/8	1-1/2	C744830	18.21	C760381	21.84
.0330	.099	1/8	1-1/2	C744829	18.41	C760382	22.59
.0340	.102	1/8	1-1/2	C744828	18.21	C760383	22.49

continued on next page

For technical information, see page 148



MICRO END MILLS

2 Flute - Ball - 30° Helix - Stub & Regular Flute (Cont.)

2 FLUTE

continued from previous page

CUTTER DIA. D ₁ ^{+0.005"} D ₁ _{-0.005"}	LENGTH OF CUT L ₂	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0350	.053	1/8	1-1/2	C760779	20.99	C760804	25.17
	.105	1/8	1-1/2	C744827	18.21	C760384	22.49
.0360	.108	1/8	1-1/2	C744826	18.21	C760385	22.49
.0370	.111	1/8	1-1/2	C744825	18.31	C760386	22.49
.0380	.114	1/8	1-1/2	C744824	18.21	C760387	22.49
.0390	.117	1/8	1-1/2	C744823	18.21	C760388	21.84
.0400	.060	1/8	1-1/2	C760780	20.94	C760805	25.12
	.120	1/8	1-1/2	C744822	18.21	C760389	21.84
.0410	.123	1/8	1-1/2	C744821	18.31	C760390	22.49
.0420	.126	1/8	1-1/2	C744820	18.31	C760391	22.54
.0430	.129	1/8	1-1/2	C744819	18.41	C760392	22.59
.0440	.132	1/8	1-1/2	C744818	17.91	C760393	22.09
.0450	.068	1/8	1-1/2	C760781	20.40	C760806	24.53
	.135	1/8	1-1/2	C744817	17.76	C760394	21.99
.0460	.138	1/8	1-1/2	C744816	17.91	C760395	22.09
.0470	.071	1/8	1-1/2	C760782	20.40	C760807	24.53
	.141	1/8	1-1/2	C744815	17.76	C760396	21.29
.0480	.144	1/8	1-1/2	C744814	17.91	C760397	22.09
.0490	.147	1/8	1-1/2	C744813	17.91	C760398	22.09
.0500	.075	1/8	1-1/2	C760783	20.40	C760808	24.53
	.150	1/8	1-1/2	C744812	17.76	C760399	21.29
.0510	.153	1/8	1-1/2	C744811	17.76	C760400	21.99
.0520	.156	1/8	1-1/2	C744810	17.76	C760401	20.65
.0530	.159	1/8	1-1/2	C744809	17.81	C760402	21.99
.0540	.162	1/8	1-1/2	C744808	17.81	C760403	21.99
.0550	.083	1/8	1-1/2	C760784	20.55	C760809	24.53
	.165	1/8	1-1/2	C744807	17.76	C760404	21.99
.0560	.168	1/8	1-1/2	C744806	17.76	C760405	21.99
.0570	.171	1/8	1-1/2	C744805	17.76	C760406	21.99
.0580	.174	1/8	1-1/2	C744804	17.76	C760407	21.99
.0590	.177	1/8	1-1/2	C744803	17.86	C760462	21.29
.0600	.090	1/8	1-1/2	C760785	20.40	C760810	24.53
	.180	1/8	1-1/2	C744802	17.76	C760463	21.29
.0610	.183	1/8	1-1/2	C744801	17.91	C760464	22.09
.0620	.093	1/8	1-1/2	C760786	20.40	C760811	24.53
	.186	1/8	1-1/2	C744800	17.76	C760465	21.29
.0630	.189	1/8	1-1/2	C744799	17.76	C760466	21.29
.0640	.192	1/8	1-1/2	C744798	17.86	C760467	21.29
.0650	.098	1/8	1-1/2	C760787	20.55	C760812	24.53
	.195	1/8	1-1/2	C744797	17.76	C760468	21.99
.0660	.198	1/8	1-1/2	C744796	17.91	C760469	22.09
.0670	.201	1/8	1-1/2	C744795	17.76	C760470	21.29
.0680	.204	1/8	1-1/2	C744794	17.86	C760471	21.29
.0690	.207	1/8	1-1/2	C744793	17.91	C760472	22.09
.0700	.105	1/8	1-1/2	C760788	20.40	C760813	24.53
	.210	1/8	1-1/2	C744792	17.76	C760473	21.29
.0710	.213	1/8	1-1/2	C744791	17.91	C760474	22.09
.0720	.216	1/8	1-1/2	C744790	17.86	C760475	21.29

continued on next page

For technical information, see page 148

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



MICRO END MILLS
2 Flute - Ball - 30° Helix - Stub & Regular Flute (Cont.)

continued from previous page

CUTTER DIA.	LENGTH OF CUT	SHANK DIA.	OAL	UNCOATED		AITiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
D ₁ ^{+0.0005"} D ₁ _{-0.0005"}	L ₂	D ₂ (h6)	L ₁				
.0730	.219	1/8	1-1/2	C744789	17.76	C760476	21.99
.0740	.222	1/8	1-1/2	C744788	17.86	C760477	22.04
.0750	.113	1/8	1-1/2	C760789	20.60	C760814	24.78
	.225	1/8	1-1/2	C744787	17.86	C760478	21.29
.0760	.228	1/8	1-1/2	C744786	17.86	C760479	22.04
.0770	.231	1/8	1-1/2	C744785	17.91	C760480	22.09
.0780	.117	1/8	1-1/2	C760790	20.40	C760815	24.53
	.234	1/8	1-1/2	C744784	17.81	C760481	21.99
.0790	.237	1/8	1-1/2	C744783	17.76	C760482	21.29
.0800	.120	1/8	1-1/2	C760791	20.40	C760816	24.53
	.240	1/8	1-1/2	C744782	17.76	C760483	21.99
.0810	.243	1/8	1-1/2	C744781	17.86	C760484	22.04
.0820	.246	1/8	1-1/2	C744780	17.86	C760485	21.29
.0830	.249	1/8	1-1/2	C744779	17.86	C760486	21.29
.0840	.252	1/8	1-1/2	C744778	17.91	C760487	22.09
.0850	.128	1/8	1-1/2	C760792	20.60	C760817	24.78
	.255	1/8	1-1/2	C744777	17.91	C760488	22.09
.0860	.258	1/8	1-1/2	C744776	17.76	C760489	21.29
.0870	.261	1/8	1-1/2	C744775	17.76	C760490	21.29
.0880	.264	1/8	1-1/2	C744774	17.86	C760491	21.29
.0890	.267	1/8	1-1/2	C744773	17.86	C760492	22.04
.0900	.135	1/8	1-1/2	C760793	20.60	C760818	24.78
	.270	1/8	1-1/2	C744772	17.76	C760493	21.29
.0910	.273	1/8	1-1/2	C744771	17.86	C760494	22.04
.0920	.276	1/8	1-1/2	C744770	17.86	C760495	22.04
.0930	.140	1/8	1-1/2	C760794	20.40	C760819	24.68
	.279	1/8	1-1/2	C744769	17.76	C760496	21.29
.0940	.282	1/8	1-1/2	C744768	17.91	C760497	22.09
.0950	.143	1/8	1-1/2	C760795	20.60	C760820	24.78
	.285	1/8	1-1/2	C744767	17.91	C760498	22.09
.0960	.288	1/8	1-1/2	C744766	17.76	C760499	21.29
.0970	.291	1/8	1-1/2	C744765	17.86	C760500	21.29
.0980	.294	1/8	1-1/2	C744764	17.86	C760501	21.29
.0990	.297	1/8	1-1/2	C744763	17.86	C760502	22.04
.1000	.150	1/8	1-1/2	C760796	20.55	C760821	24.53
	.300	1/8	1-1/2	C744762	17.76	C760503	21.29
.1010	.303	1/8	1-1/2	C744761	17.91	C760504	22.09
.1020	.306	1/8	1-1/2	C744760	17.91	C760505	22.09
.1030	.309	1/8	1-1/2	C744759	17.91	C760506	22.09
.1040	.312	1/8	1-1/2	C744758	17.86	C760507	21.29
.1050	.315	1/8	1-1/2	C744757	17.86	C760508	22.04
.1060	.318	1/8	1-1/2	C744756	17.76	C760509	21.29
.1070	.321	1/8	1-1/2	C744755	17.91	C760510	22.09
.1080	.324	1/8	1-1/2	C744754	17.91	C760511	22.09
.1090	.327	1/8	1-1/2	C744753	17.91	C760512	22.09
.1100	.330	1/8	1-1/2	C744752	17.91	C760513	22.09
.1150	.345	1/8	1-1/2	C744751	17.91	C760514	22.09
.1200	.360	1/8	1-1/2	C744750	17.76	C760515	21.29

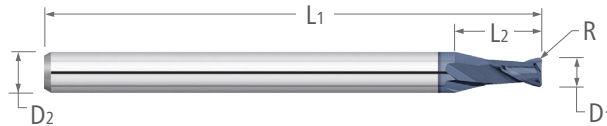
2 FLUTE

For technical information, see page 148



MICRO END MILLS

2 Flute - Corner Radius - 30° Helix - Stub & Regular Flute



- Offered in stub and regular flute styles
- Corner radius for increased edge strength
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. D1 ^{+0.005"} -0.005"	LENGTH OF CUT L2	RADIUS R ^{+0.002"} -0.002"	SHANK DIA. D2 (h6)	OAL L1	UNCOATED		AlTiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
.0150	.023	.003	1/8	1 - 1/2	C775258	44.68	C775299	48.85
	.045	.003	1/8	1 - 1/2	C775340	44.68	C775381	48.85
.0200	.030	.005	1/8	1 - 1/2	C775259	41.69	C775300	45.87
	.060	.005	1/8	1 - 1/2	C775341	41.69	C775382	45.87
.0250	.038	.005	1/8	1 - 1/2	C775260	41.69	C775301	45.87
	.075	.005	1/8	1 - 1/2	C775342	41.69	C775383	45.87
.0300	.045	.005	1/8	1 - 1/2	C775261	29.65	C775302	33.83
	.090	.005	1/8	1 - 1/2	C775343	29.80	C775384	33.98
	.045	.010	1/8	1 - 1/2	C775262	29.80	C775303	33.98
	.090	.010	1/8	1 - 1/2	C775344	29.80	C775385	33.98
.0310	.047	.005	1/8	1 - 1/2	C775263	29.80	C775304	33.98
	.093	.005	1/8	1 - 1/2	C775345	29.65	C775386	33.83
	.047	.010	1/8	1 - 1/2	C775264	29.80	C775305	33.98
	.093	.010	1/8	1 - 1/2	C775346	29.65	C775387	33.83
.0350	.053	.005	1/8	1 - 1/2	C775265	29.80	C775306	33.98
	.105	.005	1/8	1 - 1/2	C775347	29.80	C775388	33.98
	.053	.010	1/8	1 - 1/2	C775266	29.80	C775307	33.98
	.105	.010	1/8	1 - 1/2	C775348	29.80	C775389	33.98
.0400	.060	.005	1/8	1 - 1/2	C775267	29.80	C775308	33.98
	.120	.005	1/8	1 - 1/2	C775349	29.80	C775390	33.98
	.060	.010	1/8	1 - 1/2	C775268	29.65	C775309	33.83
	.120	.010	1/8	1 - 1/2	C775350	29.80	C775391	33.98
.0450	.068	.005	1/8	1 - 1/2	C775269	29.80	C775310	33.98
	.135	.005	1/8	1 - 1/2	C775351	29.80	C775392	33.98
	.068	.010	1/8	1 - 1/2	C775270	29.80	C775311	33.98
	.135	.010	1/8	1 - 1/2	C775352	29.80	C775393	33.98
	.068	.015	1/8	1 - 1/2	C775271	29.80	C775312	33.98
	.135	.015	1/8	1 - 1/2	C775353	29.80	C775394	33.98
.0470	.071	.005	1/8	1 - 1/2	C775272	29.65	C775313	33.83
	.141	.005	1/8	1 - 1/2	C775354	29.65	C775395	33.83
	.071	.010	1/8	1 - 1/2	C775273	29.80	C775314	33.98
	.141	.010	1/8	1 - 1/2	C775355	29.80	C775396	33.98
	.071	.015	1/8	1 - 1/2	C775274	29.80	C775315	33.98
	.141	.015	1/8	1 - 1/2	C775356	29.80	C775397	33.98

continued on next page



MICRO END MILLS

2 Flute - Corner Radius - 30° Helix - Stub & Regular Flute (Cont.)

2 FLUTE

continued from previous page

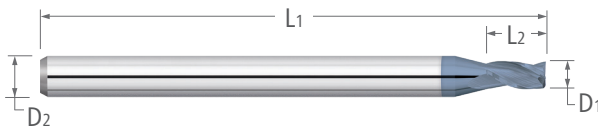
CUTTER DIA.	LENGTH OF CUT	RADIUS	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
D1 ^{+0.005"} _{-0.005"}	L2	R ^{+0.002"} _{-0.002"}	D2 (h6)	L1	TOOL #	PRICE	TOOL #	PRICE
.0500	.075	.005	1/8	1 - 1/2	C775275	29.65	C775316	33.83
	.150	.005	1/8	1 - 1/2	C775357	29.65	C775398	33.83
	.075	.010	1/8	1 - 1/2	C775276	29.80	C775317	33.98
	.150	.010	1/8	1 - 1/2	C775358	29.65	C775399	33.83
	.075	.015	1/8	1 - 1/2	C775277	29.80	C775318	33.98
	.150	.015	1/8	1 - 1/2	C775359	29.65	C775400	33.83
.0600	.090	.005	1/8	1 - 1/2	C775278	29.80	C775319	33.98
	.180	.005	1/8	1 - 1/2	C775360	29.65	C775401	33.83
	.090	.010	1/8	1 - 1/2	C775279	29.65	C775320	33.83
	.180	.010	1/8	1 - 1/2	C775361	29.80	C775402	33.98
	.090	.015	1/8	1 - 1/2	C775280	29.80	C775321	33.98
	.180	.015	1/8	1 - 1/2	C775362	29.80	C775403	33.98
.0620	.093	.005	1/8	1 - 1/2	C775281	29.80	C775322	33.98
	.186	.005	1/8	1 - 1/2	C775363	29.80	C775404	33.98
	.093	.010	1/8	1 - 1/2	C775282	29.65	C775323	33.83
	.186	.010	1/8	1 - 1/2	C775364	29.65	C775405	33.83
	.093	.015	1/8	1 - 1/2	C775283	29.80	C775324	33.98
	.186	.015	1/8	1 - 1/2	C775365	29.65	C775406	33.83
.0750	.113	.005	1/8	1 - 1/2	C775284	29.80	C775325	33.98
	.225	.005	1/8	1 - 1/2	C775366	29.80	C775407	33.98
	.113	.010	1/8	1 - 1/2	C775285	29.65	C775326	33.83
	.225	.010	1/8	1 - 1/2	C775367	29.80	C775408	33.98
	.113	.015	1/8	1 - 1/2	C775286	29.80	C775327	33.98
	.225	.015	1/8	1 - 1/2	C775368	29.80	C775409	33.98
.0780	.117	.005	1/8	1 - 1/2	C775287	29.65	C775328	33.83
	.234	.005	1/8	1 - 1/2	C775369	29.65	C775410	33.83
	.117	.010	1/8	1 - 1/2	C775288	29.80	C775329	33.98
	.234	.010	1/8	1 - 1/2	C775370	29.80	C775411	33.98
	.117	.015	1/8	1 - 1/2	C775289	29.80	C775330	33.98
	.234	.015	1/8	1 - 1/2	C775371	29.80	C775412	33.98
.0900	.135	.005	1/8	1 - 1/2	C775290	29.80	C775331	33.98
	.270	.005	1/8	1 - 1/2	C775372	29.80	C775413	33.98
	.135	.010	1/8	1 - 1/2	C775291	29.80	C775332	33.98
	.270	.010	1/8	1 - 1/2	C775373	29.80	C775414	33.98
	.135	.015	1/8	1 - 1/2	C775292	29.80	C775333	33.98
	.270	.015	1/8	1 - 1/2	C775374	29.80	C775415	33.98
.0930	.140	.005	1/8	1 - 1/2	C775293	29.80	C775334	33.98
	.279	.005	1/8	1 - 1/2	C775375	29.65	C775416	33.83
	.140	.010	1/8	1 - 1/2	C775294	29.80	C775335	33.98
	.279	.010	1/8	1 - 1/2	C775376	29.65	C775417	33.83
	.140	.015	1/8	1 - 1/2	C775295	29.80	C775336	33.98
	.279	.015	1/8	1 - 1/2	C775377	29.65	C775418	33.83
.1000	.150	.005	1/8	1 - 1/2	C775296	29.80	C775337	33.98
	.300	.005	1/8	1 - 1/2	C775378	29.80	C775419	33.98
	.150	.010	1/8	1 - 1/2	C775297	29.80	C775338	33.98
	.300	.010	1/8	1 - 1/2	C775379	29.80	C775420	33.98
	.150	.015	1/8	1 - 1/2	C775298	29.65	C775339	33.83
	.300	.015	1/8	1 - 1/2	C775380	29.80	C775421	33.98

For technical information, see page 148



MICRO END MILLS

3 Flute - Square - 30° Helix - Stub & Regular Flute



- Offered in stub and regular flute styles
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	LENGTH OF CUT	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
$D_1^{+0.0005^{\circ}}$ $_{-0.0005^{\circ}}$	L_2	$D_2 (h6)$	L_1				
.0050	.008	1/8	1-1/2	C774567	33.58	C774591	37.76
	.015	1/8	1-1/2	C774615	29.20	C774639	33.38
.0100	.015	1/8	1-1/2	C774568	33.58	C774592	37.76
	.030	1/8	1-1/2	C774616	29.20	C774640	33.38
.0150	.023	1/8	1-1/2	C774569	21.04	C774593	25.22
	.045	1/8	1-1/2	C774617	18.31	C774641	22.49
.0200	.030	1/8	1-1/2	C774570	19.10	C774594	23.28
	.060	1/8	1-1/2	C774618	16.62	C774642	20.80
.0250	.038	1/8	1-1/2	C774571	19.10	C774595	23.28
	.075	1/8	1-1/2	C774619	16.62	C774643	20.80
.0300	.045	1/8	1-1/2	C774572	17.91	C774596	22.09
	.090	1/8	1-1/2	C774620	15.62	C774644	19.80
.0350	.053	1/8	1-1/2	C774573	16.82	C774597	20.99
	.105	1/8	1-1/2	C774621	14.63	C774645	18.81
.0400	.060	1/8	1-1/2	C774574	16.82	C774598	20.99
	.120	1/8	1-1/2	C774622	14.63	C774646	18.81
.0450	.068	1/8	1-1/2	C774575	16.47	C774599	20.65
	.135	1/8	1-1/2	C774623	14.23	C774647	18.41
.0500	.075	1/8	1-1/2	C774576	16.42	C774600	20.60
	.150	1/8	1-1/2	C774624	14.23	C774648	18.41
.0550	.083	1/8	1-1/2	C774577	16.42	C774601	20.60
	.165	1/8	1-1/2	C774625	14.23	C774649	18.41
.0600	.090	1/8	1-1/2	C774578	16.47	C774602	20.65
	.180	1/8	1-1/2	C774626	14.23	C774650	18.41
.0650	.098	1/8	1-1/2	C774579	16.42	C774603	20.60
	.195	1/8	1-1/2	C774627	14.23	C774651	18.41
.0700	.105	1/8	1-1/2	C774580	16.42	C774604	20.60
	.210	1/8	1-1/2	C774628	14.23	C774652	18.41
.0750	.113	1/8	1-1/2	C774581	16.42	C774605	20.60
	.225	1/8	1-1/2	C774629	14.23	C774653	18.41
.0800	.120	1/8	1-1/2	C774582	16.47	C774606	20.65
	.240	1/8	1-1/2	C774630	14.23	C774654	18.41
.0850	.128	1/8	1-1/2	C774583	16.47	C774607	20.65
	.255	1/8	1-1/2	C774631	14.23	C774655	18.41

continued on next page

MICRO END MILLS

3 Flute - Square - 30° Helix - Stub & Regular Flute (Cont.)

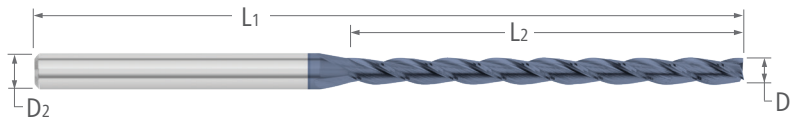
continued from previous page

CUTTER DIA. $D_1^{+0.0005''}$ $-0.0005''$	LENGTH OF CUT L_2	SHANK DIA. $D_2 (h6)$	OAL L_1	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0900	.135	1/8	1-1/2	C774584	16.42	C774608	20.60
	.270	1/8	1-1/2	C774632	14.23	C774656	18.41
.0950	.143	1/8	1-1/2	C774585	16.42	C774609	20.60
	.285	1/8	1-1/2	C774633	14.23	C774657	18.41
.1000	.150	1/8	1-1/2	C774586	16.42	C774610	20.60
	.300	1/8	1-1/2	C774634	14.23	C774658	18.41
.1050	.160	1/8	1-1/2	C774587	16.42	C774611	20.60
	.315	1/8	1-1/2	C774635	14.33	C774659	18.51
.1100	.165	1/8	1-1/2	C774588	16.42	C774612	20.60
	.330	1/8	1-1/2	C774636	14.23	C774660	18.41
.1150	.170	1/8	1-1/2	C774589	16.42	C774613	20.60
	.345	1/8	1-1/2	C774637	14.23	C774661	18.41
.1200	.180	1/8	1-1/2	C774590	16.42	C774614	20.60
	.360	1/8	1-1/2	C774638	14.23	C774662	18.41

3 FLUTE

MICRO END MILLS

3 Flute - Square - 30° Helix - Long Flute



- Long flute design for deep cavities
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	LENGTH OF CUT	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
$D1^{+.0005"}$ $D1_{-.0005"}$	L2	D2 (h6)	L1				
.0100	.050 (5x)	1/8	2-1/2	C770155	37.86	C770239	42.29
	.080 (8x)	1/8	2-1/2	C770156	63.48	C770240	67.91
	.120 (12x)	1/8	2-1/2	C770157	75.42	C770241	79.90
.0150	.078 (5x)	1/8	2-1/2	C770158	35.02	C770242	39.60
	.125 (8x)	1/8	2-1/2	C770159	60.40	C770243	68.46
	.187 (12x)	1/8	2-1/2	C770160	74.67	C770244	84.18
.0200	.100 (5x)	1/8	2-1/2	C770161	30.20	C770245	34.63
	.160 (8x)	1/8	2-1/2	C770162	54.77	C770246	61.49
	.250 (12x)	1/8	2-1/2	C770163	71.64	C770247	76.12
.0250	.125 (5x)	1/8	2-1/2	C770164	28.71	C770248	33.28
	.203 (8x)	1/8	2-1/2	C770165	54.28	C770249	58.95
	.312 (12x)	1/8	2-1/2	C770166	63.68	C770250	68.16
.0300	.150 (5x)	1/8	2-1/2	C770167	27.61	C770251	32.19
	.250 (8x)	1/8	2-1/2	C770168	46.52	C770252	52.69
	.375 (12x)	1/8	2-1/2	C770169	60.20	C770253	64.68
.0310	.156 (5x)	1/8	2-1/2	C770170	27.76	C770254	32.24
	.250 (8x)	1/8	2-1/2	C770171	44.43	C770255	50.25
	.375 (12x)	1/8	2-1/2	C770172	59.95	C770256	67.91
.0350	.175 (5x)	1/8	2-1/2	C770173	27.76	C770257	32.24
	.280 (8x)	1/8	2-1/2	C770174	44.82	C770258	50.25
	.425 (12x)	1/8	2-1/2	C770175	60.20	C770259	64.68
.0400	.200 (5x)	1/8	2-1/2	C770176	27.61	C770260	32.19
	.325 (8x)	1/8	2-1/2	C770177	44.43	C770261	50.25
	.480 (12x)	1/8	2-1/2	C770178	59.95	C770262	67.91
.0450	.225 (5x)	1/8	2-1/2	C770179	27.61	C770263	32.19
	.375 (8x)	1/8	2-1/2	C770180	44.82	C770264	50.25
	.550 (12x)	1/8	2-1/2	C770181	59.85	C770265	64.28
.0470	.250 (5x)	1/8	2-1/2	C770182	27.61	C770266	32.19
	.375 (8x)	1/8	2-1/2	C770183	44.43	C770267	50.25
	.570 (12x)	1/8	2-1/2	C770184	59.85	C770268	67.51
.0500	.250 (5x)	1/8	2-1/2	C770185	27.76	C770269	32.24
	.400 (8x)	1/8	2-1/2	C770186	44.63	C770270	50.25
	.600 (12x)	1/8	2-1/2	C770187	60.50	C770271	64.92
.0550	.275 (5x)	1/8	2-1/2	C770188	27.76	C770272	32.24
	.440 (8x)	1/8	2-1/2	C770189	44.82	C770273	50.25
	.660 (12x)	1/8	2-1/2	C770190	60.20	C770274	64.68
.0600	.312 (5x)	1/8	2-1/2	C770191	24.58	C770275	29.10
	.500 (8x)	1/8	2-1/2	C770192	27.61	C770276	32.19
	.720 (12x)	1/8	2-1/2	C770193	59.95	C770277	67.91

continued on next page

For technical information, see page 148

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

MICRO END MILLS

3 Flute - Square - 30° Helix - Long Flute (Cont.)

continued from previous page

CUTTER DIA. D1 ^{+0.0005"} -0.0005"	LENGTH OF CUT L2	SHANK DIA. D2 (h6)	OAL L1	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0620	.312 (5x)	1/8	2-1/2	C770194	24.58	C770278	29.10
	.500 (8x)	1/8	2-1/2	C770195	27.51	C770279	32.09
	.750 (12x)	1/8	2-1/2	C770196	46.96	C770280	53.23
	.950 (15x)	1/8	2-1/2	C770197	64.28	C770281	72.83
.0650	.325 (5x)	1/8	2-1/2	C770198	24.58	C770282	29.10
	.500 (8x)	1/8	2-1/2	C770199	27.51	C770283	32.09
	.780 (12x)	1/8	2-1/2	C770200	47.41	C770284	51.84
.0700	.375 (5x)	1/8	2-1/2	C770201	24.73	C770285	29.20
	.560 (8x)	1/8	2-1/2	C770202	27.61	C770286	32.09
	.850 (12x)	1/8	2-1/2	C770203	47.41	C770287	51.84
.0750	.375 (5x)	1/8	2-1/2	C770204	24.73	C770288	29.20
	.625 (8x)	1/8	2-1/2	C770205	27.61	C770289	32.09
	.900 (12x)	1/8	2-1/2	C770206	46.96	C770290	51.64
.0780	.406 (5x)	1/8	2-1/2	C770207	24.58	C770291	29.10
	.625 (8x)	1/8	2-1/2	C770208	27.51	C770292	32.09
	.940 (12x)	1/8	2-1/2	C770209	47.21	C770293	53.23
	1.187 (15x)	1/8	2-1/2	C770210	64.28	C770294	72.83
.0800	.406 (5x)	1/8	2-1/2	C770211	24.83	C770295	29.25
	.750 (8x)	1/8	2-1/2	C770212	27.51	C770296	32.09
	.960 (12x)	1/8	2-1/2	C770213	47.16	C770297	51.64
.0850	.425 (5x)	1/8	2-1/2	C770214	24.73	C770298	29.20
	.750 (8x)	1/8	2-1/2	C770215	27.76	C770299	32.19
	1.020 (12x)	1/8	2-1/2	C770216	47.41	C770300	51.84
.0900	.450 (5x)	1/8	2-1/2	C770217	24.73	C770301	28.51
	.750 (8x)	1/8	2-1/2	C770218	27.51	C770302	32.09
	1.080 (12x)	1/8	2-1/2	C770219	47.41	C770303	53.23
.0930	.500 (5x)	1/8	2-1/2	C770220	24.58	C770304	29.10
	.750 (8x)	1/8	2-1/2	C770221	27.51	C770305	32.09
	1.125 (12x)	1/8	2-1/2	C770222	46.96	C770306	53.23
	1.400 (15x)	1/8	2-1/2	C770223	66.81	C770307	71.59
.0950	.500 (5x)	1/8	2-1/2	C770224	24.58	C770308	29.10
	.750 (8x)	1/8	2-1/2	C770225	27.61	C770309	32.09
	1.140 (12x)	1/8	2-1/2	C770226	47.16	C770310	51.64
.1000	.500 (5x)	1/8	2-1/2	C770227	24.58	C770311	29.10
	.800 (8x)	1/8	2-1/2	C770228	27.51	C770312	32.09
	1.200 (12x)	1/8	2-1/2	C770229	47.41	C770313	51.84
.1090	.570 (5x)	1/8	2-1/2	C770230	24.58	C770314	29.10
	.900 (8x)	1/8	2-1/2	C770231	27.61	C770315	32.09
	1.320 (12x)	1/8	2-1/2	C770232	47.41	C770316	51.84
.1180	.625 (5x)	1/8	2-1/2	C770233	24.58	C770317	29.10
	.950 (8x)	1/8	2-1/2	C770234	27.61	C770318	32.09
	1.375 (12x)	1/8	2-1/2	C770235	47.41	C770319	51.84
.1200	.600 (5x)	1/8	2-1/2	C770236	24.58	C770320	29.10
	1.000 (8x)	1/8	2-1/2	C770237	27.51	C770321	32.09
	1.500 (12x)	1/8	2-1/2	C770238	46.96	C770322	53.23

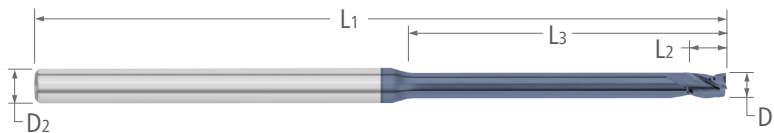
3 FLUTE

For technical information, see page 148



MICRO END MILLS

3 Flute - Square - 30° Helix - Long Reach, Stub Flute



- Long reach design for deep cavities
- Stub flutes for maximum rigidity
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	LOC	OVERALL REACH	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
$D_{1-3}^{+.0005^*}_{-.0005^*}$	L ₂	L ₃ $^{+.010^*}_{-.000^*}$	D ₂ (h6)	L ₁	TOOL #	PRICE	TOOL #	PRICE
.0100	.015	.030 (3x)	1/8	2-1/2	C770491	46.57	C771163	50.99
	.015	.050 (5x)	1/8	2-1/2	C770492	46.37	C771164	50.79
	.015	.080 (8x)	1/8	2-1/2	C770493	46.57	C771165	52.29
	.015	.125 (12x)	1/8	2-1/2	C770494	48.90	C771166	55.12
.0150	.022	.045 (3x)	1/8	2-1/2	C770495	38.41	C771167	42.88
	.022	.078 (5x)	1/8	2-1/2	C770496	38.46	C771168	42.88
	.022	.125 (8x)	1/8	2-1/2	C770497	38.26	C771169	42.88
	.022	.187 (12x)	1/8	2-1/2	C770498	39.95	C771170	44.43
.0200	.030	.060 (3x)	1/8	2-1/2	C770499	37.01	C771171	41.44
	.030	.100 (5x)	1/8	2-1/2	C770500	36.67	C771172	41.54
	.030	.160 (8x)	1/8	2-1/2	C770501	36.86	C771173	41.54
	.030	.250 (12x)	1/8	2-1/2	C770502	38.16	C771174	42.79
.0250	.037	.075 (3x)	1/8	2-1/2	C770503	35.57	C771175	40.05
	.037	.125 (5x)	1/8	2-1/2	C770504	35.57	C771176	40.05
	.037	.203 (8x)	1/8	2-1/2	C770505	35.37	C771177	39.80
	.037	.312 (12x)	1/8	2-1/2	C770506	36.82	C771178	41.29
.0300	.045	.090 (3x)	1/8	2-1/2	C770507	35.57	C771179	40.05
	.045	.156 (5x)	1/8	2-1/2	C770508	35.42	C771180	40.05
	.045	.250 (8x)	1/8	2-1/2	C770509	35.22	C771181	39.90
	.045	.375 (12x)	1/8	2-1/2	C770510	36.82	C771182	41.24
.0310	.046	.093 (3x)	1/8	2-1/2	C770511	35.22	C771183	39.80
	.046	.156 (5x)	1/8	2-1/2	C770512	35.22	C771184	39.90
	.046	.250 (8x)	1/8	2-1/2	C770513	35.22	C771185	39.90
	.046	.375 (12x)	1/8	2-1/2	C770514	36.42	C771186	41.04
.0350	.052	.105 (3x)	1/8	2-1/2	C770515	35.57	C771187	40.05
	.052	.187 (5x)	1/8	2-1/2	C770516	35.57	C771188	40.05
	.052	.281 (8x)	1/8	2-1/2	C770517	35.22	C771189	39.80
	.052	.425 (12x)	1/8	2-1/2	C770518	36.62	C771190	41.04
.0400	.060	.120 (3x)	1/8	2-1/2	C770519	35.37	C771191	39.80
	.060	.203 (5x)	1/8	2-1/2	C770520	35.22	C771192	39.90
	.060	.325 (8x)	1/8	2-1/2	C770521	35.22	C771193	39.80
	.060	.480 (12x)	1/8	2-1/2	C770522	36.42	C771194	41.04
.0450	.067	.135 (3x)	1/8	2-1/2	C770523	34.87	C771195	39.30
	.067	.225 (5x)	1/8	2-1/2	C770524	34.87	C771196	39.30
	.067	.375 (8x)	1/8	2-1/2	C770525	34.63	C771197	39.10
	.067	.550 (12x)	1/8	2-1/2	C770526	35.97	C771198	40.40
.0470	.070	.141 (3x)	1/8	2-1/2	C770527	34.87	C771199	39.30
	.070	.250 (5x)	1/8	2-1/2	C770528	34.48	C771200	39.10
	.070	.375 (8x)	1/8	2-1/2	C770529	34.48	C771201	39.10
	.070	.570 (12x)	1/8	2-1/2	C770530	35.57	C771202	40.35
.0500	.075	.150 (3x)	1/8	2-1/2	C770531	34.87	C771203	39.30
	.075	.250 (5x)	1/8	2-1/2	C770532	34.87	C771204	39.30
	.075	.400 (8x)	1/8	2-1/2	C770533	34.48	C771205	39.10
	.075	.600 (12x)	1/8	2-1/2	C770534	35.57	C771206	40.35

For technical information, see page 148

continued on next page



MICRO END MILLS

3 Flute - Square - 30° Helix - Long Reach, Stub Flute (Cont.)

continued from previous page

CUTTER DIA. D1 ^{+0.0005"} -0.0005"	LOC L2	OVERALL REACH L3 ^{+0.010"} -0.000"	SHANK DIA. D2 (h6)	OAL L1	UNCOATED		AITiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
.0550	.082	.165 (3x)	1/8	2-1/2	C770535	34.87	C771207	39.30
	.082	.275 (5x)	1/8	2-1/2	C770536	34.48	C771208	39.10
	.082	.450 (8x)	1/8	2-1/2	C770537	34.68	C771209	39.15
	.082	.660 (12x)	1/8	2-1/2	C770538	35.82	C771210	40.40
.0600	.090	.180 (3x)	1/8	2-1/2	C770539	34.68	C771211	39.15
	.090	.312 (5x)	1/8	2-1/2	C770540	34.87	C771212	39.30
	.090	.500 (8x)	1/8	2-1/2	C770541	34.48	C771213	39.10
	.090	.720 (12x)	1/8	2-1/2	C770542	35.77	C771214	40.20
.0620	.093	.186 (3x)	1/8	2-1/2	C770543	34.68	C771215	39.30
	.093	.312 (5x)	1/8	2-1/2	C770544	34.48	C771216	39.10
	.093	.500 (8x)	1/8	2-1/2	C770545	34.48	C771217	39.10
	.093	.750 (12x)	1/8	2-1/2	C770546	35.57	C771218	40.20
.0650	.097	.195 (3x)	1/8	2-1/2	C770547	34.87	C771219	39.30
	.097	.325 (5x)	1/8	2-1/2	C770548	34.87	C771220	39.30
	.097	.530 (8x)	1/8	2-1/2	C770549	34.48	C771221	39.10
	.097	.800 (12x)	1/8	2-1/2	C770550	35.97	C771222	40.40
.0700	.105	.210 (3x)	1/8	2-1/2	C770551	34.68	C771223	39.15
	.105	.375 (5x)	1/8	2-1/2	C770552	34.87	C771224	39.30
	.105	.570 (8x)	1/8	2-1/2	C770553	34.87	C771225	39.30
	.105	.850 (12x)	1/8	2-1/2	C770554	35.97	C771226	40.40
.0750	.112	.225 (3x)	1/8	2-1/2	C770555	34.87	C771227	39.30
	.112	.375 (5x)	1/8	2-1/2	C770556	34.87	C771228	39.30
	.112	.625 (8x)	1/8	2-1/2	C770557	34.68	C771229	39.15
	.112	.900 (12x)	1/8	2-1/2	C770558	35.97	C771230	40.40
.0780	.117	.234 (3x)	1/8	2-1/2	C770559	34.68	C771231	39.30
	.117	.406 (5x)	1/8	2-1/2	C770560	34.68	C771232	39.30
	.117	.625 (8x)	1/8	2-1/2	C770561	34.48	C771233	39.10
	.117	.940 (12x)	1/8	2-1/2	C770562	35.82	C771234	40.40
.0800	.120	.240 (3x)	1/8	2-1/2	C770563	34.87	C771235	39.30
	.120	.406 (5x)	1/8	2-1/2	C770564	34.87	C771236	39.30
	.120	.650 (8x)	1/8	2-1/2	C770565	34.87	C771237	39.30
	.120	.960 (12x)	1/8	2-1/2	C770566	35.77	C771238	40.20
.0850	.127	.255 (3x)	1/8	2-1/2	C770567	34.68	C771239	39.15
	.127	.425 (5x)	1/8	2-1/2	C770568	34.87	C771240	39.30
	.127	.700 (8x)	1/8	2-1/2	C770569	34.87	C771241	39.30
	.127	1.020 (12x)	1/8	2-1/2	C770570	35.77	C771242	40.20
.0900	.135	.270 (3x)	1/8	2-1/2	C770571	34.68	C771243	39.15
	.135	.450 (5x)	1/8	2-1/2	C770572	34.68	C771244	37.81
	.135	.750 (8x)	1/8	2-1/2	C770573	34.48	C771245	39.10
	.135	1.080 (12x)	1/8	2-1/2	C770574	35.77	C771246	40.20
.0930	.139	.279 (3x)	1/8	2-1/2	C770575	34.48	C771247	39.10
	.139	.500 (5x)	1/8	2-1/2	C770576	34.48	C771248	39.10
	.139	.750 (8x)	1/8	2-1/2	C770577	34.48	C771249	39.10
	.139	1.125 (12x)	1/8	2-1/2	C770578	35.57	C771250	40.35
.0950	.142	.285 (3x)	1/8	2-1/2	C770579	34.87	C771251	39.30
	.142	.500 (5x)	1/8	2-1/2	C770580	34.87	C771252	38.41
	.142	.750 (8x)	1/8	2-1/2	C770581	34.87	C771253	39.30
	.142	1.150 (12x)	1/8	2-1/2	C770582	35.97	C771254	40.40
.1000	.150	.300 (3x)	1/8	2-1/2	C770583	34.87	C771255	39.30
	.150	.500 (5x)	1/8	2-1/2	C770584	34.63	C771256	39.10
	.150	.800 (8x)	1/8	2-1/2	C770585	34.48	C771257	39.10
	.150	1.200 (12x)	1/8	2-1/2	C770586	35.57	C771258	40.35

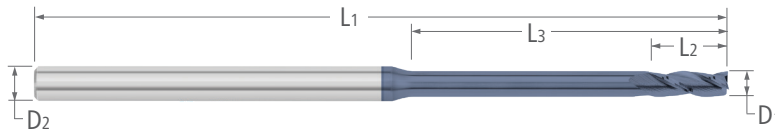
3 FLUTE

For technical information, see page 148



MICRO END MILLS

3 Flute - Square - 30° Helix - Long Reach, Regular Flute



- Long reach design for deep cavities
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	LOC	OVERALL REACH	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
$D_{1 \pm .0005}^{+.0005}$	L ₂	$L_{3 \pm .0005}^{+.010}$	D _{2 (h6)}	L ₁	TOOL #	PRICE	TOOL #	PRICE
.0100	.030	.050 (5x)	1/8	2-1/2	C770875	46.57	C770947	50.99
	.030	.080 (8x)	1/8	2-1/2	C770876	46.12	C770948	52.29
	.030	.125 (12x)	1/8	2-1/2	C770877	48.90	C770949	53.38
.0150	.045	.078 (5x)	1/8	2-1/2	C770878	38.61	C770950	43.03
	.045	.128 (8x)	1/8	2-1/2	C770879	38.26	C770951	43.33
	.045	.187 (12x)	1/8	2-1/2	C770880	39.95	C770952	44.43
.0200	.060	.100 (5x)	1/8	2-1/2	C770881	36.86	C770953	41.54
	.060	.170 (8x)	1/8	2-1/2	C770882	36.67	C770954	41.54
	.060	.250 (12x)	1/8	2-1/2	C770883	38.31	C770955	42.79
.0250	.075	.125 (5x)	1/8	2-1/2	C770884	35.42	C770956	39.90
	.075	.213 (8x)	1/8	2-1/2	C770885	35.22	C770957	39.80
	.075	.312 (12x)	1/8	2-1/2	C770886	36.91	C770958	41.34
.0300	.090	.156 (5x)	1/8	2-1/2	C770887	35.57	C770959	40.05
	.090	.270 (9x)	1/8	2-1/2	C770888	35.22	C770960	39.80
	.090	.375 (12x)	1/8	2-1/2	C770889	36.62	C770961	41.09
.0310	.093	.156 (5x)	1/8	2-1/2	C770890	35.22	C770962	39.90
	.093	.279 (9x)	1/8	2-1/2	C770891	35.22	C770963	39.90
	.093	.375 (12x)	1/8	2-1/2	C770892	36.62	C770964	41.29
.0350	.105	.175 (5x)	1/8	2-1/2	C770893	35.57	C770965	40.05
	.105	.315 (9x)	1/8	2-1/2	C770894	35.37	C770966	39.90
	.105	.420 (12x)	1/8	2-1/2	C770895	36.82	C770967	41.24
.0400	.120	.203 (5x)	1/8	2-1/2	C770896	35.37	C770968	39.80
	.120	.360 (9x)	1/8	2-1/2	C770897	35.22	C770969	39.80
	.120	.480 (12x)	1/8	2-1/2	C770898	36.42	C770970	41.04
.0450	.135	.225 (5x)	1/8	2-1/2	C770899	34.68	C770971	39.15
	.135	.405 (9x)	1/8	2-1/2	C770900	34.63	C770972	39.10
	.135	.540 (12x)	1/8	2-1/2	C770901	36.82	C770973	41.24
.0470	.141	.250 (5x)	1/8	2-1/2	C770902	34.48	C770974	39.10
	.141	.423 (9x)	1/8	2-1/2	C770903	34.48	C770975	39.10
	.141	.570 (12x)	1/8	2-1/2	C770904	35.82	C770976	40.25
.0500	.150	.250 (5x)	1/8	2-1/2	C770905	34.68	C770977	39.30
	.150	.400 (8x)	1/8	2-1/2	C770906	34.48	C770978	39.10
	.150	.600 (12x)	1/8	2-1/2	C770907	35.82	C770979	40.25
.0550	.165	.275 (5x)	1/8	2-1/2	C770908	34.87	C770980	39.30
	.165	.440 (8x)	1/8	2-1/2	C770909	34.48	C770981	39.10
	.165	.660 (12x)	1/8	2-1/2	C770910	35.97	C770982	40.40

continued on next page

MICRO END MILLS

3 Flute - Square - 30° Helix - Long Reach, Regular Flute (Cont.)

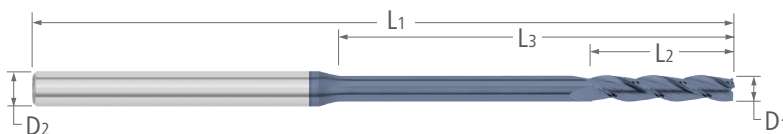
continued from previous page

CUTTER DIA.	LOC	OVERALL REACH	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
$D1_{-0.005}^{+0.005}$	L ₂	L ₃ _{-0.000} ^{+0.010}	D ₂ (h6)	L ₁	TOOL #	PRICE	TOOL #	PRICE
.0600	.180	.312 (5x)	1/8	2-1/2	C770911	34.68	C770983	38.71
	.180	.500 (8x)	1/8	2-1/2	C770912	34.48	C770984	39.10
	.180	.720 (12x)	1/8	2-1/2	C770913	35.77	C770985	40.35
.0620	.186	.312 (5x)	1/8	2-1/2	C770914	34.48	C770986	39.10
	.186	.500 (8x)	1/8	2-1/2	C770915	34.48	C770987	39.10
	.186	.750 (12x)	1/8	2-1/2	C770916	35.57	C770988	40.20
.0650	.195	.325 (5x)	1/8	2-1/2	C770917	34.87	C770989	39.30
	.195	.500 (8x)	1/8	2-1/2	C770918	34.48	C770990	39.10
	.195	.780 (12x)	1/8	2-1/2	C770919	35.97	C770991	40.40
.0700	.210	.350 (5x)	1/8	2-1/2	C770920	34.68	C770992	39.15
	.210	.560 (8x)	1/8	2-1/2	C770921	34.48	C770993	39.10
	.210	.850 (12x)	1/8	2-1/2	C770922	35.82	C770994	40.25
.0750	.225	.375 (5x)	1/8	2-1/2	C770923	34.87	C770995	39.30
	.225	.600 (8x)	1/8	2-1/2	C770924	34.63	C770996	39.10
	.225	.900 (12x)	1/8	2-1/2	C770925	35.97	C770997	40.40
.0780	.234	.390 (5x)	1/8	2-1/2	C770926	34.87	C770998	39.30
	.234	.624 (8x)	1/8	2-1/2	C770927	34.48	C770999	39.10
	.234	.940 (12x)	1/8	2-1/2	C770928	35.82	C771000	40.25
.0800	.240	.400 (5x)	1/8	2-1/2	C770929	34.68	C771001	39.15
	.240	.640 (8x)	1/8	2-1/2	C770930	34.48	C771002	39.10
	.240	.960 (12x)	1/8	2-1/2	C770931	35.82	C771003	40.25
.0850	.255	.425 (5x)	1/8	2-1/2	C770932	34.87	C771004	39.30
	.255	.680 (8x)	1/8	2-1/2	C770933	34.63	C771005	39.10
	.255	1.020 (12x)	1/8	2-1/2	C770934	35.97	C771006	40.40
.0900	.270	.450 (5x)	1/8	2-1/2	C770935	34.68	C771007	39.30
	.270	.720 (8x)	1/8	2-1/2	C770936	34.63	C771008	39.10
	.270	1.080 (12x)	1/8	2-1/2	C770937	35.97	C771009	40.40
.0930	.279	.500 (5x)	1/8	2-1/2	C770938	34.48	C771010	39.10
	.279	.744 (8x)	1/8	2-1/2	C770939	34.48	C771011	39.10
	.279	1.125 (12x)	1/8	2-1/2	C770940	35.97	C771012	40.40
.0950	.285	.475 (5x)	1/8	2-1/2	C770941	34.87	C771013	39.30
	.285	.760 (8x)	1/8	2-1/2	C770942	34.63	C771014	39.10
	.285	1.140 (12x)	1/8	2-1/2	C770943	35.97	C771015	40.40
.1000	.300	.500 (5x)	1/8	2-1/2	C770944	34.68	C771016	39.15
	.300	.800 (8x)	1/8	2-1/2	C770945	34.48	C771017	39.10
	.300	1.200 (12x)	1/8	2-1/2	C770946	35.97	C771018	40.40

3 FLUTE

MICRO END MILLS

3 Flute - Square - 30° Helix - Long Reach, Long Flute



- Long flute and long reach design for deep cavities
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	LOC	OVERALL REACH	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
$D_1^{+0.0005''}$ $_{-0.0005''}$	L_2	$L_3^{+0.010''}$ $_{-0.000''}$	D_2 (h6)	L_1	TOOL #	PRICE	TOOL #	PRICE
.0100	.050	.100 (10x)	1/8	2-1/2	C770587	47.11	C770635	51.54
	.050	.150 (15x)	1/8	2-1/2	C770588	58.41	C770636	62.88
.0150	.075	.150 (10x)	1/8	2-1/2	C770589	39.50	C770637	43.93
	.075	.225 (15x)	1/8	2-1/2	C770590	50.00	C770638	56.37
.0200	.100	.200 (10x)	1/8	2-1/2	C770591	37.66	C770639	42.29
	.100	.300 (15x)	1/8	2-1/2	C770592	47.96	C770640	52.64
.0250	.125	.250 (10x)	1/8	2-1/2	C770593	36.07	C770641	40.65
	.125	.375 (15x)	1/8	2-1/2	C770594	46.91	C770642	51.39
.0300	.150	.300 (10x)	1/8	2-1/2	C770595	36.42	C770643	40.89
	.150	.450 (15x)	1/8	2-1/2	C770596	46.52	C770644	52.69
.0310	.155	.310 (10x)	1/8	2-1/2	C770597	36.07	C770645	40.89
	.155	.470 (15x)	1/8	2-1/2	C770598	46.52	C770646	52.69
.0350	.175	.350 (10x)	1/8	2-1/2	C770599	36.22	C770647	40.65
	.175	.525 (15x)	1/8	2-1/2	C770600	46.72	C770648	51.19
.0400	.200	.400 (10x)	1/8	2-1/2	C770601	36.07	C770649	40.65
	.200	.600 (15x)	1/8	2-1/2	C770602	46.72	C770650	52.69
.0450	.225	.450 (10x)	1/8	2-1/2	C770603	35.37	C770651	40.00
	.225	.675 (15x)	1/8	2-1/2	C770604	44.63	C770652	49.05
.0470	.250	.500 (10x)	1/8	2-1/2	C770605	35.72	C770653	40.15
	.250	.710 (15x)	1/8	2-1/2	C770606	44.18	C770654	48.85
.0500	.300	.500 (10x)	1/8	2-1/2	C770607	35.72	C770655	40.15
	.300	.750 (15x)	1/8	2-1/2	C770608	44.43	C770656	48.85
.0550	.385	.550 (10x)	1/8	2-1/2	C770609	35.37	C770657	40.05
	.385	.825 (15x)	1/8	2-1/2	C770610	44.63	C770658	49.05
.0600	.312	.625 (10x)	1/8	2-1/2	C770611	35.52	C770659	40.15
	.500	1.000 (16x)	1/8	2-1/2	C770612	35.52	C770660	40.15
.0620	.312	.625 (10x)	1/8	2-1/2	C770613	35.37	C770661	40.00
	.500	1.000 (16x)	1/8	2-1/2	C770614	35.37	C770662	40.00
.0650	.325	.650 (10x)	1/8	2-1/2	C770615	35.72	C770663	40.15
	.500	1.000 (15x)	1/8	2-1/2	C770616	35.72	C770664	40.15
.0700	.350	.700 (10x)	1/8	2-1/2	C770617	35.72	C770665	40.15
	.500	1.000 (14x)	1/8	2-1/2	C770618	35.52	C770666	40.00
.0750	.375	.750 (10x)	1/8	2-1/2	C770619	35.72	C770667	40.15
	.500	1.000 (13x)	1/8	2-1/2	C770620	35.72	C770668	40.15
.0780	.406	.800 (10x)	1/8	2-1/2	C770621	35.52	C770669	40.00
	.406	1.187 (15x)	1/8	2-1/2	C770622	35.52	C770670	40.00

continued on next page

MICRO END MILLS

3 Flute - Square - 30° Helix - Long Reach, Long Flute (Cont.)

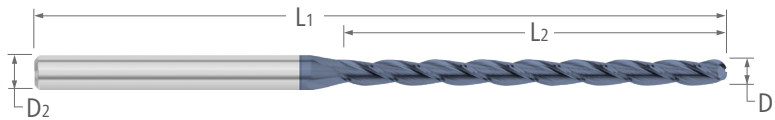
continued from previous page

CUTTER DIA. D1 ^{+0.0005"} -0.0005"	LOC L2	OVERALL REACH L3 ^{+0.010"} -0.000"	SHANK DIA. D2 (h6)	OAL L1	UNCOATED		AlTiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
.0800	.400	.800 (10x)	1/8	2-1/2	C770623	35.52	C770671	40.00
	.750	1.250 (15x)	1/8	2-1/2	C770624	35.72	C770672	40.15
.0850	.425	.850 (10x)	1/8	2-1/2	C770625	35.72	C770673	40.15
	.750	1.250 (14x)	1/8	2-1/2	C770626	35.37	C770674	40.00
.0900	.450	.900 (10x)	1/8	2-1/2	C770627	35.72	C770675	40.15
	.750	1.250 (13x)	1/8	2-1/2	C770628	35.52	C770676	40.15
.0930	.500	.950 (10x)	1/8	2-1/2	C770629	35.52	C770677	40.15
	.500	1.400 (15x)	1/8	2-1/2	C770630	35.37	C770678	40.00
.0950	.500	.950 (10x)	1/8	2-1/2	C770631	35.52	C770679	40.00
	.750	1.250 (13x)	1/8	2-1/2	C770632	35.52	C770680	40.00
.1000	.500	1.000 (10x)	1/8	2-1/2	C770633	35.52	C770681	40.00
	.750	1.250 (12x)	1/8	2-1/2	C770634	35.52	C770682	40.00

3 FLUTE

MICRO END MILLS

3 Flute - Ball - 30° Helix - Long Flute



- Long flute design for deep cavities
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. $D_1^{+.0005''}$ $_{-.0005''}$	LENGTH OF CUT L ₂	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0100	.050 (5x)	1/8	2-1/2	C770323	43.53	C770407	47.96
	.080 (8x)	1/8	2-1/2	C770324	72.44	C770408	77.21
	.120 (12x)	1/8	2-1/2	C770325	84.77	C770409	89.60
.0150	.078 (5x)	1/8	2-1/2	C770326	40.10	C770410	44.73
	.125 (8x)	1/8	2-1/2	C770327	70.05	C770411	78.61
	.187 (12x)	1/8	2-1/2	C770328	85.72	C770412	90.55
.0200	.100 (5x)	1/8	2-1/2	C770329	34.48	C770413	39.10
	.160 (8x)	1/8	2-1/2	C770330	64.38	C770414	72.98
	.250 (12x)	1/8	2-1/2	C770331	80.89	C770415	85.32
.0250	.125 (5x)	1/8	2-1/2	C770332	32.98	C770416	37.41
	.203 (8x)	1/8	2-1/2	C770333	63.33	C770417	67.76
	.312 (12x)	1/8	2-1/2	C770334	78.26	C770418	82.68
.0300	.150 (5x)	1/8	2-1/2	C770335	31.74	C770419	36.32
	.250 (8x)	1/8	2-1/2	C770336	52.39	C770420	58.75
	.375 (12x)	1/8	2-1/2	C770337	77.01	C770421	81.44
.0310	.156 (5x)	1/8	2-1/2	C770338	31.74	C770422	36.32
	.250 (8x)	1/8	2-1/2	C770339	49.95	C770423	54.63
	.375 (12x)	1/8	2-1/2	C770340	68.75	C770424	73.53
.0350	.175 (5x)	1/8	2-1/2	C770341	31.84	C770425	36.32
	.281 (8x)	1/8	2-1/2	C770342	52.39	C770426	58.75
	.425 (12x)	1/8	2-1/2	C770343	69.45	C770427	73.88
.0400	.200 (5x)	1/8	2-1/2	C770344	31.74	C770428	36.32
	.325 (8x)	1/8	2-1/2	C770345	51.89	C770429	56.57
	.480 (12x)	1/8	2-1/2	C770346	69.10	C770430	73.58
.0450	.225 (5x)	1/8	2-1/2	C770347	31.84	C770431	36.32
	.375 (8x)	1/8	2-1/2	C770348	52.39	C770432	56.81
	.550 (12x)	1/8	2-1/2	C770349	69.45	C770433	73.88
.0470	.250 (5x)	1/8	2-1/2	C770350	31.74	C770434	36.32
	.375 (8x)	1/8	2-1/2	C770351	52.14	C770435	58.75
	.570 (12x)	1/8	2-1/2	C770352	69.45	C770436	73.88
.0500	.250 (5x)	1/8	2-1/2	C770353	31.84	C770437	36.32
	.400 (8x)	1/8	2-1/2	C770354	52.39	C770438	56.81
	.600 (12x)	1/8	2-1/2	C770355	69.45	C770439	73.88
.0550	.275 (5x)	1/8	2-1/2	C770356	28.36	C770440	32.79
	.440 (8x)	1/8	2-1/2	C770357	34.23	C770441	38.66
	.660 (12x)	1/8	2-1/2	C770358	64.82	C770442	69.25
.0600	.312 (5x)	1/8	2-1/2	C770359	28.21	C770443	32.64
	.500 (8x)	1/8	2-1/2	C770360	31.99	C770444	36.47
	.720 (12x)	1/8	2-1/2	C770361	58.61	C770445	63.08

continued on next page



MICRO END MILLS

3 Flute - Ball - 30° Helix - Long Flute (Cont.)

continued from previous page

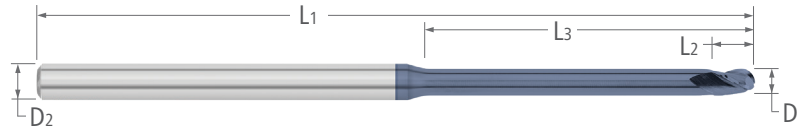
CUTTER DIA. D1 ^{+0.0005"} D1 _{-0.0005"}	LENGTH OF CUT L ₂	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0620	.312 (5x)	1/8	2-1/2	C770362	28.06	C770446	32.64
	.500 (8x)	1/8	2-1/2	C770363	31.39	C770447	35.97
	.750 (12x)	1/8	2-1/2	C770364	53.88	C770448	61.04
	.950 15	1/8	2-1/2	C770365	74.13	C770449	78.56
.0650	.325 (5x)	1/8	2-1/2	C770366	28.36	C770450	32.79
	.500 (8x)	1/8	2-1/2	C770367	31.64	C770451	35.12
	.780 (12x)	1/8	2-1/2	C770368	54.43	C770452	58.85
.0700	.375 (5x)	1/8	2-1/2	C770369	28.36	C770453	32.79
	.560 (8x)	1/8	2-1/2	C770370	31.49	C770454	35.97
	.900 (12x)	1/8	2-1/2	C770371	54.43	C770455	58.85
.0750	.375 (5x)	1/8	2-1/2	C770372	28.36	C770456	32.79
	.625 (8x)	1/8	2-1/2	C770373	31.64	C770457	36.07
	.900 (12x)	1/8	2-1/2	C770374	54.43	C770458	57.51
.0780	.406 (5x)	1/8	2-1/2	C770375	28.26	C770459	32.69
	.625 (8x)	1/8	2-1/2	C770376	31.49	C770460	35.97
	.940 (12x)	1/8	2-1/2	C770377	54.18	C770461	58.61
	1.187 15	1/8	2-1/2	C770378	74.48	C770462	78.90
.0800	.406 (5x)	1/8	2-1/2	C770379	28.36	C770463	32.79
	.750 (8x)	1/8	2-1/2	C770380	31.64	C770464	36.07
	.960 (12x)	1/8	2-1/2	C770381	54.43	C770465	58.85
.0850	.425 (5x)	1/8	2-1/2	C770382	28.36	C770466	32.79
	.750 (8x)	1/8	2-1/2	C770383	31.64	C770467	36.07
	1.020 (12x)	1/8	2-1/2	C770384	54.43	C770468	58.85
.0900	.450 (5x)	1/8	2-1/2	C770385	28.36	C770469	32.79
	.750 (8x)	1/8	2-1/2	C770386	31.64	C770470	36.07
	1.080 (12x)	1/8	2-1/2	C770387	54.43	C770471	58.85
.0930	.500 (5x)	1/8	2-1/2	C770388	28.06	C770472	32.64
	.750 (8x)	1/8	2-1/2	C770389	31.49	C770473	35.97
	1.125 (12x)	1/8	2-1/2	C770390	54.43	C770474	58.85
	1.400 15	1/8	2-1/2	C770391	75.67	C770475	80.15
.0950	.500 (5x)	1/8	2-1/2	C770392	28.36	C770476	32.79
	.750 (8x)	1/8	2-1/2	C770393	31.64	C770477	36.07
	1.140 (12x)	1/8	2-1/2	C770394	54.43	C770478	58.85
.1000	.500 (5x)	1/8	2-1/2	C770395	28.36	C770479	32.79
	.800 (8x)	1/8	2-1/2	C770396	31.64	C770480	36.07
	1.200 (12x)	1/8	2-1/2	C770397	54.43	C770481	58.85
.1090	.570 (5x)	1/8	2-1/2	C770398	28.26	C770482	32.69
	.900 (8x)	1/8	2-1/2	C770399	31.64	C770483	36.07
	1.320 (12x)	1/8	2-1/2	C770400	54.43	C770484	58.85
.1180	.625 (5x)	1/8	2-1/2	C770401	28.36	C770485	32.79
	.950 (8x)	1/8	2-1/2	C770402	31.64	C770486	36.07
	1.375 (12x)	1/8	2-1/2	C770403	54.18	C770487	61.04
.1200	.600 (5x)	1/8	2-1/2	C770404	28.36	C770488	32.79
	1.000 (8x)	1/8	2-1/2	C770405	31.49	C770489	35.97
	1.500 (12x)	1/8	2-1/2	C770406	54.43	C770490	58.85

3 FLUTE



MICRO END MILLS

3 Flute - Ball - 30° Helix - Long Reach, Stub Flute



- Long reach design for deep cavities
- Stub flutes for maximum rigidity
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	LOC	OVERALL REACH	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
$D1^{+.0005^+}_{-.0005^+}$	L2	$L3^{+.010^+}_{-.000^+}$	D2 (h6)	L1	TOOL #	PRICE	TOOL #	PRICE
.0100	.015	.030 (3x)	1/8	2-1/2	C770683	58.41	C770779	61.14
	.015	.050 (5x)	1/8	2-1/2	C770684	58.41	C770780	62.88
	.015	.080 (8x)	1/8	2-1/2	C770685	60.74	C770781	65.17
	.015	.125 (12x)	1/8	2-1/2	C770686	68.26	C770782	72.68
.0150	.022	.045 (3x)	1/8	2-1/2	C770687	50.00	C770783	54.43
	.022	.078 (5x)	1/8	2-1/2	C770688	49.75	C770784	54.23
	.022	.125 (8x)	1/8	2-1/2	C770689	50.00	C770785	54.43
	.022	.187 (12x)	1/8	2-1/2	C770690	50.75	C770786	57.51
.0200	.030	.060 (3x)	1/8	2-1/2	C770691	48.16	C770787	52.64
	.030	.100 (5x)	1/8	2-1/2	C770692	48.16	C770788	54.33
	.030	.160 (8x)	1/8	2-1/2	C770693	48.41	C770789	52.83
	.030	.250 (12x)	1/8	2-1/2	C770694	49.30	C770790	55.82
.0250	.037	.075 (3x)	1/8	2-1/2	C770695	41.84	C770791	46.27
	.037	.125 (5x)	1/8	2-1/2	C770696	41.84	C770792	46.27
	.037	.203 (8x)	1/8	2-1/2	C770697	41.84	C770793	46.27
	.037	.312 (12x)	1/8	2-1/2	C770698	42.83	C770794	48.26
.0300	.045	.090 (3x)	1/8	2-1/2	C770699	41.84	C770795	46.27
	.045	.156 (5x)	1/8	2-1/2	C770700	41.64	C770796	46.07
	.045	.250 (8x)	1/8	2-1/2	C770701	41.84	C770797	46.27
	.045	.375 (12x)	1/8	2-1/2	C770702	43.03	C770798	47.46
.0310	.046	.093 (3x)	1/8	2-1/2	C770703	41.64	C770799	46.07
	.046	.156 (5x)	1/8	2-1/2	C770704	41.84	C770800	46.27
	.046	.250 (8x)	1/8	2-1/2	C770705	41.39	C770801	46.86
	.046	.375 (12x)	1/8	2-1/2	C770706	42.64	C770802	48.26
.0350	.052	.105 (3x)	1/8	2-1/2	C770707	41.84	C770803	46.27
	.052	.187 (5x)	1/8	2-1/2	C770708	41.84	C770804	46.27
	.052	.281 (8x)	1/8	2-1/2	C770709	41.84	C770805	46.27
	.052	.425 (12x)	1/8	2-1/2	C770710	43.03	C770806	47.46
.0400	.060	.120 (3x)	1/8	2-1/2	C770711	41.64	C770807	46.07
	.060	.203 (5x)	1/8	2-1/2	C770712	41.64	C770808	46.07
	.060	.325 (8x)	1/8	2-1/2	C770713	41.59	C770809	46.07
	.060	.480 (12x)	1/8	2-1/2	C770714	42.64	C770810	47.26
.0450	.067	.135 (3x)	1/8	2-1/2	C770715	40.80	C770811	45.27
	.067	.225 (5x)	1/8	2-1/2	C770716	40.80	C770812	45.27
	.067	.375 (8x)	1/8	2-1/2	C770717	40.80	C770813	45.27
	.067	.550 (12x)	1/8	2-1/2	C770718	41.94	C770814	46.37
.0470	.070	.141 (3x)	1/8	2-1/2	C770719	40.80	C770815	45.27
	.070	.250 (5x)	1/8	2-1/2	C770720	40.65	C770816	45.07
	.070	.375 (8x)	1/8	2-1/2	C770721	40.45	C770817	45.07
	.070	.570 (12x)	1/8	2-1/2	C770722	41.54	C770818	46.17
.0500	.075	.150 (3x)	1/8	2-1/2	C770723	40.80	C770819	45.27
	.075	.250 (5x)	1/8	2-1/2	C770724	40.80	C770820	45.27
	.075	.400 (8x)	1/8	2-1/2	C770725	40.80	C770821	45.27
	.075	.600 (12x)	1/8	2-1/2	C770726	41.94	C770822	46.37

continued on next page

For technical information, see page 148

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



MICRO END MILLS

3 Flute - Ball - 30° Helix - Long Reach, Stub Flute (Cont.)

continued from previous page

CUTTER DIA.	LOC	OVERALL REACH	SHANK DIA.	OAL	UNCOATED		AITIN COATED	
D1 ^{+0.005"} _{-0.005"}	L2	L3 ^{+0.010"} _{-0.000"}	D2 (h6)	L1	TOOL #	PRICE	TOOL #	PRICE
.0550	.082	.165 (3x)	1/8	2-1/2	C770727	40.80	C770823	45.27
	.082	.275 (5x)	1/8	2-1/2	C770728	40.80	C770824	45.27
	.082	.450 (8x)	1/8	2-1/2	C770729	40.65	C770825	45.07
	.082	.660 (12x)	1/8	2-1/2	C770730	41.94	C770826	46.37
.0600	.090	.180 (3x)	1/8	2-1/2	C770731	40.80	C770827	45.27
	.090	.312 (5x)	1/8	2-1/2	C770732	40.65	C770828	45.07
	.090	.500 (8x)	1/8	2-1/2	C770733	40.65	C770829	45.82
	.090	.720 (12x)	1/8	2-1/2	C770734	41.74	C770830	47.06
.0620	.093	.186 (3x)	1/8	2-1/2	C770735	40.65	C770831	45.82
	.093	.312 (5x)	1/8	2-1/2	C770736	40.45	C770832	45.82
	.093	.500 (8x)	1/8	2-1/2	C770737	40.45	C770833	45.82
	.093	.750 (12x)	1/8	2-1/2	C770738	41.54	C770834	47.06
.0650	.097	.195 (3x)	1/8	2-1/2	C770739	40.80	C770835	45.27
	.097	.325 (5x)	1/8	2-1/2	C770740	40.80	C770836	45.27
	.097	.530 (8x)	1/8	2-1/2	C770741	40.80	C770837	45.27
	.097	.780 (12x)	1/8	2-1/2	C770742	41.94	C770838	46.37
.0700	.105	.210 (3x)	1/8	2-1/2	C770743	40.80	C770839	45.27
	.105	.375 (5x)	1/8	2-1/2	C770744	40.80	C770840	45.82
	.105	.570 (8x)	1/8	2-1/2	C770745	40.80	C770841	45.27
	.105	.840 (12x)	1/8	2-1/2	C770746	41.94	C770842	46.37
.0750	.112	.225 (3x)	1/8	2-1/2	C770747	40.80	C770843	45.27
	.112	.375 (5x)	1/8	2-1/2	C770748	40.65	C770844	45.07
	.112	.625 (8x)	1/8	2-1/2	C770749	40.80	C770845	45.27
	.112	.900 (12x)	1/8	2-1/2	C770750	41.94	C770846	46.37
.0780	.117	.234 (3x)	1/8	2-1/2	C770751	40.80	C770847	45.27
	.117	.406 (5x)	1/8	2-1/2	C770752	40.45	C770848	45.82
	.117	.625 (8x)	1/8	2-1/2	C770753	40.65	C770849	45.07
	.117	.940 (12x)	1/8	2-1/2	C770754	41.74	C770850	46.17
.0800	.120	.240 (3x)	1/8	2-1/2	C770755	40.80	C770851	45.27
	.120	.406 (5x)	1/8	2-1/2	C770756	40.80	C770852	45.27
	.120	.650 (8x)	1/8	2-1/2	C770757	40.80	C770853	45.27
	.120	.960 (12x)	1/8	2-1/2	C770758	41.94	C770854	46.37
.0850	.127	.255 (3x)	1/8	2-1/2	C770759	40.65	C770855	45.07
	.127	.425 (5x)	1/8	2-1/2	C770760	40.65	C770856	45.07
	.127	.700 (8x)	1/8	2-1/2	C770761	40.80	C770857	45.27
	.127	1.020 (12x)	1/8	2-1/2	C770762	41.94	C770858	46.37
.0900	.135	.270 (3x)	1/8	2-1/2	C770763	40.80	C770859	45.27
	.135	.450 (5x)	1/8	2-1/2	C770764	40.80	C770860	45.82
	.135	.750 (8x)	1/8	2-1/2	C770765	40.80	C770861	45.27
	.135	1.080 (12x)	1/8	2-1/2	C770766	41.94	C770862	46.37
.0930	.139	.279 (3x)	1/8	2-1/2	C770767	40.80	C770863	45.27
	.139	.500 (5x)	1/8	2-1/2	C770768	40.45	C770864	45.82
	.139	.750 (8x)	1/8	2-1/2	C770769	40.45	C770865	45.82
	.139	1.125 (12x)	1/8	2-1/2	C770770	41.74	C770866	46.17
.0950	.142	.285 (3x)	1/8	2-1/2	C770771	40.80	C770867	45.27
	.142	.500 (5x)	1/8	2-1/2	C770772	40.80	C770868	45.27
	.142	.750 (8x)	1/8	2-1/2	C770773	40.80	C770869	45.27
	.142	1.150 (12x)	1/8	2-1/2	C770774	41.94	C770870	46.37
.1000	.150	.300 (3x)	1/8	2-1/2	C770775	40.80	C770871	45.27
	.150	.500 (5x)	1/8	2-1/2	C770776	40.65	C770872	45.82
	.150	.800 (8x)	1/8	2-1/2	C770777	40.65	C770873	45.82
	.150	1.200 (12x)	1/8	2-1/2	C770778	41.94	C770874	47.06

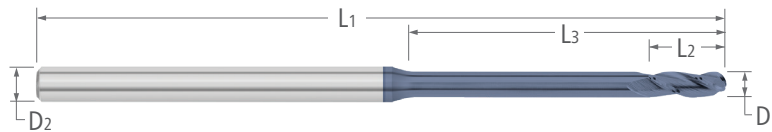
3 FLUTE

For technical information, see page 148



MICRO END MILLS

3 Flute - Ball - 30° Helix - Long Reach, Regular Flute



- Long reach design for deep cavities
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	LOC	OVERALL REACH	SHANK DIA.	OAL	UNCOATED		AITiN COATED	
$D_1^{+0.0005^*}$ $D_1^{-0.0005^*}$	L_2	$L_3^{+0.010^*}$ $L_3^{-0.000^*}$	D_2 (h6)	L_1	TOOL #	PRICE	TOOL #	PRICE
.0100	.030	.050 (5x)	1/8	2-1/2	C771019	63.08	C771091	66.17
	.030	.080 (8x)	1/8	2-1/2	C771020	62.73	C771092	67.21
	.030	.125 (12x)	1/8	2-1/2	C771021	64.18	C771093	68.61
.0150	.045	.078 (5x)	1/8	2-1/2	C771022	50.65	C771094	55.07
	.045	.128 (8x)	1/8	2-1/2	C771023	50.15	C771095	54.82
	.045	.187 (12x)	1/8	2-1/2	C771024	51.69	C771096	58.01
.0200	.060	.100 (5x)	1/8	2-1/2	C771025	48.66	C771097	53.13
	.060	.170 (8x)	1/8	2-1/2	C771026	48.41	C771098	52.83
	.060	.250 (12x)	1/8	2-1/2	C771027	49.75	C771099	55.82
.0250	.075	.125 (5x)	1/8	2-1/2	C771028	44.53	C771100	48.95
	.075	.213 (8x)	1/8	2-1/2	C771029	44.08	C771101	48.76
	.075	.312 (12x)	1/8	2-1/2	C771030	45.62	C771102	50.05
.0300	.090	.156 (5x)	1/8	2-1/2	C771031	44.28	C771103	49.90
	.090	.270 (9x)	1/8	2-1/2	C771032	44.08	C771104	48.76
	.090	.375 (12x)	1/8	2-1/2	C771033	45.42	C771105	51.14
.0310	.093	.156 (5x)	1/8	2-1/2	C771034	44.08	C771106	48.76
	.093	.279 (9x)	1/8	2-1/2	C771035	44.28	C771107	48.76
	.093	.375 (12x)	1/8	2-1/2	C771036	45.42	C771108	49.85
.0350	.105	.175 (5x)	1/8	2-1/2	C771037	44.53	C771109	48.95
	.105	.280 (8x)	1/8	2-1/2	C771038	44.08	C771110	48.76
	.105	.420 (12x)	1/8	2-1/2	C771039	45.42	C771111	49.85
.0400	.120	.200 (5x)	1/8	2-1/2	C771040	44.28	C771112	48.76
	.120	.320 (8x)	1/8	2-1/2	C771041	44.28	C771113	48.76
	.120	.480 (12x)	1/8	2-1/2	C771042	45.42	C771114	49.85
.0450	.135	.225 (5x)	1/8	2-1/2	C771043	42.83	C771115	48.26
	.135	.360 (8x)	1/8	2-1/2	C771044	42.83	C771116	47.31
	.135	.540 (12x)	1/8	2-1/2	C771045	43.93	C771117	48.41
.0470	.141	.250 (5x)	1/8	2-1/2	C771046	42.83	C771118	47.31
	.141	.376 (8x)	1/8	2-1/2	C771047	42.83	C771119	48.26
	.141	.570 (12x)	1/8	2-1/2	C771048	43.93	C771120	48.41
.0500	.150	.250 (5x)	1/8	2-1/2	C771049	42.83	C771121	45.02
	.150	.400 (8x)	1/8	2-1/2	C771050	42.64	C771122	47.26
	.150	.600 (12x)	1/8	2-1/2	C771051	43.93	C771123	47.01
.0550	.165	.275 (5x)	1/8	2-1/2	C771052	43.03	C771124	48.26
	.165	.440 (8x)	1/8	2-1/2	C771053	43.03	C771125	47.46
	.165	.660 (12x)	1/8	2-1/2	C771054	44.13	C771126	48.56
.0600	.180	.300 (5x)	1/8	2-1/2	C771055	43.03	C771127	47.46
	.180	.500 (8x)	1/8	2-1/2	C771056	42.64	C771128	48.26
	.180	.720 (12x)	1/8	2-1/2	C771057	43.93	C771129	49.50

continued on next page



MICRO END MILLS

3 Flute - Ball - 30° Helix - Long Reach, Regular Flute (Cont.)

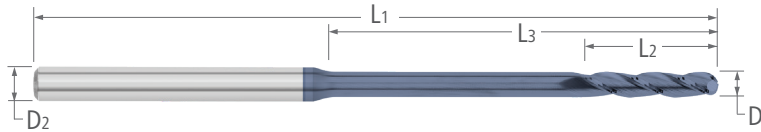
continued from previous page

CUTTER DIA. D1 ^{+0.005°} _{-0.005°}	LOC L2	OVERALL REACH L3 ^{+0.010°} _{-0.000°}	SHANK DIA. D2 (h6)	OAL L1	UNCOATED		AITiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
.0620	.186	.312 (5x)	1/8	2-1/2	C771058	42.64	C771130	48.26
	.186	.500 (8x)	1/8	2-1/2	C771059	42.64	C771131	48.26
	.186	.750 (12x)	1/8	2-1/2	C771060	43.73	C771132	48.36
.0650	.195	.325 (5x)	1/8	2-1/2	C771061	43.03	C771133	47.46
	.195	.500 (8x)	1/8	2-1/2	C771062	43.03	C771134	47.46
	.195	.780 (12x)	1/8	2-1/2	C771063	44.13	C771135	48.56
.0700	.210	.350 (5x)	1/8	2-1/2	C771064	43.03	C771136	47.46
	.210	.560 (8x)	1/8	2-1/2	C771065	43.03	C771137	47.46
	.210	.840 (12x)	1/8	2-1/2	C771066	44.13	C771138	48.56
.0750	.225	.375 (5x)	1/8	2-1/2	C771067	42.83	C771139	47.31
	.225	.600 (8x)	1/8	2-1/2	C771068	43.03	C771140	47.46
	.225	.900 (12x)	1/8	2-1/2	C771069	43.93	C771141	48.41
.0780	.234	.390 (5x)	1/8	2-1/2	C771070	43.03	C771142	47.46
	.234	.624 (8x)	1/8	2-1/2	C771071	42.64	C771143	48.26
	.234	.940 (12x)	1/8	2-1/2	C771072	43.93	C771144	49.50
.0800	.240	.400 (5x)	1/8	2-1/2	C771073	42.83	C771145	47.31
	.240	.640 (8x)	1/8	2-1/2	C771074	43.03	C771146	47.46
	.240	.960 (12x)	1/8	2-1/2	C771075	44.13	C771147	48.56
.0850	.255	.425 (5x)	1/8	2-1/2	C771076	43.03	C771148	47.46
	.255	.680 (8x)	1/8	2-1/2	C771077	43.03	C771149	47.46
	.255	1.020 (12x)	1/8	2-1/2	C771078	44.13	C771150	48.56
.0900	.270	.450 (5x)	1/8	2-1/2	C771079	42.83	C771151	47.31
	.270	.720 (8x)	1/8	2-1/2	C771080	42.83	C771152	47.01
	.270	1.080 (12x)	1/8	2-1/2	C771081	44.13	C771153	48.56
.0930	.279	.500 (5x)	1/8	2-1/2	C771082	42.83	C771154	47.31
	.279	.744 (8x)	1/8	2-1/2	C771083	42.83	C771155	48.26
	.279	1.125 (12x)	1/8	2-1/2	C771084	43.93	C771156	48.41
.0950	.285	.475 (5x)	1/8	2-1/2	C771085	43.03	C771157	47.46
	.285	.760 (8x)	1/8	2-1/2	C771086	43.03	C771158	47.46
	.285	1.140 (12x)	1/8	2-1/2	C771087	44.13	C771159	48.56
.1000	.300	.500 (5x)	1/8	2-1/2	C771088	42.83	C771160	47.31
	.300	.800 (8x)	1/8	2-1/2	C771089	42.83	C771161	47.31
	.300	1.200 (12x)	1/8	2-1/2	C771090	43.73	C771162	48.36

3 FLUTE

MICRO END MILLS

3 Flute - Ball - 30° Helix - Long Reach, Long Flute



- Long flute, long reach
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	LOC	OVERALL REACH	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
$D_{1 \pm 0.0005}$	L ₂	$L_3 \begin{smallmatrix} +.010 \\ -.000 \end{smallmatrix}$	D ₂ (h6)	L ₁	TOOL #	PRICE	TOOL #	PRICE
.0100	.050	.100 (10x)	1/8	2-1/2	C770059	59.15	C770107	63.63
	.050	.150 (15x)	1/8	2-1/2	C770060	59.15	C770108	63.63
.0150	.075	.150 (10x)	1/8	2-1/2	C770061	50.75	C770109	55.17
	.075	.225 (15x)	1/8	2-1/2	C770062	50.75	C770110	55.17
.0200	.100	.200 (10x)	1/8	2-1/2	C770063	48.90	C770111	55.12
	.100	.300 (15x)	1/8	2-1/2	C770064	48.90	C770112	55.12
.0250	.125	.250 (10x)	1/8	2-1/2	C770065	42.34	C770113	46.81
	.125	.375 (15x)	1/8	2-1/2	C770066	42.54	C770114	47.01
.0300	.150	.300 (10x)	1/8	2-1/2	C770067	42.54	C770115	47.01
	.150	.450 (15x)	1/8	2-1/2	C770068	42.34	C770116	47.71
.0310	.155	.310 (10x)	1/8	2-1/2	C770069	42.14	C770117	46.77
	.155	.470 (15x)	1/8	2-1/2	C770070	42.14	C770118	46.77
.0350	.175	.350 (10x)	1/8	2-1/2	C770071	42.54	C770119	47.01
	.175	.525 (15x)	1/8	2-1/2	C770072	42.54	C770120	47.01
.0400	.200	.400 (10x)	1/8	2-1/2	C770073	42.34	C770121	46.81
	.200	.600 (15x)	1/8	2-1/2	C770074	42.54	C770122	47.01
.0450	.225	.450 (10x)	1/8	2-1/2	C770075	41.44	C770123	45.87
	.225	.675 (15x)	1/8	2-1/2	C770076	41.44	C770124	45.87
.0470	.250	.500 (10x)	1/8	2-1/2	C770077	41.24	C770125	45.72
	.250	.710 (15x)	1/8	2-1/2	C770078	41.44	C770126	45.87
.0500	.300	.500 (10x)	1/8	2-1/2	C770079	41.44	C770127	45.87
	.300	.750 (15x)	1/8	2-1/2	C770080	41.44	C770128	45.87
.0550	.385	.550 (10x)	1/8	2-1/2	C770081	41.44	C770129	46.47
	.385	.825 (15x)	1/8	2-1/2	C770082	41.44	C770130	45.87
.0600	.312	.625 (10x)	1/8	2-1/2	C770083	41.44	C770131	45.87
	.500	1.000 (16x)	1/8	2-1/2	C770084	41.24	C770132	46.47
.0620	.312	.625 (10x)	1/8	2-1/2	C770085	41.24	C770133	46.47
	.500	1.000 (16x)	1/8	2-1/2	C770086	41.04	C770134	46.47
.0650	.325	.650 (10x)	1/8	2-1/2	C770087	41.44	C770135	45.87
	.500	1.000 (15x)	1/8	2-1/2	C770088	41.44	C770136	45.87
.0700	.350	.700 (10x)	1/8	2-1/2	C770089	41.44	C770137	45.87
	.500	1.000 (14x)	1/8	2-1/2	C770090	41.44	C770138	45.87
.0750	.375	.750 (10x)	1/8	2-1/2	C770091	41.44	C770139	45.87
	.500	1.000 (13x)	1/8	2-1/2	C770092	41.44	C770140	45.87
.0780	.406	.800 (10x)	1/8	2-1/2	C770093	41.44	C770141	45.87
	.406	1.187 (15x)	1/8	2-1/2	C770094	41.44	C770142	45.87

continued on next page

MICRO END MILLS
3 Flute - Ball - 30° Helix - Long Reach, Long Flute (Cont.)

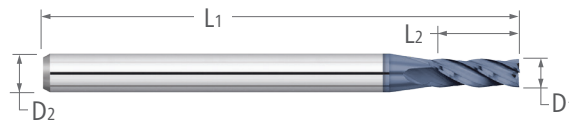
continued from previous page

CUTTER DIA. $D_1^{+.0005^*}$ $D_1^{-.0005^*}$	LOC L ₂	OVERALL REACH L ₃ $^{+.010^*}$ $^{-.000^*}$	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AlTiN COATED	
					TOOL #	PRICE	TOOL #	PRICE
.0800	.400	.800 (10x)	1/8	2-1/2	C770095	41.44	C770143	45.87
	.750	1.250 (15x)	1/8	2-1/2	C770096	41.44	C770144	45.87
.0850	.425	.850 (10x)	1/8	2-1/2	C770097	41.44	C770145	45.87
	.750	1.250 (14x)	1/8	2-1/2	C770098	41.44	C770146	45.87
.0900	.450	.900 (10x)	1/8	2-1/2	C770099	41.44	C770147	45.87
	.750	1.250 (13x)	1/8	2-1/2	C770100	41.24	C770148	45.67
.0930	.500	.950 (10x)	1/8	2-1/2	C770101	41.24	C770149	45.72
	.500	1.400 (15x)	1/8	2-1/2	C770102	41.24	C770150	45.72
.0950	.500	.950 (10x)	1/8	2-1/2	C770103	41.44	C770151	46.47
	.750	1.250 (13x)	1/8	2-1/2	C770104	41.44	C770152	44.63
.1000	.500	1.000 (10x)	1/8	2-1/2	C770105	41.44	C770153	46.47
	.750	1.250 (12x)	1/8	2-1/2	C770106	41.44	C770154	45.87

3 FLUTE

MICRO END MILLS

4 Flute - Square - 30° Helix - Stub & Regular Flute



- Offered in stub and regular flute styles
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. $D_{1+0.005}^{-0.005}$	LENGTH OF CUT L ₂	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0100	.015	1/8	1-1/2	C760822	33.43	C760846	37.86
	.030	1/8	1-1/2	C744749	29.05	C760516	33.38
.0110	.033	1/8	1-1/2	C744748	26.12	C760517	30.35
.0120	.036	1/8	1-1/2	C744747	26.02	C760518	30.35
.0130	.039	1/8	1-1/2	C744746	21.64	C760519	25.82
.0140	.042	1/8	1-1/2	C744745	21.64	C760520	25.82
.0150	.023	1/8	1-1/2	C760823	20.94	C760847	25.12
	.045	1/8	1-1/2	C744744	18.21	C760521	21.84
.0160	.048	1/8	1-1/2	C744743	18.31	C760522	21.84
.0170	.051	1/8	1-1/2	C744742	18.21	C760523	21.84
.0180	.054	1/8	1-1/2	C744741	18.21	C760524	21.84
.0190	.057	1/8	1-1/2	C744740	18.31	C760525	21.84
.0200	.030	1/8	1-1/2	C760824	19.00	C760848	22.84
	.060	1/8	1-1/2	C744739	16.52	C760526	19.85
.0210	.063	1/8	1-1/2	C744738	16.62	C760527	19.85
.0220	.066	1/8	1-1/2	C744737	16.52	C760528	19.85
.0230	.069	1/8	1-1/2	C744736	16.52	C760529	19.85
.0240	.072	1/8	1-1/2	C744735	16.52	C760530	19.85
.0250	.038	1/8	1-1/2	C760825	19.00	C760849	22.84
	.075	1/8	1-1/2	C744734	16.52	C760531	19.85
.0260	.078	1/8	1-1/2	C744733	15.57	C760532	18.66
.0270	.081	1/8	1-1/2	C744732	15.57	C760533	18.66
.0280	.084	1/8	1-1/2	C744731	15.52	C760534	18.66
.0290	.087	1/8	1-1/2	C744730	15.62	C760535	19.80
.0300	.045	1/8	1-1/2	C760826	17.86	C760850	21.39
	.090	1/8	1-1/2	C744729	15.52	C760536	18.66
.0310	.047	1/8	1-1/2	C760827	16.77	C760851	20.05
	.093	1/8	1-1/2	C744728	14.53	C760537	17.41
.0320	.096	1/8	1-1/2	C744727	14.53	C760538	17.41
.0330	.099	1/8	1-1/2	C744726	14.63	C760539	18.81
.0340	.102	1/8	1-1/2	C744725	14.53	C760540	18.81
.0350	.053	1/8	1-1/2	C760828	16.77	C760852	20.05
	.105	1/8	1-1/2	C744724	14.53	C760541	16.77
.0360	.108	1/8	1-1/2	C744723	14.53	C760542	17.41
.0370	.111	1/8	1-1/2	C744722	14.53	C760543	17.41
.0380	.114	1/8	1-1/2	C744721	14.53	C760544	18.81

continued on next page

For technical information, see page 148

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



MICRO END MILLS

4 Flute - Square - 30° Helix - Stub & Regular Flute (Cont.)

continued from previous page

CUTTER DIA. D1 ^{+0.0005"} D1 _{-0.0005"}	LENGTH OF CUT L ₂	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0390	.117	1/8	1-1/2	C744720	14.53	C760545	17.41
.0400	.060	1/8	1-1/2	C760829	16.77	C760853	20.05
	.120	1/8	1-1/2	C744719	14.53	C760546	17.41
.0410	.123	1/8	1-1/2	C744718	14.73	C760547	18.91
.0420	.126	1/8	1-1/2	C744717	14.63	C760548	17.41
.0430	.129	1/8	1-1/2	C744716	14.63	C760549	17.41
.0440	.132	1/8	1-1/2	C744715	14.18	C760550	17.06
.0450	.068	1/8	1-1/2	C760830	16.37	C760854	19.60
	.135	1/8	1-1/2	C744714	14.18	C760551	17.06
.0460	.138	1/8	1-1/2	C744713	14.18	C760552	17.06
.0470	.071	1/8	1-1/2	C760831	16.37	C760855	19.60
	.141	1/8	1-1/2	C744712	14.18	C760553	17.06
.0480	.144	1/8	1-1/2	C744711	14.28	C760554	17.06
.0490	.147	1/8	1-1/2	C744710	14.18	C760555	17.06
.0500	.075	1/8	1-1/2	C760832	16.32	C760856	19.60
	.150	1/8	1-1/2	C744709	14.18	C760556	17.06
.0510	.153	1/8	1-1/2	C744708	14.28	C760557	17.06
.0520	.156	1/8	1-1/2	C744707	14.18	C760558	17.06
.0530	.159	1/8	1-1/2	C744706	14.18	C760559	18.41
.0540	.162	1/8	1-1/2	C744705	14.28	C760560	17.06
.0550	.083	1/8	1-1/2	C760833	16.32	C760857	19.60
	.165	1/8	1-1/2	C744704	14.18	C760561	17.06
.0560	.168	1/8	1-1/2	C744703	14.28	C760562	17.06
.0570	.171	1/8	1-1/2	C744702	14.28	C760563	17.06
.0580	.174	1/8	1-1/2	C744701	14.28	C760564	17.06
.0590	.177	1/8	1-1/2	C744700	14.18	C760614	17.06
.0600	.090	1/8	1-1/2	C760834	16.37	C760858	19.60
	.180	1/8	1-1/2	C744699	14.18	C760615	17.06
.0610	.183	1/8	1-1/2	C744698	14.28	C760616	18.46
.0620	.093	1/8	1-1/2	C760835	16.32	C760859	19.60
	.186	1/8	1-1/2	C744697	14.18	C760617	17.06
.0630	.189	1/8	1-1/2	C744696	14.18	C760618	17.06
.0640	.192	1/8	1-1/2	C744695	14.28	C760619	18.46
.0650	.098	1/8	1-1/2	C760836	16.32	C760860	19.60
	.195	1/8	1-1/2	C744694	14.18	C760620	17.06
.0660	.198	1/8	1-1/2	C744693	14.18	C760621	17.06
.0670	.201	1/8	1-1/2	C744692	14.18	C760622	17.06
.0680	.204	1/8	1-1/2	C744691	14.33	C760623	18.51
.0690	.207	1/8	1-1/2	C744690	14.28	C760624	17.06
.0700	.105	1/8	1-1/2	C760837	16.32	C760861	19.60
	.210	1/8	1-1/2	C744689	14.18	C760625	17.06
.0710	.213	1/8	1-1/2	C744688	14.28	C760626	17.06
.0720	.216	1/8	1-1/2	C744687	14.18	C760627	17.06
.0730	.219	1/8	1-1/2	C744686	14.18	C760628	17.06
.0740	.222	1/8	1-1/2	C744685	14.23	C760629	18.41

continued on next page

4 FLUTE

MICRO END MILLS

4 Flute - Square - 30° Helix - Stub & Regular Flute (Cont.)

continued from previous page

CUTTER DIA. D1 ^{+0.0005"} D1 _{-0.0005"}	LENGTH OF CUT L ₂	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0750	.113	1/8	1-1/2	C760838	16.32	C760862	19.60
	.225	1/8	1-1/2	C744684	14.18	C760630	17.06
.0760	.228	1/8	1-1/2	C744683	14.28	C760631	17.06
.0770	.231	1/8	1-1/2	C744682	14.28	C760632	18.46
.0780	.117	1/8	1-1/2	C760839	16.37	C760863	19.60
	.234	1/8	1-1/2	C744681	14.18	C760633	17.06
.0790	.237	1/8	1-1/2	C744680	14.28	C760634	18.46
.0800	.120	1/8	1-1/2	C760840	16.37	C760864	19.60
	.240	1/8	1-1/2	C744679	14.18	C760635	17.06
.0810	.243	1/8	1-1/2	C744678	14.18	C760636	18.41
.0820	.246	1/8	1-1/2	C744677	14.18	C760637	17.06
.0830	.249	1/8	1-1/2	C744676	14.18	C760638	17.06
.0840	.252	1/8	1-1/2	C744675	14.28	C760639	17.06
.0850	.128	1/8	1-1/2	C760841	16.37	C760865	19.60
	.255	1/8	1-1/2	C744674	14.18	C760640	17.06
.0860	.258	1/8	1-1/2	C744673	14.18	C760641	17.06
.0870	.261	1/8	1-1/2	C744672	14.18	C760642	17.06
.0880	.264	1/8	1-1/2	C744671	14.28	C760643	17.06
.0890	.267	1/8	1-1/2	C744670	14.18	C760644	17.06
.0900	.135	1/8	1-1/2	C760842	16.32	C760866	19.60
	.270	1/8	1-1/2	C744669	14.18	C760645	17.06
.0910	.273	1/8	1-1/2	C744668	14.18	C760646	17.06
.0920	.276	1/8	1-1/2	C744667	14.18	C760647	16.67
.0930	.140	1/8	1-1/2	C760843	16.32	C760867	19.60
	.279	1/8	1-1/2	C744666	14.18	C760648	17.06
.0940	.282	1/8	1-1/2	C744665	14.28	C760649	17.06
.0950	.143	1/8	1-1/2	C760844	16.32	C760868	19.60
	.285	1/8	1-1/2	C744664	14.18	C760650	18.41
.0960	.288	1/8	1-1/2	C744663	14.18	C760651	17.06
.0970	.291	1/8	1-1/2	C744662	14.23	C760652	18.41
.0980	.294	1/8	1-1/2	C744661	14.18	C760653	17.06
.0990	.297	1/8	1-1/2	C744660	14.18	C760654	17.06
.1000	.150	1/8	1-1/2	C760845	16.32	C760869	19.60
	.300	1/8	1-1/2	C744659	14.18	C760655	17.06
.1010	.303	1/8	1-1/2	C744658	14.28	C760656	17.06
.1020	.306	1/8	1-1/2	C744657	14.18	C760657	17.21
.1030	.309	1/8	1-1/2	C744656	14.23	C760658	18.41
.1040	.312	1/8	1-1/2	C744655	14.28	C760659	17.06
.1050	.315	1/8	1-1/2	C744654	14.28	C760660	17.06
.1060	.318	1/8	1-1/2	C744653	14.23	C760661	18.41
.1070	.321	1/8	1-1/2	C744652	14.18	C760662	17.06
.1080	.324	1/8	1-1/2	C744651	14.18	C760663	18.41
.1090	.327	1/8	1-1/2	C744650	14.18	C760664	17.06
.1100	.330	1/8	1-1/2	C744649	14.18	C760665	17.06
.1150	.345	1/8	1-1/2	C744648	14.18	C760666	17.06
.1200	.360	1/8	1-1/2	C744647	14.18	C760667	17.06

4 FLUTE

For technical information, see page 148

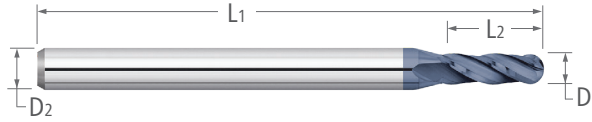
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



MICRO END MILLS

4 Flute - Ball - 30° Helix - Stub & Regular Flute



- Offered in stub and regular flute styles
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA. D1 ^{+0.0005"} -0.0005"	LENGTH OF CUT L2	SHANK DIA. D2 (h6)	OAL L1	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0100	.015	1/8	1-1/2	C760870	36.52	C760894	47.36
	.030	1/8	1-1/2	C744646	36.37	C760565	41.19
.0110	.033	1/8	1-1/2	C744645	32.84	C760566	37.01
.0120	.036	1/8	1-1/2	C744644	32.54	C760567	36.91
.0130	.039	1/8	1-1/2	C744643	27.21	C760568	31.39
.0140	.042	1/8	1-1/2	C744642	27.11	C760569	31.29
.0150	.023	1/8	1-1/2	C760871	22.74	C760895	29.60
	.045	1/8	1-1/2	C744641	22.74	C760570	27.01
.0160	.048	1/8	1-1/2	C744640	22.74	C760571	27.01
.0170	.051	1/8	1-1/2	C744639	22.93	C760572	27.11
.0180	.054	1/8	1-1/2	C744638	22.84	C760573	27.01
.0190	.057	1/8	1-1/2	C744637	22.93	C760574	27.11
.0200	.030	1/8	1-1/2	C760872	20.70	C760896	26.96
	.060	1/8	1-1/2	C744636	20.70	C760575	24.83
.0210	.063	1/8	1-1/2	C744635	20.90	C760576	25.07
.0220	.066	1/8	1-1/2	C744634	20.70	C760577	24.97
.0230	.069	1/8	1-1/2	C744633	20.80	C760578	24.83
.0240	.072	1/8	1-1/2	C744632	20.70	C760579	24.83
.0250	.038	1/8	1-1/2	C760873	20.70	C760897	26.96
	.075	1/8	1-1/2	C744631	20.70	C760580	24.83
.0260	.078	1/8	1-1/2	C744630	19.40	C760581	23.68
.0270	.081	1/8	1-1/2	C744629	19.50	C760582	23.68
.0280	.084	1/8	1-1/2	C744628	19.50	C760583	23.28
.0290	.087	1/8	1-1/2	C744627	19.50	C760584	23.28
.0300	.045	1/8	1-1/2	C760874	19.40	C760898	25.27
	.090	1/8	1-1/2	C744626	19.40	C760585	23.28
.0310	.047	1/8	1-1/2	C760875	18.21	C760899	23.73
	.093	1/8	1-1/2	C744625	18.21	C760586	21.84
.0320	.096	1/8	1-1/2	C744624	18.31	C760587	21.84
.0330	.099	1/8	1-1/2	C744623	18.41	C760588	22.59
.0340	.102	1/8	1-1/2	C744622	18.41	C760589	22.59
.0350	.053	1/8	1-1/2	C760876	18.21	C760900	23.73
	.105	1/8	1-1/2	C744621	18.21	C760590	21.84
.0360	.108	1/8	1-1/2	C744620	18.41	C760591	22.59
.0370	.111	1/8	1-1/2	C744619	18.41	C760592	22.59
.0380	.114	1/8	1-1/2	C744618	18.41	C760593	22.59

continued on next page

MICRO END MILLS

4 Flute - Ball - 30° Helix - Stub & Regular Flute (Cont.)

continued from previous page

CUTTER DIA. D ₁ ^{+0.0005"} D ₁ ^{-0.0005"}	LENGTH OF CUT L ₂	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AlTiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0390	.117	1/8	1-1/2	C744617	18.21	C760594	21.84
.0400	.060	1/8	1-1/2	C760877	18.21	C760901	23.73
	.120	1/8	1-1/2	C744616	18.21	C760595	21.84
.0410	.123	1/8	1-1/2	C744615	18.31	C760596	21.84
.0420	.126	1/8	1-1/2	C744614	18.31	C760597	21.84
.0430	.129	1/8	1-1/2	C744613	18.31	C760598	22.54
.0440	.132	1/8	1-1/2	C744612	17.91	C760599	22.09
.0450	.068	1/8	1-1/2	C760878	17.86	C760902	23.13
	.135	1/8	1-1/2	C744611	17.76	C760600	21.99
.0460	.138	1/8	1-1/2	C744610	17.86	C760601	21.29
.0470	.071	1/8	1-1/2	C760879	17.86	C760903	23.13
	.141	1/8	1-1/2	C744609	17.76	C760602	21.29
.0480	.144	1/8	1-1/2	C744608	17.86	C760603	21.29
.0490	.147	1/8	1-1/2	C744607	17.91	C760604	22.09
.0500	.075	1/8	1-1/2	C760880	17.86	C760904	23.13
	.150	1/8	1-1/2	C744606	17.76	C760605	21.29
.0510	.153	1/8	1-1/2	C744605	17.86	C760606	21.29
.0520	.156	1/8	1-1/2	C744604	17.81	C760607	21.99
.0530	.159	1/8	1-1/2	C744603	17.86	C760608	22.04
.0540	.162	1/8	1-1/2	C744602	17.86	C760609	21.29
.0550	.083	1/8	1-1/2	C760881	17.86	C760905	23.13
	.165	1/8	1-1/2	C744601	17.76	C760610	21.29
.0560	.168	1/8	1-1/2	C744600	17.91	C760611	22.09
.0570	.171	1/8	1-1/2	C744599	17.86	C760612	22.04
.0580	.174	1/8	1-1/2	C744598	17.91	C760613	22.09
.0590	.177	1/8	1-1/2	C744597	17.86	C760668	21.29
.0600	.090	1/8	1-1/2	C760882	17.76	C760906	23.13
	.180	1/8	1-1/2	C744596	17.76	C760669	21.29
.0610	.183	1/8	1-1/2	C744595	17.91	C760670	22.09
.0620	.093	1/8	1-1/2	C760883	17.76	C760907	23.13
	.186	1/8	1-1/2	C744594	17.76	C760671	21.29
.0630	.189	1/8	1-1/2	C744593	17.76	C760672	21.29
.0640	.192	1/8	1-1/2	C744592	17.91	C760673	22.09
.0650	.098	1/8	1-1/2	C760884	17.76	C760908	23.13
	.195	1/8	1-1/2	C744591	17.86	C760674	21.29
.0660	.198	1/8	1-1/2	C744590	17.86	C760675	21.29
.0670	.201	1/8	1-1/2	C744589	17.91	C760676	22.09
.0680	.204	1/8	1-1/2	C744588	17.86	C760677	21.29
.0690	.207	1/8	1-1/2	C744587	17.91	C760678	22.09
.0700	.105	1/8	1-1/2	C760885	17.76	C760909	23.13
	.210	1/8	1-1/2	C744586	17.76	C760679	21.29
.0710	.213	1/8	1-1/2	C744585	17.86	C760680	22.04
.0720	.216	1/8	1-1/2	C744584	17.76	C760681	21.29
.0730	.219	1/8	1-1/2	C744583	17.86	C760682	21.29
.0740	.222	1/8	1-1/2	C744582	17.86	C760683	22.04
.0750	.113	1/8	1-1/2	C760886	17.86	C760910	23.13
	.225	1/8	1-1/2	C744581	17.76	C760684	21.99

continued on next page



MICRO END MILLS

4 Flute - Ball - 30° Helix - Stub & Regular Flute (Cont.)

continued from previous page

CUTTER DIA. D ₁ ^{+0.0005"} D ₁ ^{-0.0005"}	LENGTH OF CUT L ₂	SHANK DIA. D ₂ (h6)	OAL L ₁	UNCOATED		AITiN COATED	
				TOOL #	PRICE	TOOL #	PRICE
.0760	.228	1/8	1-1/2	C744580	17.86	C760685	22.04
.0770	.231	1/8	1-1/2	C744579	17.91	C760686	22.09
.0780	.117	1/8	1-1/2	C760887	17.76	C760911	23.13
	.234	1/8	1-1/2	C744578	17.76	C760687	21.29
.0790	.237	1/8	1-1/2	C744577	17.91	C760688	22.09
.0800	.120	1/8	1-1/2	C760888	17.86	C760912	23.13
	.240	1/8	1-1/2	C744576	17.76	C760689	21.29
.0810	.243	1/8	1-1/2	C744575	17.86	C760690	22.04
.0820	.246	1/8	1-1/2	C744574	17.86	C760691	22.04
.0830	.249	1/8	1-1/2	C744573	17.91	C760692	22.09
.0840	.252	1/8	1-1/2	C744572	17.86	C760693	22.04
.0850	.128	1/8	1-1/2	C760889	17.91	C760913	22.09
	.255	1/8	1-1/2	C744571	17.91	C760694	21.54
.0860	.258	1/8	1-1/2	C744570	17.91	C760695	22.09
.0870	.261	1/8	1-1/2	C744569	17.91	C760696	22.09
.0880	.264	1/8	1-1/2	C744568	17.86	C760697	22.04
.0890	.267	1/8	1-1/2	C744567	17.86	C760698	22.04
.0900	.135	1/8	1-1/2	C760890	17.86	C760914	22.04
	.270	1/8	1-1/2	C744566	17.86	C760699	22.04
.0910	.273	1/8	1-1/2	C744565	17.86	C760700	22.04
.0920	.276	1/8	1-1/2	C744564	17.91	C760701	22.09
.0930	.140	1/8	1-1/2	C760891	17.86	C760915	23.13
	.279	1/8	1-1/2	C744563	17.76	C760702	21.29
.0940	.282	1/8	1-1/2	C744562	17.86	C760703	22.04
.0950	.143	1/8	1-1/2	C760892	17.86	C760916	22.04
	.285	1/8	1-1/2	C744561	17.76	C760704	21.99
.0960	.288	1/8	1-1/2	C744560	17.86	C760705	21.29
.0970	.291	1/8	1-1/2	C744559	17.86	C760706	22.04
.0980	.294	1/8	1-1/2	C744558	17.76	C760707	21.29
.0990	.297	1/8	1-1/2	C744557	17.86	C760708	21.29
.1000	.150	1/8	1-1/2	C760893	17.86	C760917	22.04
	.300	1/8	1-1/2	C744556	17.76	C760709	21.29
.1010	.303	1/8	1-1/2	C744555	17.91	C760710	22.09
.1020	.306	1/8	1-1/2	C744554	17.86	C760711	22.04
.1030	.309	1/8	1-1/2	C744553	17.86	C760712	21.29
.1040	.312	1/8	1-1/2	C744552	17.86	C760713	22.04
.1050	.315	1/8	1-1/2	C744551	17.86	C760714	22.04
.1060	.318	1/8	1-1/2	C744550	17.86	C760715	21.29
.1070	.321	1/8	1-1/2	C744549	17.91	C760716	22.09
.1080	.324	1/8	1-1/2	C744548	17.91	C760717	22.09
.1090	.327	1/8	1-1/2	C744547	17.86	C760718	21.29
.1100	.330	1/8	1-1/2	C744546	17.86	C760719	21.29
.1150	.345	1/8	1-1/2	C744545	17.86	C760720	22.04
.1200	.360	1/8	1-1/2	C744544	17.86	C760721	22.04

4 FLUTE

MICRO END MILLS

4 Flute - Corner Radius - 30° Helix - Stub & Regular Flute



- Offered in stub and regular flute styles
- Corner radius for increased edge strength
- Center cutting
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

CUTTER DIA.	LENGTH OF CUT	RADIUS	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
$D1^{+0.005^*}_{-0.005^*}$	L2	$R^{+0.002^*}_{-0.002^*}$	D2 (h6)	L1	TOOL #	PRICE	TOOL #	PRICE
.0150	.023	.003	1/8	1 - 1/2	C760918	44.48	C760944	51.74
	.045	.003	1/8	1 - 1/2	C761000	44.48	C761026	51.74
.0200	.030	.005	1/8	1 - 1/2	C760919	41.54	C760945	48.31
	.060	.005	1/8	1 - 1/2	C761001	41.54	C761027	48.31
.0250	.038	.005	1/8	1 - 1/2	C760920	41.69	C760946	45.87
	.075	.005	1/8	1 - 1/2	C761002	41.54	C761028	48.31
.0300	.045	.005	1/8	1 - 1/2	C760921	29.50	C760947	33.83
	.090	.005	1/8	1 - 1/2	C761003	29.65	C761029	34.53
	.045	.010	1/8	1 - 1/2	C760922	29.80	C760948	33.98
	.090	.010	1/8	1 - 1/2	C761004	29.65	C761030	33.83
.0310	.047	.005	1/8	1 - 1/2	C760923	29.65	C760949	34.53
	.093	.005	1/8	1 - 1/2	C761005	29.50	C761031	34.53
	.047	.010	1/8	1 - 1/2	C760924	29.65	C760950	34.53
	.093	.010	1/8	1 - 1/2	C761006	29.50	C761032	34.53
.0350	.053	.005	1/8	1 - 1/2	C760925	29.80	C760951	34.53
	.105	.005	1/8	1 - 1/2	C761007	29.65	C761033	34.53
	.053	.010	1/8	1 - 1/2	C760926	29.80	C760952	34.53
	.105	.010	1/8	1 - 1/2	C761008	29.80	C761034	34.53
.0400	.060	.005	1/8	1 - 1/2	C760927	29.65	C760953	34.53
	.120	.005	1/8	1 - 1/2	C761009	29.65	C761035	34.53
	.060	.010	1/8	1 - 1/2	C760928	29.50	C760954	34.53
	.120	.010	1/8	1 - 1/2	C761010	29.65	C761036	33.83
.0450	.068	.005	1/8	1 - 1/2	C760929	29.65	C760955	34.53
	.135	.005	1/8	1 - 1/2	C761011	29.80	C761037	34.53
	.068	.010	1/8	1 - 1/2	C760930	29.80	C760956	33.98
	.135	.010	1/8	1 - 1/2	C761012	29.80	C761038	34.53
	.068	.015	1/8	1 - 1/2	C760931	29.80	C760957	33.98
	.135	.015	1/8	1 - 1/2	C761013	29.80	C761039	33.98
.0470	.071	.005	1/8	1 - 1/2	C760932	29.50	C760958	34.53
	.141	.005	1/8	1 - 1/2	C761014	29.50	C761040	34.53
	.071	.010	1/8	1 - 1/2	C760933	29.65	C760959	34.53
	.141	.010	1/8	1 - 1/2	C761015	29.65	C761041	34.53
	.071	.015	1/8	1 - 1/2	C760934	29.80	C760960	34.53
	.141	.015	1/8	1 - 1/2	C761016	29.65	C761042	34.53

continued on next page

MICRO END MILLS

4 Flute - Corner Radius - 30° Helix - Stub & Regular Flute (Cont.)

continued from previous page

CUTTER DIA.	LENGTH OF CUT	RADIUS	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
D1 ^{+0.005*} _{-0.005*}	L2	R ^{+0.002*} _{-0.002*}	D2 (h6)	L1	TOOL #	PRICE	TOOL #	PRICE
.0500	.075	.005	1/8	1 - 1/2	C760935	29.50	C760961	34.53
	.150	.005	1/8	1 - 1/2	C761017	29.50	C761043	34.53
	.075	.010	1/8	1 - 1/2	C760936	29.65	C760962	34.53
	.150	.010	1/8	1 - 1/2	C761018	29.50	C761044	34.53
	.075	.015	1/8	1 - 1/2	C760937	29.65	C760963	34.53
	.150	.015	1/8	1 - 1/2	C761019	29.50	C761045	34.53
.0600	.090	.005	1/8	1 - 1/2	C760938	29.65	C760964	34.53
	.180	.005	1/8	1 - 1/2	C761020	29.50	C761046	34.53
	.090	.010	1/8	1 - 1/2	C760939	29.65	C760965	34.53
	.180	.010	1/8	1 - 1/2	C761021	29.65	C761047	34.53
	.090	.015	1/8	1 - 1/2	C760940	29.65	C760966	34.53
	.180	.015	1/8	1 - 1/2	C761022	29.65	C761048	34.53
.0620	.093	.005	1/8	1 - 1/2	C760941	29.65	C760967	34.53
	.186	.005	1/8	1 - 1/2	C761023	29.65	C761049	34.53
	.093	.010	1/8	1 - 1/2	C760942	29.50	C760968	34.53
	.186	.010	1/8	1 - 1/2	C761024	29.50	C761050	34.53
	.093	.015	1/8	1 - 1/2	C760943	29.65	C760969	33.83
	.186	.015	1/8	1 - 1/2	C761025	29.50	C761051	34.53
.0750	.113	.005	1/8	1 - 1/2	C760970	29.80	C760985	33.98
	.225	.005	1/8	1 - 1/2	C761052	29.80	C761067	34.53
	.113	.010	1/8	1 - 1/2	C760971	29.50	C760986	34.53
	.225	.010	1/8	1 - 1/2	C761053	29.80	C761068	33.98
	.113	.015	1/8	1 - 1/2	C760972	29.65	C760987	34.53
	.225	.015	1/8	1 - 1/2	C761054	29.80	C761069	33.98
.0780	.117	.005	1/8	1 - 1/2	C760973	29.50	C760988	34.53
	.234	.005	1/8	1 - 1/2	C761055	29.50	C761070	34.53
	.117	.010	1/8	1 - 1/2	C760974	29.65	C760989	34.53
	.234	.010	1/8	1 - 1/2	C761056	29.65	C761071	34.53
	.117	.015	1/8	1 - 1/2	C760975	29.65	C760990	34.53
	.234	.015	1/8	1 - 1/2	C761057	29.65	C761072	34.53
.0900	.135	.005	1/8	1 - 1/2	C760976	29.65	C760991	33.83
	.270	.005	1/8	1 - 1/2	C761058	29.65	C761073	34.53
	.135	.010	1/8	1 - 1/2	C760977	29.80	C760992	34.53
	.270	.010	1/8	1 - 1/2	C761059	29.65	C761074	34.53
	.135	.015	1/8	1 - 1/2	C760978	29.65	C760993	33.83
	.270	.015	1/8	1 - 1/2	C761060	29.65	C761075	34.53
.0930	.140	.005	1/8	1 - 1/2	C760979	29.65	C760994	34.53
	.279	.005	1/8	1 - 1/2	C761061	29.50	C761076	34.53
	.140	.010	1/8	1 - 1/2	C760980	29.65	C760995	34.53
	.279	.010	1/8	1 - 1/2	C761062	29.50	C761077	34.53
	.140	.015	1/8	1 - 1/2	C760981	29.65	C760996	34.53
	.279	.015	1/8	1 - 1/2	C761063	29.50	C761078	34.53
.1000	.150	.005	1/8	1 - 1/2	C760982	29.65	C760997	34.53
	.300	.005	1/8	1 - 1/2	C761064	29.80	C761079	34.53
	.150	.010	1/8	1 - 1/2	C760983	29.65	C760998	34.53
	.300	.010	1/8	1 - 1/2	C761065	29.65	C761080	33.83
	.150	.015	1/8	1 - 1/2	C760984	29.50	C760999	34.53
	.300	.015	1/8	1 - 1/2	C761066	29.65	C761081	33.83

4 FLUTE

For technical information, see page 148



MICRO END MILLS

Technical Information

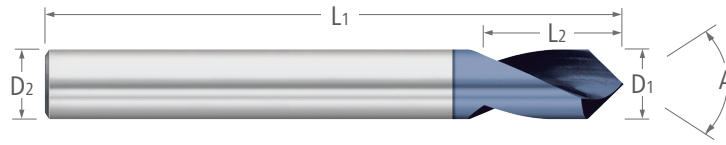
General Purpose Carbide Micro End Mills

Material Guide		Conditions	SFM	Feed Per Tooth							
				.005"	.015"	.003"	.045"	.060"	.075"	.090"	.105"
				.015"	.003"	.045"	.060"	.075"	.090"	.105"	.125"
COBALT BASE ALLOYS	Stellite, HS-21, Haynes 25/188, X-40, L-605	Slotting at $\leq 7\%$ of D	50	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0004
		Profiling at 5% of D Axial/ $\leq 20\%$ of D Radial	80	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0004
NICKEL BASE ALLOYS	Inconel-625/718, Waspalloy, Rene, Hastelloy	Slotting at $\leq 7\%$ of D	40	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0004
		Profiling at 5% of D Axial/ $\leq 20\%$ of D Radial	60	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0004
IRON BASE ALLOYS	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpeneter 22-b3	Slotting at $\leq 7\%$ of D	80	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0004
		Profiling at 5% of D Axial/ $\leq 20\%$ of D Radial	100	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0004
MONEL	Monel-65% Nickel	Slotting at $\leq 7\%$ of D	40	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0004
		Profiling at 5% of D Axial/ $\leq 20\%$ of D Radial	60	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0004
TITANIUM ALLOYS	Commercially Pure, 6AL-4V, Astm 1/2/3, 6AL-25N-4Zr-2Mo-Si	Slotting at $\leq 15\%$ of D	125	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005
		Profiling at 6% of D Axial/ $\leq 20\%$ of D Radial	250	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17-4, AM-350/355	Slotting at $\leq 10\%$ of D	90	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005
		Profiling at 6% of D Axial/ $\leq 20\%$ of D Radial	250	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 316, 304L, 316L	Slotting at $\leq 15\%$ of D	100	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005
		Profiling at 6% of D Axial/ $\leq 30\%$ of D Radial	250	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	Slotting at $\leq 15\%$ of D	100	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005
		Profiling at 6% of D Axial/ $\leq 30\%$ of D Radial	250	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	Slotting at $\leq 15\%$ of D	100	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005
		Profiling at 6% of D Axial/ $\leq 30\%$ of D Radial	180	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005
MEDIUM ALLOY STEELS	200, 250, 300	Slotting at $\leq 15\%$ of D	125	.0003	.0003	.0004	.0004	.0005	.0005	.0006	.0006
		Profiling at 6% of D Axial/ $\leq 30\%$ of D Radial	250	.0003	.0003	.0004	.0004	.0005	.0005	.0006	.0006
CARBON STEELS	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213- 1215, 1513-1518, 4012, 5015, 9310	Slotting at $\leq 15\%$ of D	150	.0004	.0004	.0005	.0005	.0006	.0006	.0007	.0007
		Profiling at 6% of D Axial/ $\leq 35\%$ of D Radial	300	.0004	.0004	.0005	.0005	.0006	.0006	.0007	.0007
DUCTILE	Ductile Cast Irons	Slotting at $\leq 15\%$ of D	100	.0004	.0004	.0005	.0005	.0006	.0006	.0007	.0007
		Profiling at 10% of D Axial/ $\leq 25\%$ of D Radial	250	.0004	.0004	.0005	.0005	.0006	.0006	.0007	.0007
CAST IRONS	Gray Cast Irons	Slotting at $\leq 25\%$ of D	125	.0004	.0004	.0005	.0005	.0008	.0008	.0010	.0010
		Profiling at 10% of D Axial/ $\leq 35\%$ of D Radial	400	.0004	.0004	.0005	.0005	.0008	.0008	.0010	.0010
ALUMINUM	2014, 2024, 6061-(T1-T6), 7075, Die Cast, Extruded	Slotting at $\leq 15\%$ of D	650	.0004	.0004	.0005	.0006	.0008	.0008	.0010	.0010
		Profiling at 10% of D Axial/ $\leq 35\%$ of D Radial	775	.0004	.0004	.0005	.0006	.0008	.0008	.0010	.0010

These values are a starting point based on an uncoated tool.

For AlTiN Coated tools increase SFM values by up to +40%



SPOT DRILLS


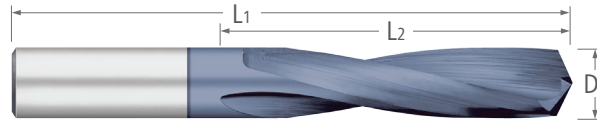
- Optimized for spotting applications to improve drilling accuracy
- 90°, 120°, 142° included angle options
- A point angle equal to or larger than a drill's point angle is recommended for optimal results
- Also effective in chamfering top of drilled holes
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

INCLUDED ANGLE	SIZE		SHANK DIA. D ₂ (h6)	FLUTE LENGTH L ₂	OAL L ₁	UNCOATED		AlTiN COATED	
	A	D ₁				TOOL #	PRICE	TOOL #	PRICE
90°		1/8	1/8	1/4	2	C750002	17.96	C763866	22.14
		3/16	3/16	3/8	2	C750515	21.39	C763867	26.12
		1/4	1/4	3/8	3	C750516	25.87	C763868	31.89
		3/8	3/8	1	3	C750517	42.54	C763869	51.09
		1/2	1/2	1	3	C750518	68.75	C763870	85.27
		5/8	5/8	1-1/4	3	C750519	122.98	C763871	149.10
		3/4	3/4	1-3/4	4	C750520	165.12	C763872	195.77
120°		1/8	1/8	1/4	2	C750521	17.96	C763873	21.84
		3/16	3/16	3/8	2	C750522	21.39	C763874	26.12
		1/4	1/4	3/8	3	C750523	25.87	C763875	31.89
		3/8	3/8	1	3	C750524	42.54	C763876	51.09
		1/2	1/2	1	3	C750525	68.75	C763877	85.27
		5/8	5/8	1-1/4	3	C750526	122.98	C763878	149.10
		3/4	3/4	1-3/4	4	C750527	164.32	C763879	195.77
142°		1/8	1/8	1/4	2	C750528	17.96	C763880	22.14
		3/16	3/16	3/8	2	C750529	21.39	C763881	26.12
		1/4	1/4	3/8	3	C750530	25.87	C763882	31.89
		3/8	3/8	1	3	C750531	42.54	C763883	51.09
		1/2	1/2	1	3	C750532	68.75	C763884	85.27
		5/8	5/8	1-1/4	3	C750533	122.98	C763885	149.10
		3/4	3/4	1-3/4	4	C750534	165.12	C763886	195.77

For technical information, see pages 211

DRILLS - CARBIDE

Stub Length - 135° Split Point



- Stub length for increased rigidity
- 135° split point (diameters < .125" are not split)
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	UNCOATED		AlTiN COATED	
dec. equiv.	size			TOOL #	PRICE	TOOL #	PRICE
D1	$^{+.0000}$ $_{-.0005}$	L2	L1				
.0313	1/32	3/8	1-1/2	C746557	10.90	C761711	13.78
.0400	#60	3/8	1-1/2	C746454	10.90	C761827	13.78
.0410	#59	3/8	1-1/2	C746456	10.90	C761826	15.07
.0420	#58	3/8	1-1/2	C746457	10.90	C761825	13.78
.0430	#57	3/8	1-1/2	C746458	10.90	C761824	13.78
.0465	#56	3/8	1-1/2	C746459	10.90	C761823	13.78
.0469	3/64	3/8	1-1/2	C746539	10.90	C761712	13.78
.0520	#55	13/32	1-1/2	C746460	10.90	C761822	13.78
.0550	#54	13/32	1-1/2	C746461	10.90	C761821	13.78
.0595	#53	13/32	1-1/2	C746462	10.90	C761820	13.78
.0625	1/16	13/32	1-1/2	C746559	10.40	C761713	13.03
.0635	#52	7/16	1-1/2	C746463	10.40	C761819	13.03
.0670	#51	7/16	1-1/2	C746464	10.40	C761818	13.03
.0700	#50	7/16	1-1/2	C746465	10.75	C761817	13.48
.0730	#49	7/16	1-1/2	C746467	10.75	C761816	13.48
.0760	#48	7/16	1-1/2	C746468	11.24	C761815	14.08
.0781	5/64	7/16	1-1/2	C746534	10.90	C761714	13.78
.0785	#47	1/2	1-1/2	C746469	11.24	C761814	14.08
.0810	#46	1/2	1-1/2	C746470	11.24	C761813	14.08
.0820	#45	1/2	1-1/2	C746471	11.24	C761812	14.08
.0860	#44	1/2	1-1/2	C746472	11.59	C761811	14.53
.0890	#43	1/2	1-1/2	C746473	12.24	C761810	15.32
.0935	#42	1/2	1-1/2	C746474	12.24	C761809	15.32
.0938	3/32	1/2	1-1/2	C746540	12.14	C761715	15.17
.0960	#41	5/8	2	C746475	12.49	C761808	15.82
.0980	#40	5/8	2	C746476	12.49	C761807	15.82
.0995	#39	5/8	2	C746479	13.08	C761806	16.37
.1015	#38	5/8	2	C746480	13.08	C761805	16.37
.1040	#37	5/8	2	C746481	13.23	C761804	16.67
.1065	#36	5/8	2	C746482	13.93	C761803	17.56
.1094	7/64	5/8	2	C746531	13.73	C761716	17.26
.1100	#35	3/4	2	C746483	13.93	C761802	17.56
.1110	#34	3/4	2	C746484	13.93	C761801	17.56
.1130	#33	3/4	2	C746485	14.03	C761800	17.81

continued on next page

For technical information, see pages 211

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - CARBIDE

Stub Length - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER		FLUTE LENGTH	OAL	UNCOATED		AlTiN COATED	
dec. equiv.	size			TOOL #	PRICE	TOOL #	PRICE
$D1^{+0.000^\circ}$ $_{-0.005^\circ}$		L ₂	L ₁				
.1160	#32	3/4	2	C746486	14.23	C761799	17.96
.1200	#31	3/4	2	C746487	14.23	C761798	17.96
.1250	1/8	3/4	2	C746555	14.58	C761717	18.36
.1285	#30	3/4	2	C746488	15.37	C761797	19.30
.1360	#29	3/4	2	C746491	16.12	C761796	20.35
.1405	#28	3/4	2	C746492	16.12	C761795	20.35
.1406	9/64	3/4	2	C746529	16.12	C761718	20.35
.1440	#27	7/8	2	C746493	17.06	C761794	21.44
.1470	#26	7/8	2	C746494	17.06	C761793	21.44
.1495	#25	7/8	2	C746495	17.06	C761792	21.44
.1520	#24	7/8	2	C746496	17.96	C761791	22.69
.1540	#23	7/8	2	C746497	18.06	C761790	22.79
.1563	5/32	7/8	2	C746535	18.06	C761719	22.79
.1570	#22	7/8	2	C746498	18.06	C761789	22.79
.1590	#21	7/8	2	C746499	18.81	C761788	23.53
.1610	#20	7/8	2	C746500	18.81	C761787	23.53
.1660	#19	7/8	2	C746503	19.80	C761786	24.53
.1695	#18	7/8	2	C746504	20.15	C761785	24.88
.1719	11/64	7/8	2	C746553	21.34	C761720	26.07
.1730	#17	7/8	2	C746505	21.34	C761784	26.07
.1770	#16	7/8	2	C746506	22.44	C761783	27.16
.1800	#15	7/8	2	C746507	22.44	C761782	27.16
.1820	#14	7/8	2	C746508	22.84	C761781	27.51
.1850	#13	7/8	2	C746509	23.58	C761780	28.26
.1875	3/16	7/8	2	C746541	22.09	C761721	26.82
.1890	#12	1-1/8	2-1/2	C746510	24.38	C761779	30.40
.1910	#11	1-1/8	2-1/2	C746511	24.38	C761778	30.40
.1935	#10	1-1/8	2-1/2	C746512	25.02	C761777	31.04
.1960	#9	1-1/8	2-1/2	C746451	25.02	C761776	31.04
.1990	#8	1-1/8	2-1/2	C746452	25.02	C761775	31.04
.2010	#7	1-1/8	2-1/2	C746453	25.12	C761774	31.14
.2031	13/64	1-1/8	2-1/2	C746551	25.37	C761722	31.39
.2040	#6	1-1/8	2-1/2	C746455	25.77	C761773	31.74
.2055	#5	1-1/8	2-1/2	C746466	25.77	C761772	31.74
.2090	#4	1-1/8	2-1/2	C746477	29.00	C761771	35.02
.2130	#3	1-1/8	2-1/2	C746489	29.30	C761770	35.32
.2188	7/32	1-1/8	2-1/2	C746532	28.16	C761723	34.18
.2210	#2	1-1/4	2-1/2	C746501	29.30	C761769	35.32
.2280	#1	1-1/4	2-1/2	C746513	29.30	C761768	35.32
.2340	A	1-1/4	2-1/2	C746528	32.34	C761742	38.36
.2344	15/64	1-1/4	2-1/2	C746549	31.84	C761724	37.96
.2380	B	1-1/4	2-1/2	C746527	33.68	C761743	39.90
.2420	C	1-1/4	2-1/2	C746526	33.73	C761744	40.25
.2460	D	1-1/4	2-1/2	C746525	34.18	C761745	40.70
.2500	1/4	1-1/4	2-1/2	C746556	33.68	C761725	39.90

continued on next page

For technical information, see pages 211

DRILLS - CARBIDE

Stub Length - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER		FLUTE LENGTH	OAL	UNCOATED		AITiN COATED	
dec. equiv.	size			TOOL #	PRICE	TOOL #	PRICE
$D_1^{+0.0000^*}$		L ₂	L ₁				
.2500	E	1-1/4	2-1/2	C746524	33.53	C761746	39.90
.2570	F	1-1/4	2-1/2	C735235	37.46	C761747	44.68
.2610	G	1-1/4	2-1/2	C746522	39.50	C761748	47.11
.2656	17/64	1-1/4	2-1/2	C746548	37.76	C761726	44.97
.2660	H	1-1/4	2-1/2	C746521	40.55	C761749	48.11
.2720	I	1-1/4	2-1/2	C746520	41.04	C761750	48.90
.2770	J	1-1/4	2-1/2	C746519	42.29	C761751	50.20
.2810	K	1-1/4	2-1/2	C746518	42.74	C761752	50.65
.2813	9/32	1-1/4	2-1/2	C746530	39.35	C761727	46.86
.2900	L	1-1/4	2-1/2	C746517	44.92	C761753	53.48
.2950	M	1-1/4	2-1/2	C746516	46.07	C761754	53.28
.2969	19/64	1-1/4	2-1/2	C746547	44.18	C761728	52.69
.3020	N	1-1/4	2-1/2	C746515	48.95	C761755	58.01
.3125	5/16	1-1/4	2-1/2	C746536	46.57	C761729	55.37
.3160	O	1-3/8	3	C746450	51.34	C761756	61.19
.3230	P	1-3/8	3	C746449	53.58	C761757	63.53
.3281	21/64	1-3/8	3	C746546	50.99	C761730	60.45
.3320	Q	1-3/8	3	C746448	55.52	C761758	65.87
.3390	R	1-3/8	3	C746447	57.66	C761759	66.22
.3438	11/32	1-3/8	3	C746554	55.77	C761731	66.12
.3480	S	1-3/8	3	C746446	61.44	C761760	70.00
.3580	T	1-3/8	3	C746445	63.63	C761761	75.82
.3594	23/64	1-3/8	3	C746545	62.34	C761732	70.89
.3680	U	1-3/8	3	C746444	67.11	C761762	79.60
.3750	3/8	1-3/8	3	C746538	66.12	C761733	78.41
.3770	V	1-3/8	3	C746443	73.98	C761763	88.11
.3860	W	1-3/8	3	C746442	79.65	C761764	94.92
.3906	25/64	1-3/8	3	C746544	77.06	C761734	91.79
.3970	X	1-3/8	3	C746441	87.41	C761765	97.36
.4040	Y	1-3/8	3	C746440	89.85	C761766	107.06
.4063	13/32	1-3/8	3	C746552	84.82	C761735	100.54
.4130	Z	1-3/8	3	C746439	97.36	C761767	107.36
.4219	27/64	1-3/8	3	C746543	92.24	C761736	109.35
.4375	7/16	1-3/8	3	C746533	96.47	C761737	114.38
.4531	29/64	1-3/8	3	C746542	111.94	C761738	132.73
.4688	15/32	1-3/8	3	C746550	116.07	C761739	138.31
.4844	31/64	1-3/8	3	C746537	119.35	C761740	142.19
.5000	1/2	1-3/8	3	C746558	119.60	C761741	142.48

DRILLS

Carbide

Cobalt

HSS

For technical information, see pages 211

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - CARBIDE

Jobber Length - 118° Split Point



- 118° split point jobber drills ideal for general purpose drilling (diameters < .125" are not split)
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

dec. equiv.	DRILL DIAMETER		FLUTE LENGTH	OAL	UNCOATED		AlTiN COATED	
	size	metric			TOOL #	PRICE	TOOL #	PRICE
D1 ^{+0.0004"} -0.0005"			L2	L1				
.0276		0.7 mm	12 mm	31 mm	C761533	12.74	C761556	16.12
.0313	1/32		5/16	1-1/4	C747183	10.35	C761502	12.98
.0315		0.8 mm	12 mm	31 mm	C761534	12.74	C761557	16.12
.0354		0.9 mm	16 mm	38 mm	C761535	12.74	C761558	16.92
.0394		1 mm	16 mm	38 mm	C761536	12.74	C761559	16.12
.0400	#60		3/4	1-1/2	C747084	10.35	C761710	12.98
.0410	#59		3/4	1-1/2	C747086	10.35	C761709	14.53
.0420	#58		3/4	1-1/2	C747087	10.35	C761708	12.98
.0430	#57		3/4	1-1/2	C747088	10.35	C761707	12.98
.0433		1.1 mm	19 mm	38 mm	C761537	12.74	C761560	16.12
.0465	#56		3/4	1-1/2	C747089	10.35	C761706	12.98
.0469	3/64		3/4	1-1/2	C747165	10.35	C761503	12.98
.0472		1.2 mm	19 mm	38 mm	C761538	12.74	C761561	16.92
.0512		1.3 mm	19 mm	38 mm	C761539	12.74	C761562	16.12
.0520	#55		3/4	1-1/2	C747090	10.35	C761705	12.98
.0550	#54		3/4	1-1/2	C747091	10.35	C761704	12.98
.0551		1.4 mm	19 mm	38 mm	C761540	12.74	C761563	16.12
.0591		1.5 mm	19 mm	38 mm	C761541	12.84	C761564	16.27
.0595	#53		3/4	1-1/2	C747092	10.35	C761703	12.98
.0625	1/16		3/4	1-1/2	C747185	9.70	C761504	12.29
.0630		1.6 mm	19 mm	38 mm	C761542	12.84	C761565	17.01
.0635	#52		3/4	1-1/2	C747093	9.70	C761702	12.29
.0669		1.7 mm	19 mm	38 mm	C761543	12.84	C761566	16.27
.0670	#51		3/4	1-1/2	C747094	9.70	C761701	12.29
.0700	#50		7/8	1-3/4	C747095	10.10	C761700	12.69
.0709		1.8 mm	22 mm	38 mm	C761544	12.84	C761567	16.27
.0730	#49		7/8	1-3/4	C747097	10.10	C761699	12.69
.0748		1.9 mm	22 mm	38 mm	C761545	12.84	C761568	16.27
.0760	#48		7/8	1-3/4	C747098	10.60	C761698	13.28
.0781	5/64		7/8	1-3/4	C747160	10.35	C761505	12.98
.0785	#47		7/8	1-3/4	C747099	10.60	C761697	13.28
.0787		2 mm	22 mm	44 mm	C761546	13.73	C761569	17.26
.0810	#46		7/8	1-3/4	C747100	10.60	C761696	13.28
.0820	#45		7/8	1-3/4	C747101	10.60	C761695	13.28
.0827		2.1 mm	22 mm	44 mm	C761547	13.73	C761570	17.26
.0860	#44		1	2	C747102	10.90	C761694	13.68
.0866		2.2 mm	25 mm	50 mm	C761548	13.73	C761571	17.91

continued on next page

For technical information, see pages 211

DRILLS - CARBIDE

Jobber Length - 118° Split Point (Cont.)

continued from previous page

DRILL DIAMETER			FLUTE LENGTH	OAL	UNCOATED		AlTiN COATED	
dec. equiv.	size	metric			TOOL #	PRICE	TOOL #	PRICE
D1 ^{+0.0001"} _{-0.0005"}			L ₂	L ₁				
.0890	#43		1	2	C747103	11.44	C761693	14.43
.0906		2.3 mm	25 mm	50 mm	C761549	13.73	C761572	17.26
.0935	#42		1	2	C747104	11.44	C761692	14.43
.0938	3/32		1	2	C747166	11.39	C761506	14.28
.0945		2.4 mm	25 mm	50 mm	C761550	13.73	C761573	17.26
.0960	#41		1	2	C747105	11.84	C761691	14.88
.0980	#40		1	2	C747106	11.84	C761690	14.88
.0984		2.5 mm	25 mm	50 mm	C761551	15.77	C761574	19.80
.0995	#39		1-1/4	2-1/4	C747108	12.24	C761689	15.42
.1015	#38		1-1/4	2-1/4	C747109	12.24	C761688	15.42
.1024		2.6 mm	32 mm	57 mm	C761552	15.77	C761575	20.20
.1040	#37		1-1/4	2-1/4	C747110	12.44	C761687	15.72
.1063		2.7 mm	32 mm	57 mm	C761553	15.72	C761576	19.80
.1065	#36		1-1/4	2-1/4	C747111	13.23	C761686	16.57
.1094	7/64		1-1/4	2-1/4	C735133	12.84	C761507	16.27
.1100	#35		1-1/4	2-1/4	C747112	13.23	C761685	16.57
.1102		2.8 mm	32 mm	57 mm	C761554	15.77	C761577	20.20
.1110	#34		1-1/4	2-1/4	C747113	13.23	C761684	16.57
.1130	#33		1-1/4	2-1/4	C747114	13.33	C761683	16.77
.1142		2.9 mm	32 mm	57 mm	C761555	15.77	C761578	19.80
.1160	#32		1-1/4	2-1/4	C747115	13.43	C761682	16.92
.1181		3 mm	32 mm	57 mm	C761579	17.66	C761602	22.09
.1200	#31		1-1/4	2-1/4	C747116	13.43	C761681	16.92
.1220		3.1 mm	32 mm	57 mm	C761580	17.66	C761603	22.09
.1250	1/8		1-1/4	2-1/4	C735225	13.78	C761508	17.31
.1260		3.2 mm	32 mm	57 mm	C761581	17.66	C761604	22.19
.1285	#30		1-1/4	2-1/4	C747117	14.48	C761680	18.16
.1299		3.3 mm	32 mm	57 mm	C761582	17.66	C761605	22.19
.1339		3.4 mm	35 mm	63 mm	C761583	19.15	C761606	24.13
.1360	#29		1-3/8	2-1/2	C747119	15.27	C761679	19.15
.1378		3.5 mm	35 mm	63 mm	C761584	19.15	C761607	24.13
.1405	#28		1-3/8	2-1/2	C747120	15.27	C761678	18.51
.1406	9/64		1-3/8	2-1/2	C747155	15.27	C761509	19.15
.1440	#27		1-3/8	2-1/2	C747121	15.97	C761677	20.20
.1470	#26		1-3/8	2-1/2	C747122	15.97	C761676	20.20
.1495	#25		1-3/8	2-1/2	C747123	15.97	C761675	20.20
.1520	#24		1-3/8	2-1/2	C747124	16.96	C761674	21.34
.1540	#23		1-3/8	2-1/2	C747125	17.01	C761673	21.54
.1563	5/32		1-3/8	2-1/2	C747161	17.01	C761510	21.54
.1570	#22		1-3/8	2-1/2	C747126	17.01	C761672	21.54
.1575		4 mm	35 mm	63 mm	C761585	23.53	C761608	28.51
.1590	#21		1-3/8	2-1/2	C747127	17.71	C761671	22.34
.1610	#20		1-3/8	2-1/2	C747128	17.71	C761670	22.34
.1660	#19		1-5/8	2-3/4	C747130	18.51	C761669	23.33
.1695	#18		1-5/8	2-3/4	C747131	18.91	C761668	23.88
.1719	11/64		1-5/8	2-3/4	C747179	20.20	C761511	25.22

continued on next page

For technical information, see pages 211

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - CARBIDE

Jobber Length - 118° Split Point (Cont.)

continued from previous page

DRILL DIAMETER			FLUTE LENGTH	OAL	UNCOATED		AlTiN COATED	
dec. equiv.	size	metric			TOOL #	PRICE	TOOL #	PRICE
D1 ^{+0.0000"} -0.0005"			L2	L1				
.1730	#17		1-5/8	2-3/4	C747132	20.20	C761667	25.22
.1770	#16		1-5/8	2-3/4	C747133	21.24	C761666	26.27
.1772		4.5 mm	41 mm	70 mm	C761586	25.27	C761609	30.30
.1800	#15		1-5/8	2-3/4	C747134	21.24	C761665	26.27
.1820	#14		1-5/8	2-3/4	C747135	21.49	C761664	26.47
.1850	#13		1-5/8	2-3/4	C747136	22.04	C761663	27.06
.1875	3/16		1-5/8	2-3/4	C735226	20.70	C761512	25.72
.1890	#12		1-5/8	2-3/4	C747137	22.98	C761662	28.81
.1910	#11		1-5/8	2-3/4	C747138	22.98	C761661	28.81
.1935	#10		1-5/8	2-3/4	C747139	23.58	C761660	29.55
.1960	#9		1-3/4	3	C747081	23.58	C761659	29.55
.1969		5 mm	44 mm	75 mm	C761587	28.01	C761610	34.03
.1990	#8		1-3/4	3	C747082	23.58	C761658	29.55
.2010	#7		1-3/4	3	C747083	23.68	C761657	29.65
.2031	13/64		1-3/4	3	C735227	23.88	C761513	29.90
.2040	#6		1-3/4	3	C747085	24.33	C761656	29.75
.2055	#5		1-3/4	3	C747096	24.33	C761655	30.35
.2090	#4		1-3/4	3	C747107	27.26	C761654	33.28
.2130	#3		1-3/4	3	C747118	27.41	C761653	33.43
.2165		5.5 mm	44 mm	75 mm	C761588	32.98	C761611	39.25
.2188	7/32		1-3/4	3	C747158	26.47	C761514	32.49
.2210	#2		1-3/4	3	C747129	27.41	C761652	33.43
.2280	#1		1-3/4	3	C747140	27.41	C761651	33.43
.2340	A		2	3-1/4	C747154	30.45	C761625	36.86
.2344	15/64		2	3-1/4	C747175	30.20	C761515	36.62
.2362		6 mm	50 mm	82 mm	C761589	34.83	C761612	41.49
.2380	B		2	3-1/4	C747153	31.69	C761626	38.16
.2420	C		2	3-1/4	C747152	31.94	C761627	38.36
.2460	D		2	3-1/4	C747151	32.34	C761628	38.76
.2500	1/4		2	3-1/4	C735228	31.69	C761516	38.16
.2500	E		2	3-1/4	C747150	31.69	C761629	38.16
.2559		6.5 mm	50 mm	82 mm	C761590	55.52	C761613	66.17
.2570	F		2	3-1/4	C747149	37.61	C761630	44.28
.2610	G		2-1/8	3-1/2	C747148	40.50	C761631	46.91
.2656	17/64		2-1/8	3-1/2	C747174	35.67	C761517	43.43
.2660	H		2-1/8	3-1/2	C747147	41.79	C761632	47.96
.2720	I		2-1/8	3-1/2	C747146	42.39	C761633	48.76
.2756		7 mm	54 mm	89 mm	C761591	60.79	C761614	72.44
.2770	J		2-1/8	3-1/2	C747145	45.02	C761634	50.05
.2810	K		2-1/8	3-1/2	C747144	45.12	C761635	50.50
.2813	9/32		2-1/8	3-1/2	C747156	37.01	C761518	44.78
.2900	L		2-1/8	3-1/2	C747143	45.32	C761636	53.08
.2950	M		2-3/8	3-3/4	C747142	45.62	C761637	53.33
.2953		7.5 mm	60 mm	95 mm	C761592	62.78	C761615	70.55
.2969	19/64		2-3/8	3-3/4	C747173	41.84	C761519	49.55
.3020	N		2-3/8	3-3/4	C747141	50.05	C761638	57.76

continued on next page

For technical information, see pages 211

DRILLS - CARBIDE

Jobber Length - 118° Split Point (Cont.)

continued from previous page

D ₁ ^{+0.0005"} -0.0005"	DRILL DIAMETER		FLUTE LENGTH	OAL	UNCOATED		AlTiN COATED	
	dec. equiv.	size			metric	TOOL #	PRICE	TOOL #
.3125	5/16		2-3/8	3-3/4	C735229	43.78	C761520	52.14
.3150		8 mm	60 mm	95 mm	C761593	66.76	C761616	79.10
.3160	O		2-3/8	3-3/4	C747080	52.93	C761639	60.99
.3230	P		2-3/8	3-3/4	C747079	54.68	C761640	63.28
.3281	21/64		2-1/2	4	C747172	48.01	C761521	57.21
.3320	Q		2-1/2	4	C747078	58.11	C761641	65.62
.3346		8.5 mm	63 mm	100 mm	C761594	82.39	C761617	97.66
.3390	R		2-1/2	4	C747077	59.85	C761642	69.05
.3438	11/32		2-1/2	4	C747180	52.24	C761522	62.19
.3480	S		2-1/2	4	C735197	64.18	C761643	72.93
.3543		9 mm	70 mm	100 mm	C761595	93.08	C761618	110.89
.3580	T		2-3/4	4-1/4	C747075	66.52	C761644	75.57
.3594	23/64		2-3/4	4-1/4	C747171	58.41	C761523	69.60
.3680	U		2-3/4	4-1/4	C747074	69.70	C761645	77.41
.3740		9.5 mm	70 mm	108 mm	C761596	106.27	C761619	116.17
.3750	3/8		2-3/4	4-1/4	C747164	62.29	C761524	73.78
.3770	V		2-3/4	4-1/4	C747073	75.52	C761646	87.01
.3860	W		2-7/8	4-1/2	C747072	78.95	C761647	90.45
.3906	25/64		2-7/8	4-1/2	C747170	72.88	C761525	86.42
.3937		10 mm	73 mm	114 mm	C761597	122.58	C761620	145.32
.3970	X		2-7/8	4-1/2	C747071	86.27	C761648	97.76
.4040	Y		2-7/8	4-1/2	C747070	89.50	C761649	100.99
.4063	13/32		2-7/8	4-1/2	C747178	79.80	C761526	94.62
.4130	Z		2-7/8	4-1/2	C747069	111.04	C761650	115.67
.4134		10.5 mm	73 mm	114 mm	C761598	136.46	C761621	147.96
.4219	27/64		2-7/8	4-1/2	C747169	86.81	C761527	102.88
.4331		11 mm	73 mm	114 mm	C761599	162.33	C761622	173.83
.4375	7/16		2-7/8	4-1/2	C747159	90.40	C761528	107.71
.4528		11.5 mm	76 mm	120 mm	C761600	167.21	C761623	180.64
.4531	29/64		3	4-3/4	C747168	105.37	C761529	124.92
.4688	15/32		3	4-3/4	C747176	109.80	C761530	130.15
.4724		12 mm	76 mm	120 mm	C761601	186.41	C761624	199.85
.4844	31/64		3	4-3/4	C747163	112.88	C761531	133.83
.5000	1/2		3	4-3/4	C735230	112.58	C761532	134.13

DRILLS

Carbide

Cobalt

HSS

For technical information, see pages 211

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - CARBIDE

Straight Flute - 140° Split Point



- Straight flute style
- Engineered for excellent performance in high rockwell and difficult to machine materials
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	UNCOATED		AlTiN COATED	
dec. equiv.	size			TOOL #	PRICE	TOOL #	PRICE
$D_1^{+0.0000"}$		L ₂	L ₁				
.1250	1/8	3/4	2	C746698	15.97	C761834	20.15
.1285	#30	3/4	2	C746636	17.06	C761912	21.44
.1360	#29	3/4	2	C746638	17.36	C761911	21.79
.1405	#28	3/4	2	C746639	17.66	C761910	22.34
.1406	9/64	3/4	2	C746674	18.31	C761835	22.98
.1440	#27	7/8	2	C746640	18.36	C761909	23.03
.1470	#26	7/8	2	C746641	18.66	C761908	23.33
.1495	#25	7/8	2	C746642	18.91	C761907	23.63
.1520	#24	7/8	2	C746643	19.45	C761906	24.13
.1540	#23	7/8	2	C746644	20.00	C761905	24.73
.1563	5/32	7/8	2	C746680	20.60	C761836	25.27
.1570	#22	7/8	2	C746645	20.85	C761904	25.57
.1590	#21	7/8	2	C746646	21.24	C761903	25.97
.1610	#20	7/8	2	C746647	21.39	C761902	26.12
.1660	#19	7/8	2	C746649	22.14	C761901	26.87
.1695	#18	7/8	2	C746650	22.29	C761900	27.01
.1719	11/64	7/8	2	C746696	22.74	C761837	27.41
.1730	#17	7/8	2	C746651	23.08	C761899	27.81
.1770	#16	7/8	2	C746652	23.53	C761898	28.21
.1800	#15	7/8	2	C746653	23.63	C761897	28.31
.1820	#14	7/8	2	C746654	23.83	C761896	28.51
.1850	#13	7/8	2	C746655	24.13	C761895	28.86
.1875	3/16	7/8	2	C746685	21.09	C761838	25.82
.1890	#12	1-1/8	2-1/2	C746656	24.38	C761894	30.40
.1910	#11	1-1/8	2-1/2	C746657	24.88	C761893	30.89
.1935	#10	1-1/8	2-1/2	C746658	25.42	C761892	31.44
.1960	#9	1-1/8	2-1/2	C746600	25.72	C761891	31.69
.1990	#8	1-1/8	2-1/2	C746601	26.47	C761890	32.49
.2010	#7	1-1/8	2-1/2	C746602	27.01	C761889	33.03
.2031	13/64	1-1/8	2-1/2	C746694	27.26	C761839	33.28
.2040	#6	1-1/8	2-1/2	C746604	27.96	C761888	33.98
.2055	#5	1-1/8	2-1/2	C746615	28.46	C761887	34.48
.2090	#4	1-1/8	2-1/2	C746626	28.06	C761886	34.08
.2130	#3	1-1/8	2-1/2	C746637	29.65	C761885	35.67
.2188	7/32	1-1/8	2-1/2	C746677	30.85	C761840	36.82
.2210	#2	1-1/4	2-1/2	C746648	31.09	C761884	37.11
.2280	#1	1-1/4	2-1/2	C746659	31.44	C761883	37.51

continued on next page

For technical information, see pages 211

DRILLS - CARBIDE

Straight Flute - 140° Split Point (Cont.)

continued from previous page

DRILL DIAMETER		FLUTE LENGTH	OAL	UNCOATED		AITiN COATED	
dec. equiv.	size			TOOL #	PRICE	TOOL #	PRICE
$D_1^{+0.0000}$		L ₂	L ₁				
.2340	A	1-1/4	2-1/2	C746673	32.34	C761857	38.56
.2344	15/64	1-1/4	2-1/2	C746692	32.34	C761841	38.56
.2380	B	1-1/4	2-1/2	C746672	32.34	C761858	38.36
.2420	C	1-1/4	2-1/2	C746671	32.34	C761859	38.36
.2460	D	1-1/4	2-1/2	C746670	32.34	C761860	38.36
.2500	1/4	1-1/4	2-1/2	C746699	30.75	C761842	36.77
.2500	E	1-1/4	2-1/2	C746669	30.75	C761861	36.77
.2570	F	1-1/4	2-1/2	C746668	42.54	C761862	50.70
.2610	G	1-1/4	2-1/2	C746667	42.54	C761863	49.75
.2656	17/64	1-1/4	2-1/2	C746691	42.54	C761843	50.70
.2660	H	1-1/4	2-1/2	C746666	42.54	C761864	49.75
.2720	I	1-1/4	2-1/2	C746665	44.48	C761865	51.69
.2770	J	1-1/4	2-1/2	C746664	44.23	C761866	51.44
.2810	K	1-1/4	2-1/2	C746663	44.23	C761867	52.69
.2813	9/32	1-1/4	2-1/2	C746675	44.48	C761844	52.69
.2900	L	1-1/4	2-1/2	C746662	46.81	C761868	55.77
.2950	M	1-1/4	2-1/2	C746661	46.81	C761869	54.03
.2969	19/64	1-1/4	2-1/2	C746690	46.81	C761845	54.03
.3020	N	1-1/4	2-1/2	C746660	48.46	C761870	55.67
.3125	5/16	1-1/4	2-1/2	C746681	48.71	C761846	57.76
.3160	O	1-3/8	3	C746599	48.71	C761871	57.26
.3230	P	1-3/8	3	C746598	52.14	C761872	60.70
.3281	21/64	1-3/8	3	C746689	52.34	C761847	60.89
.3320	Q	1-3/8	3	C746597	57.81	C761873	66.42
.3390	R	1-3/8	3	C746596	58.11	C761874	66.67
.3438	11/32	1-3/8	3	C746697	58.11	C761848	66.67
.3480	S	1-3/8	3	C746595	63.23	C761875	71.79
.3580	T	1-3/8	3	C746594	63.23	C761876	71.79
.3594	23/64	1-3/8	3	C746688	63.23	C761849	71.79
.3680	U	1-3/8	3	C746593	70.15	C761877	78.70
.3750	3/8	1-3/8	3	C746682	62.69	C761850	74.72
.3770	V	1-3/8	3	C746592	70.15	C761878	80.15
.3860	W	1-3/8	3	C746591	77.56	C761879	87.56
.3906	25/64	1-3/8	3	C746687	77.96	C761851	84.92
.3970	X	1-3/8	3	C746590	85.82	C761880	95.82
.4040	Y	1-3/8	3	C746589	89.95	C761881	99.95
.4063	13/32	1-3/8	3	C746695	74.23	C761852	88.41
.4130	Z	1-3/8	3	C746588	94.08	C761882	104.08
.4219	27/64	1-3/8	3	C746686	94.08	C761853	99.55
.4375	7/16	1-3/8	3	C746678	92.19	C761854	102.19
.4688	15/32	1-3/8	3	C746693	102.14	C761855	113.78
.5000	1/2	1-3/8	3	C746701	110.64	C761856	131.79

For technical information, see pages 211

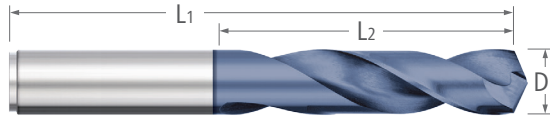
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - COBALT

Stub Length - 135° Split Point



- Stub length for increased rigidity
- Optimized for drilling stainless steels, nickel-based alloys, and titanium alloys
- 135° split point, type "J" (diameters <.0625" are not split)
- Gold Oxide finish extends tool life, improves lubricity, and reduces grinding stresses
- AlTiN coating offers increased wear and heat resistance
- M42 cobalt (identification ring on shank)
- Precision manufactured in the USA

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	PACKAGE QTY.	GOLD OXIDE FINISH		AITiN COATED	
D1		L2	L1		TOOL #	PRICE	TOOL #	PRICE
.0400	#60	1/2	1-3/8	12	C746196	2.09	C764587	3.63
.0410	#59	1/2	1-3/8	12	C746198	2.09	C764586	3.63
.0420	#58	1/2	1-3/8	12	C746199	2.09	C764585	6.27
.0430	#57	1/2	1-3/8	12	C746200	1.99	C764584	3.43
.0465	#56	1/2	1-3/8	12	C746201	1.99	C764583	3.43
.0520	#55	5/8	1-5/8	12	C746202	1.99	C764582	3.43
.0550	#54	5/8	1-5/8	12	C746203	1.99	C764581	3.43
.0595	#53	5/8	1-5/8	12	C746204	1.99	C764580	3.43
.0625	1/16	5/8	1-5/8	12	C746295	1.74	C764473	2.99
.0635	#52	11/16	1-11/16	12	C746205	1.79	C764579	3.18
.0670	#51	11/16	1-11/16	12	C746206	1.79	C764578	3.18
.0700	#50	11/16	1-11/16	12	C746207	1.79	C764577	3.18
.0730	#49	11/16	1-11/16	12	C746209	1.79	C764576	3.18
.0760	#48	11/16	1-11/16	12	C746210	1.79	C764575	3.18
.0781	5/64	11/16	1-11/16	12	C746272	1.74	C764474	2.99
.0785	#47	11/16	1-11/16	12	C746211	1.79	C764574	3.18
.0810	#46	3/4	1-3/4	12	C746212	1.79	C764573	3.18
.0820	#45	3/4	1-3/4	12	C746213	1.79	C764572	3.18
.0860	#44	3/4	1-3/4	12	C746214	1.79	C764571	3.18
.0890	#43	3/4	1-3/4	12	C746215	1.79	C764570	3.18
.0935	#42	3/4	1-3/4	12	C746216	1.79	C764569	3.18
.0938	3/32	3/4	1-3/4	12	C746277	1.74	C764475	2.99
.0960	#41	13/16	1-13/16	12	C746217	1.79	C764568	3.18
.0980	#40	13/16	1-13/16	12	C746218	1.84	C764567	3.18
.0995	#39	13/16	1-13/16	12	C746220	1.84	C764566	3.18
.1015	#38	13/16	1-13/16	12	C746221	1.84	C764565	3.18
.1040	#37	13/16	1-13/16	12	C746222	2.04	C764564	3.53
.1065	#36	13/16	1-13/16	12	C746223	2.04	C764563	3.53
.1094	7/64	13/16	1-13/16	12	C746269	1.94	C764476	3.38
.1100	#35	7/8	1-7/8	12	C746224	2.04	C764562	3.53
.1110	#34	7/8	1-7/8	12	C746225	2.04	C764561	3.53
.1130	#33	7/8	1-7/8	12	C746226	2.04	C764560	3.53
.1160	#32	7/8	1-7/8	12	C746227	2.09	C764559	3.63
.1200	#31	7/8	1-7/8	12	C746228	2.09	C764558	3.63
.1250	1/8	7/8	1-7/8	12	C746292	2.19	C764477	3.83

continued on next page

For technical information, see pages 212 - 213

DRILLS - COBALT

Stub Length - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	PACKAGE QTY.	GOLD OXIDE FINISH		AITIN COATED	
D ₁		L ₂	L ₁		TOOL #	PRICE	TOOL #	PRICE
.1285	#30	15/16	1-15/16	12	C746229	2.09	C764557	3.63
.1360	#29	15/16	1-15/16	12	C746231	2.19	C764556	3.83
.1405	#28	15/16	1-15/16	12	C746232	2.19	C764555	3.83
.1406	9/64	15/16	1-15/16	12	C746267	2.19	C764478	3.83
.1440	#27	1	2-1/16	12	C746233	2.39	C764554	4.23
.1470	#26	1	2-1/16	12	C746234	2.39	C764553	4.23
.1495	#25	1	2-1/16	12	C746235	2.39	C764552	4.23
.1520	#24	1	2-1/16	12	C746236	2.54	C764551	4.48
.1540	#23	1	2-1/16	12	C746237	2.54	C764550	4.48
.1563	5/32	1	2-1/16	12	C746273	2.39	C764479	4.23
.1570	#22	1-1/16	2-1/8	12	C746238	2.54	C764549	4.48
.1590	#21	1-1/16	2-1/8	12	C746239	2.54	C764548	4.48
.1610	#20	1-1/16	2-1/8	12	C746240	2.54	C764547	4.48
.1660	#19	1-1/16	2-1/8	12	C746242	2.54	C764546	4.48
.1695	#18	1-1/16	2-1/8	12	C746243	2.74	C764545	4.78
.1719	11/64	1-1/16	2-1/8	12	C746290	2.74	C764480	4.78
.1730	#17	1-1/8	2-3/16	12	C746244	3.13	C764544	5.62
.1770	#16	1-1/8	2-3/16	12	C746245	3.23	C764543	5.77
.1800	#15	1-1/8	2-3/16	12	C746246	3.23	C764542	5.82
.1820	#14	1-1/8	2-3/16	12	C746247	3.23	C764541	5.82
.1850	#13	1-1/8	2-3/16	12	C746248	3.23	C764540	5.82
.1875	3/16	1-1/8	2-3/16	12	C746278	3.13	C764481	5.62
.1890	#12	1-3/16	2-1/4	12	C746249	3.28	C764539	5.87
.1910	#11	1-3/16	2-1/4	12	C746250	3.28	C764538	5.87
.1935	#10	1-3/16	2-1/4	12	C746251	3.38	C764537	6.12
.1960	#9	1-3/16	2-1/4	12	C746193	3.38	C764536	6.12
.1990	#8	1-3/16	2-1/4	12	C746194	3.38	C764535	6.12
.2010	#7	1-3/16	2-1/4	12	C746195	3.38	C764534	6.12
.2031	13/64	1-3/16	2-1/4	12	C746288	3.58	C764482	6.37
.2040	#6	1-1/4	2-3/8	12	C746197	4.28	C764533	7.76
.2055	#5	1-1/4	2-3/8	12	C746208	4.28	C764532	7.76
.2090	#4	1-1/4	2-3/8	12	C746219	4.28	C764531	7.76
.2130	#3	1-1/4	2-3/8	12	C746230	4.73	C764530	8.66
.2188	7/32	1-1/4	2-3/8	12	C746270	3.88	C764483	7.06
.2210	#2	1-5/16	2-7/16	12	C746241	4.73	C764529	8.66
.2280	#1	1-5/16	2-7/16	12	C746252	4.73	C764528	8.66
.2340	A	1-5/16	2-7/16	12	C746266	4.98	C764502	9.00
.2344	15/64	1-5/16	2-7/16	12	C746286	4.13	C764484	7.61
.2380	B	1-3/8	2-1/2	12	C746265	5.22	C764503	9.55
.2420	C	1-3/8	2-1/2	12	C746264	5.22	C764504	9.55
.2460	D	1-3/8	2-1/2	12	C746263	5.22	C764505	9.55
.2500	1/4	1-3/8	2-1/2	12	C735030	4.33	C764485	7.86
.2500	E	1-3/8	2-1/2	12	C746262	4.78	C764506	8.71
.2570	F	1-7/16	2-5/8	6	C746261	5.52	C764507	10.10
.2610	G	1-7/16	2-5/8	6	C746260	5.52	C764508	10.10
.2656	17/64	1-7/16	2-5/8	6	C746285	4.88	C764486	9.00

continued on next page

For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - COBALT

Stub Length - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	PACKAGE QTY.	GOLD OXIDE FINISH		AITIN COATED	
D ₁		L ₂	L ₁		TOOL #	PRICE	TOOL #	PRICE
.2660	H	1-1/2	2-11/16	6	C746259	5.87	C764509	10.75
.2720	I	1-1/2	2-11/16	6	C746258	5.87	C764510	10.75
.2770	J	1-1/2	2-11/16	6	C746257	5.87	C764511	10.75
.2810	K	1-1/2	2-11/16	6	C746256	5.87	C764512	10.75
.2813	9/32	1-1/2	2-11/16	6	C746268	5.32	C764487	9.75
.2900	L	1-9/16	2-3/4	6	C746255	6.97	C764513	12.74
.2950	M	1-9/16	2-3/4	6	C746254	6.97	C764514	12.74
.2969	19/64	1-9/16	2-3/4	6	C746284	6.17	C764488	11.29
.3020	N	1-5/8	2-13/16	6	C746253	7.56	C764515	13.68
.3125	5/16	1-5/8	2-13/16	6	C746274	6.67	C764489	12.09
.3160	O	1-11/16	2-15/16	6	C746192	8.31	C764516	14.38
.3230	P	1-11/16	2-15/16	6	C746191	8.31	C764517	15.12
.3281	21/64	1-11/16	2-15/16	6	C746283	7.36	C764490	13.43
.3320	Q	1-11/16	3	6	C746190	9.05	C764518	16.37
.3390	R	1-11/16	3	6	C746189	9.05	C764519	16.37
.3438	11/32	1-11/16	3	6	C746291	7.91	C764491	14.53
.3480	S	1-3/4	3-1/16	6	C746188	11.24	C764520	20.40
.3580	T	1-3/4	3-1/16	6	C746187	11.24	C764521	20.40
.3594	23/64	1-3/4	3-1/16	6	C746282	9.20	C764492	15.82
.3680	U	1-13/16	3-1/8	6	C746186	11.24	C764522	20.40
.3750	3/8	1-13/16	3-1/8	6	C746276	9.20	C764493	16.67
.3770	V	1-7/8	3-1/4	6	C746185	12.39	C764523	22.64
.3860	W	1-7/8	3-1/4	6	C746184	12.39	C764524	22.64
.3906	25/64	1-7/8	3-1/4	6	C746281	10.50	C764494	19.10
.3970	X	1-15/16	3-5/16	6	C746183	12.39	C764525	22.64
.4040	Y	1-15/16	3-5/16	6	C746182	12.39	C764526	22.64
.4063	13/32	1-15/16	3-5/16	6	C746289	10.80	C764495	19.75
.4130	Z	2	3-3/8	6	C746181	14.23	C764527	24.88
.4219	27/64	2	3-3/8	6	C746280	11.99	C764496	21.84
.4375	7/16	1-1/16	3-7/16	6	C746271	12.29	C764497	22.44
.4531	29/64	2-1/8	3-9/16	6	C746279	14.88	C764498	26.96
.4688	15/32	2-1/8	3-5/8	6	C746287	14.88	C764499	26.96
.4844	31/64	2-3/16	3-11/16	6	C746275	14.88	C764500	26.96
.5000	1/2	2-1/4	3-3/4	6	C746294	14.88	C764501	26.96

DRILLS

Carbide

Cobalt

HSS

For technical information, see pages 212 - 213



DRILLS - COBALT

Jobber Length - 135° Split Point



- Jobber length for deeper drilling applications
- Optimized for drilling stainless steels, nickel-based alloys, and titanium alloys
- 135° split point, type "J" (diameters <.0625" are not split)
- Gold Oxide finish extends tool life, improves lubricity, and reduces grinding stresses
- AlTiN coating offers increased wear and heat resistance
- M42 cobalt (identification ring on shank)
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	GOLD OXIDE FINISH		AlTiN COATED	
dec. equiv.	size				TOOL #	PRICE	TOOL #	PRICE
D1		L2	L1					
.0400	#60	11/16	1-5/8	12	C745291	2.39	C764702	4.23
.0410	#59	11/16	1-5/8	12	C745293	2.39	C764701	4.23
.0420	#58	11/16	1-5/8	12	C745294	2.39	C764700	4.23
.0430	#57	3/4	1-3/4	12	C745295	2.39	C764699	4.23
.0465	#56	3/4	1-3/4	12	C745296	2.39	C764698	4.23
.0520	#55	7/8	1-7/8	12	C745297	2.19	C764697	3.78
.0550	#54	7/8	1-7/8	12	C745298	2.19	C764696	3.78
.0595	#53	7/8	1-7/8	12	C745299	2.19	C764695	3.78
.0625	1/16	7/8	1-7/8	12	C745411	1.99	C764588	3.43
.0635	#52	7/8	1-7/8	12	C745300	1.99	C764694	3.53
.0670	#51	1	2	12	C745301	1.99	C764693	3.53
.0700	#50	1	2	12	C745302	1.99	C764692	3.53
.0730	#49	1	2	12	C745304	1.99	C764691	3.53
.0760	#48	1	2	12	C745305	1.99	C764690	3.53
.0781	5/64	1	2	12	C745371	1.99	C764589	3.43
.0785	#47	1	2	12	C745306	1.99	C764689	3.53
.0810	#46	1-1/8	2-1/8	12	C745307	1.99	C764688	3.53
.0820	#45	1-1/8	2-1/8	12	C745308	1.99	C764687	3.53
.0860	#44	1-1/8	2-1/8	12	C745309	1.99	C764686	3.53
.0890	#43	1-1/4	2-1/4	12	C745310	1.99	C764685	3.53
.0935	#42	1-1/4	2-1/4	12	C745311	1.99	C764684	3.53
.0938	3/32	1-1/4	2-1/4	12	C745385	1.99	C764590	3.43
.0960	#41	1-3/8	2-3/8	12	C745312	1.99	C764683	3.53
.0980	#40	1-3/8	2-3/8	12	C745313	2.04	C764682	3.53
.0995	#39	1-3/8	2-3/8	12	C745315	2.04	C764681	3.53
.1015	#38	1-7/16	2-1/2	12	C745316	2.04	C764680	3.53
.1040	#37	1-7/16	2-1/2	12	C745317	2.14	C764679	3.68
.1065	#36	1-7/16	2-1/2	12	C745318	2.14	C764678	3.68
.1094	7/64	1-1/2	2-5/8	12	C745365	2.09	C764591	3.58
.1100	#35	1-1/2	2-5/8	12	C745319	2.19	C764677	3.73
.1110	#34	1-1/2	2-5/8	12	C745320	2.19	C764676	3.73
.1130	#33	1-1/2	2-5/8	12	C745321	2.19	C764675	3.73
.1160	#32	1-5/8	2-3/4	12	C745322	2.24	C764674	3.88
.1200	#31	1-5/8	2-3/4	12	C745323	2.24	C764673	3.98
.1250	1/8	1-5/8	2-3/4	12	C745408	2.49	C764592	4.33
.1285	#30	1-5/8	2-3/4	12	C745324	2.34	C764672	4.03

continued on next page

For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - COBALT

Jobber Length - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	GOLD OXIDE FINISH		AITIN COATED	
dec. equiv.	size				TOOL #	PRICE	TOOL #	PRICE
D ₁		L ₂	L ₁					
.1360	#29	1-3/4	2-7/8	12	C745326	2.44	C764671	4.28
.1405	#28	1-3/4	2-7/8	12	C745327	2.49	C764670	4.38
.1406	9/64	1-3/4	2-7/8	12	C745362	2.49	C764593	4.33
.1440	#27	1-7/8	3	12	C745328	2.64	C764669	4.73
.1470	#26	1-7/8	3	12	C745329	2.64	C764668	4.73
.1495	#25	1-7/8	3	12	C745330	2.74	C764667	4.78
.1520	#24	2	3-1/8	12	C745331	2.94	C764666	5.17
.1540	#23	2	3-1/8	12	C745332	2.94	C764665	5.17
.1563	5/32	2	3-1/8	12	C745372	2.79	C764594	4.88
.1570	#22	2	3-1/8	12	C745333	2.94	C764664	5.17
.1590	#21	2-1/8	3-1/4	12	C745334	2.94	C764663	5.17
.1610	#20	2-1/8	3-1/4	12	C745335	2.94	C764662	5.22
.1660	#19	2-1/8	3-1/4	12	C745337	2.94	C764661	5.22
.1695	#18	2-1/8	3-1/4	12	C745338	3.03	C764660	5.37
.1719	11/64	2-1/8	3-1/4	12	C745406	2.94	C764595	5.12
.1730	#17	2-3/16	3-3/8	12	C745339	3.28	C764659	5.87
.1770	#16	2-3/16	3-3/8	12	C745340	3.33	C764658	6.02
.1800	#15	2-3/16	3-3/8	12	C745341	3.68	C764657	6.62
.1820	#14	2-3/16	3-3/8	12	C745342	3.68	C764656	6.62
.1850	#13	2-5/16	3-1/2	12	C745343	3.68	C764655	6.62
.1875	3/16	2-5/16	3-1/2	12	C745386	3.23	C764596	5.77
.1890	#12	2-5/16	3-1/2	12	C745344	3.73	C764654	6.72
.1910	#11	2-5/16	3-1/2	12	C745345	3.73	C764653	6.72
.1935	#10	2-7/16	3-5/8	12	C745346	3.73	C764652	6.72
.1960	#9	2-7/16	3-5/8	12	C745268	3.73	C764651	6.72
.1990	#8	2-7/16	3-5/8	12	C745270	3.73	C764650	6.72
.2010	#7	2-7/16	3-5/8	12	C745281	3.73	C764649	6.72
.2031	13/64	2-7/16	3-5/8	12	C745404	3.83	C764597	6.97
.2040	#6	2-1/2	3-3/4	12	C745292	4.73	C764648	8.66
.2055	#5	2-1/2	3-3/4	12	C745303	4.73	C764647	8.66
.2090	#4	2-1/2	3-3/4	12	C745314	4.73	C764646	8.66
.2130	#3	2-1/2	3-3/4	12	C745325	4.73	C764645	8.66
.2188	7/32	2-1/2	3-3/4	12	C745366	4.23	C764598	7.61
.2210	#2	2-5/8	3-7/8	12	C745336	5.07	C764644	9.25
.2280	#1	2-5/8	3-7/8	12	C745347	5.07	C764643	9.25
.2340	A	2-5/8	3-7/8	12	C745361	5.02	C764617	9.15
.2344	15/64	2-5/8	3-7/8	12	C745402	4.43	C764599	8.06
.2380	B	2-3/4	4	12	C745360	5.82	C764618	10.55
.2420	C	2-3/4	4	12	C745359	5.82	C764619	10.55
.2460	D	2-3/4	4	12	C745358	6.52	C764620	11.89
.2500	1/4	2-3/4	4	12	C745409	4.73	C764600	8.66
.2500	E	2-3/4	4	12	C745357	4.73	C764621	8.66
.2570	F	2-7/8	4-1/8	6	C745356	5.82	C764622	10.55
.2610	G	2-7/8	4-1/8	6	C745355	5.82	C764623	10.55
.2656	17/64	2-7/8	4-1/8	6	C745401	5.37	C764601	9.80
.2660	H	2-7/8	4-1/8	6	C745354	6.52	C764624	11.89

continued on next page

For technical information, see pages 212 - 213

DRILLS - COBALT

Jobber Length - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	GOLD OXIDE FINISH		AITiN COATED	
dec. equiv.	size				TOOL #	PRICE	TOOL #	PRICE
D ₁		L ₂	L ₁					
.2720	I	2-7/8	4-1/8	6	C745353	6.52	C764625	11.89
.2770	J	2-7/8	4-1/8	6	C745352	6.52	C764626	11.89
.2810	K	2-15/16	4-1/4	6	C745351	6.52	C764627	11.89
.2813	9/32	2-15/16	4-1/4	6	C745363	5.62	C764602	10.25
.2900	L	2-15/16	4-1/4	6	C745350	7.41	C764628	13.48
.2950	M	3-1/16	4-3/8	6	C745349	7.81	C764629	14.28
.2969	19/64	3-1/16	4-3/8	6	C745400	6.87	C764603	12.54
.3020	N	3-1/16	4-3/8	6	C745348	7.81	C764630	14.28
.3125	5/16	3-3/16	4-1/2	6	C745373	7.36	C764604	13.28
.3160	O	3-3/16	4-1/2	6	C745267	8.66	C764631	15.77
.3230	P	3-5/16	4-5/8	6	C745266	9.25	C764632	16.82
.3281	21/64	3-5/16	4-5/8	6	C745395	8.11	C764605	13.98
.3320	Q	3-7/16	4-3/4	6	C735240	9.55	C764633	17.36
.3390	R	3-7/16	4-3/4	6	C745264	9.55	C764634	16.47
.3438	11/32	3-7/16	4-3/4	6	C745407	8.91	C764606	16.17
.3480	S	3-1/2	4-7/8	6	C745263	11.74	C764635	20.25
.3580	T	3-1/2	4-7/8	6	C745262	11.74	C764636	21.34
.3594	23/64	3-1/2	4-7/8	6	C745394	10.20	C764607	18.51
.3680	U	3-5/8	5	6	C745261	11.74	C764637	21.34
.3750	3/8	3-5/8	5	6	C745384	10.20	C764608	18.51
.3770	V	3-5/8	5	6	C745260	12.89	C764638	23.53
.3860	W	3-3/4	5-1/8	6	C745259	12.89	C764639	23.53
.3906	25/64	3-3/4	5-1/8	6	C745393	11.59	C764609	21.09
.3970	X	3-3/4	5-1/8	6	C745258	12.89	C764640	23.53
.4040	Y	3-7/8	5-1/4	6	C745257	13.73	C764641	24.92
.4063	13/32	3-7/8	5-1/4	6	C745405	12.04	C764610	21.99
.4130	Z	3-7/8	5-1/4	6	C745256	14.88	C764642	27.11
.4219	27/64	3-15/16	5-3/8	6	C745392	13.33	C764611	24.28
.4375	7/16	4-1/16	5-1/2	6	C745367	13.68	C764612	24.88
.4531	29/64	4-3/16	5-5/8	6	C745391	16.32	C764613	29.80
.4688	15/32	4-5/16	5-3/4	6	C745403	16.72	C764614	30.40
.4844	31/64	4-3/8	5-7/8	6	C745383	16.82	C764615	30.55
.5000	1/2	4-1/2	6	6	C745410	16.82	C764616	29.90

DRILLS

Carbide

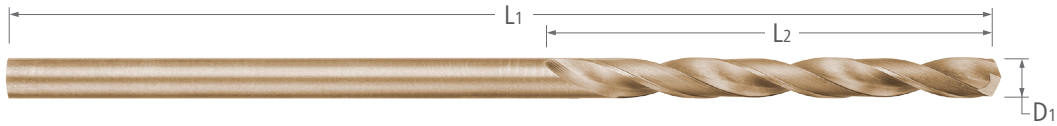
Cobalt

HSS



DRILLS - COBALT

Aircraft Extension Drills - 135° Split Point



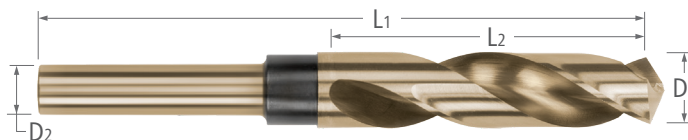
- 135° split point, type "J"
- M42 cobalt
- Offered in 6" and 12" overall lengths
- Gold Oxide finish extends tool life, improves lubricity, and reduces grinding stresses
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	GOLD OXIDE FINISH	
dec. equiv.	size				TOOL #	PRICE
D ₁		L ₂	L ₁			
.0938	3/32	1-1/4	6	6	C750050	7.81
.0980	#40	1-5/8	6	6	C750069	6.62
.0980	#40	1-3/8	12	6	C750111	23.73
.1094	7/64	1-1/2	6	6	C750051	8.81
.1250	1/8	1-5/8	6	6	C750052	7.26
.1250	1/8	1-5/8	12	6	C750095	22.19
.1285	#30	1-5/8	6	6	C750068	7.26
.1285	#30	1-5/8	12	6	C750110	21.54
.1360	#29	1-3/4	6	6	C750067	10.60
.1360	#29	1-3/4	12	6	C750109	23.73
.1406	9/64	1-3/4	6	6	C750053	9.85
.1406	9/64	1-3/4	12	6	C750096	24.43
.1563	5/32	2	6	6	C750054	9.85
.1563	5/32	2	12	6	C750097	22.39
.1590	#21	2-1/8	6	6	C750066	9.60
.1590	#21	2-1/8	12	6	C750108	22.89
.1610	#20	2-1/8	6	6	C750065	9.60
.1610	#20	2-1/8	12	6	C750107	22.79
.1719	11/64	2-1/8	6	6	C750055	10.85
.1719	11/64	2-1/8	12	6	C750098	24.28
.1875	3/16	2-5/16	6	6	C750056	9.20
.1875	3/16	2-5/16	12	6	C750099	23.58
.1910	#11	2-5/16	6	6	C750064	10.10
.1910	#11	2-5/16	12	6	C750106	24.63
.1935	#10	2-7/16	6	6	C750063	10.50
.1935	#10	2-7/16	12	6	C750105	25.67
.2031	13/64	2-7/16	6	6	C750057	13.53
.2031	13/64	2-7/16	12	6	C750100	30.89
.2188	7/32	2-1/2	6	6	C750058	13.78
.2188	7/32	2-1/2	12	6	C750101	27.96
.2210	#2	2-5/8	6	6	C750062	15.32
.2280	#1	2-5/8	6	6	C750061	15.32
.2280	#1	2-5/8	12	6	C750104	33.13
.2344	15/64	2-5/8	6	6	C750059	14.73
.2344	15/64	2-5/8	12	6	C750102	29.65
.2500	1/4	2-3/4	6	6	C750060	14.33
.2500	1/4	2-3/4	12	6	C750103	27.26

For technical information, see pages 212 - 213

DRILLS - COBALT

Silver & Deming - 135° Split Point



- 3" flute length
- 135° split point
- 1/2" shank
- Gold Oxide finish extends tool life, improves lubricity, and reduces grinding stresses
- M42 cobalt
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	SHANK DIA.	GOLD OXIDE FINISH	
dec. equiv.	size				TOOL #	PRICE
D1		L2	L1	D2		
.5156	33/64	3	6	1/2	C744473	41.29
.5313	17/32	3	6	1/2	C744482	41.29
.5469	35/64	3	6	1/2	C744472	49.70
.5625	9/16	3	6	1/2	C744455	49.70
.5781	37/64	3	6	1/2	C744471	51.69
.5938	19/32	3	6	1/2	C744481	51.69
.6094	39/64	3	6	1/2	C744470	52.98
.6250	5/8	3	6	1/2	C744464	52.98
.6406	41/64	3	6	1/2	C744469	55.32
.6563	21/32	3	6	1/2	C744480	55.32
.6719	43/64	3	6	1/2	C744468	56.76
.6875	11/16	3	6	1/2	C744485	56.76
.7031	45/64	3	6	1/2	C744467	59.85
.7188	23/32	3	6	1/2	C744479	59.85
.7344	47/64	3	6	1/2	C744466	62.14
.7500	3/4	3	6	1/2	C744475	62.14
.7656	49/64	3	6	1/2	C744465	65.27
.7813	25/32	3	6	1/2	C744478	65.27
.7969	51/64	3	6	1/2	C744463	66.71
.8125	13/16	3	6	1/2	C744484	66.71
.8281	53/64	3	6	1/2	C744462	72.09
.8438	27/32	3	6	1/2	C744477	72.09
.8594	55/64	3	6	1/2	C744461	72.09
.8750	7/8	3	6	1/2	C744456	72.09
.8906	57/64	3	6	1/2	C744460	75.17
.9063	29/32	3	6	1/2	C744476	75.17
.9219	59/64	3	6	1/2	C744459	78.06
.9375	15/16	3	6	1/2	C744483	78.06
.9531	61/64	3	6	1/2	C744458	82.34
.9688	31/32	3	6	1/2	C744474	82.34
.9844	63/64	3	6	1/2	C744457	93.48
1.0000	1	3	6	1/2	C744486	93.48

DRILLS

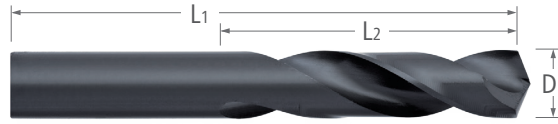
Carbide

Cobalt

HSS



DRILLS - HIGH SPEED STEEL Stub Length - 135° Split Point



- Stub length for increased rigidity
- 135° split point, type "C" (diameters < .0625" not split)
- Black Oxide finish increases wear resistance and adds lubricity to improve chip flow
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size				TOOL #	PRICE
D ₁		L ₂	L ₁			
.0400	#60	1/2	1-3/8	12	C746332	1.54
.0410	#59	1/2	1-3/8	12	C746335	1.54
.0420	#58	1/2	1-3/8	12	C746336	1.54
.0430	#57	1/2	1-3/8	12	C746337	1.54
.0465	#56	1/2	1-3/8	12	C746338	1.54
.0520	#55	5/8	1-5/8	12	C746339	1.54
.0550	#54	5/8	1-5/8	12	C746340	1.54
.0595	#53	5/8	1-5/8	12	C746341	1.54
.0625	1/16	5/8	1-5/8	12	C746423	1.39
.0635	#52	11/16	1-11/16	12	C746342	1.54
.0670	#51	11/16	1-11/16	12	C746343	1.54
.0700	#50	11/16	1-11/16	12	C746344	1.54
.0730	#49	11/16	1-11/16	12	C746347	1.54
.0760	#48	11/16	1-11/16	12	C746348	1.54
.0781	5/64	11/16	1-11/16	12	C746400	1.44
.0785	#47	11/16	1-11/16	12	C746349	1.54
.0810	#46	3/4	1-3/4	12	C746350	1.54
.0820	#45	3/4	1-3/4	12	C746351	1.54
.0860	#44	3/4	1-3/4	12	C746352	1.54
.0890	#43	3/4	1-3/4	12	C746353	1.54
.0935	#42	3/4	1-3/4	12	C746354	1.54
.0938	3/32	3/4	1-3/4	12	C746405	1.44
.0960	#41	13/16	1-13/16	12	C746355	1.54
.0980	#40	13/16	1-13/16	12	C746356	1.54
.0995	#39	13/16	1-13/16	12	C746359	1.54
.1015	#38	13/16	1-13/16	12	C746360	1.54
.1040	#37	13/16	1-13/16	12	C746361	1.54
.1065	#36	13/16	1-13/16	12	C746362	1.54
.1094	7/64	13/16	1-13/16	12	C746397	1.44
.1100	#35	7/8	1-7/8	12	C746363	1.54
.1110	#34	7/8	1-7/8	12	C746364	1.54
.1130	#33	7/8	1-7/8	12	C746365	1.54
.1160	#32	7/8	1-7/8	12	C746366	1.54
.1200	#31	7/8	1-7/8	12	C746367	1.54
.1250	1/8	7/8	1-7/8	12	C746420	1.44
.1285	#30	15/16	1-15/16	12	C746368	1.54

continued on next page

For technical information, see pages 212 - 213

DRILLS - HIGH SPEED STEEL

Stub Length - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size				TOOL #	PRICE
D ₁		L ₂	L ₁			
.1360	#29	15/16	1-15/16	12	C746371	1.94
.1405	#28	15/16	1-15/16	12	C746372	1.94
.1406	9/64	15/16	1-15/16	12	C746395	1.44
.1440	#27	1	2-1/16	12	C746373	1.94
.1470	#26	1	2-1/16	12	C746374	1.94
.1495	#25	1	2-1/16	12	C746375	1.94
.1520	#24	1	2-1/16	12	C746376	1.94
.1540	#23	1	2-1/16	12	C746377	1.94
.1563	5/32	1	2-1/16	12	C746401	1.54
.1570	#22	1-1/16	2-1/8	12	C746378	1.94
.1590	#21	1-1/16	2-1/8	12	C746379	1.99
.1610	#20	1-1/16	2-1/8	12	C746380	1.99
.1660	#19	1-1/16	2-1/8	12	C746383	1.99
.1695	#18	1-1/16	2-1/8	12	C746384	1.99
.1719	11/64	1-1/16	2-1/8	12	C746418	1.54
.1730	#17	1-1/8	2-3/16	12	C746385	2.09
.1770	#16	1-1/8	2-3/16	12	C746386	2.09
.1800	#15	1-1/8	2-3/16	12	C746387	2.09
.1820	#14	1-1/8	2-3/16	12	C746388	2.09
.1850	#13	1-1/8	2-3/16	12	C746389	2.09
.1875	3/16	1-1/8	2-3/16	12	C746406	1.74
.1890	#12	1-3/16	2-1/4	12	C746390	2.09
.1910	#11	1-3/16	2-1/4	12	C746391	2.09
.1935	#10	1-3/16	2-1/4	12	C746392	2.09
.1960	#9	1-3/16	2-1/4	12	C746329	2.09
.1990	#8	1-3/16	2-1/4	12	C746330	2.09
.2010	#7	1-3/16	2-1/4	12	C746331	2.09
.2031	13/64	1-3/16	2-1/4	12	C746416	1.79
.2040	#6	1-1/4	2-3/8	12	C746333	2.34
.2055	#5	1-1/4	2-3/8	12	C746345	2.34
.2090	#4	1-1/4	2-3/8	12	C746357	2.34
.2130	#3	1-1/4	2-3/8	12	C746369	2.34
.2188	7/32	1-1/4	2-3/8	12	C746398	2.04
.2210	#2	1-5/16	2-7/16	12	C746381	2.29
.2280	#1	1-5/16	2-7/16	12	C746393	2.29
.2340	A	1-5/16	2-7/16	12	C750003	2.74
.2344	15/64	1-5/16	2-7/16	12	C746414	2.29
.2380	B	1-3/8	2-1/2	12	C750004	2.84
.2420	C	1-3/8	2-1/2	12	C750005	2.84
.2460	D	1-3/8	2-1/2	12	C750006	2.89
.2500	1/4	1-3/8	2-1/2	12	C746421	2.49
.2500	E	1-3/8	2-1/2	12	C750007	2.89
.2570	F	1-7/16	2-5/8	6	C750008	3.63
.2610	G	1-7/16	2-5/8	6	C750009	3.83
.2656	17/64	1-7/16	2-5/8	6	C746413	2.54
.2660	H	1-1/2	2-11/16	6	C750010	3.93

continued on next page

For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - HIGH SPEED STEEL

Stub Length - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size					
D ₁		L ₂	L ₁		TOOL #	PRICE
.2720	I	1-1/2	2-11/16	6	C750011	3.98
.2770	J	1-1/2	2-11/16	6	C750012	4.03
.2810	K	1-1/2	2-11/16	6	C750013	4.08
.2813	9/32	1-1/2	2-11/16	6	C746396	2.74
.2900	L	1-9/16	2-3/4	6	C750014	4.23
.2950	M	1-9/16	2-3/4	6	C750015	4.43
.2969	19/64	1-9/16	2-3/4	6	C746412	2.94
.3020	N	1-5/8	2-13/16	6	C750016	4.58
.3125	5/16	1-5/8	2-13/16	6	C746402	3.08
.3160	O	1-11/16	2-15/16	6	C750017	5.17
.3230	P	1-11/16	2-15/16	6	C750018	5.27
.3281	21/64	1-11/16	2-15/16	6	C746411	3.38
.3320	Q	1-11/16	3	6	C750019	5.52
.3390	R	1-11/16	3	6	C750020	5.62
.3438	11/32	1-11/16	3	6	C746419	3.68
.3480	S	1-3/4	3-1/16	6	C750021	5.92
.3580	T	1-3/4	3-1/16	6	C750022	6.02
.3594	23/64	1-3/4	3-1/16	6	C746410	3.88
.3680	U	1-13/16	3-1/8	6	C750023	6.52
.3750	3/8	1-13/16	3-1/8	6	C746404	4.23
.3770	V	1-7/8	3-1/4	6	C750024	6.92
.3860	W	1-7/8	3-1/4	6	C750025	7.16
.3906	25/64	1-7/8	3-1/4	6	C746409	4.43
.3970	X	1-15/16	3-5/16	6	C750026	7.61
.4040	Y	1-15/16	3-5/16	6	C750027	7.76
.4063	13/32	1-15/16	3-5/16	6	C746417	4.83
.4130	Z	2	3-3/8	6	C750028	8.06
.4219	27/64	2	3-3/8	6	C746408	5.12
.4375	7/16	1-1/16	3-7/16	6	C746399	5.57
.4531	29/64	2-1/8	3-9/16	6	C746407	5.97
.4688	15/32	2-1/8	3-5/8	6	C746415	6.57
.4844	31/64	2-3/16	3-11/16	6	C746403	6.77
.5000	1/2	2-1/4	3-3/4	6	C746422	7.11

DRILLS

Carbide

Cobalt

HSS

DRILLS - HIGH SPEED STEEL

Jobber Length - 135° Split Point



- Jobber length for deeper drilling applications
- 135° split point, type "B" (diameters < .0625" not split)
- Black Oxide and Black & Gold Oxide finishes available for increased wear resistance and added lubricity for improved chip flow
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH		BLACK & GOLD OXIDE FINISH	
dec. equiv.	size				TOOL #	PRICE	TOOL #	PRICE
D ₁		L ₂	L ₁					
.0400	#60	11/16	1-5/8	12	C745702	1.59	C745587	1.84
.0410	#59	11/16	1-5/8	12	C745704	1.59	C745589	1.84
.0420	#58	11/16	1-5/8	12	C745705	1.59	C745590	1.84
.0430	#57	3/4	1-3/4	12	C745706	1.59	C745591	1.84
.0465	#56	3/4	1-3/4	12	C745707	1.59	C745592	1.84
.0520	#55	7/8	1-7/8	12	C745708	1.59	C745593	1.84
.0550	#54	7/8	1-7/8	12	C745709	1.59	C745594	1.79
.0595	#53	7/8	1-7/8	12	C745710	1.59	C745595	1.84
.0625	1/16	7/8	1-7/8	12	C745801	1.24	C745686	1.39
.0635	#52	7/8	1-7/8	12	C745711	1.59	C745596	1.84
.0670	#51	1	2	12	C745712	1.59	C745597	1.89
.0700	#50	1	2	12	C745713	1.59	C745598	1.89
.0730	#49	1	2	12	C745715	1.59	C745600	1.89
.0760	#48	1	2	12	C745716	1.59	C745601	1.89
.0781	5/64	1	2	12	C745778	1.24	C745663	1.39
.0785	#47	1	2	12	C745717	1.59	C745602	1.89
.0810	#46	1-1/8	2-1/8	12	C745718	1.59	C745603	1.94
.0820	#45	1-1/8	2-1/8	12	C745719	1.59	C745604	1.94
.0860	#44	1-1/8	2-1/8	12	C745720	1.59	C745605	1.94
.0890	#43	1-1/4	2-1/4	12	C745721	1.59	C745606	1.94
.0935	#42	1-1/4	2-1/4	12	C745722	1.59	C745607	1.89
.0938	3/32	1-1/4	2-1/4	12	C745783	1.24	C745668	1.39
.0960	#41	1-3/8	2-3/8	12	C745723	1.59	C745608	1.94
.0980	#40	1-3/8	2-3/8	12	C745724	1.64	C745609	1.94
.0995	#39	1-3/8	2-3/8	12	C745726	1.64	C745611	1.94
.1015	#38	1-7/16	2-1/2	12	C745727	1.64	C745612	1.89
.1040	#37	1-7/16	2-1/2	12	C745728	1.64	C745613	1.94
.1065	#36	1-7/16	2-1/2	12	C745729	1.64	C745614	1.94
.1094	7/64	1-1/2	2-5/8	12	C745775	1.24	C745660	1.44
.1100	#35	1-1/2	2-5/8	12	C745730	1.64	C745615	1.99
.1110	#34	1-1/2	2-5/8	12	C745731	1.64	C745616	1.94
.1130	#33	1-1/2	2-5/8	12	C745732	1.64	C745617	1.99
.1160	#32	1-5/8	2-3/4	12	C745733	1.64	C745618	1.99
.1200	#31	1-5/8	2-3/4	12	C745734	1.64	C745619	1.99
.1250	1/8	1-5/8	2-3/4	12	C745798	1.24	C745683	1.54
.1285	#30	1-5/8	2-3/4	12	C745735	1.54	C745620	1.99

continued on next page

For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - HIGH SPEED STEEL

Jobber Length - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH		BLACK & GOLD OXIDE FINISH	
D ₁		L ₂	L ₁		TOOL #	PRICE	TOOL #	PRICE
.1360	#29	1-3/4	2-7/8	12	C745737	1.54	C745622	2.19
.1405	#28	1-3/4	2-7/8	12	C745738	1.84	C745623	2.29
.1406	9/64	1-3/4	2-7/8	12	C745773	1.34	C745658	1.59
.1440	#27	1-7/8	3	12	C745739	1.84	C745624	2.29
.1470	#26	1-7/8	3	12	C745740	1.84	C745625	2.34
.1495	#25	1-7/8	3	12	C745741	1.84	C745626	2.34
.1520	#24	2	3-1/8	12	C745742	1.84	C745627	2.34
.1540	#23	2	3-1/8	12	C745743	1.84	C745628	2.34
.1563	5/32	2	3-1/8	12	C745779	1.54	C745664	1.94
.1570	#22	2	3-1/8	12	C745744	1.84	C745629	2.39
.1590	#21	2-1/8	3-1/4	12	C745745	1.84	C745630	2.39
.1610	#20	2-1/8	3-1/4	12	C745746	1.99	C745631	2.39
.1660	#19	2-1/8	3-1/4	12	C745748	1.99	C745633	2.39
.1695	#18	2-1/8	3-1/4	12	C745749	2.09	C745634	2.39
.1719	11/64	2-1/8	3-1/4	12	C745796	1.64	C745681	1.99
.1730	#17	2-3/16	3-3/8	12	C745750	2.09	C745635	2.64
.1770	#16	2-3/16	3-3/8	12	C745751	2.09	C745636	2.64
.1800	#15	2-3/16	3-3/8	12	C745752	2.09	C745637	2.64
.1820	#14	2-3/16	3-3/8	12	C745753	2.09	C745638	2.64
.1850	#13	2-5/16	3-1/2	12	C745754	2.09	C745639	2.64
.1875	3/16	2-5/16	3-1/2	12	C745784	1.79	C745669	2.19
.1890	#12	2-5/16	3-1/2	12	C745755	1.84	C745640	2.74
.1910	#11	2-5/16	3-1/2	12	C745756	1.84	C745641	2.74
.1935	#10	2-7/16	3-5/8	12	C745757	1.84	C745642	2.94
.1960	#9	2-7/16	3-5/8	12	C745699	2.09	C745584	2.99
.1990	#8	2-7/16	3-5/8	12	C745700	2.09	C745585	2.99
.2010	#7	2-7/16	3-5/8	12	C745701	2.04	C745586	2.99
.2031	13/64	2-7/16	3-5/8	12	C745794	1.99	C745679	2.34
.2040	#6	2-1/2	3-3/4	12	C745703	2.14	C745588	3.33
.2055	#5	2-1/2	3-3/4	12	C745714	2.14	C745599	3.33
.2090	#4	2-1/2	3-3/4	12	C745725	2.14	C745610	3.33
.2130	#3	2-1/2	3-3/4	12	C745736	2.14	C745621	3.33
.2188	7/32	2-1/2	3-3/4	12	C745776	2.14	C745661	2.59
.2210	#2	2-5/8	3-7/8	12	C745747	2.29	C745632	3.58
.2280	#1	2-5/8	3-7/8	12	C745758	2.29	C745643	3.58
.2340	A	2-5/8	3-7/8	12	C745772	2.59	C745657	3.83
.2344	15/64	2-5/8	3-7/8	12	C745792	2.29	C745677	2.79
.2380	B	2-3/4	4	12	C745771	2.59	C745656	3.83
.2420	C	2-3/4	4	12	C745770	2.59	C745655	3.83
.2460	D	2-3/4	4	12	C745769	2.59	C745654	3.73
.2500	1/4	2-3/4	4	12	C745799	2.44	C745684	2.94
.2500	E	2-3/4	4	12	C745768	2.59	C745653	3.28
.2570	F	2-7/8	4-1/8	6	C745767	3.23	C745652	4.33
.2610	G	2-7/8	4-1/8	6	C745766	3.23	C745651	4.43
.2656	17/64	2-7/8	4-1/8	6	C745791	3.28	C745676	3.83
.2660	H	2-7/8	4-1/8	6	C745765	3.23	C745650	4.53

continued on next page

For technical information, see pages 212 - 213

DRILLS - HIGH SPEED STEEL

Jobber Length - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH		BLACK & GOLD OXIDE FINISH	
D ₁		L ₂	L ₁		TOOL #	PRICE	TOOL #	PRICE
.2720	I	2-7/8	4-1/8	6	C745764	3.23	C745649	4.53
.2770	J	2-7/8	4-1/8	6	C745763	3.88	C745648	5.02
.2810	K	2-15/16	4-1/4	6	C745762	3.88	C745647	5.27
.2813	9/32	2-15/16	4-1/4	6	C745774	3.53	C745659	4.13
.2900	L	2-15/16	4-1/4	6	C745761	3.88	C745646	5.12
.2950	M	3-1/16	4-3/8	6	C745760	4.73	C745645	5.87
.2969	19/64	3-1/16	4-3/8	6	C745790	3.88	C745675	4.53
.3020	N	3-1/16	4-3/8	6	C745759	4.73	C745644	5.87
.3125	5/16	3-3/16	4-1/2	6	C745780	3.98	C745665	4.73
.3160	O	3-3/16	4-1/2	6	C745698	4.73	C745583	5.97
.3230	P	3-5/16	4-5/8	6	C745697	5.37	C745582	6.72
.3281	21/64	3-5/16	4-5/8	6	C745789	4.48	C745674	5.17
.3320	Q	3-7/16	4-3/4	6	C745696	5.37	C745581	6.82
.3390	R	3-7/16	4-3/4	6	C745695	5.37	C745580	6.82
.3438	11/32	3-7/16	4-3/4	6	C745797	4.73	C745682	5.57
.3480	S	3-1/2	4-7/8	6	C745694	6.12	C745579	7.56
.3580	T	3-1/2	4-7/8	6	C745693	6.12	C745578	8.06
.3594	23/64	3-1/2	4-7/8	6	C745788	5.02	C745673	5.97
.3680	U	3-5/8	5	6	C745692	6.52	C745577	8.06
.3750	3/8	3-5/8	5	6	C745782	5.47	C745667	6.32
.3770	V	3-5/8	5	6	C745691	6.52	C745576	8.21
.3860	W	3-3/4	5-1/8	6	C745690	7.41	C745575	10.05
.3906	25/64	3-3/4	5-1/8	6	C745787	5.97	C745672	6.87
.3970	X	3-3/4	5-1/8	6	C745689	7.41	C745574	11.84
.4040	Y	3-7/8	5-1/4	6	C745688	8.06	C745573	11.99
.4063	13/32	3-7/8	5-1/4	6	C745795	6.52	C745680	7.56
.4130	Z	3-7/8	5-1/4	6	C745687	8.06	C745572	12.29
.4219	27/64	3-15/16	5-3/8	6	C745786	6.92	C745671	8.01
.4375	7/16	4-1/16	5-1/2	6	C745777	7.51	C745662	8.66
.4531	29/64	4-3/16	5-5/8	6	C745785	8.06	C745670	9.20
.4688	15/32	4-5/16	5-3/4	6	C745793	8.71	C745678	10.00
.4844	31/64	4-3/8	5-7/8	6	C745781	9.20	C745666	10.55
.5000	1/2	4-1/2	6	6	C745800	9.70	C745685	10.99

DRILLS

Carbide

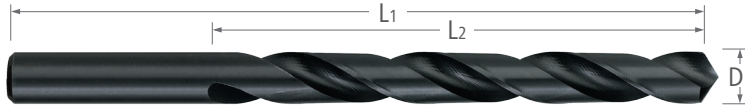
Cobalt

HSS



DRILLS - HIGH SPEED STEEL

Jobber Length - 118° Point - Black Oxide Finish



- Jobber length for deeper drilling applications
- 118° point
- Black Oxide finish increases wear resistance and adds lubricity to improve chip flow
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER			FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size	metric					
D ₁			L ₂	L ₁		TOOL #	PRICE
.0394		1 mm	17 mm	41 mm	12	C763000	1.54
.0400	#60		11/16	1-5/8	12	C745990	1.39
.0410	#59		11/16	1-5/8	12	C745992	1.39
.0413		1.05 mm	17 mm	41 mm	12	C763001	1.54
.0420	#58		11/16	1-5/8	12	C745993	1.39
.0430	#57		3/4	1-3/4	12	C745994	1.39
.0433		1.1 mm	19 mm	44 mm	12	C763002	1.59
.0453		1.15 mm	19 mm	44 mm	12	C763003	1.64
.0465	#56		3/4	1-3/4	12	C745995	1.29
.0472		1.2 mm	22 mm	48 mm	12	C763004	1.59
.0492		1.25 mm	22 mm	48 mm	12	C763005	1.64
.0512		1.3 mm	22 mm	48 mm	12	C763006	1.59
.0520	#55		7/8	1-7/8	12	C745996	1.29
.0531		1.35 mm	22 mm	48 mm	12	C763007	1.69
.0550	#54		7/8	1-7/8	12	C745997	1.29
.0551		1.4 mm	22 mm	48 mm	12	C763008	1.59
.0591		1.5 mm	22 mm	48 mm	12	C763010	1.59
.0595	#53		7/8	1-7/8	12	C745998	1.19
.0625	1/16		7/8	1-7/8	12	C746112	1.24
.0630		1.6 mm	22 mm	48 mm	12	C763012	1.59
.0635	#52		7/8	1-7/8	12	C745999	1.19
.0669		1.7 mm	25 mm	51 mm	12	C763014	1.64
.0670	#51		1	2	12	C746000	1.19
.0700	#50		1	2	12	C746001	1.19
.0709		1.8 mm	25 mm	51 mm	12	C763016	1.64
.0730	#49		1	2	12	C746003	1.19
.0748		1.9 mm	25 mm	51 mm	12	C763018	1.64
.0760	#48		1	2	12	C746004	1.19
.0781	5/64		1	2	12	C746076	1.24
.0785	#47		1	2	12	C746005	1.19
.0787		2 mm	25 mm	51 mm	12	C763020	1.64
.0810	#46		1-1/8	2-1/8	12	C746006	1.19
.0820	#45		1-1/8	2-1/8	12	C746007	1.19
.0860	#44		1-1/8	2-1/8	12	C746008	1.14
.0890	#43		1-1/4	2-1/4	12	C746009	1.14
.0935	#42		1-1/4	2-1/4	12	C746010	1.14

continued on next page

For technical information, see pages 212 - 213

DRILLS - HIGH SPEED STEEL

Jobber Length - 118° Point - Black Oxide Finish (Cont.)

continued from previous page

DRILL DIAMETER			FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size	metric				TOOL #	PRICE
D ₁			L ₂	L ₁			
.0938	3/32		1-1/4	2-1/4	12	C746088	1.24
.0960	#41		1-3/8	2-3/8	12	C746011	1.14
.0980	#40		1-3/8	2-3/8	12	C746012	1.14
.0984		2.5 mm	35 mm	60 mm	12	C763030	1.69
.0995	#39		1-3/8	2-3/8	12	C746014	1.14
.1015	#38		1-7/16	2-1/2	12	C746015	1.14
.1040	#37		1-7/16	2-1/2	12	C746016	1.14
.1065	#36		1-7/16	2-1/2	12	C746017	1.14
.1094	7/64		1-1/2	2-5/8	12	C746072	1.24
.1100	#35		1-1/2	2-5/8	12	C746018	1.14
.1110	#34		1-1/2	2-5/8	12	C746019	1.14
.1130	#33		1-1/2	2-5/8	12	C746020	1.14
.1160	#32		1-5/8	2-3/4	12	C746021	1.14
.1181		3 mm	41 mm	70 mm	12	C763035	1.74
.1200	#31		1-5/8	2-3/4	12	C746022	1.14
.1250	1/8		1-5/8	2-3/4	12	C746107	1.24
.1285	#30		1-5/8	2-3/4	12	C746023	1.19
.1360	#29		1-3/4	2-7/8	12	C746025	1.19
.1378		3.5 mm	45 mm	73 mm	12	C763040	1.84
.1405	#28		1-3/4	2-7/8	12	C746026	1.19
.1406	9/64		1-3/4	2-7/8	12	C746069	1.29
.1440	#27		1-7/8	3	12	C746027	1.29
.1470	#26		1-7/8	3	12	C746028	1.29
.1495	#25		1-7/8	3	12	C746029	1.29
.1520	#24		2	3-1/8	12	C746030	1.44
.1540	#23		2	3-1/8	12	C746031	1.44
.1563	5/32		2	3-1/8	12	C746077	1.34
.1570	#22		2	3-1/8	12	C746032	1.44
.1575		4 mm	54 mm	83 mm	12	C763045	1.94
.1590	#21		2-1/8	3-1/4	12	C746033	1.49
.1610	#20		2-1/8	3-1/4	12	C746034	1.49
.1660	#19		2-1/8	3-1/4	12	C746036	1.64
.1695	#18		2-1/8	3-1/4	12	C746037	1.64
.1719	11/64		2-1/8	3-1/4	12	C746104	1.44
.1730	#17		2-3/16	3-3/8	12	C746039	1.64
.1770	#16		2-3/16	3-3/8	12	C746041	1.69
.1772		4.5 mm	56 mm	86 mm	12	C763050	2.14
.1800	#15		2-3/16	3-3/8	12	C746043	1.69
.1820	#14		2-3/16	3-3/8	12	C746045	1.69
.1850	#13		2-5/16	3-1/2	12	C746047	1.84
.1875	3/16		2-5/16	3-1/2	12	C746089	1.54
.1890	#12		2-5/16	3-1/2	12	C746049	1.84
.1910	#11		2-5/16	3-1/2	12	C746051	1.84
.1935	#10		2-7/16	3-5/8	12	C746053	1.84
.1960	#9		2-7/16	3-5/8	12	C745967	1.94
.1969		5 mm	62 mm	92 mm	12	C763055	2.34

continued on next page

For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - HIGH SPEED STEEL

Jobber Length - 118° Point - Black Oxide Finish (Cont.)

continued from previous page

DRILL DIAMETER			FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size	metric				TOOL #	PRICE
	D ₁		L ₂	L ₁			
.1990	#8		2-7/16	3-5/8	12	C745969	1.99
.2010	#7		2-7/16	3-5/8	12	C745980	1.99
.2031	13/64		2-7/16	3-5/8	12	C746102	1.69
.2040	#6		2-1/2	3-3/4	12	C745991	2.04
.2055	#5		2-1/2	3-3/4	12	C746002	2.04
.2090	#4		2-1/2	3-3/4	12	C746013	2.09
.2130	#3		2-1/2	3-3/4	12	C746024	2.09
.2165		5.5 mm	64 mm	95 mm	12	C763060	2.64
.2188	7/32		2-1/2	3-3/4	12	C746073	1.89
.2210	#2		2-5/8	3-7/8	12	C746035	2.24
.2280	#1		2-5/8	3-7/8	12	C746054	2.24
.2340	A		2-5/8	3-7/8	12	C746068	2.09
.2344	15/64		2-5/8	3-7/8	12	C746100	2.09
.2362		6 mm	70 mm	102 mm	12	C763065	2.84
.2380	B		2-3/4	4	12	C746067	2.09
.2420	C		2-3/4	4	12	C746066	2.09
.2460	D		2-3/4	4	12	C746065	2.19
.2500	1/4		2-3/4	4	12	C746109	2.09
.2500	E		2-3/4	4	12	C746064	2.19
.2559		6.5 mm	73 mm	105 mm	6	C763070	3.58
.2570	F		2-7/8	4-1/8	6	C746063	2.94
.2610	G		2-7/8	4-1/8	6	C746062	2.84
.2656	17/64		2-7/8	4-1/8	6	C746098	2.94
.2660	H		2-7/8	4-1/8	6	C746061	2.89
.2720	I		2-7/8	4-1/8	6	C746060	2.94
.2756		7 mm	73 mm	105 mm	6	C763075	3.73
.2770	J		2-7/8	4-1/8	6	C746059	3.03
.2810	K		2-15/16	4-1/4	6	C746058	3.08
.2813	9/32		2-15/16	4-1/4	6	C746070	3.08
.2900	L		2-15/16	4-1/4	6	C746057	3.18
.2950	M		3-1/16	4-3/8	6	C746056	3.43
.2953		7.5 mm	78 mm	111 mm	6	C763080	4.38
.2969	19/64		3-1/16	4-3/8	6	C746096	3.38
.3020	N		3-1/16	4-3/8	6	C746055	3.53
.3125	5/16		3-3/16	4-1/2	6	C746078	3.53
.3150		8 mm	81 mm	114 mm	6	C763085	4.78
.3160	O		3-3/16	4-1/2	6	C745966	3.78
.3230	P		3-5/16	4-5/8	6	C745965	4.08
.3281	21/64		3-5/16	4-5/8	6	C746094	3.88
.3320	Q		3-7/16	4-3/4	6	C745964	4.23
.3346		8.5 mm	87 mm	121 mm	6	C763090	5.47
.3390	R		3-7/16	4-3/4	6	C745963	4.38
.3438	11/32		3-7/16	4-3/4	6	C746105	4.18
.3480	S		3-1/2	4-7/8	6	C745962	4.58
.3543		9 mm	89 mm	124 mm	6	C763095	6.22
.3580	T		3-1/2	4-7/8	6	C745961	4.83

continued on next page

For technical information, see pages 212 - 213

DRILLS - HIGH SPEED STEEL

Jobber Length - 118° Point - Black Oxide Finish (Cont.)

continued from previous page

DRILL DIAMETER			FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size	metric					
	D ₁		L ₂	L ₁		TOOL #	PRICE
.3594	23/64		3-1/2	4-7/8	6	C746093	4.58
.3680	U		3-5/8	5	6	C745960	5.17
.3740		9.5 mm	92 mm	127 mm	6	C763100	6.52
.3750	3/8		3-5/8	5	6	C746086	4.83
.3770	V		3-5/8	5	6	C745959	5.42
.3860	W		3-3/4	5-1/8	6	C745958	5.72
.3906	25/64		3-3/4	5-1/8	6	C746092	5.17
.3937		10 mm	95 mm	130 mm	6	C763105	8.01
.3970	X		3-3/4	5-1/8	6	C745957	6.02
.4040	Y		3-7/8	5-1/4	6	C745956	6.37
.4063	13/32		3-7/8	5-1/4	6	C746103	5.67
.4130	Z		3-7/8	5-1/4	6	C745955	6.52
.4134		10.5 mm	98 mm	133 mm	6	C763107	8.01
.4219	27/64		3-15/16	5-3/8	6	C746091	6.02
.4331		11 mm	103 mm	140 mm	6	C763108	8.16
.4375	7/16		4-1/16	5-1/2	6	C746074	6.57
.4528		11.5 mm	106 mm	143 mm	6	C763110	9.20
.4531	29/64		4-3/16	5-5/8	6	C746090	7.01
.4688	15/32		4-5/16	5-3/4	6	C746101	7.66
.4724		12 mm	111 mm	149 mm	6	C763111	10.15
.4844	31/64		4-3/8	5-7/8	6	C746085	8.06
.4921		12.5 mm	114 mm	152 mm	6	C763112	10.40
.5000	1/2		4-1/2	6	6	C746111	8.41
.5118		13 mm	114 mm	152 mm	6	C763113	17.16
.5156	33/64		4-13/16	6-5/8	1	C746084	19.90
.5313	17/32		4-13/16	6-5/8	1	C746099	20.85
.5469	35/64		4-13/16	6-5/8	1	C746083	22.59
.5625	9/16		4-13/16	6-5/8	1	C746071	23.63
.5781	37/64		4-13/16	6-5/8	1	C746082	23.83
.5938	19/32		5-3/16	7-1/8	1	C746097	24.38
.6094	39/64		5-3/16	7-1/8	1	C746081	26.77
.6250	5/8		5-3/16	7-1/8	1	C746075	26.12
.6406	41/64		5-3/16	7-1/8	1	C746080	28.61
.6563	21/32		5-3/16	7-1/8	1	C746095	27.71
.6719	43/64		5-5/8	7-5/8	1	C746079	32.49
.6875	11/16		5-5/8	7-5/8	1	C746106	31.94

DRILLS

Carbide

Cobalt

HSS



DRILLS - HIGH SPEED STEEL Jobber Length - 118° Point - Bright Finish & TiN Coated



- Jobber length for deeper drilling applications
- 118° point
- Bright finish improves performance in plastics and other non-ferrous materials
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	PACKAGE QTY.	BRIGHT FINISH		TiN COATED	
D1		L2	L1		TOOL #	PRICE	TOOL #	PRICE
.0400	#60	11/16	1-5/8	12	C745844	1.39	C745443	3.08
.0410	#59	11/16	1-5/8	12	C745846	1.39	C745445	3.08
.0420	#58	11/16	1-5/8	12	C745847	1.39	C745446	3.08
.0430	#57	3/4	1-3/4	12	C745848	1.39	C745447	3.08
.0465	#56	3/4	1-3/4	12	C745849	1.29	C745448	3.08
.0520	#55	7/8	1-7/8	12	C745850	1.29	C745449	3.08
.0550	#54	7/8	1-7/8	12	C745851	1.29	C745450	2.99
.0595	#53	7/8	1-7/8	12	C745852	1.19	C745451	3.08
.0625	1/16	7/8	1-7/8	12	C745946	1.24	C745542	3.08
.0635	#52	7/8	1-7/8	12	C745853	1.19	C745452	3.08
.0670	#51	1	2	12	C745854	1.19	C745453	3.08
.0700	#50	1	2	12	C745855	1.19	C745454	3.08
.0730	#49	1	2	12	C745857	1.19	C745456	3.08
.0760	#48	1	2	12	C745858	1.19	C745457	3.08
.0781	5/64	1	2	12	C745920	1.24	C745519	3.08
.0785	#47	1	2	12	C745859	1.19	C745458	3.08
.0810	#46	1-1/8	2-1/8	12	C745860	1.19	C745459	3.08
.0820	#45	1-1/8	2-1/8	12	C745861	1.19	C745460	3.08
.0860	#44	1-1/8	2-1/8	12	C745862	1.14	C745461	3.08
.0890	#43	1-1/4	2-1/4	12	C745863	1.14	C745462	3.08
.0935	#42	1-1/4	2-1/4	12	C745864	1.14	C745463	3.08
.0938	3/32	1-1/4	2-1/4	12	C745926	1.24	C745524	3.08
.0960	#41	1-3/8	2-3/8	12	C745865	1.14	C745464	2.99
.0980	#40	1-3/8	2-3/8	12	C745866	1.14	C745465	3.08
.0995	#39	1-3/8	2-3/8	12	C745868	1.14	C745467	3.08
.1015	#38	1-7/16	2-1/2	12	C745869	1.14	C745468	3.08
.1040	#37	1-7/16	2-1/2	12	C745870	1.14	C745469	3.08
.1065	#36	1-7/16	2-1/2	12	C745871	1.14	C745470	3.08
.1094	7/64	1-1/2	2-5/8	12	C745917	1.24	C745516	3.13
.1100	#35	1-1/2	2-5/8	12	C745872	1.14	C745471	3.13
.1110	#34	1-1/2	2-5/8	12	C745873	1.14	C745472	3.13
.1130	#33	1-1/2	2-5/8	12	C745874	1.14	C745473	3.13
.1160	#32	1-5/8	2-3/4	12	C745875	1.14	C745474	3.13
.1200	#31	1-5/8	2-3/4	12	C745876	1.14	C745475	3.13
.1250	1/8	1-5/8	2-3/4	12	C745941	1.24	C745539	3.13
.1285	#30	1-5/8	2-3/4	12	C745877	1.19	C745476	3.13

continued on next page

For technical information, see pages 212 - 213

DRILLS - HIGH SPEED STEEL

Jobber Length - 118° Point - Bright Finish & TiN Coated (Cont.)

continued from previous page

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	PACKAGE QTY.	BRIGHT FINISH		TiN COATED	
D ₁		L ₂	L ₁		TOOL #	PRICE	TOOL #	PRICE
.1360	#29	1-3/4	2-7/8	12	C745879	1.19	C745478	3.73
.1405	#28	1-3/4	2-7/8	12	C745880	1.19	C745479	3.73
.1406	9/64	1-3/4	2-7/8	12	C745915	1.29	C745514	3.28
.1440	#27	1-7/8	3	12	C745881	1.29	C745480	3.83
.1470	#26	1-7/8	3	12	C745882	1.29	C745481	3.83
.1495	#25	1-7/8	3	12	C745883	1.29	C745482	3.83
.1520	#24	2	3-1/8	12	C745884	1.44	C745483	3.88
.1540	#23	2	3-1/8	12	C745885	1.44	C745484	3.88
.1563	5/32	2	3-1/8	12	C745921	1.34	C745520	3.63
.1570	#22	2	3-1/8	12	C745886	1.44	C745485	3.98
.1590	#21	2-1/8	3-1/4	12	C745887	1.49	C745486	3.98
.1610	#20	2-1/8	3-1/4	12	C745888	1.49	C745487	4.03
.1660	#19	2-1/8	3-1/4	12	C745890	1.64	C745489	4.03
.1695	#18	2-1/8	3-1/4	12	C745891	1.64	C745490	4.03
.1719	11/64	2-1/8	3-1/4	12	C745939	1.44	C745537	3.68
.1730	#17	2-3/16	3-3/8	12	C745892	1.64	C745491	4.48
.1770	#16	2-3/16	3-3/8	12	C745893	1.69	C745492	4.48
.1800	#15	2-3/16	3-3/8	12	C745894	1.69	C745493	4.48
.1820	#14	2-3/16	3-3/8	12	C745895	1.69	C745494	4.48
.1850	#13	2-5/16	3-1/2	12	C745896	1.79	C745495	5.62
.1875	3/16	2-5/16	3-1/2	12	C745927	1.54	C745525	3.83
.1890	#12	2-5/16	3-1/2	12	C745897	1.79	C745496	4.53
.1910	#11	2-5/16	3-1/2	12	C745898	1.79	C745497	5.27
.1935	#10	2-7/16	3-5/8	12	C745899	1.79	C745498	5.57
.1960	#9	2-7/16	3-5/8	12	C745821	1.94	C745440	5.57
.1990	#8	2-7/16	3-5/8	12	C745823	1.99	C745441	5.57
.2010	#7	2-7/16	3-5/8	12	C745834	1.99	C745442	5.57
.2031	13/64	2-7/16	3-5/8	12	C745937	1.69	C745535	5.52
.2040	#6	2-1/2	3-3/4	12	C745845	2.04	C745444	5.87
.2055	#5	2-1/2	3-3/4	12	C745856	2.04	C745455	5.87
.2090	#4	2-1/2	3-3/4	12	C745867	2.09	C745466	5.87
.2130	#3	2-1/2	3-3/4	12	C745878	2.09	C745477	5.87
.2188	7/32	2-1/2	3-3/4	12	C745918	1.84	C745517	5.62
.2210	#2	2-5/8	3-7/8	12	C745889	2.24	C745488	6.17
.2280	#1	2-5/8	3-7/8	12	C745900	2.24	C745499	6.17
.2340	A	2-5/8	3-7/8	12	C745914	2.09	C745513	6.17
.2344	15/64	2-5/8	3-7/8	12	C745935	2.09	C745533	5.87
.2380	B	2-3/4	4	12	C745913	2.09	C745512	6.32
.2420	C	2-3/4	4	12	C745912	2.09	C745511	6.32
.2460	D	2-3/4	4	12	C745911	2.19	C745510	6.32
.2500	1/4	2-3/4	4	12	C745943	2.09	C745540	6.02
.2500	E	2-3/4	4	12	C745910	2.19	C745509	6.02
.2570	F	2-7/8	4-1/8	6	C745909	2.94	C745508	9.55
.2610	G	2-7/8	4-1/8	6	C745908	2.84	C745507	9.55
.2656	17/64	2-7/8	4-1/8	6	C745934	2.94	C745532	8.56

continued on next page

For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - HIGH SPEED STEEL

Jobber Length - 118° Point - Bright Finish & TiN Coated (Cont.)

continued from previous page

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	PACKAGE QTY.	BRIGHT FINISH		TiN COATED	
D ₁		L ₂	L ₁		TOOL #	PRICE	TOOL #	PRICE
.2660	H	2-7/8	4-1/8	6	C745907	2.89	C745506	9.55
.2720	I	2-7/8	4-1/8	6	C745906	2.94	C745505	9.55
.2770	J	2-7/8	4-1/8	6	C745905	3.03	C745504	9.60
.2810	K	2-15/16	4-1/4	6	C745904	3.08	C745503	10.30
.2813	9/32	2-15/16	4-1/4	6	C745916	3.08	C745515	9.05
.2900	L	2-15/16	4-1/4	6	C745903	3.18	C745502	10.30
.2950	M	3-1/16	4-3/8	6	C745902	3.38	C745501	10.45
.2969	19/64	3-1/16	4-3/8	6	C745933	3.33	C745531	9.30
.3020	N	3-1/16	4-3/8	6	C745901	3.53	C745500	10.65
.3125	5/16	3-3/16	4-1/2	6	C745922	3.53	C745521	9.45
.3160	O	3-3/16	4-1/2	6	C745820	3.78	C745439	10.95
.3230	P	3-5/16	4-5/8	6	C745819	4.03	C745438	11.19
.3281	21/64	3-5/16	4-5/8	6	C745932	3.88	C745530	11.04
.3320	Q	3-7/16	4-3/4	6	C745818	4.23	C745437	11.34
.3390	R	3-7/16	4-3/4	6	C745817	4.33	C745436	11.44
.3438	11/32	3-7/16	4-3/4	6	C745940	4.13	C745538	11.29
.3480	S	3-1/2	4-7/8	6	C745816	4.53	C745435	14.38
.3580	T	3-1/2	4-7/8	6	C745815	4.73	C745434	15.07
.3594	23/64	3-1/2	4-7/8	6	C745931	4.53	C745529	12.74
.3680	U	3-5/8	5	6	C745814	5.17	C745433	15.07
.3750	3/8	3-5/8	5	6	C745924	4.73	C745523	12.89
.3770	V	3-5/8	5	6	C745813	5.32	C745432	15.27
.3860	W	3-3/4	5-1/8	6	C745812	5.62	C745431	17.66
.3906	25/64	3-3/4	5-1/8	6	C745930	5.17	C745528	15.92
.3970	X	3-3/4	5-1/8	6	C745811	6.02	C745430	19.05
.4040	Y	3-7/8	5-1/4	6	C745810	6.27	C745429	20.25
.4063	13/32	3-7/8	5-1/4	6	C745938	5.62	C745536	16.27
.4130	Z	3-7/8	5-1/4	6	C745809	6.52	C745428	20.50
.4219	27/64	3-15/16	5-3/8	6	C745929	5.97	C745527	16.92
.4375	7/16	4-1/16	5-1/2	6	C745919	6.57	C745518	17.26
.4531	29/64	4-3/16	5-5/8	6	C745928	6.97	C745526	18.91
.4688	15/32	4-5/16	5-3/4	6	C745936	7.56	C745534	19.50
.4844	31/64	4-3/8	5-7/8	6	C735018	8.01	C745522	19.65
.5000	1/2	4-1/2	6	6	C745945	8.36	C745541	20.05

DRILLS

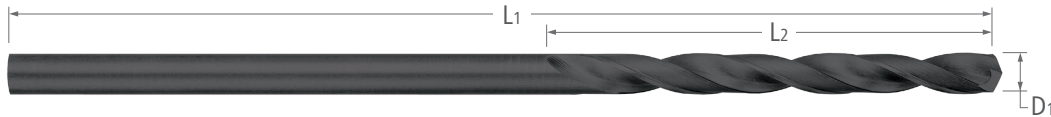
Carbide

Cobalt

HSS

DRILLS - HIGH SPEED STEEL

Aircraft Extension Drills - 135° Split Point



- 135° Split Point, Type "B"
- Black Oxide finish increases wear resistance and adds lubricity to improve chip flow
- Offered in 6" and 12" overall lengths
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size				TOOL #	PRICE
D ₁		L ₂	L ₁			
.0938	3/32	1-1/4	6	6	C750029	4.68
.0980	#40	1-5/8	6	6	C750049	4.28
.0980	#40	1-3/8	12	6	C750094	14.97
.1094	7/64	1-1/2	6	6	C750030	4.68
.1250	1/8	1-5/8	6	6	C744351	4.63
.1250	1/8	1-5/8	12	6	C744333	13.33
.1285	#30	1-5/8	6	6	C750048	5.17
.1285	#30	1-5/8	12	6	C750093	14.97
.1360	#29	1-3/4	6	6	C750047	6.72
.1360	#29	1-3/4	12	6	C750092	15.87
.1406	9/64	1-3/4	6	6	C744336	5.47
.1406	9/64	1-3/4	12	6	C750070	13.43
.1563	5/32	2	6	6	C750031	6.07
.1563	5/32	2	12	6	C750071	13.43
.1590	#21	2-1/8	6	6	C750046	6.32
.1590	#21	2-1/8	12	6	C750091	14.97
.1610	#20	2-1/8	6	6	C750045	6.02
.1610	#20	2-1/8	12	6	C750090	15.22
.1719	11/64	2-1/8	6	6	C750032	6.72
.1719	11/64	2-1/8	12	6	C750072	15.22
.1875	3/16	2-5/16	6	6	C744342	6.67
.1875	3/16	2-5/16	12	6	C744332	15.07
.1910	#11	2-5/16	6	6	C750044	7.26
.1910	#11	2-5/16	12	6	C750089	16.92
.1935	#10	2-7/16	6	6	C750043	7.26
.1935	#10	2-7/16	12	6	C750088	16.77
.2031	13/64	2-7/16	6	6	C750033	8.11
.2031	13/64	2-7/16	12	6	C750073	17.21
.2188	7/32	2-1/2	6	6	C744338	8.11
.2188	7/32	2-1/2	12	6	C748160	17.06
.2210	#2	2-5/8	6	6	C750042	9.35
.2280	#1	2-5/8	6	6	C750041	9.35
.2280	#1	2-5/8	12	6	C750087	20.85
.2344	15/64	2-5/8	6	6	C750034	9.00
.2344	15/64	2-5/8	12	6	C750074	19.15
.2500	1/4	2-3/4	6	6	C744352	8.06
.2500	1/4	2-3/4	12	6	C744334	20.85

continued on next page

For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - HIGH SPEED STEEL

Aircraft Extension Drills - 135° Split Point (Cont.)

continued from previous page

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size					
D ₁		L ₂	L ₁		TOOL #	PRICE
.2656	17/64	2-7/8	6	1	C750035	20.35
.2656	17/64	2-7/8	12	1	C750075	24.28
.2813	9/32	2-15/16	6	1	C750036	21.04
.2813	9/32	2-15/16	12	1	C750076	23.93
.2969	19/64	3-1/16	6	1	C750037	24.88
.2969	19/64	3-1/16	12	1	C750077	26.82
.3125	5/16	3-3/16	6	1	C744340	26.87
.3125	5/16	3-3/16	12	1	C744330	29.55
.3281	21/64	3-5/16	6	1	C750038	28.95
.3281	21/64	3-5/16	12	1	C750078	32.04
.3438	11/32	3-7/16	6	1	C750039	28.95
.3438	11/32	3-7/16	12	1	C750079	31.74
.3594	23/64	3-1/2	6	1	C750040	32.24
.3594	23/64	3-1/2	12	1	C750080	35.77
.3750	3/8	3-5/8	6	1	C744341	32.93
.3750	3/8	3-5/8	12	1	C744331	36.27
.3906	25/64	3-3/4	12	1	C750081	40.25
.4063	13/32	3-7/8	12	1	C750082	38.95
.4219	27/64	3-15/16	12	1	C750083	42.93
.4375	7/16	4-1/16	12	1	C744329	42.83
.4531	29/64	4-3/16	12	1	C750084	48.36
.4688	15/32	4-5/16	12	1	C750085	50.10
.4844	31/64	4-3/8	12	1	C750086	51.94
.5000	1/2	4-1/2	12	1	C744335	51.64

DRILLS

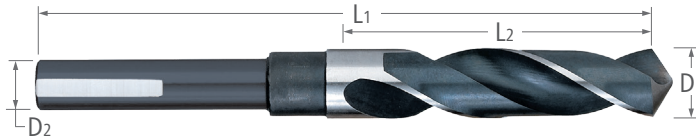
Carbide

Cobalt

HSS

DRILLS - HIGH SPEED STEEL

Silver & Deming - 118° Point - 3 Flats



- 3" flute length
- 118° point
- 1/2" shank
- 3 flats on shank to prevent spinning in a 3 Jaw Chuck
- Bright finish on cut edge for better chip evacuation; Black Oxide finish holds cutting oil for better abrasion resistance. Black Oxide finish holds cutting oil for better lubricity.
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	SHAK DIA.	BRIGHT & BLACK OXIDE FINISH	
dec. equiv.	size				TOOL #	PRICE
D ₁		L ₂	L ₁	D ₂		
.5156	33/64	3	6	1/2	C744505	20.94
.5313	17/32	3	6	1/2	C744514	20.94
.5469	35/64	3	6	1/2	C744504	22.29
.5625	9/16	3	6	1/2	C744487	22.29
.5781	37/64	3	6	1/2	C744503	23.93
.5938	19/32	3	6	1/2	C744513	23.93
.6094	39/64	3	6	1/2	C744502	25.07
.6250	5/8	3	6	1/2	C744496	25.07
.6406	41/64	3	6	1/2	C744501	26.77
.6563	21/32	3	6	1/2	C744512	26.77
.6719	43/64	3	6	1/2	C744500	27.81
.6875	11/16	3	6	1/2	C744517	27.81
.7031	45/64	3	6	1/2	C744499	28.16
.7188	23/32	3	6	1/2	C744511	28.16
.7344	47/64	3	6	1/2	C744498	30.70
.7500	3/4	3	6	1/2	C744507	30.70
.7656	49/64	3	6	1/2	C744497	32.74
.7813	25/32	3	6	1/2	C744510	32.74
.7969	51/64	3	6	1/2	C744495	35.87
.8125	13/16	3	6	1/2	C744516	35.87
.8281	53/64	3	6	1/2	C744494	37.41
.8438	27/32	3	6	1/2	C744509	37.41
.8594	55/64	3	6	1/2	C744493	39.90
.8750	7/8	3	6	1/2	C744488	39.90
.8906	57/64	3	6	1/2	C744492	41.39
.9063	29/32	3	6	1/2	C744508	41.39
.9219	59/64	3	6	1/2	C744491	42.39
.9375	15/16	3	6	1/2	C744515	42.39
.9531	61/64	3	6	1/2	C744490	44.33
.9688	31/32	3	6	1/2	C744506	44.33
.9844	63/64	3	6	1/2	C744489	48.61
1.0000	1	3	6	1/2	C744518	48.61

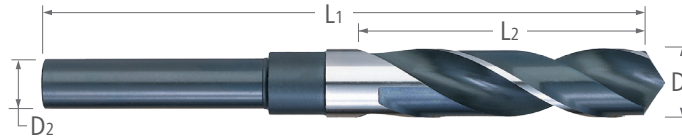
For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - HIGH SPEED STEEL Silver & Deming - 118° Point



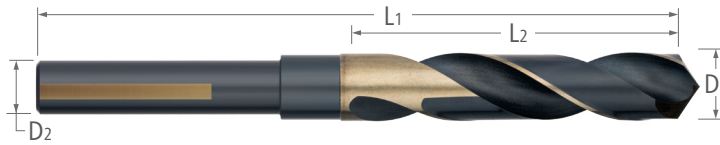
- 3" flute length
- 118° point
- 1/2" shank
- Bright finish on cut edge for better chip evacuation; Black Oxide finish holds cutting oil for better abrasion resistance and lubricity.
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	SHANK DIA.	BRIGHT & BLACK OXIDE FINISH	
D ₁		L ₂	L ₁	D ₂	TOOL #	PRICE
.5156	33/64	3	6	1/2	C744397	20.75
.5313	17/32	3	6	1/2	C744407	20.75
.5469	35/64	3	6	1/2	C744396	21.94
.5625	9/16	3	6	1/2	C744379	21.94
.5781	37/64	3	6	1/2	C744395	23.53
.5938	19/32	3	6	1/2	C744405	23.53
.6094	39/64	3	6	1/2	C744394	24.88
.6250	5/8	3	6	1/2	C744388	24.88
.6406	41/64	3	6	1/2	C744393	25.92
.6563	21/32	3	6	1/2	C744404	25.92
.6719	43/64	3	6	1/2	C744392	27.66
.6875	11/16	3	6	1/2	C744421	27.66
.7031	45/64	3	6	1/2	C744391	27.66
.7188	23/32	3	6	1/2	C744403	27.66
.7344	47/64	3	6	1/2	C744390	30.20
.7500	3/4	3	6	1/2	C744399	30.30
.7656	49/64	3	6	1/2	C744389	32.09
.7813	25/32	3	6	1/2	C744402	32.09
.7969	51/64	3	6	1/2	C744387	33.73
.8125	13/16	3	6	1/2	C744415	33.73
.8281	53/64	3	6	1/2	C744386	35.22
.8438	27/32	3	6	1/2	C744401	35.22
.8594	55/64	3	6	1/2	C744385	36.42
.8750	7/8	3	6	1/2	C744380	36.42
.8906	57/64	3	6	1/2	C744384	37.71
.9063	29/32	3	6	1/2	C744400	37.71
.9219	59/64	3	6	1/2	C744383	41.04
.9375	15/16	3	6	1/2	C744411	41.04
.9531	61/64	3	6	1/2	C744382	43.03
.9688	31/32	3	6	1/2	C744398	43.03
.9844	63/64	3	6	1/2	C744381	47.96
1.0000	1	3	6	1/2	C744422	47.96
1.0313	1-1/32	3	6	1/2	C744418	64.38
1.0625	1-1/16	3	6	1/2	C744420	64.38
1.0938	1-3/32	3	6	1/2	C744413	68.61
1.1250	1-1/8	3	6	1/2	C744416	73.68
1.1563	1-5/32	3	6	1/2	C744409	73.68
1.1875	1-3/16	3	6	1/2	C744414	81.19
1.2188	1-7/32	3	6	1/2	C744406	90.30
1.2500	1-1/4	3	6	1/2	C744417	90.30
1.3125	1-5/16	3	6	1/2	C744410	95.02
1.3750	1-3/8	3	6	1/2	C744412	109.45
1.4375	1-7/16	3	6	1/2	C744408	120.35
1.5000	1-1/2	3	6	1/2	C744419	132.24

For technical information, see pages 212 - 213

DRILLS - HIGH SPEED STEEL

Silver & Deming - 118° Split Point - 3 Flats - Black & Gold Oxide Finish



- 3" flute length
- 118° split point
- 1/2" shank
- 3 flats on shank to prevent spinning in a 3 Jaw Chuck
- Black & Gold Oxide finish minimizes friction and improves lubricity
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	SHANK DIA.	BLACK & GOLD OXIDE FINISH	
D1		L2	L1	D2	TOOL #	PRICE
.5156	33/64	3	6	1/2	C744441	24.58
.5313	17/32	3	6	1/2	C744450	24.58
.5469	35/64	3	6	1/2	C744440	26.02
.5625	9/16	3	6	1/2	C744423	26.02
.5781	37/64	3	6	1/2	C744439	27.61
.5938	19/32	3	6	1/2	C744449	27.61
.6094	39/64	3	6	1/2	C744438	28.71
.6250	5/8	3	6	1/2	C744432	28.71
.6406	41/64	3	6	1/2	C744437	30.45
.6563	21/32	3	6	1/2	C744448	30.45
.6719	43/64	3	6	1/2	C744436	31.79
.6875	11/16	3	6	1/2	C744453	31.79
.7031	45/64	3	6	1/2	C744435	33.08
.7188	23/32	3	6	1/2	C744447	33.08
.7344	47/64	3	6	1/2	C744434	34.58
.7500	3/4	3	6	1/2	C744443	34.58
.7656	49/64	3	6	1/2	C744433	36.42
.7813	25/32	3	6	1/2	C744446	36.42
.7969	51/64	3	6	1/2	C744431	38.76
.8125	13/16	3	6	1/2	C744452	38.76
.8281	53/64	3	6	1/2	C744430	40.50
.8438	27/32	3	6	1/2	C744445	40.50
.8594	55/64	3	6	1/2	C744429	41.54
.8750	7/8	3	6	1/2	C744424	41.54
.8906	57/64	3	6	1/2	C744428	43.38
.9063	29/32	3	6	1/2	C744444	43.38
.9219	59/64	3	6	1/2	C744427	46.62
.9375	15/16	3	6	1/2	C744451	46.62
.9531	61/64	3	6	1/2	C744426	50.25
.9688	31/32	3	6	1/2	C744442	50.25
.9844	63/64	3	6	1/2	C744425	52.74
1.0000	1	3	6	1/2	C744454	52.74

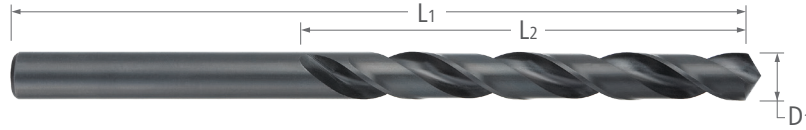
For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - HIGH SPEED STEEL Taper Length - 118° Point



- Taper length for drilling applications at extreme depths
- 118° point
- Black Oxide finish increases wear resistance and adds lubricity to improve chip flow
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size				TOOL #	PRICE
D ₁		L ₂	L ₁			
.0469	3/64	1-1/8	2-1/4	12	C745152	7.41
.0625	1/16	1-3/4	3	12	C745201	7.41
.0781	5/64	2	3-3/4	12	C745137	7.41
.0938	3/32	2-1/4	4-1/4	12	C745154	6.87
.0980	#40	2-1/2	4-5/8	12	C745087	7.61
.0995	#39	2-1/2	4-5/8	12	C745089	7.61
.1015	#38	2-1/2	4-5/8	12	C745090	8.71
.1040	#37	2-1/2	4-5/8	12	C745091	8.71
.1065	#36	2-1/2	4-5/8	12	C745092	8.71
.1094	7/64	2-1/2	4-5/8	12	C745126	7.16
.1100	#35	2-3/4	5-1/8	12	C745093	11.59
.1110	#34	2-3/4	5-1/8	12	C745094	11.59
.1130	#33	2-3/4	5-1/8	12	C745095	11.64
.1160	#32	2-3/4	5-1/8	12	C745096	11.59
.1200	#31	2-3/4	5-1/8	12	C745097	11.64
.1250	1/8	2-3/4	5-1/8	12	C745198	7.41
.1285	#30	3	5-3/8	12	C745098	11.84
.1360	#29	3	5-3/8	12	C745100	11.84
.1405	#28	3	5-3/8	12	C745101	11.84
.1406	9/64	3	5-3/8	12	C745122	9.95
.1440	#27	3	5-3/8	12	C745102	11.84
.1470	#26	3	5-3/8	12	C745103	11.84
.1495	#25	3	5-3/8	12	C745104	11.84
.1520	#24	3	5-3/8	12	C745105	11.84
.1540	#23	3	5-3/8	12	C745106	11.84
.1563	5/32	3	5-3/8	12	C745138	10.05
.1570	#22	3-3/8	5-3/4	12	C745107	11.84
.1590	#21	3-3/8	5-3/4	12	C745108	11.84
.1610	#20	3-3/8	5-3/4	12	C745109	11.84
.1660	#19	3-3/8	5-3/4	12	C745111	11.84
.1695	#18	3-3/8	5-3/4	12	C745112	11.84
.1719	11/64	3-3/8	5-3/4	12	C745191	10.55
.1730	#17	3-3/8	5-3/4	12	C745113	11.84
.1770	#16	3-3/8	5-3/4	12	C745114	11.84
.1800	#15	3-3/8	5-3/4	12	C745115	11.84
.1820	#14	3-3/8	5-3/4	12	C745116	11.84
.1850	#13	3-3/8	5-3/4	12	C745117	11.84

continued on next page

For technical information, see pages 212 - 213

DRILLS - HIGH SPEED STEEL

Taper Length - 118° Point (Cont.)

continued from previous page

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size					
D ₁		L ₂	L ₁		TOOL #	PRICE
.1875	3/16	3-3/8	5-3/4	12	C745155	9.75
.1890	#12	3-5/8	6	12	C745118	13.08
.1910	#11	3-5/8	6	12	C745119	13.08
.1935	#10	3-5/8	6	12	C745120	13.08
.1960	#9	3-5/8	6	12	C745082	13.08
.1990	#8	3-5/8	6	12	C745083	13.08
.2010	#7	3-5/8	6	12	C745084	13.08
.2031	13/64	3-5/8	6	12	C745181	11.99
.2040	#6	3-5/8	6	12	C745085	13.08
.2055	#5	3-5/8	6	12	C745086	13.08
.2090	#4	3-5/8	6	12	C745088	13.08
.2130	#3	3-5/8	6	12	C745099	13.08
.2188	7/32	3-5/8	6	12	C745127	12.84
.2210	#2	3-3/4	6-1/8	12	C745110	13.53
.2280	#1	3-3/4	6-1/8	12	C745121	13.53
.2344	15/64	3-3/4	6-1/8	12	C745175	12.84
.2500	1/4	3-3/4	6-1/8	12	C745199	11.09
.2656	17/64	3-7/8	6-1/4	6	C745170	13.43
.2813	9/32	3-7/8	6-1/4	6	C745123	13.43
.2969	19/64	4	6-3/8	6	C745166	14.68
.3125	5/16	4	6-3/8	6	C745139	14.68
.3281	21/64	4-1/8	6-1/2	6	C745164	14.68
.3438	11/32	4-1/8	6-1/2	6	C745194	14.68
.3594	23/64	4-1/4	6-3/4	6	C745162	17.31
.3750	3/8	4-1/4	6-3/4	6	C745151	17.31
.3906	25/64	4-3/8	6-3/4	6	C745160	19.70
.4063	13/32	4-3/8	7	6	C745184	19.70
.4219	27/64	4-5/8	7-1/4	6	C745158	20.94
.4375	7/16	4-5/8	7-1/4	6	C745128	20.94
.4531	29/64	4-3/4	7-1/2	6	C745156	23.78
.4688	15/32	4-3/4	7-1/2	6	C745177	23.78
.4844	31/64	4-3/4	7-3/4	6	C745149	25.17
.5000	1/2	4-3/4	7-3/4	6	C745200	25.17
.5156	33/64	4-3/4	8	1	C745148	33.28
.5313	17/32	4-3/4	8	1	C745172	33.28
.5469	35/64	4-7/8	8-1/4	1	C745147	35.12
.5625	9/16	4-7/8	8-1/4	1	C745124	35.12
.5781	37/64	4-7/8	8-3/4	1	C745146	41.09
.5938	19/32	4-7/8	8-3/4	1	C745168	41.09
.6094	39/64	4-7/8	8-3/4	1	C745145	42.39
.6250	5/8	4-7/8	8-3/4	1	C745136	42.39
.6406	41/64	5-1/8	9	1	C745144	48.51
.6563	21/32	5-1/8	9	1	C745165	48.51
.6719	43/64	5-3/8	9-1/4	1	C745143	57.06
.6875	11/16	5-3/8	9-1/4	1	C745197	57.06
.7031	45/64	5-5/8	9-1/2	1	C745142	59.65

continued on next page



DRILLS - HIGH SPEED STEEL

Taper Length - 118° Point (Cont.)

continued from previous page

DRILL DIAMETER		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK OXIDE FINISH	
dec. equiv.	size					
D ₁		L ₂	L ₁		TOOL #	PRICE
.7188	23/32	5-5/8	9-1/2	1	C745163	59.65
.7344	47/64	5-7/8	9-3/4	1	C745141	64.18
.7500	3/4	5-7/8	9-3/4	1	C745153	64.18
.7656	49/64	6	9-7/8	1	C745140	69.90
.7813	25/32	6	9-7/8	1	C745161	69.90
.7969	51/64	6-1/8	10	1	C745135	75.42
.8125	13/16	6-1/8	10	1	C745186	75.42
.8281	53/64	6-1/8	10	1	C745134	79.50
.8438	27/32	6-1/8	10	1	C745159	79.50
.8594	55/64	6-1/8	10	1	C745133	82.98
.8750	7/8	6-1/8	10	1	C745125	82.98
.8906	57/64	6-1/8	10	1	C745132	86.52
.9063	29/32	6-1/8	10	1	C745157	86.91
.9219	59/64	6-1/8	10-3/4	1	C745131	94.08
.9375	15/16	6-1/8	10-3/4	1	C745179	94.48
.9531	61/64	6-3/8	11	1	C745130	103.83
.9688	31/32	6-3/8	11	1	C745150	103.83
.9844	63/64	6-3/8	11	1	C745129	108.16
1.0000	1	6-3/8	11	1	C745202	108.16
1.0625	1-1/16	6-5/8	11-1/4	1	C745196	134.72
1.1250	1-1/8	7-1/8	11-3/4	1	C745190	149.20
1.1875	1-3/16	7-3/8	12	1	C745185	174.87
1.2500	1-1/4	7-7/8	12-1/2	1	C745192	187.31
1.3125	1-5/16	8-5/8	14-1/4	1	C745178	223.53
1.3750	1-3/8	8-7/8	14-1/2	1	C745180	239.70

DRILLS

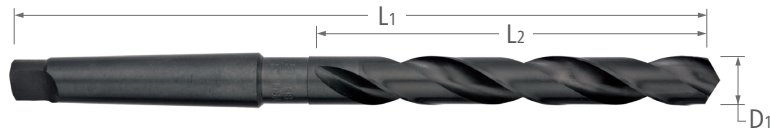
Carbide

Cobalt

HSS

DRILLS - HIGH SPEED STEEL

Taper Shank - 118° Point



- Morse taper shank
- 118° point
- Black Oxide finish increases wear resistance and adds lubricity to improve chip flow
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER dec. equiv. size		MORSE TAPER	FLUTE LENGTH	OAL	BLACK OXIDE FINISH	
D1			L2	L1	TOOL #	PRICE
.1875	3/16	1	2-1/2	5-3/4	C744993	26.12
.2031	13/64	1	2-3/4	6	C745026	26.12
.2188	7/32	1	2-3/4	6	C744969	26.12
.2344	15/64	1	2-7/8	6-1/8	C745018	26.12
.2500	1/4	1	2-7/8	6-1/8	C745057	26.12
.2656	17/64	1	3	6-1/4	C745012	26.12
.2813	9/32	1	3	6-1/4	C744966	26.12
.2969	19/64	1	3-1/8	6-3/8	C745006	27.71
.3125	5/16	1	3-1/8	6-3/8	C744979	29.10
.3281	21/64	1	3-1/4	6-1/2	C745002	29.10
.3438	11/32	1	3-1/4	6-1/2	C745053	29.10
.3594	23/64	1	3-1/2	6-3/4	C745000	29.75
.3750	3/8	1	3-1/2	6-3/4	C744991	29.85
.3906	25/64	1	3-5/8	7	C744998	35.52
.4063	13/32	1	3-5/8	7	C745029	35.52
.4219	27/64	1	3-7/8	7-1/4	C744996	38.21
.4375	7/16	1	3-7/8	7-1/4	C744970	38.21
.4531	29/64	1	4-1/8	7-1/2	C744994	38.06
.4688	15/32	1	4-1/8	7-1/2	C745020	38.21
.4844	31/64	2	4-3/8	8-1/4	C744989	41.79
.5000	1/2	2	4-3/8	8-1/4	C745058	39.10
.5156	33/64	2	4-5/8	8-1/2	C744988	44.87
.5313	17/32	2	4-5/8	8-1/2	C745014	46.37
.5469	35/64	2	4-7/8	8-3/4	C744987	49.10
.5625	9/16	2	4-7/8	8-3/4	C744967	47.81
.5781	37/64	2	4-7/8	8-3/4	C744986	51.99
.5938	19/32	2	4-7/8	8-3/4	C745008	51.39
.6094	39/64	2	4-7/8	8-3/4	C744985	54.08
.6250	5/8	2	4-7/8	8-3/4	C744978	51.94
.6406	41/64	2	5-1/8	9	C744984	59.75
.6563	21/32	2	5-1/8	9	C745003	58.56
.6719	43/64	2	5-3/8	9-1/4	C744983	64.18
.6875	11/16	2	5-3/8	9-1/4	C745056	60.65
.7031	45/64	2	5-5/8	9-1/2	C744982	66.91
.7188	23/32	2	5-5/8	9-1/2	C745001	64.63
.7344	47/64	2	5-7/8	9-3/4	C744981	71.34
.7500	3/4	2	5-7/8	9-3/4	C744992	70.74
.7656	49/64	2	6	9-7/8	C744980	85.67
.7813	25/32	2	6	9-7/8	C744999	84.72

Taper shank drills sold individually.

continued on next page

For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - HIGH SPEED STEEL

Taper Shank - 118° Point (Cont.)

continued from previous page

DRILL DIAMETER		MORSE TAPER	FLUTE LENGTH	OAL	BLACK OXIDE FINISH	
dec. equiv.	size				TOOL #	PRICE
D ₁			L ₂	L ₁		
.7969	51/64	3	6-1/8	10-3/4	C744977	93.33
.8125	13/16	3	6-1/8	10-3/4	C745031	87.66
.8281	53/64	3	6-1/8	10-3/4	C744976	97.61
.8438	27/32	3	6-1/8	10-3/4	C744997	94.53
.8594	55/64	3	6-1/8	10-3/4	C744975	107.16
.8750	7/8	3	6-1/8	10-3/4	C744968	97.86
.8906	57/64	3	6-1/8	10-3/4	C744974	102.83
.9063	29/32	3	6-1/8	10-3/4	C744995	102.83
.9219	59/64	3	6-1/8	10-3/4	C744973	104.28
.9375	15/16	3	6-1/8	10-3/4	C745022	97.76
.9531	61/64	3	6-3/8	11	C744972	107.11
.9688	31/32	3	6-3/8	11	C744990	106.42
.9844	63/64	3	6-3/8	11	C744971	113.63
1.0000	1	3	6-3/8	11	C745059	108.16
1.0156	1-1/64	3	6-1/2	11-1/8	C745050	126.37
1.0313	1-1/32	3	6-1/2	11-1/8	C745052	124.82
1.0469	1-3/64	3	6-5/8	11-1/4	C745025	130.79
1.0625	1-1/16	3	6-5/8	11-1/4	C745055	124.82
1.0781	1-5/64	4	6-7/8	12-1/2	C745017	148.60
1.0938	1-3/32	4	6-7/8	12-1/2	C745028	149.30
1.1094	1-7/64	4	7-1/8	12-3/4	C745011	154.52
1.1250	1-1/8	4	7-1/8	12-3/4	C745049	154.52
1.1406	1-9/64	4	7-1/4	12-7/8	C745005	166.46
1.1563	1-5/32	4	7-1/4	12-7/8	C745019	160.49
1.1719	1-11/64	4	7-3/8	13	C745046	166.46
1.1875	1-3/16	4	7-3/8	13	C745030	166.46
1.2031	1-13/64	4	7-1/2	13-1/8	C745043	178.30
1.2188	1-7/32	4	7-1/2	13-1/8	C745013	178.30
1.2500	1-1/4	4	7-7/8	13-1/2	C745051	186.66
1.3125	1-5/16	4	8-5/8	14-1/4	C745021	230.54
1.3750	1-3/8	4	8-7/8	14-1/2	C745024	244.92
1.4375	1-7/16	4	9-1/8	14-3/4	C745015	268.70
1.5000	1-1/2	4	9-3/8	15	C745054	281.78
1.5625	1-9/16	5	9-5/8	16-5/8	C745009	343.62
1.6250	1-5/8	5	10	17	C745016	370.99
1.6875	1-11/16	5	10-1/8	17-1/8	C745048	409.04
1.7500	1-3/4	5	10-1/8	17-1/8	C745027	435.16
1.8125	1-13/16	5	10-1/8	17-1/8	C745045	467.25
1.8750	1-7/8	5	10-3/8	17-3/8	C745010	487.45
1.9375	1-15/16	5	10-3/8	17-3/8	C745042	525.56
2.0000	2	5	10-3/8	17-3/8	C745004	544.56

Taper shank drills sold individually.

DRILLS

Carbide

Cobalt

HSS

DRILLS - HIGH SPEED STEEL

Extra Long - 118° Point



- Extra long length design for deep drilling applications
- 12" overall length
- Bright finish improves performance in plastics and other non-ferrous materials
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER		FLUTE LENGTH	OAL	BRIGHT FINISH	
dec. equiv.	size			TOOL #	PRICE
D ₁		L ₂	L ₁		
.1250	1/8	9	12	C744277	29.40
.1406	9/64	9	12	C744239	42.34
.1563	5/32	9	12	C744245	38.51
.1719	11/64	9	12	C744274	32.84
.1875	3/16	9	12	C744258	32.98
.2031	13/64	9	12	C744272	39.80
.2188	7/32	9	12	C744242	35.62
.2344	15/64	9	12	C744270	35.62
.2500	1/4	9	12	C744278	36.82
.2656	17/64	9	12	C744268	38.11
.2813	9/32	9	12	C744240	38.11
.2969	19/64	9	12	C744266	39.70
.3125	5/16	9	12	C744246	39.70
.3281	21/64	9	12	C744264	42.34
.3438	11/32	9	12	C744275	42.34
.3594	23/64	9	12	C744262	42.34
.3750	3/8	9	12	C744256	39.20
.3906	25/64	9	12	C744261	59.05
.4063	13/32	9	12	C744273	59.05
.4219	27/64	9	12	C744260	59.05
.4375	7/16	9	12	C744243	50.40
.4531	29/64	9	12	C744259	61.64
.4688	15/32	9	12	C744271	55.47
.4844	31/64	9	12	C744255	56.76
.5000	1/2	9	12	C744279	57.01
.5313	17/32	9	12	C744269	72.24
.5625	9/16	9	12	C744241	72.24
.5938	19/32	9	12	C744267	90.30
.6250	5/8	9	12	C744244	87.71
.6875	11/16	9	12	C744276	92.44
.7500	3/4	9	12	C744257	104.62

For technical information, see pages 212 - 213

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



DRILLS - HIGH SPEED STEEL Mechanics Length -135° Split Point



- 3 flats on shank for added tool holding security in 3 Jaw Chucks
- 135° split point
- Black & Gold Oxide finish minimizes friction and improves lubricity
- High speed steel
- Precision manufactured in the USA

DRILL DIAMETER dec. equiv. size		FLUTE LENGTH	OAL	PACKAGE QTY.	BLACK & GOLD OXIDE FINISH	
D ₁		L ₂	L ₁		TOOL #	PRICE
.0625	1/16	7/8	1-7/8	12	C745571	1.59
.0781	5/64	1	2	12	C745548	1.69
.0938	3/32	1-1/4	2-1/4	12	C745553	1.69
.1094	7/64	1-5/16	2-3/8	12	C745545	1.74
.1250	1/8	1-7/16	2-1/2	12	C745568	1.79
.1406	9/64	1-9/16	2-5/8	12	C745543	1.84
.1563	5/32	1-11/16	2-3/4	12	C745549	2.19
.1719	11/64	1-13/16	2-7/8	12	C745566	2.24
.1875	3/16	1-7/8	3	12	C745554	2.49
.2031	13/64	1-15/16	3-1/8	12	C745564	2.74
.2188	7/32	2	3-1/4	12	C745546	2.99
.2344	15/64	2-1/16	3-3/8	12	C745562	3.18
.2500	1/4	2	3-1/2	12	C745569	3.33
.2656	17/64	2-1/8	3-5/8	6	C745561	4.13
.2813	9/32	2-1/4	3-3/4	6	C745544	4.13
.2969	19/64	2-3/8	3-7/8	6	C745560	4.88
.3125	5/16	2-1/2	4	6	C745550	5.22
.3281	21/64	2-9/16	4-1/16	6	C745559	5.57
.3438	11/32	2-5/8	4-1/8	6	C745567	6.07
.3594	23/64	2-11/16	4-3/16	6	C745558	6.42
.3750	3/8	2-11/16	4-1/4	6	C745552	6.87
.3906	25/64	2-3/4	4-5/16	6	C745557	7.31
.4063	13/32	2-13/16	4-3/8	6	C745565	7.81
.4219	27/64	2-7/8	4-7/16	6	C745556	8.86
.4375	7/16	2-15/16	4-1/2	6	C745547	9.30
.4531	29/64	3	4-5/8	6	C745555	10.15
.4688	15/32	3-1/8	4-3/4	6	C745563	10.95
.4844	31/64	3-1/4	4-7/8	6	C745551	11.14
.5000	1/2	3-3/8	5	6	C745570	11.49

Sizes 3/16" through 1/2" include 3 Flats. Sizes 27/64" and larger include 3/8" reduced flatted shanks.

SCREW EXTRACTORS

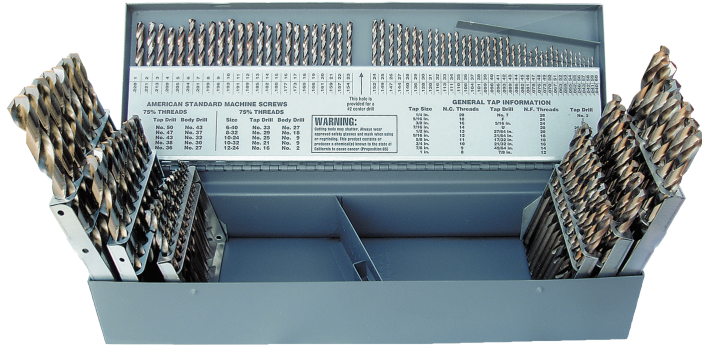


- High speed steel
- Precision manufactured in the USA

SIZE	FOR SCREW & BOLT SIZES	PIPE SIZE	PACKAGE QUANTITY	UNCOATED	
				TOOL #	PRICE
1	3/16 - 1/4	-	1	C745080	4.78
2	1/4 - 5/16	-	1	C745076	5.07
3	5/16 - 7/16	-	1	C745075	6.17
4	7/16 - 9/16	1/8	1	C745074	6.52
5	9/16 - 3/4	1/4	1	C745073	8.16
6	3/4-1	3/8	1	C745072	18.01
7	1 - 1-3/8	1/2	1	C745071	29.05
SET	SIZES 1-5	-	1	C745081	30.85

DRILL SETS - COBALT Jobber Drill Sets

- Comprehensive drill set featuring tools with jobber length geometry, ideal for deeper drilling applications
- M42 cobalt
- Precision manufactured in the USA



DESCRIPTION	GOLD OXIDE FINISH	
	TOOL #	PRICE
13PC • 1/16" - 1/4" by 64ths • Heavy Duty • 135° SP/PT	C739717	39.70
15PC • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT	C739714	117.56
21PC • 1/16" - 3/8" by 64ths • Heavy Duty • 135° SP/PT	C739707	128.01
26PC • A - Z • Heavy Duty • 135° SP/PT	C739703	224.62
29PC • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT	C739695	224.62
60PC • #1 - #60 • Heavy Duty • 135° SP/PT	C739684	166.61
115PC • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • H.D. • 135° SP/PT	C739725	703.12

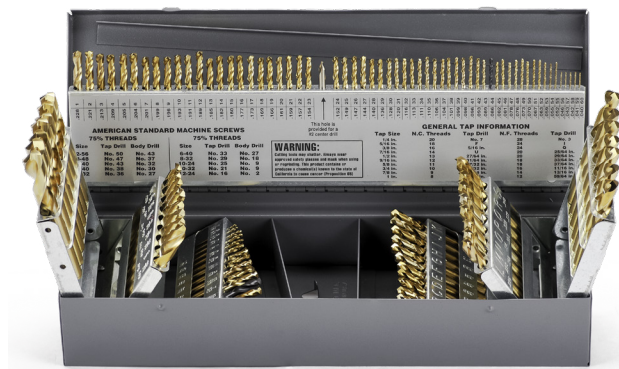
DRILL SETS

Cobalt

HSS

DRILL SETS - COBALT Screw Machine Drill Set

- Comprehensive cobalt drill set featuring tools with screw machine length geometry for extra strength
- M42 cobalt
- Precision manufactured in the USA



DESCRIPTION	GOLD OXIDE FINISH	
	TOOL #	PRICE
115PC • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • H.D. • 135° SP/PT	C770000	582.97

DRILL SETS - HIGH SPEED STEEL

Jobber Drill Sets

- Comprehensive drill set featuring tools with jobber length geometry, ideal for deeper drilling applications
- High speed steel
- Precision manufactured in the USA



DESCRIPTION	BRIGHT FINISH		BLACK OXIDE FINISH		TIN COATED	
	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
13PC • 1/16" - 1/4" by 64ths • 118° Point	C739716	26.62	C739719	26.62		
15PC • 1/16" - 1/2" by 32nds • 118° Point	C739711	73.48	C739715	73.48		
15PC • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT			C739713	80.89		
21PC • 1/16" - 3/8" by 64ths • 118° Point	C739706	62.29	C739708	62.29		
25PC • 1.0mm - 13.0mm by 0.5mm • 118° Point			C764472	142.14		
26PC • A - Z • 118° Point	C739702	104.33	C739704	104.33		
29PC • 1/16" - 1/2" by 64ths • 118° Point	C739692	105.42	C739697	105.42		
29PC • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT			C739694	125.62		
29PC • 1/16" - 1/2" by 64ths • 118° Point					C739690	292.78
60PC • #1 - #60 • 118° Point	C739683	91.54	C739685	91.54		
115PC • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • 118° Point	C739724	295.96	C739727	295.96		

DRILL SETS

Cobalt

HSS



DRILL SETS - HIGH SPEED STEEL Jobber Drill Sets - Black & Gold Oxide Finish

- Comprehensive set of drills with Black & Gold finish for minimized friction and improved lubricity.
- High speed steel
- Precision manufactured in the USA



DESCRIPTION	BLACK & GOLD OXIDE FINISH	
	TOOL #	PRICE
13PC • 1/16" - 1/4" by 64ths • Heavy Duty • 135° SP/PT • Black & Gold Oxide	C739718	32.98
15PC • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT • Black & Gold Oxide	C748261	95.27
21PC • 1/16" - 3/8" by 64ths • Heavy Duty • 135° SP/PT • Black & Gold Oxide	C750112	93.18
29PC • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT • Black & Gold Oxide	C739696	152.24
29PC • 1/16" - 1/2" by 64ths • H.D. • 135° SP/PT • Black & Gold Oxide • Plastic Case	C750114	152.24
115PC • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • Heavy Duty • 135° SP/PT • Black & Gold Oxide	C739726	452.48

Sizes below 1/16" are not split point.

DRILL SETS

Cobalt

HSS

DRILL SETS - HIGH SPEED STEEL Mechanics Length Sets

- Comprehensive drill set featuring tools with mechanics length geometry for added tool holding security in 3 Jaw Chucks
- High speed steel
- Precision manufactured in the USA



DESCRIPTION	BLACK & GOLD OXIDE FINISH	
	TOOL #	PRICE
15PC • 1/16" - 1/2" by 32ths • Black & Gold • Heavy Duty • 135° SP/PT • Metal Case	C739712	89.45
29PC • 1/16" - 1/2" by 64ths • Black & Gold • Heavy Duty • 135° SP/PT • Metal Case	C739693	165.57
29PC • 1/16" - 1/2" by 64ths • Black & Gold • Heavy Duty • 135° SP/PT • Plastic Case	C750115	165.57

Mechanics Length sizes 3/16" to 1/2" include 3 flats.
Sizes 27/64" and up include 3/8" reduced flat shanks.

DRILL SETS - HIGH SPEED STEEL Silver & Deming Sets



- Comprehensive Silver & Deming drill set featuring tools with a 1/2" shank diameter
- High speed steel
- Precision manufactured in the USA

DESCRIPTION	UNCOATED		BLACK & GOLD OXIDE	
	TOOL #	PRICE	TOOL #	PRICE
8PC • HSS • 9/16" - 1" by 16ths • 118° Point • Plastic Case	C742328	265.12		
8PC • HSS • 9/16" - 1" by 16ths • 118° Split Point • Plastic Case			C742329	318.35
8PC • 9/16" - 1" by 16ths • M42 cobalt • 135° Split Point • Plastic Case	C742330	527.00		
33PC • HSS • 1/2" - 1" by 64ths • 118° Point • Metal Stand	C746156	1,091.27		

DRILL SETS

Cobalt

HSS

DRILL SETS - HIGH SPEED STEEL Tap & Drill Sets

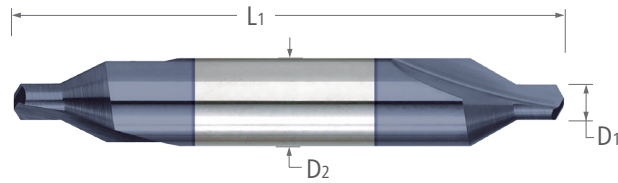


- 18 piece tap & drill set
- High speed steel
- Precision manufactured in the USA

DESCRIPTION	TOOL #	PRICE
18PC • (6-32, #36), (8-32, #29), (10-24, #25), (10-32, #21), (1/4-20, #7) (5/16-18,"F"), (3/8-16, 5/16"), (7/16-14,"U"), (1/2-13, 27/64) • Metal Case	C750113	135.77



COMBINED DRILL & COUNTERSINKS - CARBIDE



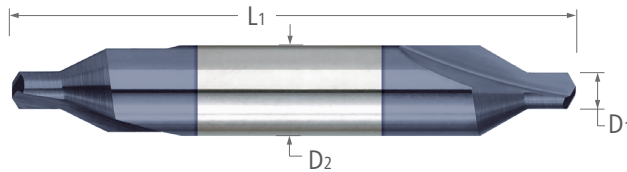
- 60° included angle
- Double-ended
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

SIZE	DRILL DIA.	BODY DIA.	OAL	PACKAGE QTY.	UNCOATED		AlTiN COATED	
	D ₁	D ₂	L ₁		TOOL #	PRICE	TOOL #	PRICE
00	.025	1/8	1-1/2	1	C762024	19.40	C763887	23.58
0	1/32	1/8	1-1/2	1	C762025	18.66	C763888	22.84
1	3/64	1/8	1-1/2	1	C746394	16.96	C763889	21.14
2	5/64	3/16	2	1	C746382	25.22	C763890	29.95
3	7/64	1/4	2	1	C735022	28.31	C763891	33.98
4	1/8	5/16	2-1/2	1	C746358	36.72	C763892	43.93
5	3/16	7/16	2-3/4	1	C746346	57.91	C763893	69.00
6	7/32	1/2	3	1	C746334	72.44	C763894	85.92

COMBINED DRILL & COUNTERSINKS

For technical information, see pages 214

COMBINED DRILL & COUNTERSINKS - M42 COBALT

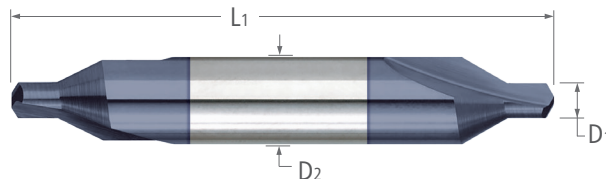


- 60° included angle
- Double-ended
- AlTiN coating offers increased wear and heat resistance
- M42 cobalt
- Precision manufactured in the USA

SIZE	DRILL DIA.	BODY DIA.	OAL	PACKAGE QTY.	UNCOATED		AlTiN COATED	
	D1	D2	L1		TOOL #	PRICE	TOOL #	PRICE
1	3/64	1/8	1-1/4	6	C735471	17.76	C771450	21.94
2	5/64	3/16	1-7/8	6	C735469	19.20	C771451	23.93
3	7/64	1/4	2	6	C735262	19.85	C771452	25.52
4	1/8	5/16	2-1/8	6	C735470	20.75	C771453	27.96

COMBINED DRILL & COUNTERSINKS

COMBINED DRILL & COUNTERSINKS - HIGH SPEED STEEL

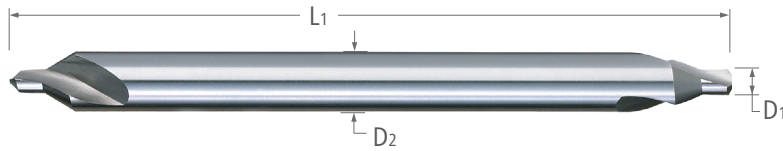


- 60° included angle
- Double-ended
- AlTiN coating offers increased wear and heat resistance
- High speed steel
- Precision manufactured in the USA

SIZE	DRILL DIA.	BODY DIA.	OAL	PACKAGE QTY.	UNCOATED		AlTiN COATED	
	D1	D2	L1		TOOL #	PRICE	TOOL #	PRICE
00000	.010	1/8	1-1/4	6	C745416	10.70	C771449	14.53
0000	.015	1/8	1-1/4	6	C735019	9.80	C771448	13.98
000	.020	1/8	1-1/4	6	C735020	9.30	C771447	13.33
00	.025	1/8	1-1/4	6	C745419	9.30	C746154	12.69
0	1/32	1/8	1-1/4	6	C735021	9.80	C746155	12.69
1	3/64	1/8	1-1/4	6	C735005	5.92	C746153	9.60
2	5/64	3/16	1-7/8	6	C735006	6.17	C746152	9.85
3	7/64	1/4	2	6	C735007	6.42	C746151	12.34
4	1/8	5/16	2-1/8	6	C735008	6.62	C735251	13.83
5	3/16	7/16	2-3/4	1	C735205	10.55	C746149	18.31
6	7/32	1/2	3	1	C735009	15.72	C746148	28.26
7	1/4	5/8	3-1/4	1	C747772	27.41	C746147	41.89
8	5/16	3/4	3-1/2	1	C747771	38.36	C746146	65.32

COMBINED DRILL & COUNTERSINKS - HIGH SPEED STEEL

Long Length



- 60° included angle
- Long length design
- Double-ended
- High speed steel
- Precision manufactured in the USA

SIZE	DRILL DIA.	BODY DIA.	OAL	PACKAGE QTY.	UNCOATED	
	D1	D2	L1		TOOL #	PRICE
1 x 3	3/64	1/8	3	1	C735010	14.73
1 x 4	3/64	1/8	4	1	C735011	15.47
1 x 5	3/64	1/8	5	1	C745413	21.49
1 x 6	3/64	1/8	6	1	C745412	28.16
2 x 3	5/64	3/16	3	1	C745399	14.97
2 x 4	5/64	3/16	4	1	C735013	16.87
2 x 5	5/64	3/16	5	1	C745397	21.74
2 x 6	5/64	3/16	6	1	C735012	28.11
3 x 3	7/64	1/4	3	1	C745390	15.67
3 x 4	7/64	1/4	4	1	C735014	17.76
3 x 5	7/64	1/4	5	1	C735015	23.53
3 x 6	7/64	1/4	6	1	C745387	28.36
4 x 4	1/8	5/16	4	1	C735016	19.70
4 x 5	1/8	5/16	5	1	C745381	25.27
4 x 6	1/8	5/16	6	1	C745380	29.25
4-1/2 x 4	9/64	3/8	4	1	C735206	22.24
4-1/2 x 5	9/64	3/8	5	1	C745378	32.39
4-1/2 x 6	9/64	3/8	6	1	C745377	35.97
5 x 4	3/16	7/16	4	1	C745376	25.87
5 x 5	3/16	7/16	5	1	C745375	30.10
5 x 6	3/16	7/16	6	1	C735017	33.78
6 x 5	7/32	1/2	5	1	C745370	32.19
6 x 6	7/32	1/2	6	1	C745369	38.90
7 x 6	1/4	5/8	6	1	C745368	72.83
8 x 6	5/16	3/4	6	1	C745364	88.06

COMBINED DRILL & COUNTERSINKS

For technical information, see pages 214

COUNTERSINKS - CARBIDE

Single Flute



- 60°, 82°, 90°, and 100° included angle options
- Single flute design
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

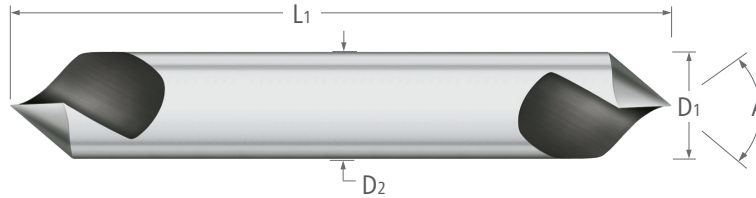
INCLUDED ANGLE	SIZE	SHANK DIAMETER	OVERALL LENGTH	UNCOATED	
A	D1	D2	L1	TOOL #	PRICE
60°	1/8*	1/8	1-1/2	C746316	15.17
	3/16*	3/16	2	C746315	16.17
	1/4*	1/4	2	C746317	18.41
	3/8	1/4	2-5/8	C746313	33.33
	1/2	1/4	2-5/8	C746318	41.04
	5/8	3/8	2-3/4	C746312	60.30
	3/4	3/8	2-3/4	C746314	85.27
	1	1/2	3	C746319	125.72
82°	1/8*	1/8	1-1/2	C746308	15.17
	3/16*	3/16	2	C746307	16.17
	1/4*	1/4	2	C746309	18.41
	3/8	1/4	2-5/8	C746305	33.33
	1/2	1/4	2-5/8	C746310	41.04
	5/8	3/8	2-3/4	C746304	60.30
	3/4	3/8	2-3/4	C746306	85.27
	1	1/2	3	C746311	125.72
90°	1/8*	1/8	1-1/2	C746300	15.17
	3/16*	3/16	2	C746299	16.17
	1/4*	1/4	2	C746301	18.41
	3/8	1/4	2-5/8	C746297	33.33
	1/2	1/4	2-5/8	C746302	41.04
	5/8	3/8	2-3/4	C746296	60.30
	3/4	3/8	2-3/4	C746298	85.27
	1	1/2	3	C746303	125.72
100°	1/8*	1/8	1-1/2	C762000	15.17
	3/16*	3/16	2	C762001	16.17
	1/4*	1/4	2	C762002	18.41
	3/8	1/4	2-5/8	C762003	33.33
	1/2	1/4	2-5/8	C762004	41.04
	5/8	3/8	2-3/4	C762005	60.30
	3/4	3/8	2-3/4	C762006	85.27
	1	1/2	3	C762007	125.72

*One solid carbide piece.

COUNTERSINKS

COUNTERSINKS - CARBIDE

Single Flute - Double-Ended



- Designed for countersinking, chamfering, and deburring holes
- 60°, 82°, 90°, 100° and 120° included angle options
- Solid carbide
- Precision manufactured in the USA
- Double-ended

INCLUDED ANGLE	SIZE	SHANK DIAMETER	OVERALL LENGTH	UNCOATED	
A	D ₁	D ₂	L ₁	TOOL #	PRICE
60°	1/8	1/8	1-1/2	C774966	36.96
	3/16	3/16	2	C774967	47.51
	1/4	1/4	2	C774968	59.85
	5/16	5/16	2-1/2	C774969	96.22
	3/8	3/8	2-1/2	C774970	113.98
	1/2	1/2	3	C774971	160.64
	5/8	5/8	3-1/2	C774972	213.23
	3/4	3/4	4	C774973	304.37
82°	1/8	1/8	1-1/2	C774974	36.96
	3/16	3/16	2	C774975	47.51
	1/4	1/4	2	C774976	59.85
	5/16	5/16	2-1/2	C774977	96.22
	3/8	3/8	2-1/2	C774978	113.98
	1/2	1/2	3	C774979	160.64
	5/8	5/8	3-1/2	C774980	213.23
	3/4	3/4	4	C774981	304.37
90°	1/8	1/8	1-1/2	C774982	36.96
	3/16	3/16	2	C774983	47.51
	1/4	1/4	2	C774984	59.85
	5/16	5/16	2-1/2	C774985	96.22
	3/8	3/8	2-1/2	C774986	113.98
	1/2	1/2	3	C774987	160.64
	5/8	5/8	3-1/2	C774988	213.23
	3/4	3/4	4	C774989	304.37
100°	1/8	1/8	1-1/2	C774990	36.96
	3/16	3/16	2	C774991	47.51
	1/4	1/4	2	C774992	59.85
	5/16	5/16	2-1/2	C774993	96.22
	3/8	3/8	2-1/2	C774994	113.98
	1/2	1/2	3	C774995	160.64
	5/8	5/8	3-1/2	C774996	213.23
	3/4	3/4	4	C774997	304.37
120°	1/8	1/8	1-1/2	C774998	36.96
	3/16	3/16	2	C774999	47.51
	1/4	1/4	2	C775000	59.85
	5/16	5/16	2-1/2	C775001	96.22
	3/8	3/8	2-1/2	C775002	113.98
	1/2	1/2	3	C775003	160.64
	5/8	5/8	3-1/2	C775004	213.23
	3/4	3/4	4	C775005	304.37

COUNTERSINKS

For technical information, see pages 214

COUNTERSINKS - CARBIDE

3 Flute



- 60°, 82°, 90°, and 100° included angle options
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

COUNTERSINKS

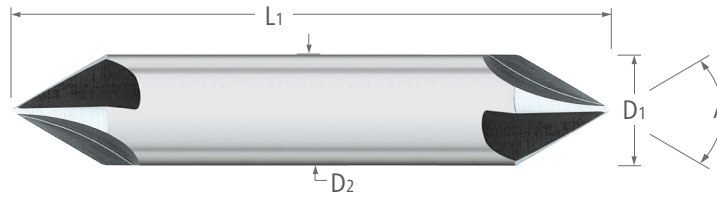
INCLUDED ANGLE	SIZE	SHANK DIAMETER	OVERALL LENGTH	UNCOATED	
A	D1	D2	L1	TOOL #	PRICE
60°	1/8*	1/8	1-1/2	C746177	15.17
	3/16*	3/16	2	C746176	16.17
	1/4*	1/4	2	C746178	18.41
	3/8	1/4	2-5/8	C746174	33.33
	1/2	1/4	2-5/8	C746179	41.04
	5/8	3/8	2-3/4	C746173	60.30
	3/4	3/8	2-3/4	C746175	85.27
	1	1/2	3	C746180	125.72
82°	1/8*	1/8	1-1/2	C746169	15.17
	3/16*	3/16	2	C746168	16.17
	1/4*	1/4	2	C746170	18.41
	3/8	1/4	2-5/8	C746166	33.33
	1/2	1/4	2-5/8	C746171	41.04
	5/8	3/8	2-3/4	C746165	60.30
	3/4	3/8	2-3/4	C746167	85.27
	1	1/2	3	C746172	125.72
90°	1/8*	1/8	1-1/2	C746161	15.17
	3/16*	3/16	2	C746160	16.17
	1/4*	1/4	2	C746162	18.41
	3/8	1/4	2-5/8	C746158	33.33
	1/2	1/4	2-5/8	C746163	41.04
	5/8	3/8	2-3/4	C746157	60.30
	3/4	3/8	2-3/4	C746159	85.27
	1	1/2	3	C746164	125.72
100°	1/8*	1/8	1-1/2	C762008	15.17
	3/16*	3/16	2	C762009	16.17
	1/4*	1/4	2	C762010	18.41
	3/8	1/4	2-5/8	C762011	33.33
	1/2	1/4	2-5/8	C762012	41.04
	5/8	3/8	2-3/4	C762013	60.30
	3/4	3/8	2-3/4	C762014	85.27
	1	1/2	3	C762015	125.72

*One solid carbide piece



COUNTERSINKS - CARBIDE

4 Flute - Double-Ended



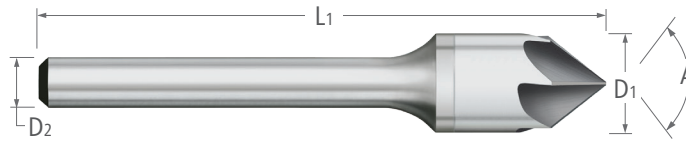
- Designed for countersinking, chamfering, and deburring holes
- 60°, 82°, 90°, 100°, 120° included angle options
- Double-ended
- 4 flute design allows for higher feed rates over single flute design
- Solid carbide
- Precision manufactured in the USA

INCLUDED ANGLE	SIZE	SHANK DIAMETER		OVERALL LENGTH	UNCOATED	
		D ₁	D ₂	L ₁	TOOL #	PRICE
60°	1/8	1/8	1/8	1-1/2	C775006	36.96
	3/16	3/16	3/16	2	C775007	47.51
	1/4	1/4	1/4	2	C775008	59.85
	5/16	5/16	5/16	2-1/2	C775009	96.22
	3/8	3/8	3/8	2-1/2	C775010	113.98
	1/2	1/2	1/2	3	C775011	160.64
	5/8	5/8	5/8	3-1/2	C775012	213.23
	3/4	3/4	3/4	4	C775013	304.37
82°	1/8	1/8	1/8	1-1/2	C775014	36.96
	3/16	3/16	3/16	2	C775015	47.51
	1/4	1/4	1/4	2	C775016	59.85
	5/16	5/16	5/16	2-1/2	C775017	96.22
	3/8	3/8	3/8	2-1/2	C775018	113.98
	1/2	1/2	1/2	3	C775019	160.64
	5/8	5/8	5/8	3-1/2	C775020	213.23
	3/4	3/4	3/4	4	C775021	304.37
90°	1/8	1/8	1/8	1-1/2	C775022	36.96
	3/16	3/16	3/16	2	C775023	47.51
	1/4	1/4	1/4	2	C775024	59.85
	5/16	5/16	5/16	2-1/2	C775025	96.22
	3/8	3/8	3/8	2-1/2	C775026	113.98
	1/2	1/2	1/2	3	C775027	160.64
	5/8	5/8	5/8	3-1/2	C775028	213.23
	3/4	3/4	3/4	4	C775029	304.37
100°	1/8	1/8	1/8	1-1/2	C775030	36.96
	3/16	3/16	3/16	2	C775031	47.51
	1/4	1/4	1/4	2	C775032	59.85
	5/16	5/16	5/16	2-1/2	C775033	96.22
	3/8	3/8	3/8	2-1/2	C775034	113.98
	1/2	1/2	1/2	3	C775035	160.64
	5/8	5/8	5/8	3-1/2	C775036	213.23
	3/4	3/4	3/4	4	C775037	304.37
120°	1/8	1/8	1/8	1-1/2	C775038	36.96
	3/16	3/16	3/16	2	C775039	47.51
	1/4	1/4	1/4	2	C775040	59.85
	5/16	5/16	5/16	2-1/2	C775041	96.22
	3/8	3/8	3/8	2-1/2	C775042	113.98
	1/2	1/2	1/2	3	C775043	160.64
	5/8	5/8	5/8	3-1/2	C775044	213.23
	3/4	3/4	3/4	4	C775045	304.37

For technical information, see pages 214

COUNTERSINKS - CARBIDE

6 Flute



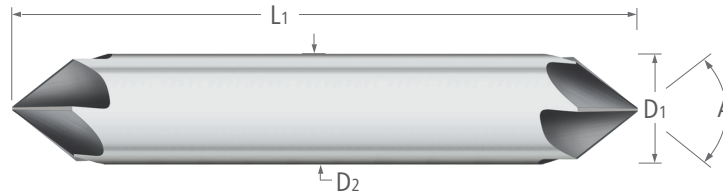
- 6 Flute chatterless design for improved finish
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA
- 60°, 82°, 90°, and 100° included angle options

INCLUDED ANGLE	SIZE	SHANK DIAMETER		OVERALL LENGTH	UNCOATED	
		D ₁	D ₂	L ₁	TOOL #	PRICE
60°	1/8*	1/8	1-1/2	C746142	15.17	
	3/16*	3/16	2	C746141	16.17	
	1/4*	1/4	2	C746143	18.41	
	3/8	1/4	2-5/8	C746139	33.33	
	1/2	1/4	2-5/8	C746144	41.04	
	5/8	3/8	2-3/4	C746138	60.30	
	3/4	3/8	2-3/4	C746140	85.27	
	1	1/2	3	C746145	125.72	
82°	1/8*	1/8	1-1/2	C746134	15.17	
	3/16*	3/16	2	C746133	16.17	
	1/4*	1/4	2	C746135	18.41	
	3/8	1/4	2-5/8	C746131	33.33	
	1/2	1/4	2-5/8	C746136	41.04	
	5/8	3/8	2-3/4	C746130	60.30	
	3/4	3/8	2-3/4	C746132	85.27	
	1	1/2	3	C746137	125.72	
90°	1/8*	1/8	1-1/2	C746126	15.17	
	3/16*	3/16	2	C746125	16.17	
	1/4*	1/4	2	C746127	18.41	
	3/8	1/4	2-5/8	C746123	33.33	
	1/2	1/4	2-5/8	C746128	41.04	
	5/8	3/8	2-3/4	C746122	60.30	
	3/4	3/8	2-3/4	C735261	85.27	
	1	1/2	3	C746129	125.72	
100°	1/8*	1/8	1-1/2	C762016	15.17	
	3/16*	3/16	2	C762017	16.17	
	1/4*	1/4	2	C762018	18.41	
	3/8	1/4	2-5/8	C762019	33.33	
	1/2	1/4	2-5/8	C762020	41.04	
	5/8	3/8	2-3/4	C762021	60.30	
	3/4	3/8	2-3/4	C762022	85.27	
	1	1/2	3	C762023	125.72	

*One solid carbide piece

COUNTERSINKS - CARBIDE

6 Flute - Double-Ended



- Designed for countersinking, chamfering, and deburring holes
- 60°, 82°, 90°, 100°, and 120° included angle options
- Double-ended
- 6 flute design allows for higher feed rates over 4 flute design
- Solid carbide
- Precision manufactured in the USA

INCLUDED ANGLE	SIZE	SHANK DIAMETER	OVERALL LENGTH	UNCOATED	
A	D1	D2	L1	TOOL #	PRICE
60°	1/8	1/8	1-1/2	C775046	36.96
	3/16	3/16	2	C775047	47.51
	1/4	1/4	2	C775048	59.85
	5/16	5/16	2-1/2	C775049	96.22
	3/8	3/8	2-1/2	C775050	113.98
	1/2	1/2	3	C775051	160.64
	5/8	5/8	3-1/2	C775052	213.23
	3/4	3/4	4	C775053	304.37
82°	1/8	1/8	1-1/2	C775054	36.96
	3/16	3/16	2	C775055	47.51
	1/4	1/4	2	C775056	59.85
	5/16	5/16	2-1/2	C775057	96.22
	3/8	3/8	2-1/2	C775058	113.98
	1/2	1/2	3	C775059	160.64
	5/8	5/8	3-1/2	C775060	213.23
	3/4	3/4	4	C775061	304.37
90°	1/8	1/8	1-1/2	C775062	36.96
	3/16	3/16	2	C775063	47.51
	1/4	1/4	2	C775064	59.85
	5/16	5/16	2-1/2	C775065	96.22
	3/8	3/8	2-1/2	C775066	113.98
	1/2	1/2	3	C775067	160.64
	5/8	5/8	3-1/2	C775068	213.23
	3/4	3/4	4	C775069	304.37
100°	1/8	1/8	1-1/2	C775070	36.96
	3/16	3/16	2	C775071	47.51
	1/4	1/4	2	C775072	59.85
	5/16	5/16	2-1/2	C775073	96.22
	3/8	3/8	2-1/2	C775074	113.98
	1/2	1/2	3	C775075	160.64
	5/8	5/8	3-1/2	C775076	213.23
	3/4	3/4	4	C775077	304.37
120°	1/8	1/8	1-1/2	C775078	36.96
	3/16	3/16	2	C775079	47.51
	1/4	1/4	2	C775080	59.85
	5/16	5/16	2-1/2	C775081	96.22
	3/8	3/8	2-1/2	C775082	113.98
	1/2	1/2	3	C775083	160.64
	5/8	5/8	3-1/2	C775084	213.23
	3/4	3/4	4	C775085	304.37

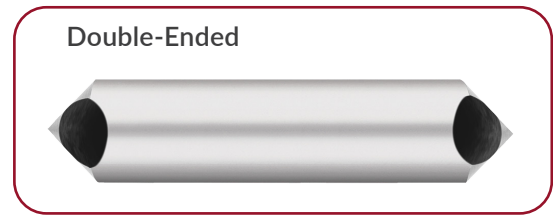
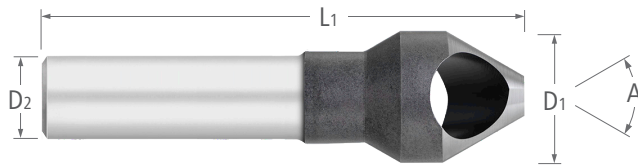
COUNTERSINKS

For technical information, see pages 214



COUNTERSINKS - COBALT

Zero Flute



- Designed with a radially-relieved single edge for fast removal without chatter
- 60°, 82°, 90° included angle options
- Precision manufactured in the USA
- M42 cobalt

INCLUDED ANGLE	SIZE	SHANK DIAMETER	OVERALL LENGTH	END	UNCOATED	
A	D ₁	D ₂	L ₁		TOOL #	PRICE
60°	1/4	1/4	1-1/2	DE	C774871	20.05
	7/16	1/4	2-1/32	SE	C774872	26.47
	9/16	1/4	2	SE	C774873	33.68
	13/16	1/2	2-5/8	SE	C774874	60.89
	1-1/8	1/2	2-7/8	SE	C774875	100.05
82°	1/4	1/4	1-1/2	DE	C774876	20.05
	7/16	1/4	2-1/32	SE	C774877	26.47
	9/16	1/4	2	SE	C774878	33.68
	13/16	1/2	2-5/8	SE	C774879	60.89
	1-1/8	1/2	2-7/8	SE	C774880	100.05
90°	1/4	1/4	1-1/2	DE	C774881	20.05
	7/16	1/4	2-1/32	SE	C774882	26.47
	9/16	1/4	2	SE	C774883	33.68
	13/16	1/2	2-5/8	SE	C774884	60.89
	1-1/8	1/2	2-7/8	SE	C774885	100.05

COUNTERSINKS

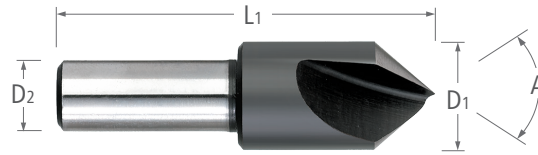
For technical information, see pages 214

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

COUNTERSINKS - HIGH SPEED STEEL

Single Flute

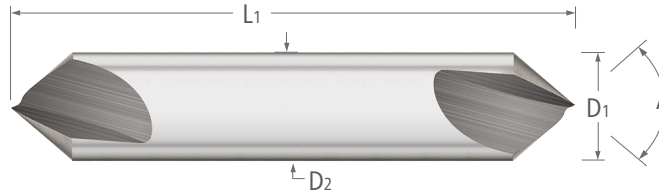


- 60°, 82°, and 90° included angle options
- Single flute design
- High speed steel
- Precision manufactured in the USA

INCLUDED ANGLE	SIZE	SHANK DIAMETER	OVERALL LENGTH	UNCOATED	
A	D1	D2	L1	TOOL #	PRICE
60°	1/4	3/16	1-7/16	C745225	16.57
	3/8	1/4	1-21/32	C745223	18.95
	1/2	1/4	1-13/32	C745226	24.23
	3/4	1/2	1-27/32	C745224	33.28
	1	1/2	2-13/16	C745227	51.74
82°	1/4	3/16	1-7/16	C745220	16.57
	3/8	1/4	1-21/32	C745218	18.95
	1/2	1/4	1-13/32	C745221	24.23
	3/4	1/2	1-27/32	C745219	33.28
	1	1/2	2-13/16	C745222	51.74
90°	1/4	3/16	1-7/16	C745215	16.57
	3/8	1/4	1-21/32	C745213	18.95
	1/2	1/4	1-13/32	C745216	24.23
	3/4	1/2	1-27/32	C745214	33.28
	1	1/2	2-13/16	C745217	51.74

COUNTERSINKS - HIGH SPEED STEEL

Single Flute - Double-Ended



- Designed for countersinking, and deburring holes
- 60°, 82°, 90°, 100°, 120° included angle options
- High speed steel
- Precision manufactured in the USA

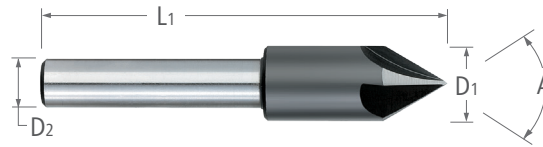
INCLUDED ANGLE	SIZE	SHANK DIAMETER	OVERALL LENGTH	UNCOATED	
A	D1	D2	L1	TOOL #	PRICE
60°	1/8	1/8	1-1/2	C774886	15.32
	3/16	3/16	2	C774887	16.57
	1/4	1/4	2	C774888	17.06
	5/16	5/16	2-1/2	C774889	19.40
	3/8	3/8	2-1/2	C774890	21.74
	1/2	1/2	3	C774891	27.11
	5/8	5/8	3-1/2	C774892	39.20
	3/4	3/4	4	C774893	56.12
82°	1/8	1/8	1-1/2	C774894	15.32
	3/16	3/16	2	C774895	16.57
	1/4	1/4	2	C774896	17.06
	5/16	5/16	2-1/2	C774897	19.40
	3/8	3/8	2-1/2	C774898	21.74
	1/2	1/2	3	C774899	27.11
	5/8	5/8	3-1/2	C774900	39.20
	3/4	3/4	4	C774901	56.12
90°	1/8	1/8	1-1/2	C774902	15.32
	3/16	3/16	2	C774903	16.57
	1/4	1/4	2	C774904	17.06
	5/16	5/16	2-1/2	C774905	19.40
	3/8	3/8	2-1/2	C774906	21.74
	1/2	1/2	3	C774907	27.11
	5/8	5/8	3-1/2	C774908	39.20
	3/4	3/4	4	C774909	56.12
100°	1/8	1/8	1-1/2	C774910	15.32
	3/16	3/16	2	C774911	16.57
	1/4	1/4	2	C774912	17.06
	5/16	5/16	2-1/2	C774913	19.40
	3/8	3/8	2-1/2	C774914	21.74
	1/2	1/2	3	C774915	27.11
	5/8	5/8	3-1/2	C774916	39.20
	3/4	3/4	4	C774917	56.12
120°	1/8	1/8	1-1/2	C774918	15.32
	3/16	3/16	2	C774919	16.57
	1/4	1/4	2	C774920	17.06
	5/16	5/16	2-1/2	C774921	19.40
	3/8	3/8	2-1/2	C774922	21.74
	1/2	1/2	3	C774923	27.11
	5/8	5/8	3-1/2	C774924	39.20
	3/4	3/4	4	C774925	56.12

COUNTERSINKS



COUNTERSINKS - HIGH SPEED STEEL

4 Flute

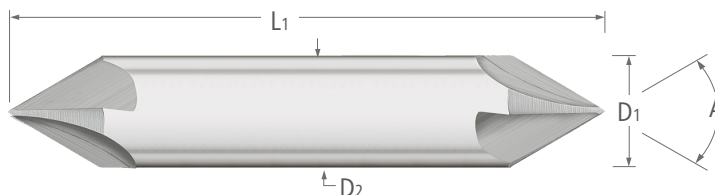


- 60° and 82° included angle options
- High speed steel
- Precision manufactured in the USA

INCLUDED ANGLE	SIZE	SHANK DIAMETER	OVERALL LENGTH	UNCOATED	
A	D ₁	D ₂	L ₁	TOOL #	PRICE
60°	1/2	1/2	3-7/8	C745211	52.88
	5/8	1/2	4	C745209	59.50
	3/4	1/2	4-1/8	C745210	75.97
	7/8	1/2	4-1/4	C745208	89.25
	1	1/2	4-3/8	C745212	92.73
82°	1/2	1/2	3-7/8	C745206	52.88
	5/8	1/2	4	C745204	59.50
	3/4	1/2	4-1/8	C745205	75.97
	7/8	1/2	4-1/4	C745203	89.25
	1	1/2	4-3/8	C745207	92.73

COUNTERSINKS - HIGH SPEED STEEL

4 Flute - Double-Ended



- Designed for countersinking, and deburring holes
- 60°, 82°, 90°, 100°, 120° included angle options
- 4 flute design allows for higher feed rates over single flute design
- High speed steel
- Precision manufactured in the USA

INCLUDED ANGLE	SIZE	SHANK DIAMETER	OVERALL LENGTH	UNCOATED	
A	D1	D2	L1	TOOL #	PRICE
60°	1/8	1/8	1-1/2	C774926	10.80
	3/16	3/16	2	C774927	11.04
	1/4	1/4	2	C774928	11.44
	5/16	5/16	2-1/2	C774929	13.28
	3/8	3/8	2-1/2	C774930	14.78
	1/2	1/2	3	C774931	18.56
	5/8	5/8	3-1/2	C774932	26.87
	3/4	3/4	4	C774933	36.17
82°	1/8	1/8	1-1/2	C774934	10.80
	3/16	3/16	2	C774935	11.04
	1/4	1/4	2	C774936	11.44
	5/16	5/16	2-1/2	C774937	13.28
	3/8	3/8	2-1/2	C774938	14.78
	1/2	1/2	3	C774939	18.56
	5/8	5/8	3-1/2	C774940	26.87
	3/4	3/4	4	C774941	36.17
90°	1/8	1/8	1-1/2	C774942	10.80
	3/16	3/16	2	C774943	11.04
	1/4	1/4	2	C774944	11.44
	5/16	5/16	2-1/2	C774945	13.28
	3/8	3/8	2-1/2	C774946	14.78
	1/2	1/2	3	C774947	18.56
	5/8	5/8	3-1/2	C774948	26.87
	3/4	3/4	4	C774949	36.17
100°	1/8	1/8	1-1/2	C774950	10.80
	3/16	3/16	2	C774951	11.04
	1/4	1/4	2	C774952	11.44
	5/16	5/16	2-1/2	C774953	13.28
	3/8	3/8	2-1/2	C774954	14.78
	1/2	1/2	3	C774955	18.56
	5/8	5/8	3-1/2	C774956	26.87
	3/4	3/4	4	C774957	36.17
120°	1/8	1/8	1-1/2	C774958	10.80
	3/16	3/16	2	C774959	11.04
	1/4	1/4	2	C774960	11.44
	5/16	5/16	2-1/2	C774961	13.28
	3/8	3/8	2-1/2	C774962	14.78
	1/2	1/2	3	C774963	18.56
	5/8	5/8	3-1/2	C774964	26.87
	3/4	3/4	4	C774965	36.17

COUNTERSINKS

For technical information, see pages 214

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

DRILLS - CARBIDE

Technical Information

General Purpose Carbide Drills									
Material Guide		Rc	SFM		Feed Per Tooth				
			25° Helix	15° Helix Straight Flute	1/16" - 1/8"	1/8" - 1/4"	1/4" - 3/8"	3/8" - 1/2"	1/2" - 5/8"
COBALT BASE ALLOYS	Stellite, HS - 21, Haynes 25/188, X - 40, L - 605	under 32 over 32	100 - 150 80 - 110	100 - 150 80 - 110	.0004 - .0010 .0004 - .0010	.0008 - .0020 .0005 - .0010	.0015 - .0025 .0010 - .0015	.0020 - .0040 .0010 - .0020	.0025 - .0050 .0015 - .0030
NICKEL BASE ALLOYS	Inconel - 625/718, Waspalloy, Rene, Hastelloy	under 32 over 32	100 - 150 90 - 125	125 - 175 90 - 125	.0005 - .0015 .0004 - .0010	.0010 - .0015 .0008 - .0015	.0015 - .0025 .0010 - .0015	.0020 - .0040 .0015 - .0030	.0025 - .0050 .0020 - .0040
IRON BASE ALLOYS	Incoloy 800 - 802, Multimet N - 155, Timkin 16 - 25 - 6, Carpeneter 22 - b3	under 32 over 32	100 - 150 90 - 125	125 - 175 90 - 125	.0010 - .0015 .0008 - .0015	.0010 - .0020 .0010 - .0020	.0015 - .0035 .0015 - .0025	.0020 - .0020 .0020 - .0040	.0030 - .0060 .0025 - .0050
MONEL	Monel - 65% Nickel		100 - 150	100 - 150	.0004 - .0010	.0008 - .0015	.0010 - .0015	.0015 - .0030	.0020 - .0040
TITANIUM ALLOYS	Commercially Pure, 6Al - 4V, Astm 1/2/3, 6Al - 25N - 4Zr - 2Mo - Si		150 - 200	150 - 200	.0008 - .0015	.0010 - .0020	.0015 - .0030	.0020 - .0040	.0025 - .0050
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17 - 4	under 32 over 32	125 - 175 80 - 125	150 - 200 100 - 150	.0005 - .0015 .0004 - .0010	.0010 - .0020 .0008 - .0015	.0015 - .0035 .0010 - .0015	.0020 - .0040 .0015 - .0030	.0025 - .0050 .0020 - .0040
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 304L, 316, 316L	under 32 over 32	100 - 175 100 - 125	150 - 200 125 - 150	.0005 - .0015 .0004 - .0010	.0010 - .0020 .0008 - .0015	.0015 - .0035 .0010 - .0015	.0020 - .0040 .0015 - .0030	.0025 - .0050 .0020 - .0040
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	under 32 over 32	100 - 150 80 - 125	125 - 175 100 - 140	.0005 - .0015 .0004 - .0010	.0010 - .0020 .0008 - .0015	.0015 - .0035 .0010 - .0015	.0020 - .0040 .0015 - .0030	.0025 - .0050 .0020 - .0040
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	under 32 over 32	100 - 175 80 - 130	125 - 175 80 - 130	.0005 - .0015 .0004 - .0010	.0010 - .0020 .0010 - .0020	.0015 - .0025 .0010 - .0020	.0015 - .0030 .0015 - .0030	.0020 - .0040 .0020 - .0040
MEDIUM ALLOY STEELS	200, 250, 300	under 32 over 32	125 - 175 100 - 150	125 - 175 100 - 150	.0010 - .0015 .0005 - .0010	.0015 - .0025 .0010 - .0020	.0020 - .0030 .0010 - .0025	.0020 - .0040 .0015 - .0030	.0025 - .0050 .0020 - .0040
CARBON STEELS	1000's, 1100's, 1300's	under 32 over 32	125 - 175 100 - 125	150 - 200 100 - 175	.0010 - .0015 .0005 - .0010	.0015 - .0025 .0010 - .0020	.0020 - .0030 .0010 - .0025	.0020 - .0040 .0015 - .0035	.0025 - .0050 .0020 - .0040
DUCTILE	Ductile Cast Irons		125 - 200	150 - 250	.0010 - .0020	.0010 - .0030	.0015 - .0035	.0025 - .0040	.0030 - .0050
CAST IRONS	Gray Cast Irons		100 - 200	150 - 250	.0010 - .0020	.0010 - .0030	.0015 - .0035	.0025 - .0040	.0030 - .0050
ALUMINUM	2014, 2024, 6061 - (T1 - T6), 7075, Die Cast, Extruded		150 - 250		.0010 - .0020	.0015 - .0040	.0020 - .0050	.0030 - .0060	.0035 - .0070
MAGNESIUM			200 - 300		.0010 - .0020	.0010 - .0030	.0015 - .0035	.0025 - .0040	.0030 - .0050
COPPER, COPPER ALLOYS			150 - 250		.0010 - .0020	.0010 - .0030	.0015 - .0035	.0025 - .0040	.0030 - .0050
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze		150 - 300 125 - 200		.0010 - .0020 .0008 - .0015	.0010 - .0030 .0010 - .0020	.0015 - .0035 .0015 - .0030	.0025 - .0040 .0020 - .0040	.0030 - .0050 .0025 - .0050

TECHNICAL

DRILLS - HIGH SPEED STEEL & M42 COBALT

Element & Dimensional Drill Tolerances

Diameter at Point

Size (Inclusive)	Tolerance
OVER #81 TO 1/8	+0.000 TO -.0005
OVER 1/8 TO 1/4	+0.000 TO -.0007
OVER 1/4 TO 1/2	+0.000 TO -.0010
OVER 1/2 TO 1	+0.000 TO -.0012
OVER 1 TO 2	+0.000 TO -.0015
OVER 2 TO 3-1/2	+0.000 TO -.0020

Shank Diameter

Size (Inclusive)	Tolerance
OVER #81 TO 1/8	-.000 TO -.0025
OVER 1/8 TO 1/4	-.0005 TO -.0030
OVER 1/4 TO 1/2	-.0005 TO -.0045
OVER 1/2 TO 2	-.0005 TO -.0030

Back Taper

Size (Inclusive)	Tolerance Per Inch
OVER #81 TO 1/8	.0000 TO .0008
OVER 1/8 TO 1/4	.0002 TO .0008
OVER 1/4 TO 1/2	.0002 TO .0009
OVER 1/2 TO 1	.0003 TO .0011
OVER 1 TO 3-1/2	.0004 TO .0015

Flute Length

Size (Inclusive)	Tolerance
OVER #81 TO 1/8	+1/8 TO -1/16
OVER 1/8 TO 1/2	+1/8 TO -1/8
OVER 1/2 TO 1	+1/4 TO -1/8
OVER 1 TO 2	+1/4 TO -1/4
OVER 2 TO 3-1/2	+3/8 TO -3/8

Overall Length

Size (Inclusive)	Tolerance
OVER #81 TO 1/8	+1/8 TO -1/16
OVER 1/8 TO 1/2	+1/8 TO -1/8
OVER 1/2 TO 1	+1/4 TO -1/8
OVER 1 TO 2	+1/4 TO -1/4
OVER 2 TO 3-1/2	+3/8 TO -3/8

Included Point Angle

Size (Inclusive)	Included Angle	Tolerance
1/16 TO 1/2	118°	±5°
OVER 1/2 TO 1-1/2	118°	±3°
OVER 1-1/2 TO 3-1/2	118°	±2°

Lip Height

Size (Inclusive)	TIV (Total Indicator Variation)
1/16 TO 1/8	.0020
OVER 1/8 TO 1/4	.0030
OVER 1/4 TO 1/2	.0040
OVER 1/2 TO 1	.0050
OVER 1 TO 3-1/2	.0060

NOTE: 95% of drills in any one lot to fall within tolerances above.

Suggested Method of Measurement:

- Rotate the drill in a vee block against a back end stop.
- Measure the cutting lip height variation on a comparator, or with an indicator set at allocation approximately
- 75% of the distance from the center to the periphery of the drill.

Centrality of Web

Size (Inclusive)	TIV (Total Indicator Variation)
1/16 TO 1/8	.0030
OVER 1/8 TO 1/4	.0040
OVER 1/4 TO 1/2	.0050
OVER 1/2 TO 1	.0070
OVER 1 TO 2	.0100

NOTE: 95% of drills in any one lot to fall within tolerances above.

Suggested Method of Measurement :

- Rotate the drill in a close fitting bushing.
- Record the difference in indicator readings of the web at the point as the drill is indexed 180°.

Flute Spacing

Size (Inclusive)	Tolerance (TIV)	Actual Deviation
1/16 TO 1/8	.0030	.0015
OVER 1/8 TO 1/4	.0060	.0030
OVER 1/4 TO 1/2	.0100	.0050
OVER 1/2 TO 1	.0140	.0070
OVER 1 TO 2	.0260	.0130

NOTE: 95% of drills in any one lot to fall within tolerances above.

Suggested Method of Measurement:

- Place the drill in a vee block against a back end stop, and rotate it against a radial finger stop.
- Take an indicator reading at the leading edge of the margin on the opposite flute.
- Repeat for the other flute and note the difference between the two readings.
- The deviation in flute spacing is equal to one-half the difference between the two readings.

DRILLS - HIGH SPEED STEEL & M42 COBALT

Technical Information

General Purpose Cobalt and HSS Drills										
Material Guide		Rc	GP	HD	Cobalt	Suggested Inch Per Revolution				
						UP TO 1/8"	1/8" - 1/4"	1/4" - 3/8"	3/8" - 1/2"	1/2" - 3/4"
NICKEL BASE ALLOYS	Inconel - 625/718, Waspalloy, Rene, Hastelloy	< 32	10 - 20	20 - 23	20 - 23	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
TITANIUM ALLOYS	Commercially Pure, 6Al - 4V, Astm 1/2/3, 6Al - 25N - 4Zr - 2Mo - Si		20 - 75	35 - 90	35 - 90	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17 - 4	< 32	20	30	30	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 304L, 316, 316L	< 32	26	36	36	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	< 32	50	70	72	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	< 32	30 - 65	33 - 75	33 - 75	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
MEDIUM ALLOY STEELS	200, 250, 300	< 32	115	115	115	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
CARBON STEELS	1000's, 1100's, 1300's	< 32	95	95	95	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
DUCTILE	Ductile Cast Irons		45	55	55	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
CAST IRONS	Gray Cast Irons		80 - 100	90 - 115	90 - 115	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
HIGH SILICON ALUMINUM	A380, A390		60 - 80	80 - 95	80 - 95	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
ALUMINUM ALLOYS	2014, 2024, 6061, 7075		90 - 98	95 - 100	95 - 100	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
MAGNESIUM			90 - 115	90 - 130	90 - 130	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
COPPER, COPPER ALLOYS			108	125	125	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze		90 - 115	90 - 130	90 - 130	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240
COMPOSITES	G-10 Fiberglass, Graphite, Graphite/Epoxy, Plastics		100 - 125	125 - 175	125 - 175	.0010 - .0020	.0020 - .0040	.0040 - .0080	.0080 - .0160	.0160 - .0240

COUNTERSINKS - CARBIDE & HIGH SPEED STEEL

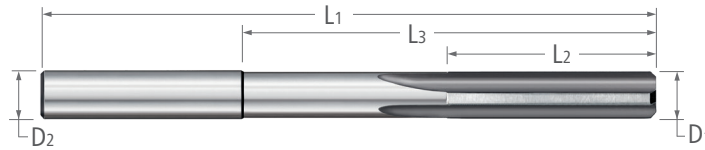
Technical Information

Countersinks Carbide and HSS			
Material Guide	SFM		Feed Per Tooth (FPT)
	HSS	Carbide	
INCONEL ALLOY HASTELLOY WROUGHT	15 - 20	25 - 35	.0010 - .0020
HASTELLOY (CAST)	5 - 7	7 - 15	.0010 - .0020
MAGNESIUM MAGNESIUM ALLOY	125 - 250	250 - 400	.0010 - .0020
HIGH NICKEL STEEL	30 - 50	50 - 75	.0010 - .0020
STAINLESS STEEL (FREE MACHINING)	30 - 80	80 - 125	.0010 - .0020
STAINLESS STEEL (WORK HARDENING)	15 - 50	50 - 75	.0010 - .0020
STEEL - MILD	70 - 100	80 - 170	.0010 - .0020
STEEL - TOOL	50 - 60	60 - 100	.0010 - .0020
STEEL - FORGINGS	40 - 50	50 - 80	.0010 - .0020
STEEL - ALLOYS 300 - 400 BRINELL	20 - 30	30 - 50	.0010 - .0020
STEEL - HIGH TENSILE 35 - 45 RC	25 - 40	35 - 60	.0010 - .0020
STEEL - HIGH TENSILE 45 - 50 RC	15 - 25	25 - 40	.0010 - .0020
STEEL - HIGH TENSILE 50 - 55 RC	7 - 15	15 - 20	.0010 - .0020
IRON - CAST SOFT	75 - 125	125 - 225	.0010 - .0020
IRON - CAST MEDIUM HARD	50 - 100	100 - 175	.0010 - .0020
IRON MALLEABLE	80 - 90	90 - 150	.0010 - .0020
ALUMINUM ALUMINUM ALLOYS	150 - 250	300 - 500	.0010 - .0020
BRASS/BRONZE	75 - 125	150 - 250	.0010 - .0020
PLASTIC BAKELITE	100 - 250	250 - 400	.0010 - .0020

TECHNICAL



REAMERS - CARBIDE



- Straight flute general purpose reamers for through and blind hole applications
- 45° chamfer angle
- 4 and 6 flute styles
- Solid carbide
- Precision manufactured in the USA

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE							TOOL #	PRICE
D1 ^{+0.0002} / _{-0.0000} *		L2	L3			D2	L1		
.0400	#60	1/4	0*	.007	4	.0350	1-1/2	C742368	27.36
.0410	#59	1/4	0*	.007	4	.0360	1-1/2	C742370	27.36
.0420	#58	3/8	0*	.010	4	.0370	1-1/2	C742371	27.36
.0430	#57	3/8	0*	.010	4	.0380	1-1/2	C742372	27.36
.0440		3/8	0*	.010	4	.0390	1-1/2	C742909	28.81
.0450		3/8	0*	.010	4	.0400	1-1/2	C742908	28.81
.0460		3/8	0*	.010	4	.0410	1-1/2	C742907	28.81
.0465	#56	3/8	0*	.010	4	.0420	1-1/2	C742373	27.36
.0469	3/64	3/8	0*	.010	4	.0420	1-1/2	C742461	26.02
.0470		3/8	0*	.010	4	.0420	1-1/2	C742906	28.81
.0480		3/8	0*	.010	4	.0430	1-1/2	C742905	28.81
.0490		3/8	0*	.010	4	.0440	1-1/2	C742904	28.81
.0500		3/8	0*	.010	4	.0450	1-1/2	C742903	28.81
.0510		3/8	3/4	.010	4	.0510	1-1/2	C742902	28.81
.0520	#55	3/8	3/4	.010	4	.0520	1-1/2	C742374	27.36
.0530		3/8	3/4	.010	4	.0530	1-1/2	C742901	28.81
.0540		3/8	3/4	.010	4	.0540	1-1/2	C742900	28.81
.0550	#54	3/8	3/4	.010	4	.0550	1-1/2	C742375	27.36
.0560		3/8	3/4	.010	4	.0560	1-1/2	C742899	28.81
.0570		3/8	3/4	.010	4	.0570	1-1/2	C742898	28.81
.0580		3/8	3/4	.010	4	.0580	1-1/2	C742897	28.81
.0590		3/8	3/4	.010	4	.0590	1-1/2	C742896	28.81
.0591	1.5 mm	10 mm	3/4	.010	4	.0591	38 mm	C742493	28.81
.0595	#53	3/8	3/4	.010	4	.0595	1-1/2	C742376	27.36
.0600		3/8	3/4	.010	4	.0600	1-1/2	C742895	28.81
.0605		3/8	3/4	.010	4	.0605	1-1/2	C742894	38.31
.0610		3/8	3/4	.010	4	.0610	1-1/2	C742893	28.81
.0615		3/8	3/4	.010	4	.0615	1-1/2	C742892	32.04
.0620		3/8	3/4	.010	4	.0620	1-1/2	C742891	28.81
.0625	1/16	3/8	3/4	.010	4	.0625	1-1/2	C742492	26.02
.0630		3/8	3/4	.010	4	.0630	1-1/2	C742890	28.81
.0635	#52	3/8	3/4	.010	4	.0635	1-1/2	C742377	27.36
.0640		3/8	3/4	.010	4	.0640	1-1/2	C742889	28.81
.0645		3/8	3/4	.010	4	.0645	1-1/2	C742888	38.31
.0650		3/8	3/4	.010	4	.0650	1-1/2	C742887	28.81
.0660		1/2	7/8	.012	4	.0660	1-3/4	C742886	28.81
.0670	#51	1/2	7/8	.012	4	.0670	1-3/4	C742378	27.36
.0680		1/2	7/8	.012	4	.0680	1-3/4	C742885	28.81
.0690		1/2	7/8	.012	4	.0690	1-3/4	C742884	28.81

*When L3 value is 0, it is a full shank reduction

continued on next page

For technical information, see page 283

REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE							TOOL #	PRICE
$D_1^{+0.002"}_{-0.000"}$		L ₂	L ₃			D ₂	L ₁		
.0700	#50	1/2	7/8	.012	4	.0700	1-3/4	C742379	27.36
.0710		1/2	7/8	.012	4	.0710	1-3/4	C742883	28.81
.0720		1/2	7/8	.012	4	.0720	1-3/4	C742882	28.81
.0730	#49	1/2	7/8	.012	4	.0730	1-3/4	C742381	27.36
.0740		1/2	7/8	.012	4	.0740	1-3/4	C742881	28.81
.0750		1/2	7/8	.012	4	.0750	1-3/4	C742880	28.81
.0760	#48	1/2	7/8	.012	4	.0760	1-3/4	C742382	27.36
.0770		1/2	7/8	.012	4	.0770	1-3/4	C742879	28.81
.0780		1/2	7/8	.012	4	.0780	1-3/4	C742878	28.81
.0781	5/64	1/2	7/8	.012	4	.0781	1-3/4	C742452	26.02
.0785	#47	1/2	7/8	.012	4	.0785	1-3/4	C742383	27.36
.0787	2 mm	13 mm	7/8	.012	4	.0787	44 mm	C742465	28.81
.0790		1/2	7/8	.012	4	.0790	1-3/4	C742877	28.81
.0800		1/2	7/8	.012	4	.0800	1-3/4	C742876	28.81
.0810	#46	1/2	7/8	.012	4	.0810	1-3/4	C742384	27.36
.0820	#45	1/2	7/8	.012	4	.0820	2	C742385	27.36
.0830		1/2	7/8	.012	4	.0830	2	C742875	28.81
.0840		1/2	7/8	.012	4	.0840	2	C742874	28.81
.0850		1/2	7/8	.012	4	.0850	2	C742873	28.81
.0860	#44	1/2	7/8	.012	4	.0860	2	C742386	27.36
.0870		1/2	7/8	.012	4	.0870	2	C742872	28.81
.0880		1/2	7/8	.012	4	.0880	2	C742871	28.81
.0890	#43	1/2	7/8	.012	4	.0890	2	C742387	27.36
.0900		1/2	7/8	.012	4	.0900	2	C742870	28.81
.0910		1/2	7/8	.012	4	.0910	2	C742869	28.81
.0915		1/2	7/8	.012	4	.0915	2	C742868	37.96
.0920		1/2	7/8	.012	4	.0920	2	C742867	28.81
.0925		1/2	7/8	.012	4	.0925	2	C742866	32.04
.0930		1/2	7/8	.012	4	.0930	2	C742865	28.81
.0935	#42	1/2	7/8	.012	4	.0935	2	C742388	27.36
.0938	3/32	1/2	7/8	.012	4	.0938	2	C742462	26.02
.0940		1/2	7/8	.012	4	.0940	2	C742864	28.81
.0945		1/2	7/8	.012	4	.0945	2	C742863	32.04
.0950		1/2	7/8	.012	4	.0950	2	C742862	28.81
.0960	#41	1/2	7/8	.012	4	.0960	2	C742389	27.36
.0970		5/8	1-1/8	.015	4	.0970	2-1/4	C742861	28.81
.0980	#40	5/8	1-1/8	.015	4	.0980	2-1/4	C742390	27.36
.0984	2.5 mm	16 mm	1-1/8	.015	4	.0984	57 mm	C742471	28.81
.0990		5/8	1-1/8	.015	4	.0990	2-1/4	C742860	28.81
.0995	#39	5/8	1-1/8	.015	4	.0995	2-1/4	C742392	27.36
.1000		5/8	1-1/8	.015	4	.1000	2-1/4	C742859	28.81
.1010		5/8	1-1/8	.015	4	.1010	2-1/4	C742858	28.81
.1015	#38	5/8	1-1/8	.015	4	.1015	2-1/4	C742393	27.36
.1020		5/8	1-1/8	.015	4	.1020	2-1/4	C742857	28.81
.1030		5/8	1-1/8	.015	4	.1030	2-1/4	C742856	28.81
.1040	#37	5/8	1-1/8	.015	4	.1040	2-1/4	C742394	27.36

continued on next page

For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE							TOOL #	PRICE
D1 ^{+0.002"} _{-.0000"}		L2	L3			D2	L1		
.1050		5/8	1-1/8	.015	4	.1050	2-1/4	C742855	28.81
.1060		5/8	1-1/8	.015	4	.1060	2-1/4	C742854	28.81
.1065	#36	5/8	1-1/8	.015	4	.1065	2-1/4	C742395	27.36
.1070		5/8	1-1/8	.015	4	.1070	2-1/4	C742853	28.81
.1080		5/8	1-1/8	.015	4	.1080	2-1/4	C742852	28.81
.1090		5/8	1-1/8	.015	4	.1090	2-1/4	C742851	30.00
.1094	7/64	5/8	1-1/8	.015	4	.1094	2-1/4	C742445	26.02
.1100	#35	5/8	1-1/8	.015	4	.1100	2-1/4	C742396	27.36
.1110	#34	5/8	1-1/8	.015	4	.1110	2-1/4	C742397	27.36
.1120		5/8	1-1/8	.015	4	.1120	2-1/4	C742850	28.81
.1130	#33	5/8	1-1/8	.015	4	.1130	2-1/4	C742398	27.36
.1140		5/8	1-1/8	.015	4	.1140	2-1/4	C742849	28.81
.1150		5/8	1-1/8	.015	4	.1150	2-1/4	C742848	28.81
.1160	#32	5/8	1-1/8	.015	4	.1160	2-1/4	C742399	28.86
.1170		5/8	1-1/8	.015	4	.1170	2-1/4	C742847	30.65
.1180		5/8	1-1/8	.015	4	.1180	2-1/4	C742846	30.65
.1181	3 mm	16 mm	1-1/8	.015	4	.1181	57 mm	C742458	28.16
.1190		5/8	1-1/8	.015	4	.1190	2-1/4	C742845	30.65
.1200	#31	5/8	1-1/8	.015	4	.1200	2-1/4	C742400	28.86
.1210		5/8	1-1/8	.015	4	.1210	2-1/4	C742844	30.65
.1220		5/8	1-1/8	.015	4	.1220	2-1/4	C742843	30.65
.1230		5/8	1-1/8	.015	4	.1230	2-1/4	C742842	30.65
.1235		5/8	1-1/8	.015	4	.1235	2-1/4	C742841	40.60
.1240		5/8	1-1/8	.015	4	.1240	2-1/4	C742840	30.65
.1245		5/8	1-1/8	.015	4	.1245	2-1/4	C742839	33.68
.1250	1/8	5/8	1-1/8	.015	4	.1250	2-1/4	C742487	27.71
.1255		5/8	1-1/8	.015	4	.1255	2-1/4	C742838	33.68
.1260		5/8	1-1/8	.015	4	.1260	2-1/4	C742837	30.65
.1265		5/8	1-1/8	.015	4	.1265	2-1/4	C742836	40.60
.1270		5/8	1-1/8	.015	4	.1270	2-1/4	C742835	30.65
.1275		5/8	1-1/8	.015	4	.1275	2-1/4	C742834	40.60
.1280		5/8	1-1/8	.015	4	.1280	2-1/4	C742833	30.65
.1285	#30	5/8	1-1/8	.015	4	.1285	2-1/4	C742401	30.65
.1290		5/8	1-1/8	.015	4	.1290	2-1/4	C742832	30.65
.1300		5/8	1-1/8	.015	4	.1300	2-1/4	C742831	30.65
.1310		3/4	1-3/8	.017	4	.1310	2-1/2	C742830	34.87
.1320		3/4	1-3/8	.017	4	.1320	2-1/2	C742829	34.87
.1330		3/4	1-3/8	.017	4	.1330	2-1/2	C742828	34.87
.1340		3/4	1-3/8	.017	4	.1340	2-1/2	C742827	34.87
.1350		3/4	1-3/8	.017	4	.1350	2-1/2	C742826	34.87
.1360	#29	3/4	1-3/8	.017	4	.1360	2-1/2	C742403	32.79
.1370		3/4	1-3/8	.017	4	.1370	2-1/2	C742825	34.87
.1378	3.5 mm	19 mm	1-3/8	.017	4	.1378	64 mm	C742464	34.87
.1380		3/4	1-3/8	.017	4	.1380	2-1/2	C742824	34.87
.1390		3/4	1-3/8	.017	4	.1390	2-1/2	C742823	34.87
.1400		3/4	1-3/8	.017	4	.1400	2-1/2	C742822	34.87

continued on next page

For technical information, see page 283

REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE							TOOL #	PRICE
$D_1 \begin{smallmatrix} +.0002^* \\ -.0000^* \end{smallmatrix}$		L ₂	L ₃			D ₂	L ₁		
.1405	#28	3/4	1-3/8	.017	4	.1405	2-1/2	C742404	32.79
.1406	9/64	3/4	1-3/8	.017	4	.1406	2-1/2	C742439	31.39
.1410		3/4	1-3/8	.017	4	.1410	2-1/2	C742821	34.87
.1420		3/4	1-3/8	.017	4	.1420	2-1/2	C742820	34.87
.1430		3/4	1-3/8	.017	4	.1430	2-1/2	C742819	34.87
.1440	#27	3/4	1-3/8	.017	4	.1440	2-1/2	C742405	32.79
.1450		3/4	1-3/8	.017	4	.1450	2-1/2	C742818	34.87
.1460		3/4	1-3/8	.017	4	.1460	2-1/2	C742817	36.62
.1470	#26	3/4	1-3/8	.017	4	.1470	2-1/2	C742406	34.18
.1480		3/4	1-3/8	.017	4	.1480	2-1/2	C742816	36.62
.1490		3/4	1-3/8	.017	4	.1490	2-1/2	C742815	36.62
.1495	#25	3/4	1-3/8	.017	4	.1495	2-1/2	C742407	34.18
.1500		3/4	1-3/8	.017	4	.1500	2-1/2	C742814	36.62
.1510		3/4	1-3/8	.017	4	.1510	2-1/2	C742813	36.62
.1520	#24	3/4	1-3/8	.017	4	.1520	2-1/2	C742408	34.18
.1530		3/4	1-3/8	.017	4	.1530	2-1/2	C742812	36.62
.1540	#23	3/4	1-3/8	.017	4	.1540	2-1/2	C742409	34.18
.1545		3/4	1-3/8	.017	4	.1545	2-1/2	C742811	42.39
.1550		3/4	1-3/8	.017	4	.1550	2-1/2	C742810	36.62
.1555		3/4	1-3/8	.017	4	.1555	2-1/2	C742809	42.39
.1560		3/4	1-3/8	.017	4	.1560	2-1/2	C742808	36.62
.1562	5/32	3/4	1-3/8	.017	4	.1562	2-1/2	C742453	33.13
.1565		3/4	1-3/8	.017	4	.1565	2-1/2	C742807	42.39
.1570	#22	3/4	1-3/8	.017	4	.1570	2-1/2	C742410	34.18
.1575	4 mm	3/4	1-3/8	.022	4	.1575	2-1/2	C742456	36.62
.1580		3/4	1-3/8	.022	4	.1580	2-1/2	C742806	36.62
.1590	#21	3/4	1-3/8	.022	4	.1590	2-1/2	C742411	34.18
.1600		3/4	1-3/8	.022	4	.1600	2-1/2	C742805	36.62
.1610	#20	7/8	1-1/2	.022	4	.1610	2-3/4	C742412	38.31
.1620		7/8	1-1/2	.022	4	.1620	2-3/4	C742804	41.19
.1630		7/8	1-1/2	.022	4	.1630	2-3/4	C742803	41.19
.1640		7/8	1-1/2	.022	4	.1640	2-3/4	C742802	41.19
.1650		7/8	1-1/2	.022	4	.1650	2-3/4	C742801	38.31
.1660	#19	7/8	1-1/2	.022	4	.1660	2-3/4	C742414	38.31
.1670		7/8	1-1/2	.022	4	.1670	2-3/4	C742800	41.19
.1680		7/8	1-1/2	.022	4	.1680	2-3/4	C742799	41.19
.1690		7/8	1-1/2	.022	4	.1690	2-3/4	C742798	41.04
.1695	#18	7/8	1-1/2	.022	4	.1695	2-3/4	C742415	38.31
.1700		7/8	1-1/2	.022	4	.1700	2-3/4	C742797	41.19
.1710		7/8	1-1/2	.022	4	.1710	2-3/4	C742796	41.19
.1719	11/64	7/8	1-1/2	.022	4	.1719	2-3/4	C742482	37.06
.1720		7/8	1-1/2	.022	4	.1720	2-3/4	C742795	41.19
.1730	#17	7/8	1-1/2	.022	4	.1730	2-3/4	C742416	38.31
.1740		7/8	1-1/2	.022	4	.1740	2-3/4	C742794	41.19
.1750		7/8	1-1/2	.022	4	.1750	2-3/4	C742793	41.19
.1760		7/8	1-1/2	.022	4	.1760	2-3/4	C742792	41.19
.1770	#16	7/8	1-1/2	.022	4	.1770	2-3/4	C742417	38.31

For technical information, see page 283

continued on next page



REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE							TOOL #	PRICE
$D_1 \begin{smallmatrix} +.0002^* \\ -.0000^* \end{smallmatrix}$		L ₂	L ₃			D ₂	L ₁		
.1772	4.5 mm	22 mm	1-1/2	.022	4	.1772	70 mm	C742457	42.74
.1780		7/8	1-1/2	.022	4	.1780	2-3/4	C742791	41.19
.1790		7/8	1-1/2	.022	4	.1790	2-3/4	C742790	41.19
.1800	#15	7/8	1-1/2	.022	4	.1800	2-3/4	C742418	38.31
.1810		7/8	1-1/2	.022	4	.1810	2-3/4	C742789	41.19
.1820	#14	7/8	1-1/2	.022	4	.1820	2-3/4	C742419	38.31
.1830		7/8	1-1/2	.022	4	.1830	2-3/4	C742788	41.19
.1840		7/8	1-1/2	.022	4	.1840	2-3/4	C742787	41.19
.1850	#13	7/8	1-1/2	.022	4	.1850	2-3/4	C742420	38.31
.1855		7/8	1-1/2	.022	4	.1855	2-3/4	C742786	49.30
.1860		7/8	1-1/2	.022	4	.1860	2-3/4	C742785	41.19
.1865		7/8	1-1/2	.022	4	.1865	2-3/4	C742784	44.33
.1870		7/8	1-1/2	.022	4	.1870	2-3/4	C742783	41.19
.1875	3/16	7/8	1-1/2	.022	4	.1875	2-3/4	C742463	37.06
.1880		7/8	1-1/2	.022	4	.1880	2-3/4	C742782	41.19
.1885		7/8	1-1/2	.022	4	.1885	2-3/4	C742781	44.33
.1890	#12	7/8	1-1/2	.022	4	.1890	2-3/4	C742421	38.31
.1900		7/8	1-1/2	.022	4	.1900	2-3/4	C742780	41.19
.1910	#11	7/8	1-1/2	.022	4	.1910	2-3/4	C742422	46.57
.1920		1	1-3/4	.025	4	.1920	3	C742779	49.80
.1930		1	1-3/4	.025	4	.1930	3	C742778	49.80
.1935	#10	1	1-3/4	.025	4	.1935	3	C742423	46.57
.1940		1	1-3/4	.025	4	.1940	3	C742777	49.80
.1950		1	1-3/4	.025	4	.1950	3	C742776	49.80
.1960	#9	1	1-3/4	.025	4	.1960	3	C742345	46.57
.1969	5 mm	25 mm	1-3/4	.025	4	.1969	76 mm	C742451	49.80
.1970		1	1-3/4	.025	4	.1970	3	C742775	49.80
.1980		1	1-3/4	.025	4	.1980	3	C742774	49.80
.1990	#8	1	1-3/4	.025	4	.1990	3	C742347	46.57
.2000		1	1-3/4	.025	4	.2000	3	C742773	49.80
.2010	#7	1	1-3/4	.025	4	.2010	3	C742358	46.57
.2020		1	1-3/4	.025	4	.2020	3	C742772	49.80
.2030		1	1-3/4	.025	4	.2030	3	C742771	49.80
.2031	13/64	1	1-3/4	.025	4	.2031	3	C742477	44.92
.2040	#6	1	1-3/4	.025	4	.2040	3	C742369	46.57
.2050		1	1-3/4	.025	4	.2050	3	C742770	49.80
.2055	#5	1	1-3/4	.025	4	.2055	3	C742380	46.57
.2060		1	1-3/4	.025	4	.2060	3	C742769	49.80
.2070		1	1-3/4	.025	4	.2070	3	C742768	49.80
.2080		1	1-3/4	.025	4	.2080	3	C742767	49.80
.2090	#4	1	1-3/4	.025	4	.2090	3	C742391	46.57
.2100		1	1-3/4	.025	4	.2100	3	C742766	49.80
.2110		1	1-3/4	.025	4	.2110	3	C742765	49.80
.2120		1	1-3/4	.025	4	.2120	3	C742764	49.80
.2130	#3	1	1-3/4	.025	4	.2130	3	C742402	46.57
.2140		1	1-3/4	.025	4	.2140	3	C742763	49.80
.2150		1	1-3/4	.025	4	.2150	3	C742762	49.80

REAMERS

Carbide

Cobalt

HSS

For technical information, see page 283

continued on next page



REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE							TOOL #	PRICE
D1 <small>+0.002" -0.000"</small>		L2	L3			D2	L1		
.2160		1	1-3/4	.025	4	.2160	3	C742761	49.80
.2165	5.5 mm	25 mm	1-3/4	.025	4	.2165	76 mm	C742455	52.78
.2170		1	1-3/4	.025	4	.2170	3	C742760	49.80
.2180		1	1-3/4	.025	4	.2180	3	C742759	49.80
.2188	7/32	1	1-3/4	.025	4	.2188	3	C742446	44.92
.2190		1	1-3/4	.025	4	.2190	3	C742758	49.80
.2200		1	1-3/4	.025	4	.2200	3	C742757	49.80
.2210	#2	1	1-3/4	.025	4	.2210	3	C742413	46.57
.2220		1	1-3/4	.025	4	.2220	3	C742756	49.80
.2230		1	1-3/4	.025	4	.2230	3	C742755	49.80
.2240		1	1-3/4	.025	4	.2240	3	C742754	49.80
.2250		1	1-3/4	.025	4	.2250	3	C742753	49.80
.2260		1	1-3/4	.025	4	.2260	3	C742752	54.68
.2270		1	1-3/4	.025	4	.2270	3	C742751	54.68
.2280	#1	1	1-3/4	.025	4	.2280	3	C742424	51.24
.2290		1	1-3/4	.025	4	.2290	3	C742750	51.04
.2300		1	1-3/4	.025	4	.2300	3	C742749	54.68
.2310		1	1-3/4	.025	4	.2310	3	C742748	54.68
.2320		1	1-3/4	.025	4	.2320	3	C742747	54.68
.2330		1	1-3/4	.025	4	.2330	3	C742746	54.68
.2340	A	1	1-3/4	.025	4	.2340	3	C742437	54.68
.2344	15/64	1	1-3/4	.025	4	.2344	3	C742475	49.15
.2350		1	1-3/4	.025	4	.2350	3	C742745	54.68
.2360		1	1-3/4	.025	4	.2360	3	C742744	54.68
.2362	6 mm	25 mm	1-3/4	.025	4	.2362	76 mm	C742449	52.34
.2370		1	1-3/4	.025	4	.2370	3	C742743	54.68
.2380	B	1	1-3/4	.025	4	.2380	3	C742436	54.68
.2390		1	1-3/4	.025	4	.2390	3	C742742	54.68
.2400		1	1-3/4	.025	4	.2400	3	C742741	54.68
.2410		1	1-3/4	.025	4	.2410	3	C742740	54.68
.2420	C	1	1-3/4	.025	4	.2420	3	C742435	54.68
.2430		1	1-3/4	.025	4	.2430	3	C742739	54.68
.2440		1	1-3/4	.025	4	.2440	3	C742738	54.68
.2450		1	1-3/4	.025	4	.2450	3	C742737	54.68
.2460	D	1	1-3/4	.025	4	.2460	3	C742434	54.68
.2470		1	1-3/4	.025	4	.2470	3	C742736	54.68
.2480		1	1-3/4	.025	4	.2480	3	C742735	54.68
.2485		1	1-3/4	.025	4	.2485	3	C742734	61.39
.2490		1	1-3/4	.025	4	.2490	3	C742733	54.68
.2495		1	1-3/4	.025	4	.2495	3	C742732	58.06
.2500	1/4	1	1-3/4	.025	4	.2500	3	C742489	49.15
		L2	L3			D2	L1	TOOL #	PRICE
.2505		1	1-3/4	.025	4	.2505	3	C742731	58.06
.2510		1	1-3/4	.025	4	.2510	3	C742730	54.68
.2515		1	1-3/4	.025	4	.2515	3	C742729	68.31
.2520		1	1-3/4	.025	4	.2520	3	C742728	54.68
.2530		1	1-3/4	.025	4	.2530	3	C742727	54.68

continued on next page

For technical information, see page 283



REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.003"} -0.000"		L2	L3			D2	L1	TOOL #	PRICE
.2540		1	1-3/4	.025	4	.2540	3	C742726	54.68
.2550		1	1-3/4	.025	6	.2550	3	C742725	54.68
.2559	6.5 mm	29 mm	47 mm	.030	6	6.5 mm	83 mm	C742450	57.86
.2560		1-1/8	1-7/8	.030	6	.2560	3-1/4	C742724	66.52
.2570	F	1-1/8	1-7/8	.030	6	.2570	3-1/4	C742433	66.52
.2580		1-1/8	1-7/8	.030	6	.2580	3-1/4	C742723	66.52
.2590		1-1/8	1-7/8	.030	6	.2590	3-1/4	C742722	66.52
.2600		1-1/8	1-7/8	.030	6	.2600	3-1/4	C742721	66.52
.2610	G	1-1/8	1-7/8	.030	6	.2610	3-1/4	C742432	66.52
.2620		1-1/8	1-7/8	.030	6	.2620	3-1/4	C742720	66.52
.2630		1-1/8	1-7/8	.030	6	.2630	3-1/4	C742719	66.52
.2640		1-1/8	1-7/8	.030	6	.2640	3-1/4	C742718	66.52
.2650		1-1/8	1-7/8	.030	6	.2650	3-1/4	C742717	66.52
.2656	17/64	1-1/8	1-7/8	.030	6	.2656	3-1/4	C742474	59.85
.2660	H	1-1/8	1-7/8	.030	6	.2660	3-1/4	C742431	66.52
.2670		1-1/8	1-7/8	.030	6	.2670	3-1/4	C742716	66.52
.2680		1-1/8	1-7/8	.030	6	.2680	3-1/4	C742715	66.52
.2690		1-1/8	1-7/8	.030	6	.2690	3-1/4	C742714	66.52
.2700		1-1/8	1-7/8	.030	6	.2700	3-1/4	C742713	66.52
.2710		1-1/8	1-7/8	.030	6	.2710	3-1/4	C742712	66.17
.2720	I	1-1/8	1-7/8	.030	6	.2720	3-1/4	C742430	66.52
.2730		1-1/8	1-7/8	.030	6	.2730	3-1/4	C742711	66.17
.2740		1-1/8	1-7/8	.030	6	.2740	3-1/4	C742710	66.52
.2750		1-1/8	1-7/8	.030	6	.2750	3-1/4	C742709	66.52
.2756	7 mm	29 mm	47 mm	.030	6	7 mm	83 mm	C742444	72.59
.2760		1-1/8	1-7/8	.030	6	.2760	3-1/4	C742708	66.52
.2770	J	1-1/8	1-7/8	.030	6	.2770	3-1/4	C742429	66.52
.2780		1-1/8	1-7/8	.030	6	.2780	3-1/4	C742707	66.52
.2790		1-1/8	1-7/8	.030	6	.2790	3-1/4	C742706	66.52
.2800		1-1/8	1-7/8	.030	6	.2800	3-1/4	C742705	66.52
.2810	K	1-1/8	1-7/8	.030	6	.2810	3-1/4	C742428	66.52
.2812	9/32	1-1/8	1-7/8	.030	6	.2812	3-1/4	C742440	59.85
.2820		1-1/8	1-7/8	.030	6	.2820	3-1/4	C742704	66.52
.2830		1-1/8	1-7/8	.030	6	.2830	3-1/4	C742703	66.52
.2840		1-1/8	1-7/8	.030	6	.2840	3-1/4	C742702	66.52
.2850		1-1/8	1-7/8	.030	6	.2850	3-1/4	C742701	66.52
.2860		1-1/8	1-7/8	.030	6	.2860	3-1/4	C742700	66.52
.2870		1-1/8	1-7/8	.030	6	.2870	3-1/4	C742699	66.52
.2880		1-1/8	1-7/8	.030	6	.2880	3-1/4	C742698	66.17
.2890		1-1/8	1-7/8	.030	6	.2890	3-1/4	C742697	66.17
.2900	L	1-1/8	1-7/8	.030	6	.2900	3-1/4	C742427	66.52
.2910		1-1/8	1-7/8	.030	6	.2910	3-1/4	C742696	66.17
.2920		1-1/8	1-7/8	.030	6	.2920	3-1/4	C742695	66.17
.2930		1-1/8	1-7/8	.030	6	.2930	3-1/4	C742694	66.52
.2940		1-1/8	1-7/8	.030	6	.2940	3-1/4	C742693	66.52
.2950	M	1-1/8	1-7/8	.030	6	.2950	3-1/4	C742426	66.17
.2953		1-1/8	1-7/8	.030	6	.2953	3-1/4	C742448	72.29
.2960		1-1/8	1-7/8	.030	6	.2960	3-1/4	C742692	66.17

REAMERS

Carbide

Cobalt

HSS

For technical information, see page 283

continued on next page



REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE							TOOL #	PRICE
D1 ^{+0.003"} -0.0000"		L2	L3			D2	L1		
.2969	19/64	1-1/8	1-7/8	.030	6	.2969	3-1/4	C742473	66.52
.2970		1-1/8	1-7/8	.030	6	.2970	3-1/4	C742691	66.17
.2980		1-1/8	1-7/8	.030	6	.2980	3-1/4	C742690	66.52
.2990		1-1/8	1-7/8	.030	6	.2990	3-1/4	C742689	66.17
.3000		1-1/8	1-7/8	.030	6	.3000	3-1/4	C742688	66.52
.3010		1-1/8	1-7/8	.030	6	.3010	3-1/4	C742687	66.52
.3020	N	1-1/8	1-7/8	.030	6	.3020	3-1/4	C742425	66.52
.3030		1-1/8	1-7/8	.030	6	.3030	3-1/4	C742686	66.17
.3040		1-1/8	1-7/8	.030	6	.3040	3-1/4	C742685	66.17
.3050		1-1/8	1-7/8	.030	6	.3050	3-1/4	C742684	66.52
.3060		1-1/8	1-7/8	.030	6	.3060	3-1/4	C742683	66.17
.3070		1-1/8	1-7/8	.030	6	.3070	3-1/4	C742682	66.52
.3080		1-1/8	1-7/8	.030	6	.3080	3-1/4	C742681	66.17
.3090		1-1/8	1-7/8	.030	6	.3090	3-1/4	C742680	66.17
.3100		1-1/8	1-7/8	.030	6	.3100	3-1/4	C742679	66.52
.3110		1-1/8	1-7/8	.030	6	.3110	3-1/4	C742678	66.52
.3115		1-1/8	1-7/8	.030	6	.3115	3-1/4	C742677	75.97
.3120		1-1/8	1-7/8	.030	6	.3120	3-1/4	C742676	66.52
.3125	5/16	1-1/8	1-7/8	.030	6	.3125	3-1/4	C742454	66.52
.3130		1-1/8	1-7/8	.030	6	.3130	3-1/4	C742675	66.52
.3135		1-1/8	1-7/8	.030	6	.3135	3-1/4	C742674	75.97
.3140		1-1/8	1-7/8	.030	6	.3140	3-1/4	C742673	66.52
.3150	8 mm	29 mm	50 mm	.030	6	8 mm	83 mm	C742442	66.52
.3160	O	1-1/8	2	.030	6	.3160	3-1/4	C742344	73.98
.3170		1-1/4	2-1/8	.030	6	.3170	3-1/2	C742672	73.98
.3180		1-1/4	2-1/8	.035	6	.3180	3-1/2	C742671	73.98
.3190		1-1/4	2-1/8	.035	6	.3190	3-1/2	C742670	73.98
.3200		1-1/4	2-1/8	.035	6	.3200	3-1/2	C742669	73.98
.3210		1-1/4	2-1/8	.035	6	.3210	3-1/2	C742668	73.98
.3220		1-1/4	2-1/8	.035	6	.3220	3-1/2	C742667	73.98
.3230	P	1-1/4	2-1/8	.035	6	.3230	3-1/2	C742343	73.98
.3240		1-1/4	2-1/8	.035	6	.3240	3-1/2	C742666	73.98
.3250		1-1/4	2-1/8	.035	6	.3250	3-1/2	C742665	73.98
.3260		1-1/4	2-1/8	.035	6	.3260	3-1/2	C742664	73.98
.3270		1-1/4	2-1/8	.035	6	.3270	3-1/2	C742663	73.98
.3280		1-1/4	2-1/8	.035	6	.3280	3-1/2	C742662	73.98
.3281	21/64	1-1/4	2-1/8	.035	6	.3281	3-1/2	C742470	74.77
.3290		1-1/4	2-1/8	.035	6	.3290	3-1/2	C742661	73.98
.3300		1-1/4	2-1/8	.035	6	.3300	3-1/2	C742660	73.98
.3310		1-1/4	2-1/8	.035	6	.3310	3-1/2	C742659	73.98
.3320	Q	1-1/4	2-1/8	.035	6	.3320	3-1/2	C742342	73.98
.3330		1-1/4	2-1/8	.035	6	.3330	3-1/2	C742658	73.98
.3340		1-1/4	2-1/8	.035	6	.3340	3-1/2	C742657	73.98
.3346	8.5 mm	32 mm	54 mm	.035	6	8.5 mm	89 mm	C742443	73.98
.3350		1-1/4	2-1/8	.035	6	.3350	3-1/2	C742656	73.98
.3360		1-1/4	2-1/8	.035	6	.3360	3-1/2	C742655	73.98
.3370		1-1/4	2-1/8	.035	6	.3370	3-1/2	C742654	73.98
.3380		1-1/4	2-1/8	.035	6	.3380	3-1/2	C742653	73.98

continued on next page

For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE							TOOL #	PRICE
D1 ^{+0.003"} _{-0.0000"}		L2	L3			D2	L1		
.3390	R	1-1/4	2-1/8	.035	6	.3390	3-1/2	C742341	74.87
.3400		1-1/4	2-1/8	.035	6	.3400	3-1/2	C742652	73.98
.3410		1-1/4	2-1/8	.035	6	.3410	3-1/2	C742651	73.98
.3420		1-1/4	2-1/8	.035	6	.3420	3-1/2	C742650	73.98
.3430		1-1/4	2-1/8	.035	6	.3430	3-1/2	C742649	73.98
.3438	11/32	1-1/4	2-1/8	.035	6	.3438	3-1/2	C742483	75.12
.3440		1-1/4	2-1/8	.035	6	.3440	3-1/2	C742648	73.98
.3450		1-1/4	2-1/8	.035	6	.3450	3-1/2	C742647	73.98
.3460		1-1/4	2-1/8	.035	6	.3460	3-1/2	C742646	73.98
.3470		1-1/4	2-1/8	.035	6	.3470	3-1/2	C742645	73.98
.3480	S	1-1/4	2-1/8	.035	6	.3480	3-1/2	C742340	73.98
.3490		1-1/4	2-1/8	.035	6	.3490	3-1/2	C742644	73.98
.3500		1-1/4	2-1/8	.035	6	.3500	3-1/2	C742643	73.98
.3510		1-1/4	2-1/8	.035	6	.3510	3-1/2	C742642	80.69
.3520		1-1/4	2-1/8	.035	6	.3520	3-1/2	C742641	80.69
.3530		1-1/4	2-1/8	.035	6	.3530	3-1/2	C742640	80.69
.3540		1-1/4	2-1/8	.035	6	.3540	3-1/2	C742639	80.69
.3543	9 mm	32 mm	54 mm	.035	6	9 mm	89 mm	C742438	84.62
.3550		1-1/4	2-1/8	.035	6	.3550	3-1/2	C742638	80.69
.3560		1-1/4	2-1/8	.035	6	.3560	3-1/2	C742637	80.69
.3570		1-1/4	2-1/8	.035	6	.3570	3-1/2	C742636	80.69
.3580	T	1-1/4	2-1/8	.035	6	.3580	3-1/2	C742339	80.69
.3590		1-1/4	2-1/8	.035	6	.3590	3-1/2	C742635	82.49
.3594	23/64	1-1/4	2-1/8	.035	6	.3594	3-1/2	C742469	80.05
.3600		1-1/4	2-1/8	.035	6	.3600	3-1/2	C742634	80.69
.3610		1-1/4	2-1/8	.035	6	.3610	3-1/2	C742633	80.69
.3620		1-1/4	2-1/8	.035	6	.3620	3-1/2	C742632	80.69
.3630		1-1/4	2-1/8	.035	6	.3630	3-1/2	C742631	80.69
.3640		1-1/4	2-1/8	.035	6	.3640	3-1/2	C742630	80.69
.3650		1-1/4	2-1/8	.035	6	.3650	3-1/2	C742629	80.69
.3660		1-1/4	2-1/8	.035	6	.3660	3-1/2	C742628	80.69
.3670		1-1/4	2-1/8	.035	6	.3670	3-1/2	C742627	80.69
.3680	U	1-1/4	2-1/8	.035	6	.3680	3-1/2	C742338	80.69
.3690		1-1/4	2-1/8	.035	6	.3690	3-1/2	C742626	80.69
.3700		1-1/4	2-1/8	.035	6	.3700	3-1/2	C742625	80.69
.3710		1-1/4	2-1/8	.035	6	.3710	3-1/2	C742624	80.69
.3720		1-1/4	2-1/8	.035	6	.3720	3-1/2	C742623	80.69
.3730		1-1/4	2-1/8	.035	6	.3730	3-1/2	C742622	80.69
.3740	9.5 mm	32 mm	54 mm	.035	6	9.5 mm	89 mm	C742441	80.69
.3745		1-1/4	2-1/8	.035	6	.3745	3-1/2	C742621	98.01
.3750	3/8	1-1/4	2-1/8	.035	6	.3750	3-1/2	C742460	80.05
.3755		1-1/4	2-1/8	.035	6	.3755	3-1/2	C742620	98.01
.3760		1-1/4	2-1/8	.035	6	.3760	3-1/2	C742619	101.89
.3765		1-1/4	2-1/8	.035	6	.3765	3-1/2	C742618	106.37
.3770	V	1-1/4	2-1/8	.035	6	.3770	3-1/2	C742337	101.89
.3780		1-1/4	2-1/8	.035	6	.3780	3-1/2	C742617	101.89
.3790		1-1/4	2-1/8	.035	6	.3790	3-1/2	C742616	101.39

continued on next page

For technical information, see page 283

REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE							TOOL #	PRICE
D1 ^{+0.003"} -0.000"		L2	L3			D2	L1		
.3800		1-1/4	2-1/8	.035	6	.3800	3-1/2	C742615	101.89
.3810		1-1/4	2-1/8	.035	6	.3810	3-1/2	C742614	101.39
.3820		1-1/4	2-1/8	.035	6	.3820	3-1/2	C742613	101.89
.3830		1-1/4	2-1/8	.035	6	.3830	3-1/2	C742612	101.39
.3840		1-1/4	2-1/8	.035	6	.3840	3-1/2	C742611	101.89
.3850		1-1/4	2-1/8	.035	6	.3850	3-1/2	C742610	101.39
.3860	W	1-1/4	2-1/8	.035	6	.3860	3-1/2	C742336	101.39
.3870		1-1/4	2-1/8	.035	6	.3870	3-1/2	C742609	125.72
.3880		1-1/4	2-1/8	.035	6	.3880	3-1/2	C742608	125.72
.3890		1-1/4	2-1/8	.035	6	.3890	3-1/2	C742607	125.72
.3900		1-1/4	2-1/8	.035	6	.3900	3-1/2	C742606	125.72
.3906	25/64	1-1/4	2-1/8	.035	6	.3906	3-1/2	C742468	125.72
.3910		1-1/4	2-1/8	.035	6	.3910	3-1/2	C742605	125.72
.3920		1-1/4	2-1/8	.035	6	.3920	3-1/2	C742604	125.72
.3930		1-1/4	2-1/8	.035	6	.3930	3-1/2	C742603	125.72
.3937	10 mm	32 mm	54 mm	.035	6	10 mm	89 mm	C742485	95.77
.3940		1-1/4	2-1/8	.035	6	.3940	3-1/2	C742602	125.72
.3950		1-1/4	2-1/8	.035	6	.3950	3-1/2	C742601	125.72
.3960		1-1/4	2-1/8	.035	6	.3960	3-1/2	C742600	125.72
.3970	X	1-1/4	2-1/8	.035	6	.3970	3-1/2	C742335	125.72
.3980		1-1/4	2-1/8	.035	6	.3980	3-1/2	C742599	125.72
.3990		1-1/4	2-1/8	.035	6	.3990	3-1/2	C742598	125.72
.4000		1-1/4	2-1/8	.035	6	.4000	3-1/2	C742597	125.72
.4010		1-1/4	2-1/8	.035	6	.4010	3-1/2	C742596	125.72
.4020		1-1/4	2-1/8	.035	6	.4020	3-1/2	C742595	125.72
.4030		1-1/4	2-1/8	.035	6	.4030	3-1/2	C742594	125.72
.4040	Y	1-1/4	2-1/8	.035	6	.4040	3-1/2	C742334	125.72
.4050		1-1/4	2-1/8	.035	6	.4050	3-1/2	C742593	125.72
.4060		1-1/4	2-1/8	.035	6	.4060	3-1/2	C742592	125.72
.4062	13/32	1-1/4	2-1/8	.035	6	.4062	3-1/2	C742478	91.74
.4070		1-1/4	2-1/8	.035	6	.4070	3-1/2	C742591	125.72
.4080		1-1/4	2-1/8	.035	6	.4080	3-1/2	C742590	125.72
.4090		1-1/4	2-1/8	.035	6	.4090	3-1/2	C742589	125.72
.4100		1-1/4	2-1/8	.035	6	.4100	3-1/2	C742588	125.72
.4110		1-1/4	2-1/8	.035	6	.4110	3-1/2	C742587	125.72
.4120		1-1/4	2-1/8	.035	6	.4120	3-1/2	C742586	125.72
.4130	Z	1-1/4	2-1/8	.035	6	.4130	3-1/2	C742333	125.72
.4134	10.5 mm	32 mm	54 mm	.035	6	10.5 mm	89 mm	C742486	114.57
.4140		1-1/4	2-1/8	.035	6	.4140	3-1/2	C742585	125.72
.4150		1-1/4	2-1/8	.035	6	.4150	3-1/2	C742584	125.72
.4160		1-1/4	2-1/8	.035	6	.4160	3-1/2	C742583	125.72
.4170		1-3/8	2-1/8	.045	6	.4170	4	C742582	125.72
.4180		1-3/8	2-1/8	.045	6	.4180	4	C742581	125.72
.4190		1-3/8	2-1/8	.045	6	.4190	4	C742580	125.72
.4200		1-3/8	2-1/8	.045	6	.4200	4	C742579	125.72
.4210		1-3/8	2-1/8	.045	6	.4210	4	C742578	125.72
.4219	27/64	1-3/8	2-1/8	.045	6	.4219	4	C742467	104.03

continued on next page

For technical information, see page 283



REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH		AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.		OAL	UNCOATED	
DEC. EQUIV.	SIZE		L ₂	L ₃			D ₂	L ₁		TOOL #	PRICE
D ₁	$+0.003^+$ -0.000^0	L ₂	L ₃				D ₂	L ₁		TOOL #	PRICE
.4220		1-3/8	2-1/8		.045	6	.4220	4		C742577	125.72
.4230		1-3/8	2-1/8		.045	6	.4230	4		C742576	125.72
.4240		1-3/8	2-1/8		.045	6	.4240	4		C742575	125.72
.4250		1-3/8	2-1/8		.045	6	.4250	4		C742574	125.72
.4260		1-3/8	2-1/8		.045	6	.4260	4		C742573	125.72
.4270		1-3/8	2-1/8		.045	6	.4270	4		C742572	125.72
.4280		1-3/8	2-1/8		.045	6	.4280	4		C742571	125.72
.4290		1-3/8	2-1/8		.045	6	.4290	4		C742570	125.72
.4300		1-3/8	2-1/8		.045	6	.4300	4		C742569	125.72
.4310		1-3/8	2-1/8		.045	6	.4310	4		C742568	125.72
.4320		1-3/8	2-1/8		.045	6	.4320	4		C742567	125.72
.4330		1-3/8	2-1/8		.045	6	.4330	4		C742566	125.72
.4331	11 mm	35 mm	57 mm		.045	6	11 mm	102 mm		C742481	114.57
.4340		1-3/8	2-1/4		.045	6	.4340	4		C742565	125.72
.4350		1-3/8	2-1/4		.045	6	.4350	4		C742564	125.72
.4360		1-3/8	2-1/4		.045	6	.4360	4		C742563	125.72
.4365		1-3/8	2-1/4		.045	6	.4365	4		C742562	125.72
.4370		1-3/8	2-1/4		.045	6	.4370	4		C742561	125.72
.4375	7/16	1-3/8	2-1/4		.045	6	.4375	4		C742447	104.03
.4380		1-3/8	2-1/4		.045	6	.4380	4		C742560	125.72
.4385		1-3/8	2-1/4		.045	6	.4385	4		C742559	150.29
.4390		1-3/8	2-1/4		.045	6	.4390	4		C742558	125.72
.4400		1-3/8	2-1/4		.045	6	.4400	4		C742557	125.72
.4410		1-3/8	2-1/4		.045	6	.4410	4		C742556	143.38
.4420		1-3/8	2-1/4		.045	6	.4420	4		C742555	143.38
.4430		1-3/8	2-1/4		.045	6	.4430	4		C742554	143.38
.4440		1-3/8	2-1/4		.045	6	.4440	4		C742553	142.73
.4450		1-3/8	2-1/4		.045	6	.4450	4		C742552	143.38
.4460		1-3/8	2-1/4		.045	6	.4460	4		C742551	142.73
.4470		1-3/8	2-1/4		.045	6	.4470	4		C742550	142.73
.4480		1-3/8	2-1/4		.045	6	.4480	4		C742549	142.73
.4490		1-3/8	2-1/4		.045	6	.4490	4		C742548	142.73
.4500		1-3/8	2-1/4		.045	6	.4500	4		C742547	142.73
.4510		1-3/8	2-1/4		.045	6	.4510	4		C742546	142.73
.4520		1-3/8	2-1/4		.045	6	.4520	4		C742545	142.73
.4528	11.5 mm	35 mm	57 mm		.045	6	11.5 mm	102 mm		C742484	142.73
.4530		1-3/8	2-1/4		.045	6	.4530	4		C742544	130.79
.4531	29/64	1-3/8	2-1/4		.045	6	.4531	4		C742466	114.08
.4540		1-3/8	2-1/4		.045	6	.4540	4		C742543	142.73
.4550		1-3/8	2-1/4		.045	6	.4550	4		C742542	142.73
.4560		1-3/8	2-1/4		.045	6	.4560	4		C742541	142.73
.4570		1-3/8	2-1/4		.045	6	.4570	4		C742540	142.73
.4580		1-3/8	2-1/4		.045	6	.4580	4		C742539	142.73
.4590		1-3/8	2-1/4		.045	6	.4590	4		C742538	142.73
.4600		1-3/8	2-1/4		.045	6	.4600	4		C742537	142.73
.4610		1-3/8	2-1/4		.045	6	.4610	4		C742536	142.73
.4620		1-3/8	2-1/4		.045	6	.4620	4		C742535	142.73

REAMERS
Carbide
Cobalt
HSS

For technical information, see page 283

continued on next page

REAMERS - CARBIDE

(Cont.)

continued from previous page

REAMER DIAMETER		FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE							TOOL #	PRICE
$D_1^{+0.0003}$		L ₂	L ₃			D ₂	L ₁		
.4630		1-3/8	2-1/4	.045	6	.4630	4	C742534	142.73
.4640		1-3/8	2-1/4	.045	6	.4640	4	C742533	142.73
.4650		1-3/8	2-1/4	.045	6	.4650	4	C742532	142.73
.4660		1-3/8	2-1/4	.045	6	.4660	4	C742531	142.73
.4670		1-3/8	2-1/4	.045	6	.4670	4	C742530	142.73
.4680		1-3/8	2-1/4	.045	6	.4680	4	C742529	143.38
.4688	15/32	1-3/8	2-1/4	.045	6	.4688	4	C742476	114.08
.4690		1-3/8	2-1/4	.045	6	.4690	4	C742528	150.39
.4700		1-3/8	2-1/4	.045	6	.4700	4	C742527	150.39
.4710		1-3/8	2-1/4	.045	6	.4710	4	C742526	150.39
.4720		1-3/8	2-1/4	.045	6	.4720	4	C742525	151.09
.4724	12 mm	35 mm	57 mm	.045	6	12 mm	102 mm	C742479	144.87
.4730		1-3/8	2-1/4	.045	6	.4730	4	C742524	151.09
.4740		1-3/8	2-1/4	.045	6	.4740	4	C742523	150.39
.4750		1-3/8	2-1/4	.045	6	.4750	4	C742522	150.39
.4760		1-3/8	2-1/4	.045	6	.4760	4	C742521	151.09
.4770		1-3/8	2-1/4	.045	6	.4770	4	C742520	150.39
.4780		1-3/8	2-1/4	.045	6	.4780	4	C742519	150.39
.4790		1-1/2	2-1/2	.045	6	.4790	4	C742518	150.39
.4800		1-1/2	2-1/2	.045	6	.4800	4	C742517	150.39
.4810		1-1/2	2-1/2	.045	6	.4810	4	C742516	150.39
.4820		1-1/2	2-1/2	.045	6	.4820	4	C742515	150.39
.4830		1-1/2	2-1/2	.045	6	.4830	4	C742514	150.39
.4840		1-1/2	2-1/2	.045	6	.4840	4	C742513	150.39
.4844	31/64	1-1/2	2-1/2	.045	6	.4844	4	C742459	129.30
.4850		1-1/2	2-1/2	.045	6	.4850	4	C742512	150.39
.4860		1-1/2	2-1/2	.045	6	.4860	4	C742511	150.39
.4870		1-1/2	2-1/2	.045	6	.4870	4	C742510	181.34
.4880		1-1/2	2-1/2	.045	6	.4880	4	C742509	181.34
.4890		1-1/2	2-1/2	.045	6	.4890	4	C742508	181.34
.4900		1-1/2	2-1/2	.045	6	.4900	4	C742507	181.34
.4910		1-1/2	2-1/2	.045	6	.4910	4	C742506	181.34
.4920		1-1/2	2-1/2	.045	6	.4920	4	C742505	181.34
.4921	12.5 mm	38 mm	63 mm	.045	6	12.5 mm	102 mm	C742480	181.34
.4930		1-1/2	2-1/2	.045	6	.4930	4	C742504	181.34
.4940		1-1/2	2-1/2	.045	6	.4940	4	C742503	181.34
.4950		1-1/2	2-1/2	.045	6	.4950	4	C742501	181.34
.4960		1-1/2	2-1/2	.045	6	.4960	4	C742502	181.34
.4970		1-1/2	2-1/2	.045	6	.4970	4	C742500	181.34
.4980		1-1/2	2-1/2	.045	6	.4980	4	C742499	181.34
.4990		1-1/2	2-1/2	.045	6	.4990	4	C742498	181.34
.4995		1-1/2	2-1/2	.045	6	.4995	4	C742497	181.34
.5000	1/2	1-1/2	2-1/2	.045	6	.5000	4	C742491	129.90
.5005		1-1/2	2-1/2	.045	6	.5005	4	C742496	181.34
.5010		1-1/2	2-1/2	.045	6	.5010	4	C742495	181.34
.5020		1-1/2	2-1/2	.045	6	.5020	4	C742494	181.34

For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - CARBIDE

Quickturn Custom Diameter Reamer Program



- Uncommon reamer diameters are ground to order for your precise application need
- Additional dimensions will vary depending on diameter selected
- Call for current production lead times
- Pricing is based on quantity ordered, use chart for instant pricing model based on quantity
- Straight flute general purpose reamers for through and blind hole applications
- 45° chamfer angle
- 4 and 6 flute styles
- Solid carbide
- Precision manufactured in the USA

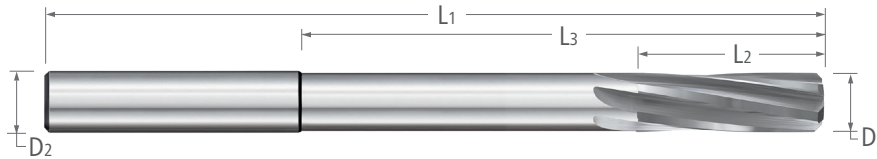
DIA. RANGE* D ₁	1 PIECE	2 PIECES	3 - 5 PIECES	6 - 11 PIECES	12 - 17 PIECES	18 - 23 PIECES	24 - 35 PIECES	36 - 49 PIECES	50 - 74 PIECES
.0401 - .0450	175.25	115.95	101.10	64.75	51.25	45.85	43.15	40.45	37.75
.0451 - .0500	175.25	115.95	101.10	64.75	51.25	45.85	43.15	40.45	37.75
.0501 - .0570	176.60	117.30	102.50	66.05	52.60	47.20	44.50	41.80	39.10
.0571 - .0650	175.25	115.95	101.10	64.75	51.25	45.85	43.15	40.45	37.75
.0651 - .0800	176.60	117.30	102.50	66.05	52.60	47.20	44.50	41.80	39.10
.0801 - .0950	177.95	118.65	103.80	67.40	53.90	48.55	45.85	43.15	40.45
.0951 - .1150	180.65	121.35	106.50	70.10	56.65	51.25	48.55	45.85	43.15
.1151 - .1300	182.00	122.70	107.85	71.45	57.95	52.60	49.90	47.20	44.50
.1301 - .1450	186.05	126.75	111.95	75.50	62.05	56.65	53.90	51.25	48.55
.1451 - .1600	190.10	130.80	115.95	79.55	66.05	60.70	57.95	55.30	52.60
.1601 - .1750	194.15	134.80	119.95	83.60	70.10	64.75	62.05	59.35	56.65
.1751 - .1950	199.55	140.25	125.35	89.00	75.50	70.10	67.40	64.75	62.05
.1951 - .2100	210.30	151.00	136.20	99.75	86.30	80.90	78.25	75.50	72.80
.2101 - .2250	214.35	155.05	140.25	103.80	90.35	84.95	82.25	79.55	76.80
.2251 - .2400	221.15	161.80	146.95	110.55	97.05	91.65	89.00	86.30	83.60
.2401 - .2550	226.50	167.15	152.35	115.95	102.50	97.05	94.35	91.65	89.00
.2551 - .2750	240.00	180.65	165.80	129.40	115.95	110.55	107.85	105.15	102.50
.2751 - .2950	241.30	182.00	167.15	130.80	117.30	111.95	109.20	106.50	103.80
.2951 - .3150	254.80	195.45	180.65	144.25	130.80	125.35	122.70	119.95	117.30
.3151 - .3350	273.70	214.35	199.55	163.10	149.70	144.25	141.55	138.85	136.20
.3351 - .3550	276.35	219.75	202.25	165.80	152.35	146.95	144.25	141.55	138.85
.3551 - .3800	281.75	225.10	207.65	171.25	157.75	152.35	149.70	146.95	144.25
.3801 - .4100	302.00	242.70	227.85	191.45	177.95	172.55	169.90	167.15	164.50
.4101 - .4400	312.80	253.45	238.60	202.25	188.75	183.40	180.65	177.95	175.25
.4401 - .4700	328.95	269.65	254.80	218.40	204.90	199.55	196.80	194.15	191.45
.4701 - .5050	355.90	296.65	281.75	245.40	231.90	226.50	223.80	221.15	218.40
.5051 - .5400	390.95	331.65	316.85	280.45	266.95	261.55	258.90	256.15	253.45
.5401 - .5800	444.90	385.55	370.75	334.35	320.90	315.45	312.80	310.05	307.40
.5801 - .6260	488.05	428.70	413.90	377.50	364.05	358.65	355.90	353.20	350.55
.6261 - .6600	552.75	493.45	478.60	442.20	428.70	423.30	420.65	417.95	415.20
.6601 - .7050	633.70	574.35	559.50	523.10	509.60	504.20	501.55	498.85	496.15
.7051 - .7550	687.55	628.25	613.40	577.05	563.55	558.15	555.45	552.75	550.05
.7551 - .7950	741.50	682.20	667.35	630.95	617.45	612.10	609.35	606.70	603.95
.7951 - .8450	795.45	736.10	721.30	684.85	671.40	666.00	663.30	660.60	657.95
.8451 - .9000	903.30	844.00	829.15	792.75	779.25	773.85	771.15	768.45	765.75
.9001 - .9600	1038.10	978.75	963.95	927.55	914.10	908.65	906.00	903.30	900.60
.9601 - 1.025	1145.95	1086.65	1071.80	1035.40	1021.90	1016.55	1013.85	1011.15	1008.40

*Diameter tolerance: +.0003/-0.0000

For technical information, see page 283

REAMERS - CARBIDE

Right Hand Spiral



- Spiral flute geometry best suited for blind holes
- Reduced neck for through hole clearance
- Expand an existing hole to a precise size or create a perfect hole finish
- 45° chamfer angle naturally guides the reamer into the hole
- Solid carbide
- Precision manufactured in the USA

REAMER DIAMETER DEC. EQUIV. SIZE	FLUTE LENGTH	OVERALL REACH	AXIAL CHAMFER LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED		
$D_1 \begin{smallmatrix} +.0002^* \\ -.0000^* \end{smallmatrix}$	L ₂	L ₃			D ₂	L ₁	TOOL #	PRICE	
.0469	3/64	3/8	0*	.010	4	.0404	1-1/2	C775684	28.61
.0625	1/16	3/8	3/4	.010	4	.0625	1-1/2	C775685	28.61
.0781	5/64	1/4	7/8	.012	4	.0781	1-3/4	C775686	28.61
.0938	3/32	1/2	7/8	.012	4	.0938	2	C775687	28.61
.1094	7/64	5/8	1-1/8	.015	4	.1094	2-1/4	C775688	28.61
.1250	1/8	5/8	1-1/8	.015	4	.1250	2-1/4	C775689	30.45
.1406	9/64	3/4	1-3/8	.017	4	.1406	2-1/2	C775690	34.53
.1562	5/32	3/4	1-3/8	.017	4	.1563	2-1/2	C775691	36.42
.1719	11/64	7/8	1-1/2	.022	4	.1719	2-3/4	C775692	40.80
.1875	3/16	7/8	1-1/2	.022	4	.1875	2-3/4	C775693	40.80
.2031	13/64	1	1-3/4	.025	4	.2031	3	C775694	49.40
.2188	7/32	1	1-3/4	.025	4	.2188	3	C775695	49.40
.2344	15/64	1	1-3/4	.025	4	.2344	3	C775696	54.08
.2500	1/4	1	1-3/4	.025	4	.2500	3	C775697	54.08
$D_1 \begin{smallmatrix} +.0003^* \\ -.0000^* \end{smallmatrix}$	L ₂	L ₃			D ₂	L ₁	TOOL #	PRICE	
.2656	17/64	1-1/8	1-7/8	.030	6	.2656	3-1/4	C775698	65.87
.2812	9/32	1-1/8	1-7/8	.030	6	.2813	3-1/4	C775699	65.87
.3125	5/16	1-1/8	1-7/8	.030	6	.3125	3-1/4	C775700	73.13
.3750	3/8	1-1/4	2-1/8	.035	6	.3750	3-1/2	C775701	88.01
.4062	13/32	1-1/4	2-1/8	.035	6	.4063	3-1/2	C775702	100.94
.4375	7/16	1-3/8	2-1/4	.045	6	.4375	4	C775703	114.38
.5000	1/2	1-1/2	2-1/2	.045	6	.5000	4	C775704	142.93

*When L₃ Value is 0, it is a full shank reduction

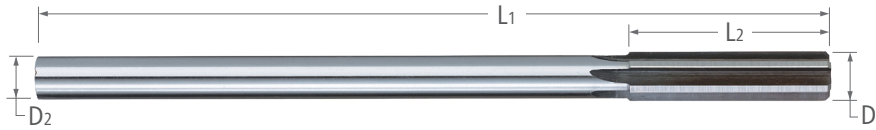
For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - COBALT Chucking - Straight Flute



- Straight flute general purpose reamers for through and blind hole applications
- 45° chamfer angle
- Flute options from 2 to 8
- M42 cobalt
- Precision manufactured in the USA

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.0002"} -0.0000"		L2		D2	L1	TOOL #	PRICE
.0135	#80	3/8	2	.0135	3/4	C746884	26.47
.0145	#79	3/8	2	.0145	3/4	C746886	26.47
.0156	1/64	3/8	2	.0156	3/4	C747041	26.47
.0160	#78	3/8	2	.0160	7/8	C746887	26.47
.0180	#77	3/8	2	.0180	7/8	C746888	26.47
.0200	#76	3/8	2	.0200	7/8	C746889	26.47
.0210	#75	1/2	3	.0210	1	C746890	26.47
.0225	#74	1/2	3	.0225	1	C746891	26.47
.0240	#73	1/2	3	.0240	1-1/8	C746892	26.47
.0250	#72	1/2	3	.0250	1-1/8	C746893	26.47
.0260	#71	1/2	3	.0260	1-1/4	C746894	26.47
.0280	#70	1/2	3	.0280	1-1/4	C746895	26.47
.0292	#69	1/2	3	.0292	1-3/8	C746897	26.47
.0310	#68	1/2	3	.0310	1-3/8	C746898	26.47
.0313	1/32	1/2	3	.0312	1-3/8	C747043	21.79
.0320	#67	1/2	3	.0320	1-3/8	C746899	21.79
.0330	#66	1/2	3	.0330	1-3/8	C746900	21.79
.0350	#65	1/2	3	.0350	1-1/2	C746901	21.79
.0360	#64	1/2	3	.0360	1-1/2	C746902	21.79
.0370	#63	1/2	3	.0370	1-1/2	C746903	21.79
.0380	#62	1/2	3	.0380	1-1/2	C746904	21.79
.0390	#61	1/2	3	.0390	1-1/2	C746905	21.79
.0394	1.0 mm	1/2	4	.0394	2-1/2	C747020	21.44
.0400	#60	1/2	4	.0390	2-1/2	C746906	21.44
.0410	#59	1/2	4	.0390	2-1/2	C746908	21.59
.0420	#58	1/2	4	.0390	2-1/2	C746909	21.44
.0430	#57	1/2	4	.0390	2-1/2	C746910	21.59
.0465	#56	1/2	4	.0455	2-1/2	C746911	21.59
.0469	3/64	1/2	4	.0455	2-1/2	C747003	21.44
.0520	#55	1/2	4	.0510	2-1/2	C746912	21.59
.0550	#54	1/2	4	.0510	2-1/2	C746913	21.59
.0591	1.5 mm	1/2	4	.0510	2-1/2	C747046	21.59
.0595	#53	1/2	4	.0585	2-1/2	C746914	21.59
.0625	1/16	1/2	4	.0585	2-1/2	C747045	21.59
.0635	#52	1/2	4	.0585	2-1/2	C746915	21.59
.0670	#51	3/4	4	.0660	3	C746916	17.26
.0700	#50	3/4	4	.0660	3	C746917	17.26
.0730	#49	3/4	4	.0660	3	C746919	17.26
.0760	#48	3/4	4	.0720	3	C746920	17.26
.0781	5/64	3/4	4	.0720	3	C746993	17.26
.0785	#47	3/4	4	.0720	3	C746921	17.26
.0787	2.0 mm	3/4	4	.0720	3	C747008	17.26

For technical information, see page 283

continued on next page

REAMERS - COBALT

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.002"} -0.000"		L2		D2	L1	TOOL #	PRICE
.0810	#46	3/4	4	.0771	3	C746922	17.26
.0820	#45	3/4	4	.0771	3	C746923	17.26
.0860	#44	3/4	4	.0810	3	C746924	17.26
.0890	#43	3/4	4	.0810	3	C746925	17.26
.0935	#42	3/4	4	.0880	3	C746926	17.26
.0938	3/32	3/4	4	.0880	3	C747005	17.26
.0960	#41	7/8	4	.0928	3-1/2	C746927	17.46
.0980	#40	7/8	4	.0928	3-1/2	C746928	17.46
.0984	2.5 mm	7/8	4	.0928	3-1/2	C747019	17.46
.0995	#39	7/8	4	.0928	3-1/2	C746930	17.46
.1015	#38	7/8	4	.0950	3-1/2	C746931	17.46
.1040	#37	7/8	4	.0950	3-1/2	C746932	17.46
.1065	#36	7/8	4	.1030	3-1/2	C746933	17.46
.1094	7/64	7/8	4	.1030	3-1/2	C746985	18.06
.1100	#35	7/8	4	.1030	3-1/2	C746934	18.06
.1110	#34	7/8	4	.1055	3-1/2	C746935	18.06
.1130	#33	7/8	4	.1055	3-1/2	C746936	18.06
.1160	#32	7/8	4	.1120	3-1/2	C746937	18.06
.1181	3.0 mm	7/8	4	.1120	3-1/2	C746999	18.06
.1200	#31	7/8	4	.1120	3-1/2	C746938	18.06
.1240	O/U	7/8	4	.1190	3-1/2	C747068	18.06
.1250	1/8	7/8	4	.1190	3-1/2	C747040	16.12
.1260	O/U	7/8	4	.1190	3-1/2	C747067	18.06
.1285	#30	7/8	4	.1190	3-1/2	C746939	18.06
.1360	#29	1	4	.1275	4	C746941	21.59
.1378	3.5 mm	1	4	.1350	4	C747007	21.59
.1405	#28	1	4	.1350	4	C746942	21.44
.1406	9/64	1	4	.1350	4	C746977	21.59
.1440	#27	1	4	.1350	4	C746943	21.59
.1470	#26	1	4	.1430	4	C746944	21.59
.1495	#25	1	4	.1430	4	C746945	21.59
.1520	#24	1	4	.1460	4	C746946	21.59
.1540	#23	1	4	.1460	4	C746947	21.59
.1563	5/32	1	4	.1510	4	C746994	21.59
.1570	#22	1	6	.1510	4	C746948	21.59
.1575	4.0 mm	1	6	.1510	4	C746997	21.59
.1590	#21	1-1/8	6	.1530	4-1/2	C746949	22.89
.1610	#20	1-1/8	6	.1530	4-1/2	C746950	22.89
.1660	#19	1-1/8	6	.1595	4-1/2	C746952	22.89
.1695	#18	1-1/8	6	.1595	4-1/2	C746953	22.89
.1719	11/64	1-1/8	6	.1645	4-1/2	C747034	22.89
.1730	#17	1-1/8	6	.1645	4-1/2	C746954	22.89
.1770	#16	1-1/8	6	.1704	4-1/2	C746955	22.89
.1772	4.5 mm	1-1/8	6	.1704	4-1/2	C746998	22.89
.1800	#15	1-1/8	6	.1755	4-1/2	C746956	22.89
.1820	#14	1-1/8	6	.1755	4-1/2	C746957	22.89
.1850	#13	1-1/8	6	.1805	4-1/2	C746958	22.89
.1865	O/U	1-1/8	6	.1805	4-1/2	C747066	22.89
.1875	3/16	1-1/8	6	.1805	4-1/2	C747006	22.09
.1885	O/U	1-1/8	6	.1805	4-1/2	C747065	22.89

For technical information, see page 283

continued on next page



REAMERS - COBALT

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.0002"} -0.0000"		L2		D2	L1	TOOL #	PRICE
.1890	#12	1-1/8	6	.1805	4-1/2	C746959	22.89
.1910	#11	1-1/4	6	.1860	5	C746960	27.61
.1935	#10	1-1/4	6	.1860	5	C746961	27.61
.1960	#9	1-1/4	6	.1895	5	C746883	27.61
.1969	5.0 mm	1-1/4	6	.1895	5	C746991	27.61
.1990	#8	1-1/4	6	.1895	5	C746885	27.61
.2010	#7	1-1/4	6	.1895	5	C746896	27.61
.2031	13/64	1-1/4	6	.1945	5	C747028	27.61
.2040	#6	1-1/4	6	.1945	5	C746907	27.61
.2055	#5	1-1/4	6	.2016	5	C746918	27.61
.2090	#4	1-1/4	6	.2016	5	C746929	27.61
.2130	#3	1-1/4	6	.2075	5	C746940	27.61
.2165	5.5 mm	1-1/4	6	.2075	5	C746996	27.61
.2188	7/32	1-1/4	6	.2075	5	C746986	27.61
.2210	#2	1-1/2	6	.2173	6	C746951	28.41
.2280	#1	1-1/2	6	.2173	6	C746962	28.41
.2340	A	1-1/2	6	.2265	6	C746975	28.41
.2344	15/64	1-1/2	6	.2265	6	C747025	28.41
.2362	6.0 mm	1-1/2	6	.2265	6	C746989	28.61
.2380	B	1-1/2	6	.2329	6	C746974	28.61
.2420	C	1-1/2	6	.2329	6	C746973	28.61
.2460	D	1-1/2	6	.2329	6	C746972	26.12
.2490	O/U	1-1/2	6	.2405	6	C747064	25.67
.2500	1/4	1-1/2	6	.2405	6	C747042	24.43
.2510	O/U	1-1/2	6	.2405	6	C747063	25.72
.2559	6.5 mm	1-1/2	6	.2405	6	C746990	28.61
.2570	F	1-1/2	6	.2485	6	C746971	28.61
.2610	G	1-1/2	6	.2485	6	C746970	28.61
.2656	17/64	1-1/2	6	.2485	6	C747023	38.76
.2660	H	1-1/2	6	.2485	6	C746969	38.76
.2720	I	1-1/2	6	.2485	6	C746968	38.76
.2756	7.0 mm	1-1/2	6	.2485	6	C746983	38.76
.2770	J	1-1/2	6	.2485	6	C746967	38.76
.2810	K	1-1/2	6	.2485	6	C746966	38.76
.2813	9/32	1-1/2	6	.2485	6	C746978	36.82
.2900	L	1-1/2	6	.2792	6	C746965	38.76
.2950	M	1-1/2	6	.2792	6	C746964	38.76
.2953	7.5 mm	1-1/2	6	.2792	6	C746988	38.76
.2969	19/64	1-1/2	6	.2792	6	C747021	38.76
.3020	N	1-1/2	6	.2792	6	C746963	38.76
.3115	O/U	1-1/2	6	.2792	6	C747062	36.82
.3125	5/16	1-1/2	6	.2792	6	C746995	34.87
.3135	O/U	1-1/2	6	.2792	6	C747061	36.82
.3150	8.0 mm	1-1/2	6	.2792	6	C746981	38.76
.3160	O	1-1/2	6	.2792	6	C746882	38.76
.3230	P	1-1/2	6	.2792	6	C746881	41.79
.3281	21/64	1-1/2	6	.2792	6	C747017	41.79
.3320	Q	1-1/2	6	.2792	6	C746880	41.79
.3346	8.5 mm	1-1/2	6	.2792	6	C746982	41.79
.3390	R	1-1/2	6	.2792	6	C746879	41.79
.3438	11/32	1-1/2	6	.2792	6	C747035	41.79

continued on next page

REAMERS

Carbide

Cobalt

HSS

REAMERS - COBALT

Chucking - Straight Flute (Cont.)

continued from previous page

REAMERS

Carbide

Cobalt

HSS

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D_1 $^{+.0002}$ $_{-.0000}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.3480	S	1-3/4	6	.3105	6	C746878	42.44
.3543	9.0 mm	1-3/4	6	.3105	7	C746976	42.44
.3580	T	1-3/4	6	.3105	7	C746877	42.44
.3594	23/64	1-3/4	6	.3105	7	C747015	42.44
.3680	U	1-3/4	6	.3105	7	C746876	42.44
.3740	9.5 mm - O/U	1-3/4	6	.3105	7	C746980	40.30
.3750	3/8	1-3/4	6	.3105	7	C747002	38.41
.3760	O/U	1-3/4	6	.3105	7	C747060	40.30
.3770	V	1-3/4	6	.3105	7	C746875	51.99
.3860	W	1-3/4	6	.3105	7	C746874	51.99
.3906	25/64	1-3/4	6	.3105	7	C747013	51.99
.3937	10.0 mm	1-3/4	6	.3105	7	C747038	51.99
.3970	X	1-3/4	6	.3105	7	C746873	51.99
.4040	Y	1-3/4	6	.3105	7	C746872	51.99
.4063	13/32	1-3/4	6	.3105	7	C747029	51.79
.4130	Z	1-3/4	6	.3730	7	C746871	51.99
.4134	10.5 mm	1-3/4	6	.3730	7	C747039	51.79
.4219	27/64	1-3/4	6	.3730	7	C747011	51.99
.4331	11.0 mm	1-3/4	6	.3730	7	C747033	51.99
.4365	O/U	1-3/4	6	.3730	7	C747059	51.79
.4375	7/16	1-3/4	6	.3730	7	C746987	51.99
.4385	O/U	1-3/4	6	.3730	7	C747058	51.79
.4528	11.5 mm	1-3/4	6	.3730	7	C747037	59.60
.4531	29/64	1-3/4	6	.3730	7	C747009	59.35
.4688	15/32	1-3/4	6	.3730	7	C747026	59.60
.4724	12.0 mm	2	6	.4355	8	C747031	59.60
.4844	31/64	2	6	.4355	8	C747000	59.35
.4921	12.5 mm	2	6	.4355	8	C747032	59.35
.4990	O/U	2	6	.4355	8	C747057	59.60
.5000	1/2	2	6	.4355	8	C747044	59.60

D_1 $^{+.0003}$ $_{-.0000}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.5010	O/U	2	6	.4355	8	C747056	59.60
.5313	17/32	2	6	.4355	8	C747024	66.86
.5625	9/16	2	8	.4355	8	C746979	66.86
.5938	19/32	2	8	.4355	8	C747022	66.86

		L ₂		D ₂	L ₁	TOOL #	PRICE
.6250	5/8	2-1/4	8	.5615	9	C746992	78.06
.6563	21/32	2-1/4	8	.5615	9	C747018	89.90
.6875	11/16	2-1/4	8	.5615	9	C747036	89.60
.7188	23/32	2-1/4	8	.5615	9	C747016	100.25
.7500	3/4	2-1/2	8	.6240	9	C747004	100.20
.7813	25/32	2-1/2	8	.6240	9	C747014	108.31
.8125	13/16	2-1/2	8	.6240	9	C747030	107.76
.8438	27/32	2-1/2	8	.6240	9-1/2	C747012	128.11
.8750	7/8	2-5/8	8	.7490	10	C746984	131.19
.9063	29/32	2-5/8	8	.7490	10	C747010	141.09
.9375	15/16	2-5/8	8	.7490	10	C747027	140.54
.9688	31/32	2-5/8	8	.7490	10	C747001	157.91
1.0000	1	2-3/4	8	.8740	10-1/2	C747055	159.70

For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - COBALT

Chucking - Straight Flute - Quickturn Custom Diameter Reamer Program



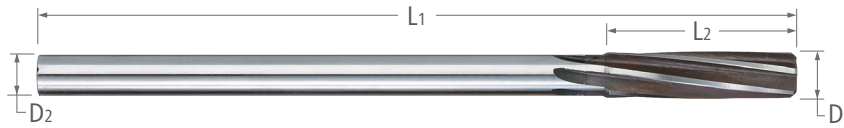
- Uncommon reamer diameters are ground to order for your precise application need
- Additional dimensions will vary depending on diameter selected
- Call for current production lead times
- Pricing is based on quantity ordered, use chart for instant pricing model based on quantity
- Straight flute general purpose reamers for through and blind hole applications
- 45° chamfer angle
- Flute options from 2 to 10
- M42 cobalt
- Precision manufactured in the USA

DIA. RANGE* D1	1 PIECE	2 PIECES	3 - 5 PIECES	6 - 7 PIECES	8 - 11 PIECES	12 - 17 PIECES	18 - 23 PIECES	24 - 35 PIECES	36 - 47 PIECES	48 - 59 PIECES	60 - 71 PIECES	72 - 95 PIECES	96+ PIECES
.0135 - .0195	208.25	110.10	81.60	53.25	46.15	39.00	34.30	31.90	29.55	28.40	27.65	26.70	26.60
.0196 - .0290	189.30	100.00	74.20	48.45	42.00	35.45	31.15	29.00	26.85	26.75	26.70	26.70	26.60
.0291 - .0390	172.15	91.00	67.45	44.00	38.10	34.10	28.30	26.40	24.45	23.50	22.90	22.45	21.95
.0391 - .0624	156.70	89.60	66.10	42.60	36.75	30.85	27.00	25.00	23.05	22.05	21.95	21.80	21.55
.0626 - .1093	157.80	87.60	64.15	40.60	34.75	28.85	24.95	23.00	21.05	20.10	20.00	19.90	19.70
.1095 - .1249	154.20	83.95	60.55	37.00	31.10	25.30	21.35	20.20	19.10	18.70	18.45	18.25	18.00
.1251 - .1405	161.15	90.95	67.20	44.00	38.10	32.30	28.30	26.40	24.45	23.50	22.90	22.45	21.95
.1407 - .1561	159.80	89.60	66.10	42.60	36.75	30.85	27.00	25.00	23.05	22.05	21.80	21.75	21.50
.1563 - .1718	161.30	91.00	67.50	44.10	38.20	32.35	28.45	26.50	24.50	23.55	23.35	23.15	23.00
.1720 - .1874	160.10	89.95	66.40	43.00	38.10	31.20	27.30	25.40	23.35	23.35	23.20	23.05	23.00
.1876 - .2030	166.70	96.45	72.95	49.45	43.60	37.70	33.85	31.85	29.90	28.95	28.30	28.00	27.85
.2032 - .2187	166.00	95.80	72.35	48.80	43.00	37.15	33.20	32.15	31.10	30.80	30.60	30.30	29.85
.2189 - .2343	166.00	95.80	72.35	48.80	43.00	37.15	33.20	32.15	31.10	30.80	30.60	30.30	29.85
.2345 - .2499	163.15	93.05	69.60	46.15	40.25	34.40	30.50	30.30	30.10	29.85	29.55	29.05	28.65
.2501 - .2968	177.65	107.50	83.90	60.55	54.60	48.75	44.75	42.90	40.90	39.90	39.65	39.05	38.95
.2970 - .3124	173.20	102.95	79.45	55.95	50.05	44.20	40.35	40.10	39.85	39.65	39.35	39.25	39.00
.3126 - .3437	179.90	109.60	86.15	62.65	56.75	50.90	47.00	45.05	43.05	42.90	42.60	42.25	42.00
.3439 - .3593	180.20	110.05	86.50	63.00	57.20	51.30	47.40	45.45	43.50	43.20	43.00	42.90	42.60
.3595 - .3749	176.05	105.85	82.35	58.85	53.00	47.10	43.20	43.10	43.00	42.80	42.75	42.70	42.55
.3751 - .3905	192.35	122.15	98.65	75.15	69.25	63.45	59.35	57.45	55.60	54.60	54.00	53.65	53.15
.3907 - .4218	194.80	124.65	101.05	77.65	71.75	65.90	61.95	60.05	58.10	57.20	56.45	56.05	55.60
.4220 - .4374	190.95	120.75	97.25	73.80	67.95	62.05	58.10	56.20	54.20	53.25	52.70	52.25	51.80
.4376 - .4843	200.25	130.05	106.60	83.10	77.20	71.35	67.50	65.50	63.55	62.55	61.95	61.60	61.05
.4845 - .4999	195.20	124.90	101.50	77.95	72.10	66.25	62.40	61.30	60.20	60.05	59.85	59.75	59.65
.5001 - .5311	205.95	134.75	111.50	86.15	83.70	81.45	79.25	77.00	74.80	72.60	70.35	68.10	65.95
.5313 - .5624	207.50	137.00	114.60	88.85	86.25	83.70	81.20	78.70	76.20	73.70	71.20	68.70	66.20
.5626 - .5937	211.40	140.55	117.45	91.60	88.70	85.90	83.15	81.40	77.60	74.80	72.05	69.20	66.40
.5939 - .6249	218.10	147.60	125.15	99.20	96.55	94.15	91.65	89.20	86.70	84.15	81.75	79.25	76.80
.6251 - .6874	225.05	154.25	133.00	106.90	104.50	102.25	99.95	97.70	95.40	93.15	91.75	88.55	86.35
.6876 - .7187	231.90	160.95	138.30	112.10	110.20	108.35	106.40	104.60	102.85	101.05	99.20	98.65	98.45
.7189 - .7499	240.10	169.90	148.80	122.45	119.55	116.70	113.95	111.15	108.35	105.50	102.70	99.90	97.10
.7501 - .8124	252.75	182.05	160.00	134.45	126.05	123.35	120.65	118.00	115.30	112.55	109.80	107.10	104.45
.8126 - .8437	265.50	195.50	172.40	148.60	141.55	139.15	136.80	134.45	132.10	129.75	127.35	125.10	122.70
.8439 - .8749	279.25	208.50	185.75	160.75	151.35	148.20	145.05	141.95	138.80	135.70	132.50	129.45	126.30
.8751 - .9374	290.45	219.35	196.90	170.65	161.15	157.95	154.80	151.65	148.50	145.35	142.15	140.75	139.30
.9376 - .9687	305.30	232.80	210.55	185.00	181.15	177.70	174.05	170.45	166.80	163.15	159.55	157.75	156.05
.9689 - .9999	315.95	245.25	223.50	198.50	193.50	188.65	183.80	179.00	174.15	169.40	164.50	159.70	154.85
1.0001 - 1.0624	339.95	269.15	246.20	220.65	215.25	209.75	204.30	198.90	193.50	188.05	182.60	177.15	171.75
1.0626 - 1.1249	364.15	293.65	271.15	246.20	239.05	232.15	225.20	218.30	211.30	204.45	197.55	190.60	183.70
1.1251 - 1.1874	387.65	315.95	295.40	268.00	261.80	255.75	249.65	243.55	237.50	231.35	225.25	219.20	213.05
1.1876 - 1.2499	412.25	342.80	320.65	293.95	286.05	278.60	271.15	263.80	256.40	249.00	241.55	234.15	226.80
1.2501 - 1.3749	437.00	364.95	341.20	316.95	312.10	261.40	302.50	297.75	292.95	288.10	283.35	283.00	282.35
1.3751 - 1.4999	461.20	390.30	368.20	342.55	339.15	335.95	332.80	330.75	328.70	328.00	327.45	326.70	326.00

*Diameter tolerances: 0-1/2" (+.0002"/-.0000"); 1/2"-5/8" (+.0003"/-.0000"); and 5/8" up to 1-1/2" (+.0001"/+.0004")

REAMERS - COBALT

Chucking - Right Hand Spiral



- General purpose reamers featuring a 45° chamfer angle
- 4 and 6 flute styles
- Spiral flutes for increased chip evacuation in blind hole applications
- M42 cobalt
- Precision manufactured in the USA

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1 \begin{smallmatrix} +.0002" \\ -.0000" \end{smallmatrix}$		L2		D2	L1	TOOL#	PRICE
.0394	1.0 mm	1/2	4	.0394	2-1/2	C746831	25.22
.0400	#60	1/2	4	.0390	2-1/2	C746718	25.22
.0410	#59	1/2	4	.0390	2-1/2	C746720	25.22
.0420	#58	1/2	4	.0390	2-1/2	C746721	25.32
.0430	#57	1/2	4	.0390	2-1/2	C746722	25.32
.0465	#56	1/2	4	.0455	2-1/2	C746723	25.22
.0469	3/64	1/2	4	.0455	2-1/2	C746814	25.22
.0520	#55	1/2	4	.0510	2-1/2	C746724	25.32
.0550	#54	1/2	4	.0510	2-1/2	C746725	25.22
.0591	1.5 mm	1/2	4	.0510	2-1/2	C746855	25.22
.0595	#53	1/2	4	.0585	2-1/2	C746726	25.22
.0625	1/16	1/2	4	.0585	2-1/2	C746854	25.32
.0635	#52	1/2	4	.0585	2-1/2	C746727	25.32
.0670	#51	3/4	4	.0660	3	C746728	20.40
.0700	#50	3/4	4	.0660	3	C746729	20.40
.0730	#49	3/4	4	.0660	3	C746731	20.40
.0760	#48	3/4	4	.0720	3	C746732	20.40
.0781	5/64	3/4	4	.0720	3	C746804	20.40
.0785	#47	3/4	4	.0720	3	C746733	20.40
.0787	2.0 mm	3/4	4	.0720	3	C746819	20.30
.0810	#46	3/4	4	.0771	3	C746734	20.30
.0820	#45	3/4	4	.0771	3	C746735	20.40
.0860	#44	3/4	4	.0810	3	C746736	20.40
.0890	#43	3/4	4	.0810	3	C746737	20.40
.0935	#42	3/4	4	.0880	3	C746738	20.40
.0938	3/32	3/4	4	.0880	3	C746816	20.40
.0960	#41	7/8	4	.0928	3-1/2	C746739	20.55
.0980	#40	7/8	4	.0928	3-1/2	C746740	20.50
.0984	2.5 mm	7/8	4	.0928	3-1/2	C746830	20.50
.0995	#39	7/8	4	.0928	3-1/2	C746742	20.55
.1015	#38	7/8	4	.0950	3-1/2	C746743	20.50
.1040	#37	7/8	4	.0950	3-1/2	C746744	20.50
.1065	#36	7/8	4	.1030	3-1/2	C746745	20.50
.1094	7/64	7/8	4	.1030	3-1/2	C746796	21.14
.1100	#35	7/8	4	.1030	3-1/2	C746746	21.24
.1110	#34	7/8	4	.1055	3-1/2	C746747	21.24
.1130	#33	7/8	4	.1055	3-1/2	C746748	21.24
.1160	#32	7/8	4	.1120	3-1/2	C746749	21.14

continued on next page

For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - COBALT

Chucking - Right Hand Spiral (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1 \begin{smallmatrix} +.0002^* \\ -.0000^* \end{smallmatrix}$		L ₂		D ₂	L ₁	TOOL#	PRICE
.1181	3.0 mm	7/8	4	.1120	3-1/2	C746810	21.14
.1200	#31	7/8	4	.1120	3-1/2	C746750	21.24
.1240	O/U	7/8	4	.1190	3-1/2	C746870	21.24
.1250	1/8	7/8	4	.1190	3-1/2	C746851	19.00
.1260	O/U	7/8	4	.1190	3-1/2	C746869	21.24
.1285	#30	7/8	4	.1190	3-1/2	C746751	21.24
.1360	#29	1	4	.1275	4	C746753	25.22
.1378	3.5 mm	1	4	.1350	4	C746818	25.22
.1405	#28	1	4	.1350	4	C746754	25.22
.1406	9/64	1	4	.1350	4	C746789	25.22
.1440	#27	1	4	.1350	4	C746755	25.22
.1470	#26	1	4	.1430	4	C746756	25.22
.1495	#25	1	4	.1430	4	C746757	25.22
.1520	#24	1	4	.1460	4	C746758	25.22
.1540	#23	1	4	.1460	4	C746759	25.22
.1563	5/32	1	4	.1510	4	C746805	25.22
.1570	#22	1	6	.1510	4	C746760	25.22
.1575	4.0 mm	1	6	.1510	4	C746808	25.22
.1590	#21	1-1/8	6	.1530	4-1/2	C746761	26.96
.1610	#20	1-1/8	6	.1530	4-1/2	C746762	26.96
.1660	#19	1-1/8	6	.1595	4-1/2	C746764	26.96
.1695	#18	1-1/8	6	.1595	4-1/2	C746765	26.96
.1719	11/64	1-1/8	6	.1645	4-1/2	C746845	26.96
.1730	#17	1-1/8	6	.1645	4-1/2	C746766	26.96
.1770	#16	1-1/8	6	.1704	4-1/2	C746767	26.96
.1772	4.5 mm	1-1/8	6	.1704	4-1/2	C746809	26.96
.1800	#15	1-1/8	6	.1755	4-1/2	C746768	27.06
.1820	#14	1-1/8	6	.1755	4-1/2	C746769	26.96
.1850	#13	1-1/8	6	.1805	4-1/2	C746770	26.96
.1865	O/U	1-1/8	6	.1805	4-1/2	C746868	27.06
.1875	3/16	1-1/8	6	.1805	4-1/2	C746817	25.67
.1885	O/U	1-1/8	6	.1805	4-1/2	C746867	27.06
.1890	#12	1-1/8	6	.1805	4-1/2	C746771	27.06
.1910	#11	1-1/4	6	.1860	5	C746772	30.15
.1935	#10	1-1/4	6	.1860	5	C746773	30.15
.1960	#9	1-1/4	6	.1895	5	C746715	30.15
.1969	5.0 mm	1-1/4	6	.1895	5	C746802	30.15
.1990	#8	1-1/4	6	.1895	5	C746716	30.15
.2010	#7	1-1/4	6	.1895	5	C746717	30.15
.2031	13/64	1-1/4	6	.1945	5	C746839	30.15
.2040	#6	1-1/4	6	.1945	5	C746719	30.15
.2055	#5	1-1/4	6	.2016	5	C746730	30.15
.2090	#4	1-1/4	6	.2016	5	C746741	30.15
.2130	#3	1-1/4	6	.2075	5	C746752	30.15
.2165	5.5 mm	1-1/4	6	.2075	5	C746807	30.15
.2188	7/32	1-1/4	6	.2075	5	C746797	30.15
.2210	#2	1-1/2	6	.2173	6	C746763	31.04

continued on next page

For technical information, see page 283

REAMERS - COBALT

Chucking - Right Hand Spiral (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1 \begin{smallmatrix} +.0002'' \\ -.0000'' \end{smallmatrix}$		L ₂		D ₂	L ₁	TOOL#	PRICE
.2280	#1	1-1/2	6	.2173	6	C746774	31.04
.2340	A	1-1/2	6	.2265	6	C746787	31.14
.2344	15/64	1-1/2	6	.2265	6	C746836	31.14
.2362	6.0 mm	1-1/2	6	.2265	6	C746800	32.64
.2380	B	1-1/2	6	.2329	6	C746786	32.64
.2420	C	1-1/2	6	.2329	6	C746785	32.64
.2460	D	1-1/2	6	.2329	6	C746784	29.70
.2490	O/U	1-1/2	6	.2405	6	C746866	34.97
.2500	1/4	1-1/2	6	.2405	6	C746852	27.76
.2510	O/U	1-1/2	6	.2405	6	C746865	34.97
.2559	6.5 mm	1-1/2	6	.2405	6	C746801	32.64
.2570	F	1-1/2	6	.2485	6	C746783	32.64
.2610	G	1-1/2	6	.2485	6	C746782	32.64
.2656	17/64	1-1/2	6	.2485	6	C746834	40.50
.2660	H	1-1/2	6	.2485	6	C746781	40.35
.2720	I	1-1/2	6	.2485	6	C746780	40.50
.2756	7.0 mm	1-1/2	6	.2485	6	C746794	40.35
.2770	J	1-1/2	6	.2485	6	C746779	40.50
.2810	K	1-1/2	6	.2485	6	C746778	40.35
.2813	9/32	1-1/2	6	.2485	6	C746790	38.36
.2900	L	1-1/2	6	.2792	6	C746777	40.35
.2950	M	1-1/2	6	.2792	6	C746776	40.35
.2953	7.5 mm	1-1/2	6	.2792	6	C746799	40.50
.2969	19/64	1-1/2	6	.2792	6	C746832	40.35
.3020	N	1-1/2	6	.2792	6	C746775	40.35
.3115	O/U	1-1/2	6	.2792	6	C746864	38.36
.3125	5/16	1-1/2	6	.2792	6	C746806	36.52
.3135	O/U	1-1/2	6	.2792	6	C746863	38.36
.3150	8.0 mm	1-1/2	6	.2792	6	C746792	40.50
.3160	O	1-1/2	6	.2792	6	C746714	40.35
.3230	P	1-1/2	6	.2792	6	C746713	43.68
.3281	21/64	1-1/2	6	.2792	6	C746828	43.68
.3320	Q	1-1/2	6	.2792	6	C746712	43.43
.3346	8.5 mm	1-1/2	6	.2792	6	C746793	43.43
.3390	R	1-1/2	6	.2792	6	C746711	43.43
.3438	11/32	1-1/2	6	.2792	6	C746846	43.43
.3480	S	1-3/4	6	.3105	6	C746710	44.03
.3543	9.0 mm	1-3/4	6	.3105	7	C746788	44.03
.3580	T	1-3/4	6	.3105	7	C746709	44.03
.3594	23/64	1-3/4	6	.3105	7	C746826	44.23
.3680	U	1-3/4	6	.3105	7	C746708	44.03
.3740	9.5 mm-O/U	1-3/4	6	.3105	7	C746862	41.84
.3750	3/8	1-3/4	6	.3105	7	C746813	39.80
.3760	O/U	1-3/4	6	.3105	7	C746861	41.84
.3770	V	1-3/4	6	.3105	7	C746707	55.72
.3860	W	1-3/4	6	.3105	7	C746706	55.47

continued on next page



REAMERS - COBALT

Chucking - Right Hand Spiral (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D ₁ ^{+0.0002"} -0.0000"		L ₂		D ₂	L ₁	TOOL#	PRICE
.3906	25/64	1-3/4	6	.3105	7	C746824	55.72
.3937	10.0 mm	1-3/4	6	.3105	7	C746849	55.72
.3970	X	1-3/4	6	.3105	7	C746705	55.47
.4040	Y	1-3/4	6	.3105	7	C746704	55.72
.4063	13/32	1-3/4	6	.3105	7	C746840	55.47
.4130	Z	1-3/4	6	.3730	7	C746703	55.72
.4134	10.5 mm	1-3/4	6	.3730	7	C746850	55.72
.4219	27/64	1-3/4	6	.3730	7	C746822	55.72
.4331	11.0 mm	1-3/4	6	.3730	7	C746844	55.72
.4365	O/U	1-3/4	6	.3730	7	C746860	55.47
.4375	7/16	1-3/4	6	.3730	7	C746798	52.93
.4385	O/U	1-3/4	6	.3730	7	C746859	55.47
.4528	11.5 mm	1-3/4	6	.3730	7	C746848	63.53
.4531	29/64	1-3/4	6	.3730	7	C746820	63.53
.4688	15/32	1-3/4	6	.3730	7	C746837	63.53
.4724	12.0 mm	2	6	.4355	8	C746842	63.53
.4844	31/64	2	6	.4355	8	C746811	63.53
.4921	12.5 mm	2	6	.4355	8	C746843	63.53
.4990	O/U	2	6	.4355	8	C746858	63.53
.5000	1/2	2	6	.4355	8	C746853	60.65

REAMERS

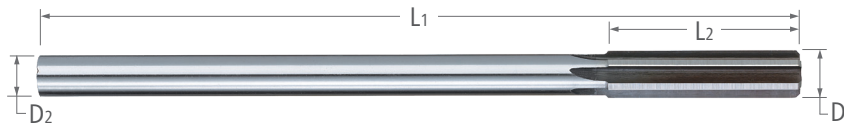
Carbide

Cobalt

HSS

REAMERS - COBALT

Dowel Pin - Straight Flute

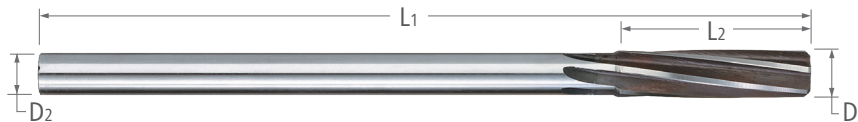


- General purpose reamers featuring a 45° chamfer angle
- Straight flutes for through and blind hole applications
- 4 and 6 flute styles
- M42 cobalt
- Precision manufactured in the USA

REAMER DIA.	FLUTE LENGTH	FLUTES	SHANK DIA.	OVERALL LENGTH	UNCOATED	
$D_1^{+.0000^*}_{-.0002^*}$	L ₂		D ₂	L ₁	TOOL #	PRICE
.1230	7/8	4	.1190	3-1/2	C746587	18.11
.1247	7/8	4	.1190	3-1/2	C746586	17.36
.1855	1-1/8	6	.1805	4-1/2	C746585	21.94
.1870	1-1/8	6	.1805	4-1/2	C746584	21.94
.2480	1-1/2	6	.2405	6	C746583	24.48
.2495	1-1/2	6	.2405	6	C746582	24.48
.3105	1-1/2	6	.2792	6	C746581	35.07
.3120	1-1/2	6	.2792	6	C746580	35.22
.3730	1-3/4	6	.3105	7	C746579	38.41
.3745	1-3/4	6	.3105	7	C746578	38.41
.4355	1-3/4	6	.3730	7	C746577	49.30
.4370	1-3/4	6	.3730	7	C746576	49.30
.4980	2	6	.4355	8	C746575	56.52
.4995	2	6	.4355	8	C746574	56.52

REAMERS - COBALT

Dowel Pin - Right Hand Spiral



- General purpose reamers featuring a 45° chamfer angle
- Spiral flutes for increased chip evacuation in blind hole applications
- 4 and 6 flute styles
- M42 cobalt
- Precision manufactured in the USA

REAMER DIA.	FLUTE LENGTH	FLUTES	SHANK DIA.	OVERALL LENGTH	UNCOATED	
$D_1^{+.0002^*}_{-.0000^*}$	L ₂		D ₂	L ₁	TOOL #	PRICE
.1230	7/8	4	.1190	3-1/2	C746573	20.10
.1247	7/8	4	.1190	3-1/2	C746572	20.10
.1855	1-1/8	6	.1805	4-1/2	C746571	26.72
.1870	1-1/8	6	.1805	4-1/2	C746570	26.87
.2480	1-1/2	6	.2405	6	C746569	28.11
.2495	1-1/2	6	.2405	6	C746568	28.11
.3105	1-1/2	6	.2792	6	C746567	37.06
.3120	1-1/2	6	.2792	6	C746566	36.37
.3730	1-3/4	6	.3105	7	C746565	39.80
.3745	1-3/4	6	.3105	7	C746564	39.80
.4355	1-3/4	6	.3730	7	C746563	54.68
.4370	1-3/4	6	.3730	7	C746562	54.68
.4980	2	6	.4355	8	C746561	60.55
.4995	2	6	.4355	8	C746560	62.49

For technical information, see page 283

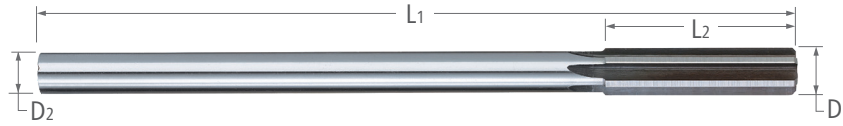
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute



- Straight flute general purpose reamers for through and blind hole applications
- 45° chamfer angle
- Flute options from 2 to 12
- High speed steel
- Precision manufactured in the USA

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.002"} D1 _{-0.000"}		L2		D2	L1	TOOL #	PRICE
.0135	#80	3/8	2	.0135	3/4	C740769	23.83
.0140		3/8	2	.0135	3/4	C741968	29.75
.0145	#79	3/8	2	.0145	3/4	C740771	23.83
.0150		3/8	2	.0156	3/4	C741967	29.65
.0155		3/8	2	.0156	3/4	C741966	29.65
.0156	1/64	3/8	2	.0156	3/4	C740968	23.93
.0160	#78	3/8	2	.0160	7/8	C740772	23.93
.0165		3/8	2	.0180	7/8	C741965	29.65
.0170		3/8	2	.0180	7/8	C741964	29.65
.0175		3/8	2	.0180	7/8	C741963	29.65
.0180	#77	3/8	2	.0180	7/8	C740773	23.83
.0185		3/8	2	.0200	7/8	C741962	29.75
.0190		3/8	2	.0200	7/8	C741961	29.75
.0195		3/8	2	.0200	7/8	C741960	29.65
.0200	#76	3/8	2	.0200	7/8	C740774	23.93
.0205		1/2	3	.0210	1	C741959	26.96
.0210	#75	1/2	3	.0210	1	C740775	23.83
.0215		1/2	3	.0225	1	C741958	26.96
.0220		1/2	3	.0225	1	C741957	26.96
.0225	#74	1/2	3	.0225	1	C740776	23.93
.0230		1/2	3	.0240	1-1/8	C741956	26.96
.0235		1/2	3	.0240	1-1/8	C741955	26.96
.0240	#73	1/2	3	.0240	1-1/8	C740777	23.93
.0245		1/2	3	.0250	1-1/8	C741954	26.96
.0250	#72	1/2	3	.0250	1-1/8	C740778	23.93
.0255		1/2	3	.0260	1-1/4	C741953	26.96
.0260	#71	1/2	3	.0260	1-1/4	C740779	23.93
.0265		1/2	3	.0280	1-1/4	C741952	26.96
.0270		1/2	3	.0280	1-1/4	C741951	26.96
.0275		1/2	3	.0280	1-1/4	C741950	26.96
.0280	#70	1/2	3	.0280	1-1/4	C740780	23.83
.0285		1/2	3	.0292	1-3/8	C741949	26.96
.0290		1/2	3	.0292	1-3/8	C741948	26.96
.0292	#69	1/2	3	.0292	1-3/8	C740782	23.83
.0295		1/2	3	.0310	1-3/8	C741947	24.53
.0300		1/2	3	.0310	1-3/8	C741946	24.53
.0305		1/2	3	.0310	1-3/8	C741945	24.53
.0310	#68	1/2	3	.0310	1-3/8	C740783	23.93
.0312	1/32	1/2	3	.0312	1-3/8	C740970	18.86
.0315		1/2	3	.0320	1-3/8	C741944	24.53
.0320	#67	1/2	3	.0320	1-3/8	C740784	20.05
.0325		1/2	3	.0330	1-3/8	C741943	24.53

continued on next page

For technical information, see page 283

REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.0002"} -0.0000"		L2		D2	L1	TOOL #	PRICE
.0330	#66	1/2	3	.0330	1-3/8	C740785	20.05
.0335		1/2	3	.0350	1-1/2	C741942	24.53
.0340		1/2	3	.0350	1-1/2	C741941	24.53
.0345		1/2	3	.0350	1-1/2	C741940	24.53
.0350	#65	1/2	3	.0350	1-1/2	C740786	20.05
.0355		1/2	3	.0360	1-1/2	C741939	24.53
.0360	#64	1/2	3	.0360	1-1/2	C740787	20.05
.0365		1/2	3	.0370	1-1/2	C741938	24.53
.0370	#63	1/2	3	.0370	1-1/2	C740788	20.05
.0375		1/2	3	.0380	1-1/2	C741937	24.53
.0380	#62	1/2	3	.0380	1-1/2	C740789	20.05
.0385		1/2	3	.0390	1-1/2	C741936	24.53
.0390	#61	1/2	3	.0390	1-1/2	C740790	20.05
.0394	1.0 mm	1/2	4	.0394	2-1/2	C740933	20.05
.0395		1/2	4	.0390	2-1/2	C741935	23.33
.0400	#60	1/2	4	.0390	2-1/2	C740791	20.05
.0405		1/2	4	.0390	2-1/2	C741934	23.48
.0410	#59	1/2	4	.0390	2-1/2	C740793	20.05
.0415		1/2	4	.0390	2-1/2	C741933	23.33
.0420	#58	1/2	4	.0390	2-1/2	C740794	20.05
.0425		1/2	4	.0390	2-1/2	C741932	23.48
.0430	#57	1/2	4	.0390	2-1/2	C740795	20.05
.0435		1/2	4	.0455	2-1/2	C741931	23.33
.0440		1/2	4	.0455	2-1/2	C741930	23.48
.0445		1/2	4	.0455	2-1/2	C741929	23.33
.0450		1/2	4	.0455	2-1/2	C741928	23.48
.0455		1/2	4	.0455	2-1/2	C741927	23.48
.0460		1/2	4	.0455	2-1/2	C741926	23.48
.0465	#56	1/2	4	.0455	2-1/2	C740796	20.05
.0469	3/64	1/2	4	.0455	2-1/2	C740904	20.05
.0470		1/2	4	.0510	2-1/2	C741925	23.48
.0475		1/2	4	.0510	2-1/2	C741924	23.48
.0480		1/2	4	.0510	2-1/2	C741923	23.48
.0485		1/2	4	.0510	2-1/2	C741922	23.48
.0490		1/2	4	.0510	2-1/2	C741921	23.48
.0495		1/2	4	.0510	2-1/2	C741920	23.48
.0500		1/2	4	.0510	2-1/2	C741919	23.48
.0505		1/2	4	.0510	2-1/2	C741918	23.48
.0510		1/2	4	.0510	2-1/2	C741917	23.48
.0515		1/2	4	.0510	2-1/2	C741916	23.48
.0520	#55	1/2	4	.0510	2-1/2	C740797	20.05
.0525		1/2	4	.0510	2-1/2	C741915	23.48
.0530		1/2	4	.0510	2-1/2	C741914	23.48
.0535		1/2	4	.0510	2-1/2	C741913	23.48
.0540		1/2	4	.0510	2-1/2	C741912	23.48
.0545		1/2	4	.0510	2-1/2	C741911	23.48
.0550	#54	1/2	4	.0510	2-1/2	C740798	20.05
.0555		1/2	4	.0510	2-1/2	C741910	23.48
.0560		1/2	4	.0510	2-1/2	C741909	23.48
.0565		1/2	4	.0510	2-1/2	C741908	23.48

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV.		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.0002"} _{-0.0000"}		L2		D2	L1	TOOL #	PRICE
.0570		1/2	4	.0510	2-1/2	C741907	23.33
.0575		1/2	4	.0510	2-1/2	C741906	23.48
.0580		1/2	4	.0510	2-1/2	C741905	23.48
.0585		1/2	4	.0510	2-1/2	C741904	23.48
.0590		1/2	4	.0510	2-1/2	C741903	23.48
.0591	1.5 mm	1/2	4	.0510	2-1/2	C740973	20.05
.0595	#53	1/2	4	.0585	2-1/2	C740799	20.05
.0600		1/2	4	.0585	2-1/2	C741902	23.48
.0605		1/2	4	.0585	2-1/2	C741901	23.48
.0610		1/2	4	.0585	2-1/2	C741900	23.48
.0615		1/2	4	.0585	2-1/2	C741899	23.48
.0620		1/2	4	.0585	2-1/2	C741898	23.48
.0625	1/16	1/2	4	.0585	2-1/2	C740972	17.91
.0630		1/2	4	.0585	2-1/2	C741897	20.99
.0635	#52	1/2	4	.0585	2-1/2	C740800	17.91
.0640		3/4	4	.0660	3	C741896	20.99
.0645		3/4	4	.0660	3	C741895	20.99
.0650		3/4	4	.0660	3	C741894	20.99
.0655		3/4	4	.0660	3	C741893	20.99
.0660		3/4	4	.0660	3	C741892	20.99
.0665		3/4	4	.0660	3	C741891	20.99
.0670	#51	3/4	4	.0660	3	C740801	16.12
.0675		3/4	4	.0660	3	C741890	20.99
.0680		3/4	4	.0660	3	C741889	20.99
.0685		3/4	4	.0660	3	C741888	20.99
.0690		3/4	4	.0660	3	C741887	20.99
.0695		3/4	4	.0660	3	C741886	20.99
.0700	#50	3/4	4	.0660	3	C740802	16.12
.0705		3/4	4	.0660	3	C741885	20.99
.0710		3/4	4	.0660	3	C741884	20.99
.0715		3/4	4	.0660	3	C741883	20.99
.0720		3/4	4	.0660	3	C741882	20.99
.0725		3/4	4	.0660	3	C741881	20.99
.0730	#49	3/4	4	.0660	3	C740804	16.12
.0735		3/4	4	.0720	3	C741880	20.99
.0740		3/4	4	.0720	3	C741879	20.99
.0745		3/4	4	.0720	3	C741878	20.94
.0750		3/4	4	.0720	3	C741877	20.99
.0755		3/4	4	.0720	3	C741876	20.99
.0760	#48	3/4	4	.0720	3	C740805	16.12
.0765		3/4	4	.0720	3	C741875	20.99
.0770		3/4	4	.0720	3	C741874	20.99
.0775		3/4	4	.0720	3	C741873	20.99
.0780		3/4	4	.0720	3	C741872	20.99
.0781	5/64	3/4	4	.0720	3	C740885	16.12
.0785	#47	3/4	4	.0720	3	C740806	16.12
.0787	2.0 mm	3/4	4	.0720	3	C740909	16.12
.0790		3/4	4	.0771	3	C741871	20.99
.0795		3/4	4	.0771	3	C741870	20.99

continued on next page

For technical information, see page 283

REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV.	REAMER DIAMETER SIZE	FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1^{+.0002}_{-.0000}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.0800		3/4	4	.0771	3	C741869	20.99
.0805		3/4	4	.0771	3	C741868	20.99
.0810	#46	3/4	4	.0771	3	C740807	16.12
.0815		3/4	4	.0771	3	C741867	20.99
.0820	#45	3/4	4	.0771	3	C740808	16.12
.0825		3/4	4	.0810	3	C741866	20.94
.0830		3/4	4	.0810	3	C741865	20.99
.0835		3/4	4	.0810	3	C741864	20.99
.0840		3/4	4	.0810	3	C741863	20.99
.0845		3/4	4	.0810	3	C741862	20.99
.0850		3/4	4	.0810	3	C741861	20.99
.0855		3/4	4	.0810	3	C741860	20.99
.0860	#44	3/4	4	.0810	3	C740809	16.12
.0865		3/4	4	.0810	3	C741859	20.99
.0870		3/4	4	.0810	3	C741858	20.99
.0875		3/4	4	.0810	3	C741857	20.94
.0880		3/4	4	.0810	3	C741856	20.99
.0885		3/4	4	.0810	3	C741855	20.99
.0890	#43	3/4	4	.0810	3	C740810	16.12
.0895		3/4	4	.0880	3	C741854	20.99
.0900		3/4	4	.0880	3	C741853	20.99
.0905		3/4	4	.0880	3	C741852	20.99
.0910		3/4	4	.0880	3	C741851	20.99
.0915		3/4	4	.0880	3	C741850	20.99
.0920		3/4	4	.0880	3	C741849	20.99
.0925		3/4	4	.0880	3	C741848	20.99
.0930		3/4	4	.0880	3	C741847	20.99
.0935	#42	3/4	4	.0880	3	C740811	16.12
.0938	3/32	3/4	4	.0880	3	C740906	14.48
.0940		7/8	4	.0928	3-1/2	C741846	20.99
.0945		7/8	4	.0928	3-1/2	C741845	20.99
.0950		7/8	4	.0928	3-1/2	C741844	20.99
.0955		7/8	4	.0928	3-1/2	C741843	20.99
.0960	#41	7/8	4	.0928	3-1/2	C740812	16.27
.0965		7/8	4	.0928	3-1/2	C741842	20.99
.0970		7/8	4	.0928	3-1/2	C741841	20.99
.0975		7/8	4	.0928	3-1/2	C741840	20.99
.0980	#40	7/8	4	.0928	3-1/2	C740813	16.27
.0984	2.5 mm	7/8	4	.0928	3-1/2	C740931	16.27
.0985		7/8	4	.0928	3-1/2	C741839	20.99
.0990		7/8	4	.0928	3-1/2	C741838	20.99
.0995	#39	7/8	4	.0928	3-1/2	C731999	16.27
.1000		7/8	4	.0950	3-1/2	C741837	20.99
.1005		7/8	4	.0950	3-1/2	C741836	20.99
.1010		7/8	4	.0950	3-1/2	C741835	20.99
.1015	#38	7/8	4	.0950	3-1/2	C740816	16.27
.1020		7/8	4	.0950	3-1/2	C741834	20.99
.1025		7/8	4	.0950	3-1/2	C741833	20.99
.1030		7/8	4	.0950	3-1/2	C741832	20.99

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.002"} _{-0.000"}		L2		D2	L1	TOOL #	PRICE
.1035		7/8	4	.0950	3-1/2	C741831	20.99
.1040	#37	7/8	4	.0950	3-1/2	C740817	16.27
.1045		7/8	4	.1030	3-1/2	C741830	20.99
.1050		7/8	4	.1030	3-1/2	C741829	20.99
.1055		7/8	4	.1030	3-1/2	C741828	20.94
.1060		7/8	4	.1030	3-1/2	C741827	20.99
.1065	#36	7/8	4	.1030	3-1/2	C740818	16.27
.1070		7/8	4	.1030	3-1/2	C741826	20.99
.1075		7/8	4	.1030	3-1/2	C741825	20.94
.1080		7/8	4	.1030	3-1/2	C741824	20.99
.1085		7/8	4	.1030	3-1/2	C741823	20.99
.1090		7/8	4	.1030	3-1/2	C741822	20.99
.1094	7/64	7/8	4	.1030	3-1/2	C740870	16.67
.1095		7/8	4	.1030	3-1/2	C741821	18.16
.1100	#35	7/8	4	.1030	3-1/2	C740819	16.67
.1105		7/8	4	.1055	3-1/2	C741820	18.11
.1110	#34	7/8	4	.1055	3-1/2	C740820	16.67
.1115		7/8	4	.1055	3-1/2	C741819	18.11
.1120		7/8	4	.1055	3-1/2	C741818	18.16
.1125		7/8	4	.1055	3-1/2	C741817	18.11
.1130	#33	7/8	4	.1055	3-1/2	C740821	16.67
.1135		7/8	4	.1120	3-1/2	C741816	18.16
.1140		7/8	4	.1120	3-1/2	C741815	18.16
.1145		7/8	4	.1120	3-1/2	C741814	18.16
.1150		7/8	4	.1120	3-1/2	C741813	18.16
.1155		7/8	4	.1120	3-1/2	C741812	18.16
.1160	#32	7/8	4	.1120	3-1/2	C740822	16.67
.1165		7/8	4	.1120	3-1/2	C741811	18.16
.1170		7/8	4	.1120	3-1/2	C741810	18.16
.1175		7/8	4	.1120	3-1/2	C741809	18.16
.1180		7/8	4	.1120	3-1/2	C741808	18.16
.1181	3.0 mm	7/8	4	.1120	3-1/2	C740896	16.67
.1185		7/8	4	.1120	3-1/2	C741807	18.16
.1190		7/8	4	.1120	3-1/2	C741806	18.16
.1195		7/8	4	.1120	3-1/2	C741805	18.16
.1200	#31	7/8	4	.1120	3-1/2	C740823	16.67
.1205		7/8	4	.1190	3-1/2	C741804	18.16
.1210		7/8	4	.1190	3-1/2	C741803	18.16
.1215		7/8	4	.1190	3-1/2	C741802	18.16
.1220		7/8	4	.1190	3-1/2	C741801	18.16
.1225		7/8	4	.1190	3-1/2	C741800	18.16
.1230		7/8	4	.1190	3-1/2	C741799	18.16
.1235		7/8	4	.1190	3-1/2	C741798	18.16
.1240	O/U	7/8	4	.1190	3-1/2	C741797	16.67
.1245		7/8	4	.1190	3-1/2	C741796	18.16
.1247		7/8	4	.1190	3-1/2	C741795	18.16
.1250	1/8	7/8	4	.1190	3-1/2	C740967	15.12
.1255		7/8	4	.1190	3-1/2	C741794	24.53
.1260	O/U	7/8	4	.1190	3-1/2	C741793	16.67

continued on next page

For technical information, see page 283

REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV.	REAMER DIAMETER SIZE	FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1^{+.0002}$ $_{-.0000}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.1265		7/8	4	.1190	3-1/2	C741792	24.53
.1270		7/8	4	.1190	3-1/2	C741791	24.53
.1275		7/8	4	.1190	3-1/2	C741790	24.53
.1280		7/8	4	.1190	3-1/2	C741789	24.53
.1285	#30	7/8	4	.1190	3-1/2	C740824	16.67
.1290		1	4	.1275	4	C741788	24.53
.1295		1	4	.1275	4	C741787	24.53
.1300		1	4	.1275	4	C741786	24.53
.1305		1	4	.1275	4	C741785	24.53
.1310		1	4	.1275	4	C741784	24.53
.1315		1	4	.1275	4	C741783	24.53
.1320		1	4	.1275	4	C741782	24.53
.1325		1	4	.1275	4	C741781	24.53
.1330		1	4	.1275	4	C741780	24.53
.1335		1	4	.1275	4	C741779	24.53
.1340		1	4	.1275	4	C741778	24.53
.1345		1	4	.1275	4	C741777	24.53
.1350		1	4	.1275	4	C741776	24.53
.1355		1	4	.1275	4	C741775	24.53
.1360	#29	1	4	.1275	4	C740826	20.05
.1365		1	4	.1350	4	C741774	24.53
.1370		1	4	.1350	4	C741773	24.53
.1375		1	4	.1350	4	C741772	24.53
.1378	3.5 mm	1	4	.1350	4	C740908	20.05
.1380		1	4	.1350	4	C741771	24.53
.1385		1	4	.1350	4	C741770	24.53
.1390		1	4	.1350	4	C741769	24.53
.1395		1	4	.1350	4	C741768	24.53
.1400		1	4	.1350	4	C741767	24.53
.1405	#28	1	4	.1350	4	C740827	20.05
.1406	9/64	1	4	.1350	4	C740862	20.05
.1410		1	4	.1350	4	C741766	23.48
.1415		1	4	.1350	4	C741765	23.48
.1420		1	4	.1350	4	C741764	23.48
.1425		1	4	.1350	4	C741763	23.48
.1430		1	4	.1350	4	C741762	23.48
.1435		1	4	.1350	4	C741761	23.48
.1440	#27	1	4	.1350	4	C740828	20.05
.1445		1	4	.1430	4	C741760	23.33
.1450		1	4	.1430	4	C741759	23.48
.1455		1	4	.1430	4	C741758	23.48
.1460		1	4	.1430	4	C741757	23.48
.1465		1	4	.1430	4	C741756	23.33
.1470	#26	1	4	.1430	4	C740829	20.05
.1475		1	4	.1430	4	C741755	23.33
.1480		1	4	.1430	4	C741754	23.48
.1485		1	4	.1430	4	C741753	23.33
.1490		1	4	.1430	4	C741752	23.48
.1495	#25	1	4	.1430	4	C740830	20.05

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1 \begin{smallmatrix} +.0002'' \\ -.0000'' \end{smallmatrix}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.1500		1	4	.1460	4	C741751	23.48
.1505		1	4	.1460	4	C741750	23.33
.1510		1	4	.1460	4	C741749	23.48
.1515		1	4	.1460	4	C741748	23.48
.1520	#24	1	4	.1460	4	C740831	20.05
.1525		1	4	.1460	4	C741747	23.33
.1530		1	4	.1460	4	C741746	23.48
.1535		1	4	.1460	4	C741745	23.33
.1540	#23	1	4	.1460	4	C740832	20.05
.1545		1	4	.1510	4	C741744	23.48
.1550		1	4	.1510	4	C741743	23.48
.1555		1	4	.1510	4	C741742	23.48
.1560		1	4	.1510	4	C741741	23.48
.1562	5/32	1	4	.1510	4	C740886	20.05
.1565		1	6	.1510	4	C741740	24.53
.1570	#22	1	6	.1510	4	C740833	20.05
.1575	4.0 mm	1	6	.1510	4	C740889	20.05
.1580		1-1/8	6	.1530	4-1/2	C741739	24.53
.1585		1-1/8	6	.1530	4-1/2	C741738	24.53
.1590	#21	1-1/8	6	.1530	4-1/2	C740834	21.39
.1595		1-1/8	6	.1530	4-1/2	C741737	24.53
.1600		1-1/8	6	.1530	4-1/2	C741736	24.53
.1605		1-1/8	6	.1530	4-1/2	C741735	24.53
.1610	#20	1-1/8	6	.1530	4-1/2	C740835	21.39
.1615		1-1/8	6	.1595	4-1/2	C741734	24.53
.1620		1-1/8	6	.1595	4-1/2	C741733	24.53
.1625		1-1/8	6	.1595	4-1/2	C741732	24.53
.1630		1-1/8	6	.1595	4-1/2	C741731	24.53
.1635		1-1/8	6	.1595	4-1/2	C741730	24.53
.1640		1-1/8	6	.1595	4-1/2	C741729	24.53
.1645		1-1/8	6	.1595	4-1/2	C741728	24.53
.1650		1-1/8	6	.1595	4-1/2	C741727	24.53
.1655		1-1/8	6	.1595	4-1/2	C741726	24.53
.1660	#19	1-1/8	6	.1595	4-1/2	C740837	21.39
.1665		1-1/8	6	.1595	4-1/2	C741725	24.53
.1670		1-1/8	6	.1595	4-1/2	C741724	24.53
.1675		1-1/8	6	.1595	4-1/2	C741723	24.53
.1680		1-1/8	6	.1595	4-1/2	C741722	24.53
.1685		1-1/8	6	.1595	4-1/2	C741721	24.53
.1690		1-1/8	6	.1595	4-1/2	C741720	24.53
.1695	#18	1-1/8	6	.1595	4-1/2	C740838	21.39
.1700		1-1/8	6	.1645	4-1/2	C741719	24.53
.1705		1-1/8	6	.1645	4-1/2	C741718	24.53
.1710		1-1/8	6	.1645	4-1/2	C741717	24.53
.1715		1-1/8	6	.1645	4-1/2	C741716	24.53
.1719	11/64	1-1/8	6	.1645	4-1/2	C740961	21.39
.1720		1-1/8	6	.1645	4-1/2	C741715	23.13
.1725		1-1/8	6	.1645	4-1/2	C741714	23.13
.1730	#17	1-1/8	6	.1645	4-1/2	C740839	21.39

REAMERS

Carbide

Cobalt

HSS

For technical information, see page 283

continued on next page

REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1 \begin{smallmatrix} +.0002'' \\ -.0000'' \end{smallmatrix}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.1735		1-1/8	6	.1704	4-1/2	C741713	23.13
.1740		1-1/8	6	.1704	4-1/2	C741712	23.13
.1745		1-1/8	6	.1704	4-1/2	C741711	23.13
.1750		1-1/8	6	.1704	4-1/2	C741710	23.13
.1755		1-1/8	6	.1704	4-1/2	C741709	23.13
.1760		1-1/8	6	.1704	4-1/2	C741708	23.13
.1765		1-1/8	6	.1704	4-1/2	C741707	23.03
.1770	#16	1-1/8	6	.1704	4-1/2	C740840	21.39
.1772	4.5 mm	1-1/8	6	.1704	4-1/2	C740895	21.39
.1775		1-1/8	6	.1755	4-1/2	C741706	23.13
.1780		1-1/8	6	.1755	4-1/2	C741705	23.13
.1785		1-1/8	6	.1755	4-1/2	C741704	23.03
.1790		1-1/8	6	.1755	4-1/2	C741703	23.13
.1795		1-1/8	6	.1755	4-1/2	C741702	23.13
.1800	#15	1-1/8	6	.1755	4-1/2	C740841	21.39
.1805		1-1/8	6	.1755	4-1/2	C741701	23.13
.1810		1-1/8	6	.1755	4-1/2	C741700	23.13
.1815		1-1/8	6	.1755	4-1/2	C741699	23.13
.1820	#14	1-1/8	6	.1755	4-1/2	C740842	21.39
.1825		1-1/8	6	.1805	4-1/2	C741698	23.03
.1830		1-1/8	6	.1805	4-1/2	C741697	23.13
.1835		1-1/8	6	.1805	4-1/2	C741696	23.03
.1840		1-1/8	6	.1805	4-1/2	C741695	23.13
.1845		1-1/8	6	.1805	4-1/2	C741694	23.13
.1850	#13	1-1/8	6	.1805	4-1/2	C740843	21.39
.1855		1-1/8	6	.1805	4-1/2	C741693	23.13
.1860		1-1/8	6	.1805	4-1/2	C741692	23.13
.1865	O/U	1-1/8	6	.1805	4-1/2	C741691	21.39
.1870		1-1/8	6	.1805	4-1/2	C741690	23.13
.1875	3/16	1-1/8	6	.1805	4-1/2	C740907	19.25
.1880		1-1/8	6	.1805	4-1/2	C741689	29.05
.1885	O/U	1-1/8	6	.1805	4-1/2	C741688	21.39
.1890	#12	1-1/8	6	.1805	4-1/2	C740844	21.39
.1895		1-1/4	6	.1860	5	C741687	29.05
.1900		1-1/4	6	.1860	5	C741686	29.05
.1905		1-1/4	6	.1860	5	C741685	29.05
.1910	#11	1-1/4	6	.1860	5	C740845	23.83
.1915		1-1/4	6	.1860	5	C741684	29.05
.1920		1-1/4	6	.1860	5	C741683	29.05
.1925		1-1/4	6	.1860	5	C741682	29.05
.1930		1-1/4	6	.1860	5	C741681	29.05
.1935	#10	1-1/4	6	.1860	5	C740846	23.83
.1940		1-1/4	6	.1895	5	C741680	29.05
.1945		1-1/4	6	.1895	5	C741679	29.05
.1950		1-1/4	6	.1895	5	C741678	29.05
.1955		1-1/4	6	.1895	5	C741677	29.05
.1960	#9	1-1/4	6	.1895	5	C740768	23.83
.1965		1-1/4	6	.1895	5	C741676	29.05
.1969	5.0 mm	1-1/4	6	.1895	5	C740878	23.83

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV.	REAMER DIAMETER SIZE	FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1 \begin{smallmatrix} +.0002'' \\ -.0000'' \end{smallmatrix}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.1970		1-1/4	6	.1895	5	C741675	29.05
.1975		1-1/4	6	.1895	5	C741674	29.05
.1980		1-1/4	6	.1895	5	C741673	29.05
.1985		1-1/4	6	.1895	5	C741672	29.05
.1990	#8	1-1/4	6	.1895	5	C740770	23.83
.1995		1-1/4	6	.1945	5	C741671	29.05
.2000		1-1/4	6	.1945	5	C741670	29.05
.2005		1-1/4	6	.1945	5	C741669	29.05
.2010	#7	1-1/4	6	.1895	5	C740781	23.83
.2015		1-1/4	6	.1945	5	C741668	29.05
.2020		1-1/4	6	.1945	5	C741667	29.05
.2025		1-1/4	6	.1945	5	C741666	29.05
.2030		1-1/4	6	.1945	5	C741665	29.05
.2031	13/64	1-1/4	6	.1945	5	C740954	23.83
.2035		1-1/4	6	.1945	5	C741664	28.36
.2040	#6	1-1/4	6	.1945	5	C740792	23.83
.2045		1-1/4	6	.2016	5	C741663	28.36
.2050		1-1/4	6	.2016	5	C741662	28.36
.2055	#5	1-1/4	6	.2016	5	C740803	23.83
.2060		1-1/4	6	.2016	5	C741661	28.36
.2065		1-1/4	6	.2016	5	C741660	28.36
.2070		1-1/4	6	.2016	5	C741659	28.36
.2075		1-1/4	6	.2016	5	C741658	28.36
.2080		1-1/4	6	.2016	5	C741657	28.36
.2085		1-1/4	6	.2016	5	C741656	28.36
.2090	#4	1-1/4	6	.2016	5	C740814	23.83
.2095		1-1/4	6	.2075	5	C741655	28.36
.2100		1-1/4	6	.2075	5	C741654	28.36
.2105		1-1/4	6	.2075	5	C741653	28.36
.2110		1-1/4	6	.2075	5	C741652	28.36
.2115		1-1/4	6	.2075	5	C741651	28.36
.2120		1-1/4	6	.2075	5	C741650	28.36
.2125		1-1/4	6	.2075	5	C741649	28.36
.2130	#3	1-1/4	6	.2075	5	C740825	23.83
.2135		1-1/4	6	.2075	5	C741648	28.36
.2140		1-1/4	6	.2075	5	C741647	28.36
.2145		1-1/4	6	.2075	5	C741646	28.36
.2150		1-1/4	6	.2075	5	C741645	28.36
.2155		1-1/4	6	.2075	5	C741644	28.36
.2160		1-1/4	6	.2075	5	C741643	28.36
.2165	5.5 mm	1-1/4	6	.2075	5	C740888	23.83
.2170		1-1/4	6	.2075	5	C741642	28.36
.2175		1-1/4	6	.2075	5	C741641	28.36
.2180		1-1/4	6	.2075	5	C741640	28.36
.2185		1-1/4	6	.2075	5	C741639	28.36
.2188	7/32	1-1/4	6	.2075	5	C740871	23.83
.2190		1-1/2	6	.2173	6	C741638	28.95
.2195		1-1/2	6	.2173	6	C741637	28.81
.2200		1-1/2	6	.2173	6	C741636	28.95

REAMERS

Carbide

Cobalt

HSS

For technical information, see page 283

continued on next page

REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV.	REAMER DIAMETER SIZE	FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.002"} -0.000"		L2		D2	L1	TOOL #	PRICE
.2205		1-1/2	6	.2173	6	C741635	28.95
.2210	#2	1-1/2	6	.2173	6	C740836	24.63
.2215		1-1/2	6	.2173	6	C741634	28.95
.2220		1-1/2	6	.2173	6	C741633	28.95
.2225		1-1/2	6	.2173	6	C741632	28.81
.2230		1-1/2	6	.2173	6	C741631	28.95
.2235		1-1/2	6	.2173	6	C741630	28.81
.2240		1-1/2	6	.2173	6	C741629	28.95
.2245		1-1/2	6	.2173	6	C741628	28.81
.2250		1-1/2	6	.2173	6	C741627	28.95
.2255		1-1/2	6	.2173	6	C741626	28.81
.2260		1-1/2	6	.2173	6	C741625	28.95
.2265		1-1/2	6	.2173	6	C741624	28.81
.2270		1-1/2	6	.2173	6	C741623	28.95
.2275		1-1/2	6	.2173	6	C741622	28.95
.2280	#1	1-1/2	6	.2173	6	C740847	24.63
.2285		1-1/2	6	.2265	6	C741621	28.81
.2290		1-1/2	6	.2265	6	C741620	28.95
.2295		1-1/2	6	.2265	6	C741619	28.95
.2300		1-1/2	6	.2265	6	C741618	28.95
.2305		1-1/2	6	.2265	6	C741617	28.81
.2310		1-1/2	6	.2265	6	C741616	28.81
.2315		1-1/2	6	.2265	6	C741615	28.81
.2320		1-1/2	6	.2265	6	C741614	28.95
.2325		1-1/2	6	.2265	6	C741613	28.81
.2330		1-1/2	6	.2265	6	C741612	28.95
.2335		1-1/2	6	.2265	6	C741611	28.81
.2340	A	1-1/2	6	.2265	6	C740860	24.63
.2344	15/64	1-1/2	6	.2265	6	C740947	24.63
.2345		1-1/2	6	.2265	6	C741610	25.97
.2350		1-1/2	6	.2265	6	C741609	26.07
.2355		1-1/2	6	.2265	6	C741608	26.07
.2360		1-1/2	6	.2265	6	C741607	26.07
.2362	6.0 mm	1-1/2	6	.2265	6	C740874	25.82
.2365		1-1/2	6	.2329	6	C741606	26.07
.2370		1-1/2	6	.2329	6	C741605	26.07
.2375		1-1/2	6	.2329	6	C741604	26.07
.2380	B	1-1/2	6	.2329	6	C740859	25.82
.2385		1-1/2	6	.2329	6	C741603	26.07
.2390		1-1/2	6	.2329	6	C741602	26.07
.2395		1-1/2	6	.2329	6	C741601	26.07
.2400		1-1/2	6	.2329	6	C741600	26.07
.2405		1-1/2	6	.2329	6	C741599	26.07
.2410		1-1/2	6	.2329	6	C741598	26.07
.2415		1-1/2	6	.2329	6	C741597	25.97
.2420	C	1-1/2	6	.2329	6	C740858	25.82
.2425		1-1/2	6	.2329	6	C741596	26.07
.2430		1-1/2	6	.2329	6	C741595	26.07
.2435		1-1/2	6	.2329	6	C741594	25.97

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

REAMERS

Carbide

Cobalt

HSS

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D ₁ ^{+0.0002"} D ₁ _{-0.0000"}		L ₂		D ₂	L ₁	TOOL #	PRICE
.2440		1-1/2	6	.2329	6	C741593	26.07
.2445		1-1/2	6	.2329	6	C741592	26.07
.2450		1-1/2	6	.2329	6	C741591	26.07
.2455		1-1/2	6	.2329	6	C741590	25.97
.2460	D	1-1/2	6	.2329	6	C740857	25.82
.2465		1-1/2	6	.2405	6	C741589	26.07
.2470		1-1/2	6	.2405	6	C741588	26.07
.2475		1-1/2	6	.2405	6	C741587	26.07
.2480		1-1/2	6	.2405	6	C741586	26.07
.2485		1-1/2	6	.2405	6	C741585	26.07
.2490	O/U	1-1/2	6	.2405	6	C741584	24.28
.2495		1-1/2	6	.2405	6	C741583	26.07
.2500	1/4	1-1/2	6	.2405	6	C740969	23.08
.2505		1-1/2	6	.2405	6	C741582	33.13
.2510	O/U	1-1/2	6	.2405	6	C741581	24.28
.2515		1-1/2	6	.2405	6	C741580	33.13
.2520		1-1/2	6	.2405	6	C741579	33.13
.2525		1-1/2	6	.2405	6	C741578	33.13
.2530		1-1/2	6	.2405	6	C741577	33.13
.2535		1-1/2	6	.2405	6	C741576	33.13
.2540		1-1/2	6	.2405	6	C741575	33.13
.2545		1-1/2	6	.2405	6	C741574	33.13
.2550		1-1/2	6	.2405	6	C741573	33.13
.2555		1-1/2	6	.2405	6	C741572	33.13
.2559	6.5 mm	1-1/2	6	.2405	6	C740877	25.82
.2560		1-1/2	6	.2485	6	C741571	33.13
.2565		1-1/2	6	.2485	6	C741570	33.13
.2570	F	1-1/2	6	.2485	6	C740856	25.82
.2575		1-1/2	6	.2485	6	C741569	33.13
.2580		1-1/2	6	.2485	6	C741568	33.13
.2585		1-1/2	6	.2485	6	C741567	33.13
.2590		1-1/2	6	.2485	6	C741566	33.13
.2595		1-1/2	6	.2485	6	C741565	33.13
.2600		1-1/2	6	.2485	6	C741564	33.13
.2605		1-1/2	6	.2485	6	C741563	33.13
.2610	G	1-1/2	6	.2485	6	C740855	25.82
.2615		1-1/2	6	.2485	6	C741562	33.13
.2620		1-1/2	6	.2485	6	C741561	33.13
.2625		1-1/2	6	.2485	6	C741560	33.13
.2630		1-1/2	6	.2485	6	C741559	33.13
.2635		1-1/2	6	.2485	6	C741558	33.13
.2640		1-1/2	6	.2485	6	C741557	33.13
.2645		1-1/2	6	.2485	6	C741556	33.13
.2650		1-1/2	6	.2485	6	C741555	33.13
.2655		1-1/2	6	.2485	6	C741554	33.13
.2656	17/64	1-1/2	6	.2485	6	C740941	28.76
.2660	H	1-1/2	6	.2485	6	C740854	28.76
.2665		1-1/2	6	.2485	6	C741553	33.13
.2670		1-1/2	6	.2485	6	C741552	33.13

continued on next page

For technical information, see page 283



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1 \begin{smallmatrix} +.0002'' \\ -.0000'' \end{smallmatrix}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.2675		1-1/2	6	.2485	6	C741551	33.13
.2680		1-1/2	6	.2485	6	C741550	33.13
.2685		1-1/2	6	.2485	6	C741549	33.13
.2690		1-1/2	6	.2485	6	C741548	33.13
.2695		1-1/2	6	.2485	6	C741547	33.13
.2700		1-1/2	6	.2485	6	C741546	33.13
.2705		1-1/2	6	.2485	6	C741545	33.13
.2710		1-1/2	6	.2485	6	C741544	33.13
.2715		1-1/2	6	.2485	6	C741543	33.13
.2720	I	1-1/2	6	.2485	6	C740853	28.76
.2725		1-1/2	6	.2485	6	C741542	33.13
.2730		1-1/2	6	.2485	6	C741541	33.13
.2735		1-1/2	6	.2485	6	C741540	33.13
.2740		1-1/2	6	.2485	6	C741539	33.13
.2745		1-1/2	6	.2485	6	C741538	33.13
.2750		1-1/2	6	.2485	6	C741537	33.13
.2755		1-1/2	6	.2485	6	C741536	33.13
.2756	7.0 mm	1-1/2	6	.2485	6	C740868	28.76
.2760		1-1/2	6	.2485	6	C741535	33.13
.2765		1-1/2	6	.2485	6	C741534	33.13
.2770	J	1-1/2	6	.2485	6	C740852	28.76
.2775		1-1/2	6	.2485	6	C741533	33.13
.2780		1-1/2	6	.2485	6	C741532	33.13
.2785		1-1/2	6	.2485	6	C741531	33.13
.2790		1-1/2	6	.2485	6	C741530	33.13
.2795		1-1/2	6	.2485	6	C741529	33.13
.2800		1-1/2	6	.2485	6	C741528	33.13
.2805		1-1/2	6	.2485	6	C741527	33.13
.2810	K	1-1/2	6	.2485	6	C740851	28.76
.2812	9/32	1-1/2	6	.2485	6	C740863	27.31
.2815		1-1/2	6	.2792	6	C741526	33.13
.2820		1-1/2	6	.2792	6	C741525	33.13
.2825		1-1/2	6	.2792	6	C741524	33.13
.2830		1-1/2	6	.2792	6	C741523	33.13
.2835		1-1/2	6	.2792	6	C741522	33.13
.2840		1-1/2	6	.2792	6	C741521	33.13
.2845		1-1/2	6	.2792	6	C741520	33.13
.2850		1-1/2	6	.2792	6	C741519	33.13
.2855		1-1/2	6	.2792	6	C741518	33.13
.2860		1-1/2	6	.2792	6	C741517	33.13
.2865		1-1/2	6	.2792	6	C741516	33.13
.2870		1-1/2	6	.2792	6	C741515	33.13
.2875		1-1/2	6	.2792	6	C741514	33.13
.2880		1-1/2	6	.2792	6	C741513	33.13
.2885		1-1/2	6	.2792	6	C741512	33.13
.2890		1-1/2	6	.2792	6	C741511	33.13
.2895		1-1/2	6	.2792	6	C741510	33.13
.2900	L	1-1/2	6	.2792	6	C740850	28.76
.2905		1-1/2	6	.2792	6	C741509	33.13

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D ₁ ^{+0.002"} _{-0.000"}		L ₂		D ₂	L ₁	TOOL #	PRICE
.2910		1-1/2	6	.2792	6	C741508	33.13
.2915		1-1/2	6	.2792	6	C741507	33.13
.2920		1-1/2	6	.2792	6	C741506	33.13
.2925		1-1/2	6	.2792	6	C741505	33.13
.2930		1-1/2	6	.2792	6	C741504	33.13
.2935		1-1/2	6	.2792	6	C741503	33.13
.2940		1-1/2	6	.2792	6	C741502	33.13
.2945		1-1/2	6	.2792	6	C741501	33.13
.2950	M	1-1/2	6	.2792	6	C740849	28.76
.2953	7.5 mm	1-1/2	6	.2792	6	C740873	28.76
.2955		1-1/2	6	.2792	6	C741500	33.13
.2960		1-1/2	6	.2792	6	C741499	33.13
.2965		1-1/2	6	.2792	6	C741498	33.13
.2969	19/64	1-1/2	6	.2792	6	C740935	28.76
.2970		1-1/2	6	.2792	6	C741497	29.65
.2975		1-1/2	6	.2792	6	C741496	29.65
.2980		1-1/2	6	.2792	6	C741495	29.65
.2985		1-1/2	6	.2792	6	C741494	29.65
.2990		1-1/2	6	.2792	6	C741493	29.65
.2995		1-1/2	6	.2792	6	C741492	29.65
.3000		1-1/2	6	.2792	6	C741491	29.65
.3005		1-1/2	6	.2792	6	C741490	29.65
.3010		1-1/2	6	.2792	6	C741489	29.65
.3015		1-1/2	6	.2792	6	C741488	29.65
.3020	N	1-1/2	6	.2792	6	C740848	28.76
.3025		1-1/2	6	.2792	6	C741487	29.65
.3030		1-1/2	6	.2792	6	C741486	29.65
.3035		1-1/2	6	.2792	6	C741485	29.65
.3040		1-1/2	6	.2792	6	C741484	29.65
.3045		1-1/2	6	.2792	6	C741483	29.65
.3050		1-1/2	6	.2792	6	C741482	29.65
.3055		1-1/2	6	.2792	6	C741481	29.65
.3060		1-1/2	6	.2792	6	C741480	29.65
.3065		1-1/2	6	.2792	6	C741479	29.65
.3070		1-1/2	6	.2792	6	C741478	29.65
.3075		1-1/2	6	.2792	6	C741477	29.65
.3080		1-1/2	6	.2792	6	C741476	29.65
.3085		1-1/2	6	.2792	6	C741475	29.65
.3090		1-1/2	6	.2792	6	C741474	29.65
.3095		1-1/2	6	.2792	6	C741473	29.65
.3100		1-1/2	6	.2792	6	C741472	29.65
.3105		1-1/2	6	.2792	6	C741471	29.65
.3110		1-1/2	6	.2792	6	C741470	29.65
.3115	O/U	1-1/2	6	.2792	6	C741469	27.31
.3120		1-1/2	6	.2792	6	C741468	29.65
.3125	5/16	1-1/2	6	.2792	6	C740887	25.92
.3130		1-1/2	6	.2792	6	C741467	35.12
.3135	O/U	1-1/2	6	.2792	6	C741466	27.31
.3140		1-1/2	6	.2792	6	C741465	35.12

REAMERS

Carbide

Cobalt

HSS

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D ₁ ^{+0.002"} -0.000"		L ₂		D ₂	L ₁	TOOL #	PRICE
.3145		1-1/2	6	.2792	6	C741464	35.12
.3150	8.0 mm	1-1/2	6	.2792	6	C740866	28.76
.3155		1-1/2	6	.2792	6	C741463	35.12
.3160	O	1-1/2	6	.2792	6	C740767	28.76
.3165		1-1/2	6	.2792	6	C741462	35.12
.3170		1-1/2	6	.2792	6	C741461	35.12
.3175		1-1/2	6	.2792	6	C741460	35.12
.3180		1-1/2	6	.2792	6	C741459	35.12
.3185		1-1/2	6	.2792	6	C741458	35.12
.3190		1-1/2	6	.2792	6	C741457	35.12
.3195		1-1/2	6	.2792	6	C741456	34.97
.3200		1-1/2	6	.2792	6	C741455	35.12
.3205		1-1/2	6	.2792	6	C741454	34.97
.3210		1-1/2	6	.2792	6	C741453	35.12
.3215		1-1/2	6	.2792	6	C741452	34.97
.3220		1-1/2	6	.2792	6	C741451	35.12
.3225		1-1/2	6	.2792	6	C741450	35.12
.3230	P	1-1/2	6	.2792	6	C740766	30.75
.3235		1-1/2	6	.2792	6	C741449	34.97
.3240		1-1/2	6	.2792	6	C741448	34.97
.3245		1-1/2	6	.2792	6	C741447	34.97
.3250		1-1/2	6	.2792	6	C741446	35.12
.3255		1-1/2	6	.2792	6	C741445	34.97
.3260		1-1/2	6	.2792	6	C741444	35.12
.3265		1-1/2	6	.2792	6	C741443	35.12
.3270		1-1/2	6	.2792	6	C741442	34.97
.3275		1-1/2	6	.2792	6	C741441	34.97
.3280		1-1/2	6	.2792	6	C741440	35.12
.3281	21/64	1-1/2	6	.2792	6	C740926	30.75
.3285		1-1/2	6	.2792	6	C741439	34.97
.3290		1-1/2	6	.2792	6	C741438	35.12
.3295		1-1/2	6	.2792	6	C741437	34.97
.3300		1-1/2	6	.2792	6	C741436	34.97
.3305		1-1/2	6	.2792	6	C741435	34.97
.3310		1-1/2	6	.2792	6	C741434	34.97
.3315		1-1/2	6	.2792	6	C741433	35.12
.3320	Q	1-1/2	6	.2792	6	C740765	30.75
.3325		1-1/2	6	.2792	6	C741432	34.97
.3330		1-1/2	6	.2792	6	C741431	35.12
.3335		1-1/2	6	.2792	6	C741430	34.97
.3340		1-1/2	6	.2792	6	C741429	35.12
.3345		1-1/2	6	.2792	6	C741428	35.12
.3346	8.5 mm	1-1/2	6	.2792	6	C740867	30.75
.3350		1-1/2	6	.2792	6	C741427	35.12
.3355		1-1/2	6	.2792	6	C741426	35.12
.3360		1-1/2	6	.2792	6	C741425	35.12
.3365		1-1/2	6	.2792	6	C741424	34.97
.3370		1-1/2	6	.2792	6	C741423	35.12
.3375		1-1/2	6	.2792	6	C741422	34.97

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV.	REAMER DIAMETER SIZE	FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.002"} -0.000"		L2		D2	L1	TOOL #	PRICE
.3380		1-1/2	6	.2792	6	C741421	34.97
.3385		1-1/2	6	.2792	6	C741420	34.97
.3390	R	1-1/2	6	.2792	6	C740764	30.75
.3395		1-1/2	6	.2792	6	C741419	34.97
.3400		1-1/2	6	.2792	6	C741418	35.12
.3405		1-1/2	6	.2792	6	C741417	34.97
.3410		1-1/2	6	.2792	6	C741416	35.12
.3415		1-1/2	6	.2792	6	C741415	34.97
.3420		1-1/2	6	.2792	6	C741414	35.12
.3425		1-1/2	6	.2792	6	C741413	35.12
.3430		1-1/2	6	.2792	6	C741412	35.12
.3435		1-1/2	6	.2792	6	C741411	35.12
.3438	11/32	1-1/2	6	.2792	6	C740962	30.75
.3440		1-3/4	6	.3105	7	C741410	35.42
.3445		1-3/4	6	.3105	7	C741409	35.42
.3450		1-3/4	6	.3105	7	C741408	35.42
.3455		1-3/4	6	.3105	7	C741407	35.42
.3460		1-3/4	6	.3105	7	C741406	35.42
.3465		1-3/4	6	.3105	7	C741405	35.42
.3470		1-3/4	6	.3105	7	C741404	35.42
.3475		1-3/4	6	.3105	7	C741403	35.42
.3480	S	1-3/4	6	.3105	6	C740763	31.24
.3485		1-3/4	6	.3105	7	C741402	35.42
.3490		1-3/4	6	.3105	7	C741401	35.42
.3495		1-3/4	6	.3105	7	C741400	35.42
.3500		1-3/4	6	.3105	7	C741399	35.42
.3505		1-3/4	6	.3105	7	C741398	35.42
.3510		1-3/4	6	.3105	7	C741397	35.42
.3515		1-3/4	6	.3105	7	C741396	35.42
.3520		1-3/4	6	.3105	7	C741395	35.42
.3525		1-3/4	6	.3105	7	C741394	35.42
.3530		1-3/4	6	.3105	7	C741393	35.42
.3535		1-3/4	6	.3105	7	C741392	35.42
.3540		1-3/4	6	.3105	7	C741391	35.42
.3543	9.0 mm	1-3/4	6	.3105	7	C740861	31.24
.3545		1-3/4	6	.3105	7	C741390	35.42
.3550		1-3/4	6	.3105	7	C741389	35.42
.3555		1-3/4	6	.3105	7	C741388	35.42
.3560		1-3/4	6	.3105	7	C741387	35.42
.3565		1-3/4	6	.3105	7	C741386	35.42
.3570		1-3/4	6	.3105	7	C741385	35.42
.3575		1-3/4	6	.3105	7	C741384	35.42
.3580	T	1-3/4	6	.3105	7	C740762	31.24
.3585		1-3/4	6	.3105	7	C741383	35.42
.3590		1-3/4	6	.3105	7	C741382	35.42
.3594	23/64	1-3/4	6	.3105	7	C740920	31.24
.3595		1-3/4	6	.3105	7	C741381	31.74
.3600		1-3/4	6	.3105	7	C741380	31.74
.3605		1-3/4	6	.3105	7	C741379	31.74

REAMERS

Carbide

Cobalt

HSS

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.0002"} -0.0000"		L2		D2	L1	TOOL #	PRICE
.3610		1-3/4	6	.3105	7	C741378	31.74
.3615		1-3/4	6	.3105	7	C741377	31.74
.3620		1-3/4	6	.3105	7	C741376	31.74
.3625		1-3/4	6	.3105	7	C741375	31.74
.3630		1-3/4	6	.3105	7	C741374	31.74
.3635		1-3/4	6	.3105	7	C741373	31.74
.3640		1-3/4	6	.3105	7	C741372	31.74
.3645		1-3/4	6	.3105	7	C741371	31.74
.3650		1-3/4	6	.3105	7	C741370	31.74
.3655		1-3/4	6	.3105	7	C741369	31.74
.3660		1-3/4	6	.3105	7	C741368	31.74
.3665		1-3/4	6	.3105	7	C741367	31.74
.3670		1-3/4	6	.3105	7	C741366	31.74
.3675		1-3/4	6	.3105	7	C741365	31.74
.3680	U	1-3/4	6	.3105	7	C740761	31.24
.3685		1-3/4	6	.3105	7	C741364	31.74
.3690		1-3/4	6	.3105	7	C741363	31.74
.3695		1-3/4	6	.3105	7	C741362	31.74
.3700		1-3/4	6	.3105	7	C741361	31.74
.3705		1-3/4	6	.3105	7	C741360	31.74
.3710		1-3/4	6	.3105	7	C741359	31.74
.3715		1-3/4	6	.3105	7	C741358	31.74
.3720		1-3/4	6	.3105	7	C741357	31.74
.3725		1-3/4	6	.3105	7	C741356	31.74
.3730		1-3/4	6	.3105	7	C741355	31.74
.3735		1-3/4	6	.3105	7	C741354	31.74
.3740	9.5 mm - O/U	1-3/4	6	.3105	7	C740865	29.50
.3745		1-3/4	6	.3105	7	C741353	31.74
.3750	3/8	1-3/4	6	.3105	7	C740903	28.01
.3755		1-3/4	6	.3105	7	C741352	38.21
.3760	O/U	1-3/4	6	.3105	7	C741351	29.50
.3765		1-3/4	6	.3105	7	C741350	38.21
.3770	V	1-3/4	6	.3105	7	C740760	33.98
.3775		1-3/4	6	.3105	7	C741349	38.21
.3780		1-3/4	6	.3105	7	C741348	38.21
.3785		1-3/4	6	.3105	7	C741347	38.21
.3790		1-3/4	6	.3105	7	C741346	38.21
.3795		1-3/4	6	.3105	7	C741345	38.21
.3800		1-3/4	6	.3105	7	C741344	38.21
.3805		1-3/4	6	.3105	7	C741343	38.21
.3810		1-3/4	6	.3105	7	C741342	38.21
.3815		1-3/4	6	.3105	7	C741341	38.21
.3820		1-3/4	6	.3105	7	C741340	38.21
.3825		1-3/4	6	.3105	7	C741339	38.21
.3830		1-3/4	6	.3105	7	C741338	38.21
.3835		1-3/4	6	.3105	7	C741337	38.21
.3840		1-3/4	6	.3105	7	C741336	38.21
.3845		1-3/4	6	.3105	7	C741335	38.21
.3850		1-3/4	6	.3105	7	C741334	38.21

continued on next page

For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D ₁ ^{+0.002"} -0.000"		L ₂		D ₂	L ₁	TOOL #	PRICE
.3855		1-3/4	6	.3105	7	C741333	38.21
.3860	W	1-3/4	6	.3105	7	C740759	33.98
.3865		1-3/4	6	.3105	7	C741332	38.21
.3870		1-3/4	6	.3105	7	C741331	38.21
.3875		1-3/4	6	.3105	7	C741330	38.21
.3880		1-3/4	6	.3105	7	C741329	38.21
.3885		1-3/4	6	.3105	7	C741328	38.21
.3890		1-3/4	6	.3105	7	C741327	38.21
.3895		1-3/4	6	.3105	7	C741326	38.21
.3900		1-3/4	6	.3105	7	C741325	38.21
.3905		1-3/4	6	.3105	7	C741324	38.21
.3906	25/64	1-3/4	6	.3105	7	C740915	33.98
.3910		1-3/4	6	.3105	7	C741323	39.40
.3915		1-3/4	6	.3105	7	C741322	39.40
.3920		1-3/4	6	.3105	7	C741321	39.40
.3925		1-3/4	6	.3105	7	C741320	39.40
.3930		1-3/4	6	.3105	7	C741319	39.40
.3935		1-3/4	6	.3105	7	C741318	39.40
.3937	10.0 mm	1-3/4	6	.3105	7	C740965	33.98
.3940		1-3/4	6	.3105	7	C741317	39.40
.3945		1-3/4	6	.3105	7	C741316	39.40
.3950		1-3/4	6	.3105	7	C741315	39.40
.3955		1-3/4	6	.3105	7	C741314	39.20
.3960		1-3/4	6	.3105	7	C741313	39.40
.3965		1-3/4	6	.3105	7	C741312	39.20
.3970	X	1-3/4	6	.3105	7	C740758	33.98
.3975		1-3/4	6	.3105	7	C741311	39.20
.3980		1-3/4	6	.3105	7	C741310	39.40
.3985		1-3/4	6	.3105	7	C741309	39.20
.3990		1-3/4	6	.3105	7	C741308	39.40
.3995		1-3/4	6	.3105	7	C741307	39.20
.4000		1-3/4	6	.3105	7	C741306	39.40
.4005		1-3/4	6	.3105	7	C741305	39.20
.4010		1-3/4	6	.3105	7	C741304	39.40
.4015		1-3/4	6	.3105	7	C741303	39.20
.4020		1-3/4	6	.3105	7	C741302	39.40
.4025		1-3/4	6	.3105	7	C741301	39.20
.4030		1-3/4	6	.3105	7	C741300	39.20
.4035		1-3/4	6	.3105	7	C741299	39.20
.4040	Y	1-3/4	6	.3105	7	C740757	35.22
.4045		1-3/4	6	.3105	7	C741298	39.20
.4050		1-3/4	6	.3105	7	C741297	39.40
.4055		1-3/4	6	.3105	7	C741296	39.20
.4060		1-3/4	6	.3105	7	C741295	39.40
.4062	13/32	1-3/4	6	.3105	7	C740955	35.22
.4065		1-3/4	6	.3730	7	C741294	39.40
.4070		1-3/4	6	.3730	7	C741293	39.40
.4075		1-3/4	6	.3730	7	C741292	39.40
.4080		1-3/4	6	.3730	7	C741291	39.40

continued on next page

For technical information, see page 283

REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D ₁ ^{+0.002"} -0.000"		L ₂		D ₂	L ₁	TOOL #	PRICE
.4085		1-3/4	6	.3730	7	C741290	39.40
.4090		1-3/4	6	.3730	7	C741289	39.20
.4095		1-3/4	6	.3730	7	C741288	39.20
.4100		1-3/4	6	.3730	7	C741287	39.20
.4105		1-3/4	6	.3730	7	C741286	39.20
.4110		1-3/4	6	.3730	7	C741285	39.20
.4115		1-3/4	6	.3730	7	C741284	39.20
.4120		1-3/4	6	.3730	7	C741283	39.20
.4125		1-3/4	6	.3730	7	C741282	39.40
.4130	Z	1-3/4	6	.3730	7	C740756	35.22
.4134	10.5 mm	1-3/4	6	.3730	7	C740966	35.37
.4135		1-3/4	6	.3730	7	C741281	39.20
.4140		1-3/4	6	.3730	7	C741280	39.20
.4145		1-3/4	6	.3730	7	C741279	39.20
.4150		1-3/4	6	.3730	7	C741278	39.40
.4155		1-3/4	6	.3730	7	C741277	39.20
.4160		1-3/4	6	.3730	7	C741276	39.40
.4165		1-3/4	6	.3730	7	C741275	39.20
.4170		1-3/4	6	.3730	7	C741274	39.40
.4175		1-3/4	6	.3730	7	C741273	39.20
.4180		1-3/4	6	.3730	7	C741272	39.40
.4185		1-3/4	6	.3730	7	C741271	39.20
.4190		1-3/4	6	.3730	7	C741270	39.20
.4195		1-3/4	6	.3730	7	C741269	39.20
.4200		1-3/4	6	.3730	7	C741268	39.40
.4205		1-3/4	6	.3730	7	C741267	39.20
.4210		1-3/4	6	.3730	7	C741266	39.20
.4215		1-3/4	6	.3730	7	C741265	39.20
.4219	27/64	1-3/4	6	.3730	7	C740912	35.22
.4220		1-3/4	6	.3730	7	C741264	36.96
.4225		1-3/4	6	.3730	7	C741263	36.82
.4230		1-3/4	6	.3730	7	C741262	36.96
.4235		1-3/4	6	.3730	7	C741261	36.82
.4240		1-3/4	6	.3730	7	C741260	36.96
.4245		1-3/4	6	.3730	7	C741259	36.82
.4250		1-3/4	6	.3730	7	C741258	36.96
.4255		1-3/4	6	.3730	7	C741257	36.82
.4260		1-3/4	6	.3730	7	C741256	36.82
.4265		1-3/4	6	.3730	7	C741255	36.82
.4270		1-3/4	6	.3730	7	C741254	36.82
.4275		1-3/4	6	.3730	7	C741253	36.82
.4280		1-3/4	6	.3730	7	C741252	36.96
.4285		1-3/4	6	.3730	7	C741251	36.82
.4290		1-3/4	6	.3730	7	C741250	36.82
.4295		1-3/4	6	.3730	7	C741249	36.82
.4300		1-3/4	6	.3730	7	C741248	36.96
.4305		1-3/4	6	.3730	7	C741247	36.82
.4310		1-3/4	6	.3730	7	C741246	36.96
.4315		1-3/4	6	.3730	7	C741245	36.82

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D ₁ ^{+0.002"} -0.000"		L ₂		D ₂	L ₁	TOOL #	PRICE
.4320		1-3/4	6	.3730	7	C741244	36.96
.4325		1-3/4	6	.3730	7	C741243	36.96
.4330		1-3/4	6	.3730	7	C741242	36.96
.4331	11.0 mm	1-3/4	6	.3730	7	C740960	35.22
.4335		1-3/4	6	.3730	7	C741241	36.96
.4340		1-3/4	6	.3730	7	C741240	36.96
.4345		1-3/4	6	.3730	7	C741239	36.82
.4350		1-3/4	6	.3730	7	C741238	36.96
.4355		1-3/4	6	.3730	7	C741237	36.96
.4360		1-3/4	6	.3730	7	C741236	36.96
.4365	O/U	1-3/4	6	.3730	7	C741235	33.28
.4370		1-3/4	6	.3730	7	C741234	36.96
.4375	7/16	1-3/4	6	.3730	7	C740872	33.28
.4380		1-3/4	6	.3730	7	C741233	41.89
.4385	O/U	1-3/4	6	.3730	7	C741232	33.28
.4390		1-3/4	6	.3730	7	C741231	41.89
.4395		1-3/4	6	.3730	7	C741230	41.74
.4400		1-3/4	6	.3730	7	C741229	41.89
.4405		1-3/4	6	.3730	7	C741228	41.74
.4410		1-3/4	6	.3730	7	C741227	41.89
.4415		1-3/4	6	.3730	7	C741226	41.89
.4420		1-3/4	6	.3730	7	C741225	41.89
.4425		1-3/4	6	.3730	7	C741224	41.89
.4430		1-3/4	6	.3730	7	C741223	41.89
.4435		1-3/4	6	.3730	7	C741222	41.74
.4440		1-3/4	6	.3730	7	C741221	41.89
.4445		1-3/4	6	.3730	7	C741220	41.74
.4450		1-3/4	6	.3730	7	C741219	41.89
.4455		1-3/4	6	.3730	7	C741218	41.74
.4460		1-3/4	6	.3730	7	C741217	41.74
.4465		1-3/4	6	.3730	7	C741216	41.74
.4470		1-3/4	6	.3730	7	C741215	41.74
.4475		1-3/4	6	.3730	7	C741214	41.74
.4480		1-3/4	6	.3730	7	C741213	41.89
.4485		1-3/4	6	.3730	7	C741212	41.74
.4490		1-3/4	6	.3730	7	C741211	41.74
.4495		1-3/4	6	.3730	7	C741210	41.74
.4500		1-3/4	6	.3730	7	C741209	41.89
.4505		1-3/4	6	.3730	7	C741208	41.74
.4510		1-3/4	6	.3730	7	C741207	41.74
.4515		1-3/4	6	.3730	7	C741206	41.74
.4520		1-3/4	6	.3730	7	C741205	41.89
.4525		1-3/4	6	.3730	7	C741204	41.74
.4528	11.5 mm	1-3/4	6	.3730	7	C740964	38.16
.4530		1-3/4	6	.3730	7	C741203	41.74
.4531	29/64	1-3/4	6	.3730	7	C740910	38.16
.4535		1-3/4	6	.3730	7	C741202	41.74
.4540		1-3/4	6	.3730	7	C741201	41.89
.4545		1-3/4	6	.3730	7	C741200	41.74

REAMERS

Carbide

Cobalt

HSS

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV.	REAMER DIAMETER SIZE	FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D ₁ ^{+0.002"} -0.000"		L ₂		D ₂	L ₁	TOOL #	PRICE
.4550		1-3/4	6	.3730	7	C741199	41.89
.4555		1-3/4	6	.3730	7	C741198	41.74
.4560		1-3/4	6	.3730	7	C741197	41.89
.4565		1-3/4	6	.3730	7	C741196	41.74
.4570		1-3/4	6	.3730	7	C741195	41.74
.4575		1-3/4	6	.3730	7	C741194	41.74
.4580		1-3/4	6	.3730	7	C741193	41.74
.4585		1-3/4	6	.3730	7	C741192	41.74
.4590		1-3/4	6	.3730	7	C741191	41.74
.4595		1-3/4	6	.3730	7	C741190	41.74
.4600		1-3/4	6	.3730	7	C741189	41.74
.4605		1-3/4	6	.3730	7	C741188	41.74
.4610		1-3/4	6	.3730	7	C741187	41.74
.4615		1-3/4	6	.3730	7	C741186	41.74
.4620		1-3/4	6	.3730	7	C741185	41.74
.4625		1-3/4	6	.3730	7	C741184	41.74
.4630		1-3/4	6	.3730	7	C741183	41.74
.4635		1-3/4	6	.3730	7	C741182	41.74
.4640		1-3/4	6	.3730	7	C741181	41.74
.4645		1-3/4	6	.3730	7	C741180	41.74
.4650		1-3/4	6	.3730	7	C741179	41.74
.4655		1-3/4	6	.3730	7	C741178	41.74
.4660		1-3/4	6	.3730	7	C741177	41.74
.4665		1-3/4	6	.3730	7	C741176	41.74
.4670		1-3/4	6	.3730	7	C741175	41.74
.4675		1-3/4	6	.3730	7	C741174	41.74
.4680		1-3/4	6	.3730	7	C741173	41.89
.4685		1-3/4	6	.3730	7	C741172	41.74
.4688	15/32	1-3/4	6	.3730	7	C740948	38.16
.4690		2	6	.4355	8	C741171	41.89
.4695		2	6	.4355	8	C741170	41.74
.4700		2	6	.4355	8	C741169	41.89
.4705		2	6	.4355	8	C741168	41.74
.4710		2	6	.4355	8	C741167	41.89
.4715		2	6	.4355	8	C741166	41.89
.4720		2	6	.4355	8	C741165	41.89
.4724	12.0 mm	2	6	.4355	8	C740958	38.16
.4725		2	6	.4355	8	C741164	41.89
.4730		2	6	.4355	8	C741163	41.89
.4735		2	6	.4355	8	C741162	41.89
.4740		2	6	.4355	8	C741161	41.89
.4745		2	6	.4355	8	C741160	41.89
.4750		2	6	.4355	8	C741159	41.89
.4755		2	6	.4355	8	C741158	41.89
.4760		2	6	.4355	8	C741157	41.89
.4765		2	6	.4355	8	C741156	41.89
.4770		2	6	.4355	8	C741155	41.74
.4775		2	6	.4355	8	C741154	41.74
.4780		2	6	.4355	8	C741153	41.74

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV.	REAMER DIAMETER SIZE	FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D ₁ ^{+0.002"} -0.000"		L ₂		D ₂	L ₁	TOOL #	PRICE
.4785		2	6	.4355	8	C741152	41.74
.4790		2	6	.4355	8	C741151	41.74
.4795		2	6	.4355	8	C741150	41.74
.4800		2	6	.4355	8	C741149	41.74
.4805		2	6	.4355	8	C741148	41.74
.4810		2	6	.4355	8	C741147	41.74
.4815		2	6	.4355	8	C741146	41.74
.4820		2	6	.4355	8	C741145	41.89
.4825		2	6	.4355	8	C741144	41.74
.4830		2	6	.4355	8	C741143	41.89
.4835		2	6	.4355	8	C741142	41.89
.4840		2	6	.4355	8	C741141	41.74
.4844	31/64	2	6	.4355	8	C740901	38.16
.4845		2	6	.4355	8	C741140	39.20
.4850		2	6	.4355	8	C741139	39.40
.4855		2	6	.4355	8	C741138	39.20
.4860		2	6	.4355	8	C741137	39.20
.4865		2	6	.4355	8	C741136	39.20
.4870		2	6	.4355	8	C741135	39.20
.4875		2	6	.4355	8	C741134	39.20
.4880		2	6	.4355	8	C741133	39.20
.4885		2	6	.4355	8	C741132	39.20
.4890		2	6	.4355	8	C741131	39.40
.4895		2	6	.4355	8	C741130	39.20
.4900		2	6	.4355	8	C741129	39.20
.4905		2	6	.4355	8	C741128	39.20
.4910		2	6	.4355	8	C741127	39.20
.4915		2	6	.4355	8	C741126	39.20
.4920		2	6	.4355	8	C741125	39.20
.4921	12.5 mm	2	6	.4355	8	C740959	38.16
.4925		2	6	.4355	8	C741124	39.20
.4930		2	6	.4355	8	C741123	39.20
.4935		2	6	.4355	8	C741122	39.20
.4940		2	6	.4355	8	C741121	39.20
.4945		2	6	.4355	8	C741120	39.20
.4950		2	6	.4355	8	C741119	39.40
.4955		2	6	.4355	8	C741118	39.20
.4960		2	6	.4355	8	C741117	39.40
.4965		2	6	.4355	8	C741116	39.20
.4970		2	6	.4355	8	C741115	39.40
.4975		2	6	.4355	8	C741114	39.20
.4980		2	6	.4355	8	C741113	39.40
.4985		2	6	.4355	8	C741112	39.40
.4990	O/U	2	6	.4355	8	C741111	36.22
.4995		2	6	.4355	8	C741110	39.40
.5000	1/2	2	6	.4355	8	C740971	36.22

continued on next page

REAMERS

Carbide

Cobalt

HSS

REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1^{+.0003}_{-.0000}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.5005		2	6	.4355	8	C741109	52.74
.5010	O/U	2	6	.4355	8	C741108	36.22
.5015		2	6	.4355	8	C741107	52.74
.5020		2	6	.4355	8	C741106	52.74
.5025		2	6	.4355	8	C741105	52.74
.5030		2	6	.4355	8	C741104	52.74
.5035		2	6	.4355	8	C741103	52.74
.5040		2	6	.4355	8	C741102	52.74
.5045		2	6	.4355	8	C741101	52.74
.5050		2	6	.4355	8	C741100	52.74
.5060		2	6	.4355	8	C741099	52.74
.5070		2	6	.4355	8	C741098	52.74
.5080		2	6	.4355	8	C741097	52.74
.5090		2	6	.4355	8	C741096	52.74
.5100		2	6	.4355	8	C741095	52.74
.5118	13.0 mm	2	6	.4355	8	C740953	47.31
.5156	33/64	2	6	.4355	8	C740900	47.31
.5312	17/32	2	6	.4355	8	C740942	45.02
.5315	13.5 mm	2	6	.4355	8	C740957	47.31
.5469	35/64	2	8	.4355	8	C740899	47.31
.5512	14.0 mm	2	8	.4355	8	C740951	47.31
.5600		2	8	.4355	8	C741094	51.64
.5605		2	8	.4355	8	C741093	51.64
.5610		2	8	.4355	8	C741092	51.64
.5615	O/U	2	8	.4355	8	C741091	47.31
.5620		2	8	.4355	8	C741090	51.64
.5625	9/16	2	8	.4355	8	C740864	45.02
.5630		2	8	.4355	8	C741089	59.30
.5635	O/U	2	8	.4355	8	C741088	47.31
.5640		2	8	.4355	8	C741087	59.30
.5645		2	8	.4355	8	C741086	59.30
.5650		2	8	.4355	8	C741085	59.30
.5655		2	8	.4355	8	C741084	59.30
.5709	14.5 mm	2	8	.4355	8	C740952	47.31
.5781	37/64	2	8	.4355	8	C740898	47.31
.5906	15.0 mm	2	8	.4355	8	C740946	47.31
.5938	19/32	2	8	.4355	8	C740936	45.02
.6094	39/64	2-1/4	8	.5615	9	C740897	55.47
.6102	15.5 mm	2-1/4	8	.5615	9	C740950	55.47
.6220		2-1/4	8	.5615	9	C741083	59.60
.6225		2-1/4	8	.5615	9	C741082	59.60
.6230		2-1/4	8	.5615	9	C741081	59.90
.6235		2-1/4	8	.5615	9	C741080	59.90
.6240	O/U	2-1/4	8	.5615	9	C741079	55.47
.6245		2-1/4	8	.5615	9	C741078	59.90
.6250	5/8	2-1/4	8	.5615	9	C740884	52.74

continued on next page



REAMERS - HIGH SPEED STEEL Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D1 ^{+0.001"} +0.004"		L2		D2	L1	TOOL #	PRICE
.6255		2-1/4	8	.5615	9	C741077	66.57
.6260	O/U	2-1/4	8	.5615	9	C741076	57.11
.6265		2-1/4	8	.5615	9	C741075	66.57
.6270		2-1/4	8	.5615	9	C741074	66.57
.6275		2-1/4	8	.5615	9	C741073	66.57
.6280		2-1/4	8	.5615	9	C741072	66.57
.6299	16.0 mm	2-1/4	8	.5615	9	C740944	57.11
.6300		2-1/4	8	.5615	9	C741071	66.57
.6406	41/64	2-1/4	8	.5615	9	C740894	57.06
.6496	16.5 mm	2-1/4	8	.5615	9	C740945	59.50
.6562	21/32	2-1/4	8	.5615	9	C740927	61.14
.6693	17.0 mm	2-1/4	8	.5615	9	C740940	64.18
.6719	43/64	2-1/4	8	.5615	9	C740893	64.18
.6845		2-1/4	8	.5615	9	C741070	66.57
.6850		2-1/4	8	.5615	9	C741069	66.57
.6855		2-1/4	8	.5615	9	C741068	66.57
.6860		2-1/4	8	.5615	9	C741067	66.57
.6865	O/U	2-1/4	8	.5615	9	C741066	64.13
.6870		2-1/4	8	.5615	9	C741065	66.57
.6875	11/16	2-1/4	8	.5615	9	C740963	61.34
.6880		2-1/4	8	.5615	9	C741064	73.38
.6885	O/U	2-1/4	8	.5615	9	C741063	68.95
.6890	17.5 mm	2-1/4	8	.5615	9	C740943	68.95
.6895		2-1/4	8	.5615	9	C741062	73.38
.6900		2-1/4	8	.5615	9	C741061	73.38
.6905		2-1/4	8	.5615	9	C741060	73.38
.7031	45/64	2-1/4	8	.5615	9	C740892	68.85
.7087	18.0 mm	2-1/4	8	.5615	9	C740938	68.85
.7188	23/32	2-1/4	8	.5615	9	C740921	68.56
.7283	18.5 mm	2-1/2	8	.6240	9-1/2	C740939	71.49
.7344	47/64	2-1/2	8	.6240	9-1/2	C740891	79.75
.7470		2-1/2	8	.6240	9-1/2	C741059	78.01
.7475		2-1/2	8	.6240	9-1/2	C741058	78.36
.7480	19.0 mm	2-1/2	8	.6240	9-1/2	C740934	79.65
.7485		2-1/2	8	.6240	9-1/2	C741057	78.36
.7490	O/U	2-1/2	8	.6240	9-1/2	C741056	79.65
.7495		2-1/2	8	.6240	9-1/2	C741055	78.36
.7500	3/4	2-1/2	8	.6240	9-1/2	C740905	68.41
.7505		2-1/2	8	.6240	9-1/2	C741054	84.62
.7510	O/U	2-1/2	8	.6240	9-1/2	C741053	76.22
.7515		2-1/2	8	.6240	9-1/2	C741052	84.62
.7520		2-1/2	8	.6240	9-1/2	C741051	84.62
.7525		2-1/2	8	.6240	9-1/2	C741050	84.62
.7530		2-1/2	8	.6240	9-1/2	C741049	84.62
.7540		2-1/2	8	.6240	9-1/2	C741048	84.62
.7550		2-1/2	8	.6240	9-1/2	C741047	84.62
.7656	49/64	2-1/2	8	.6240	9-1/2	C740890	76.12
.7677	19.5 mm	2-1/2	8	.6240	9-1/2	C740937	76.12
.7812	25/32	2-1/2	8	.6240	9-1/2	C740916	74.13
.7874	20.0 mm	2-1/2	8	.6240	9-1/2	C740929	81.49

REAMERS

Carbide

Cobalt

HSS

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D ₁ ^{+0.001"} +0.004"		L ₂		D ₂	L ₁	TOOL #	PRICE
.7969	51/64	2-1/2	8	.6240	9-1/2	C740883	81.49
.8071	20.5 mm	2-1/2	8	.6240	9-1/2	C740930	81.44
.8095		2-1/2	8	.6240	9-1/2	C741046	84.62
.8100		2-1/2	8	.6240	9-1/2	C741045	84.62
.8105		2-1/2	8	.6240	9-1/2	C741044	84.62
.8110		2-1/2	8	.6240	9-1/2	C741043	84.62
.8115	O/U	2-1/2	8	.6240	9-1/2	C741042	81.44
.8120		2-1/2	8	.6240	9-1/2	C741041	84.62
.8125	13/16	2-1/2	8	.6240	9-1/2	C740956	73.93
.8130		2-1/2	8	.6240	9-1/2	C741040	93.23
.8135	O/U	2-1/2	8	.6240	9-1/2	C741039	81.44
.8140		2-1/2	8	.6240	9-1/2	C741038	93.63
.8145		2-1/2	8	.6240	9-1/2	C741037	93.23
.8150		2-1/2	8	.6240	9-1/2	C741036	93.23
.8155		2-1/2	8	.6240	9-1/2	C741035	93.23
.8268	21.0 mm	2-1/2	8	.6240	9-1/2	C740925	81.79
.8281	53/64	2-1/2	8	.6240	9-1/2	C740882	81.39
.8438	27/32	2-1/2	8	.6240	9-1/2	C740913	87.21
.8465	21.5 mm	2-5/8	8	.7490	10	C740928	95.02
.8594	55/64	2-5/8	8	.7490	10	C740881	95.02
.8661	22.0 mm	2-5/8	8	.7490	10	C740923	95.37
.8720		2-5/8	8	.6240	10	C741034	95.62
.8725		2-5/8	8	.6240	10	C741033	95.62
.8730		2-5/8	8	.6240	10	C741032	95.62
.8735		2-5/8	8	.6240	10	C741031	95.62
.8740	O/U	2-5/8	8	.7490	10	C741030	94.92
.8745		2-5/8	8	.7490	10	C741029	96.07
.8750	7/8	2-5/8	8	.7490	10	C740869	89.10
.8755		2-5/8	8	.7490	10	C741028	104.67
.8760	O/U	2-5/8	8	.7490	10	C741027	97.06
.8765		2-5/8	8	.7490	10	C741026	104.67
.8770		2-5/8	8	.7490	10	C741025	104.67
.8775		2-5/8	8	.7490	10	C741024	104.18
.8780		2-5/8	8	.7490	10	C741023	104.67
.8858	22.5 mm	2-5/8	8	.7490	10	C740924	96.91
.8906	57/64	2-5/8	8	.7490	10	C740880	96.91
.9055	23.0 mm	2-5/8	8	.7490	10	C740919	96.91
.9062	29/32	2-5/8	8	.7490	10	C740911	96.52
.9219	59/64	2-5/8	8	.7490	10	C740879	103.83
.9252	23.5 mm	2-5/8	8	.7490	10	C740922	103.83
.9340		2-5/8	8	.7490	10	C741022	104.18
.9345		2-5/8	8	.7490	10	C741021	104.18
.9350		2-5/8	8	.7490	10	C741020	104.18
.9355		2-5/8	8	.7490	10	C741019	104.18
.9360		2-5/8	8	.7490	10	C741018	104.18
.9365	O/U	2-5/8	8	.7490	10	C741017	103.68
.9370		2-5/8	8	.7490	10	C741016	104.18
.9375	15/16	2-5/8	8	.7490	10	C740949	96.32
.9380		2-5/8	8	.7490	10	C741015	114.38

continued on next page

For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D_1		L_2		D_2	L_1	TOOL #	PRICE
.9385	O/U	2-5/8	8	.7490	10	C741014	103.68
.9390		2-5/8	8	.7490	10	C741013	114.38
.9395		2-5/8	8	.7490	10	C741012	114.38
.9400		2-5/8	8	.7490	10	C741011	114.38
.9405		2-5/8	8	.7490	10	C741010	114.38
.9449	24.0 mm	2-5/8	8	.7490	10	C740917	103.68
.9531	61/64	2-5/8	8	.7490	10	C740876	103.68
.9646	24.5 mm	2-5/8	8	.7490	10	C740918	103.63
.9688	31/32	2-5/8	8	.7490	10	C740902	112.88
.9843	25.0 mm	2-3/4	8	.8740	10-1/2	C740914	109.90
.9844	63/64	2-3/4	8	.8740	10-1/2	C740875	109.90
.9970		2-3/4	8	.8740	10-1/2	C741009	116.56
.9975		2-3/4	8	.8740	10-1/2	C741008	116.56
.9980		2-3/4	8	.8740	10-1/2	C741007	117.11
.9985		2-3/4	8	.8740	10-1/2	C741006	116.56
.9990	O/U	2-3/4	8	.8740	10-1/2	C741005	109.90
.9995		2-3/4	8	.8740	10-1/2	C741004	116.56
1.0000	1	2-3/4	8	.8740	10-1/2	C741003	108.90
1.0005		2-3/4	8	.8740	10-1/2	C740979	161.89
1.001	O/U	2-3/4	8	.8740	10-1/2	C740978	116.71
1.0015		2-3/4	8	.8740	10-1/2	C740977	161.89
1.0020		2-3/4	8	.8740	10-1/2	C740976	161.89
1.0025		2-3/4	8	.8740	10-1/2	C740975	161.89
1.0030		2-3/4	8	.8740	10-1/2	C740974	161.89
1.0312	1-1/32	2-3/4	8	.8740	10-1/2	C741000	152.33
1.0625	1-1/16	2-3/4	8	.8740	10-1/2	C741002	120.10
1.0938	1-3/32	2-7/8	8	.8740	11	C740990	158.85
1.1250	1-1/8	2-7/8	8	.8740	11	C740998	127.31
1.1562	1-5/32	2-7/8	10	.9990	11	C740986	180.94
1.1875	1-3/16	2-7/8	10	.9990	11	C740991	149.85
1.2188	1-7/32	3	10	.9990	11-1/2	C740983	189.55
1.2500	1-1/4	3	10	.9990	11-1/2	C740999	158.50
1.2812	1-9/32	3	10	.9990	11-1/2	C740980	216.11
1.3125	1-5/16	3	10	.9990	11-1/2	C740987	184.37
1.3438	1-11/32	3-1/4	10	.9990	12	C740996	223.68
1.3750	1-3/8	3-1/4	10	.9990	12	C740988	194.22
1.4062	1-13/32	3-1/4	10	1.2490	12	C740994	238.20
1.4375	1-7/16	3-1/4	10	1.2490	12	C740984	206.81
1.4688	1-15/32	3-1/2	10	1.2490	12-1/2	C740992	254.12
1.5000	1-1/2	3-1/2	10	1.2490	12-1/2	C741001	223.38

D_1		L_2		D_2	L_1	TOOL #	PRICE
1.5625	1-9/16	3-1/2	12	1.2490	13	C740981	319.44
1.6250	1-5/8	3-1/2	12	1.2490	13	C740985	319.44
1.6875	1-11/16	4	12	1.2490	13-1/2	C740997	366.81
1.7500	1-3/4	4	12	1.2490	13-1/2	C740989	399.49
1.8125	1-13/16	4	12	1.4990	14	C740995	459.89
1.8750	1-7/8	4	12	1.4990	14	C740982	422.53
1.9375	1-15/16	4	12	1.4990	14	C740993	495.46
2.0000	2	4	12	1.4990	14	C740932	539.24

For technical information, see page 283

REAMERS - HIGH SPEED STEEL

Chucking - Straight Flute - Quickturn Custom Diameter Reamer Program



- Uncommon reamer diameters are ground to order for your precise application need
- Additional dimensions will vary depending on diameter selected
- Call for current production lead times
- Pricing is based on quantity ordered, use chart for instant pricing model based on quantity
- Straight flute general purpose reamers for through and blind hole applications
- 45° chamfer angle
- Flute options from 2 to 12
- High speed steel
- Precision manufactured in the USA

DIA. RANGE* D ₁	1 PIECE	2 PIECES	3 - 5 PIECES	6 - 7 PIECES	8 - 11 PIECES	12 - 17 PIECES	18 - 23 PIECES	24 - 35 PIECES	36 - 47 PIECES	48 - 59 PIECES	60 - 71 PIECES	72 - 95 PIECES	96+ PIECES
.0135 - .0195	143.50	93.75	69.85	46.10	41.65	35.40	32.00	29.80	29.00	26.60	25.80	25.45	24.85
.0196 - .0290	130.45	85.25	63.55	41.95	37.85	33.20	29.10	27.10	25.15	24.15	24.00	24.00	23.90
.0291 - .0390	118.60	77.35	57.75	38.10	34.40	30.15	26.50	24.65	22.85	21.95	21.30	21.05	20.50
.0391 - .0624	107.20	71.35	57.75	36.70	33.05	28.70	25.20	23.45	21.65	20.30	20.00	19.90	19.80
.0626 - .1093	112.85	72.20	55.70	34.70	30.45	25.20	22.85	21.05	19.25	18.20	17.70	17.40	16.85
.1095 - .1249	111.35	70.70	52.40	30.35	26.65	24.35	20.00	18.20	17.95	17.60	17.30	17.00	16.90
.1251 - .1405	118.60	77.35	52.20	38.10	35.85	30.15	26.50	24.65	22.85	21.95	21.40	21.05	20.30
.1407 - .1561	116.80	76.10	57.80	36.90	33.05	28.90	25.20	23.45	22.15	21.65	21.15	20.65	20.10
.1563 - .1718	118.60	74.00	57.50	38.10	34.50	30.15	26.50	24.65	22.85	22.45	22.15	21.95	21.50
.1720 - .1874	113.75	71.00	57.45	35.45	31.85	28.50	25.05	23.15	22.90	22.60	22.25	21.70	21.40
.1876 - .2030	121.80	81.15	63.65	42.60	39.00	34.65	31.00	29.20	27.20	25.80	25.45	25.05	24.85
.2032 - .2187	121.80	81.15	63.00	43.30	38.35	33.90	30.25	28.50	26.65	25.05	24.75	24.40	24.30
.2189 - .2343	122.25	81.75	63.50	42.50	38.80	34.50	30.80	28.95	27.15	26.05	25.70	25.50	25.20
.2345 - .2499	122.25	81.75	60.45	39.40	35.75	31.55	27.95	26.10	24.15	24.05	23.75	23.45	23.35
.2501 - .2968	126.95	86.35	68.00	47.00	43.40	38.75	35.15	33.30	31.40	29.75	29.50	29.20	28.90
.2970 - .3124	123.45	82.80	64.50	43.40	39.75	35.40	31.65	29.80	29.70	29.45	29.30	29.05	28.90
.3126 - .3437	129.65	88.40	70.00	45.30	43.95	40.55	37.05	35.15	33.15	31.70	31.40	31.20	30.90
.3439 - .3593	129.50	88.90	70.55	49.50	45.80	43.00	37.05	35.60	33.80	32.20	31.85	31.60	31.40
.3595 - .3749	125.80	85.05	66.75	45.60	41.95	37.50	33.90	31.90	31.75	31.70	31.50	31.35	31.25
.3751 - .3905	131.65	91.10	72.85	51.65	48.00	44.00	40.25	38.40	36.65	34.70	34.50	34.25	33.90
.3907 - .4218	133.30	92.65	74.25	53.20	49.60	44.85	41.20	39.40	37.55	35.90	35.55	35.40	35.30
.4220 - .4374	130.80	90.20	71.75	50.80	47.20	42.50	38.75	37.00	36.65	36.50	36.35	35.60	35.25
.4376 - .4843	136.85	96.15	77.85	56.80	53.15	48.20	42.80	41.95	41.00	39.70	39.40	39.00	38.60
.4845 - .4999	133.60	93.00	74.65	53.55	49.95	45.00	39.50	39.40	39.10	38.95	38.60	38.50	38.35
.5001 - .5311	193.90	120.45	96.00	71.40	65.40	59.20	55.20	53.00	51.00	50.05	49.35	49.00	48.55
.5313 - .5624	192.80	119.30	94.85	70.30	64.25	58.05	54.05	51.90	49.85	48.85	48.20	47.80	47.60
.5626 - .5937	200.45	126.90	102.40	77.85	73.15	65.65	63.50	59.60	57.45	56.50	55.85	55.45	54.85
.5939 - .6249	200.70	127.15	102.60	78.05	72.05	65.95	61.80	59.90	57.65	56.75	56.05	55.70	55.45
.6251 - .6874	207.85	134.35	109.85	85.30	79.20	76.00	68.95	66.90	64.90	63.85	63.25	62.90	62.65
.6876 - .7187	214.60	141.15	116.60	91.80	85.75	79.80	75.75	73.75	71.75	70.70	70.00	69.50	69.10
.7189 - .7499	217.30	143.80	119.45	94.80	88.80	82.60	78.45	78.40	78.30	78.25	77.90	77.75	77.50
.7501 - .8124	225.90	152.40	128.00	103.40	97.30	91.20	87.10	85.05	83.05	82.05	81.40	80.90	80.40
.8126 - .8437	234.55	161.00	136.60	112.05	105.90	99.85	95.70	93.70	91.70	90.55	89.95	89.55	89.05
.8439 - .8749	236.70	163.20	138.65	114.10	108.05	101.90	97.75	96.10	95.20	92.65	92.00	91.55	89.90
.8751 - .9374	245.60	172.05	147.60	123.00	116.95	110.95	106.70	104.70	102.70	102.40	102.25	102.05	101.85
.9376 - .9687	255.80	181.20	157.80	133.30	127.20	121.10	116.95	114.95	112.95	111.95	111.20	111.00	110.35
.9689 - .9999	257.90	184.40	159.95	135.35	129.35	123.15	119.15	117.15	115.00	114.05	113.35	112.95	112.45
1.0001 - 1.0624	276.80	206.75	199.45	192.10	184.75	177.40	170.05	162.70	155.40	154.45	150.90	149.65	148.40
1.0626 - 1.1249	292.30	222.65	214.60	206.50	198.45	190.35	182.35	174.35	166.25	158.25	157.50	156.70	155.80
1.1251 - 1.1874	312.10	243.50	235.10	227.15	219.10	211.15	203.35	195.15	188.65	179.15	171.10	163.15	155.15
1.1876 - 1.2499	329.50	259.85	251.15	242.50	233.85	225.20	216.55	207.85	199.20	190.60	181.95	173.25	164.60
1.2501 - 1.3749	374.85	301.90	292.45	283.20	274.05	263.45	255.65	246.45	237.20	228.00	225.60	223.30	221.35
1.3751 - 1.4999	414.60	344.05	333.75	323.50	313.25	302.95	292.70	282.40	272.20	261.90	259.10	255.30	250.95

*Diameter tolerances: 0-1/2" (+.0002"/-.0000"); 1/2"-5/8" (+.0003"/-.0000"); and 5/8" up to 1-1/2" (+.0001"/+.0004")

For technical information, see page 283

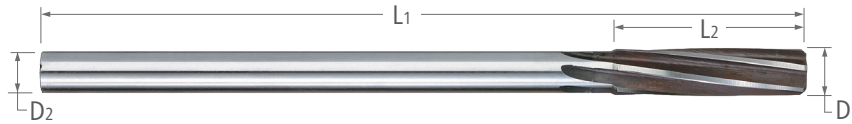
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - HIGH SPEED STEEL

Chucking - Right Hand Spiral



- General purpose reamers featuring a 45° chamfer angle
- Flute options from 4 to 12
- Spiral flutes for increased chip evacuation in blind hole applications
- High speed steel
- Precision manufactured in the USA

REAMER DIAMETER SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.		L ₂		D ₂	L ₁	TOOL#	PRICE
D ₁ ^{+0.0002"} _{-0.0000"}		L ₂		D ₂	L ₁	TOOL#	PRICE
.0394	1.0 mm	1/2	4	.0394	2-1/2	C740702	22.93
.0400	#60	1/2	4	.0390	2-1/2	C740588	22.93
.0410	#59	1/2	4	.0390	2-1/2	C740590	22.93
.0420	#58	1/2	4	.0390	2-1/2	C740591	22.93
.0430	#57	1/2	4	.0390	2-1/2	C740592	22.93
.0465	#56	1/2	4	.0455	2-1/2	C740593	22.93
.0469	3/64	1/2	4	.0455	2-1/2	C740684	22.93
.0520	#55	1/2	4	.0510	2-1/2	C740594	22.93
.0550	#54	1/2	4	.0510	2-1/2	C740595	22.93
.0591	1.5 mm	1/2	4	.0510	2-1/2	C740726	22.93
.0595	#53	1/2	4	.0585	2-1/2	C740596	22.93
.0625	1/16	1/2	4	.0585	2-1/2	C740725	22.93
.0635	#52	1/2	4	.0585	2-1/2	C740597	22.93
.0670	#51	3/4	4	.0660	3	C740598	18.51
.0700	#50	3/4	4	.0660	3	C740599	18.46
.0730	#49	3/4	4	.0660	3	C740601	18.51
.0760	#48	3/4	4	.0720	3	C740602	18.46
.0781	5/64	3/4	4	.0720	3	C740674	18.51
.0785	#47	3/4	4	.0720	3	C740603	18.46
.0787	2.0 mm	3/4	4	.0720	3	C740689	18.51
.0810	#46	3/4	4	.0771	3	C740604	18.46
.0820	#45	3/4	4	.0771	3	C740605	18.46
.0860	#44	3/4	4	.0810	3	C740606	18.46
.0890	#43	3/4	4	.0810	3	C740607	18.51
.0935	#42	3/4	4	.0880	3	C740608	18.46
.0938	3/32	3/4	4	.0880	3	C740686	18.36
.0960	#41	7/8	4	.0928	3-1/2	C740609	18.56
.0980	#40	7/8	4	.0928	3-1/2	C740610	18.56
.0984	2.5 mm	7/8	4	.0928	3-1/2	C740700	18.56
.0995	#39	7/8	4	.0928	3-1/2	C740612	18.56
.1015	#38	7/8	4	.0950	3-1/2	C740613	18.56
.1040	#37	7/8	4	.0950	3-1/2	C740614	18.56
.1065	#36	7/8	4	.1030	3-1/2	C740615	18.56
.1094	7/64	7/8	4	.1030	3-1/2	C740666	19.25
.1100	#35	7/8	4	.1030	3-1/2	C740616	19.15
.1110	#34	7/8	4	.1055	3-1/2	C740617	19.15
.1130	#33	7/8	4	.1055	3-1/2	C740618	19.15
.1160	#32	7/8	4	.1120	3-1/2	C740619	19.25
.1181	3.0 mm	7/8	4	.1120	3-1/2	C740680	19.25
.1200	#31	7/8	4	.1120	3-1/2	C740620	19.25

continued on next page

For technical information, see page 283

REAMERS - HIGH SPEED STEEL

Chucking - Right Hand Spiral (Cont.)

continued from previous page

REAMER DIAMETER SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
DEC. EQUIV.	SIZE					TOOL#	PRICE
$D_1 \begin{smallmatrix} +.0002'' \\ -.0000'' \end{smallmatrix}$		L ₂		D ₂	L ₁		
.1240	O/U	7/8	4	.1190	3-1/2	C740755	19.25
.1250	1/8	7/8	4	.1190	3-1/2	C740722	17.31
.1260	O/U	7/8	4	.1190	3-1/2	C740754	19.25
.1285	#30	7/8	4	.1190	3-1/2	C740621	19.25
.1360	#29	1	4	.1275	4	C740623	22.93
.1378	3.5 mm	1	4	.1350	4	C740688	22.93
.1405	#28	1	4	.1350	4	C740624	22.93
.1406	9/64	1	4	.1350	4	C740659	22.93
.1440	#27	1	4	.1350	4	C740625	22.93
.1470	#26	1	4	.1430	4	C740626	22.93
.1495	#25	1	4	.1430	4	C740627	22.93
.1520	#24	1	4	.1460	4	C740628	23.88
.1540	#23	1	4	.1460	4	C740629	23.88
.1563	5/32	1	4	.1510	4	C740675	23.98
.1570	#22	1	6	.1510	4	C740630	23.88
.1575	4.0 mm	1	6	.1510	4	C740678	23.98
.1590	#21	1-1/8	6	.1530	4-1/2	C740631	24.48
.1610	#20	1-1/8	6	.1530	4-1/2	C740632	24.48
.1660	#19	1-1/8	6	.1595	4-1/2	C740634	24.48
.1695	#18	1-1/8	6	.1595	4-1/2	C740635	24.48
.1719	11/64	1-1/8	6	.1645	4-1/2	C740716	24.48
.1730	#17	1-1/8	6	.1645	4-1/2	C740636	24.48
.1770	#16	1-1/8	6	.1704	4-1/2	C740637	24.48
.1772	4.5 mm	1-1/8	6	.1704	4-1/2	C740679	24.48
.1800	#15	1-1/8	6	.1755	4-1/2	C740638	24.48
.1820	#14	1-1/8	6	.1755	4-1/2	C740639	24.48
.1850	#13	1-1/8	6	.1805	4-1/2	C740640	24.48
.1865	O/U	1-1/8	6	.1805	4-1/2	C740753	24.48
.1875	3/16	1-1/8	6	.1805	4-1/2	C740687	23.23
.1885	O/U	1-1/8	6	.1805	4-1/2	C740752	24.48
.1890	#12	1-1/8	6	.1805	4-1/2	C740641	24.48
.1910	#11	1-1/4	6	.1860	5	C740642	27.41
.1935	#10	1-1/4	6	.1860	5	C740643	27.41
.1960	#9	1-1/4	6	.1895	5	C740585	27.41
.1969	5.0 mm	1-1/4	6	.1895	5	C740672	27.41
.1990	#8	1-1/4	6	.1895	5	C740586	27.41
.2010	#7	1-1/4	6	.1895	5	C740587	27.41
.2031	13/64	1-1/4	6	.1945	5	C740710	27.41
.2040	#6	1-1/4	6	.1945	5	C740589	27.41
.2055	#5	1-1/4	6	.2016	5	C740600	27.41
.2090	#4	1-1/4	6	.2016	5	C740611	27.41
.2130	#3	1-1/4	6	.2075	5	C740622	27.41
.2165	5.5 mm	1-1/4	6	.2075	5	C740677	27.41
.2188	7/32	1-1/4	6	.2075	5	C740667	27.41
.2210	#2	1-1/2	6	.2173	6	C740633	28.21
.2280	#1	1-1/2	6	.2173	6	C740644	28.21
.2340	A	1-1/2	6	.2265	6	C740657	28.21
.2344	15/64	1-1/2	6	.2265	6	C740707	28.21
.2362	6.0 mm	1-1/2	6	.2265	6	C740670	28.51
.2380	B	1-1/2	6	.2329	6	C740656	28.51

For technical information, see page 283

continued on next page



REAMERS - HIGH SPEED STEEL

Chucking - Right Hand Spiral (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1^{+.0002"}_{-.0000"}$		L ₂		D ₂	L ₁	TOOL#	PRICE
.2420	C	1-1/2	6	.2329	6	C740655	28.41
.2460	D	1-1/2	6	.2329	6	C740654	28.51
.2490	O/U	1-1/2	6	.2405	6	C740751	30.45
.2500	1/4	1-1/2	6	.2405	6	C740723	25.42
.2510	O/U	1-1/2	6	.2405	6	C740583	30.45
.2559	6.5 mm	1-1/2	6	.2405	6	C740671	28.41
.2570	F	1-1/2	6	.2485	6	C740653	28.51
.2610	G	1-1/2	6	.2485	6	C740652	28.41
.2656	17/64	1-1/2	6	.2485	6	C740705	31.64
.2660	H	1-1/2	6	.2485	6	C740651	31.64
.2720	I	1-1/2	6	.2485	6	C740650	31.64
.2756	7.0 mm	1-1/2	6	.2485	6	C740664	31.64
.2770	J	1-1/2	6	.2485	6	C740649	31.64
.2810	K	1-1/2	6	.2485	6	C740648	31.64
.2813	9/32	1-1/2	6	.2485	6	C740660	30.00
.2900	L	1-1/2	6	.2792	6	C740647	31.64
.2950	M	1-1/2	6	.2792	6	C740646	31.64
.2953	7.5 mm	1-1/2	6	.2792	6	C740669	31.64
.2969	19/64	1-1/2	6	.2792	6	C740703	31.64
.3020	N	1-1/2	6	.2792	6	C740645	31.64
.3115	O/U	1-1/2	6	.2792	6	C740750	30.00
.3125	5/16	1-1/2	6	.2792	6	C740676	28.61
.3135	O/U	1-1/2	6	.2792	6	C740749	30.00
.3150	8.0 mm	1-1/2	6	.2792	6	C740662	31.64
.3160	O	1-1/2	6	.2792	6	C740584	31.64
.3230	P	1-1/2	6	.2792	6	C740582	33.83
.3281	21/64	1-1/2	6	.2792	6	C740698	33.83
.3320	Q	1-1/2	6	.2792	6	C740581	33.83
.3346	8.5 mm	1-1/2	6	.2792	6	C740663	33.83
.3390	R	1-1/2	6	.2792	6	C740580	33.83
.3438	11/32	1-1/2	6	.2792	6	C740717	33.83
.3480	S	1-3/4	6	.3105	6	C740579	34.18
.3543	9.0 mm	1-3/4	6	.3105	7	C740658	34.18
.3580	T	1-3/4	6	.3105	7	C740578	34.18
.3594	23/64	1-3/4	6	.3105	7	C740696	34.33
.3680	U	1-3/4	6	.3105	7	C740577	34.18
.3740	9.5 mm-O/U	1-3/4	6	.3105	7	C740748	32.44
.3750	3/8	1-3/4	6	.3105	7	C740683	30.75
.3760	O/U	1-3/4	6	.3105	7	C740747	32.44
.3770	V	1-3/4	6	.3105	7	C740576	37.16
.3860	W	1-3/4	6	.3105	7	C740575	37.16
.3906	25/64	1-3/4	6	.3105	7	C740694	37.16
.3937	10.0 mm	1-3/4	6	.3105	7	C740720	37.16
.3970	X	1-3/4	6	.3105	7	C740574	37.16
.4040	Y	1-3/4	6	.3105	7	C740573	38.56
.4063	13/32	1-3/4	6	.3105	7	C740711	38.56
.4130	Z	1-3/4	6	.3730	7	C740572	38.56
.4134	10.5 mm	1-3/4	6	.3730	7	C740721	38.56
.4219	27/64	1-3/4	6	.3730	7	C740692	38.76
.4331	11.0 mm	1-3/4	6	.3730	7	C740715	38.56

For technical information, see page 283

continued on next page

REAMERS - HIGH SPEED STEEL

Chucking - Right Hand Spiral (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1 \begin{smallmatrix} +.0002^* \\ -.0000^* \end{smallmatrix}$		L ₂		D ₂	L ₁	TOOL#	PRICE
.4365	O/U	1-3/4	6	.3730	7	C740746	38.76
.4375	7/16	1-3/4	6	.3730	7	C740668	36.82
.4385	O/U	1-3/4	6	.3730	7	C740745	38.56
.4528	11.5 mm	1-3/4	6	.3730	7	C740719	42.04
.4531	29/64	1-3/4	6	.3730	7	C740690	42.24
.4688	15/32	1-3/4	6	.3730	7	C740708	42.24
.4724	12.0 mm	2	6	.4355	8	C740713	42.04
.4844	31/64	2	6	.4355	8	C740681	42.04
.4921	12.5 mm	2	6	.4355	8	C740714	42.04
.4990	O/U	2	6	.4355	8	C740744	42.24
.5000	1/2	2	6	.4355	8	C740724	39.85

$D_1 \begin{smallmatrix} +.0003^* \\ -.0000^* \end{smallmatrix}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.5010	O/U	2	6	.4355	8	C740743	42.24
.5313	17/32	2	6	.4355	8	C740706	49.55
.5625	9/16	2	8	.4355	8	C740661	49.55
.5938	19/32	2	8	.4355	8	C740704	49.55
.6250	5/8	2-1/4	8	.5615	9	C740673	58.11

$D_1 \begin{smallmatrix} +.0001^* \\ -.0004^* \end{smallmatrix}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.6562	21/32	2-1/4	8	.5615	9	C740699	62.64
.6875	11/16	2-1/4	8	.5615	9	C740718	67.31
.7188	23/32	2-1/4	8	.5615	9	C740697	78.85
.7500	3/4	2-1/2	8	.6240	9-1/2	C740685	74.97
.7812	25/32	2-1/2	8	.6240	9-1/2	C740695	81.24
.8125	13/16	2-1/2	8	.6240	9-1/2	C740712	81.14
.8438	27/32	2-1/2	8	.6240	9-1/2	C740693	100.84
.8750	7/8	2-5/8	8	.7490	10	C740665	95.77
.9062	29/32	2-5/8	8	.7490	10	C740691	111.09
.9375	15/16	2-5/8	8	.7490	10	C740709	105.72
.9688	31/32	2-5/8	8	.7490	10	C740682	118.55
1.0000	1	2-3/4	8	.8740	10-1/2	C740742	120.05
1.0625	1-1/16	2-3/4	8	.8740	10-1/2	C740741	132.38
1.1250	1-1/8	2-7/8	8	.8740	11	C740738	140.39
1.1875	1-3/16	2-7/8	10	.9990	11	C740734	164.42
1.2500	1-1/4	3	10	.9990	11-1/2	C740739	173.93
1.3125	1-5/16	3	10	.9990	11-1/2	C740731	203.28
1.3750	1-3/8	3-1/4	10	.9990	12	C740732	213.18
1.4375	1-7/16	3-1/4	10	1.2490	12	C740729	228.10
1.5000	1-1/2	3-1/2	10	1.2490	12-1/2	C740740	245.22

$D_1 \begin{smallmatrix} +.0002^* \\ -.0006^* \end{smallmatrix}$		L ₂		D ₂	L ₁	TOOL #	PRICE
1.5625	1-9/16	3-1/2	12	1.2490	13	C740727	349.64
1.6250	1-5/8	3-1/2	12	1.2490	13	C740730	351.43
1.6875	1-11/16	4	12	1.2490	13-1/2	C740737	400.24
1.7500	1-3/4	4	12	1.2490	13-1/2	C740733	403.57
1.8125	1-13/16	4	12	1.4990	14	C740736	464.76
1.8750	1-7/8	4	12	1.4990	14	C740728	464.76
1.9375	1-15/16	4	12	1.4990	14	C740735	544.12
2.0000	2	4	12	1.4990	14	C740701	544.12

For technical information, see page 283

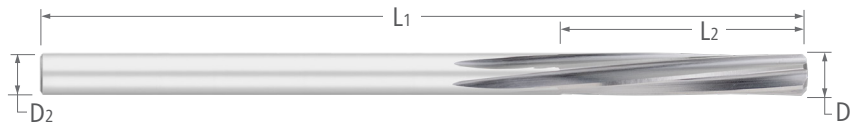
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



NEW!

REAMERS - HIGH SPEED STEEL Chucking - Left Hand Spiral



REAMERS

Carbide

Cobalt

HSS

- Flute options from 4 to 12
- Optimized for use in through holes as chips are pushed ahead of the tool and into the hole
- High speed steel
- Precision manufactured in the USA

	REAMER DIAMETER SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
	DEC. EQUIV.	SIZE	L ₂		D ₂	L ₁	TOOL #	PRICE
	D ₁							
NEW	.0394	1.0 mm	1/2	4	.0394	2-1/2	C775748	22.93
NEW	.0400	#60	1/2	4	.0390	2-1/2	C775749	22.93
NEW	.0410	#59	1/2	4	.0390	2-1/2	C775750	22.93
NEW	.0420	#58	1/2	4	.0390	2-1/2	C775751	22.93
NEW	.0430	#57	1/2	4	.0390	2-1/2	C775752	22.93
NEW	.0465	#56	1/2	4	.0455	2-1/2	C775753	22.93
NEW	.0469	3/64	1/2	4	.0455	2-1/2	C775754	22.93
NEW	.0520	#55	1/2	4	.0510	2-1/2	C775755	22.93
NEW	.0550	#54	1/2	4	.0510	2-1/2	C775756	22.93
NEW	.0591	1.5 mm	1/2	4	.0510	2-1/2	C775757	22.93
NEW	.0595	#53	1/2	4	.0585	2-1/2	C775758	22.93
NEW	.0625	1/16	1/2	4	.0585	2-1/2	C775759	22.93
NEW	.0635	#52	1/2	4	.0585	2-1/2	C775760	22.93
NEW	.0670	#51	3/4	4	.0660	3	C775761	18.51
NEW	.0700	#50	3/4	4	.0660	3	C775762	18.46
NEW	.0730	#49	3/4	4	.0660	3	C775763	18.51
NEW	.0760	#48	3/4	4	.0720	3	C775764	18.46
NEW	.0781	5/64	3/4	4	.0720	3	C775765	18.51
NEW	.0785	#47	3/4	4	.0720	3	C775766	18.46
NEW	.0787	2.0 mm	3/4	4	.0720	3	C775767	18.51
NEW	.0810	#46	3/4	4	.0771	3	C775768	18.46
NEW	.0820	#45	3/4	4	.0771	3	C775769	18.46
NEW	.0860	#44	3/4	4	.0810	3	C775770	18.46
NEW	.0890	#43	3/4	4	.0810	3	C775771	18.51
NEW	.0935	#42	3/4	4	.0880	3	C775772	18.46
NEW	.0938	3/32	3/4	4	.0880	3	C775773	18.36
NEW	.0960	#41	7/8	4	.0928	3-1/2	C775774	18.56
NEW	.0980	#40	7/8	4	.0928	3-1/2	C775775	18.56
NEW	.0984	2.5 mm	7/8	4	.0928	3-1/2	C775776	18.56
NEW	.0995	#39	7/8	4	.0928	3-1/2	C775777	18.56
NEW	.1015	#38	7/8	4	.0950	3-1/2	C775778	18.56
NEW	.1040	#37	7/8	4	.0950	3-1/2	C775779	18.56
NEW	.1065	#36	7/8	4	.1030	3-1/2	C775780	18.56
NEW	.1094	7/64	7/8	4	.1030	3-1/2	C775781	19.25
NEW	.1100	#35	7/8	4	.1030	3-1/2	C775782	19.15
NEW	.1110	#34	7/8	4	.1055	3-1/2	C775783	19.15

continued on next page

REAMERS - HIGH SPEED STEEL

Chucking - Left Hand Spiral (Cont.)

NEW!

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED		
D ₁ ^{+0.002"} _{-0.000"}		L ₂		D ₂	L ₁	TOOL #	PRICE	
.1130	#33	7/8	4	.1055	3-1/2	C775784	19.15	NEW
.1160	#32	7/8	4	.1120	3-1/2	C775785	19.25	NEW
.1181	3.0 mm	7/8	4	.1120	3-1/2	C775786	19.25	NEW
.1200	#31	7/8	4	.1120	3-1/2	C775787	19.25	NEW
.1240	O/U	7/8	4	.1190	3-1/2	C775788	19.25	NEW
.1250	1/8	7/8	4	.1190	3-1/2	C775789	17.31	NEW
.1260	O/U	7/8	4	.1190	3-1/2	C775790	19.25	NEW
.1285	#30	7/8	4	.1190	3-1/2	C775791	19.25	NEW
.1360	#29	1	4	.1275	4	C775792	22.93	NEW
.1378	3.5 mm	1	4	.1350	4	C775793	22.93	NEW
.1405	#28	1	4	.1350	4	C775794	22.93	NEW
.1406	9/64	1	4	.1350	4	C775795	22.93	NEW
.1440	#27	1	4	.1350	4	C775796	22.93	NEW
.1470	#26	1	4	.1430	4	C775797	22.93	NEW
.1495	#25	1	4	.1430	4	C775798	22.93	NEW
.1520	#24	1	4	.1460	4	C775799	23.88	NEW
.1540	#23	1	4	.1460	4	C775800	23.88	NEW
.1562	5/32	1	4	.1510	4	C775801	23.98	NEW
.1570	#22	1	6	.1510	4	C775802	23.88	NEW
.1575	4.0 mm	1	6	.1510	4	C775803	23.98	NEW
.1590	#21	1-1/8	6	.1530	4-1/2	C775804	24.48	NEW
.1610	#20	1-1/8	6	.1530	4-1/2	C775805	24.48	NEW
.1660	#19	1-1/8	6	.1595	4-1/2	C775806	24.48	NEW
.1695	#18	1-1/8	6	.1595	4-1/2	C775807	24.48	NEW
.1719	11/64	1-1/8	6	.1645	4-1/2	C775808	24.48	NEW
.1730	#17	1-1/8	6	.1645	4-1/2	C775809	24.48	NEW
.1770	#16	1-1/8	6	.1704	4-1/2	C775810	24.48	NEW
.1772	4.5 mm	1-1/8	6	.1704	4-1/2	C775811	24.48	NEW
.1800	#15	1-1/8	6	.1755	4-1/2	C775812	24.48	NEW
.1820	#14	1-1/8	6	.1755	4-1/2	C775813	24.48	NEW
.1850	#13	1-1/8	6	.1805	4-1/2	C775814	24.48	NEW
.1865	O/U	1-1/8	6	.1805	4-1/2	C775815	24.48	NEW
.1875	3/16	1-1/8	6	.1805	4-1/2	C775816	23.23	NEW
.1885	O/U	1-1/8	6	.1805	4-1/2	C775817	24.48	NEW
.1890	#12	1-1/8	6	.1805	4-1/2	C775818	24.48	NEW
.1910	#11	1-1/4	6	.1860	5	C775819	27.41	NEW
.1935	#10	1-1/4	6	.1860	5	C775820	27.41	NEW
.1960	#9	1-1/4	6	.1895	5	C775821	27.41	NEW
.1969	5.0 mm	1-1/4	6	.1895	5	C775822	27.41	NEW
.1990	#8	1-1/4	6	.1895	5	C775823	27.41	NEW
.2010	#7	1-1/4	6	.1895	5	C775824	27.41	NEW
.2031	13/64	1-1/4	6	.1945	5	C775825	27.41	NEW
.2040	#6	1-1/4	6	.1945	5	C775826	27.41	NEW
.2055	#5	1-1/4	6	.2016	5	C775827	27.41	NEW
.2090	#4	1-1/4	6	.2016	5	C775828	27.41	NEW
.2130	#3	1-1/4	6	.2075	5	C775829	27.41	NEW
.2165	5.5 mm	1-1/4	6	.2075	5	C775830	27.41	NEW
.2188	7/32	1-1/4	6	.2075	5	C775831	27.41	NEW

continued on next page

For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



NEW! REAMERS - HIGH SPEED STEEL
 Chucking - Left Hand Spiral (Cont.)

continued from previous page

	REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
	D ₁ ^{+0.0002"} -0.0000"		L ₂		D ₂	L ₁	TOOL #	PRICE
NEW	.2210	#2	1-1/2	6	.2173	6	C775832	28.21
NEW	.2280	#1	1-1/2	6	.2173	6	C775833	28.21
NEW	.2340	A	1-1/2	6	.2265	6	C775834	28.21
NEW	.2344	15/64	1-1/2	6	.2265	6	C775835	28.21
NEW	.2362	6.0 mm	1-1/2	6	.2265	6	C775836	28.51
NEW	.2380	B	1-1/2	6	.2329	6	C775837	28.51
NEW	.2420	C	1-1/2	6	.2329	6	C775838	28.41
NEW	.2460	D	1-1/2	6	.2329	6	C775839	28.51
NEW	.2490	O/U	1-1/2	6	.2405	6	C775840	30.45
NEW	.2500	1/4	1-1/2	6	.2405	6	C775841	25.42
NEW	.2510	O/U	1-1/2	6	.2405	6	C775842	30.45
NEW	.2559	6.5 mm	1-1/2	6	.2405	6	C775843	28.41
NEW	.2570	F	1-1/2	6	.2485	6	C775844	28.51
NEW	.2610	G	1-1/2	6	.2485	6	C775845	28.41
NEW	.2656	17/64	1-1/2	6	.2485	6	C775846	31.64
NEW	.2660	H	1-1/2	6	.2485	6	C775847	31.64
NEW	.2720	I	1-1/2	6	.2485	6	C775848	31.64
NEW	.2756	7.0 mm	1-1/2	6	.2485	6	C775849	31.64
NEW	.2770	J	1-1/2	6	.2485	6	C775850	31.64
NEW	.2810	K	1-1/2	6	.2485	6	C775851	31.64
NEW	.2813	9/32	1-1/2	6	.2485	6	C775852	30.00
NEW	.2900	L	1-1/2	6	.2792	6	C775853	31.64
NEW	.2950	M	1-1/2	6	.2792	6	C775854	31.64
NEW	.2953	7.5 mm	1-1/2	6	.2792	6	C775855	31.64
NEW	.2969	19/64	1-1/2	6	.2792	6	C775856	31.64
NEW	.3020	N	1-1/2	6	.2792	6	C775857	31.64
NEW	.3115	O/U	1-1/2	6	.2792	6	C775858	30.00
NEW	.3125	5/16	1-1/2	6	.2792	6	C775859	28.61
NEW	.3135	O/U	1-1/2	6	.2792	6	C775860	30.00
NEW	.3150	8.0 mm	1-1/2	6	.2792	6	C775861	31.64
NEW	.3160	O	1-1/2	6	.2792	6	C775862	31.64
NEW	.3230	P	1-1/2	6	.2792	6	C775863	33.83
NEW	.3281	21/64	1-1/2	6	.2792	6	C775864	33.83
NEW	.3320	Q	1-1/2	6	.2792	6	C775865	33.83
NEW	.3346	8.5 mm	1-1/2	6	.2792	6	C775866	33.83
NEW	.3390	R	1-1/2	6	.2792	6	C775867	33.83
NEW	.3438	11/32	1-1/2	6	.2792	6	C775868	33.83
NEW	.3480	S	1-3/4	6	.3105	6	C775869	34.18
NEW	.3543	9.0 mm	1-3/4	6	.3105	7	C775870	34.18
NEW	.3580	T	1-3/4	6	.3105	7	C775871	34.18
NEW	.3594	23/64	1-3/4	6	.3105	7	C775872	34.33
NEW	.3680	U	1-3/4	6	.3105	7	C775873	34.18
NEW	.3740	9.5 mm-O/U	1-3/4	6	.3105	7	C775874	32.44
NEW	.3750	3/8	1-3/4	6	.3105	7	C775875	30.75
NEW	.3760	O/U	1-3/4	6	.3105	7	C775876	32.44
NEW	.3770	V	1-3/4	6	.3105	7	C775877	37.16
NEW	.3860	W	1-3/4	6	.3105	7	C775878	37.16
NEW	.3906	25/64	1-3/4	6	.3105	7	C775879	37.16

continued on next page

For technical information, see page 283

REAMERS - HIGH SPEED STEEL

Chucking - Left Hand Spiral (Cont.)

NEW!

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1^{+.0002''}$ $_{-.0000''}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.3937	10.0 mm	1-3/4	6	.3105	7	C775880	37.16
.3970	X	1-3/4	6	.3105	7	C775881	37.16
.4040	Y	1-3/4	6	.3105	7	C775882	38.56
.4063	13/32	1-3/4	6	.3105	7	C775883	38.56
.4130	Z	1-3/4	6	.3730	7	C775884	38.56
.4134	10.5 mm	1-3/4	6	.3730	7	C775885	38.56
.4219	27/64	1-3/4	6	.3730	7	C775886	38.76
.4331	11.0 mm	1-3/4	6	.3730	7	C775887	38.56
.4365	O/U	1-3/4	6	.3730	7	C775888	38.76
.4375	7/16	1-3/4	6	.3730	7	C775889	36.82
.4385	O/U	1-3/4	6	.3730	7	C775890	38.56
.4528	11.5 mm	1-3/4	6	.3730	7	C775891	42.04
.4531	29/64	1-3/4	6	.3730	7	C775892	42.24
.4688	15/32	1-3/4	6	.3730	7	C775893	42.24
.4724	12.0 mm	2	6	.4355	8	C775894	42.04
.4844	31/64	2	6	.4355	8	C775895	42.04
.4921	12.5 mm	2	6	.4355	8	C775896	42.04
.4990	O/U	2	6	.4355	8	C775897	42.24
.5000	1/2	2	6	.4355	8	C775898	39.85

$D_1^{+.0003''}$ $_{-.0000''}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.5010	O/U	2	6	.4355	8	C775899	42.24
.5313	17/32	2	6	.4355	8	C775900	49.55
.5625	9/16	2	8	.4355	8	C775901	49.55
.5938	19/32	2	8	.4355	8	C775902	49.55
.6250	5/8	2-1/4	8	.5615	9	C775903	58.11

$D_1^{+.0001''}$ $_{-.0004''}$		L ₂		D ₂	L ₁	TOOL #	PRICE
.6562	21/32	2-1/4	8	.5615	9	C775904	62.64
.6875	11/16	2-1/4	8	.5615	9	C775905	67.31
.7188	23/32	2-1/4	8	.5615	9	C775906	78.85
.7500	3/4	2-1/2	8	.6240	9-1/2	C775907	74.97
.7812	25/32	2-1/2	8	.6240	9-1/2	C775908	81.24
.8125	13/16	2-1/2	8	.6240	9-1/2	C775909	81.14
.8438	27/32	2-1/2	8	.6240	9-1/2	C775910	100.84
.8750	7/8	2-5/8	8	.7490	10	C775911	95.77
.9062	29/32	2-5/8	8	.7490	10	C775912	111.09
.9375	15/16	2-5/8	8	.7490	10	C775913	105.72
.9688	31/32	2-5/8	8	.7490	10	C775914	118.55
1.0000	1	2-3/4	8	.8740	10-1/2	C775915	120.05
1.0625	1-1/16	2-3/4	8	.8740	10-1/2	C775916	132.38
1.1250	1-1/8	2-7/8	8	.8740	11	C775917	140.39
1.1875	1-3/16	2-7/8	10	.9990	11	C775918	164.42
1.2500	1-1/4	3	10	.9990	11-1/2	C775919	173.93
1.3125	1-5/16	3	10	.9990	11-1/2	C775920	203.28
1.3750	1-3/8	3-1/4	10	.9990	12	C775921	213.18
1.4375	1-7/16	3-1/4	10	1.2490	12	C775922	228.10
1.5000	1-1/2	3-1/2	12	1.2490	12-1/2	C775923	245.22

For technical information, see page 283

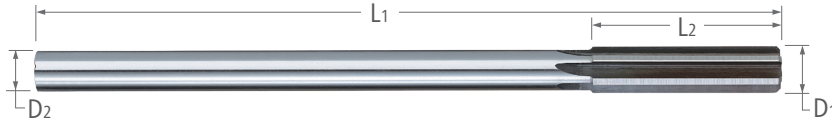
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - HIGH SPEED STEEL

Dowel Pin - Straight Flute

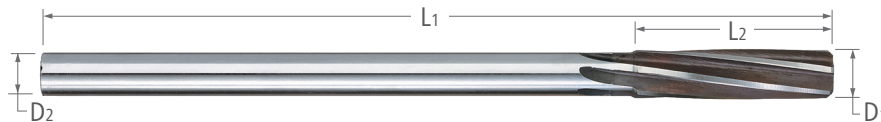


- General purpose reamers featuring a 45° chamfer angle
- Straight flutes for through and blind hole applications
- High speed steel
- Precision manufactured in the USA
- 4 and 6 flute styles

REAMER DIA.	FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1 \begin{smallmatrix} +.0002'' \\ -.0002'' \end{smallmatrix}$	L2		D2	L1	TOOL #	PRICE
.1230	7/8	4	.1190	3-1/2	C739953	16.67
.1247	7/8	4	.1190	3-1/2	C739952	16.67
.1855	1-1/8	6	.1805	4-1/2	C739951	21.29
.1870	1-1/8	6	.1805	4-1/2	C739950	21.29
.2480	1-1/2	6	.2405	6	C739949	23.23
.2495	1-1/2	6	.2405	6	C739948	23.23
.3105	1-1/2	6	.2792	6	C739947	27.31
.3120	1-1/2	6	.2792	6	C739946	27.31
.3730	1-3/4	6	.3105	7	C739945	29.60
.3745	1-3/4	6	.3105	7	C739944	29.60
.4355	1-3/4	6	.3730	7	C739943	33.28
.4370	1-3/4	6	.3730	7	C739942	33.28
.4980	2	6	.4355	8	C739941	36.22
.4995	2	6	.4355	8	C739940	36.22

REAMERS - HIGH SPEED STEEL

Dowel Pin - Right Hand Spiral



- General purpose reamers featuring a 45° chamfer angle
- Spiral flutes for increased chip evacuation in blind hole applications
- 4 and 6 flute styles
- High speed steel
- Precision manufactured in the USA

REAMER DIA.	FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1 \begin{smallmatrix} +.0002'' \\ -.0000'' \end{smallmatrix}$	L2		D2	L1	TOOL #	PRICE
.1230	7/8	4	.1190	3-1/2	C739925	19.15
.1247	7/8	4	.1190	3-1/2	C739924	19.15
.1855	1-1/8	6	.1805	4-1/2	C739923	24.48
.1870	1-1/8	6	.1805	4-1/2	C739922	24.48
.2480	1-1/2	6	.2405	6	C739921	25.67
.2495	1-1/2	6	.2405	6	C739920	25.67
.3105	1-1/2	6	.2792	6	C739919	30.10
.3120	1-1/2	6	.2792	6	C739918	30.25
.3730	1-3/4	6	.3105	7	C739917	32.44
.3745	1-3/4	6	.3105	7	C739916	32.44
.4355	1-3/4	6	.3730	7	C739915	38.56
.4370	1-3/4	6	.3730	7	C739914	38.56
.4980	2	6	.4355	8	C739913	41.99
.4995	2	6	.4355	8	C739912	41.99

For technical information, see page 283

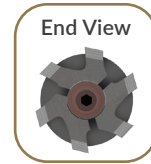
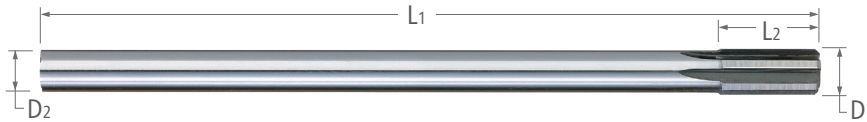
REAMERS - HIGH SPEED STEEL

Expansion - Straight Flute

REAMERS

Cobalt Carbide

HSS



- General purpose reamers featuring a 45° chamfer angle
- Expansion style for resharpening to original size
- 6 and 8 flute styles
- Straight flutes for through and blind hole applications
- High speed steel
- Precision manufactured in the USA

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D_1		L_2		D_2	L_1	TOOL #	PRICE
$D_1^{+0.002}$							
$D_1^{-0.000}$							
.3750	3/8	3/4	6	5/16	7	C742014	101.29
.4063	13/32	3/4	6	5/16	7	C742025	113.13
.4375	7/16	7/8	6	3/8	7	C742011	107.91
.4688	15/32	7/8	6	27/64	8	C742023	117.36
.5000	1/2	1	6	7/16	8	C742028	114.08
.5313	17/32	1	6	7/16	8	C742022	126.96
.5625	9/16	1-1/8	6	7/16	8	C742009	123.83
.5938	19/32	1-1/8	6	7/16	8	C742021	125.67
.6250	5/8	1-1/4	6	9/16	9	C742012	129.35
.6563	21/32	1-1/4	6	9/16	9	C742020	138.11
.6875	11/16	1-1/4	6	9/16	9	C742027	145.92
.7188	23/32	1-1/4	6	9/16	9	C742019	155.47
.7500	3/4	1-3/8	6	5/8	9-1/2	C742015	153.83
.7813	25/32	1-3/8	8	5/8	9-1/2	C742018	162.04
.8125	13/16	1-3/8	8	5/8	9-1/2	C742026	176.56
.8438	27/32	1-3/8	8	5/8	9-1/2	C742017	177.21
.8750	7/8	1-1/2	8	3/4	10	C742010	180.39
.9063	29/32	1-1/2	8	3/4	10	C742016	199.45
.9375	15/16	1-1/2	8	3/4	10	C742024	208.70
.9688	31/32	1-1/2	8	3/4	10	C742013	218.15
1.0000	1	1-5/8	8	7/8	10-1/2	C742041	219.15
1.0313	1-1/32	1-5/8	8	7/8	10-1/2	C742038	319.99
1.0625	1-1/16	1-5/8	8	7/8	10-1/2	C742040	254.17
1.0938	1-3/32	1-5/8	8	7/8	10-1/2	C742034	253.68
1.1250	1-1/8	1-3/4	8	7/8	11	C742036	264.97
1.1563	1-5/32	1-3/4	8	7/8	11	C742031	281.88
1.1875	1-3/16	1-3/4	8	1	11	C742035	278.85
1.2188	1-7/32	1-3/4	8	1	11	C742029	303.48
1.2500	1-1/4	1-7/8	8	1	11-1/2	C742037	300.34
1.3125	1-5/16	1-7/8	8	1	11-1/2	C742032	311.73
1.3750	1-3/8	2	8	1	12	C742033	321.58
1.4375	1-7/16	2	8	1-1/4	12	C742030	350.54
1.5000	1-1/2	2-1/8	8	1-1/4	12-1/2	C742039	348.05

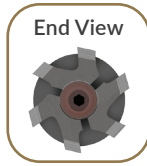
For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - HIGH SPEED STEEL Expansion - Straight Flute - Taper Shank

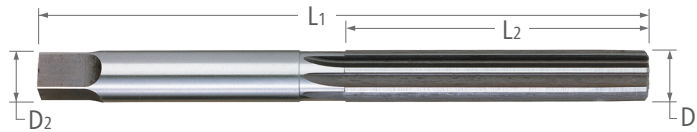


- General purpose reamers featuring a 45° chamfer angle
- Expansion tapered shank for Morse Taper Holders
- Expansion style for resharpening to original size
- 6 and 8 flute styles
- Straight flutes for through and blind hole applications
- High speed steel
- Precision manufactured in the USA

REAMER DIAMETER DEC. EQUIV.	REAMER DIAMETER SIZE	FLUTE LENGTH	FLUTES	MORSE TAPER SIZE	OAL	UNCOATED	
D_1	$^{+.0002}$ $_{-.0000}$	L_2			L_1	TOOL #	PRICE
.3750	3/8	3/4	6	1	7	C741981	120.49
.4063	13/32	3/4	6	1	7	C741992	133.28
.4375	7/16	7/8	6	1	7	C741978	127.51
.4688	15/32	7/8	6	1	8	C741990	130.59
.5000	1/2	1	6	1	8	C741995	127.06
.5313	17/32	1	6	1	8	C741989	132.09
.5625	9/16	1-1/8	6	1	8	C741976	134.18
.5938	19/32	1-1/8	6	1	8	C741988	146.02
.6250	5/8	1-1/4	6	2	9	C741979	144.62
.6563	21/32	1-1/4	6	2	9	C741987	159.35
.6875	11/16	1-1/4	6	2	9	C741994	160.29
.7188	23/32	1-1/4	6	2	9	C741986	170.94
.7500	3/4	1-3/8	6	2	9-1/2	C741982	167.81
.7813	25/32	1-3/8	8	2	9-1/2	C741985	175.52
.8125	13/16	1-3/8	8	2	9-1/2	C741993	178.11
.8438	27/32	1-3/8	8	2	9-1/2	C741984	197.76
.8750	7/8	1-1/2	8	2	10	C741977	195.77
.9063	29/32	1-1/2	8	2	10	C741983	216.26
.9375	15/16	1-1/2	8	3	10	C741991	221.54
.9688	31/32	1-1/2	8	3	10	C741980	230.89
1.0000	1.0000	1-5/8	8	3	10-1/2	C742008	232.63
1.0313	1-1/32	1-5/8	8	3	10-1/2	C742005	241.49
1.0625	1-1/16	1-5/8	8	3	10-1/2	C742007	252.98
1.0938	1-3/32	1-5/8	8	3	10-1/2	C742001	277.46
1.1250	1-1/8	1-3/4	8	3	11	C742003	273.38
1.1563	1-5/32	1-3/4	8	3	11	C741998	298.75
1.1875	1-3/16	1-3/4	8	3	11	C742002	310.59
1.2188	1-7/32	1-3/4	8	3	11	C741996	322.63
1.2500	1-1/4	1-7/8	8	4	11-1/2	C742004	322.78
1.3125	1-5/16	1-7/8	8	4	11-1/2	C741999	350.34
1.3750	1-3/8	2	8	4	12	C742000	347.45
1.4375	1-7/16	2	8	4	12	C741997	367.60
1.5000	1-1/2	2-1/8	8	4	12-1/2	C742006	380.09

REAMERS - HIGH SPEED STEEL

Hand Reamers - Straight Flute



- General purpose reamers featuring a 45° chamfer angle
- Straight flutes for through and blind hole applications
- High speed steel
- Flute options from 4 to 10
- Precision manufactured in the USA

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
D_1		L_2		D_2	L_1	TOOL #	PRICE
D_1	$^{+0.001}$ $_{-0.004}$	L_2		D_2	L_1	TOOL #	PRICE
.0625	1/16	1	4	.0625	2	C742321	47.51
.0781	5/64	1	4	.0781	2	C742265	47.31
.0938	3/32	1-1/4	4	.0938	2-1/2	C742278	47.31
.1094	7/64	1-1/4	4	.1094	2-1/2	C742257	47.31
.1250	1/8	1-1/2	4	.1250	3	C742313	44.58
.1406	9/64	1-5/8	4	.1406	3-1/4	C742249	44.58
.1563	5/32	1-5/8	4	.1562	3-1/4	C742267	48.16
.1719	11/64	1-3/4	6	.1719	3-1/2	C742308	48.16
.1875	3/16	1-3/4	6	.1875	3-1/2	C742280	47.51
.2031	13/64	1-7/8	6	.2031	3-3/4	C742303	47.31
.2188	7/32	1-7/8	6	.2188	3-3/4	C742259	52.14
.2344	15/64	2	6	.2344	4	C742298	52.14
.2500	1/4	2	6	.2500	4	C742316	52.04
.2656	17/64	2-1/8	6	.2656	4-1/4	C742295	52.14
.2813	9/32	2-1/8	6	.2812	4-1/4	C742251	56.07
.2969	19/64	2-1/4	6	.2969	4-1/2	C742292	56.07
.3125	5/16	2-1/4	6	.3125	4-1/2	C742269	54.77
.3438	11/32	2-3/8	6	.3438	4-3/4	C742310	63.63
.3750	3/8	2-1/2	6	.3750	5	C742273	62.09
.4063	13/32	2-5/8	6	.4062	5-1/4	C742305	72.09
.4375	7/16	2-3/4	6	.4375	5-1/2	C742261	70.60
.4688	15/32	2-7/8	6	.4688	5-3/4	C742300	78.11
.5000	1/2	3	6	.5000	6	C742319	75.42
D_1	$^{+0.003}$ $_{-0.000}$	L_2		D_2	L_1	TOOL #	PRICE
.5313	17/32	3-1/8	8	.5312	6-1/4	C742296	81.14
.5625	9/16	3-1/4	8	.5625	6-1/2	C742253	86.76
.5938	19/32	3-3/8	8	.5938	6-3/4	C742293	96.47
.6250	5/8	3-1/2	8	.6250	7	C742263	93.93
D_1	$^{+0.001}$ $_{-0.004}$	L_2		D_2	L_1	TOOL #	PRICE
.6562	21/32	3-11/16	8	.6562	7-3/8	C742290	106.76
.6875	11/16	3-7/8	8	.6875	7-3/4	C742311	104.18
.7188	23/32	4-1/16	8	.7188	8-1/8	C742288	113.98
.7500	3/4	4-3/16	8	.7500	8-3/8	C742276	109.55
.7812	25/32	4-3/8	8	.7812	8-3/4	C742286	120.20
.8125	13/16	4-9/16	8	.8125	9-1/8	C742306	109.55

continued on next page

For technical information, see page 283

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



REAMERS - HIGH SPEED STEEL

Hand Reamers - Straight Flute (Cont.)

continued from previous page

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
$D_1^{+.0001"}$ $+.0004"$		L ₂		D ₂	L ₁	TOOL #	PRICE
.8438	27/32	4-11/16	8	.8438	9-3/8	C742284	131.64
.8750	7/8	4-7/8	8	.8750	9-3/4	C742255	132.73
.9062	29/32	5	8	.9062	10	C742282	146.71
.9375	15/16	5-1/8	8	.9375	10-1/4	C742301	132.83
.9688	31/32	5-5/16	8	.9688	10-5/8	C742271	161.49
1.0000	1	5-7/16	8	1.0000	10-7/8	C742323	160.84
1.1250	1-1/8	5-13/16	8	1.1250	11-5/8	C742325	210.14
1.2500	1-1/4	6-1/8	8	1.2500	12-1/4	C742326	258.05
1.3750	1-3/8	6-5/16	10	1.3750	12-5/8	C742324	305.02
1.5000	1-1/2	6-1/2	10	1.5000	13	C742327	359.99

REAMERS

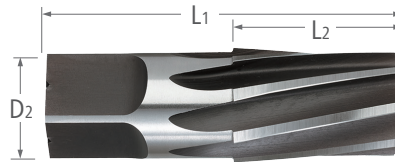
Carbide

Cobalt

HSS

REAMERS - HIGH SPEED STEEL

Taper Pipe



- General purpose reamers featuring a 45° chamfer angle
- 6 to 12 flute options
- Spiral flutes for increased chip evacuation in blind hole applications
- High speed steel
- Precision manufactured in the USA

SIZE	DIAMETER SMALL END	DIAMETER LARGE END	FLUTE LENGTH	FLUTES	SIZE OF SQUARE	SHANK DIAMETER	OVERALL LENGTH	UNCOATED	
			L ₂			D ₂	L ₁	TOOL #	PRICE
1/16	.2320	.2750	3/4	6	.2350	.3125	2-1/8	C742124	61.84
1/8	.3160	.3620	3/4	6	.3280	.4375	2-1/8	C742121	57.61
1/4	.4060	.4720	1-1/16	6	.4210	.5625	2-7/16	C742122	65.97
3/8	.5400	.6060	1-1/16	6	.5310	.7000	2-9/16	C742116	75.07
1/2	.6650	.7510	1-3/8	6	.5150	.6875	3-1/8	C742123	94.38
3/4	.8760	.9620	1-3/8	8	.6790	.9063	3-1/4	C742117	130.84
1	1.1030	1.2120	1-3/4	8	.8430	1.1250	3-3/4	C742125	193.48
1-1/4	1.4440	1.5530	1-3/4	10	.9840	1.3125	4	C742119	324.32
1-1/2	1.6840	1.7930	1-3/4	12	1.1250	1.5000	4-1/4	C742120	410.09
2	2.1590	2.2680	1-3/4	12	1.4060	1.8750	4-1/2	C742118	550.38

For technical information, see page 283

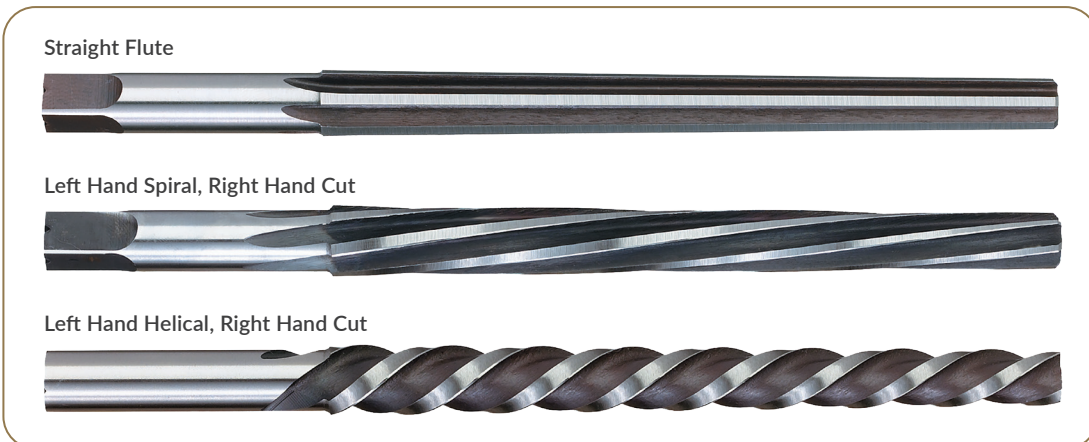
REAMERS - HIGH SPEED STEEL

Taper Pin



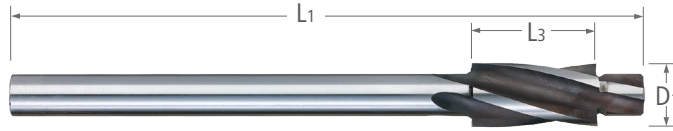
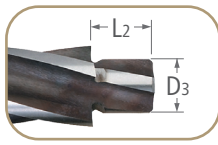
- General purpose reamers featuring a 45° chamfer angle
- Flute options from 4 to 10
- Helical flutes increase shearing action for superior finish
- Spiral flutes for increased chip evacuation in blind hole applications
- Straight flutes for through and blind hole applications
- High speed steel
- Precision manufactured in the USA

SIZE	DIAMETER SMALL END	DIAMETER LARGE END	FLUTE LENGTH	OAL	FLUTES	STRAIGHT FLUTE		LEFT HAND SPIRAL RIGHT HAND CUT		LEFT HAND HELICAL RIGHT HAND CUT	
						TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
			L ₂	L ₁							
7/0	.0497	.0666	13/16	1-13/16	4	C739858	49.45	C739816	51.54	C739837	45.87
6/0	.0611	.0806	15/16	1-15/16	4	C739859	49.45	C739817	51.34	C739838	43.18
5/0	.0719	.0966	1-3/16	2-3/16	4	C739860	45.07	C739818	49.45	C739839	44.82
4/0	.0869	.1142	1-5/16	2-5/16	4	C739861	45.07	C739819	49.45	C739840	44.82
3/0	.1029	.1302	1-5/16	2-5/16	4	C739862	45.07	C739820	49.45	C739841	40.70
2/0	.1137	.1462	1-9/16	2-9/16	4	C739863	40.30	C739821	43.38	C739842	41.14
0	.1287	.1638	1-11/16	2-15/16	4	C739857	38.95	C739815	41.24	C739836	41.94
1	.1447	.1798	1-11/16	2-15/16	6	C739856	37.51	C739814	41.94	C739835	42.59
2	.1605	.2008	1-15/16	3-3/16	6	C739850	37.51	C739808	41.94	C739829	48.16
3	.1813	.2294	2-15/16	3-11/16	6	C739849	37.51	C739807	41.94	C739828	49.80
4	.2071	.2604	2-9/16	4-1/16	6	C739848	42.09	C739806	45.92	C739827	56.07
5	.2409	.2994	2-13/16	4-5/16	6	C739847	45.27	C739805	48.76	C739826	61.29
6	.2773	.3540	3-11/16	5-7/16	6	C739846	54.63	C739804	60.35	C739825	71.99
7	.3297	.4220	4-7/16	6-5/16	6	C739845	70.05	C739803	75.97	C739824	88.85
8	.3971	.5050	5-3/16	7-3/16	6	C739844	90.79	C739802	99.35	C739823	104.23
9	.4805	.6066	6-1/16	8-5/16	6	C739843	109.40	C739801	118.55	C739822	114.52
10	.5799	.7216	6-13/16	9-5/16	6	C739855	120.15	C739813	131.44	C739834	145.42
11	.7060	.8780	8-1/4	11-1/4	8	C739854	127.36	C739812	140.20	C739833	161.14
12	.8420	1.0500	10	13-7/8	8	C739853	198.10	C739811	216.81	C739832	238.60
13	1.0090	1.2590	12	16	10	C739852	382.38	C739810	422.58	C739831	653.57
14	1.2500	1.5420	14	18-1/4	10	C739851	612.62	C739809	683.17	C739830	746.55



REAMERS - HIGH SPEED STEEL

Capscrew Counterbores



- General purpose reamers featuring a 45° chamfer angle
- Capscrew counterbore style
- Unique style allowing capscrews to sit flush with the surface of a part
- Built in pilot to maintain alignment in existing hole
- High speed steel
- Precision manufactured in the USA

SIZE	PILOT LENGTH	PILOT SIZE	FLUTE SIZE	BODY LENGTH	OAL	UNCOATED	
	L ₂	D ₃	D ₁	L ₃	L ₁	TOOL #	PRICE
4	1/8	.112	.183	9/16	3-7/8	C742241	30.00
	1/8	.127	.199	9/16	3-7/8	C742227	28.81
	1/8	.143	.215	9/16	3-7/8	C742213	28.90
5	5/32	.125	.205	5/8	4-1/8	C742238	29.95
	5/32	.140	.221	5/8	4-1/8	C742224	29.90
	5/32	.156	.237	5/8	4-1/8	C742210	28.90
6	3/16	.138	.227	3/4	4-5/8	C742237	30.45
	3/16	.153	.243	3/4	4-5/8	C742223	30.45
	3/16	.169	.259	3/4	4-5/8	C742209	30.45
8	7/32	.164	.270	3/4	5	C742234	32.64
	7/32	.179	.286	3/4	5	C742220	32.64
	7/32	.195	.302	3/4	5	C742206	32.64
10	1/4	.190	.312	7/8	5-1/4	C742244	33.33
	1/4	.205	.328	7/8	5-1/4	C742230	33.33
	1/4	.218	.344	7/8	5-1/4	C742216	33.33
1/4	9/32	.250	.380	1	5-5/8	C742245	35.22
	9/32	.265	.396	1	5-5/8	C742231	35.22
	9/32	.281	.412	1	5-5/8	C742217	35.22
5/16	5/16	.313	.474	1	6-1/8	C742240	44.03
	5/16	.328	.489	1	6-1/8	C742226	44.03
	5/16	.343	.504	1	6-1/8	C742212	44.03
3/8	3/8	.375	.569	1-1/4	6-1/2	C742242	48.06
	3/8	.390	.585	1-1/4	6-1/2	C742228	48.06
	3/8	.406	.601	1-1/4	6-1/2	C742214	48.06
7/16	7/16	.437	.661	1-1/4	7	C742236	57.56
	7/16	.452	.676	1-1/4	7	C742222	57.56
	7/16	.468	.691	1-1/4	7	C742208	57.56
1/2	1/2	.500	.755	1-1/2	7-1/2	C742246	68.01
	1/2	.515	.771	1-1/2	7-1/2	C742232	67.61
	1/2	.531	.787	1-1/2	7-1/2	C742218	67.61
5/8	5/8	.625	.943	1-1/2	7-5/8	C742239	110.49
	5/8	.640	.959	1-1/2	7-5/8	C742225	116.02
	5/8	.656	.975	1-1/2	7-5/8	C742211	110.45
3/4	3/4	.750	1.131	1-5/8	7-3/4	C742243	127.81
	3/4	.765	1.147	1-5/8	7-3/4	C742229	127.66
	3/4	.781	1.163	1-5/8	7-3/4	C742215	127.61
7/8	7/8	.875	1.320	1-7/8	8	C742235	154.72
	7/8	.891	1.336	1-7/8	8	C742221	162.28
	7/8	.906	1.352	1-7/8	8	C742207	154.42
1	1	1.000	1.508	2	8-1/2	C742247	205.22
	1	1.015	1.524	2	8-1/2	C742233	205.22
	1	1.031	1.540	2	8-1/2	C742219	195.22

For technical information, see page 283

REAMERS - HIGH SPEED STEEL

Taper Shank Bridge Reamers



- Heavy duty tools designed for enlarging and aligning holes
- Taper shank style
- Left hand spiral, right hand cut to push chips forward
- Black Oxide finish increases wear resistance and adds lubricity to improve chip flow
- High speed steel
- Precision manufactured in the USA

REAMER DIAMETER DEC. EQUIV. SIZE		FLUTE LENGTH	SMALL DIAMETER	FLUTES	MORSE TAPER	OVERALL LENGTH	BLACK OXIDE FINISH	
D1 ^{+0.0005"} -0.0000"		L2				L1	TOOL #	PRICE
.4375	7/16	5-1/8	.3050	5	2	9	C750822	75.77
.5000	1/2	5-1/8	.3125	5	2	9	C750823	83.23
.5625	9/16	5-1/8	.3430	5	2	9	C739864	80.15
.6250	5/8	6-1/8	.3750	5	2	10	C750824	87.91
.6875	11/16	7-1/8	.3906	5	3	11-3/4	C739876	92.58
.7500	3/4	7-3/8	.5000	5	3	12	C739871	127.06
.8125	13/16	7-3/8	.5000	5	3	12	C739875	126.81
.8750	7/8	7-3/8	.5625	5	3	12	C750825	138.26
.9375	15/16	7-3/8	.6250	5	3	12	C739874	147.16
1.0000	1	7-3/8	.6875	5	3	12	C750826	159.90
1.0625	1-1/16	7-3/8	.7500	5	3	12	C739883	165.32
1.1250	1-1/8	7-3/8	.8125	5	3	12	C750827	202.43
1.1875	1-3/16	7-3/8	.8750	5	3	12	C750828	260.29
1.2500	1-1/4	7-3/8	.9375	5	4	13	C750829	296.61
1.3125	1-5/16	7-3/8	1.0000	5	4	13	C750830	350.99

REAMERS - HIGH SPEED STEEL Flatted Shank Construction Reamers



- Construction flatted shank style
- Black and gold oxide finish minimizes friction and improves lubricity
- High speed steel
- Precision manufactured in the USA

REAMER DIAMETER		FLUTE LENGTH	FLUTES	SHANK DIAMETER	OVERALL LENGTH	BLACK & GOLD OXIDE	
DEC. EQUIV.	SIZE					TOOL #	PRICE
$D_1^{+.0005"}_{-.0000"}\text{---}$		L2			L1	TOOL #	PRICE
.3750	3/8	2-1/2	5	3/8	4-5/8	C739772	50.50
.4375	7/16	3-1/4	5	7/16	5-3/8	C739764	54.48
.5000	1/2	3-3/4	5	1/2	5-7/8	C739797	60.30
.5625	9/16	3-3/4	5	1/2	5-7/8	C739758	62.78
.6250	5/8	4-1/4	5	1/2	6-3/8	C739766	70.20
.6875	11/16	4-1/4	5	1/2	6-3/8	C739791	83.78
.7500	3/4	4-1/2	5	1/2	6-7/8	C739775	88.60
.8125	13/16	4-1/2	5	1/2	6-7/8	C748259	88.60
.8750	7/8	4-1/2	5	1/2	6-7/8	C739760	100.00
.9375	15/16	4-1/2	5	1/2	6-7/8	C748260	100.00
1.0000	1	4-1/2	5	1/2	6-7/8	C739800	114.18
1.0625	1-1/16	4-1/2	5	1/2	6-7/8	C750821	134.33

REAMERS - HIGH SPEED STEEL Magnetic Hex Shank Safety Reamers



- Heavy duty tools designed for enlarging and aligning holes
- Safety magnet hex shank style
- Back and gold oxide finish minimizes friction and improves lubricity
- High speed steel
- Precision manufactured in the USA

REAMER DIAMETER		FLUTE LENGTH	FLUTES	HEX SHANK DIAMETER	OVERALL LENGTH	BLACK & GOLD OXIDE	
DEC. EQUIV.	SIZE					TOOL #	PRICE
$D_1^{+.0005"}_{-.0000"}\text{---}$		L2			L1	TOOL #	PRICE
.5625	9/16	4	5	1-1/16	5-1/2	C751826	106.47
.6875	11/16	4-1/2	5	1-1/16	6-3/8	C751827	129.35
.8125	13/16	5	5	1-1/4	7	C751828	153.93
.9375	15/16	5	5	1-7/16	7	C751829	173.93
1.0625	1-1/16	5	5	1-5/8	7	C751830	230.39
1.1875	1-3/16	5	5	1-13/16	7	C763498	296.76
1.3125	1-5/16	5	5	2	7-7/8	C763499	354.57

REAMERS - SETS Cobalt

- General purpose reamer set
- M42 cobalt

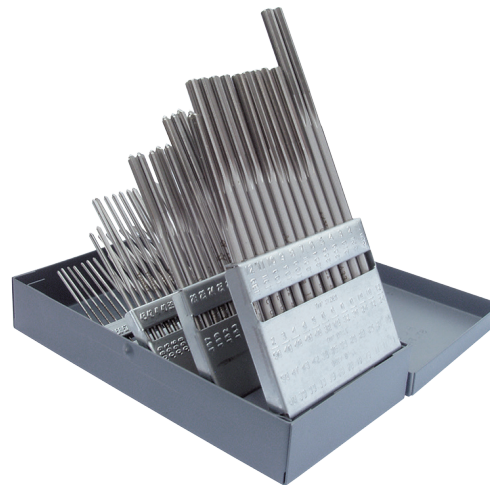


REAMER SETS

DESCRIPTION	FLUTE STYLE	UNCOATED	
		TOOL #	PRICE
14PC • Dowel Pin • .1230 - .4995 • M42 cobalt	Straight	C746320	558.44
14PC • O/U • .1240 - .5010 • M42 cobalt	Straight	C745802	533.62
26PC • A-Z • M42 cobalt	Straight	C745804	1,057.29
29PC • 1/16" - 1/2" by 64ths • M42 cobalt	Straight	C745808	1,075.25
60PC • #1 - #60 • M42 cobalt	Straight	C745806	1,322.16

REAMERS - SETS High Speed Steel

- General purpose reamer set
- High speed steel



DESCRIPTION	FLUTE STYLE	UNCOATED	
		TOOL #	PRICE
10PC • #4 - 1/2" • Standard • Ctr Bore Set • HSS	RH Spiral	C739678	420.49
10PC • #4 - 1/2" • 1/64" OS • Ctr Bore Set • HSS	RH Spiral	C739677	420.49
10PC • #4 - 1/2" • 1/32" OS • Ctr Bore Set • HSS	RH Spiral	C739676	420.49
14PC • Dowel Pin • .1230 - .4995 • HSS	Straight	C746424	496.11
14PC • O/U • .1240 - .5010 • HSS	Straight	C745803	429.79
20PC • #61 - #80 • HSS	Straight	C744238	501.38
26PC • A-Z • HSS	Straight	C745805	763.17
29PC • 1/16" - 1/2" by 64ths • HSS	Straight	C746113	824.71
60PC • #1 - #60 • HSS	Straight	C745807	1,229.37



REAMERS - CARBIDE

Technical Information

Carbide Reamers		
Material Guide	SFM	Feed (IPR)
INCONEL	20 - 60	.0010 - .0050
RENE	20 - 60	.0020 - .0060
TITANIUM	30 - 90	.0020 - .0080
WASPOLOY	20 - 60	.0020 - .0060
STAINLESS STEEL - 300 SERIES	20 - 80	.0040 - .0080
STAINLESS STEEL - 400 SERIES	30 - 120	.0050 - .0100
MAGNESIUM	100 - 250	.0050 - .0150
MONEL	40 - 120	.0040 - .0120
STEEL - CAST & FORGED	40 - 100	.0030 - .0100
STEEL - HEAT TREATED (35-40 RC)	40 - 70	.0040 - .0080
STEEL - HEAT TREATED (40-45 RC)	30 - 50	.0020 - .0060
STEEL - HEAT TREATED (45+ RC)	15 - 40	.0010 - .0040
STEEL - MEDIUM CARBON	50 - 100	.0050 - .0100
MOLD STEEL	40 - 120	.0040 - .0060
TOOL STEEL	30 - 90	.0040 - .0060
CAST IRON - SOFT	80 - 200	.0060 - .0150
CAST IRON - MEDIUM	60 - 150	.0060 - .0120
CAST IRON - HARD	40 - 90	.0040 - .0100
ALUMINUM / ALUMINUM ALLOYS	100 - 250	.0050 - .0150
ALUMINUM - HIGH SILICON	80 - 200	.0030 - .0120
BRASS	100 - 250	.0050 - .0150
BRONZE	90 - 175	.0030 - .0120
COPPER / COPPER ALLOYS	90 - 220	.0050 - .0150
EPOXY FIBER	100 - 250	.0050 - .0150
PLASTIC	100 - 300	.0050 - .0150
RESIN - FIBER GLASS	100 - 300	.0050 - .0150
MASONITE	60 - 150	.0050 - .0150
PHENOLIC	60 - 100	.0050 - .0150

REAMERS - COBALT & HIGH SPEED STEEL

Technical Information

Cobalt & High Speed Steel Reamers			
Material Guide	Hardness	SFM	IPR
STEEL - ALL TYPES	60 + Rc	8 - 12	-
	50 + Rc	-	.0020 - .0040
	30 - 50 Rc	-	.0040 - .0080
	50 - 60 Rc	15 - 30	-
	40 - 50 Rc	20 - 40	-
	30 - 40 Rc	35 - 65	-
	Less than 30 Rc	60 - 90	-
CAST IRON & MALLEABLE	-	50 - 85	.0050 - .0120
ALUMINUM, BRASS, BRONZE, COPPER	-	90 - 175	.0050 - .0120
FIBER, PLASTIC, HARD RUBBER, ETC.	-	90 - 175	.0050 - .0120

Recommended Stock Removal		
Material Guide	Reamer Diameter	Removal (In)
STEEL - ALL TYPES	Up to 1/16" incl.	.0030 - .0050
	Over 1/16" to 1/8" incl.	.0040 - .0080
	Over 1/8" to 1/4" incl.	.0060 - .0120
	Over 1/4" to 3/8" incl.	.0080 - .0140
	Over 3/8" to 1/2" incl.	.0100 - .0150
	Over 1/2" to 3/4" incl.	.0120 - .0180

Recommended Lubricants		
Material Guide	Hardness	Lubricants
STEEL - ALL TYPES	Steel harder than 50 Rc	Light Oil
	Steel softer than 50 Rc	Light Oil for good finished or Soluble Oil and Water
CAST IRON & MALLEABLE IRON	-	Soluble Oil and Water
NON-FERROUS MATERIALS	-	Soluble Oil and Water

TECHNICAL

Workpiece hardness and machinability must be considered when setting machine speed. The feed rate plays an important part in the life expectancy of a tool and the hole finish which one is looking to attain. Improper feed rate can cause excessive tool wear as well as an inadequate hole finish.

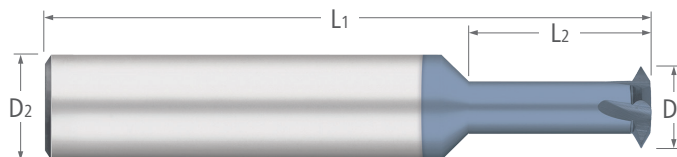
To eliminate chatter, slow cutting speed and increase feed appropriately. Stock removal roughing operations should not exceed 2 to 4 percent of tool diameter in most case. Stock removal recommendations on finishing operations .002" to .004".

For best results with brass, cast iron, and some plastics, use a Left-Hand Spiral-Fluted reamer with negative shear action. This type of reamer helps prevent chips from working back into the flutes and scoring the hole. In all reaming operations, use constant-flow coolants. Soluble oil is effective for most metals; however, sulfur-based oils are recommended for stainless and certain alloy steels, lard oil and kerosene improve the finish on aluminum.

THREAD MILLS - SINGLE-FORM

UN Threads

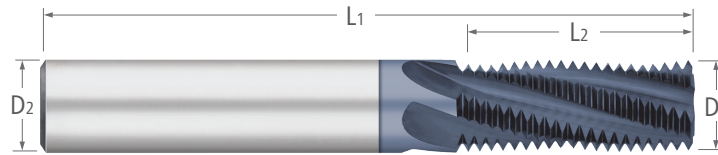
SINGLE-FORM



- Single thread form can mill multiple pitches
- Cuts internal and external UN threads
- Mills right and left hand threads
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

MIN. INTERNAL THREAD	THREAD RANGE	CUTTER DIA. $D_1^{+0.000}_{-0.002}$	NECK DIA.	LENGTH OF CUT	FLUTES	SHANK DIA. D_2	OAL L_1	UNCOATED		AlTiN COATED	
								TOOL #	PRICE	TOOL #	PRICE
#2	56-80	.064	.038	5/32	3	1/8	1-1/2	C775705	65.92	C775726	70.10
#3	48-72	.072	.040	5/32	3	1/8	1-1/2	C775706	65.92	C775727	70.10
#4	40-64	.080	.045	1/8	3	1/8	2	C775707	69.15	C775728	73.33
#4	40-64	.080	.045	1/4	3	1/8	2	C775708	69.15	C775729	73.33
#6	32-64	.098	.050	1/4	4	1/8	2	C775709	66.91	C775730	71.09
#6	32-64	.098	.050	3/8	4	1/8	2	C775710	69.55	C775731	73.73
#8	32-56	.120	.070	5/16	4	1/8	2	C775711	66.91	C775732	71.09
#8	32-56	.120	.070	1/2	4	1/8	2	C775712	69.55	C775733	73.73
#10	24-56	.138	.075	3/8	4	3/16	2	C775713	64.43	C775734	69.10
#10	24-56	.138	.075	5/8	4	3/16	2	C775714	67.51	C775735	72.19
#12	24-56	.160	.095	5/8	4	3/16	2	C775715	67.51	C775736	72.19
1/4	18-56	.180	.115	1/2	4	3/16	2	C775716	70.15	C775737	74.87
1/4	18-56	.180	.115	3/4	4	3/16	2	C775717	71.54	C775738	76.27
5/16	16-48	.240	.160	1/2	4	1/4	2-1/2	C775718	82.39	C775739	88.41
5/16	16-48	.240	.160	3/4	4	1/4	2-1/2	C775719	86.37	C775740	92.34
3/8	14-40	.300	.218	3/4	4	3/8	2-1/2	C775720	102.44	C775741	110.99
3/8	14-40	.300	.218	1	4	3/8	2-1/2	C775721	107.41	C775742	115.97
1/2	12-32	.388	.250	3/4	4	1/2	3	C775722	125.97	C775743	137.61
1/2	12-32	.388	.250	1-1/4	4	1/2	3	C775723	128.90	C775744	140.59
3/4	10-32	.495	.340	1	6	1/2	3	C775724	172.58	C775745	184.22
3/4	10-32	.495	.340	1-3/8	6	1/2	3	C775725	175.47	C775746	187.11

THREAD MILLS - MULTI-FORM UN Threads



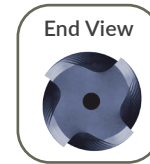
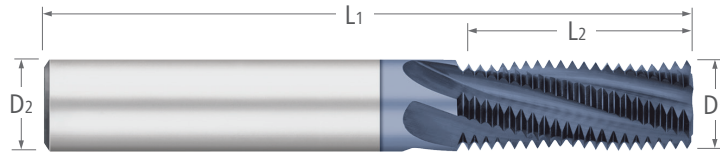
MULTI-FORM

- Cuts internal and external UN threads
- Mills right hand and left hand threads
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

THREAD SIZE	CUTTER DIAMETER $D_1^{+.0000}_{-.0020}$	THREAD LENGTH L ₂	FLUTES	SHANK DIAMETER D ₂	OAL L ₁	UNCOATED		AlTiN COATED	
						TOOL #	PRICE	TOOL #	PRICE
2-56	.065	.125	3	1/8	2	C774487	96.32	C771259	100.50
4-40	.085	.180	3	1/8	2	C774488	96.32	C771260	100.50
6-32	.100	.218	3	1/8	2	C774489	103.53	C748218	107.71
8-32	.115	.250	3	1/8	2	C774490	103.53	C748223	107.71
8-36	.115	.250	3	1/8	2	C774491	103.53	C748224	105.67
10-24	.120	.312	3	3/16	2	C774492	103.03	C748206	107.71
10-32	.120	.312	3	3/16	2	C774493	103.03	C748207	107.71
1/4-20	.180	.500	3	3/16	2-1/2	C774494	116.81	C748204	121.84
1/4-28	.180	.500	3	3/16	2-1/2	C774495	116.81	C748205	121.84
5/16-18	.240	.625	3	1/4	2-1/2	C774496	138.06	C748214	144.08
5/16-24	.240	.625	3	1/4	2-1/2	C774497	138.06	C748215	144.08
3/8-16	.290	.750	4	5/16	3	C774498	164.42	C748212	171.64
3/8-24	.290	.750	4	5/16	3	C774499	164.42	C748213	171.64
7/16-14	.340	.875	4	3/8	3	C774500	176.56	C748219	185.12
7/16-20	.340	.875	4	3/8	3	C773507	176.56	C748220	185.12
1/2-13	.350	.875	4	3/8	3-1/2	C773508	175.92	C748202	185.12
1/2-20	.350	.875	4	3/8	3-1/2	C773509	175.92	C748203	185.12
9/16-12	.370	.875	4	1/2	3-1/2	C773510	172.63	C748225	185.12
9/16-18	.370	.875	4	1/2	3-1/2	C773511	172.63	C748226	185.12
5/8-11	.470	1.250	5	1/2	3-1/2	C773512	218.95	C748216	231.44
5/8-18	.470	1.250	5	1/2	3-1/2	C773513	218.95	C748217	231.44
3/4-10	.495	1.250	5	1/2	3-1/2	C773514	218.95	C748210	231.44
3/4-16	.495	1.250	5	1/2	3-1/2	C773515	218.95	C748211	231.44
7/8-9	.620	1.250	5	5/8	3-1/2	C773516	275.12	C748222	289.59
7/8-14	.620	1.250	5	5/8	3-1/2	C773518	275.12	C748221	289.59
1-8	.620	1.375	5	3/4	4	C773519	272.38	C748209	289.59
1-12	.620	1.375	5	3/4	4	C773520	272.38	C748208	289.59

THREAD MILLS - MULTI-FORM

UN Threads - Coolant Through



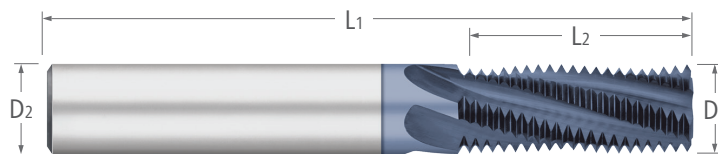
MULTI-FORM

- Cuts internal and external UN threads
- Mills right hand and left hand threads
- Coolant through design for maximum chip ejection in blind holes
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

THREAD SIZE	CUTTER DIA. $D_1^{+.000"}$ $-.002"$	THREAD LENGTH L_2	FLUTES	SHANK DIA. D_2	OAL L_1	UNCOATED		AlTiN COATED	
						TOOL #	PRICE	TOOL #	PRICE
10-32	.120	.312	3	3/16	2	C773521	120.30	C766492	125.02
1/4-20	.180	.500	3	3/16	2-1/2	C773522	127.56	C766493	132.58
1/4-28	.180	.500	3	3/16	2-1/2	C773523	127.56	C766494	130.05
5/16-18	.240	.625	3	1/4	2-1/2	C773524	157.36	C766495	163.33
5/16-24	.240	.625	3	1/4	2-1/2	C773525	158.11	C766496	164.13
3/8-16	.290	.750	4	5/16	3	C773526	196.06	C766497	203.28
3/8-24	.290	.750	4	5/16	3	C773527	196.06	C766498	203.28
7/16-14	.340	.875	4	3/8	3	C773529	227.01	C766499	235.62
7/16-20	.340	.875	4	3/8	3	C773530	228.10	C766500	236.71
1/2-13	.350	.875	4	3/8	3-1/2	C773531	235.17	C766501	244.37
1/2-20	.350	.875	4	3/8	3-1/2	C773532	235.17	C766502	244.37
3/4-10	.495	1.250	4	1/2	3-1/2	C773533	300.99	C766503	313.47
3/4-16	.495	1.250	4	1/2	3-1/2	C773534	300.99	C766504	313.47

THREAD MILLS - MULTI-FORM

NPT Pipe Threads



- Cuts internal and external National Pipe Taper (N.P.T.) threads
- Mills right hand and left hand threads
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

THREAD SIZE	CUTTER DIA. $D_1^{+.000"}$ $-.002"$	THREAD LENGTH L_2	FLUTES	SHANK DIA. D_2	OAL L_1	UNCOATED		AlTiN COATED	
						TOOL #	PRICE	TOOL #	PRICE
1/16-27	.245	.437	3	1/4	2-1/2	C773535	138.06	C748227	144.08
1/8-27	.310	.437	4	5/16	2-1/2	C773536	136.86	C748230	144.08
1/4-18	.370	.625	4	3/8	3	C773537	155.62	C748229	164.18
3/8-18	.370	.625	4	3/8	3	C773538	155.62	C748233	164.18
1/2-14	.495	.875	4	1/2	3-1/2	C773540	218.95	C748228	231.44
3/4-14	.495	.875	4	1/2	3-1/2	C773541	218.95	C748232	231.44
1-11-1/2	.620	1.125	5	3/4	4	C773542	272.38	C748231	289.59

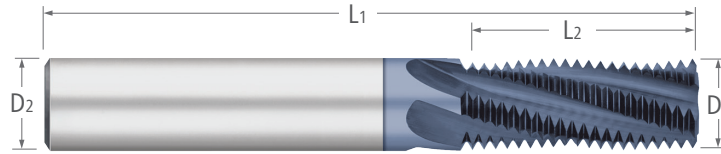
For technical information, see page 288

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



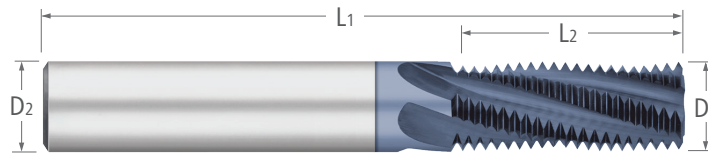
THREAD MILLS - MULTI-FORM NPTF Pipe Threads



- Cuts internal and external National Pipe Taper for Fuels (N.P.T.F.) threads
- Mills right hand and left hand threads
- Solid carbide
- Precision manufactured in the USA
- AlTiN coating offers increased wear and heat resistance

THREAD SIZE	CUTTER DIA.		THREAD LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
	D1 ^{+0.000"} _{-0.002"}	L2					D2	L1	TOOL #	PRICE
1/16-27	.245	.437	.437	3	1/4	2-1/2	C773543	138.06	C748234	144.08
1/8-27	.310	.437	.437	4	5/16	2-1/2	C773544	136.86	C748237	144.08
1/4-18	.370	.625	.625	4	3/8	3	C773545	155.62	C748236	164.18
3/8-18	.370	.625	.625	4	3/8	3	C773546	155.62	C748240	164.18
1/2-14	.495	.875	.875	4	1/2	3-1/2	C773547	218.95	C748235	230.14
3/4-14	.495	.875	.875	4	1/2	3-1/2	C773548	218.95	C748239	231.44
1-11-1/2	.620	1.125	1.125	5	3/4	4	C773549	272.38	C748238	289.59

THREAD MILLS - MULTI-FORM Metric Threads



- Cuts internal and external Metric threads
- Mills right hand and left hand threads
- AlTiN coating offers increased wear and heat resistance
- Solid carbide
- Precision manufactured in the USA

THREAD SIZE	CUTTER DIA.		THREAD LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
	D1 ^{+0.000"} _{-0.002"}	L2					D2	L1	TOOL #	PRICE
M4 x 0.70	.115	.250	.250	3	1/8	2	C773551	106.32	C748250	110.49
M4.5 x 0.75	.120	.250	.250	3	1/8	2	C773552	105.77	C748251	109.95
M5 x 0.80	.120	.312	.312	3	3/16	2	C773553	105.77	C748252	110.49
M6 x 1.00	.170	.500	.500	3	3/16	2-1/2	C773554	116.07	C748253	121.09
M8 x 0.75	.235	.625	.625	3	1/4	2-1/2	C773555	138.06	C748254	144.08
M8 x 1.00	.235	.625	.625	3	1/4	2-1/2	C773556	138.06	C748255	144.08
M8 x 1.25	.235	.625	.625	3	1/4	2-1/2	C773557	138.06	C748256	144.08
M10 x 1.25	.300	.750	.750	4	5/16	3	C773558	163.68	C748241	170.89
M10 x 1.50	.300	.750	.750	4	5/16	3	C773559	164.42	C748242	171.64
M12 x 1.00	.360	.875	.875	4	3/8	3-1/2	C773560	176.66	C748243	185.87
M12 x 1.25	.360	.875	.875	4	3/8	3-1/2	C773562	176.66	C748244	185.87
M12 x 1.75	.360	.875	.875	4	3/8	3-1/2	C773563	176.66	C748245	185.87
M14 x 1.50	.360	.875	.875	4	3/8	3-1/2	C773564	176.66	C748246	185.87
M16 x 2.00	.470	1.250	1.250	5	1/2	3-1/2	C773565	218.95	C748247	231.44
M18 x 2.50	.470	1.250	1.250	5	1/2	3-1/2	C773566	218.95	C748248	231.44
M20 x 3.00	.470	1.250	1.250	5	5/8	3-1/2	C773567	215.87	C748249	230.29

For technical information, see page 288

THREAD MILLS - CARBIDE

Technical Information

TECHNICAL

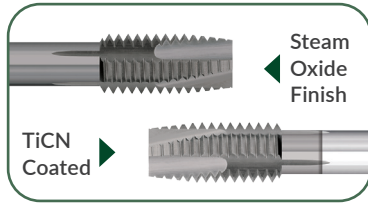
General Purpose Carbide Multi Form Thread Mills												
Material Guide		Rc	SFM	Feed Per Tooth								
				1/16	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4
COBALT BASE ALLOYS	Stellite, HS-21, Haynes 25/188, X-40, L-605	under 32 over 32	50 - 90	.00015	.0002	.0003	.0004	.0006	.0008	.0010	.0014	.0018
				.00025	.0005	.0005	.0006	.0009	.0015	.0020	.0028	.0030
NICKEL BASE ALLOYS	Inconel-625/718, Waspalloy, Rene, Hastelloy	under 32 over 32	60 - 100	.0002	.0003	.0005	.0008	.0010	.0015	.0015	.0020	.0025
				.0003	.0006	.0010	.0015	.0020	.0025	.0025	.0030	.0040
IRON BASE ALLOYS	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpeneter 22-b3	under 32 over 32	50 - 90	.00015	.0002	.0003	.0004	.0006	.0008	.0010	.0014	.0018
				.00025	.0005	.0005	.0006	.0009	.0015	.0020	.0028	.0030
TITANIUM ALLOYS	Commercially Pure, 6AL-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		80 - 150	.0002	.0003	.0005	.0008	.0010	.0015	.0015	.0025	.0030
				.0005	.0006	.0010	.0015	.0020	.0025	.0025	.0035	.0040
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17-4, AM-350/355	under 32 over 32	100 - 250	.00015	.00025	.0005	.0008	.0010	.0015	.0020	.0030	.0035
				.00025	.00055	.0010	.0015	.0020	.0025	.0030	.0040	.0050
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 316	under 32 over 32	100 - 250	.00015	.00025	.0005	.0008	.0010	.0015	.0020	.0030	.0035
				.00025	.00055	.0010	.0015	.0020	.0025	.0030	.0040	.0050
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	under 32 over 32	150 - 250	.0002	.0004	.0005	.0010	.0015	.0015	.0020	.0030	.0030
				.0003	.0008	.0010	.0015	.0020	.0030	.0035	.0040	.0040
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	under 32 over 32	250 - 400	.00015	.0003	.0005	.0008	.0010	.0015	.0020	.0030	.0035
				.0003	.0006	.0010	.0015	.0020	.0025	.0030	.0040	.0050
MEDIUM ALLOY STEELS	200, 250, 300	under 32 over 32	300 - 450	.0002	.0005	.0010	.0015	.0020	.0030	.0035	.0050	.0060
				.0004	.0010	.0015	.0025	.0030	.0045	.0055	.0070	.0080
CARBON STEELS	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	under 32 over 32	350 - 500	.0002	.0005	.0010	.0015	.0020	.0030	.0035	.0050	.0060
				.0004	.0010	.0015	.0025	.0030	.0045	.0055	.0070	.0080
DUCTILE	Ductile Cast Irons		200 - 300	.00025	.0003	.0005	.0008	.0010	.0015	.0020	.0030	.0030
				.00035	.0006	.0010	.0015	.0020	.0025	.0030	.0040	.0050
CAST IRONS	Gray Cast Irons		250 - 350	.00025	.0004	.0005	.0008	.0010	.0015	.0020	.0030	.0030
				.00035	.0008	.0010	.0015	.0020	.0025	.0030	.0040	.0050
MALLEABLE	A220, A436, A439, A602		200 - 300	.00025	.0003	.0005	.0008	.0010	.0015	.0020	.0030	.0030
				.00035	.0006	.0010	.0015	.0020	.0025	.0030	.0040	.0050
ALUMINUM	2014, 2024, 6061-(T1-T6), 7075, Die Cast, Extruded		800 - 1400	.0002	.0005	.0010	.0015	.0020	.0030	.0035	.0050	.0060
				.0004	.0010	.0015	.0025	.0030	.0045	.0055	.0070	.0100
HIGH SILICON			475 - 750	.00015	.00035	.00075	.0010	.0015	.0018	.0023	.0028	.0035
				.00022	.0004	.0008	.0020	.0025	.0028	.0030	.0031	.0050
MAGNESIUM			800 - 1400	.0003	.0005	.0010	.0015	.0020	.0030	.0035	.0050	.0060
				.0005	.0010	.0015	.0025	.0030	.0045	.0055	.0070	.0100
COPPER, COPPER ALLOYS			450 - 1000	.00025	.0003	.0005	.0008	.0010	.0015	.0020	.0030	.0035
				.00035	.0006	.0010	.0015	.0020	.0025	.0030	.0040	.0050
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze		550 - 800	.0002	.0005	.0010	.0015	.0020	.0030	.0035	.0050	.0060
				.0005	.0010	.0015	.0025	.0030	.0045	.0055	.0070	.0100
COMPOSITES	G-10 Fiberglass, Graphite, Graphite/Epoxy, Plastics		800 - 1400	.0003	.0005	.0010	.0015	.0020	.0030	.0035	.0050	.0060
				.0005	.0010	.0015	.0025	.0030	.0045	.0055	.0070	.0100



HIGH PERFORMANCE TAPS

Spiral Point - ANSI Threads

HIGH PERFORMANCE TAPS



- Best used for through hole tapping applications
- Optimized for steel, steel alloys, stainless steels, and a variety of other steels up to 32 Rc
- Taps are on blanks that meet ANSI specifications
- Steam Oxide finish provides decreased galling and increased lubricity in low carbon steels and gummy materials
- TiCN coating adds enhanced performance when AlTiN cannot be used
- AlTiN coating offers increased wear and heat resistance
- Premium powdered metal
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	UNCOATED		STEAM OXIDE		TiCN COATED		AlTiN COATED	
			TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
2-56	H2	2	C766586	22.59	C766585	23.28	C766611	26.37	C766587	26.91
4-40	H2	2	C743328	17.41	C751264	18.81	C766612	25.17	C748174	25.17
6-32	H3	2	C743323	17.41	C751265	18.81	C766613	25.17	C748179	25.17
8-32	H3	3	C743320	17.41	C751266	18.81	C766614	25.17	C748182	25.17
10-24	H3	3	C743334	17.41	C751267	19.10	C766615	25.17	C748168	25.17
10-32	H3	3	C743333	17.41	C751268	19.10	C766616	25.17	C748169	25.17
1/4-20	H3	3	C771275	19.15	C771261	21.04	C771359	27.51	C771289	27.51
1/4-20	H5	3	C743336	19.15	C751269	21.04	C766617	27.51	C748166	27.51
1/4-28	H3	3	C771276	19.15	C771262	21.04	C771360	27.51	C771290	27.51
1/4-28	H4	3	C743335	19.05	C751270	21.04	C766618	24.83	C748167	27.51
5/16-18	H3	3	C771277	20.94	C771263	23.13	C771361	30.10	C771291	30.10
5/16-18	H5	3	C743327	20.94	C751271	23.13	C766619	30.10	C748175	30.10
5/16-24	H3	3	C771278	20.94	C771264	23.13	C771362	27.71	C771292	30.10
5/16-24	H4	3	C743326	20.85	C751272	23.13	C766620	27.71	C748176	30.10
3/8-16	H3	3	C771279	24.88	C771265	27.41	C771363	35.77	C771293	35.77
3/8-16	H5	3	C743330	24.88	C751273	27.41	C766621	35.77	C748172	35.77
3/8-24	H3	3	C771280	24.88	C771266	27.41	C771364	35.77	C771294	35.77
3/8-24	H4	3	C743329	24.78	C751274	27.41	C766622	35.77	C748173	34.78
7/16-14	H3	3	C771281	31.69	C771267	34.28	C771365	39.10	C771295	40.94
7/16-14	H5	3	C743322	31.84	C751275	34.87	C766623	45.82	C748180	41.04
7/16-20	H3	3	C771282	31.69	C771268	34.73	C771366	45.82	C771296	40.94
7/16-20	H5	3	C743321	31.69	C751276	34.73	C766624	45.82	C748181	40.94
1/2-13	H3	3	C771283	37.86	C771269	41.04	C771367	54.73	C771297	54.73
1/2-13	H5	3	C743338	37.86	C751277	41.04	C766625	45.22	C748164	54.73
1/2-20	H3	3	C771284	37.86	C771270	41.04	C771368	54.73	C771298	54.73
1/2-20	H5	3	C743337	37.86	C751278	41.04	C766626	54.73	C748165	54.73
5/8-11	H3	4	C771285	72.14	C771271	77.96	C771369	104.23	C771299	104.23
5/8-11	H6	4	C743325	72.14	C751279	75.92	C766627	104.23	C748177	104.23
5/8-18	H3	4	C771286	72.44	C771272	76.22	C771370	82.44	C771300	84.92
5/8-18	H5	4	C743324	72.14	C751280	75.92	C766628	82.14	C748178	84.67
3/4-10	H3	4	C771288	93.28	C771274	98.51	C771372	105.77	C771302	134.72
3/4-10	H6	4	C743332	93.28	C751281	98.51	C766629	105.77	C748170	134.72
3/4-16	H3	4	C771287	93.28	C771273	98.51	C771371	105.77	C771301	108.90
3/4-16	H5	4	C743331	93.73	C751282	98.95	C766630	106.17	C748171	109.30

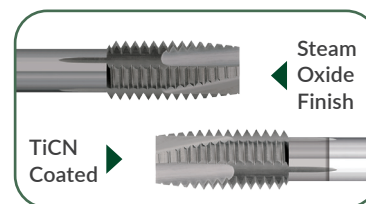
All taps sold individually
 Sizes 3/8" and smaller have male center

For technical information, see pages 330



HIGH PERFORMANCE TAPS

Spiral Point - Metric Threads

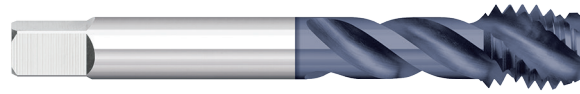
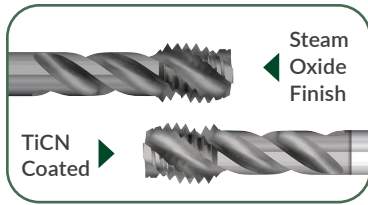


- Best used for through hole tapping applications
- Optimized for steel, steel alloys, stainless steels, and a variety of other steels up to 32 Rc
- Taps are on blanks that meet ANSI specifications
- Steam Oxide finish provides decreased galling and increased lubricity in low carbon steels and gummy materials
- TiCN coating adds enhanced performance when AlTiN cannot be used
- AlTiN coating offers increased wear and heat resistance
- Premium powdered metal
- Precision Manufactured in the USA

SIZE	D LIMIT	FLUTES	UNCOATED		STEAM OXIDE		TiCN COATED		AlTiN COATED	
			TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
M2.5 x 0.45	D3	2	C766631	19.90	C766633	21.34	C766654	27.86	C766635	27.86
M3 x 0.5	D3	2	C751302	19.90	C751309	21.34	C766655	27.86	C751316	27.86
M3.5 x 0.6	D3	3	C771373	19.80	C771382	20.55	C771436	27.86	C771391	27.86
M3.5 x 0.6	D4	3	C766632	19.80	C766634	21.34	C766656	23.58	C766636	24.53
M4 x 0.7	D3	3	C771374	19.90	C771383	21.34	C771437	27.86	C771392	27.86
M4 x 0.7	D4	3	C751303	19.90	C751310	21.34	C766657	23.83	C751317	27.86
M5 x 0.8	D3	3	C771375	19.80	C771384	21.44	C771438	27.86	C771393	27.86
M5 x 0.8	D4	3	C751304	19.90	C751311	21.54	C766658	24.63	C751318	27.86
M6 x 1.0	D3	3	C771376	21.74	C771385	23.78	C771439	30.60	C771394	30.60
M6 x 1.0	D5	3	C751305	21.74	C751312	23.78	C766659	30.60	C751319	30.60
M8 x 1.25	D3	3	C771377	23.63	C771386	26.02	C771440	33.33	C771395	33.33
M8 x 1.25	D5	3	C751306	23.63	C751313	26.02	C766660	33.33	C751320	33.33
M10 x 1.5	D3	3	C771378	28.06	C771387	30.70	C771441	39.20	C771396	39.20
M10 x 1.5	D6	3	C751307	28.06	C751314	30.85	C766661	39.20	C751321	39.20
M12 x 1.75	D3	3	C771379	43.03	C771388	46.47	C771442	60.45	C771397	60.45
M12 x 1.75	D6	3	C751308	43.03	C751315	46.47	C766662	60.45	C751322	60.45
M14 x 2.0	D3	3	C771380	65.62	C771389	69.00	C771443	74.18	C771398	76.32
M14 x 2.0	D7	3	C762500	65.62	C762502	69.00	C766663	74.18	C762504	83.13
M16 x 2.0	D3	3	C771381	77.06	C771390	80.84	C771444	87.06	C771399	89.60
M16 x 2.0	D7	3	C762501	77.06	C762503	83.23	C766664	87.06	C762505	97.61

All taps sold individually
 Sizes 3/8" and smaller have male center

HIGH PERFORMANCE TAPS Spiral Flute Semi-Bottoming - ANSI Threads



- Best used for blind hole tapping applications
- Features a 2 – 2½ thread chamfer
- Semi-bottoming 45° helix
- Optimized for steel, steel alloys, stainless steels, and a variety of other steels up to 32 Rc
- Taps are on blanks that meet ANSI specifications
- Steam Oxide finish provides decreased galling and increased lubricity in low carbon steels and gummy materials
- TiCN coating adds enhanced performance when AlTiN cannot be used
- AlTiN coating offers increased wear and heat resistance
- High vanadium powdered metal
- Precision Manufactured in the USA

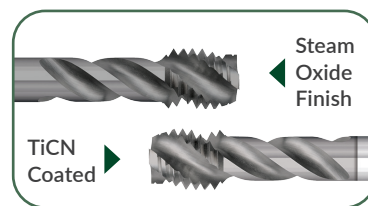
SIZE	H LIMIT	FLUTES	UNCOATED		STEAM OXIDE		TiCN COATED		AlTiN COATED	
			TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
2-56	H2	2	C766588	27.21	C766590	29.10	C766591	30.99	C766589	38.90
4-40	H2	3	C743309	27.21	C751283	29.10	C766592	38.90	C748193	38.90
6-32	H3	3	C743304	27.21	C751284	29.10	C766593	38.90	C748198	38.90
8-32	H3	3	C743301	27.21	C751285	29.10	C766594	38.90	C748201	38.90
10-24	H3	3	C743315	27.21	C751286	29.10	C766595	32.04	C748187	38.90
10-32	H3	3	C743314	27.21	C751287	29.10	C766596	38.90	C748188	38.90
1/4-20	H3	3	C771303	27.91	C771331	30.00	C771345	40.15	C771317	40.15
1/4-20	H5	3	C743317	27.91	C751288	30.00	C766597	40.15	C748185	40.15
1/4-28	H3	3	C771304	27.91	C771332	30.00	C771346	40.15	C771318	40.15
1/4-28	H4	3	C743316	27.91	C751289	30.00	C766598	32.39	C748186	40.15
5/16-18	H3	3	C771305	30.70	C771333	32.98	C771347	43.93	C771319	43.93
5/16-18	H5	3	C743308	30.70	C751290	32.98	C766599	43.93	C748194	43.93
5/16-24	H3	3	C771306	30.60	C771334	32.88	C771348	43.93	C771320	43.93
5/16-24	H4	3	C743307	30.60	C751291	32.88	C766600	43.93	C748195	39.15
3/8-16	H3	3	C771307	36.17	C771335	38.90	C771349	52.09	C771321	52.09
3/8-16	H5	3	C743311	36.17	C751292	38.90	C766601	52.09	C748191	52.09
3/8-24	H3	3	C771308	36.17	C771336	38.90	C771350	44.18	C771322	52.09
3/8-24	H4	3	C743310	36.17	C751293	38.81	C766602	52.09	C748192	52.09
7/16-14	H3	3	C771309	46.02	C771337	49.25	C771351	53.38	C771323	65.87
7/16-14	H5	3	C743303	46.02	C751294	49.25	C766603	53.38	C748199	55.22
7/16-20	H3	3	C771310	46.02	C771338	49.05	C771352	65.87	C771324	55.22
7/16-20	H5	3	C743302	46.02	C751295	49.25	C766604	65.87	C748200	55.22
1/2-13	H3	3	C771311	54.33	C771339	58.41	C771353	78.16	C771325	78.16
1/2-13	H5	3	C743319	54.33	C751296	58.41	C766605	78.16	C748183	78.16
1/2-20	H3	3	C771312	54.33	C771340	57.36	C771354	78.16	C771326	63.53
1/2-20	H5	3	C743318	54.33	C751297	58.41	C766606	78.16	C748184	78.16
5/8-11	H3	3	C771313	104.28	C771341	108.01	C771355	149.25	C771327	149.25
5/8-11	H6	3	C743306	103.78	C751298	111.59	C766607	149.25	C748196	116.27
5/8-18	H3	3	C771314	104.28	C771342	108.01	C771356	114.23	C771328	116.76
5/8-18	H5	3	C743305	103.78	C751299	111.59	C766608	109.55	C748197	116.27
3/4-10	H3	4	C771315	121.29	C771343	130.39	C771357	133.73	C771329	174.47
3/4-10	H6	4	C743313	121.89	C751300	130.39	C766609	174.47	C748189	137.46
3/4-16	H3	4	C771316	121.29	C771344	126.51	C771358	133.73	C771330	136.86
3/4-16	H5	4	C743312	121.29	C751301	130.39	C766610	133.73	C748190	136.86

All taps sold individually
 Sizes 3/8" and smaller have male center

For technical information, see pages 330

HIGH PERFORMANCE TAPS

Spiral Flute Semi-Bottoming - Metric Threads



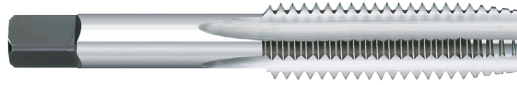
- Best used for blind hole tapping applications
- Features a 2 – 2½ thread chamfer
- Semi-bottoming 45° helix
- Optimized for steel, steel alloys, stainless steels, and a variety of other steels up to 32 Rc
- Taps are on blanks that meet ANSI specifications
- Steam Oxide finish provides decreased galling and increased lubricity in low carbon steels and gummy materials
- TiCN coating adds enhanced performance when AlTiN cannot be used
- AlTiN coating offers increased wear and heat resistance
- High vanadium powdered metal
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	UNCOATED		STEAM OXIDE		TiCN COATED		AlTiN COATED	
			TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
M2.5 x 0.45	D3	2	C766637	30.89	C766639	31.64	C766643	42.39	C766641	42.39
M3 x 0.5	D3	2	C751323	30.89	C751330	33.03	C766644	42.39	C751337	42.39
M3.5 x 0.6	D3	3	C771400	30.75	C771409	31.49	C771427	34.53	C771418	35.47
M3.5 x 0.6	D4	3	C766638	30.75	C766640	31.49	C766645	34.53	C766642	35.47
M4 x 0.7	D3	3	C771401	30.89	C771410	33.03	C771428	42.39	C771419	42.39
M4 x 0.7	D4	3	C751324	30.89	C751331	33.03	C766646	42.39	C751338	42.39
M5 x 0.8	D3	3	C771402	30.89	C771411	33.03	C771429	42.39	C771420	42.39
M5 x 0.8	D4	3	C751325	30.89	C751332	33.03	C766647	35.72	C751339	42.39
M6 x 1.0	D3	3	C771403	31.64	C771412	34.03	C771430	43.93	C771421	43.93
M6 x 1.0	D5	3	C751326	31.64	C751333	34.03	C766648	43.93	C751340	43.93
M8 x 1.25	D3	3	C771404	34.92	C771413	37.36	C771431	48.66	C771422	48.66
M8 x 1.25	D5	3	C751327	34.92	C751334	37.36	C766649	41.74	C751341	48.66
M10 x 1.5	D3	3	C771405	41.09	C771414	44.18	C771432	57.31	C771423	57.31
M10 x 1.5	D6	3	C751328	41.09	C751335	44.18	C766650	57.31	C751342	51.04
M12 x 1.75	D3	3	C771406	61.64	C771415	66.27	C771433	86.32	C771424	70.84
M12 x 1.75	D6	3	C751329	61.64	C751336	64.68	C766651	69.00	C751343	86.32
M14 x 2.0	D3	3	C771407	87.36	C771416	90.79	C771434	95.92	C771425	98.06
M14 x 2.0	D7	3	C762506	87.36	C762508	93.98	C766652	95.92	C762510	98.06
M16 x 2.0	D3	3	C771408	102.73	C771417	109.90	C771435	112.68	C771426	115.22
M16 x 2.0	D7	3	C762507	102.24	C762509	106.02	C766653	112.24	C762511	129.05

All taps sold individually
 Sizes 3/8" and smaller have male center

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Hand Taps



- For optimal results, use a Taper Tap for an initial pass, prior to using a Plug or Bottom Tap to finish the thread
- Taps are on blanks that meet ANSI specifications
- High speed steel
- Precision Manufactured in the USA

GENERAL PURPOSE TAPS

SIZE	H LIMIT	FLUTES	TAPER	PLUG	BOTTOM	PRICE
0-80*	H1	2	C744154	C744156	C744157	11.29
0-80	H2	2		C744152	C744153	11.29
1-64	H1	2		C743978	C743979	10.45
1-72*	H1	2	C743971	C743973	C743974	10.45
1-72	H2	2		C743969	C743970	10.45
2-56	H1	3	C743959	C743961	C743962	9.65
2-56	H2	2		C743957	C743958	9.65
2-56*	H2	3	C743953	C743955	C743956	8.96
2-64	H2	3	C743949	C743951	C743952	9.65
3-48	H2	2		C743900		7.86
3-48*	H2	3	C743896	C743898	C743899	6.92
3-56	H2	3	C743892	C743894	C743895	7.76
4-40	H1	2		C743887		6.37
4-40	H1	3	C743883	C743885	C743886	6.12
4-40	H2	2		C743881	C743882	6.12
4-40*	H2	3	C743877	C743879	C743880	5.67
4-48	H2	3	C743872	C743874	C743875	6.12
4-36	H2	3		C743890		6.12
5-40	H1	3		C743821	C743822	6.12
5-40	H2	2		C743819	C743820	6.12
5-40*	H2	3	C743815	C743817	C743818	5.67
5-44	H2	3	C743810	C743812	C743813	6.12
6-32	H1	3	C743805	C743807	C743808	5.37
6-32	H2	2		C743803	C743804	5.37
6-32*	H2	3	C743799	C743801	C743802	4.58
6-32	H3	2		C743797	C743798	4.58
6-32	H3	3	C743793	C743795	C743796	4.38
6-32	H7	3		C743791	C743792	5.37
6-40	H2	2		C743789		5.37
6-40*	H2	3	C743785	C743787	C743788	4.58
8-32	H1	3		C743748	C743749	5.37
8-32	H1	4	C743744	C743746	C743747	5.37
8-32	H2	2		C743742	C743743	5.37
8-32	H2	3		C743740	C743741	5.37
8-32	H2	4	C743736	C743738	C743739	4.58
8-32	H3	2		C743734	C743735	4.58
8-32	H3	3		C743732	C743733	4.58
8-32*	H3	4	C743728	C743730	C743731	4.43
8-32	H7	3		C743726	C743727	5.37
8-36	H1	4		C743723		5.37
8-36*	H2	4	C743719	C743721	C743722	4.58
10-24	H1	3		C744091		5.37
10-24	H1	4	C744087	C744089	C744090	4.73
10-24	H2	2		C744085	C744086	5.37
10-24	H2	3		C744084		5.37

* Most Popular Size When Multiple Options Are Available

continued on next page

All taps sold individually

For technical information, see pages 331 - 335

Exclusively distributed by BlackHawk Industrial



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Hand Taps (Cont.)

continued from previous page

SIZE	H LIMIT	FLUTES	TAPER	PLUG	BOTTOM	PRICE
10-24	H2	4	C744080	C744082	C744083	4.73
10-24	H3	2		C744078	C744079	4.73
10-24	H3	3		C744076	C744077	4.73
10-24*	H3	4	C744072	C744074	C744075	4.58
10-24	H7	3		C744070	C744071	5.37
10-24	H7	4		C744068	C744069	5.37
10-32	H1	2		C744066	C744067	5.37
10-32	H1	3		C744065		5.37
10-32	H1	4	C744061	C744063	C744064	4.73
10-32	H2	2		C744059	C744060	5.37
10-32	H2	3		C744057	C744058	5.37
10-32	H2	4	C744053	C744055	C744056	4.73
10-32	H3	2		C744051	C744052	4.73
10-32	H3	3		C744049	C744050	4.73
10-32*	H3	4	C744045	C744047	C744048	4.58
12-24	H3	4	C743993	C743995	C743996	4.88
12-28	H3	4	C743988	C743990	C743991	5.37
1/4-20	H1	3		C744127		6.22
1/4-20	H1	4	C744123	C744125	C744126	6.22
1/4-20	H2	3		C744122		6.22
1/4-20	H2	4	C744118	C744120	C744121	5.92
1/4-20	H3	2		C744116	C744117	6.22
1/4-20	H3	3		C744114	C744115	5.92
1/4-20*	H3	4	C744110	C744112	C735189	4.98
1/4-20	H5	3		C744108	C744109	6.22
1/4-20	H5	4		C744106	C744107	5.92
1/4-28	H1	4		C744104	C744105	5.92
1/4-28	H2	4		C744102	C744103	6.22
1/4-28	H3	2		C744100	C744101	6.22
1/4-28	H3	3		C744098	C744099	6.22
1/4-28*	H3	4	C744094	C744096	C744097	4.98
1/4-28	H4	4		C744092	C744093	6.22
5/16-18	H1	4	C743869	C743870	C743871	6.87
5/16-18	H2	4	C743865	C743867	C743868	6.87
5/16-18	H3	2		C743863	C743864	7.76
5/16-18	H3	3		C743861	C743862	6.87
5/16-18*	H3	4	C743857	C743859	C743860	6.12
5/16-18	H5	3		C743855	C743856	7.76
5/16-18	H5	4		C743853	C743854	6.87
5/16-24	H1	4		C743851	C743852	6.87
5/16-24	H2	4		C743848		6.87
5/16-24	H3	3		C743846	C743847	6.87
5/16-24*	H3	4	C743842	C743844	C743845	6.12
5/16-24	H4	4		C743840	C743841	6.87
3/8-16	H1	3		C743932		8.86
3/8-16	H2	4	C743926	C743928	C743929	7.76
3/8-16	H3	3		C743924	C743925	7.76
3/8-16*	H3	4	C743920	C743922	C743923	6.92
3/8-16	H5	3		C743918	C743919	8.86
3/8-16	H5	4		C743916	C743917	7.76
3/8-24	H3	3		C743909	C743910	8.86
3/8-24*	H3	4	C743905	C743907	C743908	6.92
3/8-24	H4	4		C743903	C743904	7.76
7/16-14	H2	4		C743781	C743782	13.08

* Most Popular Size When Multiple Options Are Available

continued on next page



GENERAL PURPOSE TAPS - HIGH SPEED STEEL
Hand Taps (Cont.)

continued from previous page

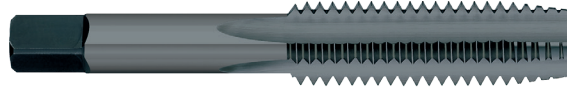
SIZE	H LIMIT	FLUTES	TAPER	PLUG	BOTTOM	PRICE
7/16-14	H3	3		C743780		13.08
7/16-14*	H3	4	C743776	C743778	C743779	11.94
7/16-14	H5	4		C743774	C743775	13.08
7/16-20	H2	4		C743770	C743771	13.08
7/16-20	H3	3		C743769		13.08
7/16-20*	H3	4	C743765	C743767	C743768	11.94
7/16-20	H5	4		C743763	C743764	13.08
1/2-13	H1	4		C744150	C744151	15.17
1/2-13	H2	4		C744148	C744149	15.17
1/2-13	H3	3		C744146	C744147	15.17
1/2-13*	H3	4	C744142	C744144	C744145	12.34
1/2-13	H5	4		C744140	C744141	15.52
1/2-20	H1	4	C744137	C744138	C744139	15.17
1/2-20	H3	3		C744134		15.17
1/2-20*	H3	4	C744130	C744132	C744133	14.03
1/2-20	H5	4		C744128	C744129	15.17
9/16-12	H2	4		C743718		22.59
9/16-12*	H3	4	C743714	C743716	C743717	20.85
9/16-12	H5	4		C743712	C743713	22.59
9/16-18	H2	4		C743711		22.59
9/16-18*	H3	4	C743707	C743709	C743710	20.85
9/16-18	H5	4		C743705	C743706	22.59
5/8-11*	H3	4	C743834	C743836	C743837	24.97
5/8-11	H5	4		C743832	C743833	28.61
5/8-18	H2	4		C743829	C743830	28.61
5/8-18*	H3	4	C743825	C743827	C743828	24.97
11/16-11	H3	4	C744037	C744039	C744040	30.99
11/16-16	H3	4	C744033	C744035	C744036	30.99
3/4-10	H2	4		C743947		37.61
3/4-10*	H3	4	C743943	C743945	C743946	34.83
3/4-10	H5	4		C743941	C743942	37.61
3/4-16	H2	4		C743939		37.61
3/4-16*	H3	4	C743935	C743937	C743938	34.83
3/4-16	H5	4		C743933	C743934	37.61
7/8-9*	H4	4	C743752	C743754	C743755	48.51
7/8-9	H6	4		C743751		51.19
7/8-14	H2	4		C743762		51.19
7/8-14*	H4	4	C743758	C743760	C743761	48.51
7/8-14	H6	4		C743757		51.19
1-8	H2	4		C743968		66.76
1-8*	H4	4	C743964	C743966	C743967	64.48
1-8	H6	4		C743963		66.76
1-12	H4	4	C744005	C744007	C744008	64.48
1-14	H2	4		C744004		66.76
1-14*	H4	4	C744000	C744002	C744003	64.48
1-14	H6	4	C743997	C743998	C743999	66.76
1-1/8-7	H4	4	C744011	C744012	C744013	104.38
1-1/8-12	H4	4	C744014	C744015	C744016	110.54
1-1/4-7	H4	4	C744019	C744020	C744021	137.01
1-1/4-12	H4	6	C744022	C744023	C744024	139.40
1-3/8-6	H4	4	C743982	C743983	C743984	172.98
1-3/8-12	H4	6	C743985	C743986	C743987	174.17
1-1/2-6	H4	4	C744027	C744028	C744029	199.75
1-1/2-12	H4	6	C744030	C744031	C744032	202.43

* Most Popular Size When Multiple Options Are Available

For technical information, see pages 331 - 335

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Hand Taps - Steam Oxide Finish



- For optimal results, use a Taper Tap for an initial pass, prior to using a Plug or Bottom Tap to finish the thread
- Taps are on blanks that meet ANSI specifications
- Steam Oxide finish provides decreased galling and increased lubricity in low carbon steels and gummy materials
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	TAPER	PLUG	BOTTOM	PRICE
0-80	H1	2	C750836	C750837	C750838	12.09
2-56	H2	3	C750842	C750843	C750844	9.70
3-48	H2	3	C750848	C750849	C750850	7.66
4-40	H2	3	C750851	C750853	C750855	6.42
4-48	H2	3	C750856	C750858	C750860	6.87
5-40	H2	3	C750866	C750868	C750870	6.42
6-32	H2	3	C750876	C750878	C750880	5.32
6-40	H2	3	C750881	C750883	C750885	5.32
8-32	H3	4	C750886	C750888	C750890	5.22
8-36	H2	4	C750891	C750893	C750895	5.42
10-24	H3	4	C750896	C750898	C750900	5.42
10-32	H3	4	C750901	C750903	C750905	5.42
12-24	H3	4	C750906	C750908	C750910	5.72
12-28	H3	4	C750911	C750913	C750915	6.32
1/4-20	H3	4	C750916	C750918	C750920	5.82
1/4-28	H3	4	C750921	C750923	C750925	5.82
5/16-18	H3	4	C750926	C750928	C750930	7.16
5/16-24	H3	4	C750931	C750933	C750935	7.16
3/8-16	H3	4	C750936	C750938	C750940	8.06
3/8-24	H3	4	C750941	C750943	C750945	8.06
7/16-14	H3	4	C750946	C750948	C750950	13.93
7/16-20	H3	4	C750951	C750953	C750955	13.93
1/2-13	H3	4	C750956	C750958	C750960	14.48
1/2-20	H3	4	C750961	C750963	C750965	16.37
9/16-12	H3	4	C750966	C750968	C750970	24.23
9/16-18	H3	4	C750971	C750973	C750975	24.23
5/8-11	H3	4	C750976	C750978	C750980	28.76
5/8-18	H3	4	C750981	C750983	C750985	28.76
3/4-10	H3	4	C750996	C750998	C751000	40.05
3/4-16	H3	4	C751001	C751003	C751005	40.05
7/8-9	H4	4	C751006	C751008	C751010	54.58
7/8-14	H4	4	C751011	C751013	C751015	54.58
1-8	H4	4	C751016	C751018	C751020	72.73
1-12	H4	4	C751021	C751023	C751025	72.73
1-14	H4	4	C751026	C751028	C751030	72.73
1-1/8-7	H4	4	C751031	C751033	C751035	113.73
1-1/8-12	H4	4	C751036	C751038	C751040	119.90
1-1/4-7	H4	4	C751041	C751043	C751045	148.65
1-1/4-12	H4	6	C751046	C751048	C751050	151.04
1-3/8-6	H4	4	C751051	C751053	C751055	185.97
1-3/8-12	H4	6	C751056	C751058	C751060	187.21
1-1/2-6	H4	4	C751061	C751063	C751065	213.68
1-1/2-12	H4	6	C751066	C751068	C751070	217.66

* Most Popular Size When Multiple Options Are Available

All taps sold individually

For technical information, see pages 331 - 335

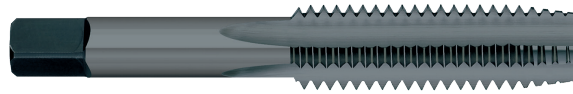
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Hand Taps - Nitride & Steam Oxide Finish


GENERAL PURPOSE TAPS

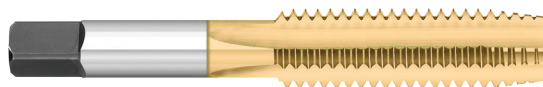
- Optimized for all types of gray, ductile, and malleable cast iron ferrous materials.
- Taps are on blanks that meet ANSI specifications
- Nitride & Steam Oxide finish provides increased surface hardness and retains liquid lubricant at cutting edge, preventing chip welding and reducing friction
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	PLUG	BOTTOM	PRICE
4-40	H2	3	C750852	C750854	6.62
6-32	H2	3	C750877	C750879	5.42
6-40	H2	3	C750882	C750884	5.42
8-32	H3	4	C750887	C750889	5.22
10-24	H3	4	C750897	C750899	5.42
10-32	H3	4	C750902	C750904	5.42
1/4-20	H3	4	C750917	C750919	5.82
1/4-28	H3	4	C750922	C750924	5.82
5/16-18	H3	4	C750927	C750929	7.16
3/8-16	H3	4	C750937	C750939	8.06
3/8-24	H3	4	C750942	C750944	8.06
7/16-14	H3	4	C750947	C750949	13.93
7/16-20	H3	4	C750952	C750954	13.58
1/2-13	H3	4	C750957	C750959	14.48
1/2-20	H3	4	C750962	C750964	16.37
9/16-12	H3	4	C750967	C750969	24.28
9/16-18	H3	4	C750972	C750974	24.28
5/8-11	H3	4	C750977	C750979	29.15
5/8-18	H3	4	C750982	C750984	29.15
3/4-10	H3	4	C750997	C750999	40.80
3/4-16	H3	4	C751002	C751004	40.80
7/8-9	H4	4	C751007	C751009	55.57
7/8-14	H4	4	C751012	C751014	55.57
1-8	H4	4	C751017	C751019	73.88
1-1/8-7	H4	4	C751032	C751034	114.72
1-1/4-7	H4	4	C751042	C751044	150.15
1-1/4-12	H4	6	C751047	C751049	152.53
1-1/2-6	H4	4	C751062	C751064	214.32
1-1/2-12	H4	6	C751067	C751069	217.66

All taps sold individually

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Hand Taps - TiN Coated



- For optimal results, use a Taper Tap for an initial pass, prior to using a Plug or Bottom Tap to finish the thread
- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	TAPER	PLUG	BOTTOM	PRICE
0 - 80	H1	2	C763895	C763919	C763943	18.86
2 - 56	H2	3	C763896	C763920	C763944	15.12
4 - 40	H2	3	C763897	C763921	C763945	9.55
5 - 40	H2	3	C763898	C763922	C763946	9.55
6 - 32	H3	3	C763899	C763923	C763947	7.76
8 - 32	H3	4	C763900	C763924	C763948	8.01
10 - 24	H3	4	C763901	C763925	C763949	8.46
10 - 32	H3	4	C763902	C763926	C763950	8.46
12 - 24	H3	4	C763903	C763927	C763951	8.96
12 - 28	H3	4	C763904	C763928	C763952	9.70
1/4 - 20	H3	4	C763905	C763929	C763953	9.10
1/4 - 28	H3	4	C763906	C763930	C763954	9.10
5/16 - 18	H3	4	C763907	C763931	C763955	11.24
5/16 - 24	H3	4	C763908	C763932	C763956	11.24
3/8 - 16	H3	4	C763909	C763933	C763957	12.69
3/8 - 24	H3	4	C763910	C763934	C763958	12.69
7/16 - 14	H3	4	C763911	C763935	C763959	19.95
7/16 - 20	H3	4	C763912	C763936	C763960	19.95
1/2 - 13	H3	4	C763913	C763937	C763961	20.80
1/2 - 20	H3	4	C763914	C763938	C763962	23.48
9/16 - 18	H3	4	C765808	C765810	C765812	31.99
5/8 - 11	H3	4	C763915	C763939	C763963	41.94
5/8 - 18	H3	4	C763916	C763940	C763964	41.94
3/4 - 10	H3	4	C763917	C763941	C763965	58.61
3/4 - 16	H3	4	C763918	C763942	C763966	58.61
1 - 8	H4	4	C765809	C765811	C765813	99.50

All taps sold individually

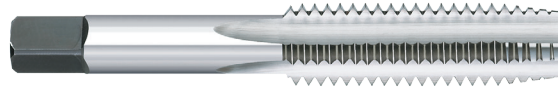
For technical information, see pages 331 - 335

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Hand Taps - Metric - Uncoated



GENERAL PURPOSE TAPS

- For optimal results, use a Taper Tap for an initial pass, prior to using a Plug or Bottom Tap to finish the thread
- Taps are on blanks that meet ANSI specifications
- High speed steel
- Precision Manufactured in the USA

SIZE	D LIMIT	FLUTES	TAPER	PLUG	BOTTOM	PRICE
M1.6 x 0.35	D3	2		C743525		14.97
M2 x 0.4	D3	3	C743492	C743493	C743494	14.97
M2.5 x 0.45	D3	3		C743491		9.30
M3 x 0.5	D3	3	C743479	C743480	C743481	7.71
M3.5 x 0.6	D4	3		C743478		6.37
M4 x 0.7	D4	4	C743466	C743467	C743468	6.37
M4.5 x 0.75	D4	4		C743465		6.37
M5 x 0.8	D4	4	C743462	C743463	C743464	6.37
M6 x 1.0	D5	4	C743459	C743460	C743461	6.72
M7 x 1.0	D5	4	C743456	C743457	C743458	6.72
M8 x 1.25	D5	4	C743453	C743454	C743455	6.72
M10 x 1.25	D5	4	C743522	C743523	C743524	13.78
M10 x 1.50	D6	4	C743519	C743520	C743521	13.78
M12 x 1.25	D5	4	C743516	C743517	C743518	16.22
M12 x 1.75	D6	4	C743513	C743514	C743515	16.22
M14 x 1.5	D6	4	C743510	C743511	C743512	24.13
M14 x 2.0	D7	4	C743507	C743508	C743509	24.13
M16 x 1.5	D6	4	C743504	C743505	C743506	29.40
M16 x 2.0	D7	4	C743501	C743502	C743503	29.40
M18 x 1.5	D6	4	C743497	C743498	C743499	39.80
M18 x 2.5	D7	4	C743495	C743496	C743500	39.80
M20 x 2.5	D7	4	C743488	C743489	C743490	51.24
M24 x 3.0	D8	4	C743485	C743486	C743487	75.42
M27 x 3.0	D8	4	C743482	C743483	C743484	130.25
M30 x 3.5	D9	4	C743475	C743476	C743477	165.57
M33 x 3.5	D9	4	C743472	C743473	C743474	165.97
M36 x 4.0	D9	4	C743469	C743470	C743471	210.39

All taps sold individually

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Hand Taps - Metric - TiN Coated



- For optimal results, use a Taper Tap for an initial pass, prior to using a Plug or Bottom Tap to finish the thread
- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	D LIMIT	FLUTES	TAPER	PLUG	BOTTOM	PRICE
M1.6 x 0.35	D3	2		C764014		25.27
M2 x 0.4	D3	3	C763991	C764015	C764041	25.27
M2.5 x 0.45	D3	3		C764016		15.52
M3 x 0.5	D3	3	C763992	C764017	C764042	12.94
M3.5 x 0.6	D4	3		C764018		10.70
M4 x 0.7	D4	4	C763993	C764019	C764043	10.70
M4.5 x 0.75	D4	4		C764020		10.70
M5 x 0.8	D4	4	C763994	C764021	C764044	10.70
M6 x 1.0	D5	4	C763995	C764022	C764045	11.89
M7 x 1.0	D5	4	C763996	C764023	C764046	12.34
M8 x 1.25	D5	4	C763997	C764024	C764047	12.34
M10 x 1.25	D5	4	C763998	C764025	C764048	23.18
M10 x 1.50	D6	4	C763999	C764026	C764049	23.18
M12 x 1.25	D5	4	C764000	C764027	C764050	27.21
M12 x 1.75	D6	4	C764001	C764028	C764051	27.21
M14 x 1.5	D6	4	C764002	C764029	C764052	40.70
M14 x 2.0	D7	4	C764003	C764030	C764053	40.70
M16 x 1.5	D6	4	C764004	C764031	C764054	49.60
M16 x 2.0	D7	4	C764005	C764032	C764055	49.60
M18 x 1.5	D6	4	C764006	C764033	C764056	66.71
M18 x 2.5	D7	4	C764007	C764034	C764057	66.71
M20 x 2.5	D7	4	C764008	C764035	C764058	86.37
M24 x 3.0	D8	4	C764009	C764036	C764059	91.54
M27 x 3.0	D8	4	C764010	C764037	C764060	151.14
M30 x 3.5	D9	4	C764011	C764038	C764061	190.24
M33 x 3.5	D9	4	C764012	C764039	C764062	190.59
M36 x 4.0	D9	4	C764013	C764040	C764063	237.16

All taps sold individually

For technical information, see pages 331 - 335

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Hand Taps - 8 Pitch



GENERAL PURPOSE TAPS

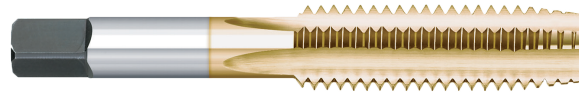
- Eight pitch large diameter taps are typically used in oil field, gas exploration and power plant maintenance
- Taps are on blanks that meet ANSI specifications
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	TAPER	PLUG	BOTTOM	PRICE
1-1/8-8	H5	4	C772863	C772864	C772865	141.59
1-1/4-8	H5	4	C772866	C772867	C772868	172.28
1-3/8-8	H5	4	C772869	C772870	C772871	220.44
1-1/2-8	H5	4	C772872	C772873	C772874	238.80
1-5/8-8	H6	6	C772875	C772876	C772877	325.32
1-3/4-8	H6	6	C772878	C772879	C772880	368.95
1-7/8-8	H6	6	C772881	C772882	C772883	433.77
2"-8	H6	6	C772884	C772885	C772886	457.60
2-1/4-8	H6	6	C772887	C772888	C772889	614.36
2-1/2-8	H6	6	C772890	C772891	C772892	833.76
2-5/8-8	H8	6	C772893	C772894	C772895	899.38
2-3/4-8	H8	6	C772896	C772897	C772898	965.05
2-7/8-8	H8	6	C772899	C772900	C772901	1,052.71
3"-8	H8	6	C772902	C772903	C772904	1,162.21

All taps sold individually

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Hand Taps - Left Hand



- Engineered to tap left hand threads
- For optimal results, use a Taper Tap for an initial pass prior to using a Plug or Bottom Tap to finish the thread
- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	UNCOATED				TiN COATED			
			TAPER	PLUG	BOTTOM	PRICE	TAPER	PLUG	BOTTOM	PRICE
6-32	H2	3	C772687	C772688	C772689	18.41	C772753	C772754	C772755	21.44
8-32	H3	4	C772690	C772691	C772692	21.14	C772756	C772757	C772758	24.73
10-24	H3	4	C772693	C772694	C772695	26.27	C772759	C772760	C772761	30.60
10-32	H3	4	C772696	C772697	C772698	26.27	C772762	C772763	C772764	30.60
1/4-20	H3	4	C772699	C772700	C772701	28.31	C772765	C772766	C772767	33.48
1/4-28	H3	4	C772702	C772703	C772704	28.31	C772768	C772769	C772770	33.48
5/16-18	H3	4	C772705	C772706	C772707	34.83	C772771	C772772	C772773	40.99
5/16-24	H3	4	C772708	C772709	C772710	34.83	C772774	C772775	C772776	40.99
3/8-16	H3	4	C772711	C772712	C772713	36.07	C772777	C772778	C772779	43.28
3/8-24	H3	4	C772714	C772715	C772716	36.07	C772780	C772781	C772782	43.28
7/16-14	H3	4	C772717	C772718	C772719	45.07	C772783	C772784	C772785	51.74
7/16-20	H3	4	C772720	C772721	C772722	45.07	C772786	C772787	C772788	51.74
1/2-13	H3	4	C772723	C772724	C772725	46.86	C772789	C772790	C772791	53.53
1/2-20	H3	4	C772726	C772727	C772728	53.08	C772792	C772793	C772794	59.75
5/8-11	H3	4	C772729	C772730	C772731	70.94	C772795	C772796	C772797	79.90
5/8-18	H3	4	C772732	C772733	C772734	70.94	C772798	C772799	C772800	79.90
3/4-10	H3	4	C772735	C772736	C772737	99.25	C772801	C772802	C772803	110.49
3/4-16	H3	4	C772738	C772739	C772740	99.25	C772804	C772805	C772806	110.49
7/8-9	H4	4	C772741	C772742	C772743	138.31	C772807	C772808	C772809	151.69
7/8-14	H4	4	C772744	C772745	C772746	138.31	C772810	C772811	C772812	151.69
1-8	H4	4	C772747	C772748	C772749	153.13	C772813	C772814	C772815	170.59
1-14	H4	4	C772750	C772751	C772752	153.13	C772816	C772817	C772818	170.59

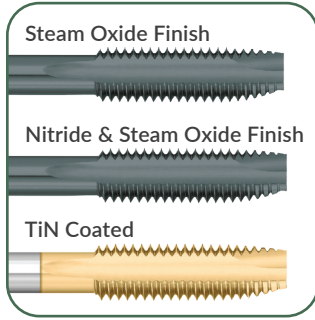
All taps sold individually

For technical information, see pages 331 - 335

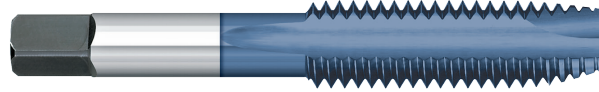
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com





GENERAL PURPOSE TAPS - HIGH SPEED STEEL Spiral Point Plug Taps



GENERAL PURPOSE TAPS

- General purpose spiral point plug taps are best used for through hole applications
- Taps are on blanks that meet ANSI specifications
- AlTiN coating offers increased wear and heat resistance
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- Steam Oxide finish provides decreased galling and increased lubricity in low carbon steels and gummy materials
- Nitride & Steam Oxide finish provides increased surface hardness and acts as a lubricant and also retains liquid lubricant at cutting edge. Prevents chip welding and reduces friction
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	UNCOATED		STEAM OXIDE		NITRIDE & STEAM OXIDE		TiN COATED		AlTiN COATED	
			TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
0-80	H1	2	C743624	13.83								
* 0-80	H2	2	C743623	13.83	C751071	14.88			C743452	19.15	C743427	19.15
1-64	H1	2	C743591	12.49								
* 1-64	H2	2	C743590	12.54	C751072	13.43						
1-72	H1	2	C743589	12.54								
* 1-72	H2	2	C743588	12.54	C751073	13.43						
2-56	H1	2	C743587	11.89								
* 2-56	H2	2	C743586	10.65	C751074	11.39			C743443	15.37	C743418	15.37
2-64	H1	2	C743585	11.89								
* 2-64	H2	2	C743584	11.89	C751075	12.59						
3-48	H1	2	C743572	8.51								
* 3-48	H2	2	C743571	8.51	C751076	9.20						
3-56	H1	2	C743570	10.45								
* 3-56	H2	2	C743569	9.55	C751077	10.30						
4-40	H1	2	C743567	7.76								
* 4-40	H2	2	C743566	6.82	C751079	7.56	C751078	7.76	C743438	10.85	C743413	11.49
4-48	H1	2	C743565	7.96								
* 4-48	H2	2	C743564	7.76	C751081	8.51	C751080	8.71				
4-36	H2	2	C743568	7.76	C751083	8.51	C751082	8.71				
5-40	H1	2	C743548	7.76								
* 5-40	H2	2	C743547	6.82	C751085	7.56	C751084	7.76	C743433	10.85	C743409	11.49
5-44	H2	2	C743546	7.76	C751087	8.51	C751086	8.71				
6-32	H1	2	C743545	6.82								
6-32	H2	2	C743544	5.82								
* 6-32	H3	2	C743543	5.82	C751089	6.52	C751088	6.72	C743432	10.15	C743408	10.50
6-32	H7	2	C743542	6.47								
6-40	H1	2	C743541	6.47								
6-40	H2	2	C743540	6.47	C751091	7.21	C751090	7.41				

* Most Popular Size When Multiple Options Are Available

continued on next page

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Spiral Point Plug Taps (Cont.)

continued from previous page

SIZE	H LIMIT	FLUTES	UNCOATED		STEAM OXIDE		NITRIDE & STEAM OXIDE		TiN COATED		AlTiN COATED	
			TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
8-32	H1	2	C743533	6.47								
8-32	H2	2	C743532	5.82								
* 8-32	H3	2	C743531	5.82	C751093	6.42	C751092	6.72	C743429	10.15	C743405	10.80
8-32	H7	2	C743530	6.47								
8-36	H1	2	C743529	6.47								
* 8-36	H2	2	C743528	6.47	C751095	7.66	C751094	7.66				
10-24	H1	2	C743602	7.11								
10-24	H2	2	C743601	6.47								
* 10-24	H3	2	C743600	5.82	C751097	6.72	C751096	6.72	C743447	10.15	C743422	11.09
10-24	H7	2	C743599	7.11								
10-32	H1	2	C743598	6.47								
10-32	H2	2	C743597	5.82								
* 10-32	H3	2	C743596	5.82	C751099	6.72	C751098	6.72	C743446	10.15	C743421	11.09
10-32	H7	2	C743595	7.11								
12-24	H1	2	C743594	6.47								
* 12-24	H3	2	C743593	6.47	C751101	7.66	C751100	7.66	C743445	11.04	C743420	12.09
12-28	H3	2	C743592	6.47					C743444	11.04	C743419	12.49
1/4-20	H1	2	C743614	6.47								
1/4-20	H2	2	C743613	6.47								
* 1/4-20	H3	2	C735190	5.82	C751103	6.72	C751102	6.72	C743449	10.99	C743424	11.09
1/4-20	H3	3	C743611	7.11								
1/4-20	H5	2	C743610	6.47								
1/4-20	H5	3	C743609	7.11								
1/4-28	H1	2	C743608	7.11								
1/4-28	H2	2	C743607	6.47								
1/4-28	H2	3	C743606	7.11								
* 1/4-28	H3	2	C743605	5.82	C751105	6.72	C751104	6.72	C735138	10.99	C743423	11.09
1/4-28	H4	2	C743604	7.11								
1/4-28	H4	3	C743603	7.11								
5/16-18	H1	2	C743563	8.16								
5/16-18	H2	2	C743562	7.11								
* 5/16-18	H3	2	C743561	6.22	C751107	7.26	C751106	7.26	C743437	12.39	C743412	12.79
5/16-18	H3	3	C743560	8.16								
5/16-18	H5	2	C743559	7.11								
5/16-18	H5	3	C743558	8.16								
5/16-24	H1	2	C743557	8.16								
5/16-24	H2	2	C743556	8.16								
5/16-24	H2	3	C743555	8.16								
* 5/16-24	H3	2	C743554	7.21	C751109	7.76	C751108	7.26	C743436	12.79	C743411	12.79
5/16-24	H4	2	C743553	8.16								
5/16-24	H4	3	C743552	8.16								
3/8-16	H1	3	C743580	9.15								
3/8-16	H2	3	C743579	8.61								
* 3/8-16	H3	3	C743578	7.31	C751111	8.61	C751110	8.61	C743440	14.23	C743415	14.23
3/8-16	H5	3	C743577	9.25								
3/8-24	H1	3	C743576	9.35								

* Most Popular Size When Multiple Options Are Available

continued on next page



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Spiral Point Plug Taps (Cont.)

continued from previous page

SIZE	H LIMIT	FLUTES	UNCOATED		STEAM OXIDE		NITRIDE & STEAM OXIDE		TiN COATED		AlTiN COATED	
			TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
3/8-24	H2	3	C743575	9.35								
* 3/8-24	H3	3	C743574	7.96	C751113	9.25	C751112	9.25	C743439	14.93	C743414	14.93
3/8-24	H4	3	C743573	9.35								
7/16-14	H2	3	C743539	13.73								
* 7/16-14	H3	3	C743538	12.54	C751115	14.68	C751114	14.68	C743431	21.59	C743407	21.74
7/16-14	H5	3	C743537	13.73								
7/16-20	H2	3	C743536	13.68								
* 7/16-20	H3	3	C743535	12.54	C751117	14.68	C751116	15.82	C743430	21.59	C743406	21.74
7/16-20	H5	3	C743534	13.73								
1/2-13	H1	3	C743622	16.67								
1/2-13	H2	3	C743621	16.67								
* 1/2-13	H3	3	C743620	12.69	C751119	14.93	C751118	14.93	C743451	21.84	C743426	21.89
1/2-13	H5	3	C743619	15.07								
1/2-20	H1	3	C743618	16.67								
1/2-20	H2	3	C743617	16.67								
* 1/2-20	H3	3	C743616	15.02	C751121	17.56	C751120	18.31	C743450	24.43	C743425	24.43
1/2-20	H5	3	C743615	16.67								
9/16-12	H3	3	C743527	20.80	C751123	24.18	C751122	24.38				
9/16-18	H3	3	C743526	20.80	C751125	24.18	C751124	24.38				
* 5/8-11	H3	3	C743551	28.36	C751127	32.14	C751126	32.59	C743435	50.50	C743410	50.50
5/8-11	H5	3	C743550	28.36								
5/8-18	H3	3	C743549	28.36	C751129	32.14	C751128	32.59	C743434	50.50	C743428	50.50
* 3/4-10	H3	3	C743583	40.25	C751131	45.47	C751130	46.37	C743442	65.92	C743417	65.92
3/4-10	H5	3	C743582	40.25								
3/4-16	H3	3	C743581	40.25	C751133	45.47	C751132	46.37	C743441	65.92	C743416	65.92

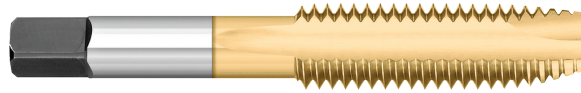
* Most Popular Size When Multiple Options Are Available

GENERAL PURPOSE TAPS



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Spiral Point Plug Taps - Metric



- General purpose spiral point plug taps
- Spiral point for through-hole applications
- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	D LIMIT	FLUTES	UNCOATED		TiN COATED	
			TOOL #	PRICE	TOOL #	PRICE
M2 x 0.4	D3	2	C743228	15.27	C762534	19.75
M2.5 x 0.45	D3	2	C743227	10.95	C762535	14.38
M3 x 0.5	D3	2	C743225	8.81	C762536	12.19
M3.5 x 0.6	D4	2	C743224	7.61	C762537	10.70
M4 x 0.7	D4	2	C743223	7.61	C762538	10.70
M4.5 x 0.75	D4	2	C743222	7.61	C762539	10.70
M5 x 0.8	D4	2	C743221	7.61	C762540	10.70
M6 x 1.0	D5	2	C743220	7.61	C762541	10.70
M7 x 1.0	D5	2	C743219	8.86	C762542	12.34
M8 x 1.25	D5	2	C743218	8.86	C762543	12.34
M10 x 1.50	D6	3	C743233	14.63	C762544	20.55
M12 x 1.75	D6	3	C743232	18.41	C762545	25.02
M14 x 2.0	D7	3	C743231	28.36	C762546	36.57
M16 x 2.0	D7	3	C743230	32.19	C762547	41.44
M18 x 2.5	D7	3	C743229	47.31	C762548	58.56
M20 x 2.5	D7	3	C743226	62.44	C762549	80.45

For technical information, see pages 331 - 335

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Spiral Point Bottoming Taps



- General purpose spiral point bottoming taps
- Spiral point for through-hole applications
- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	UNCOATED		TIN COATED	
			TOOL #	PRICE	TOOL #	PRICE
0-80	H2	2	C751134	25.57	C766228	32.14
2-56	H2	2	C751135	19.50	C766229	24.63
3-48	H2	2	C751136	15.72	C766230	19.75
4-40	H2	2	C751137	12.54	C766231	15.92
5-40	H2	2	C751138	12.54	C766232	15.92
6-32	H2	2	C751139	10.55	C766233	13.93
6-32	H3	2	C751140	10.55	C766234	13.93
6-40	H2	2	C751141	12.04	C766235	15.42
8-32	H2	2	C751142	10.55	C766236	14.13
8-32	H3	2	C751143	10.55	C766237	14.13
10-24	H2	2	C751144	12.04	C766238	16.37
10-24	H3	2	C751145	10.55	C766239	14.53
10-32	H2	2	C751146	10.55	C766240	14.53
10-32	H3	2	C751147	10.55	C766241	14.53
12-24	H3	2	C751148	12.09	C766242	16.42
1/4-20	H3	2	C751149	10.55	C766243	14.53
1/4-28	H3	2	C751150	10.55	C766244	14.53
5/16-18	H3	2	C751151	11.39	C766245	15.67
5/16-24	H3	2	C751152	11.39	C766246	15.67

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

STI Taps - Hand Plug & Bottoming Taps



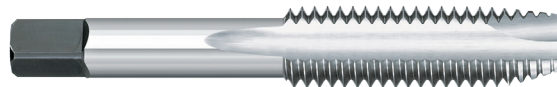
- Oversized to produce threads that accept coil wire screw thread inserts of the same size and pitch
- Taps are on blanks that meet ANSI specifications
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	PLUG	BOTTOM	PRICE
4-40	H1	3	C751893	C751894	14.93
5-40	H1	3	C751895	C751896	14.93
6-32	H2	3	C751897	C751898	15.17
6-40	H1	3	C751899	C751900	15.17
8-32	H2	3	C751901	C751902	15.47
10-24	H2	3	C751903	C751904	15.47
10-32	H2	3	C751905	C751906	16.07
12-24	H2	3	C751907	C751908	16.07
1/4-20	H2	3	C751909	C751910	16.12
1/4-28	H2	3	C751911	C751912	16.12
5/16-18	H3	4	C751913	C751914	17.51
5/16-24	H2	4	C751915	C751916	17.51
3/8-16	H3	4	C751917	C751918	18.95
3/8-24	H2	4	C751919	C751920	18.95
7/16-14	H3	4	C751921	C751922	26.07
7/16-20	H3	4	C751923	C751924	26.07
1/2-13	H3	4	C751925	C751926	29.35
1/2-20	H3	4	C751927	C751928	29.35

All taps sold individually

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

STI Taps - Spiral Point Plug



- Oversized to produce threads that accept coil wire screw thread inserts of the same size and pitch
- Spiral point for through-hole applications
- Taps are on blanks that meet ANSI specifications
- High speed steel
- Precision Manufactured in the USA

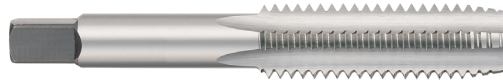
SIZE	H LIMIT	FLUTES	UNCOATED	
			TOOL #	PRICE
4-40	H1	2	C743347	16.72
5-40	H1	2	C743344	16.72
6-32	H2	2	C743343	16.77
6-40	H2	2	C743342	16.77
8-32	H2	2	C743339	16.92
10-24	H2	2	C743352	17.26
10-32	H2	2	C743351	17.56
12-24	H2	2	C743350	17.56
1/4-20	H2	2	C743354	17.56
1/4-28	H2	2	C743353	17.91
5/16-18	H3	3	C743346	22.69
5/16-24	H2	3	C743345	22.84
3/8-16	H3	3	C743349	27.91
3/8-24	H2	3	C743348	28.26
7/16-14	H3	3	C743341	30.60
7/16-20	H3	3	C743340	30.50
1/2-13	H3	3	C743356	33.93
1/2-20	H3	3	C743355	33.93

For technical information, see pages 331 - 335

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE TAPS - HIGH SPEED STEEL Oversize Taps - Hand Plug

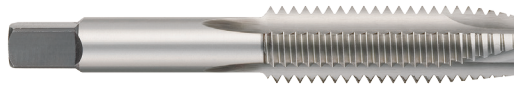


- Most commonly used when parts are to be plated after tapping
- Taps are on blanks that meet ANSI specifications
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	UNCOATED	
			TOOL #	PRICE
6-32	H11	3	C751943	7.16
8-32	H11	4	C751944	7.16
10-24	H11	4	C751945	7.91
10-32	H11	4	C751946	7.91
1/4-20	H11	4	C743397	9.45
5/16-18	H11	4	C743395	11.94
3/8-16	H11	4	C743396	13.68
7/16-14	H11	4	C743393	20.55
1/2-13	H11	4	C743398	23.33
5/8-11	H11	4	C743394	43.68

GENERAL PURPOSE TAPS

GENERAL PURPOSE TAPS - HIGH SPEED STEEL Oversize Taps - Spiral Point Plug



- Most commonly used when parts are to be plated after tapping
- Spiral point for through-hole applications
- Taps are on blanks that meet ANSI specifications
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	UNCOATED	
			TOOL #	PRICE
6-32	H11	2	C751947	8.61
8-32	H11	2	C751948	8.61
10-24	H11	2	C751949	9.45
10-32	H11	2	C751950	9.45
1/4-20	H11	2	C743403	10.75
5/16-18	H11	2	C743401	12.34
3/8-16	H11	3	C743402	13.93
7/16-14	H11	3	C743399	20.94
1/2-13	H11	3	C743404	25.47
5/8-11	H11	3	C743400	43.68

For technical information, see pages 331 - 335

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Extension Taps - Spiral Point Plug



- Undersized, extended shank for increased clearance in deeper tapping applications
- Taps are on blanks that meet ANSI specifications
- High speed steel
- AlTiN coating offers increased wear and heat resistance
- Precision Manufactured in the USA

SIZE	H LIMIT	NC/NF	THREAD LENGTH	FLUTES	SQUARE LENGTH	SQUARE	SHANK DIA.	OAL	UNCOATED		AlTiN COATED	
									TOOL #	PRICE	TOOL #	PRICE
6-32	H3	NC	11/16	2	3/16	.073	.097	6	C751236	51.54	C772346	57.06
8-32	H3	NC	3/4	2	1/4	.092	.123	6	C751237	50.45	C772347	56.02
10-24	H3	NC	7/8	2	1/4	.102	.136	6	C751238	47.31	C772348	53.58
10-32	H3	NF	7/8	2	1/4	.102	.136	6	C751239	47.31	C772349	53.58
1/4-20	H3	NC	1	2	5/16	.139	.185	6	C751240	64.23	C772350	70.50
1/4-28	H3	NF	1	2	5/16	.139	.185	6	C751241	64.23	C772351	70.50
5/16-18	H3	NC	1-1/8	2	3/8	.180	.240	6	C751242	67.76	C772352	75.22
5/16-24	H3	NF	1-1/8	2	3/8	.180	.240	6	C751243	67.76	C772353	75.22
3/8-16	H3	NC	1-1/4	3	7/16	.206	.275	6	C751244	72.98	C772354	88.31
3/8-24	H3	NF	1-1/4	3	7/16	.206	.275	6	C751245	72.98	C772355	81.99
7/16-14	H3	NC	1-7/16	3	13/32	.242	.323	6	C751246	83.28	C772356	94.03
7/16-20	H3	NF	1-7/16	3	13/32	.242	.323	6	C751247	83.28	C772357	94.03
1/2-13	H3	NC	1-21/32	3	7/16	.275	.367	6	C751248	87.86	C772358	98.60
1/2-20	H3	NF	1-21/32	3	7/16	.275	.367	6	C751249	87.86	C772359	98.60
5/8-11	H3	NC	1-13/16	3	9/16	.360	.480	6	C751250	113.48	C772360	137.26
5/8-18	H3	NF	1-13/16	3	9/16	.360	.480	6	C751251	113.48	C772361	128.01
3/4-10	H3	NC	2	3	11/16	.442	.590	6	C751252	147.41	C772362	164.22
3/4-16	H3	NF	2	3	11/16	.442	.590	6	C751253	147.41	C772363	164.22

For technical information, see pages 331 - 335

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Pulley Taps



- Extended shank length
- Taps are on blanks that meet ANSI specifications
- High speed steel
- Precision Manufactured in the USA

GENERAL PURPOSE TAPS

SIZE	H LIMIT	FLUTES	OVERALL LENGTH	UNCOATED	
				TOOL #	PRICE
1/4-20	H3	4	6	C751153	50.50
1/4-20	H3	4	8	C751154	62.49
5/16-18	H3	4	6	C751155	53.58
5/16-18	H3	4	8	C751156	64.33
3/8-16	H3	4	6	C751157	60.00
3/8-16	H3	4	8	C751158	71.69
3/8-16	H3	4	10	C751159	90.05
7/16-14	H3	4	6	C751160	63.38
7/16-14	H3	4	8	C751161	82.68
1/2-13	H3	4	6	C751162	64.33
1/2-13	H3	4	8	C751163	84.53
1/2-13	H3	4	10	C751164	103.83
1/2-13	H3	4	12	C751165	127.71
5/8-11	H3	4	6	C751166	85.87
5/8-11	H3	4	8	C751167	111.24
5/8-11	H3	4	10	C751168	139.70
5/8-11	H3	4	12	C751169	163.58
3/4-10	H3	4	10	C751170	163.58
3/4-10	H3	4	12	C751171	194.87

For technical information, see pages 331 - 335



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Spiral Flute - Semi-Bottoming



- Optimized for relatively deep hole tapping in copper, brass, aluminum, and other soft ductile materials
- Slightly longer chamfer distributes cutting over greater number of teeth for increased production
- Can be used for plug or bottoming applications
- 52° helix
- Taps are on blanks that meet ANSI specifications
- ZrN coating offers increased speed rates and prolonged tool life
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	FLUTES	UNCOATED		ZrN COATED	
			TOOL #	PRICE	TOOL #	PRICE
3-48	H2	2	C751854	23.38	C772364	28.56
3-56	H2	2	C751855	23.38	C772365	28.56
4-40	H2	2	C751856	19.30	C772366	24.48
4-48	H2	2	C751857	19.30	C772367	24.48
5-40	H3	2	C751858	19.30	C772368	24.48
5-44	H3	2	C751859	19.25	C772369	24.43
6-32	H3	2	C751860	15.62	C772370	20.40
6-40	H3	2	C751861	15.62	C772371	20.80
8-32	H3	3	C751862	15.62	C772372	20.40
8-36	H3	3	C751863	15.62	C772373	20.40
10-24	H3	3	C751864	15.62	C772374	20.40
10-32	H3	3	C751865	15.62	C772375	20.40
12-24	H3	3	C751866	16.92	C772376	23.58
12-28	H3	3	C751867	16.92	C772377	23.58
1/4-20	H3	3	C751868	16.92	C772378	22.09
1/4-28	H3	3	C751869	16.92	C772379	24.88
5/16-18	H3	3	C751870	20.99	C772380	27.21
5/16-24	H3	3	C751871	20.99	C772381	30.40
3/8-16	H3	3	C751872	24.23	C772382	31.39
3/8-24	H3	3	C751873	24.23	C772383	35.17
7/16-14	H3	3	C751874	36.27	C772384	46.42
7/16-20	H3	3	C751875	36.27	C772385	46.42
1/2-13	H3	3	C751876	43.43	C772386	53.58
1/2-20	H3	3	C751877	43.43	C772387	53.58
9/16-12	H3	4	C751878	72.44	C772388	84.18
9/16-18	H3	4	C751879	72.44	C772389	81.89
5/8-11	H3	4	C751880	95.02	C772390	108.75
5/8-18	H3	4	C751881	95.02	C772391	108.75
3/4-10	H3	4	C751882	121.64	C772392	138.80
3/4-16	H3	4	C751883	121.64	C772393	133.33

For technical information, see pages 331 - 334

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Spiral Flute - Semi-Bottoming - Metric



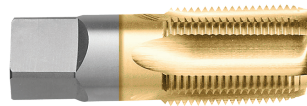
GENERAL PURPOSE TAPS

- Optimized for relatively deep hole tapping in copper, brass, aluminum, and other soft ductile materials
- Slightly longer chamfer distributes cutting over greater number of teeth for increased production
- Can be used for plug or bottoming applications
- 52° helix
- Taps are on blanks that meet ANSI specifications
- ZrN coating offers increased speed rates and prolonged tool life
- High speed steel
- Precision Manufactured in the USA

SIZE	D LIMIT	FLUTES	UNCOATED		ZrN COATED	
			TOOL #	PRICE	TOOL #	PRICE
M3 x 0.5	D3	2	C751884	19.80	C772394	24.92
M3.5 x 0.6	D4	3	C751885	16.07	C772395	21.24
M4 x 0.7	D4	3	C751886	16.07	C772396	20.90
M4.5 x 0.75	D4	3	C751887	16.07	C772397	22.74
M5 x 0.8	D4	3	C751888	16.07	C772398	22.74
M6 x 1.0	D5	3	C751889	17.56	C772399	22.84
M8 x 1.25	D5	3	C751890	21.69	C772400	28.11
M10 x 1.5	D6	3	C751891	37.46	C772401	45.37
M12 x 1.75	D6	3	C751892	44.82	C772402	53.33

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Straight Pipe - NPS



- General purpose straight pipe taps
- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	FLUTES	UNCOATED		TiN COATED	
		TOOL #	PRICE	TOOL #	PRICE
1/8-27	4	C751254	35.27	C764462	49.15
1/4-18	4	C751255	38.81	C764463	54.38
3/8-18	4	C751256	51.09	C764464	62.69
1/2-14	4	C751257	81.69	C764465	113.83
3/4-14	5	C751258	113.68	C764466	159.25
1-11-1/2	5	C751259	172.83	C764467	193.98

For technical information, see pages 331 - 334

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Taper Pipe - Extension Taper Pipe



- General purpose extension taper pipe NPT taps
- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	FLUTES	OVERALL LENGTH	UNCOATED		TIN COATED	
			TOOL #	PRICE	TOOL #	PRICE
1/8-27	4	6	C751260	66.12	C764468	92.14
1/4-18	4	6	C751261	75.82	C764469	106.22
3/8-18	4	6	C751262	103.08	C764470	143.73
1/2-14	4	6	C751263	164.62	C764471	168.60

For technical information, see pages 331 - 334

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE TAPS - HIGH SPEED STEEL Taper Pipe - NPT



- General purpose NPT pipe taps
- Taps are on blanks that meet ANSI specifications
- Steam Oxide finish provides decreased galling and increased lubricity in low carbon steels and gummy materials

- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds

- High speed steel
- Precision Manufactured in the USA

SIZE	FLUTES	UNCOATED		STEAM OXIDE		TiN COATED	
		TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
1/16-27	4	C743299	21.94	C762550	23.88	C762561	27.11
* 1/8-27	4	C751195	21.94	C762551	23.88	C762562	27.11
1/8-27	4	C743296	21.94	C762552	24.58	C762563	29.15
1/4-18	4	C743297	24.33	C762553	27.66	C762564	32.24
3/8-18	4	C743291	32.19	C762554	36.17	C762565	42.39
1/2-14	4	C743298	50.89	C762555	55.87	C762566	63.33
3/4-14	5	C743292	71.19	C762556	78.51	C762567	89.10
1-11-1/2	5	C743300	108.70	C762557	117.71	C762568	129.85
1-1/4-11-1/2	5	C743294	154.18	C762558	166.31	C762569	187.41
1-1/2-11-1/2	7	C743295	207.81	C762559	222.43	C762570	235.52
2-11-1/2	7	C743293	282.73	C762560	296.61	C762571	341.98

* Small Shank

GENERAL PURPOSE TAPS

GENERAL PURPOSE TAPS - HIGH SPEED STEEL Taper Pipe - NPT Interrupted



- General purpose NPT interrupted pipe taps
- Interrupted threads reduce friction and allow for better lubrication
- Taps are on blanks that meet ANSI specifications

- Steam Oxide finish provides decreased galling and increased lubricity in low carbon steels and gummy materials

- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	FLUTES	UNCOATED		STEAM OXIDE		TiN COATED	
		TOOL #	PRICE	TOOL #	PRICE	TOOL #	PRICE
* 1/8-27	5	C751205	34.08	C762572	36.62	C762582	41.39
1/8-27	5	C743214	34.08	C762573	36.67	C762583	41.39
1/4-18	5	C743215	37.86	C762574	41.19	C762584	47.56
3/8-18	5	C743209	47.66	C762575	51.69	C762585	59.25
1/2-14	5	C743216	75.82	C762576	81.54	C762586	92.14
3/4-14	5	C743210	110.89	C762577	118.65	C762587	134.13
1-11-1/2	5	C743217	167.71	C762578	180.29	C762588	203.78
1-1/4-11-1/2	5	C743212	238.60	C762579	250.74	C762589	288.60
1-1/2-11-1/2	7	C743213	318.55	C762580	342.48	C762590	346.26
2-11-1/2	7	C743211	430.54	C762581	462.77	C762591	523.17

* Small Shank

For technical information, see pages 331 - 334



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Taper Pipe - NPTF Dryseal



- General purpose NPTF dryseal pipe taps
- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	FLUTES	UNCOATED		TiN COATED	
		TOOL #	PRICE	TOOL #	PRICE
1/16-27	4	C751215	24.13	C764441	33.83
* 1/8-27	4	C751216	24.13	C764442	33.83
1/8-27	4	C751217	24.13	C764443	33.83
1/4-18	4	C751218	26.72	C764444	37.46
3/8-18	4	C751219	35.17	C764445	49.25
1/2-14	4	C751220	56.27	C764446	68.70
3/4-14	5	C751221	78.70	C764447	96.61
1-11-1/2	5	C751222	119.00	C764448	140.20
1-1/4-11-1/2	5	C751223	169.65	C764449	195.37
1-1/2-11-1/2	7	C751224	227.56	C764450	255.22
2-11-1/2	7	C751225	309.54	C764451	337.26

* Small Shank

GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Taper Pipe - NPTF Dryseal - Interrupted



- General purpose NPTF dryseal pipe taps
- Interrupted threads reduce friction and allow for better lubrication
- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	FLUTES	UNCOATED		TiN COATED	
		TOOL #	PRICE	TOOL #	PRICE
* 1/8-27	5	C751226	37.66	C764452	52.49
1/8-27	5	C751227	37.66	C764453	44.87
1/4-18	5	C751228	41.44	C764454	51.19
3/8-18	5	C751229	52.69	C764455	64.28
1/2-14	5	C751230	83.78	C764456	96.22
3/4-14	5	C751231	121.99	C764457	139.90
1-11-1/2	5	C751232	184.47	C764458	205.62
1-1/4-11-1/2	5	C751233	261.19	C764459	286.91
1-1/2-11-1/2	7	C751234	350.44	C764460	378.10
2-11-1/2	7	C751235	473.57	C764461	501.23

* Small Shank

For technical information, see pages 331 - 334

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

GENERAL PURPOSE TAPS - HIGH SPEED STEEL Thread Forming



GENERAL PURPOSE TAPS

- Thread forming taps have no flutes or cutting edges and provide chipless tapping
- Lube grooves for lubrication and venting in blind holes
- Taps are on blanks that meet ANSI specifications
- SINGLE THREAD - 1.5 Thread Chamfer for maximum thread length in blind holes due to its short chamfer
- BOTTOM - 2.5 Thread Chamfer for blind hole tapping
- PLUG - 4.0 Thread Chamfer for through hole tapping
- Uncoated is great for lead, stainless steels, carbon steels, aluminum and most other ductile materials producing stringy chips
- TiN coating provides improved performance in a wide variety of materials, and is generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	H LIMIT	LUBE GROOVES	UNCOATED				TiN COATED			
			1.5 ITEM	2.5 ITEM	4.0 ITEM	PRICE	1.5 ITEM	2.5 ITEM	4.0 ITEM	PRICE
0-80	H2	0	C766505	C766112		18.81	C766539	C743290		22.24
0-80	H3	0	C766506	C766113		18.81	C766540	C743289		22.24
1-64	H3	0		C766114		18.81		C743272		22.24
1-72	H3	0	C766507	C766115		18.81	C766541	C743271		22.24
2-56	H3	0	C766508	C766116		18.61	C766542	C743270		21.99
2-56	H4	0	C766509	C766117		18.61	C766543	C743269		21.99
2-64	H3	0		C766119		18.61		C743267		21.99
3-48	H3	0		C766121		18.61		C743261		21.99
3-56	H3	0		C766122		18.61		C743260		21.99
3-56	H5	0		C766123		18.61		C743259		21.99
4-40	H3	0	C766510	C766125	C766124	16.77	C766544	C743258	C751951	20.15
4-40	H5	0	C766511	C766127	C766126	16.77	C766545	C743257	C751952	20.15
4-48	H4	0		C766129		16.77		C743256		20.15
5-40	H4	0		C766133	C766132	16.77		C743250	C751955	20.15
5-44	H4	0		C766137		16.77		C743248		20.15
6-32	H3	1	C766512	C766141	C766140	13.93	C766546	C743246	C751959	17.31
6-32	H5	1	C766513	C766143	C766142	13.93	C766547	C743245	C751960	17.31
6-40	H4	1		C766147	C766146	13.93		C743243	C751962	17.31
8-32	H3	1	C766514	C766151	C766150	13.93	C766548	C743237	C751964	17.51
8-32	H5	1	C766515	C766153	C766152	13.93	C766549	C743236	C751965	17.51
8-32	H7	1		C766155	C766154	13.93		C743235	C751966	17.51
8-36	H4	1		C766157	C766156	13.93		C743234	C751967	17.51
10-24	H5	1		C766159	C766158	13.28		C743279	C751968	16.96
10-24	H7	1		C766161	C766160	13.28		C743278	C751969	16.96
10-32	H3	1	C766516	C766163	C766162	13.28	C766550	C743277	C751970	16.96
10-32	H5	1	C766517	C766165	C766164	13.28	C766551	C743276	C751971	16.96
12-24	H5	2		C766167	C766166	13.28		C743275	C751972	16.96
12-28	H4	2		C766171	C766170	13.28		C743273	C751974	16.96
1/4-20	H5	2	C766518	C766173	C766172	14.18	C766552	C743284	C751975	18.01
1/4-20	H8	2	C766519	C766175	C766174	14.18	C766553	C743283	C751976	18.01
1/4-28	H4	2	C766520	C766179	C766178	14.18	C766554	C743281	C751978	18.01
1/4-28	H6	2	C766521	C766181	C766180	14.18	C766555	C743280	C751979	18.01

Continued on next page

Plug tap sizes 3/8" and smaller have male centers

For technical information, see pages 336 - 337



GENERAL PURPOSE TAPS - HIGH SPEED STEEL

Thread Forming (Cont.)

continued from previous page

SIZE	H LIMIT	LUBE GROOVES	UNCOATED				TIN COATED			
			1.5 ITEM	2.5 ITEM	4.0 ITEM	PRICE	1.5 ITEM	2.5 ITEM	4.0 ITEM	PRICE
5/16-18	H8	2	C766522	C766185	C766184	15.77	C766556	C743253	C751981	20.00
5/16-18	H5	2		C766183	C766182	15.77		C743254	C751980	20.00
5/16-24	H5	2	C766523	C766187	C766186	15.77	C766557	C743252	C751982	20.00
5/16-24	H7	2	C766524	C766189	C766188	15.77	C766558	C743251	C751983	20.00
3/8-16	H6	2	C766525	C766191	C766190	17.96	C766559	C743266	C751984	22.84
3/8-16	H8	2	C766526	C766193	C766192	17.96	C766560	C743265	C751985	22.84
3/8-24	H5	2	C766527	C766195	C766194	17.96	C766561	C743264	C751986	22.84
3/8-24	H7	2	C766528	C766197	C766196	17.96	C766562	C743263	C751987	22.84
7/16-14	H7	4		C766199	C766198	27.36		C743241	C751988	34.03
7/16-14	H9	4		C766201	C766200	27.36		C743240	C751989	34.03
7/16-20	H5	4		C766203	C766202	27.36		C743239	C751990	34.03
7/16-20	H8	4		C766205	C766204	27.36		C743238	C751991	34.03
1/2-13	H7	6		C766207	C766206	30.65		C743288	C751992	37.26
1/2-13	H10	6		C766209	C766208	30.65		C743287	C751993	37.26
1/2-20	H5	6		C766211	C766210	30.65		C743286	C751994	37.26
1/2-20	H8	6		C766213	C766212	30.65		C743285	C751995	37.26

Continued on next page

Plug tap sizes 3/8" and smaller have male centers

For technical information, see pages 336 - 337

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



GENERAL PURPOSE TAPS - HIGH SPEED STEEL Thread Forming - Metric



GENERAL PURPOSE TAPS

- Thread forming taps have no flutes or cutting edges and provide chipless tapping
- Taps are on blanks that meet ANSI specifications
- SINGLE THREAD - 1.5 Thread Chamfer for maximum thread length in blind holes due to its short chamfer
- BOTTOM - 2.5 Thread Chamfer for blind hole tapping
- PLUG - 4.0 Thread Chamfer for through hole tapping
- Lube grooves for lubrication and venting in blind holes
- Uncoated is great for lead, stainless steels, carbon steels, aluminum and most other ductile materials producing stringy chips
- TiN coating provides improved performance in a wide variety of materials, and is generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA

SIZE	D LIMIT	LUBE GROOVES	UNCOATED				TiN COATED			
			1.5 ITEM	2.5 ITEM	4.0 ITEM	PRICE	1.5 ITEM	2.5 ITEM	4.0 ITEM	PRICE
M1.6 x 0.35	D5	0		C766573		15.52		C766579		19.15
M1.7 x 0.35	D5	0		C766574		15.52		C766580		19.15
M2 x 0.4	D5	0	C766529	C766575		15.52	C766563	C766581		18.91
M2.5 x 0.45	D6	0	C766530	C766576		15.52	C766564	C766582		18.91
M3 x 0.5	D6	0	C766531	C766215		15.52	C766565	C751930		18.91
M3.5 x 0.6	D7	1	C766532	C766578	C766577	13.98	C766566	C766584	C766583	17.36
M4 x 0.7	D7	1	C766533	C766217	C766216	13.98	C766567	C751932	C751931	17.56
M5 x 0.8	D8	1	C766534	C766219	C766218	13.98	C766568	C751934	C751933	17.76
M6 x 1.0	D9	2	C766535	C766221	C766220	14.78	C766569	C751936	C751935	18.81
M8 x 1.25	D10	2	C766536	C766223	C766222	16.87	C766570	C751938	C751937	21.54
M10 x 1.5	D11	2	C766537	C766225	C766224	19.10	C766571	C751940	C751939	24.23
M12 x 1.75	D12	4	C766538	C766227	C766226	32.79	C766572	C751942	C751941	39.45

Plug taps M10 and smaller have male centers

DID YOU KNOW?



Thread Forming Taps have a tool life up to 20 times longer than cutting taps, as they do not have cutting edges to dull, and can run up to twice as fast as cutting taps.

Read More : **8 Machining Facts About Thread Forming Taps** on our technical blog, "In The Loupe"

harveyperformance.com/in-the-loupe/8-unique-facts-about-thread-forming-taps



GENERAL PURPOSE TAP SETS - HIGH SPEED STEEL

Hand Tap Sets

- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and is generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA



TAP SETS

SIZE	H LIMIT	FLUTES	UNCOATED		TiN COATED	
			TOOL #	PRICE	TOOL #	PRICE
0-80	H1	2	C744155	34.83	C773805	57.26
1-72	H1	2	C743972	31.64		
2-56	H1	3	C743960	31.64		
* 2-56	H2	3	C743954	26.91	C773806	45.57
2-64	H2	3	C743950	31.64		
3-48	H2	3	C743897	21.64		
3-56	H2	3	C743893	25.82		
4-40	H1	3	C743884	18.46		
* 4-40	H2	3	C743878	18.46	C773807	28.16
4-48	H2	3	C743873	18.46		
5-40	H2	3	C743816	18.46	C773808	28.16
5-44	H2	3	C743811	18.46		
6-32	H1	3	C743806	16.37		
* 6-32	H2	3	C743800	15.27		
6-32	H3	3	C743794	15.27	C773809	21.84
6-40	H2	3	C743786	15.27		
8-32	H1	4	C743745	17.41		
8-32	H2	4	C743737	15.27		
* 8-32	H3	4	C743729	15.27	C773810	22.64
8-36	H2	4	C743720	15.27		
10-24	H1	4	C744088	15.27		
10-24	H2	4	C744081	15.27		
* 10-24	H3	4	C744073	15.27	C773811	23.43
10-32	H1	4	C744062	15.27		
10-32	H2	4	C744054	15.27		
* 10-32	H3	4	C744046	15.27	C773812	23.43
12-24	H3	4	C743994	15.27	C773813	24.83
12-28	H3	4	C743989	16.37	C773814	27.51
1/4-20	H1	4	C744124	19.50		
1/4-20	H2	4	C744119	19.50		
* 1/4-20	H3	4	C744111	15.27	C773815	25.32

* Most Popular Size When Multiple Options Are Available

Continued on next page



GENERAL PURPOSE TAP SETS - HIGH SPEED STEEL

Hand Tap Sets (Cont.)

continued from previous page

SIZE	H LIMIT	FLUTES	UNCOATED		TiN COATED	
1/4-28	H3	4	C744095	15.27	C773816	25.32
5/16-18	H2	4	C743866	20.55		
* 5/16-18	H3	4	C743858	18.46	C773817	31.64
5/16-24	H3	4	C743843	18.46	C773818	31.64
3/8-16	H2	4	C743927	23.73		
* 3/8-16	H3	4	C743921	21.09	C773819	35.92
3/8-24	H3	4	C743906	21.09	C773820	35.92
7/16-14	H3	4	C743777	35.87	C773821	60.60
7/16-20	H3	4	C743766	35.87	C773822	60.60
1/2-13	H3	4	C744143	37.46	C773823	63.28
1/2-20	H3	4	C744131	42.19	C773824	71.69
9/16-12	H3	4	C743715	62.24		
9/16-18	H3	4	C743708	62.24	C773825	98.11
5/8-11	H3	4	C743835	74.87	C773826	129.10
5/8-18	H3	4	C743826	74.87	C773827	129.10
11/16-11	H3	4	C744038	95.47		
11/16-16	H3	4	C744034	95.47		
3/4-10	H3	4	C743944	104.92	C773828	181.14
3/4-16	H3	4	C743936	104.92	C773829	181.14
7/8-9	H4	4	C743753	146.07		
7/8-14	H4	4	C743759	146.07		
1-8	H4	4	C743965	194.57	C773830	308.65
1-12	H4	4	C744006	194.57		
1-14	H4	4	C744001	194.57		

* Most Popular Size When Multiple Options Are Available

GENERAL PURPOSE TAP SETS - HIGH SPEED STEEL

Hand Tap Sets - Metric

- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and is generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA



SIZE	D LIMIT	FLUTES	UNCOATED		TiN COATED	
			TOOL #	PRICE	TOOL #	PRICE
M2 x 0.4	D3	3	C751172	45.37	C773831	77.21
M3 x 0.5	D3	3	C751173	23.18	C773832	38.76
M4 x 0.7	D4	4	C751174	21.09	C773833	31.79
M5 x 0.8	D4	4	C751175	21.09	C773834	31.79
M6 x 1.0	D5	4	C751176	21.09	C773835	34.18
M7 x 1.0	D5	4	C751177	21.09	C773836	34.97
M8 x 1.25	D5	4	C751178	21.09	C773837	34.97
M10 x 1.25	D5	4	C751179	41.64	C773838	70.69
M10 x 1.50	D6	4	C751180	41.64	C773839	70.69
M12 x 1.25	D5	4	C751181	49.05	C773840	83.23
M12 x 1.75	D6	4	C751182	49.05	C773841	83.23
M14 x 1.5	D6	4	C751183	72.78	C773842	125.32
M14 x 2.0	D7	4	C751184	72.78	C773843	125.32
M16 x 1.5	D6	4	C751185	88.60	C773844	152.98
M16 x 2.0	D7	4	C751186	88.60	C773845	152.98
M18 x 1.5	D6	4	C751187	119.70	C773846	206.46
M18 x 2.5	D7	4	C751188	119.70	C773847	206.46
M20 x 2.5	D7	4	C751189	154.52	C773848	267.70
M24 x 3.0	D8	4	C751190	226.21	C773849	392.33
M27 X 3.0	D8	4			C773850	679.34
M30 X 3.5	D9	4			C773851	868.09
M33 X 3.5	D9	4			C773852	865.70
M36 X 4.0	D9	4			C773853	1,098.43

* Most Popular Size When Multiple Options Are Available



GENERAL PURPOSE TAP SETS - HIGH SPEED STEEL

Hand Tap Sets - Left Hand

- Engineered to tap left hand threads
- Taps are on blanks that meet ANSI specifications
- TiN coating provides improved performance in a wide variety of materials, and is generally used in applications with lower cutting speeds
- High speed steel
- Precision Manufactured in the USA



SIZE	H LIMIT	FLUTES	UNCOATED		TiN COATED	
			TOOL #	PRICE	TOOL #	PRICE
6-32	H2	3	C772819	25.82	C772841	36.91
8-32	H3	4	C772820	25.82	C772842	36.91
10-24	H3	4	C772821	25.82	C772843	36.91
10-32	H3	4	C772822	25.82	C772844	36.91
1/4-20	H3	4	C772823	25.82	C772845	44.28
1/4-28	H3	4	C772824	25.82	C772846	44.28
5/16-18	H3	4	C772825	31.64	C772847	52.19
5/16-24	H3	4	C772826	31.64	C772848	52.19
3/8-16	H3	4	C772827	36.91	C772849	58.56
3/8-24	H3	4	C772828	36.91	C772850	58.56
7/16-14	H3	4	C772829	62.24	C772851	84.38
7/16-20	H3	4	C772830	62.24	C772852	84.38
1/2-13	H3	4	C772831	62.24	C772853	84.38
1/2-20	H3	4	C772832	72.78	C772854	93.88
5/8-11	H3	4	C772833	131.84	C772855	157.16
5/8-18	H3	4	C772834	131.84	C772856	157.16
3/4-10	H3	4	C772835	184.57	C772857	216.21
3/4-16	H3	4	C772836	184.57	C772858	216.21
7/8-9	H4	4	C772837	252.08	C772859	294.27
7/8-14	H4	4	C772838	252.08	C772860	294.27
1-8	H4	4	C772839	311.14	C772861	363.87
1-14	H4	4	C772840	311.14	C772862	363.87

COMBINATION DRILL & TAPS



- Engineered to drill and tap in one operation for added versatility
- Taps are on blanks that meet ANSI specifications
- High speed steel
- Precision Manufactured in the USA

SIZE	DRILL LENGTH	DRILL SIZE	THREAD LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
							TOOL #	PRICE
4-40	1/4	.0890	3/8	2	.141	1-7/8	C751831	25.47
5-40	9/32	.1015	13/32	2	.141	1-15/16	C751832	25.47
6-32	5/16	.1110	7/16	2	.141	2	C751833	25.47
8-32	13/32	.1360	1/2	2	.168	2-5/32	C751834	25.47
10-24	7/16	.1540	5/8	2	.194	2-13/32	C751835	25.47
10-32	7/16	.1610	5/8	2	.194	2-13/32	C751836	25.47
12-24	1/2	.1800	21/32	2	.220	2-13/32	C751837	27.51
1/4-20	9/16	.2055	25/32	2	.255	2-9/16	C751838	25.47
1/4-28	9/16	.2188	25/32	2	.255	2-9/16	C751839	25.47
5/16-18	3/4	.2660	15/16	2	.318	2-29/32	C751840	37.61
5/16-24	3/4	.2770	15/16	2	.318	2-29/32	C751841	37.61
3/8-16	29/32	.3230	1-1/16	2	.381	3-15/32	C751842	45.52
3/8-24	29/32	.3390	1-1/16	2	.381	3-15/32	C751843	45.52
7/16-14	1-3/32	.3770	1-1/4	2	.323	3-27/32	C751844	54.48
7/16-20	1-3/32	.3937	1-1/4	2	.323	3-27/32	C751845	54.73
1/2-13	1-1/4	.4331	1-3/8	2	.367	4-3/16	C751846	61.74
1/2-20	1-1/4	.4531	1-3/8	2	.367	4-3/16	C751847	61.49

COMBINATION DRILL & TAPS

COMBINATION DRILL & TAPS

Metric



- Engineered to drill and tap in one operation for added versatility
- Taps are on blanks that meet ANSI specifications
- High speed steel
- Precision Manufactured in the USA

SIZE	DRILL LENGTH	DRILL SIZE	THREAD LENGTH	FLUTES	SHANK DIA.	OAL	UNCOATED	
							TOOL #	PRICE
M4 x 0.7	13/32	.131	1/2	2	.168	2-5/32	C751848	27.91
M5 x 0.8	7/16	.166	5/8	2	.194	2-13/32	C751849	27.91
M6 x 1.0	9/16	.198	25/32	2	.255	2-17/32	C751850	27.91
M8 x 1.25	3/4	.267	15/16	2	.318	2-29/32	C751851	50.79
M10 x 1.50	29/32	.336	1-1/16	2	.381	3-15/32	C751852	57.76
M12 x 1.75	1-1/4	.405	1-3/8	2	.367	4-3/16	C751853	57.76



GENERAL PURPOSE DIES - CARBON STEEL

Hexagon Rethreading Die

- Hexagon style dies engineered to rethread worn or ineffective threads
- Carbon steel
- Precision Manufactured in the USA



SIZE	ACROSS FLATS	THICKNESS	UNCOATED	
			TOOL #	PRICE
1/4-20	19/32	1/4	C743115	15.72
1/4-28	19/32	1/4	C743114	15.72
5/16-18	11/16	5/16	C743095	18.41
5/16-24	11/16	5/16	C743094	18.41
3/8-16	25/32	3/8	C743097	20.40
3/8-24	25/32	3/8	C743096	20.40
7/16-14	7/8	7/16	C743091	24.97
7/16-20	7/8	7/16	C743090	24.97
1/2-13	1-1/16	1/2	C743117	27.46
1/2-20	1-1/16	1/2	C743116	27.46
9/16-12	1-1/16	1/2	C743087	29.55
9/16-18	1-1/16	1/2	C743086	29.55
5/8-11	1-1/4	5/8	C743093	30.89
5/8-18	1-1/4	5/8	C743092	30.89
11/16-11	1-7/16	3/4	C743113	34.03
11/16-16	1-7/16	3/4	C743112	34.03
3/4-10	1-7/16	3/4	C743100	38.11
3/4-16	1-7/16	3/4	C743098	38.11
7/8-9	1-5/8	7/8	C743088	41.39
7/8-14	1-5/8	7/8	C743089	41.39
1-8	1-13/16	1	C743101	46.42
1-12	1-13/16	1	C743105	46.42
1-14	1-13/16	1	C743104	46.42
1-1/8-7	2	1	C743106	53.58
1-1/8-12	2	1	C743107	53.58
1-1/4-7	2-3/16	1	C743108	59.15
1-1/4-12	2-3/16	1	C743109	59.15
1-3/8-6	2-3/8	1	C743102	111.74
1-3/8-12	2-3/8	1	C743103	111.74
1-1/2-6	2-9/16	1	C743110	124.23
1-1/2-12	2-9/16	1	C743111	124.23

COMBINATION DRILL & TAPS

GENERAL PURPOSE DIES - CARBON STEEL

Hexagon Rethreading Die - Metric

- Hexagon style dies engineered to rethread worn or ineffective threads
- Carbon steel
- Precision Manufactured in the USA



SIZE	ACROSS FLATS	UNCOATED	
		TOOL #	PRICE
M3 x 0.5	1	C750739	12.04
M4 x 0.7	1	C750740	11.69
M5 x 0.8	1	C750741	11.69
M6 x 1.0	1	C750742	11.69
M7 x 1.0	1	C750743	12.04
M8 x 1.25	1	C750744	11.69
M10 x 1.25	1	C750745	11.69
M10 x 1.50	1	C750746	11.69
M12 x 1.25	1	C750747	11.69
M12 x 1.75	1	C750748	11.69
M14 x 1.50	1-7/16	C750749	18.06
M14 x 2.0	1-7/16	C750750	18.06
M16 x 1.50	1-7/16	C750751	18.06
M16 x 2.0	1-7/16	C750752	18.06
M18 x 1.50	1-7/16	C750753	18.06
M18 x 2.50	1-7/16	C750754	18.06
M20 x 2.5	1-13/16	C750755	37.71
M24 x 3.0	1-13/16	C750756	37.71

GENERAL PURPOSE DIES - CARBON STEEL Hexagon Rethreading Die - NPT

- Hexagon style dies engineered to rethread worn or ineffective NPT threads
- Carbon steel
- Precision Manufactured in the USA



SIZE	ACROSS FLATS	THICKNESS	UNCOATED	
			TOOL #	PRICE
1/8 - 27 NPT	1-1/16	3/8	C750757	21.84
1/4 - 18 NPT	1-1/4	5/8	C750758	24.08
3/8 - 18 NPT	1-7/16	5/8	C750759	33.28
1/2 - 14 NPT	1-5/8	3/4	C750760	48.06
3/4 - 14 NPT	2	13/16	C750761	59.75
1 - 11-1/2 NPT	2-3/8	1	C750762	115.62

GENERAL PURPOSE DIES - CARBON STEEL Adjustable Round Split Die

- Adjustable, round dies engineered to create male threads onto a part
- Carbon steel
- Precision Manufactured in the USA



SIZE	OUTSIDE DIA.	UNCOATED	
		TOOL #	PRICE
6 - 32	1	C743137	26.77
8 - 32	1	C743124	26.77
10 - 24	1	C743195	26.77
10 - 32	1	C743193	26.77
1/4 - 20	1	C743203	26.77
1/4 - 20	1-1/2	C743202	43.83
1/4 - 28	1	C743199	26.77
1/4 - 32	1	C743196	26.77
5/16 - 18	1	C743151	26.77
5/16 - 18	1-1/2	C743150	43.83
5/16 - 24	1	C743148	26.77
5/16 - 24	1-1/2	C743147	43.83
3/8 - 16	1	C743162	26.77

SIZE	OUTSIDE DIA.	UNCOATED	
		TOOL #	PRICE
3/8 - 16	1-1/2	C743161	43.83
3/8 - 24	1	C743159	26.77
3/8 - 24	1-1/2	C743158	43.83
7/16 - 14	1	C743134	26.77
7/16 - 14	1-1/2	C743133	43.83
7/16 - 20	1	C743131	26.77
1/2 - 13	1-1/2	C743207	43.83
1/2 - 20	1-1/2	C743205	43.83
9/16 - 12	1-1/2	C743121	43.83
9/16 - 18	1-1/2	C743119	43.83
5/8 - 11	1-1/2	C743144	43.83
5/8 - 18	1-1/2	C743141	43.83

GENERAL PURPOSE DIES - HIGH SPEED STEEL

Adjustable Round Split Die

- Adjustable, round dies engineered to create male threads onto a part
- High speed steel
- Precision Manufactured in the USA



SIZE	OUTSIDE DIA.	UNCOATED	
		TOOL #	PRICE
4-40	1	C750769	50.35
5-40	13/16	C750770	34.03
5-44	13/16	C750771	34.03
6-32	13/16	C750772	34.03
6-32	1	C750773	41.39
6-40	13/16	C750774	34.03
8-32	13/16	C750775	34.03
8-32	1	C750776	41.39
10-24	13/16	C750777	34.03
10-24	1	C750778	41.39
10-32	13/16	C750779	34.03
10-32	1	C750780	41.39
12-24	13/16	C750781	34.03
12-24	1	C750782	41.19
12-28	13/16	C750783	34.03
1/4-20	13/16	C750784	34.03
1/4-20	1	C750785	41.39
1/4-20	1-1/2	C750786	67.36
1/4-28	13/16	C750787	34.03
1/4-28	1	C750788	41.39
1/4-28	1-1/2	C750789	67.36
5/16-18	13/16	C750790	34.03
5/16-18	1	C750791	41.39
5/16-18	1-1/2	C750792	67.36
5/16-24	13/16	C750793	34.03
5/16-24	1	C750794	41.39

SIZE	OUTSIDE DIA.	UNCOATED	
		TOOL #	PRICE
5/16-24	1-1/2	C750795	67.36
3/8-16	1	C750796	41.39
3/8-16	1-1/2	C750797	67.36
3/8-24	1	C750798	41.39
3/8-24	1-1/2	C750799	67.36
7/16-14	1	C750800	41.19
7/16-14	1-1/2	C750801	67.36
7/16-20	1	C750802	41.39
7/16-20	1-1/2	C750803	67.36
1/2-13	1	C750804	41.39
1/2-13	1-1/2	C750805	67.36
1/2-20	1	C750806	41.39
1/2-20	1-1/2	C750807	67.36
9/16-12	1-1/2	C750808	67.36
9/16-18	1-1/2	C750809	67.36
5/8-11	1-1/2	C750810	67.36
5/8-11	2	C750811	91.54
5/8-18	1-1/2	C750812	67.36
5/8-18	2	C750813	91.54
3/4-10	1-1/2	C750814	67.36
3/4-10	2	C750815	91.54
3/4-16	1-1/2	C750816	67.36
3/4-16	2	C750817	91.54
7/8-9	2	C750818	91.54
7/8-14	2	C750819	91.54

GENERAL PURPOSE DIES - DIE STOCKS



- Die stocks engineered for use with Titan USA Adjustable Round Split Dies
- Made in the USA

SIZE	UNCOATED	
	TOOL #	PRICE
1 OD	C750736	30.65
1-1/2 OD	C750737	50.45
2 OD	C750738	88.41

GENERAL PURPOSE DIES - TAP HANDLES T-Handle Tap Wrench



- T-handle tap wrenches for use with hand taps
- Made in the USA

SIZE	UNCOATED	
	TOOL #	PRICE
0 - 1/4	C750731	9.90
1/4-1/2	C750732	14.97

DIES

HIGH PERFORMANCE TAPS

Technical Information

General Purpose Carbide High Performance Taps

Material Guide	Rc	Cutting Speed (fpm)		Cutting Fluid*	
		Spiral Point	Spiral Flute		
NICKEL BASE ALLOYS	Inconel-625/718, Waspalloy, Rene, Hastelloy	25 - 42	10	10	CO
TITANIUM ALLOYS	Commercially Pure, 6AL-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si	under 32 over 32	10 8	10 8	CO CO
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17-4, AM-350/355	35 - 42	10	10	CO
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 316	< 25	20	15	CO
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	25 - 32	15	12	CO
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	35 - 42	10	10	CO
MEDIUM ALLOY STEELS	200, 250, 300	< 15	35	25	WS, CO
CARBON STEELS	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	< 10	55	40	WS, CO
CAST IRONS	Gray Cast Irons	< 25	20	15	WS
MALLEABLE	A220, A436, A439, A602	< 25	15	12	CO
ALUMINUM	2014, 2024, 6061-(T1-T6), 7075, Die Cast, Extruded		80	60	WS, CO
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze		60	45	WS

Your individual manufacturing conditions will greatly influence speeds.

*WS - Water Soluble

*CO - Cutting Oil

In most instances cutting fluid manufacturers recommend specific fluid for different materials.

GENERAL PURPOSE TAPS

Technical Information - Tolerances

Machine Screw Taps (NC & NF)

Size	OAL	Thread Length	Square Length	Shank Dia.	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 Taps (NC & NF)

Size	OAL	Thread Length	Square Length	Shank Dia.	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

Pipe Taps - Straight & Taper

Size	OAL	Thread Length	Square Length	Shank Dia.	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

(SS) = Small Shank (LS) = Large Shank

Pulley Taps

Size	Thread Length	Square Length	Shank Dia.	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 311 for overall lengths available

Small Shank Extension Taps

Size	NC/NF	Thread Length	Square length	Shank Dia.	Square
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

Metric Taps

Size	Overall Length	Thread Length	Square Length	Shank Dia	Square	Inch Blank
M1.6 x 0.35	1-5/8	5/16	3/16	.141	.110	#0
M2 x 0.40	1-3/4	7/16	3/16	.141	.110	#2
M2.5 x 0.45	1-13/16	1/2	3/16	.141	.110	#3
M3 x 0.50	1-15/16	5/8	3/16	.141	.110	#5
M3.5 x 0.60	2	11/16	3/16	.141	.110	#6
M4 x 0.70	2-1/8	3/4	1/4	.168	.131	#8
M4.5 x 0.75	2-3/8	7/8	1/4	.194	.152	#10
M5 x 0.80	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

GENERAL PURPOSE TAPS

Technical Information

Tap Recommendations for Classes 2B & 3B Unified Inch Screw Threads

Size	Threads Per Inch		Recommended Tap Limits		Internal Thread Pitch Diameter Limits		
	NC UC	NF UNF	Class 2B	Class 3B	Min. All Classes (Basic)	Max. Class 2B	Max Class 3B
0	–	80	H2	H1	.0519	.0542	.0536
	64	–	H2	H1	.0629	.0655	.0648
1	–	72	H2	H1	.0640	.0665	.0659
	56	–	H2	H1	.0744	.0772	.0765
2	–	64	H2	H1	.0759	.0786	.0779
	48	–	H2	H1	.0855	.0885	.0877
3	–	56	H2	H1	.0874	.0902	.0895
	40	–	H2	H2	.0958	.0991	.0982
4	–	48	H2	H1	.0985	.1016	.1008
	40	–	H2	H2	.1088	.1121	.1113
5	–	44	H2	H1	.1102	.1134	.1126
	32	–	H3	H2	.1177	.1214	.1204
6	–	40	H2	H1	.1218	.1252	.1243
	32	–	H3	H2	.1437	.1475	.1465
8	–	36	H2	H1	.1460	.1496	.1487
	24	–	H3	H3	.1629	.1672	.1661
10	–	32	H3	H2	.1697	.1736	.1726
	24	–	H3	H3	.1889	.1933	.1922
12	–	28	H3	H3	.1928	.1970	.1959
	20	–	H5	H3	.2175	.2223	.2211
1/4	–	28	H4	H3	.2268	.2311	.2300
	18	–	H5	H3	.2764	.2817	.2803
5/16	–	24	H4	H3	.2854	.2902	.2890
	16	–	H5	H3	.3344	.3401	.3387
3/8	–	24	H4	H3	.3479	.3528	.3516
	14	–	H5	H3	.3911	.3972	.3957
7/16	–	20	H5	H3	.4050	.4104	.4091
	13	–	H5	H3	.4500	.4565	.4548
1/2	–	20	H5	H3	.4675	.4731	.4717
	12	–	H5	H3	.5084	.5152	.5135
9/16	–	18	H5	H3	.5264	.5323	.5308
	11	–	H5	H3	.5660	.5732	.5714
5/8	–	18	H5	H3	.5889	.5949	.5934
	10	–	H5	H5	.6850	.6927	.6907
3/4	–	16	H5	H3	.7094	.7159	.7143
	9	–	H6	H4	.8028	.8110	.8089
7/8	–	14	H6	H4	.8286	.8356	.8339

The above recommended taps normally produce the Class of Thread indicated in average materials when used with reasonable care. 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.

GENERAL PURPOSE TAPS

Technical Information

Tap Recommendations for Classes 2B & 3B Unified Inch Screw Threads

Size	Threads Per Inch		Recommended Tap Limits		Internal Thread Pitch Diameter Limits		
	NC UC	NF UNF	Class 2B	Class 3B	Min. All Classes (Basic)	Max. Class 2B	Max Class 3B
1	8	-	H6	H4	.9188	.9276	.9254
	-	12	H6	H4	.9459	.9535	.9516
	NS	NS	H6	H4	.9536	.9609	.9590
1 1/8	7	-	H6	H4	1.0332	1.0416	.10393
	-	12	H6	H4	1.0709	1.0787	.10768
1 1/4	7	-	H6	H4	1.1572	1.1668	1.1644
	-	12	H6	H4	1.1959	1.2309	1.2019
1 3/8	6	-	H6	H4	1.2667	1.2771	1.2745
	-	12	H6	H4	1.3209	1.3291	1.3270
1 1/2	6	-	H6	H4	1.3917	1.4022	1.3996
	-	12	H6	H4	1.4459	1.4542	1.4522

Tap Recommendations for Class 6H Metric Screw Threads

Thread Size		Recommended Tap Limit	Internal Thread - Product Limits - Class 6H				
Nominal Dia. (mm)	Pitch (mm)		Limit Number	Pitch Diameter (mm)		Pitch Diameter (mm)	
				Min.	Max.	Min.	Max.
1.6	.35	D3	1.373	1.458	.05406	.05740	
2	.4	D3	1.740	1.830	.06850	.07205	
2.5	.45	D3	2.208	2.303	.08693	.09067	
3	.5	D3	2.675	2.775	.10531	.10925	
3.5	.6	D4	3.110	3.222	.12244	.12685	
4	.7	D4	3.545	3.663	.13957	.14421	
4.5	.75	D4	4.013	4.131	.15789	.16264	
5	.8	D4	4.480	4.605	.17638	.18130	
6	1	D5	5.350	5.500	.21063	.21654	
7	1	D5	6.350	6.500	.25000	.25591	
8	1.25	D5	7.188	7.348	.28299	.28929	
10	1.5	D6	9.026	9.206	.35935	.36244	
12	1.75	D6	10.863	11.063	.42758	.43555	
14	2	D7	12.701	12.913	.50004	.50839	
16	2	D7	14.701	14.913	.57878	.58713	
20	2.5	D7	18.376	18.600	.72346	.73228	
24	3	D8	22.051	22.316	.86815	.87858	
30	3.5	D9	27.727	28.007	1.09161	1.10264	
36	4	D9	33.402	33.702	1.31504	1.32685	

TECHNICAL

GENERAL PURPOSE TAPS

Technical Information

Tap Hole Size							
Tap Size	Threads Per Inch NC UN	Threads Per Inch NF UN	75% Thread	65% Thread	Tap Drill Size (65% Thread)	Class of Fit	
						2B	3B
0	80	–	0.054	0.055	#54 or 1.4 mm	H3, H2	H2
1	64	–	0.066	0.067	#51 or 1.7 mm	H4, H3	H3, H2
	–	72	0.067	0.068	#51 or 1.75 mm	H4, H3	H3, H2
2	56	–	0.078	0.079	#47 or 2.0 mm	H4, H3	H3, H2
	–	64	0.079	0.080	2.0 mm	H4, H3	H3, H2
3	48	–	0.090	0.091	2.3 mm	H5, H4	H3, H2
	–	56	0.091	0.092	2.3 mm	H5, H4	H3, H2
4	40	–	0.100	0.101	#39	H5, H4	H4, H3
	–	48	0.103	0.104	#37	H5, H4	H4, H3
5	40	–	0.113	0.114	#33 or 2.9 mm	H5, H4	H4, H3
	–	44	0.114	0.115	#33 or 2.9 mm	H5, H4	H4, H3
6	32	–	0.124	0.125	3.1 mm	H6, H5	H4, H3
	–	40	0.126	0.127	1/8" or 3.2 mm	H5, H4	H4, H3
8	32	–	0.149	0.150	#25 or 3.8 mm	H6, H5	H4, H3
	–	36	0.151	0.152	#24	H5, H4	H4, H3
10	24	–	0.170	0.172	11/64"	H7, H6, H5	H5, H4
	–	32	0.175	0.176	#16 or .176"	H6, H5	H4, H3
12	24	–	0.196	0.198	#9 or 5.0 mm	H7, H6, H5	H5, H4
	–	28	0.199	0.201	#7 or 5.1 mm	H7, H6, H5	H4, H3
1/4	20	–	0.225	0.227	5.75 mm	H8, H7, H6	H5, H4
	–	28	0.233	0.235	A	H7, H6, H5	H5, H4
5/16	18	–	0.285	0.287	7.25 mm	H9, H8, H7	H6, H5
	–	24	0.292	0.294	.293"	H8, H7, H6	H5, H4
3/8	16	–	0.344	0.347	S or 11/32"	H9, H8, H7	H7, H6
	–	24	0.355	0.357	9.0 mm	H8, H7, H6	H6, H5
7/16	14	–	0.402	0.405	Y	H10, H9, H8	H7, H6
	–	20	0.414	0.416	Z or 10.5 mm	H9, H8, H7	H6, H5
1/2	13	–	0.462	0.466	.463"	H11, H10, H9	H8, H7, H6
	–	20	0.475	0.477	.476"	H9, H8, H7	H6, H5

TECHNICAL

Pre Tap Hole Size - Metric

Tap Size	Pitch	75% Thread	65% Thread	Nearest Drill Size
M1.6	.350	.057	.058	1.45 mm
M1.7	.350	.061	.062	1.55 mm
M2	.400	.072	.073	1.85 mm
M2.5	.450	.091	.092	2.30 mm
M3	.500	.110	.111	#35
M3.5	.600	.128	.129	#30
M4	.700	.145	.146	3.70 mm
M5	.800	.183	.184	#14
M6	1.000	.218	.220	5.50 mm
M8	1.250	.291	.294	7.40 mm
M10	1.500	.365	.368	9.30 mm
M12	1.750	.439	.442	7/16"



HAND TAPS

Technical Information

Hand Taps		
Material Guide		SFM
NICKEL BASE ALLOYS	Inconel - 625/718, Waspalloy, Rene, Hastelloy	10
TITANIUM ALLOYS	Commercially Pure, 6AL - 4V, Astm 1/2/3, 6Al - 25N - 4Zr - 2Mo - Si	10
STAINLESS STEEL (PRECIPITATION)	13/8, 15/5, 17 - 4	15 - 25
STAINLESS STEEL (AUSTENTIC)	200 Series, 302, 303, 304, 304L, 316, 316L	10 - 20
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	15
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	15 - 25
MEDIUM ALLOY STEELS	200, 250, 300	20 - 40
CARBON STEELS	1000's, 1100's, 1300's	30 - 50
DUCTILE	Ductile Cast Irons	50
CAST IRONS	Gray Cast Irons	30 - 60
ALUMINUM ALLOYS	2014, 2024, 6061, 7075	60 - 80
MAGNESIUM		50 - 70
COPPER, COPPER ALLOYS		60 - 80
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze	30 - 100
COMPOSITES	G-10 Fiberglass, Graphite, Graphite/ Epoxy, Plastics	50 - 70

TECHNICAL

THREAD FORMING TAPS

Technical Information

Pre Tap Hole Size				
Tap size	TPI	75% Thread	65% Thread	Nearest Drill Size
0	80	0.054	0.055	#54 or 1.4 mm
1	64	0.066	0.067	#51 or 1.7 mm
	72	0.067	0.068	#51 or 1.75 mm
2	56	0.078	0.079	#47 or 2.0 mm
	64	0.079	0.080	2.0 mm
3	48	0.090	0.091	2.3 mm
	56	0.091	0.092	2.3 mm
4	40	0.100	0.101	#39
	48	0.103	0.104	#37
5	40	0.113	0.114	#33 or 2.9 mm
	44	0.114	0.115	#33 or 2.9 mm
6	32	0.124	0.125	3.1 mm
	40	0.126	0.127	1/8" or 3.2 mm
8	32	0.149	0.150	#25 or 3.8 mm
	36	0.151	0.152	#24
10	24	0.170	0.172	11/64"
	32	0.175	0.176	#16 or .176"
12	24	0.196	0.198	#9 or 5.0 mm
	28	0.199	0.201	#7 or 5.1 mm
1/4	20	0.225	0.227	5.75 mm
	28	0.233	0.235	"A"
5/16	18	0.285	0.287	7.25 mm
	24	0.292	0.294	.293"
3/8	16	0.344	0.347	"S" or 11/32"
	24	0.355	0.357	9.0 mm
7/16	14	0.402	0.405	"Y"
	20	0.414	0.416	"Z" or 10.5 mm
1/2	13	0.462	0.466	.463"

Pre Tap Hole Size - Metric				
Tap size	Pitch	75% Thread	65% Thread	Nearest Drill Size
M1.6	0.35	0.057	0.058	1.45 mm
M1.7	0.35	0.061	0.062	1.55 mm
M2	0.4	0.072	0.073	1.85 mm
M2.5	0.45	0.091	0.092	2.30 mm
M3	0.5	0.110	0.111	#35
M3.5	0.6	0.128	0.129	#30
M4	0.7	0.145	0.146	3.70 mm
M5	0.8	0.183	0.184	#14
M6	1	0.218	0.220	5.50 mm
M8	1.25	0.291	0.294	7.40 mm
M10	1.5	0.365	0.368	9.30 mm
M12	1.75	0.439	0.442	7/16"

Where to Use Thread Forming Taps

Materials particularly well suited for thread forming include aluminum, brass, copper, lead, stainless steel, carbon steel, cast steel, leaded steel, and zinc. In general, any material which produces a stringy chip is a good candidate for cold forming threads. If the chips are powdery, the material may be too brittle. Forming taps generate threads without producing chips. The threads produced are much stronger than those created by cut taps because of the displacements of the grain of the metal in the workpiece. Cutting taps produce chips which may interfere with the tapping process.

Major Advantages to Thread Forming

Chipless Tapping – No chip removal problems in blind holes

Stronger Threads – The grain flow of formed threads follows the contour of the thread in steel and stainless steel, resulting in greater thread strength.

Better Thread Gaging – Forming taps create their own lead therefore the possibility of producing oversized threads is greatly reduced.

Stronger Taps – The absence for the need for flutes results in a stronger more solid tap.

Longer Tap Life – Forming taps last 3 to 20 times longer because they have no cutting edge to dull.

More Efficient Production – Longer tap life, less tap breakage and faster tapping speeds (up to 2X faster than cutting taps).

Ideal for Non-Lead Screw Tappers – The ability to form their own lead makes forming taps well suited or NC machines or other machines without lead screws.

THREAD FORMING TAPS

Technical Information

General Purpose Carbide Thread Forming Taps			
Material Guide		Rc	SFM
NICKEL BASE ALLOYS	Inconel-625/718, Waspalloy, Rene, Hastelloy	< 25	15
TITANIUM ALLOYS	Commercially Pure, 6AL-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si	25 - 32	10
STAINLESS STEEL (AUSTENITIC)	200 Series, 302, 303, 304, 316	< 25	20
STAINLESS STEEL (MARTENSITIC)	403, 410, 416, 440	25 - 32	15
HIGH STRENGTH TOOL STEELS	4140, 4340, 6150, 5210, A2, D2 P20, H11, H13, S2, 01	35 - 42	10
MEDIUM ALLOY STEELS	200, 250, 300	< 15	35
CARBON STEELS	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	< 10	55
ALUMINUM	2014, 2024, 6061-(T1-T6), 7075, Die Cast, Extruded		80
BRASS, BRONZE	Brass, Alum/Bronze, Low Silicon Bronze		60

TECHNICAL

Calculating Tap Drill Sizes - Thread Forming Taps
Drill Size = Major Diameter - [(0.0068 X Desired % of Thread) ÷ Threads Per Inch]
Drill Size (mm) = Major Diameter - [(0.0068 X Desired % of Thread x Pitch (mm))]

Guidelines for Using Thread Forming Taps

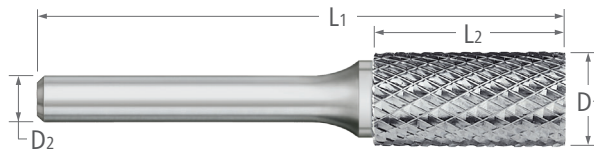
Pre-tap Hole Size - Thread Forming Taps require a larger pre-tap hole size than a cutting tap.

Tapping with too small of a pre-tap hole size results in excessive tap wear, torque and possible tap breakage.

Lubrication - Thread Forming Taps require good lubrication. Cutting oils are generally preferred because of their lubricity compared to water soluble coolants.

BURS

Cylindrical - SA



- General purpose cylindrical style burs
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LOC	SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
	D1	L2	D2	L1	TOOL #	PRICE	TOOL #	PRICE
*SA-61	1/16	1/4	3/32	1-1/2	C766300	6.47	C766315	6.47
*SA-41	1/16	1/4	1/8	1-1/2	C739658	6.17	C739659	6.17
*SA-41L2	1/16	1/4	1/8	2	C766301	9.05	C766316	9.05
*SA-41L3	1/16	1/4	1/8	3	C766302	10.05	C766317	10.05
*SA-63	3/32	3/8	3/32	1-1/2	C766303	6.47	C766318	6.47
*SA-42	3/32	7/16	1/8	1-1/2	C739656	6.17	C739657	6.17
*SA-42L2	3/32	7/16	1/8	2	C766304	9.05	C766319	9.05
*SA-42L3	3/32	7/16	1/8	3	C766305	10.05	C766320	10.05
*SA-43	1/8	9/16	1/8	1-1/2	C739654	6.17	C739655	6.17
*SA-43L2	1/8	9/16	1/8	2	C766306	9.05	C766321	9.05
*SA-43L3	1/8	9/16	1/8	3	C766307	10.05	C766322	10.05
*SA-11	1/8	1/2	1/4	2	C739672	11.94	C739673	11.94
*SA-12	1/8	5/8	1/4	2	C766308	11.99	C766323	11.99
SA-52	5/32	1/2	1/8	2	C739648	13.28	C739649	13.28
*SA-13	5/32	5/8	1/4	2	C750427	16.62	C750445	16.62
SA-53	3/16	1/2	1/8	2	C739646	13.28	C739647	13.28
*SA-81	3/16	1/2	3/16	2	C766309	14.58	C766324	14.58
*SA-14	3/16	5/8	1/4	2	C739670	14.33	C739671	14.33
SA-51	1/4	1/2	1/8	2	C739650	8.96	C739651	8.96
*SA-1	1/4	5/8	1/4	2	C739674	10.15	C739675	10.15
SA-1L6	1/4	1/2	1/4	6-1/2	C739668	20.70	C739669	20.70
*SA-1L	1/4	1	1/4	2	C766310	15.72	C766325	15.72
SA-2	5/16	3/4	1/4	2-1/2	C739666	18.81	C739667	18.81
SA-3	3/8	3/4	1/4	2-1/2	C739664	12.54	C739665	12.54
SA-3L6	3/8	3/4	1/4	6-3/4	C739662	29.00	C739663	29.00
SA-3L	3/8	1	1/4	2-3/4	C766311	19.35	C766326	19.35
SA-3X	3/8	1-1/2	1/4	3-1/4	C766312	27.46	C766327	27.46
SA-4	7/16	1	1/4	2-3/4	C739660	29.10	C739661	29.10
SA-5	1/2	1	1/4	2-3/4	C739652	20.10	C739653	20.10
SA-5L6	1/2	1	1/4	7	C739644	45.52	C739645	45.52
SA-6	5/8	1	1/4	2-3/4	C739642	28.90	C739643	28.90
SA-15	3/4	1/2	1/4	2-1/4	C766313	43.98	C766328	43.98
SA-16	3/4	3/4	1/4	2-1/2	C766314	43.98	C766329	43.98
SA-7	3/4	1	1/4	2-3/4	C739640	45.02	C739641	45.02
SA-9	1	1	1/4	2-3/4	C750429	71.14	C750447	71.14

* One Solid Carbide Piece

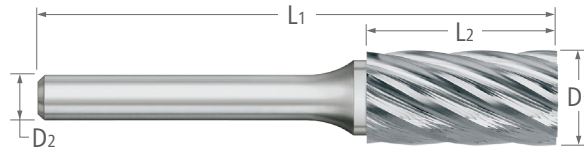
For technical information, see page 353

Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com

BURS Cylindrical - SA - For Aluminum

BURS



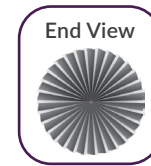
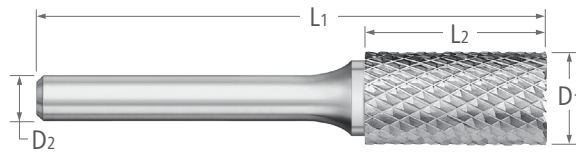
- Cylindrical style burs optimized for use in non-ferrous metals, aluminum alloys, and plastics
- Single cut style provides optimal surface finish
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LENGTH OF CUT	SHANK DIA.	OAL	ALUMA CUT	
	D ₁	L ₂	D ₂	L ₁	TOOL #	PRICE
*SA-1NF	1/4	5/8	1/4	2	C739752	14.68
SA-3NF	3/8	3/4	1/4	2-1/2	C739751	20.65
SA-5NF	1/2	1	1/4	2-3/4	C739750	34.28
SA-6NF	5/8	1	1/4	2-3/4	C739749	50.94
SA-7NF	3/4	1	1/4	2-3/4	C739748	66.91

* One Solid Carbide Piece

BURS

Cylindrical End Cut - SB



- General purpose cylindrical end cut style burs
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LOC	SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
	D ₁	L ₂	D ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE
*SB-41	1/16	1/4	1/8	1-1/2	C739628	8.16	C750453	8.16
*SB-41L2	1/16	1/4	1/8	2	C766350	9.90	C766363	9.90
*SB-41L3	1/16	1/4	1/8	3	C766351	11.04	C766364	11.04
*SB-42	3/32	7/16	1/8	1-1/2	C739627	6.52	C750451	6.52
*SB-42L2	3/32	7/16	1/8	2	C766352	9.90	C766365	9.90
*SB-42L3	3/32	7/16	1/8	3	C766353	11.04	C766366	11.04
† SB-ECO	1/8	-	1/8	1-1/2	C766354	4.83		
*SB-43	1/8	9/16	1/8	1-1/2	C739626	6.02	C750449	6.02
*SB-43L2	1/8	9/16	1/8	2	C766355	9.90	C766367	9.90
*SB-43L3	1/8	9/16	1/8	3	C766356	11.04	C766368	11.04
*SB-11	1/8	1/2	1/4	2	C739636	15.52	C739637	15.52
*SB-12	1/8	5/8	1/4	2	C766357	13.28	C766369	13.28
*SB-13	5/32	5/8	1/4	2	C750431	18.71	C750455	18.71
*SB-14	3/16	5/8	1/4	2	C739634	15.57	C739635	15.57
*SB-51	1/4	3/16	1/8	1-11/16	C739620	9.05	C739622	9.05
SB-51	1/4	1/2	1/8	2	C739621	9.75	C739623	9.75
*SB-1	1/4	5/8	1/4	2	C739638	11.99	C739639	11.99
*SB-1L	1/4	1	1/4	2	C766358	17.31	C766370	17.31
SB-2	5/16	3/4	1/4	2-1/2	C739632	20.65	C739633	20.65
SB-3	3/8	3/4	1/4	2-1/2	C739630	14.38	C739631	14.38
SB-3L	3/8	1	1/4	2-3/4	C766359	21.24	C766371	21.24
SB-3X	3/8	1-1/2	1/4	3-1/4	C766360	28.06	C766372	28.06
SB-4	7/16	1	1/4	2-3/4	C750433	33.08	C739629	33.08
SB-5	1/2	1	1/4	2-3/4	C739624	22.04	C739625	22.04
SB-6	5/8	1	1/4	2-3/4	C750463	32.34	C739619	32.34
SB-15	3/4	1/2	1/4	2-1/4	C766361	48.21	C766373	48.21
SB-16	3/4	3/4	1/4	2-1/2	C766362	48.21	C766374	48.21
SB-7	3/4	1	1/4	2-3/4	C750435	49.65	C739617	49.65
SB-9	1	1	1/4	2-3/4	C750437	77.61	C750457	77.61

* One Solid Carbide Piece † End Cut Only

For technical information, see page 353

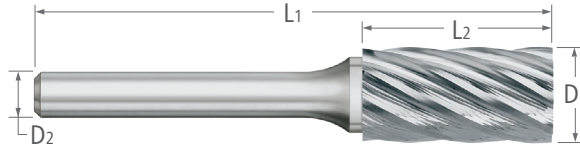
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



BURS

Cylindrical End Cut - SB - For Aluminum



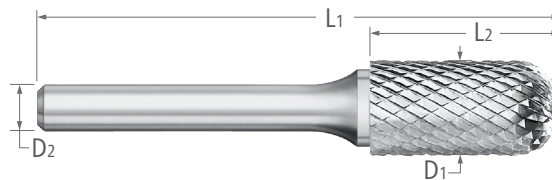
BURS

- General purpose cylindrical end cut style burs optimized for use in non-ferrous metals, aluminum alloys, and plastics
- Single cut style provides optimal surface finish
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LENGTH OF CUT	SHANK DIA.	OAL	ALUMA CUT	
	D ₁	L ₂	D ₂	L ₁	TOOL #	PRICE
SB-3NF	3/8	3/4	1/4	2-1/2	C766375	23.18
SB-5NF	1/2	1	1/4	2-3/4	C766376	35.57
SB-6NF	5/8	1	1/4	2-3/4	C766377	49.15
SB-7NF	3/4	1	1/4	2-3/4	C766378	71.99

BURS

Cylindrical Ball Nose - SC



- General purpose cylindrical ball nose style burs
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LOC	SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
	D1	L2	D2	L1	TOOL #	PRICE	TOOL #	PRICE
*SC-61	3/32	3/8	3/32	1-1/2	C766330	6.47	C766340	6.47
*SC-41	3/32	7/16	1/8	1-1/2	C739599	6.17	C739600	6.17
*SC-42	1/8	9/16	1/8	1-1/2	C739597	6.17	C739598	6.17
*SC-42L2	1/8	9/16	1/8	2	C766331	9.05	C766341	9.05
*SC-42L3	1/8	9/16	1/8	3	C766332	10.05	C766342	10.05
*SC-11	1/8	1/2	1/4	2	C739613	16.77	C739614	16.77
*SC-12	1/8	5/8	1/4	2	C766333	12.74	C766343	12.74
SC-52	5/32	1/2	1/8	2	C739591	13.28	C739592	13.28
*SC-13	5/32	5/8	1/4	2	C750439	19.05	C750459	19.05
SC-53	3/16	1/2	1/8	2	C739589	13.28	C739590	13.28
*SC-81	3/16	1/2	3/16	2	C766334	14.63	C766344	14.63
*SC-14	3/16	5/8	1/4	2	C739611	16.67	C739612	16.67
SC-51	1/4	1/2	1/8	2	C739593	9.05	C739594	9.05
*SC-1	1/4	5/8	1/4	2	C739615	12.14	C739616	12.14
*SC-1L	1/4	1	1/4	2	C766335	15.72	C766345	15.72
SC-1L6	1/4	1/2	1/4	6-1/2	C739609	23.93	C739610	23.93
SC-2	5/16	3/4	1/4	2-1/2	C739607	20.25	C739608	20.25
SC-3	3/8	3/4	1/4	2-1/2	C739605	14.58	C739606	14.58
SC-3L	3/8	1	1/4	2-3/4	C766336	21.14	C766346	21.14
SC-3L6	3/8	3/4	1/4	6-3/4	C739603	32.29	C739604	32.29
SC-3X	3/8	1-1/2	1/4	3-1/4	C766337	24.88	C766347	24.88
SC-4	7/16	1	1/4	2-3/4	C739601	31.99	C739602	31.99
SC-5	1/2	1	1/4	2-3/4	C739595	22.74	C739596	22.74
SC-5L6	1/2	1	1/4	7	C739587	51.04	C739588	51.04
SC-6	5/8	1	1/4	2-3/4	C739585	33.83	C739586	33.83
SC-15	3/4	1/2	1/4	2-1/4	C766338	47.21	C766348	47.21
SC-16	3/4	3/4	1/4	2-1/2	C766339	47.21	C766349	47.21
SC-7	3/4	1	1/4	2-3/4	C739583	48.51	C739584	48.51
SC-9	1	1	1/4	2-3/4	C748263	73.38	C748262	73.38

* One Solid Carbide Piece

For technical information, see page 353

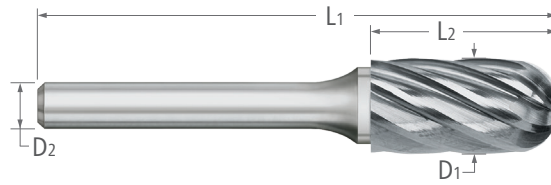
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



BURS

Cylindrical Ball Nose - SC - For Aluminum



BURS

- General purpose ball nose shape style burs optimized for use in non-ferrous metals, aluminum alloys, and plastics
- Single cut style provides optimal surface finish
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

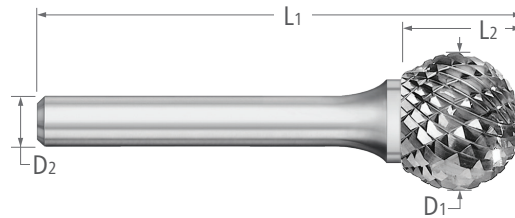
TOOL	SIZE	LENGTH OF CUT	SHANK DIA.	OAL	ALUMA CUT	
	D1	L2	D2	L1	TOOL #	PRICE
*SC-1NF	1/4	5/8	1/4	2	C739747	14.53
SC-3NF	3/8	3/4	1/4	2-1/2	C739746	19.40
SC-5NF	1/2	1	1/4	2-3/4	C739745	27.41
SC-7NF	3/4	1	1/4	2-3/4	C739744	66.17

* One Solid Carbide Piece

BURS

Ball Shape - SD

BURS



- General purpose cylindrical ball shape style burs
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

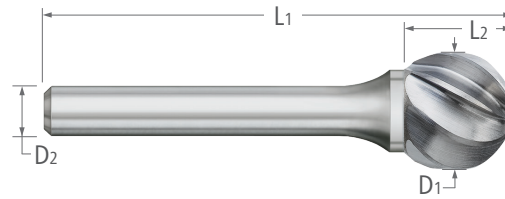
TOOL	SIZE	LOC	SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
	D ₁	L ₂	D ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE
*SD-40	1/16	1/16	1/8	1-1/2	C739566	6.47	C766270	6.47
*SD-61	3/32	3/32	3/32	1-1/2	C766264	6.47	C766271	6.47
*SD-41	3/32	3/32	1/8	1-1/2	C739564	6.17	C739565	6.17
*SD-42	1/8	1/8	1/8	1-1/2	C750441	6.17	C739563	6.17
*SD-42L2	1/8	1/8	1/8	2	C766265	9.05	C766272	9.05
SD-42L3	1/8	1/8	1/8	3	C766266	10.05	C766273	10.05
SD-11	1/8	1/8	1/4	2	C739579	15.37	C739580	15.37
*SD-52	5/32	5/32	1/8	1-21/32	C766267	12.29	C766274	12.29
*SD-53	3/16	3/16	1/8	1-11/16	C766268	13.28	C739558	13.28
SD-81	3/16	5/32	3/16	2	C766269	14.63	C766275	14.63
*SD-14	3/16	3/16	1/4	2	C739577	15.37	C739578	15.37
SD-51	1/4	1/4	1/8	1-3/4	C739559	8.96	C739560	8.96
SD-1	1/4	1/4	1/4	2	C739581	11.69	C739582	11.69
SD-1L6	1/4	1/4	1/4	6-1/4	C739575	22.19	C739576	22.19
SD-2	5/16	5/16	1/4	2-1/16	C739573	16.47	C739574	16.47
SD-3	3/8	3/8	1/4	2-1/8	C739571	12.54	C739572	12.54
SD-3L6	3/8	3/8	1/4	6-3/8	C739569	26.52	C739570	26.52
SD-4	7/16	7/16	1/4	2-3/16	C739567	21.34	C739568	21.34
SD-5	1/2	1/2	1/4	2-1/2	C739561	17.01	C739562	17.01
SD-5L6	1/2	1/2	1/4	6-1/2	C739556	35.92	C739557	35.92
SD-6	5/8	5/8	1/4	2-3/8	C739554	26.62	C739555	26.62
SD-7	3/4	3/4	1/4	2-1/2	C739552	36.77	C739553	36.77
SD-9	1	1	1/4	2-3/4	C750443	77.61	C750461	77.61

* One Solid Carbide Piece



BURS

Ball Shape - SD - For Aluminum



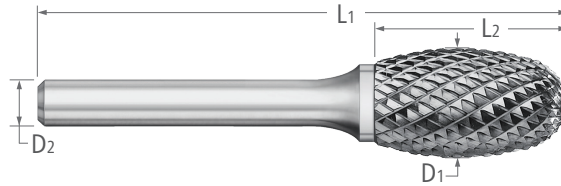
BURS

- General purpose cylindrical ball shape style burs optimized for use in non-ferrous metals, aluminum alloys, and plastics
- Single cut style provides optimal surface finish
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LENGTH OF CUT	SHANK DIA.	OAL	ALUMA CUT	
	D ₁	L ₂	D ₂	L ₁	TOOL #	PRICE
* SD-1NF	1/4	1/4	1/4	2	C739743	14.33
SD-3NF	3/8	3/8	1/4	2-1/8	C739742	18.06
SD-5NF	1/2	1/2	1/4	2-13/64	C739741	29.50
SD-6NF	5/8	5/8	1/4	2-5/16	C739740	44.48

* One Solid Carbide Piece

BURS Egg Shape - SE

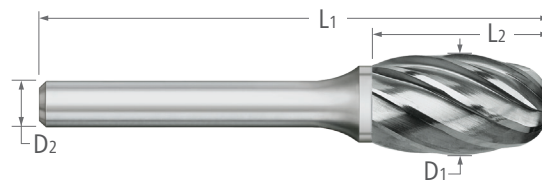


- General purpose egg shape style burs
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LOC	SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
	D1	L2	D2	L1	TOOL #	PRICE	TOOL #	PRICE
*SE-61	3/32	1/8	3/32	1-1/2	C766276	6.47	C766284	6.47
*SE-41	1/8	7/32	1/8	1-1/2	C739546	6.17	C739547	6.17
*SE-41L2	1/8	7/32	1/8	2	C766277	9.05	C766285	9.05
*SE-41L3	1/8	7/32	1/8	3	C766278	10.05	C766286	10.05
SE-53	3/16	9/32	1/8	1-25/32	C739540	13.28	C739541	13.28
*SE-81	3/16	9/32	3/16	2	C766279	14.63	C766287	14.63
*SE-11	3/16	5/16	1/4	2	C766280	13.13	C766288	13.13
SE-51	1/4	3/8	1/8	1-7/8	C739542	8.96	C739543	8.96
*SE-1	1/4	3/8	1/4	2	C739550	14.33	C739551	14.33
SE-1L6	1/4	3/8	1/4	6-3/8	C766281	19.35	C766289	19.35
SE-3	3/8	5/8	1/4	2-3/8	C739548	15.17	C739549	15.17
SE-3L6	3/8	5/8	1/4	6-5/8	C766282	21.79	C766290	21.79
SE-5	1/2	7/8	1/4	2-5/8	C739544	21.19	C739545	21.19
SE-5L6	1/2	7/8	1/4	6-7/8	C766283	32.49	C766291	32.49
SE-6	5/8	1	1/4	2-3/4	C739538	33.48	C739539	33.48
SE-7	3/4	1	1/4	2-3/4	C739535	46.62	C739536	46.62

* One Solid Carbide Piece

BURS Egg Shape - SE - For Aluminum



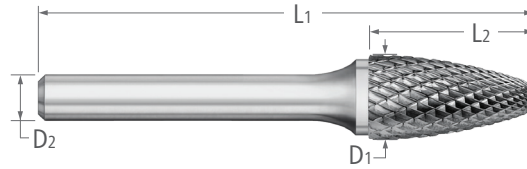
- General purpose egg shape style burs optimized for use in non-ferrous metals, aluminum alloys, and plastics
- Single cut style provides optimal surface finish
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LENGTH OF CUT	SHANK DIA.	OAL	ALUMA CUT	
	D1	L2	D2	L1	TOOL #	PRICE
SE-3NF	3/8	5/8	1/4	2-3/8	C739739	20.10
SE-5NF	1/2	7/8	1/4	2-5/8	C739738	34.78
SE-6NF	5/8	1	1/4	2-3/4	C739737	49.30
SE-7NF	3/4	1	1/4	2-3/4	C739736	70.60



BURS

Round Nose Tree - SF



BURS

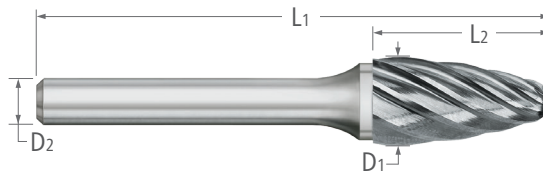
- General purpose round nose tree style burs
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LOC	SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
	D1				L2	D2	L1	TOOL #
*SF-61	3/32	1/4	3/32	1-1/2	C766292	6.47	C766296	6.47
*SF-41	1/8	1/4	1/8	1-1/2	C739517	6.17	C739518	6.17
*SF-42	1/8	1/2	1/8	1-1/2	C739515	6.17	C739516	6.17
*SF-42L2	1/8	1/2	1/8	2	C766293	9.05	C766297	9.05
SF-42L3	1/8	1/2	1/8	3	C766294	10.05	C766298	10.05
*SF-53	3/16	1/2	1/8	2	C739509	13.28	C739510	13.28
*SF-81	3/16	1/2	3/16	2	C766295	14.58	C766299	14.58
SF-51	1/4	1/2	1/8	2	C739511	8.96	C739512	8.96
*SF-1	1/4	3/4	1/4	2	C739533	13.08	C739534	13.08
SF-1L6	1/4	1/2	1/4	6-1/2	C739525	24.97	C739526	24.97
SF-3	3/8	3/4	1/4	2-1/2	C739523	14.58	C739524	14.58
SF-3L6	3/8	3/4	1/4	6-3/4	C739521	31.79	C739522	31.79
SF-4	7/16	1	1/4	2-3/4	C739519	30.60	C739520	30.60
SF-13	1/2	3/4	1/4	2-1/2	C739531	32.44	C739532	32.44
SF-5	1/2	1	1/4	2-3/4	C739513	21.99	C739514	21.99
SF-5L6	1/2	1	1/4	7	C739507	46.67	C739508	46.67
SF-6	5/8	1	1/4	2-3/4	C739505	33.48	C739506	33.48
SF-7	3/4	1	1/4	2-3/4	C739503	46.81	C739504	46.81
SF-14	3/4	1-1/4	1/4	3	C739529	85.67	C739530	85.67
SF-15	3/4	1-1/2	1/4	3-1/4	C739527	100.10	C739528	100.10

* One Solid Carbide Piece

BURS

Round Nose Tree - SF - For Aluminum



- General purpose round nose tree style burs optimized for use in non-ferrous metals, aluminum alloys, and plastics
- Single cut style provides optimal surface finish
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

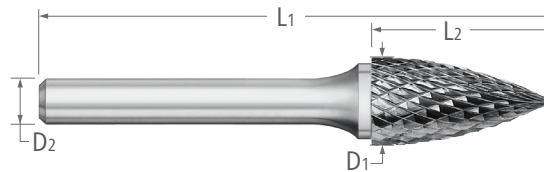
TOOL	SIZE	LENGTH OF CUT	SHANK DIA.	OAL	ALUMA CUT	
	D1				L2	D2
*SF-1NF	1/4	3/4	1/4	2	C739735	14.73
SF-3NF	3/8	3/4	1/4	2-1/2	C739734	19.60
SF-5NF	1/2	1	1/4	2-3/4	C739733	34.43
SF-6NF	5/8	1	1/4	2-3/4	C739732	52.54
SF-14NF	3/4	1-1/4	1/4	3	C739731	63.93

* One Solid Carbide Piece

For technical information, see page 353

BURS

Pointed Tree - SG



- General purpose pointed tree style burs
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LOC	SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
	D ₁	L ₂	D ₂	L ₁	TOOL #	PRICE	TOOL #	PRICE
*SG-61	3/32	1/4	3/32	1-1/2	C766379	6.47	C766387	6.47
*SG-41	1/8	1/4	1/8	1-1/2	C739493	6.12	C739494	6.12
*SG-42	1/8	5/16	1/8	1-1/2	C739491	6.12	C739492	6.12
*SG-43	1/8	3/8	1/8	1-1/2	C739489	6.12	C739490	6.12
*SG-44	1/8	1/2	1/8	1-1/2	C739487	8.36	C739488	8.36
*SG-44L2	1/8	1/2	1/8	2	C766380	9.05	C766388	9.05
*SG-44L3	1/8	1/2	1/8	3	C766381	10.05	C766389	10.05
SG-53	3/16	1/2	1/8	2	C739481	13.28	C739482	13.28
*SG-81	3/16	1/2	3/16	2	C766382	14.58	C766390	14.58
SG-51	1/4	1/2	1/8	2	C739483	8.96	C739484	8.96
*SG-1	1/4	5/8	1/4	2	C739501	13.38	C739502	13.38
SG-1L6	1/4	1/2	1/4	6-1/2	C766383	18.36	C766391	18.36
SG-2	5/16	3/4	1/4	2-1/2	C739497	21.09	C739498	21.09
SG-3	3/8	3/4	1/4	2-1/2	C739495	14.97	C739496	14.97
SG-3L6	3/8	3/4	1/4	6-3/4	C766384	22.98	C766392	22.98
SG-13	1/2	3/4	1/4	2-1/2	C739499	32.04	C739500	32.04
SG-5	1/2	1	1/4	2-3/4	C739485	22.04	C739486	22.04
SG-5L6	1/2	1	1/4	7	C766385	30.00	C766393	30.00
SG-6	5/8	1	1/4	2-3/4	C739479	34.23	C739480	34.23
SG-7	3/4	1	1/4	2-3/4	C739477	45.77	C739478	45.77
SG-15	3/4	1-1/2	1/4	3-1/4	C766386	55.02	C766394	55.02

* One Solid Carbide Piece

For technical information, see page 353

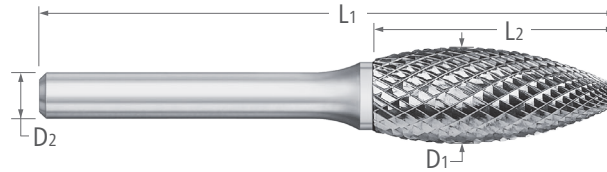
Exclusively distributed by BlackHawk Industrial

855.610.1001 • www.BHID.com



BURS Flame Shape - SH

BURS



- General purpose flame style burs
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LOC	SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
	D1	L2	D2	L1	TOOL #	PRICE	TOOL #	PRICE
SH-41	1/8	1/4	1/8	1-1/2	C739473	6.17	C739474	6.17
SH-41L2	1/8	1/4	1/8	2	C766395	9.05	C766399	9.05
*SH-41L3	1/8	1/4	1/8	3	C766396	10.05	C766400	10.05
*SH-53	3/16	3/8	1/8	1-7/8	C739469	13.28	C739470	13.28
*SH-1	1/4	5/8	1/4	2	C748264	14.18	C748265	14.18
SH-2	5/16	3/4	1/4	2-1/2	C739475	16.32	C739476	16.32
*SH-2L6	5/16	3/4	1/4	6-3/4	C766397	21.79	C766401	21.79
SH-5	1/2	1-1/4	1/4	3	C739471	31.79	C739472	31.79
SH-5L6	1/2	1-1/4	1/4	7-1/4	C766398	34.97	C766402	34.97
SH-6	5/8	1-7/16	1/4	3-3/16	C739467	74.58	C739468	74.58
SH-7	3/4	1-5/8	1/4	3-3/8	C739465	94.77	C739466	94.77

* One Solid Carbide Piece

BURS 60° Included Angle - SJ



- General purpose burs featuring a 60° included angle
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

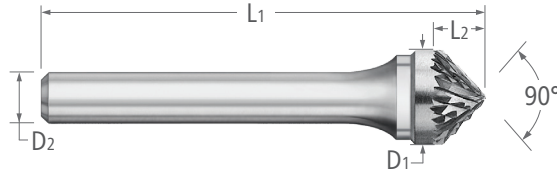
TOOL	SIZE	LOC	SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
	D1	L2	D2	L1	TOOL #	PRICE	TOOL #	PRICE
*SJ-42	1/8	3/32	1/8	1-1/2	C739459	6.17	C739460	6.17
*SJ-1	1/4	3/16	1/4	2	C739463	11.69	C739464	11.69
SJ-3	3/8	5/16	1/4	2-3/16	C739461	14.38	C739462	14.38
SJ-5	1/2	7/16	1/4	2-19/64	C739457	19.70	C739458	19.70
SJ-6	5/8	9/16	1/4	2-5/16	C766403	23.78	C766406	23.78
SJ-7	3/4	11/16	1/4	2-7/16	C766404	31.19	C766407	31.19
SJ-9	1	15/16	1/4	2-11/16	C766405	62.69	C766408	62.69

* One Solid Carbide Piece

For technical information, see page 353

BURS

90° Included Angle - SK



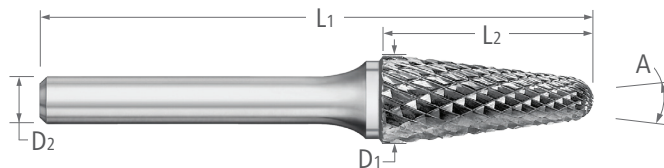
- General purpose burs featuring a 90° included angle
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE		SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
	D ₁	L ₂			D ₂	L ₁	TOOL #	PRICE
*SK-42	1/8	1/16	1/8	1-1/2	C739451	6.17	C739452	6.17
*SK-1	1/4	1/8	1/4	2	C739455	11.69	C739456	11.69
SK-3	3/8	3/16	1/4	2-1/16	C739453	12.14	C739454	12.14
SK-5	1/2	1/4	1/4	2-1/8	C739449	19.05	C739450	19.05
SK-6	5/8	5/16	1/4	2-3/16	C766409	23.78	C766411	23.78
SK-7	3/4	3/8	1/4	2-1/4	C750465	38.66	C748266	38.66
SK-9	1	1/2	1/4	2-1/4	C766410	58.90	C766412	58.90

* One Solid Carbide Piece

BURS

Included Angle with Radius End - SL

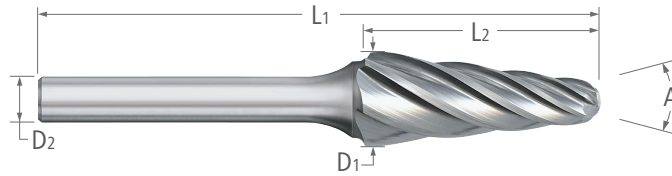


- General purpose burs featuring an include angle with a radius end
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

INCLUDED ANGLE	TOOL	SIZE	LENGTH OF CUT	SHANK DIAMETER	OAL	SINGLE CUT		DOUBLE CUT	
						D ₁	L ₂	D ₂	L ₁
8°	*SL-41	1/8	3/8	1/8	1-1/2	C739433	6.12	C739434	6.12
	*SL-42	1/8	1/2	1/8	1-1/2	C739431	6.12	C739432	6.12
	*SL-42L2	1/8	1/2	1/8	2	C766413	9.05	C766416	9.05
	*SL-42L3	1/8	1/2	1/8	3	C766414	10.05	C766417	10.05
14°	SL-53	3/16	1/2	1/8	2	C739427	13.28	C739428	13.28
	*SL-81	3/16	7/16	3/16	2	C766415	14.58	C766418	14.58
	*SL-1	1/4	5/8	1/4	2	C739446	12.29	C739447	12.29
	SL-1L6	1/4	5/8	1/4	6-5/8	C739444	25.62	C739445	25.62
	SL-2	5/16	7/8	1/4	2-3/4	C739442	23.43	C739443	23.43
	SL-3	3/8	1-1/16	1/4	2-15/16	C739440	16.87	C739441	16.87
	SL-3L6	3/8	1-1/16	1/4	7-1/16	C739438	40.50	C739439	40.50
	SL-4	1/2	1-1/4	1/4	3	C739435	34.38	C739436	34.38
	SL-4L6	1/2	1-1/4	1/4	7-1/4	C739425	49.35	C739426	49.35
	SL-6	5/8	1-5/16	1/4	3-3/16	C739423	54.92	C739424	54.92
SL-7	3/4	1-1/2	1/4	3-3/8	C739421	75.47	C739422	75.47	

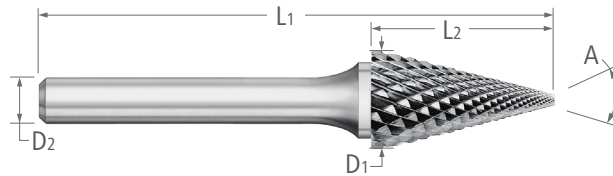
For technical information, see page 353



BURS
Included Angle with Radius End - SL - For Aluminum

BURS

- General purpose burs for aluminum, featuring an included angle with a radius end
- Single cut style provides optimal surface finish
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

INCLUDED ANGLE	TOOL	SIZE	LENGTH OF CUT	SHANK DIAMETER	OAL	ALUMA CUT	
						TOOL #	PRICE
A		D1	L2	D2	L1		
14°	SL-3NF	3/8	1-1/16	1/4	2-15/16	C771445	30.15
	SL-4NF	1/2	1-1/4	1/4	3	C739730	34.53
	SL-5NF	5/8	1-3/16	1/4	3-5/16	C771446	62.83
	SL-6NF	5/8	1-5/16	1/4	3-3/16	C739729	69.55
	SL-7NF	3/4	1-1/2	1/4	3-3/8	C739728	86.42

BURS
Pointed Cone - SM


- General purpose pointed cone style burs
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LOC	INCL. ANGLE	SHANK DIA.	OAL	SINGLE CUT		DOUBLE CUT	
						TOOL #	PRICE	TOOL #	PRICE
	D1	L2	A	D2	L1				
*SM-61	3/32	1/4	10°	3/32	1-1/2	C766247	6.47	C766250	6.47
*SM-41	1/8	11/32	12°	1/8	1-1/2	C739411	6.17	C739412	6.17
*SM-42	1/8	7/16	14°	1/8	1-1/2	C739409	6.17	C739410	6.17
*SM-42L2	1/8	7/16	14°	1/8	2	C766248	9.05	C766251	9.05
*SM-42L3	1/8	7/16	14°	1/8	3	C766249	10.05	C766252	10.05
*SM-43	1/8	5/8	7°	1/8	1-1/2	C739407	6.17	C739408	6.17
SM-53	3/16	1/2	16°	1/8	2	C739401	13.28	C739402	13.28
SM-51	1/4	1/2	22°	1/8	2-1/8	C739403	8.96	C739404	8.96
*SM-1	1/4	1/2	22°	1/4	2	C739419	11.54	C739420	11.54
*SM-2	1/4	3/4	14°	1/4	2	C739417	17.76	C739418	17.76
*SM-3	1/4	1	10°	1/4	2	C739415	12.79	C739416	12.79
SM-4	3/8	5/8	28°	1/4	2-1/2	C739413	17.16	C739414	17.16
SM-5	1/2	7/8	28°	1/4	2-3/4	C739405	24.03	C739406	24.03
SM-6	5/8	1	31°	1/4	2-7/8	C739399	54.03	C739400	54.03

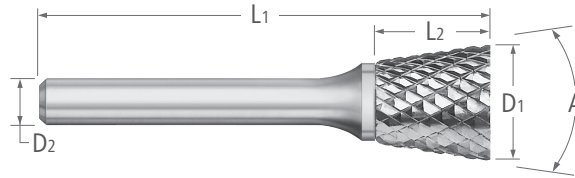
* One Solid Carbide Piece

For technical information, see page 353



BURS

Inverted Taper - SN



- General purpose inverted taper style burs
- Single cut option provides optimal surface finish for most steels, stainless steels, high temp resistant light metals, and cast iron
- Double cut option provides increased operator control and a strong part finish for ferrous and non-ferrous metals
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA

TOOL	SIZE	LOC	INCL. ANGLE	SHANK DIA.	OAL	SE CUT		DOUBLE CUT	
	D ₁		L ₂	A		D ₂	L ₁	TOOL #	PRICE
*SN-61	3/32	1/8	10°	3/32	1-1/2	C766253	6.47	C766258	6.47
*SN-41	3/32	1/8	10°	1/8	1-1/2	C739394	6.17	C766259	6.17
*SN-42	1/8	3/16	10°	1/8	1-1/2	C739392	6.17	C739393	6.17
SN-53	3/16	1/4	10°	1/8	1-3/4	C739388	13.28	C739389	13.28
*SN-81	3/16	1/4	10°	3/16	2	C766254	14.63	C766260	14.63
SN-51	1/4	1/4	10°	1/8	1-3/4	C739390	8.96	C739391	8.96
*SN-1	1/4	5/16	10°	1/4	2	C739397	11.64	C739398	11.64
SN-2	3/8	3/8	13°	1/4	2-1/8	C766255	16.42	C766261	16.42
SN-4	1/2	1/2	28°	1/4	2-1/4	C739395	34.03	C739396	34.03
SN-6	5/8	3/4	18°	1/4	2-1/2	C766256	30.10	C766262	30.10
SN-7	3/4	5/8	30°	1/4	2-3/8	C766257	36.37	C766263	36.37

* One Solid Carbide Piece

BURS SETS

- Multi-piece general purpose bur sets for ferrous and non-ferrous metals
- Double cut
- Provides increased operator control and a strong part finish
- Solid carbide head brazed onto a steel shank
- Precision manufactured in the USA



SET SIZES	# OF PCS. IN SET	DIAMETER	SHANK DIAMETER	CASE TYPE	TYPE	TOOL #	PRICE
SA-42, SA-43, SC-41, SC-42, SD-42, SE-41, SF-42, SG-42, SM-43	9 PCS	1/8	1/8	WOOD	DOUBLE CUT	C739754	89.35
SA-1, SC-1, SD-3, SH-1, SF-3, SA-3, SC-3, SC-5, SF-5, SA-5	10 PCS	-	1/4	METAL	DOUBLE CUT	C747864	168.20

DEBURRING Technical Information

Carbide Burs - Speeds		
Cutting Dia	Suggested RPM	Maximum RPM
1/16	55,000 - 85,000	90,000
1/8	35,000 - 65,000	80,000
3/16	30,000 - 55,000	70,000
1/4	25,000 - 50,000	70,000
5/16	20,000 - 40,000	67,000
3/8	18,000 - 40,000	63,000
7/16	16,000 - 38,000	58,000
1/2	14,000 - 36,000	50,000
5/8	12,000 - 25,000	40,000
3/4	10,000 - 20,000	33,000
1	7,500 - 20,000	25,000

When using double cut: Reduce speeds by 25% approximately
 For stainless steel material: Increase speeds by 50% approximately

Selection By Cut



Single Cut

Provides the best surface finish and largest contact patch on the work piece.

Demands greater operator skill since the single flute direction pulls the bur into the work piece.

Use In - Non-hardened steel <45 Rc, hardened steel >45Rc, stainless steel, non-ferrous light metals, hardened cast. iron >45Rc, High temp resistant metals



Double Cut

Most popular geometry as the dual flute direction reduces the contact patch on the work piece and therefore provides easier operator control while still maintaining a good surface finish.

Use In - Ferrous metals, Non-ferrous metals



Aluminum Cut

These burs employ a coarser flute which results in improved cutting performance for aluminum and aluminum alloys.

Use In - Non-ferrous metals, aluminum alloys, plastics

DECIMAL EQUIVALENTS & TAP DRILL SIZES

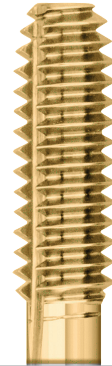
Drill Size	Decimal Inches	Drill Size	Decimal Inches	Tap Size	Drill Size	Decimal Inches	Tap Size	Drill Size	Decimal Inches	Tap Size	Drill Size	Decimal Inches	Tap Size
.97	.0059	.58	.0420		.27	.1440		H	.2660		17/32	.5312	5/8-11
.15mm	.0059	.57	.0430		3.7mm	.1457		6.8mm	.2677		13.5mm	.5315	
.96	.0063	1.1mm	.0433		.26	.1470	3/16-24NS	6.9mm	.2717		35/64	.5469	
.16mm	.0063	1.15mm	.0453		3.75mm	.1476	m4.5x0.75	I	.2720	5/16-24NF	14mm	.5512	m16x2
.95	.0067	.56	.0465		.25	.1495	#10-24	7mm	.2756	m8x1	9/16	.5625	3/8-18NPT
.17mm	.0067	3/64	.0469	#0-80	3.8mm	.1496		J	.2770		14.5mm	.5709	m16x1.5
.94	.0071	1.2mm	.0472		.24	.1520		7.1mm	.2795		37/64	.5781	5/8-18NF
.18mm	.0071	1.25mm	.0492	m1.6x0.35	3.9mm	.1535		K	.2810		15mm	.5906	
.93	.0075	1.3mm	.0512		.23	.1540		9/32	.2812	5/16-32NS	19/32	.5938	3/8-18 NPS PIPE
.19mm	.0075	.55	.0520		5/32	.1562		7.2mm	.2835		39/64	.6094	
.92	.0079	1.35mm	.0531		.22	.1570	3/16-32NS	7.25mm	.2854		15.5mm	.6102	m18x2.5
.2mm	.0079	.54	.0550		4mm	.1575		7.3mm	.2874		5/8	.6250	11/16-16NS
.91	.0083	1.4mm	.0551		.21	.1590	#10-32	L	.2900		16mm	.6299	m18x2.0
.21mm	.0083	1.45mm	.0571	m1.8x0.35	.20	.1610		7.4mm	.2913		41/64	.6406	
.90	.0087	1.5mm	.0591		4.1mm	.1614		M	.2950		16.5mm	.6496	
.22mm	.0087	.53	.0595	#1-64,72	4.2mm	.1654	m5x0.8	7.5mm	.2953		21/32	.6562	3/4-10NC
.89	.0091	1.55mm	.0610		.19	.1660		19/64	.2969		17mm	.6693	
.23mm	.0091	1/16	.0625		4.25mm	.1673		7.6mm	.2992		43/64	.6719	
.24mm	.0094	1.6mm	.0630	m2x0.4	4.3mm	.1693		N	.3020		11/16	.6875	3/4-16NF
.88	.0095	.52	.0635		.18	.1695		7.7mm	.3031		17.5mm	.6890	m20x2.5
.25mm	.0098	1.65mm	.0650		11/64	.1719		7.75mm	.3051	m9x1.25	45/64	.7031	1/2-14NPT PIPE
.87	.0100	1.7mm	.0669		.17	.1730		7.8mm	.3071		18mm	.7087	m20x2.0
.26mm	.0102	.51	.0670	#2-56	4.4mm	.1732		7.9mm	.3110		23/32	.7188	
.86	.0105	1.75mm	.0689	m2.2x0.45	.16	.1770	#12-24	5/16	.3125	3/8-16NC	18.5mm	.7283	m20x1.5
.27mm	.0106	.50	.0700	#2-64	4.5mm	.1772		8mm	.3150		47/64	.7344	1/2-14NPS PIPE
.85	.0110	1.8mm	.0709		.15	.1800		O	.3160		19mm	.7480	
.28mm	.0110	1.85mm	.0728		4.6mm	.1811		8.1mm	.3189		3/4	.7500	
.29mm	.0114	.49	.0730		.14	.1820	#12-28	8.2mm	.3228		49/64	.7656	7/8-9NC
.84	.0115	1.9mm	.0748	m2.3x0.4	.13	.1850		P	.3230		19.5mm	.7677	m22x2.5
.3mm	.0118	.48	.0760		4.7mm	.1850		8.25mm	.3248		25/32	.7812	
.83	.0120	1.95mm	.0768		4.75mm	.1870		8.3mm	.3268		20mm	.7874	m22x2.0
.82	.0125	5/64	.0781		3/16	.1875		21/64	.3281		51/64	.7969	
.32mm	.0126	.47	.0785	#3-48	4.8mm	.1890		8.4mm	.3307		20.5mm	.8071	m22x1.5
.81	.0130	.2mm	.0787		.12	.1890	7/32-32NS	Q	.3320	1/8-27NPT PIPE 3/8-24NF	13/16	.8125	7/8-14NF
.34mm	.0134	2.05mm	.0807	m2.5x0.45	.11	.1910		8.5mm	.3346	m10x1.5	21mm	.8268	m24x3
.80	.0135	.46	.0810		4.9mm	.1929		8.6mm	.3386		53/64	.8281	
.35mm	.0138	.45	.0820	#3-56	.10	.1935		R	.3390		27/32	.8438	
.36mm	.0142	2.1mm	.0827		.9	.1960		8.7mm	.3425		21.5mm	.8465	
.79	.0145	2.15mm	.0846	m2.6x0.45	5mm	.1969	m6x1	11/32	.3438		55/64	.8594	
.38mm	.0150	.44	.0860	#4-36	.8	.1990		8.75mm	.3445	m10x1.25	22mm	.8661	m24x2
1/64	.0156	2.2mm	.0866		5.1mm	.2008		8.8mm	.3465		7/8	.8750	1-8NC
.4mm	.0157	2.25mm	.0886		.7	.2010	1/4-20	S	.3480	1/8-27NPS PIPE	22.25mm	.8760	
.78	.0160	.43	.0890	#4-40	13/64	.2031		8.9mm	.3504		22.5mm	.8858	m24x1.50
.42mm	.0165	2.3mm	.0906		.6	.2040		9mm	.3543	m10x1.00	57/64	.8906	
.44mm	.0173	2.35mm	.0925		5.2mm	.2047		T	.3580		23mm	.9055	
.45mm	.0177	.42	.0935	#4-48	.5	.2055		9.1mm	.3583		29/32	.9062	3/4-14NPT PIPE
.77	.0180	3/32	.0938		5.25mm	.2067	m6x0.75	23/64	.3594		59/64	.9219	
.46mm	.0181	2.4mm	.0945		5.3mm	.2087		9.2mm	.3622		23.5mm	.9252	
.48mm	.0189	.41	.0960		.4	.2090	1/4-24	9.25mm	.3642		15/16	.9375	3/4-14 NPS 1-14 NF
.5mm	.0197	2.45mm	.0965		5.4mm	.2126		9.3mm	.3661		24mm	.9449	m27x3
.76	.0200	.40	.0980		.3	.2130	1/4-28	U	.3680	7/16-14NC	61/64	.9531	
.75	.0210	2.5mm	.0984	m3x0.5	5.5mm	.2165		9.4mm	.3701		24.5mm	.9646	
.55mm	.0217	.39	.0995		7/32	.2188		9.5mm	.3740	m11x1.50	31/32	.9688	
.74	.0225	.38	.1015	#5-40	5.6mm	.2205		3/8	.3750		25mm	.9843	m27x2
.6mm	.0236	2.6mm	.1024		.2	.2210		V	.3770		63/64	.9844	1-1/8-7NC
.73	.0240	.37	.1040	#5-44	5.7mm	.2244		9.6mm	.3780		1	1.0000	
.72	.0250	2.7mm	.1063		5.75mm	.2264		9.7mm	.3819		25.5mm	1.0039	
.65mm	.0256	.36	.1065	#6-32	.1	.2280		9.75mm	.3839		1-1/64	1.0156	
.71	.0260	2.75mm	.1083		5.8mm	.2283		9.8mm	.3858		26mm	1.0236	
.7mm	.0276	7/64	.1094		5.9mm	.2323		W	.3860		1-1/32	1.0312	
.70	.0280	.35	.1100		A	.2340		9.9mm	.3898		26.5mm	1.0433	m30x3.5
.69	.0292	2.8mm	.1102		15/64	.2344		25/64	.3906	7/16-20	1-3/64	1.0469	1-1/8-12NF
.75mm	.0295	.34	.1110		6mm	.2362	m7x1	10mm	.3937	m12x1.75	1-1/16	1.0625	
.68	.0310	.33	.1130	#6-40	B	.2380		X	.3970		27mm	1.0630	
1/32	.0312	2.9mm	.1142	m3.5x0.6	6.1mm	.2402		Y	.4040		1-5/64	1.0781	
.8mm	.0315	.32	.1160		C	.2420	1/16-27 NPT PIPE	13/32	.4062		27.5mm	1.0827	
.67	.0320	3mm	.1181		6.2mm	.2441		Z	.4130		1-3/32	1.0938	
.66	.0330	.31	.1200		D	.2460		10.5mm	.4134	m12x1.25	28mm	1.1024	m30x2.0
.85mm	.0335	3.1mm	.1220		6.25mm	.2461		27/64	.4219	1/2-13	1-7/64	1.1094	1-1/4-7NC
.65	.0350	1/8	.1250	5/32-32NS	6.3mm	.2480		11mm	.4331		28.5mm	1.1220	
.9mm	.0354	3.2mm	.1260		E	.2500	1/16-27 NPS PIPE	7/16	.4375	1/4-18 NPT PIPE	1-1/8	1.1250	
.64	.0360	3.25mm	.1280		1/4	.2500		11.5mm	.4528		1-9/64	1.1406	
.63	.0370	.30	.1285	5/32-36NS	6.4mm	.2520		29/64	.4531	1/4-18 1/2-20	29mm	1.1417	
.95mm	.0374	3.3mm	.1299	m4x0.70	6.5mm	.2559		15/32	.4688		1-5/32	1.1562	1-11-1/2NPT PIPE
.62	.0380	3.4mm	.1339		F	.2570	5/16-18NC	12mm	.4724	m14x2	29.5mm	1.1614	
.61	.0390	.29	.1360	#8-32	6.6mm	.2598		31/64	.4844	9/16-12	1-11/64	1.1719	1-1/4-12NF
1mm	.0394	3.5mm	.1378		G	.2610		12.5mm	.4921	m14x1.5			
.60	.0400	.28	.1405		6.7mm	.2638		1/2	.5000				
.59	.0410	9/64	.1406		17/64	.2656		13mm	.5118	m14x1.25			
1.05mm	.0413	3.6mm	.1417		6.75mm	.2657	m8x1.25	33/64	.5156	9/16-18			



Increases cutting tool performance in terms of wear resistance, abrasion prevention, corrosion, and oxidation at high temperatures.

PREMIUM PVD COATINGS

PVD COATINGS



	AlCrO-MAX	AlTiN	TiCN	ZrN	TiN
Color	Gray/Charcoal	Gray/Blue	Gray/Silver	Light Gold	Gold/Yellow
Materials	Ferrous materials: high-temp alloys, stainless steels, alloy steels, cast iron, high temp. nickel base alloys, titanium alloys, and inconel	Ferrous materials: high-temp alloys, stainless steels, alloy steels, cast iron, high temp. nickel base alloys, titanium alloys, and inconel	Ferrous materials: stainless steels and a wide variety of other materials where AlTiN cannot be used	Non-Ferrous: aluminum, brass, bronze	Non-Ferrous
Application/ Benefits	<ul style="list-style-type: none"> High-performance coating with a titanium top nano-layer for higher abrasion resistance Max temperature: 950°C Post-polish treatment to maximize chip evacuation at high speeds and feeds 	<ul style="list-style-type: none"> Excellent for milling, drilling, and tapping Excellent high temperature resistance and hardness Excellent in dry machining 	<ul style="list-style-type: none"> Used in milling, drilling, and tapping 	<ul style="list-style-type: none"> Higher hardness adds lubricity and abrasion resistance Prevents edge build up in softer gummy alloys Allows for higher speed and feed rates Prolongs tool life 	<ul style="list-style-type: none"> General purpose coating used for milling, drilling, and tapping with lower cutting speeds

FINISHES



Black Oxide Finish

Acts as a solid lubricant and also retains liquid lubricant at cutting edges prevents chip welding, reduces friction and acts a thermal insulator.



Nitride/Steam Oxide Finish

Combines the advantages of the lubricity of oxide with the abrasion resistance of nitride.



Black & Gold Oxide Finish

Resists corrosion and breakage while increasing lubricity. This finish is not prone to chipping and flaking.



Gold Oxide Finish

Extends tool life, and improves lubricity, and reduces grinding stresses.

PREMIUM QUALITY

CUTTING TOOLS

FOR PRECISION

MACHINING

FALL 2023


PIONEER[®]
T O O L

Exclusively Distributed by BlackHawk Industrial



BLACKHAWK[®]
I N D U S T R I A L
BIG ENOUGH TO SERVE | SMALL ENOUGH TO CARE

10810 EAST 45TH ST., STE 100, TULSA, OK 74146

www.bhid.com | 855-610-1001 | questions@bhid.com



ENDMILLS | DRILLS | REAMERS | TAPS | BURRS